UCDAVIS HEALTH

DAVIS TOWER 1835H AND 1835I X-RAY BRIDGING DOCUMENTS

UCDH PROJECT NO. 9558190

JUNE 27, 2025

ARCH | NEXUS

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1.0 ARCHITECTURAL

1.0 ARCHITECTURAL SCOPE OF WORK

1.1 PROJECT OVERVIEW

A summary of the overall work for the Design-Build team is as follows, this summary is not exhaustive, and the final scope of the project is not limited to this summary:

1. Main Project/Imaging Room Requirements:
    A. This equipment replacement project is being procured as a Design-Build project, and these criteria documents show the key elements of the project to provide a basis for scope and anticipated milestones.
    B. The existing General Radiology rooms 1835H and 1835I on the first floor of the Davis Tower (DT) building will receive new Phillips Radiography 7300 C Pro VS Equipment, as detailed in the preliminary equipment drawings (Exhibit 5.2).
    C. You may see past plan references calling 1835H the Topography room and 1835I the Chest Room. These rooms are no longer dedicated so specifically since the imaging technology no longer requires a dedicated room for the imaging type.
    D. The project will utilize the recently renovated 1835J as a guide for this project. This record set for HCAI project #S181275-34-00 has been provided as Exhibit 5.5 for your reference, though please note lessons learned have been incorporated into these criteria documents.
        a. Additionally, the Design-Build team will need to consider the current code requirements.
    E. There will be mechanical, electrical and med gas work to accommodate these new imaging systems. The rooms will also include work to refresh the floor, wall, window and ceiling finishes, doors to be replaced, lighting, millwork and associated plumbing as detailed in the plans.
2. Control Area: Along with this main room's equipment replacement the control room will need to be replaced to accommodate the new imaging system. This will include the replacement of the existing millwork, and a refresh for the floor, wall and ceiling finishes. New lighting will be provided in the existing soffit.
3. Accessibility upgrades: The current area imaging suite has already undergone extensive toilet and locker room upgrades, these recent upgrades along with upgrading to accessible sinks within these imaging rooms should suffice to cover these requirements.
4. Milestones/Phasing: The work shall be completed in two milestones in terms of the TIO, phases in construction terms. The Design-Build team should complete one room before taking down the second.
5. Hours of Operation and UCDH Coordination:
    A. This work will require the more sound intrusive work to occur during off hours, see bidbook for further schedule information.
    B. Coordination and compliance with UCDH policies for review milestones, RFS, ICRA, etc., shall be part of the scope of work by the Design-Build team. See schedule for design milestone targets, the Design-build team shall schedule these reviews/submit these items to efficiently hit the target milestones laid out in the schedule.

1.2 PERMITTING

1. HCAI/OSHPD is the Authority Having Jurisdiction (AHJ) over hospital construction in the state of California. The Design-Build team shall be responsible for obtaining the permit and all approvals from HCAI and schedule the necessary time to meet the target milestones as laid out in the schedule.
2. As building codes have not significantly changed since 1835J was completed and we anticipate this project to be submitted prior to the next code cycle change, a preliminary meeting with HCAI was not completed.

1.3 SCHEDULE

1. The target milestones provided in the bidbook are intended as reference points to assist teams in developing their own detailed schedules. While the key calendar dates have been established within this RFP and must be met or exceeded, please note that the Design-Build team's ability to effectively manage and adhere to the schedule will be a factor in the overall evaluation.

1.4 ARCHITECTURAL SCOPE OF WORK

BACKGROUND:
The imaging area underwent an upgrade recently and these rooms were left out of that upgrade despite the end of life being 2025. This general radiology area contains 8 imaging rooms with a central control and tech work area. The Davis Tower was completed in 1995 with the latest renovation to this area, the referenced 1835J project in 2020.

SCOPE OF WORK WITHIN IMAGING ROOMS:

1. Equipment Removal:

   A. Phillips will remove the existing imaging equipment.
   B. UCDH will remove desired FF&E items.
   C. Design-Build team to coordinate demolition and removal of the remaining items not noted for reuse.
   D. Note that the UCDH IOR's may not release the notice of construction start until after this removal activity.

2. Demolition Scope:

   A. Remove existing millwork, including control area millwork and associated sink, soffits above to remain.
   B. Remove flooring and ceiling tiles, prep room for new finishes.
   C. It is the intent to retain the existing ceiling Unistrut structure for reuse.
   D. Remove any remaining FF&E items.
   E. Remove existing double doors and associated hardware, prep frames for new hardware and doors.

3. New Work Scope:

   A. Floor: Provide new seamless flooring with integral cove base and flooring pattern to match 1835J.
   B. Walls:

      I. See Exhibit 5.4 for Lead Shielding requirements and associated upgrades to the southern walls D and J at the new Bucky locations.
      II. Wall finishes to include paint and an Acrovyn wall protection super graphic or other large design element to meet User's request for a pediatric-friendly environment that can also hold adults' interest.
      III. Imaging Room Millwork: Install new plastic laminate millwork with storage to properly accommodate binders and foam blocks. Provide an accessible sink and solid surface countertop with integral back/side splashes and sink.
      IV. Control Area Millwork: Install new plastic laminate millwork with storage for computer equipment in control area, provide solid surface top with grommets or ducts as required to support new Phillips equipment. Angle or otherwise ease edges of desk to minimize traffic flow hazards and allow for the footprint of the new generator cabinet (ME).

         a. Provide or adjust existing in-wall blocking to accommodate new millwork layouts.

      V. Provide backing, anchorage or floor stops where required to tether new equipment, wall ducts, etc.

         a. Note apron rack locations at control room wall.
         b. Note concrete construction of deck above, see structural narrative/drawings, for the hanging of any ceiling suspended items.

      VI. Install corner guards at outside corners in room and control area. Include wall protection where chairs or other equipment may be stored against walls.

   C. Doors: Provide new Acrovyn doors, frame protection and all associated hardware to restore doors to the same manual functions with the required upgrades to meet UCDH standards such as full-length hinges, etc. Please also note these doors are currently lead-shielded and the new doors shall meet the minimum in the shielding report.
   D. Windows: Existing control room windows are to remain, repaint frames and provide a budget to repair or replace existing blinds.
   E. Ceilings: Replace existing ceiling tiles and light fixtures with new. Paint all existing drywall soffits/ceilings.

      I. Include decorative graphic printed acoustical ceiling tiles where indicated on reflected ceiling plan.

   F. Equipment: Coordinate install of new Phillips equipment, including above ceiling, below slab, in/on-wall and anchorage as noted in their drawings to support this new equipment.

      I. It should be noted that the existing imaging equipment includes a bucky on a floor rail system, this type of system is no longer offered by Phillips so the stationary bucky as detailed will be provided.
      II. It should also be noted that room 1835I includes a mobile table instead of the traditional stationary table, this matches the current condition as this room is utilized for gurney/bed bound patients.

   G. Furniture: Coordinate installation with UCDH for new task and side chairs for use in the rooms.

1.5 SCOPE OF WORK IN THE BASEMENT

The nature of imaging equipment requires anchorage and electrical/communications infrastructure so it is expected that each room will require below slab work. The space below is occupied and work will need to be done in containment units after hours.

1. Anchorage of patient table in 1835H.
2. New conduit runs as required to support new equipment, reuse existing runs where possible.

2.0 STRUCTURAL

2.0 STRUCTURAL SCOPE OF WORK

2.1 STRUCTURAL OVERVIEW

The upgrade is to occur on the general radiology Rooms 1835H & 1835I, on the first (ground level) floor of main tower building. These two rooms are located at the intersection between grid lines G and G.5 and between grid lines 8 & 9. The original building drawings dated December 09, 1994, were provided to understand the framing at the first and second level.

The first level floor structure is a 6" thick normal weight reinforced concrete over 3"x18Ga metal deck spanning 8'-3" to wide flange beams spanning 33'-0".

The second level floor structure is a 3¼" thick light weight reinforced concrete over 2"x18Ga metal deck spanning 8'-3" to wide flange beams spanning 33'-0".

A rated suspended ceiling is present at level 1 ceiling in both rooms that was part of the original building construction. This ceiling is supported from threaded rods hanging from double channel spanning level 2 floor beams. The ceiling is made up of double Unistrut P5501 spaced at 2'-2" OC, that are flush with the T-bar ceiling.

2.2 PROPOSED SUSPENDED EQUIPMENT

The new equipment supplier/manufacturer determined that the existing ceiling grid system could be reused for the new suspended equipment. This was based on the new equipment rails attachment point matching the existing Unistrut spacing.

The loading of the suspended equipment falls within the loading criteria of the current ceiling grid system.

2.3 OTHER STRUCTURAL CONSIDERATIONS

New floor mounted equipment will require anchorage. Typical expansion type anchors are anticipated. Some new equipment is gravity supported on the floor and will be braced by the metal stud wall.

Wall strengthening may be required, and connections to the top and bottom of the stud at heavy cabinets or at braced equipment may be needed. New backing plates should be assumed for portions of the room at all new wall mounted equipment and furnishings.

A full height metal stud post shall be added at the end of the control station low wall to brace the low wall for attachment of the new X-ray jackets holder.

2.4 MEP & UTILITIES

Special seismic certification will be required for new equipment such as UPS and any new panel boards or control panels, or mechanical units. New and existing utilities will likely require bracing where it is in the project area on the first floor. All new utilities will require seismic bracing.

3.0 MECHANICAL & PLUMBING

3.0 MECHANICAL AND PLUMBING SCOPE OF WORK

3.1 PROJECT OVERVIEW

The scope of this project involves replacing the existing radiology equipment with new Philips equipment in Topography Room 1835H and Chest Room H1835I. The existing Air Handling Unit (AHU), Constant Air Volume (CAV) boxes, ductwork, and registers will be retained and reused.

The two hand-wash sinks within these rooms will be replaced with new sinks at the same locations. The project will reuse the existing medical gas outlets in both rooms, while the existing zone valve box serving the designated area will also be retained and reused.

3.2 MECHANICAL SCOPE OF WORK

EXISTING HVAC SYSTEM CONDITION

The construction area is currently served by the existing AHU-1.1/1.2 system located on the second floor of the tower. There are two 100% supply AHUs (AHU-1-1S and AHU-1-2S) and two exhaust AHUs (AHU-1-1E and AHU-1-2E) within the system. The AHUs are equipped with emergency power connections, pre- and final filters (supply AHUs only), and are in full compliance with HCAI requirements. They will be retained and reused in their current configuration as part of this project.

Topography Room 1835H is currently served by an existing CAV box featuring an 8” inlet, a 2-row reheat coil, and two high-side wall supply registers. The CAV box is located on the second floor (interstitial) above. The originally designed supply airflow is 340 CFM total. The ceiling exhaust grille is located at the control area of the room, with an originally designed exhaust airflow of 340 CFM.

Chest Room H1835I is also served by an existing CAV box featuring an 8” inlet, a 2-row reheat coil, and two high-side wall supply registers. The CAV box is located on the second floor above. The originally designed supply airflow is 350 CFM total. The ceiling exhaust grille is located at the control area of the room, with an originally designed exhaust airflow of 350 CFM.

LOAD CALCULATION AND VENTILATION

New Philips X-Ray equipment will be installed in both rooms. According to the manufacturer’s cutsheet, the equipment load for each system is 3,471 BTU/H. The equipment allowed temperature and humidity ranges are 64□F-86□F, 30%-75% RH. The indoor temperature is set at 72□F, which meets both equipment and Table 4-A requirements. A load calculation results indicate a minimum of 310 CFM of supply air is required to handle the indoor load with the new equipment. Mechanical Engineer of Record will be responsible for the final design airflow. We believe the final airflow should be 330 CFM supply air for 1835H, and 320 CFM supply air for 1835I. The existing system has sufficient capacity to handle the new equipment load and meet current code requirements.

NEW MECHANICAL SCOPE

No modifications to the existing HVAC system are anticipated under this project. Upon project completion, the airflows within the two rooms are to be balanced as designed by the Mechanical Engineer of Record (recommended 330 CFM in Room 1835H and 320 CFM in Room 1835I) to meet ventilation and load requirements. A pre-measurement (air balance) report was generated recently, and it is attached to the bridging documents showing the recorded airflow at all diffusers and grilles within the project spaces.

DEHUMIDIFICATION

The equipment required humidity range is 30%-75% RH. Per the record drawing, the leaving coil temperature of the AHU is 53°F. When the supply air enters the room and increases to 72°F, the relative humidity will be around 52%. Since there is no significant latent load within the room, when the AHU is under normal conditions, the relative humidity within the room will not exceed 75%, and no special dehumidification method or control is needed.

HUMIDIFICATION

The existing AHU is a 100% outside air system. Based on ASHRAE weather data for the Sacramento area, the total hours below 40F is 507 hours. For these 507 hours, 330 hours are from 1 am to 8 am, 53 hours are from 9 am to 4 pm, and 96 hours are from 5 pm to 0 am. The following is a table listing information from the ASHRAE weather data.

	1am~8am	9am~4pm	5pm~0am	Total
Total Hours Below 30F	28	1	1	30
Total Hours Below 35F	112	12	22	146
Total Hours Below 40F	330	53	96	507

The humidification hours are only 5.7% of the total 8760 hours of a year, and most periods are during nighttime. There is no existing humidifier serving the current X-ray rooms. A new humidifier is not recommended; however, this will need to be approved by UCDH.

3.3 PLUMBING SCOPE OF WORK

Each room currently contains one hand-wash sink with foot pedals. These two sinks will be removed and replaced. New sinks will be counter-mounted and equipped with gooseneck sensor faucets. The product preferred by UCDH is specified below:

See architectural scope for integral solid surface sink. Include “Chicago” model 116.1103.AB.1T gooseneck sensor faucet (1.5 GPM), including a hard-wired transformer and thermostatic mixing valve.

The Topography Room 1835H contains (2) oxygen wall outlets, (2) medical air outlets, and (2) medical vacuum inlets, and the Chest Room H1835I contains (1) oxygen wall outlets, (2) medical air outlets, and (2) medical vacuum inlets. In H1835I, one medical air outlet and one medical vacuum inlet are covered with a cover plate. An existing zone valve box is located in the adjacent corridor and serves the two rooms within the construction area, as well as six other imaging rooms outside the construction area. Existing pressure sensors are located on the patient side and connect to an area alarm panel.

The existing medical gas system complies with NFPA 99-21, and the outlets exceed the requirements of the 2022 CBC Table 1224.4.6.1. The medical gas outlets within the construction area may be reused without modification or replaced with new outlets and relocated per the owner's request. The existing cover plate over outlets in H1385I is to be removed, and the medical air and vacuum behind it are to be tested and verified by a medical gas certifier.

4.0 ELECTRICAL

4.0 ELECTRICAL SCOPE OF WORK

4.1 OVERVIEW

The following narrative outlines the proposed electrical and low voltage work associated with upgrading the existing X-Ray equipment in rooms 1835H & 1835I on the first floor of the Davis Tower.

Recently UCDH upgraded the adjacent room 1835J. New project for rooms 1835H and 1835I should match design intent for room 1835J.

4.2 EXISTING CONDITIONS

POWER
Rooms 1835H and 1835I are currently served by Normal and Critical branch panels located in second floor Electrical Room #2761 (C-Riser).

The existing X-ray equipment for both rooms are fed via the 480/277V distribution panel 'N2HDC1'. Both rooms are fed via a 125A/3P circuit breaker at the distribution panel that is choked down via a flush mounted 60A/3P circuit breaker disconnect at the respective control desks.

Normal panel 'N2LC1' and critical panel 'C2LC1' serve the existing receptacles within the rooms. Panel 'N2LC1' has (4) spare circuit breakers, panel 'C2LC1' does not have additional spare breakers.

LIGHTING
The project area is currently served by Normal and Critical branch lighting and has a mix of 277V and 120V fixtures. Perimeter downlights as well as the control desk and under cabinet lights are fed via 120V panel 'N2CL3'. Normal and Critical 277V panels 'N2CH1' and 'C2HC1' serve the light fixtures in the center of the rooms above X-ray equipment.

TELECOMMUNICATIONS
Existing data outlet located at Control desk. There are existing vertical and horizontal ducts for imaging cable distribution at Control desks. It is assumed that second floor Telecom Room #2763 serves the rooms within area of work.

4.3 PROPOSED NEW WORK

Refer to Architectural narrative for phasing of new work.

POWER
For the new X-ray equipment, reconnect to the existing 480/277V distribution panel 'N2HDC1'. The distribution panel has capacity to accommodate the updated X-ray equipment. Power quality shall be confirmed to meet Phillips equipment requirements.

Remove and replace existing receptacles in the same location around the perimeter of the rooms. Connect receptacles to existing circuits. No additional circuits are anticipated to be required.

See mechanical narrative for recommended upgrades to the mechanical system. New electrical work will also include providing power for new and/or upgraded mechanical equipment serving X-Ray rooms.

Design Build entity to design and provide temporary construction power. Coordinate requirements with electrical contractor during design.

LIGHTING
New lighting to match adjacent room 1835J. Provide 2'x4' lensed fixtures in center of room with downlights around perimeter and at control desk. Provide under cabinet lighting at sink. Remove and replace X-Ray warning lights outside of rooms. New fixtures shall be energy-efficient LED type.

Provide photometric calculations for new lighting layouts. Illumination levels shall be per IES recommendations.

Lighting controls shall be n-Light.

Provide temporary construction lighting as required. Coordinate requirements with electrical contractor during design.

TELECOMMUNICATIONS
Replace data outlets at control desk for new equipment layout. All new data outlets and cabling shall be per UCDMC IT Standards and coordinated with a UCDMC IT representative. Provide new J-hooks from workstation to cable tray distribution as required. All penetrations thru fire-rated walls and partitions shall use appropriately sized EZ-Path device, provide UL rated assembly where required.

NURSE CALL
The existing staff emergency station / code blue device to remain in both rooms.

4.4 RISKS AND RECOMMENDATIONS

At the time of Criteria Documentation, Phillips had submitted room specific drawings for architectural but not electrical. This narrative and the associated drawings are based on room specific architectural drawings, but typical electrical drawings. Coordinate all new work with final, room specific, electrical drawings from Phillips.

The current panel schedules for all panels do not completely match the record drawings. Thus, load analysis will need to be completed for the panels within the project area to confirm sufficient capacity for additional loads. Project to be responsible fro updating the drawings to match existing.

Coordination studies will need to be completed for all new and existing repurposed circuit breakers on the emergency branches of power per HCAi PIN 70.

Short Circuit Current analysis needs be completed for new work to confirm new equipment disconnects are properly rated to withstand the available fault current.

5.0 EXHIBITS

5.1 FUNCTIONAL PROGRAM

EXECUTIVE SUMMARY

1. Purpose of Project

This equipment replacement project will remove existing antiquated Phillips imaging equipment in rooms 1835H and 1835I. Replace with new Phillips radiology imaging equipment, remaining a Class 1 General Radiology room. Upgrade equipment in associated Control Areas aligning those to contain the generator cabinet (ME) as 1835H does now. General upgrades to the ceiling, wall, millwork and floor finishes throughout these rooms to accommodate the new equipment, matching adjacent recently upgraded room 1835J and adjustments to the millwork to provide an accessible sink. Construction includes but is not limited to lead shielding, finishes, casework, furniture, equipment anchorage, reuse of overhead radiology equipment supports including Unistrut and ceiling systems, floor slab cutting and patching, and modification to mechanical, plumbing, and electrical systems.

This project will not change the current licensed bed or services provided.

2. Project Type and Size

This is an equipment replacement project for two (2) Class 1 General Radiology rooms within the existing Davis Tower that is classified as a general acute-care hospital. These rooms are in the general radiology area that consists of 8 imaging rooms with a central control and tech work area. This is one part of the larger imaging department, which is located on the 1st floor of the hospital.

Room 1835H is 346 square feet in total, and room 1835I is 335 square feet for a total project area of 681 square feet.

This project will require securing of new ceiling hung items to the reinforced slab above and minor penetrations for mechanical, plumbing and electrical through the reinforced slab below.

3. Construction Type/Occupancy and Building Systems

Type II construction, I-2 occupancy to remain. MEP systems will require minor upgrades and repairs to support the new imaging systems. Fire sprinkler system will be maintained with minor changes to the head routing to accommodate the new ceiling tiles.

FUNCTIONAL PROGRAM DETAIL

1. Purpose of Project.

This project is primarily to upgrade the imaging equipment with the newest technology to better serve the patients and to provide consistency amongst the general radiology rooms. The equipment has reached the end of its service life and will not be supported by the manufacturer. Secondarily, updating of the finishes for this area due to normal wear and tear.

2. Project Components and Scope

The scope of work within the Imaging Department entails replacement of the imaging equipment in rooms 1835H and 1835I including their control areas. The existing ceiling support system will be reutilized for this new equipment. The antiquated system has a bucky on a travelling track, as new systems no longer require this set up the bucky will be stationary to match the adjacent general radiology rooms. This change requires an upgrade to the lead shielding at the south walls. The remaining walls are to be maintained per the report provided by client's physicist, see attached Exhibit. New flooring, ceiling tiles and wall finishes are included along with necessary anchorage and tethering for new equipment and support items.

The millwork containing the sink will be upgraded to provide an accessible sink within the imaging rooms. The millwork in the control area will also be replaced to accommodate the new generator cabinets (ME).

The existing doors and door hardware is also on their final journey as such the doors and their associated hardware will be replaced to match the new campus standards. Frames are to remain but frame protection will be provided.

Phasing will be such that one room will be completed before the other is taken down, completing this project in two milestones.

The imaging volumes will not be altered with this project.

3. Indirect Support Functions

Staffing levels are not affected by this work hence no additional support spaces are necessary.

4. Operational Requirements

Construction will be sequenced so that seven (7) of the eight (8) imaging rooms will be functional at all times. Barriers will be constructed for each milestone to maintain isolation from construction activities per each milestone's UCDH ICRA plan. No other operational changes are required by this project.

5. Environment of Care Requirements

A. Delivery of Care Model

Providing imaging spaces with consistent, up to date and repairable equipment is essential to our success in providing exceptional and compassionate care. It will support teamwork and improve the patient care experience, improve utilization of resources and provide better patient outcomes.

B. Patients, Visitor, Physicians and Staff Accommodation and Flow

Unchanged. Temp barriers will be constructed to maintain the UCDH required 6' clear paths for patients and visitors.

C. Building Infrastructure and Systems Design Criteria

Unchanged.

D. Physical Environment

Unchanged with enhancements to the overall aesthetic of the room to provide a more calming diagnostic environment aimed at pediatric patients but enjoyed by all. See interior design concept for further description.

6. Architectural Space and Equipment Requirements

A. Space List and Equipment

No changes to the number of spaces, their area or the overall building area. The existing imaging equipment will be replaced with new Phillips Radiography 7300 C Pro VS equipment and associated accessories. The balance of the fixture, furniture and equipment in the room will also be upgraded as many items are at the end of life, see floor plans and elevations for these requirements.

B. Area

No changes to the number of spaces, their area or the overall building area.

7. Technology Requirements

No changes are anticipated to the existing building system. Local changes to align conduit and connection locations and service with new equipment will be required.

8. Short and Long-Term Planning Considerations

A. Future growth

This project anticipates a 7-year timeline when major hospital additions are planned. The entire imaging department is slated to move to the new addition at that time.

B. Impact on existing adjacent facilities

While no long-term impact is expected, temporary interruptions will take place and are accounted for in the projected milestones.

C. Impact on existing operations and departments

None. The displaced procedures will be absorbed within the existing capacity of the remaining 7 rooms and portable imaging during the short duration of this project.

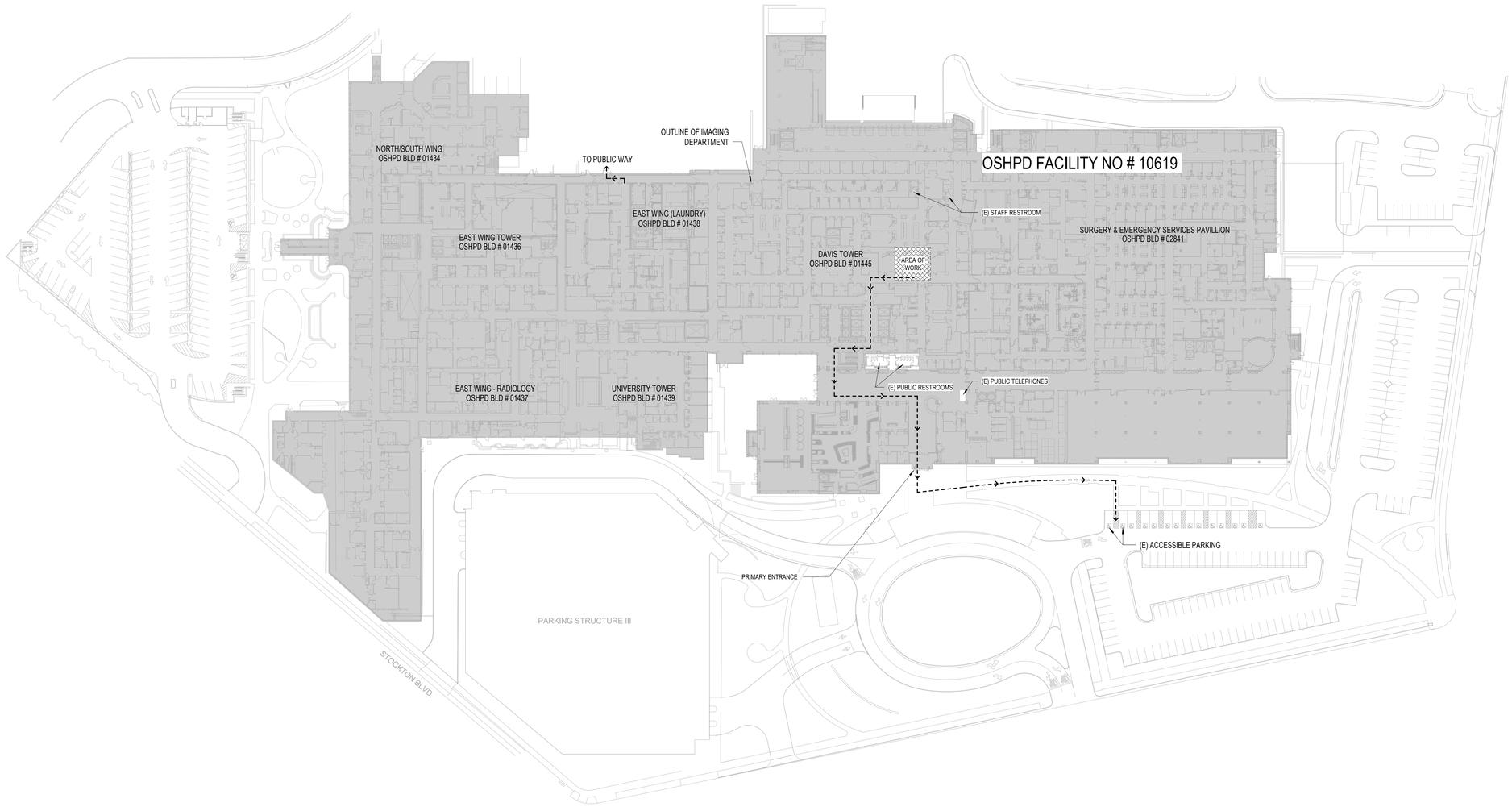
D. Flexibility

An increase in flexibility is anticipated with this project as the equipment capabilities will align across rooms, making training and staffing more approachable.

5.2 DRAWINGS

SITE PLAN LEGEND

- BUILDING W/ AREA OF WORK
- BUILDING NOT IN SCOPE OF WORK
- (E) ACCESSIBLE PATH OF TRAVEL



A6 / G100 **OVERALL BUILDING EXITING PLAN**
1" = 50'-0"

N

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STAMP

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DAVIS TOWER 1835H AND 1835I
X-RAY BRIDGING DOCUMENTS
2315 STOCKTON BLVD,
SACRAMENTO, CA 95817

#	Date	Revision

PROJECT PROCUREMENT

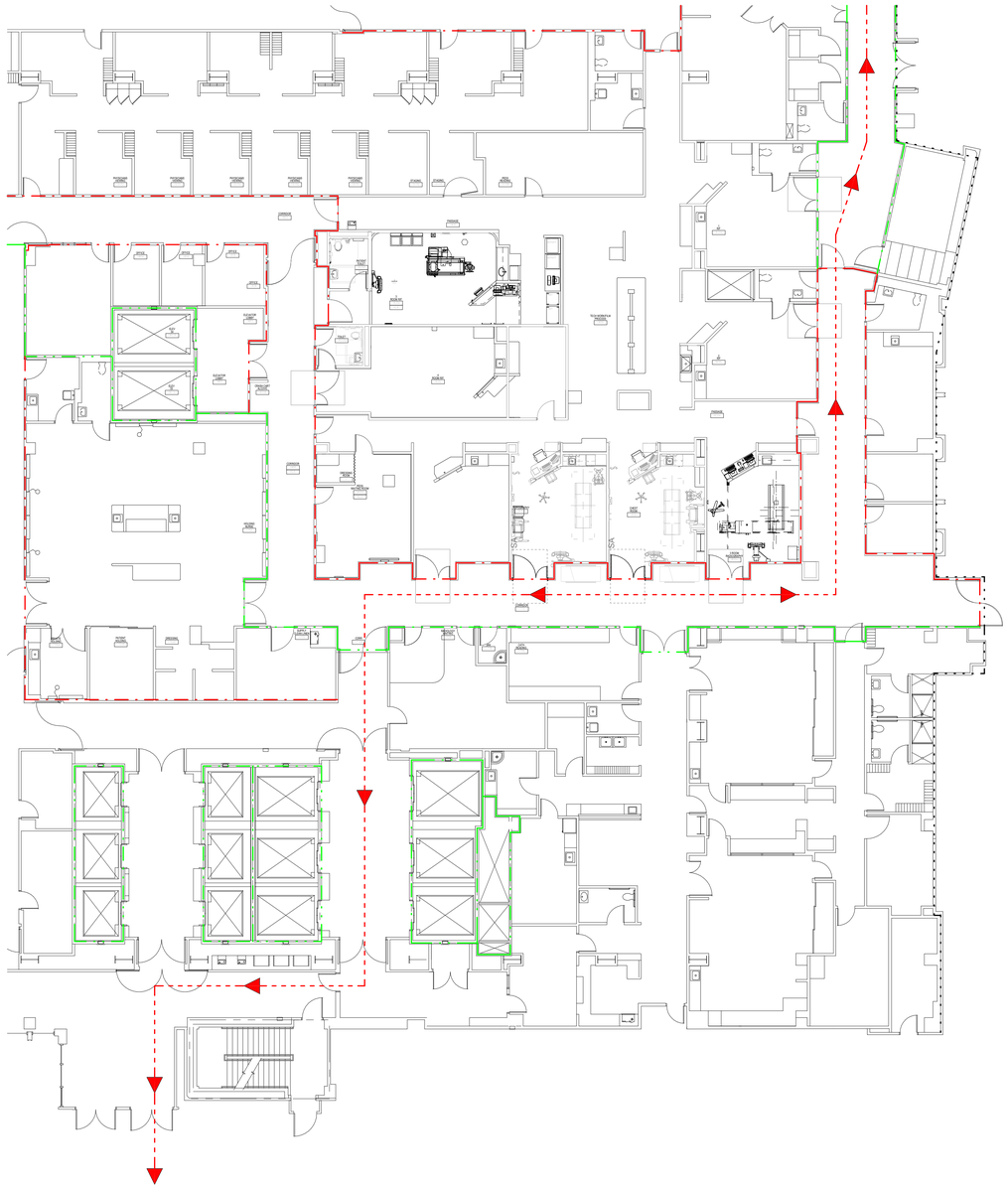
NEXUS PROJ. #: 25011
CHECKED BY: ML/KS
DRAWN BY: SR
DATE: 6.27.25

AGENCY APPROVAL

OVERALL BUILDING EXISTING PLAN

G100

Autodesk Docs://25011 UCDH X-ray Criteria/ARCH_25011 UCDH X-Ray Criteria_24_Existing.rvt
6/27/2025 6:09:36 PM



A6 G101 **LEVEL 01 - OCCUPANCY & EXITING PLAN**
3/32" = 1'-0"

LIFE SAFETY LEGEND

SMOKE BARRIER WALLS:

SUBDIVIDE FLOOR INTO SMOKE COMPARTMENTS RESISTS FIRE AND SMOKE SPREAD (22,500 SF MAX).

WALL CONSTRUCTION:
1 HOUR FIRE-RESISTANCE RATING.

DOORS:
20 MIN. RATED (ISC, IBC) S-LABEL.

FIRE BARRIER WALLS (1 HOUR):

SEPARATE STORAGE AREAS FROM ALL OTHER AREAS AND SPACES.

WALL CONSTRUCTION:
1 HOUR FIRE-RESISTANCE RATING.

DOORS:
45 MIN. RATED (ISC, IBC).

FIRE BARRIER WALLS (2 HOUR):

HAZARDOUS AREA & OCCUPANCY SEPARATION

WALL CONSTRUCTION:
2 HOUR FIRE-RESISTANCE RATING.

DOORS:
90 MIN. RATED (ISC, IBC).

GENERAL NOTES - REGULATORY PLANS

A. MAXIMUM EXITING DISTANCES ARE NOT CHANGED BY THIS PLAN.

EXITING LEGEND

PATH OF TRAVEL

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#	Date	Revision

PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
CHECKED BY: ML/KS
DRAWN BY: SR
DATE: 6.27.25

AGENCY APPROVAL

LEVEL 01 EXITING AND OCCUPANCY PLAN

G101

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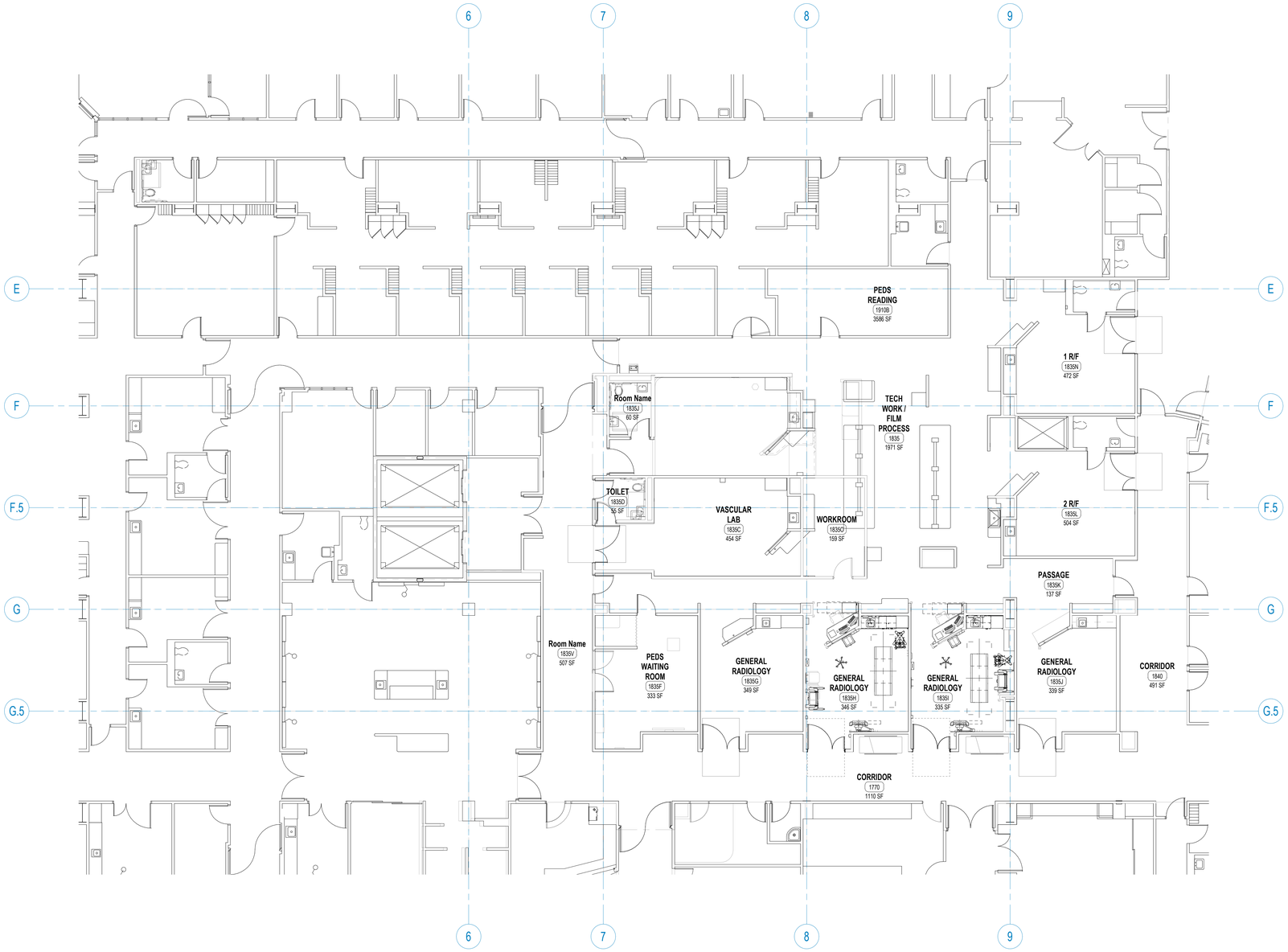

1 A101 **LEVEL 01 OVERALL FLOOR PLAN**
1/8" = 1'-0"

N

1/8" = 1'-0" GRAPHIC SCALE
0' 8' 16' 24'

GENERAL NOTES - FLOOR PLANS

A. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION. COORDINATE DISCREPANCIES WITH ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.
B. ALL NEW WALL ASSEMBLIES ARE CONTINUOUS TO BOTTOM OF DECK UNLESS NOTED OTHERWISE.
C. PLAN WALL DIMENSIONS ARE TO GRID LINE OR FACE OF WALL STRUCTURE, UNLESS NOTED OTHERWISE. "CLEAR" DIMENSIONS ARE TO FACE OF WALL FINISH.
D. WHERE THE FINISH SCHEDULE OR INTERIOR ELEVATIONS CALL FOR TILE, REPLACE GYPSUM BOARD SHOWN IN THE WALL'S ASSEMBLY WITH TILE BACKER BOARD WHERE TILE OCCURS. REPLACE OTHER GYPSUM BOARD SHOWN IN THAT WALL'S ASSEMBLY WITH MOISTURE RESISTANT GYPSUM BOARD WHERE NO TILE OCCURS.
E. PROVIDE BACKING / SUPPORT FOR ALL MOUNTED FIXTURES, EQUIPMENT, CASEWORK, AND/OR SYSTEMS FURNITURE. COORDINATE WITH FLOOR PLANS, AND INTERIOR ELEVATIONS PRIOR TO THE COVERING OF STUD FRAMING. REFER TO MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE, OTHERWISE REFER TO DETAILS ON **A700s** SHEET SERIES.
F. SEE CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
G. SEE **G** SERIES SHEETS FOR WALL TYPES AND TYPICAL ACCESSIBILITY CLEARANCE AND COMPLIANCE REQUIREMENTS, REGULATORY PLAN INFORMATION; INCLUDING RATED ASSEMBLY EXTENTS, OCCUPANCY AND EGRESS SYSTEMS.
H. SEE **A100s** SERIES DIMENSIONAL CONTROL PLANS FOR ALIGNMENT / POSITION OF STRUCTURAL ELEMENTS AND OTHER KEY DIMENSIONS.
I. WHERE NEW CONSTRUCTION INTERFACES WITH EXISTING, PATCH AND REPAIR AS NECESSARY TO MATCH ORIGINAL CONDITION.
J. WHERE PROVIDED, DOOR AND WINDOW DIMENSIONS ARE TO EDGE OF OPENING. OPENING DIMENSIONS ARE NOMINAL. CONTRACTOR SHALL COORDINATE DIMENSIONS OF ALL ROUGH OPENINGS AND ACTUAL FRAME SIZES.
K. WHERE DOOR LOCATIONS ARE NOT DIMENSIONED, SEE DETAILS REFERENCED IN DOOR SCHEDULE BY SPECIFIC CONDITION. OTHERWISE, THE HINGE SIDE OF DOOR ROUGH OPENINGS SHALL BE LOCATED 4" FROM THE ADJACENT PERPENDICULAR WALL, SUBJECT TO MAINTENANCE OF REQUIRED ADA CLEARANCES REFERED IN THE **G700s** SHEET SERIES.
L. DO NOT SCALE DRAWINGS.

KEYNOTE SCHEDULE

TAG	KEYNOTE TEXT

ARCH | NEXUS
Architectural NEXUS, Inc.
930 R Street
Sacramento, California 95811
T 916.443.5911
http://www.archnexus.com

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DAVIS TOWER 1835H AND 1835I X-RAY BRIDGING DOCUMENTS

UC DAVIS HEALTH
2315 STOCKTON BLVD, SACRAMENTO, CA 95817

#	Date	Revision

AGENCY APPROVAL

PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
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LEVEL 01 OVERALL FLOOR PLAN

A101

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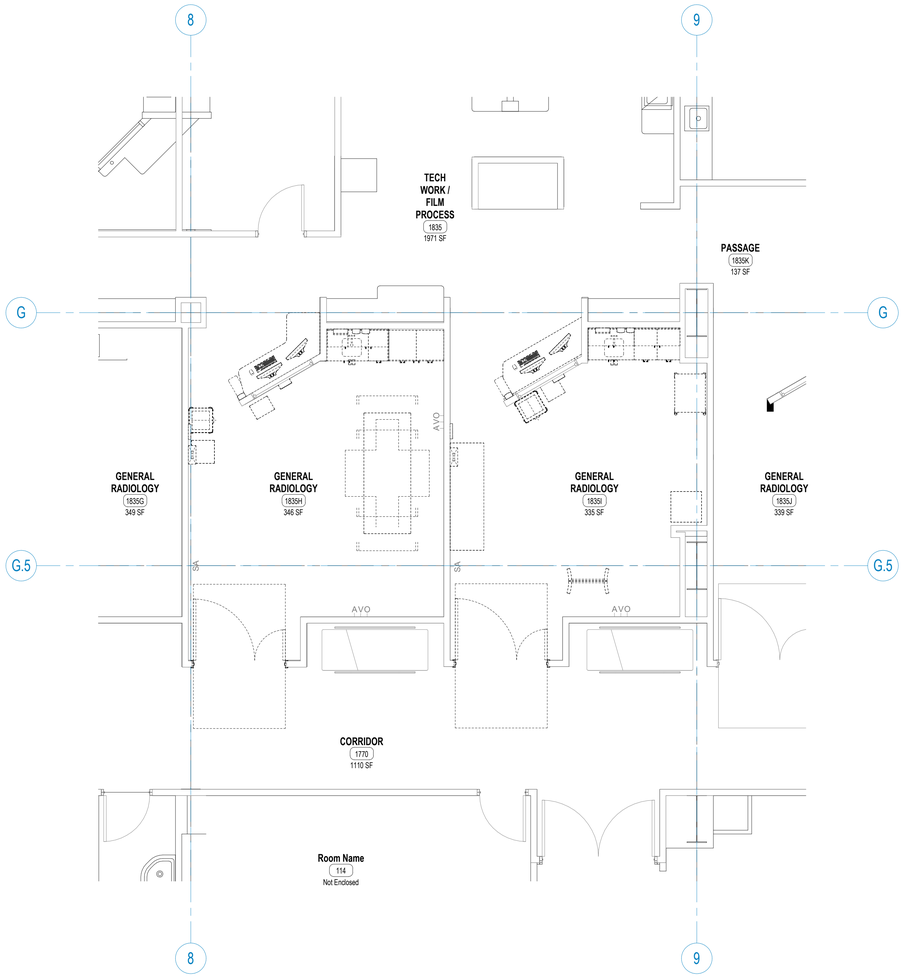
DOOR SCHEDULE

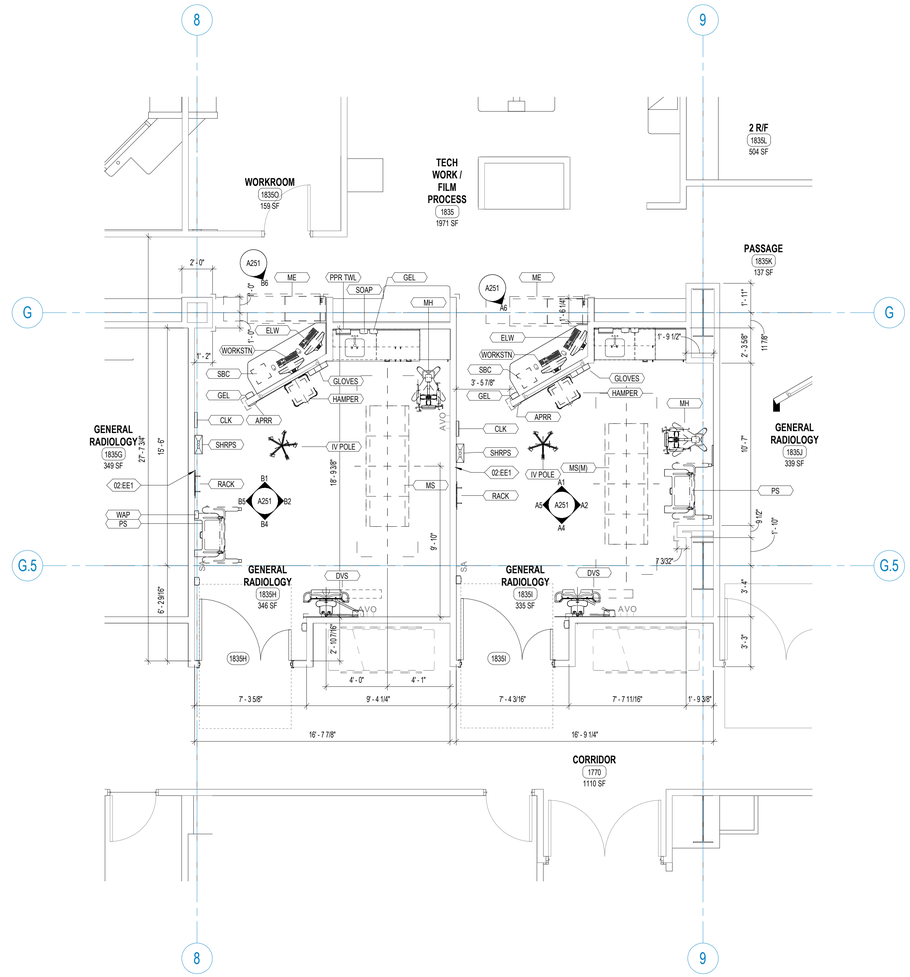
	DOOR						FRAME					HARDWARE							
	SIZE						DETAIL												
NUMBER	WIDTH	HEIGHT	MATERIAL	FINISH	GLAZING	Frame Type	HEAD	JAMB	THRESH	FINISH	DOOR HARDWARE	CLOSER	HINGE	LOCK	STOP	HARDWARE COMMENTS	FIRE RATING	NOTES	NUMBER
1835H	6'-0"	7'-0"	WOOD	ACROVYN	NA	(E)	NA	NA	NA	*	NA	X	FULL	PASSAGE	WALL	HARDWARE FOR DOUBLE UNEVEN DOORS	SEE G101	ADD FRAME PROTECTION TO (E) FRAMES	1835H
1835I	6'-0"	7'-0"	WOOD	ACROVYN	NA	(E)	NA	NA	NA	*	NA	X	FULL	PASSAGE	WALL	HARDWARE FOR DOUBLE UNEVEN DOORS	SEE G101	ADD FRAME PROTECTION TO (E) FRAMES	1835I

SPECIALTY EQUIPMENT SCHEDULE

GENERAL INFORMATION			LOCATION					PROVISIONS				UTILITY ATTRIBUTES		
MARK	DESCRIPTION	COMMENTS	FLOOR	WALL	CEILING	COUNTER	PORTABLE	OFCI	OFOI	OFVI	CFCI	MED GAS	POWER	DATA
APRR	WALL MOUNTED APRON RACK	APRN RACK		X							X			
CLK	WALL MOUNTED WIRELESS NETWORK CLOCK WITH ANALOG FACE	EXISTING TO REUSE		X							X		X	
DC / CS	DRAG TRAIN / CEILING SUSPENSION CSM3 COMFORT POSITION LONG	CS / DC			X					X			X	X
DVS	DIGITAL VERTICAL STAND (VS2 TILTABLE	DVS		X						X				
ELW	ELEVA WORKSPOT - EXAMINATION CONTROL	ELW				X				X			X	X
GEL	HAND SANITIZER DISPENSER, W/ DRIP TRAY	GEL		X							X			
GLVS	VERTICAL (3) GLOVE DISPENSER	GLOVES		X							X			
HMPR	LINEN HAMPER	HAMPER					X		X					
IVP	IV POLE, PORTABLE	IV POLE					X		X					
ME	GENERATOR M-CABINET CXA	ME	X							X			X	X
MH	MOBILE HOLDER	MH	X							X			X	X
MS	DIGITAL DIAGNOST TH/TH2 (WIDE TABLE TOP)	MS	X							X				
MS(M)	DIGITAL DIAGNOST TH/TH2 (WIDE TABLE TOP, MOBILE)	MS(M)	X				X			X				
PPTWL	PAPER TOWEL DISPENSER	PPR TWL		X							X			
PS	PATIENT SUPPORT	PS	X							X				
RACK	WALL MOUNTED RACK FOR 1 BACKBOARD	EXISTING TO REUSE		X				X						
SBC	SKYPLATE BATTERY CHARGER	SBC				X				X			X	X
SHRPS	WALL MOUNTED SHARPS DISPOSAL (YELLOW)	EXISTING TO REUSE		X							X			
SOAP	DISPENSER, SOAP, W/O DRIP TRAY	SOAP		X							X			
WAP	WI-FI ACCESS POINT	WAP		X						X			X	X
WRKSN	COMPUTER WORKSTATION W/ (1) MONITOR	WORKSTN				X			X					



A6 LEVEL 01 - ENLARGED DEMO PLAN
A101A 1/4" = 1'-0"



A3 LEVEL 01 - ENLARGED REMODEL PLAN
A101A 1/4" = 1'-0"

GENERAL NOTES - FLOOR PLANS

A. FIELD VERIFY ALL EXISTING CONDITIONS AND THEIR COMPATIBILITY WITH NEW CONSTRUCTION. COORDINATE DISCREPANCIES WITH ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.
B. ALL NEW WALL ASSEMBLIES ARE CONTINUOUS TO BOTTOM OF DECK UNLESS NOTED OTHERWISE.
C. PLAN WALL DIMENSIONS ARE TO GRID LINE OR FACE OF WALL STRUCTURE, UNLESS NOTED OTHERWISE. "CLEAR" DIMENSIONS ARE TO FACE OF WALL FINISH.
D. WHERE THE FINISH SCHEDULE OR INTERIOR ELEVATIONS CALL FOR TILE, REPLACE GYPSUM BOARD SHOWN IN THE WALL'S ASSEMBLY WITH TILE BACKER BOARD WHERE TILE OCCURS. REPLACE OTHER GYPSUM BOARD SHOWN IN THAT WALL'S ASSEMBLY WITH MOISTURE RESISTANT GYPSUM BOARD WHERE NO TILE OCCURS.
E. PROVIDE BACKING / SUPPORT FOR ALL MOUNTED FIXTURES, EQUIPMENT, CASEWORK, AND/OR SYSTEMS FURNITURE. COORDINATE WITH FLOOR PLANS, AND INTERIOR ELEVATIONS PRIOR TO THE COVERING OF STUD FRAMING. REFER TO MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE, OTHERWISE REFER TO DETAILS ON **A700s** SHEET SERIES.
F. SEE CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
G. SEE **G** SERIES SHEETS FOR WALL TYPES AND TYPICAL ACCESSIBILITY CLEARANCE AND COMPLIANCE REQUIREMENTS, REGULATORY PLAN INFORMATION; INCLUDING RATED ASSEMBLY EXTENTS, OCCUPANCY AND EGRESS SYSTEMS.
H. SEE **A100s** SERIES DIMENSIONAL CONTROL PLANS FOR ALIGNMENT / POSITION OF STRUCTURAL ELEMENTS AND OTHER KEY DIMENSIONS.
I. WHERE NEW CONSTRUCTION INTERFACES WITH EXISTING, PATCH AND REPAIR AS NECESSARY TO MATCH ORIGINAL CONDITION.
J. WHERE PROVIDED, DOOR AND WINDOW DIMENSIONS ARE TO EDGE OF OPENING. OPENING DIMENSIONS ARE NOMINAL. CONTRACTOR SHALL COORDINATE DIMENSIONS OF ALL ROUGH OPENINGS AND ACTUAL FRAME SIZES.
K. WHERE DOOR LOCATIONS ARE NOT DIMENSIONED, SEE DETAILS REFERENCED IN DOOR SCHEDULE BY SPECIFIC CONDITION. OTHERWISE, THE HINGE SIDE OF DOOR ROUGH OPENINGS SHALL BE LOCATED 4" FROM THE ADJACENT PERPENDICULAR WALL, SUBJECT TO MAINTENANCE OF REQUIRED ADA CLEARANCES REFERED IN THE **G700s** SHEET SERIES.
L. DO NOT SCALE DRAWINGS.

KEYNOTE SCHEDULE

TAG	KEYNOTE TEXT
02:EE1	ALL EXISTING EQUIPMENT TO REMAIN TO BE TEMPORARILY REMOVED AND REINSTALLED IN PLACE AFTER WALL FINISH UPDATE

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PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
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LEVEL 01 - ENLARGED DEMO AND REMODEL PLANS

A101A

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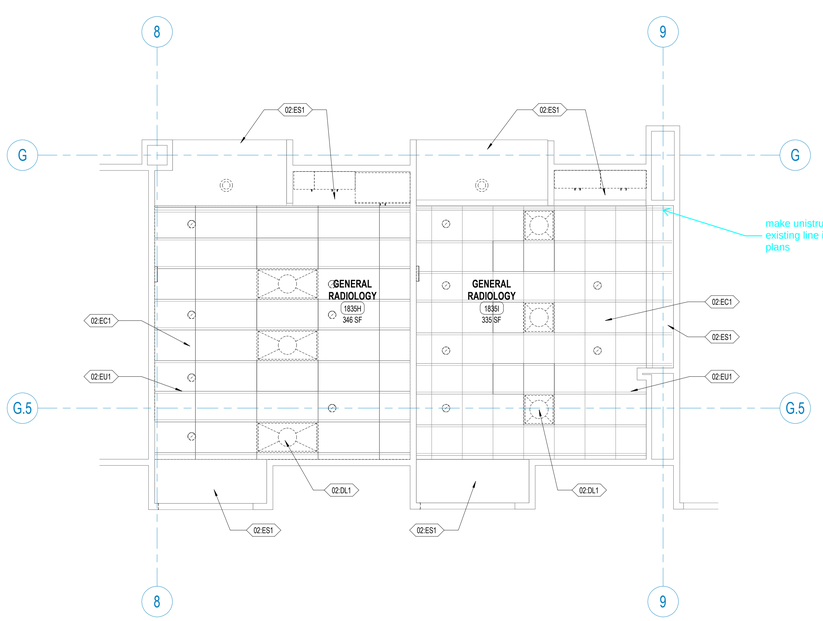
GENERAL NOTES - REFLECTED CEILING PLANS

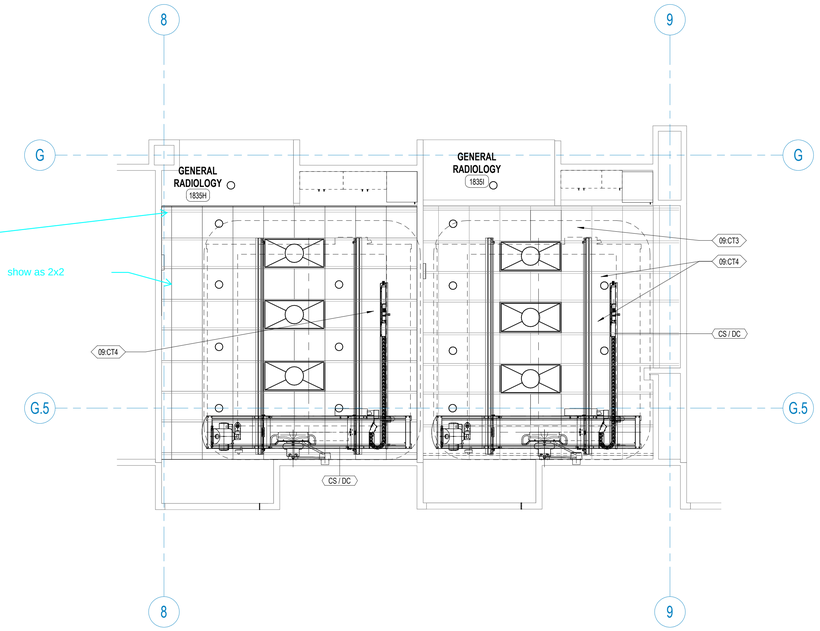
A. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING CEILING FIXTURES
B. THE CEILING HEIGHT SHOWN IN THE ROOM TAG INDICATES THE HEIGHT OF THE DOMINANT CEILING FINISH. SEE ADDITIONAL CEILING FINISH CALLOUTS FOR OTHER CEILING HEIGHTS OR FEATURES.
C. THE CONTRACTOR SHALL COORDINATE ALL TRADES TO ENSURE THAT DESIGNATED CEILING HEIGHTS CAN BE ACHEIVED. NOTIFY ARCHITECT OF ANY CONFLICTS OR CONDITIONS THAT PREVENT THIS FROM OCCURRING BEFORE PROCEEDING WITH THE WORK.
D. PROVIDE REQUIRED BLOCKING AND SUPPORT FOR CEILING FANS AND ALL OTHER CEILING MOUNTED FIXTURES.
E. PROVIDE APPROPRIATE TRIM OR ESCUTCHEONS FOR ALL ITEMS PENETRATING CEILINGS FROM FINISH SPACE.
F. LIGHT FIXTURES IN CEILINGS TO RECEIVE BATT INSULATION ON TOP SHALL HAVE A BOX OUT TO PROTECT THE INSULATION FROM THE HEAT OF THE LIGHT SOURCE.
G. ALL SOFFIT DIMENSIONS ARE TO FACE OF FINISH MATERIAL.
H. SEE **G** SERIES SHEETS FOR EXPANSION JOINT SCHEDULE.
I. FOR TYPICAL CEILING AND SEISMIC BRACING DETAILS, REFER TO **A700s** SHEET SERIES.
J. DO NOT SCALE DRAWINGS.

KEYNOTE SCHEDULE

TAG	KEYNOTE TEXT
02:DL1	DEMO EXISTING LIGHTS, TYP.
02:EC1	EXISTING GRID SYSTEM TO REMAIN, REMOVE EXISTING CEILING TILES
02:ES1	EXISTING SOFFIT TO REMAIN. REPAINT, SEE AI601 FINISH SCHEDULE
02:EU1	EXISTING UNISTRUT RAILS TO REMAIN AND BE REUSED, TYP.
09:CT3	NEW CEILING TILES IN EXISTING GRID
09:CT4	NEW DECORATIVE CEILING TILES



A6 / A151 LEVEL 01 ENLARGED DEMOLITION REFLECTED CEILING PLAN
1/4" = 1'-0"



A3 / A151 LEVEL 01 REFLECTED CEILING PLAN
1/4" = 1'-0"

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LEVEL 01 - ENLARGED REFLECTED CEILING PLAN

A151

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GENERAL NOTES - INTERIOR ELEVATIONS

A. SEE REFLECTED CEILING PLANS FOR CEILING FEATURES AND CEILING FINISH LOCATIONS.
B. SEE PLANS, SECTIONS, SCHEDULES AND ADDITIONAL DETAILS FOR MORE MATERIAL AND FINISH INFORMATION.
C. ENSURE THAT ALL REQUIRED FIXTURE AND CABINET CLEARANCES AND OTHER REQUIREMENTS ARE MAINTAINED PURSUANT TO ADAAG AND ANSI A117.1. SEE **G700s** SERIES SHEETS FOR GENERAL GUIDANCE ON COMMON MOUNTING HEIGHTS.
D. WHERE THE FINISH SCHEDULE OR INTERIOR ELEVATIONS CALL FOR TILE, REPLACE GYPSUM BOARD SHOWN IN THE WALL'S ASSEMBLY WITH TILE BACKER BOARD WHERE TILE OCCURS. REPLACE OTHER GYPSUM BOARD SHOWN IN THAT WALL'S ASSEMBLY WITH MOISTURE RESISTANT GYPSUM BOARD WHERE NO TILE OCCURS.
E. PROVIDE BACKING / SUPPORT FOR ALL MOUNTED FIXTURES, EQUIPMENT, CASEWORK, AND/OR SYSTEMS FURNITURE. COORDINATE WITH FLOOR PLANS, AND INTERIOR ELEVATIONS PRIOR TO THE COVERING OF STUD FRAMING. REFER TO MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE, OTHERWISE REFER TO DETAILS ON **A700s** SHEET SERIES.
F. ON ALL EXPOSED CABINET SIDES, INCLUDING KNEE OPENINGS, PROVIDE FINISHED FACE TO MATCH CABINET FRONTS.
G. WHERE BACKSPLASHES ARE NOTED, PROVIDE SIDESPLASHES WHENEVER COUNTERTOPS ARE ADJACENT TO WALLS.
H. ALL MILLWORK LOCK/KEYING TO BE COORDINATED WITH OWNER & ARCHITECT.
I. THE CONTRACTOR IS TO COORDINATE WALK THROUGH(S) WITH THE OWNER AND THE ARCHITECT TO REVIEW PLACEMENT OF ELECTRICAL, MECHANICAL AND OTHER EQUIPMENT ITEMS FOR KEY ROOMS. SCHEDULING OF ROOM REVIEWS SHOULD BE COORDINATED DURING THE OAC MEETINGS.
J. DO NOT SCALE DRAWINGS.

KEYNOTE SCHEDULE

TAG	KEYNOTE TEXT
02:EM1	EXISTING MED GAS OUTLETS TO REMAIN
02:EN1	EXISTING NURSE CALL OUTLET TO REMAIN
02:EO1	EXISTING OUTLET TO REMAIN
02:ES2	EXISTING SWITCHES TO REMAIN
02:ET1	EXISTING THERMOSTAT TO REMAIN
22:MG1	REPLACE OR REPAIR EXISTING COVERED MEDICAL GAS OUTLETS. SEE MECHANICAL.

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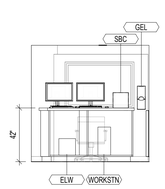
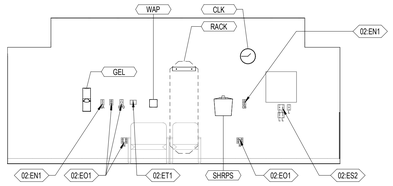
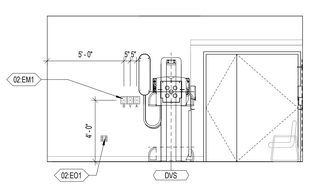


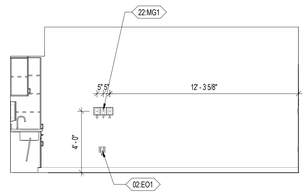
B6 A251 **1835H CONTROL AREA**
1/4" = 1'-0"



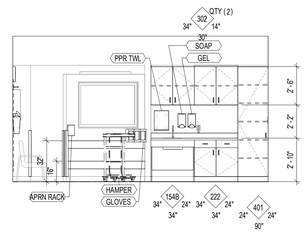
B5 A251 **1835H GENERAL RADIOLOGY - W**
1/4" = 1'-0"



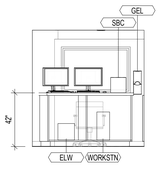
B4 A251 **1835H GENERAL RADIOLOGY - S**
1/4" = 1'-0"



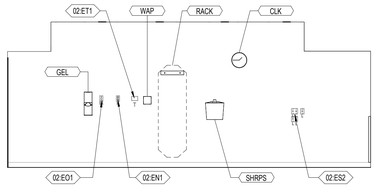
B2 A251 **1835H GENERAL RADIOLOGY - E**
1/4" = 1'-0"



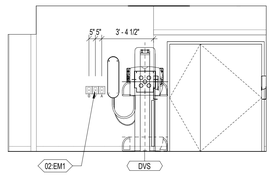
B1 A251 **1835H GENERAL RADIOLOGY - N**
1/4" = 1'-0"



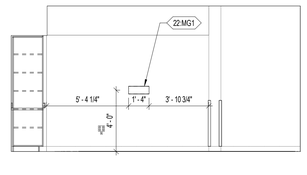
A6 A251 **1835I CONTROL AREA**
1/4" = 1'-0"



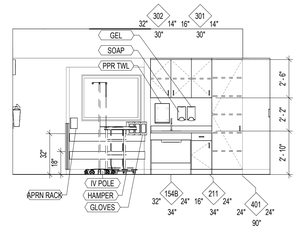
A5 A251 **1835I GENERAL RADIOLOGY - W**
1/4" = 1'-0"



A4 A251 **1835I GENERAL RADIOLOGY - S**
1/4" = 1'-0"



A2 A251 **1835I GENERAL RADIOLOGY - E**
1/4" = 1'-0"



A1 A251 **1835I GENERAL RADIOLOGY - N**
1/4" = 1'-0"

AGENCY APPROVAL

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INTERIOR ELEVATIONS

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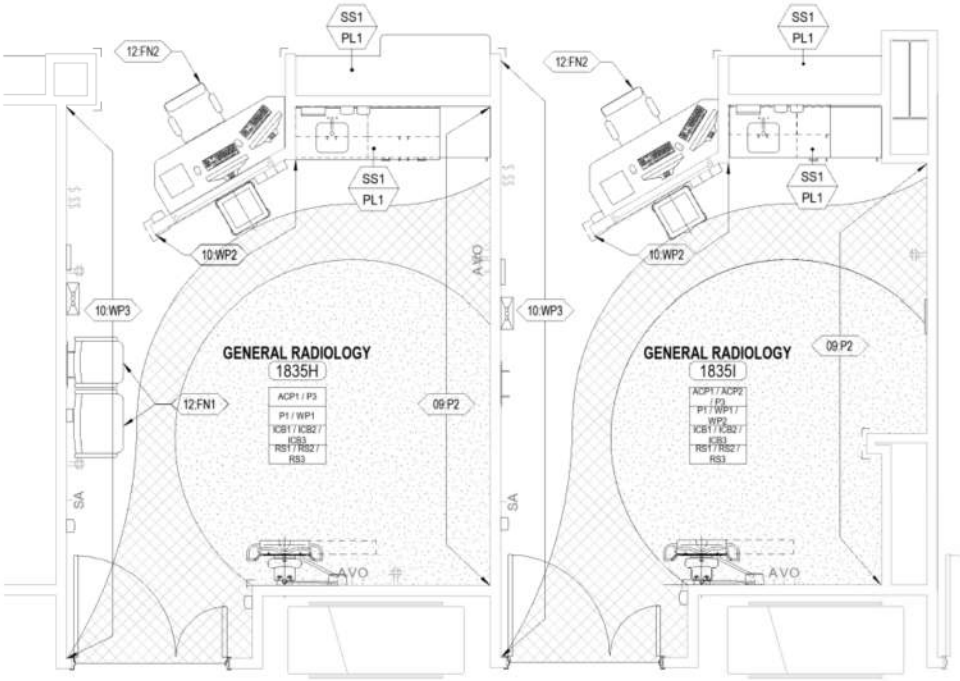
9558190 1835H AND 1835I FINISHES

FINISH FLOOR PLAN



1 A1101 **LEVEL 01 ENLARGED FINISH FLOOR PLAN** 1/4" = 1'-0"

KEYNOTE SCHEDULE

TAG	KEYNOTE TEXT
09:P2	ACCENT PAINT
10:WP2	ADHESIVE RIGID VINYL UPPER AND LOWER WALL GUARD
10:WP3	FULL HEIGHT, CUSTOM PRINTED, RIGID VINYL ACROVYN WALL PROTECTION
12:FN1	REPLACE EXISTING SIDE CHAIRS - BY OWNER
12:FN2	REPLACE EXISTING TALL STOOLS - BY OWNER

FLOOR FINISH LEGEND

RS1 - RUBBER SHEET FLOORING

RS2 - RUBBER SHEET FLOORING

RS3 - RUBBER SHEET FLOORING

EXISTING RADIOLOGY 1835J

CONCEPT ELEVATIONS

GENERAL RAD 1835I

GENERAL RAD 1835H

DESCRIPTION

All finishes to meet current UCDH Standards.

FLOORING

- NORA Environcare 3mm Rubber Sheet Flooring
- NORA Environcare Coordinating 6" Sanitary Base

NORA ENVIRONCARE RUBBER FLOORING

CEILINGS

- Painted Gypsum Board *(Color to match RAD 1835J)*
- 2'x2' Acoustical Ceiling Panels *(Color to match RAD 1835J)*
- 2'x2' Ceiling Scenes Graphic Acoustical Ceiling Panels *(Scene to tie into wall graphic)*

CEILING SCENES GRAPHIC PRINTED ACOUSTICAL CEILING TILES

PLASTIC LAMINATE

SOLID SURFACE

MILLWORK

- Solid Surface Counters *(Color and finish standard, match RAD 1835J)*
- Plastic Laminate Cabinets *(Color and finish standard, match RAD 1835J.*

WALLS

- Painted Gypsum Board *(Finish standard, match RAD 1835J, contrast wall color to compliment wall graphic)*
- Full Height Acrovyn Graphic Vinyl Wall Protection full extent of west walls *(see concept elevations)*
- Wall Protection *(Adhesive corner guards and rigid vinyl upper and lower wall guards per finish plan.)*

FURNITURE

Replace existing tall stools and chairs (by owner).

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SHEET INDEX

S1.0	GENERAL NOTES
S2.1	PARTIAL FRAMING PLANS
S3.1	DETAILS

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
4. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

   2022 CALIFORNIA BUILDING CODE AND LATEST REVISIONS REFERRED TO HERE AS "THE CODE", AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES & STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
5. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:

   SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED. SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.

   SIZE AND LOCATION OF ALL CONCRETE CURBS, EQUIPMENT PADS, PITS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGE IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.

   SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS EXCEPT AS SHOWN.

   FLOOR AND ROOF FINISHES.

   DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
6. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:

   PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., EXCEPT AS SHOWN OR NOTED.

   ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.

   CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.

   SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES & ANCHOR BOLTS.
7. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
8. OPENINGS, POCKETS, ETC., LARGER THAN 6" SHALL NOT BE PLACED IN CONCRETE SLABS, DECKS, WALLS, UNLESS SPECIALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS, POCKETS, ETC., LARGER THAN 6" NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT ARE LOCATED IN STRUCTURAL MEMBERS. FOR ANY FURTHER RESTRICTIONS ON OPENINGS IN STRUCTURAL ELEMENTS, SEE APPLICABLE SECTIONS BELOW.
9. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST REVISION.
10. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
11. DESIGN LOADS:

    LIVE LOADS:

TYPICAL FLOORS, EXCLUDES PARTITIONS	=	100 PSF REDUCIBLE

12. EARTHQUAKE DESIGN DATA:

RISK CATEGORY	=	IV
I_e	=	1.5
S_S	=	0.549
S_1	=	0.248
SITE CLASS	=	D
S_{DS}	=	0.498
S_{D1}	=	N/A
SEISMIC DESIGN CATEGORY	=	D
ANALYSIS PROCEDURE	=	EQUIVALENT LATERAL FORCE

EXISTING CONSTRUCTION NOTES

1. ALL DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF STRUCTURAL ELEMENTS.
2. VERIFY LOCATION OF EXISTING REBAR BEFORE FABRICATION.
3. PROVIDE NONDESTRUCTIVE TESTING AS REQUIRED.
4. SPECIAL INSPECTION IS REQUIRED AS INDICATED.
5. ALL EXISTING (E) CONNECTIONS AT ELEMENTS TO BE REPLACED SHALL BE REPLACED OR RE-ATTACHED TO MATCH EXISTING CONDITIONS.
6. WHERE ALL OTHER EXISTING CONDITIONS VARY SIGNIFICANTLY FROM THOSE SHOWN ON THESE DRAWINGS, THE STRUCTURAL ENGINEER SHALL BE NOTIFIED PRIOR TO CONTINUED CONSTRUCTION RELATED TO SUBJECT CONDITIONS.
7. SEE "AS BUILT" DRAWINGS FOR EXISTING BUILDING DESIGN FOR ITEMS NOT SHOWN OR NOTED.
8. SHORE ALL EXISTING CONSTRUCTION AS REQUIRED.

METAL STUDS

1. ALL METAL STUDS SHALL COMPLY WITH AISI S100 FOR STRUCTURAL MEMBERS AND AISI S200.
2. UNLESS NOTED OTHERWISE METAL STUD MEMBERS SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESSES:

   UP TO AND INCLUDING 43 MIL MATERIAL
   (YIELD STRESS = 33 KSI MINIMUM)

   54 MIL AND THICKER MATERIAL
   (YIELD STRESS = 50 KSI MINIMUM)
3. STUDS THICKNESSES REFERENCED BY GAUGE SHALL HAVE THE FOLLOWING MINIMUM THICKNESSES:

25 GAUGE= 18 MILS	16 GAUGE= 54 MILS
22 GAUGE= 27 MILS	14 GAUGE= 68 MILS
20 GAUGE= 33 MILS	12 GAUGE= 97 MILS
18 GAUGE= 43 MILS	

4. UNLESS NOTED OTHERWISE PROVIDE TOP AND BOTTOM WALL TRACKS WITH SAME THICKNESSES AS WALL STUDS.
5. PROVIDE BLOCKING AT 4'-0" O.C. VERTICAL ON ANY METAL STUD WALL THAT DOES NOT HAVE SHEATHING ATTACHED TO BOTH SIDES OF THE WALL.
6. CONTRACTOR TO COORDINATE AND PROVIDE FOR BLOCKING AS REQUIRED BY OTHER TRADES AND AS MAY BE REQUIRED BY THE ARCHITECTURAL, MECHANICAL, PLUMBING OR ELECTRICAL DRAWINGS.
7. WELDING ELECTRODES SHALL BE E60XX. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED-UP WITH A ZINC-RICH PAINT.
8. ALL SCREWS SHALL BE GRABBER SELF-DRILLING SCREWS PER ICC-ES REPORT ESR-1271. SCREWS USED ON EXTERIOR CONDITIONS INCLUDING EXTERIOR WALLS SHALL HAVE GRABBERGUARD COATING.
9. ALL SCREWS SHALL PROTRUDE BEYOND THE METAL MEMBERS BY A MINIMUM OF THREE FULL THREADS. MINIMUM EDGE DISTANCE AND SPACING FROM THE SCREW CENTERLINE LOCATION SHALL NOT BE LESS THAN 3/4".
10. ALL LIGHT GAGE STEEL FRAMING SHALL BE IN ACCORDANCE WITH AISI S100 "SPECIFICATIONS FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" AND THE CALIFORNIA BUILDING CODE AMENDMENTS.
11. PROVIDE ALL ACCESSORIES INCLUDING, BUT NOT LIMITED TO, TRACKS, CLIPS, WEB STIFFENERS, ANCHORS, AND FASTENING DEVICES REQUIRED FOR A COMPLETE AND PROPER INSTALLATION.
12. ALL LIGHT GAUGE STEEL FRAMING THAT IS EXPOSED TO THE ELEMENTS SHALL BE GALVANIZED TO G90 STANDARDS.
13. ALL HORIZONTAL FLOOR AND CEILING FRAMING SHALL BE UNPUNCHED SECTIONS.

INSPECTIONS NOTES

THE OWNER WILL EMPLOY AN APPROVED SPECIAL INSPECTION AGENCY THAT WILL PROVIDE THE SPECIAL INSPECTIONS PRESCRIBED BY THE CODE AND THE CONSTRUCTION DOCUMENTS. THE INTENT OF THE CONSTRUCTION DOCUMENTS IS TO PROVIDE THE CODE REQUIRED INSPECTIONS AND IF LESS THAN THIS IS REFERENCED IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND ARCHITECT FOR CORRECTION.

THE SPECIAL INSPECTION AGENCY SHALL BE APPROVED IN ACCORDANCE WITH SECTION 1703A OF THE CALIFORNIA BUILDING CODE. ALL SPECIAL INSPECTIONS AND REPORTS SHALL BE IN ACCORDANCE WITH SECTION 1704A & 1705A OF THE CODE.

THE CONTRACTOR SHALL PROVIDE PROOF OF CERTIFICATION FOR ALL FABRICATORS PRIOR TO START OF CONSTRUCTION. A COPY SHALL BE PROVIDED TO THE SPECIAL INSPECTOR AND IF PROOF IS NOT PROVIDED THEN IN-PLANT INSPECTION WILL BE REQUIRED AND THE CONTRACTOR SHALL SCHEDULE SUCH INSPECTIONS.

CONCRETE

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD
1. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.			
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	-	ACI 318: 17.8.2.4
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 1.a.	-	X	ACI 318: 17.8.2

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KPFF PROJECT #: 2500-030

REGISTERED PROFESSIONAL ENGINEER — MATTHEW J. 10 PETERSON — 25997 — STRUCTURAL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

UC DAVIS HEALTH
DAVIS TOWER 1835H AND 1835I
X-RAY BRIDGING DOCUMENTS
SACRAMENTO, CA 95817

#	Date	Revision

PROJECT PROCUREMENT

NEXUS PROJ. #:	25011
CHECKED BY:	RN
DRAWN BY:	HM
DATE:	06/27/25

GENERAL NOTES

S1.0

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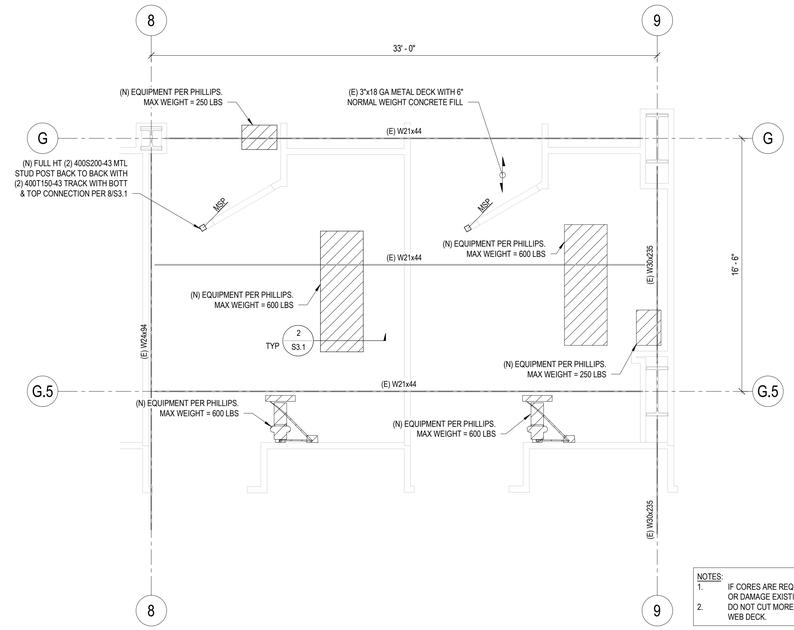
PLAN NOTES

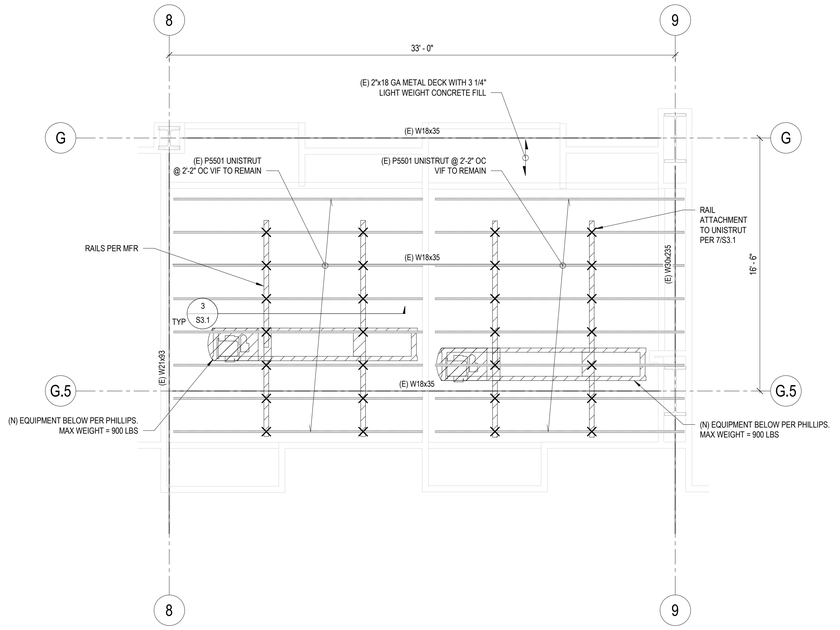
1. SEE S1.0 FOR STRUCTURAL GENERAL NOTES. SEE S4.1 FOR DETAILS.
2. VERIFY/OBTAIN ALL DIMENSIONS FROM THE ARCHITECTURAL DRAWINGS.
3. PROVIDE AND COORDINATE OPENINGS FOR MECHANICAL/ELECTRICAL WORK AS REQUIRED.
4. (E) CEILING NOT TO BE DAMAGED OR REMOVED.
5. (N) EQUIPMENT PER PLAN WITH ANCHORAGE PER S3.1
6. INDICATES (E) METAL STUD WALL TO REMAIN.
7. MSP — INDICATE NEW POST PER PLAN WITH ANCHORAGE PER 8/S3.1.
8. INDICATES (E) Wx COLUMN TO REMAIN
9. CPU ANCHORAGE SUPPORT PER 6/S3.1
10. TYPICAL WALL BRACING PER 5/S3.1



NOTES:
1. IF CORES ARE REQUIRED, DO NOT CUT OR DAMAGE EXISTING FLOOR BEAM.
2. DO NOT CUT MORE THAN 1 ADJACENT WEB DECK.

NORTH

1 FIRST FLOOR PARTIAL FRAMING PLAN
1/4" = 1'-0"



NORTH

2 SECOND FLOOR PARTIAL FRAMING PLAN
1/4" = 1'-0"

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KPFF PROJECT #: 2500-030

REGISTERED PROFESSIONAL ENGINEER — MARY 10 PETERSEN — No. S 5987 — STRUCTURAL — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

UC DAVIS HEALTH
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PARTIAL FRAMING PLANS

S2.1

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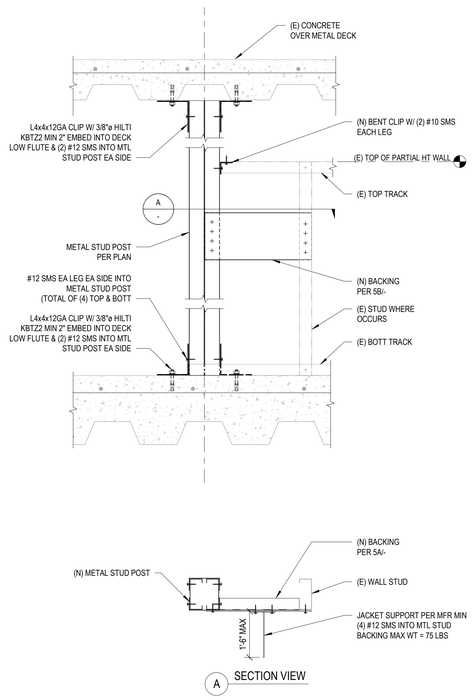
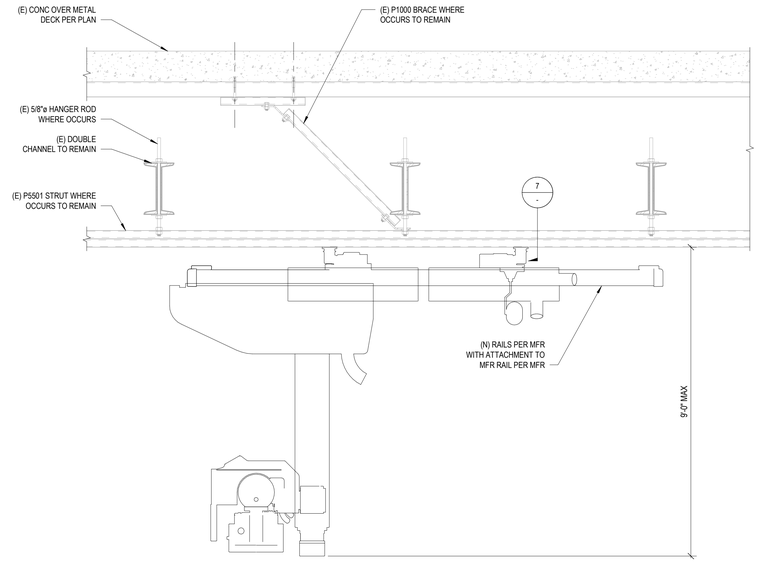
NOTES:
1. DO NOT DAMAGE OR CUT ANY OF THE EXISTING WALL FRAMING.
2. REPLACE IN KIND ALL WALL FINISHES AFTER WALL OPENING.

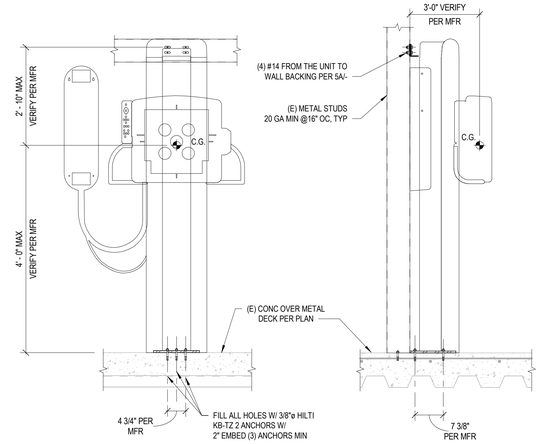


METAL STUD ATTACHMENT DETAILS
1 1/2" = 1'-0" | 8



NOTE:
VERIFY ALL DIMENSIONS W/ MFR.

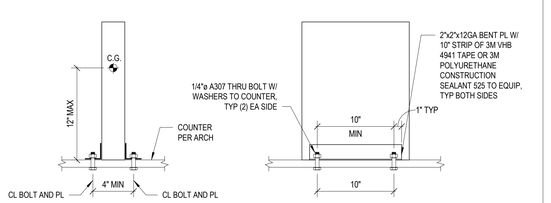
CSM3 CEILING SUSPENSION
1" = 1'-0" | 3



ELEVATION **SECTION**

NOTE:
VERIFY ALL DIMENSIONS W/ MFR 1/16" MAX OVERSIZE HOLES.

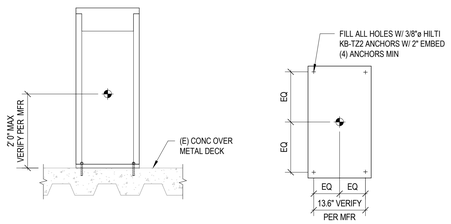
DIGITAL VERTICAL STAND ANCHORAGE
3/4" = 1'-0" | 1



ELEVATION **PLAN**

NOTE:
VERIFY ALL DIMENSIONS W/ MFR.

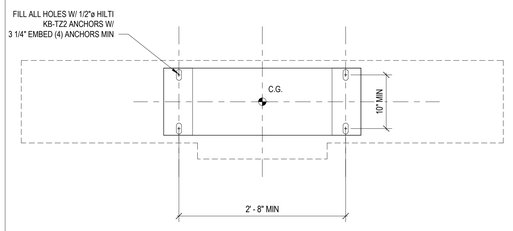
CPU ANCHORAGE
1 1/2" = 1'-0" | 6



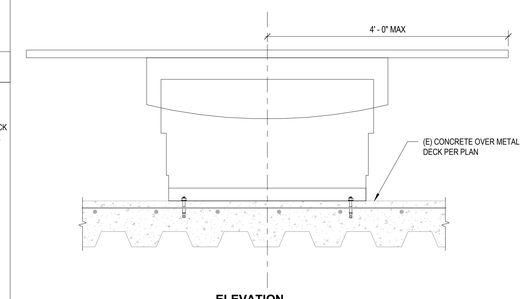
FRONT ELEVATION **PLAN**

NOTE:
VERIFY ALL DIMENSIONS W/ MFR 1/16" MAX OVERSIZE HOLES.

GENERATOR CABINET ANCHORAGE
3/4" = 1'-0" | 4



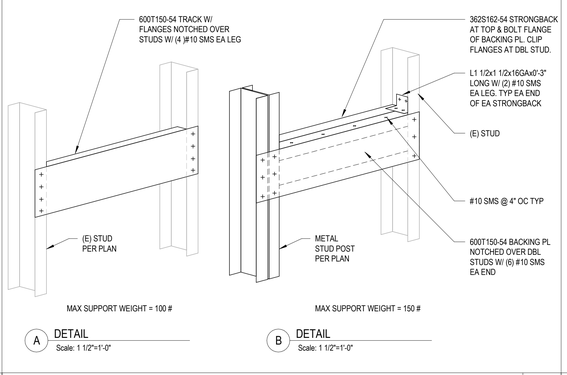
PLAN VIEW



ELEVATION

NOTE:
VERIFY ALL DIMENSIONS W/ MFR 1/16" MAX OVERSIZE HOLES.

DIGITAL DIAGNOST TABLE ANCHORAGE
1" = 1'-0" | 2



EQUIPMENT UNISTRUT ATTACHMENT TO CEILING UNISTRUT
1 1/2" = 1'-0" | 7

TYPICAL BACKING DETAILS
1 1/2" = 1'-0" | 5

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DETAILS

S3.1

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APPLICABLE CODES

CODES:

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

A) STATE OF CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, BUILDING STANDARDS:
- 2022 EDITION OF THE CALIFORNIA BUILDING CODE.
- 2022 EDITION OF THE CALIFORNIA ELECTRICAL CODE.
- 2022 EDITION OF THE CALIFORNIA MECHANICAL CODE.
- 2022 EDITION OF THE CALIFORNIA PLUMBING CODE.
- 2022 EDITION OF THE CALIFORNIA ENERGY CODE.

B) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) LIFE SAFETY CODE, CR.

MECHANICAL ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
ABV	ABOVE
ABC, OH	ABOVE CEILING, OVERHEAD
AC	AIR CONDITIONING
AD	ACCESS DOOR
ADA	AMERICANS W/ DISABILITIES ACT
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AL	ACOUSTICALLY LINED
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BR	BRANCH
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CAV	CONSTANT AIR VOLUME
CD	CONDENSATE DRAIN
CFM, f	CUBIC FEET OF AIR PER MINUTE
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CO	CLEANOUT
CONC.	CONCRETE
CONN.	CONNECT
CR	CONDENSATE RETURN (STEAM)
CS	CURRENT SENSOR
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CU IN	CUBIC INCHES
CVB	CONSTANT VOLUME BOX
CW	COLD WATER
DB	DRY BULB
DF	DOUGLAS FIR
DIA, ø	DIAMETER
DSP	DUCT STATIC PRESSURE SENSOR
EA, OA, RA, SA	EXHAUST, OUTSIDE, RETURN & SUPPLY AIR
E.C.	ELECTRICAL CONTRACTOR
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
FA	FACE AREA (SQUARE FEET)
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
GALV.	GALVANIZED
GA	GAUGE
GC	GENERAL CONTRACTOR
GSM	GALVANIZED SHEET METAL
HP	HORSE POWER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
HZ	FREQUENCY (HERTZ)
LBS	POUNDS
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MIN	MINIMUM
MPS	MEDIUM PRESSURE STEAM
(N) (E)	NEW, EXISTING
N.C.	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OP	OPERATING
PH	PHASE
POC	POINT OF CONNECTION
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PTDF	PRESSURE TREATED DOUGLAS FIR
P&TRV	PRESSURE & TEMPERATURE RELIEF VALVE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
(R) (D)	RISE, DROP
RD, OFL	ROOF DRAIN, OVERFLOW
REF	ROOF EXHAUST FAN
REQ'D	REQUIRED
RHC	REHEAT COIL
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SAD	SEE ARCHITECTURAL DRAWINGS
SED	SEE ELECTRICAL DRAWINGS
SM	SHEET METAL
SMS	SHEET METAL SCREWS
SOV	SHUT OFF VALVE
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWING
STL	STEEL
TA, FA	TO ABOVE, FROM ABOVE
TB, FB	TO BELOW, FROM BELOW
TBR	TO BE REMOVED
TCC	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
THK	THICK
TR	TO REMAIN
TSP	TOTAL STATIC PRESSURE
TV	TURNING VANES
TYP	TYPICAL
UG, UF	UNDERGROUND, UNDER FLOOR
UON	UNLESS OTHERWISE NOTED
UTR	UP THROUGH ROOF
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
WB	WET BULB
WC	WATER GAUGE
WOG	WATER OIL GAS PRESSURE RATING
WP	WATER PRESSURE
WPD	WATER PRESSURE DROP
WT, AT	WATERTIGHT, AIRTIGHT

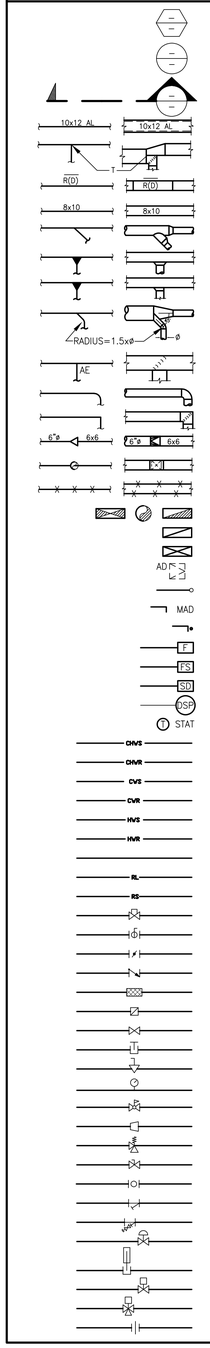
IMAGING EQUIPMENT COOLING CALC

HEAT BALANCE	ROOM 1835J	NOTES
SENSIBLE HEAT REJECTION		
BUCKY DIAGNOST CSM AND COMPONENTS	3471 BTUH	AT 70% OPERATION
CONTROL ROOM EQUIPMENT	0 BTUH	HEAT REJECTION DIRECTLY TO EXHAUST
PEOPLE	500 BTUH	2 PEOPLE
LIGHTS AND PLUG LOAD	1509 BTUH	342 FT.^{2} 1.3 WATTS/FT.^{2}
TOTAL CALCULATED SENSIBLE HEAT REJECTION	5480 BTUH	
COOLING CAPACITY		
SA FLOW	340 CFM	
SA CALCULATED SENSIBLE COOLING CAPACITY	6242 BTUH	BASED ON 55 DEG. F SA, 72 DEG. F SPACE
SUPPLEMENTAL SENSIBLE COOLING CAPACITY	0 BTUH	NO SUPPLEMENTAL COOLING IN SPACE
TOTAL SENSIBLE COOLING CAPACITY	6242 BTUH	
± DIFFERENTIAL	762 BTUH	MORE THAN 10% OF CALCULATED

COOLING CALCULATION NOTES:

1. EQUIPMENT HEAT REJECTION BASED ON PHILIPS DRAWINGS SHEET #A2 – 09/17/2024
2. RELATIVE HUMIDITY RANGE IS 30% RH TO 75% RH.

MECHANICAL LEGEND



UNIT TYPE
UNIT NUMBER

DETAIL NUMBER
SHEET NUMBER ON WHICH DETAIL IS FOUND

SECTION NUMBER
SHEET ON WHICH SECTION IS FOUND

ACOUSTICALLY LINED DUCT – DIMENSIONS ARE OUTSIDE

BRANCH TAKE–OFF WITH SPLITTER DAMPER & W/ THROAT SIZE AS INDICATED. TRANSITION TO DUCT SIZES SHOWN.

DUCT RISE (DROP) IN DIRECTION OF AIR FLOW

DUCT – WIDTH x DEPTH

LATERAL WITH CONICAL TRANSITION TO DUCT SIZES INDICATED

CONICAL TEE FROM RECTANGULAR TO ROUND BRANCH

45° ENTRY TEE, RECTANGULAR BRANCH, RECTANGULAR MAIN

45° WYE, CONICAL MAIN AND BRANCH WITH 45° ELBOW, BRANCH 90° TO MAIN

TEE WITH ADJUSTABLE EXTRACTOR. RECTANGULAR MAIN, RECTANGULAR BRANCH

RADIUS ELL. SEE SPECS.

SQUARE ELL WITH TURNING VANES

TRANSITION ROUND TO RECTANGULAR

VERTICAL DUCT RISE OR DROP

DUCTS, PIPES, OR EQUIPMENT TO BE REMOVED

DUCT DROP OR RISE THRU ROOF OR FLOOR

RETURN, OUTSIDE, OR EXHAUST AIR DUCT

SUPPLY DUCT

ACCESS DOOR

AUTOMATIC CONTROL DAMPER

MANUAL AIR DAMPER

VOLUME DAMPER WITH REMOTE BALANCING DEVICE

FIRE DAMPER

FIRE SMOKE DAMPER

SMOKE DETECTOR

DUCT STATIC PRESSURE SENSOR

THERMOSTAT OR TEMP SENSOR

CHILLED WATER SUPPLY

CHILLED WATER RETURN

CONDENSER SUPPLY

CONDENSER RETURN

HOT WATER SUPPLY

HOT WATER RETURN

HOT GAS LINE

REFRIGERANT LIQUID

REFRIGERANT SUCTION

BALANCING VALVE

BALL VALVE

BUTTERFLY VALVE

CHECK VALVE

FLEXIBLE CONNECTION

FLOW SENSOR

GATE VALVE

PETE'S PLUG

SHUT OFF COCK

PRESSURE GAUGE

PRESSURE REDUCING VALVE

REDUCER

PRESSURE & TEMPERATURE RELIEF VALVE

SHUT OFF VALVE

SIGHT GLASS

STRAINER

STRAINER & DRAIN VALVE WITH HOSE FITTING

SOLENOID VALVE

THERMOMETER

TWO WAY CONTROL VALVE

THREE WAY CONTROL VALVE

UNION

PRESSURE VENTILATION SCHEDULE - 2022 CMC TABLE 4-A

FLOOR	AHU	OSA (%)	ROOM NUMBER	ROOM NAME	ROOM TABLE 4A REFERENCE	PRESSURE RELATIONSHIP	OSA MIN (AIR CHANGE / HR)	OVERALL MIN (AIR CHANGE / HR)	CELINING HEIGHT (FT)	100% EXHAUST REQUIRED	ROOM FLOOR AREA (SQ FT)	ROOM VOLUME (CU FT)	CODE REQ. MIN OSA (CFM)	SUPPLY AIR REQ. TO MEET MIN OA QUANITY (CFM)	AIR REQ. TO MEET MIN OVERALL AIR CHANGE (CFM)	LOAD CALC REQ. SUPPLY (CFM)	DESIGNED EXHAUST AIR (CFM)	DESIGNED SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	DESIGNED TRANSFER AIR LEAVING ROOM (CFM)	OSA AIR CHANGE / HR	FRACTIONAL PRESSURE DIFFERENCE	DESIGNED TOTAL AIR CHANGE / HR
1	0	100	1835H	TOPOGRAPHY	X-RAY (DIAGNOSTIC AND TREATMENT)	NR	2	6	9.5	NR	346	3287	109.57	109.57	329	310	330	330	330	0	6.0	0.0	6.0
1	0	100	1835I	CHEST ROOM	X-RAY (DIAGNOSTIC AND TREATMENT)	NR	2	6	9.5	NR	336	3192	106.40	106.40	319	310	320	320	320	0	6.0	0.0	6.0

AIR BALANCE SCHEDULE NOTES:

1. AIR HANDLER AHU 1–1S/1–2S IS THE SUPPL AIR HANDLING SYSTEM. THE SYSTEM CONSISTS OF TWO CONNECTED 100% OUTSIDE INTAKE UNITS. EACH UNIT HAS 30% PRE–FILTERS AND 95% FINAL FILTERS AND IS CONNECTED TO EMERGENCY POWER.
2. AIR HANDLER 1–1E/1–2E IS THE EXHAUST AIR HANDLING SYSTEM. THE SYSTEM CONSISTS OF TWO CONNECTED UNITS. EACH UNIT IS CONNECTED TO EMERGENCY POWER.

AGENCY APPROVAL

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UC DAVIS HEALTH

DAVIS TOWER 1835H AND 1835I X-RAY BRIDGING DOCUMENTS

2315 STOCKTON BLVD.
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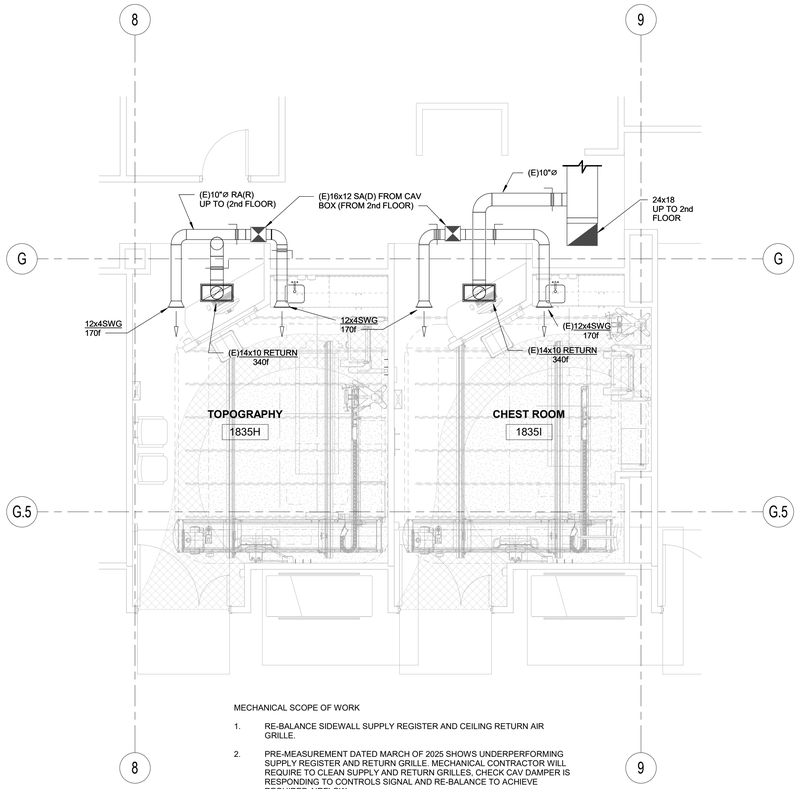
#	Date	Revision

PROJECT PROCUREMENT

NEXUS PROJ. #:	25011
CHECKED BY:	T&A
DRAWN BY:	T&A
DATE:	06/27/25

MECHANICAL LEGEND, SCHEDULES, AND NOTES

M0.1

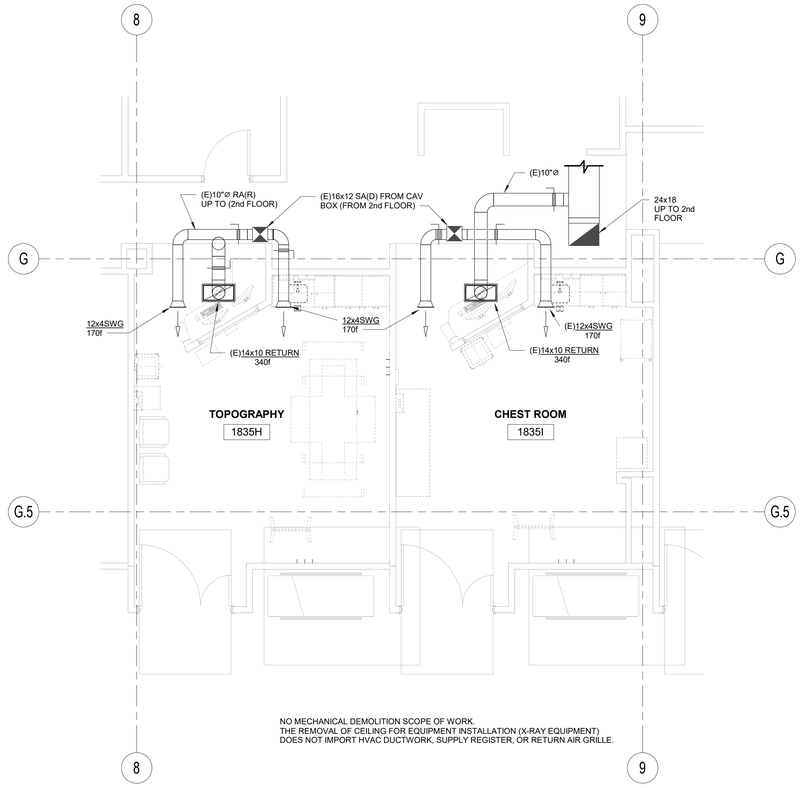


MECHANICAL SCOPE OF WORK

1. RE-BALANCE SIDEWALL SUPPLY REGISTER AND CEILING RETURN AIR GRILLE.
2. PRE-MEASUREMENT DATED MARCH OF 2025 SHOWS UNDERPERFORMING SUPPLY REGISTER AND RETURN GRILLE. MECHANICAL CONTRACTOR WILL REQUIRE TO CLEAN SUPPLY AND RETURN GRILLES, CHECK CAV DAMPER IS RESPONDING TO CONTROLS SIGNAL AND RE-BALANCE TO ACHIEVE REQUIRED AIRFLOW.

2 MECHANICAL NEW FLOOR PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"



NO MECHANICAL DEMOLITION SCOPE OF WORK.
THE REMOVAL OF CEILING FOR EQUIPMENT INSTALLATION (X-RAY EQUIPMENT) DOES NOT IMPORT HVAC DUCTWORK, SUPPLY REGISTER, OR RETURN AIR GRILLE.

1 MECHANICAL DEMOLITION FLOOR PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"

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#	Date	Revision

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PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
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DATE: 06/27/25

AGENCY APPROVAL

LEVEL01 - MECHANICAL FLOOR PLAN

M101

Autodesk Docs://25011 UCDH X-ray Criteria/MECH_25011 UCDH X-ray Criteria.rvt
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SEISMIC BRACING NOTES

MAX OPERATING WEIGHT OF PIPE IS 5 LBS/LF IF NO SEISMIC BRACING PROVIDED PER 2022 CBC 1617A.1.18 EXCEPTION #3b.

SEISMIC BRACING IS REQUIRED FOR THE FOLLOWING PIPES IN A HOSPITAL (IP=1.5):

1. HEATING AND CHILLED WATER PIPING WITH FLEXIBLE CONNECTIONS TO EQUIPMENT:
   STEEL PIPES 2" AND LARGER
   COPPER PIPES 2½" AND LARGER
2. DOMESTIC WATER (HOT AND COLD, NO FLEXIBLE CONNECTIONS):
   COPPER PIPES 1¼" AND LARGER
3. SANITARY WASTE AND VENT PIPING (NON-HUB CAST IRON, NO FLEXIBLE CONNECTIONS):
   VENT PIPING LARGER THAN 3"
   WASTE PIPING LARGER THAN 2"
4. MEDICAL GAS, MEDICAL VACUUM AND COMPRESSED AIR, NATURAL GAS, FUEL OIL:
   1¼" PIPE SIZE AND LARGER (NO FLEXIBLE CONNECTIONS)
5. TOTAL OPERATING WEIGHT OF THE PIPING SUPPORTED BY A TRAPEZE ASSEMBLY GREATER THAN 5 LBS/LF OR IF A PIPE ON THE TRAPEZE IS REQUIRED TO BE BRACED PER THE ABOVE CRITERIA

EXCEPTION: IF PIPING IS SUPPORTED BY 12" OR LESS HANGERS FROM TOP OF PIPE TO SUPPORTING STRUCTURAL, SEISMIC BRACING IS NOT REQUIRED WHEN THE ROD IS GREATER THAN ⅜", SWIVELS, EYE BOLTS OR OTHER DEVICES TO PREVENT INELASTIC BENDING OF ROD IS NEEDED AND MAX LOAD TO ANY HANGER IS 50 LBS MAX. 1" NOMINAL PIPE (CBC 1617A.1.26) (NOTE THAT ALL OF THE ABOVE PLUS THESE CONDITIONS MUST BE MET TO MEET THE EXCEPTION UNDER 1617A.1.26 ITEM 2).

REFERENCE OPM 0043-13, PAGE A10.5a, A10.6a.

EXISTING SYSTEMS TO BE VOLUNTARILY UPGRADED DURING HVAC UPGRADES UNDER THE FOLLOWING CONDITIONS:

A. PIPING IS BEING CONNECTED TO AND IS WITHIN 5 FEET OF THE CONNECTION
B. PIPING INTERFERES WITH NEW WORK AND IS REQUIRED TO BE RELOCATED. ALL NEW PIPING IS TO BE BRACED PER NOTES 1-5 ABOVE.
C. EXISTING PIPING OF THE SIZE THAT WOULD REQUIRE BRACING (PER NOTES 1-5) AND IS ABOVE THE AREA OF REMODELED.
D. WHERE EXISTING PIPING REQUIRES RESUPPORTING, THE NEW SUPPORTS SHALL BE FULLY COMPLIANT TO NEW OPM STANDARDS.

NEW SEISMIC BRACING LOCATIONS SEE FLOOR PLAN ON P-222 AND DETAIL ON P-503. OTHER NEW PIPING ARE EXCEPT FROM SEISMIC BRACING.

IF ANY (E) OR (N) PLUMBING PIPING IS DIFFERENT FROM DESIGN DOCUMENT AND NEEDS SEISMIC BRACING, CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND SUBMIT TO ENGINEERS TO REVIEW. CONSTRUCTION DOCUMENT WILL BE MODIFIED AND SUBMITTED TO HCAI.

PLUMBING GENERAL NOTES

1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO RECONSTRUCT THE HOSPITAL BUILDING IN ACCORDANCE WITH CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24 CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY HCAI BEFORE PROCEEDING WITH THE WORK. REFERENCE: CCR TITLE 24, PART 1, SECTION 7-125 (B).
2. INSULATION MATERIALS SHALL HAVE FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH THE TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, CBC, CHAPTER 8. SEE 2022 CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2.
3. HOSPITAL TO BE NOTIFIED 7 DAYS BEFORE ANY SYSTEM IS SHUT DOWN, SEE SPECIFICATIONS.
4. DIMENSIONS AND LOCATIONS OF EXISTING EQUIPMENT SHALL BE FIELD VERIFIED BY CONTRACTOR.
5. CONTRACTOR SHALL COORDINATE ALL INSPECTIONS WITH THE INSPECTOR OF RECORDS (IOR). CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE IOR TESTING TIMES. ALL ITEMS (AT A MINIMUM) LISTED IN THE TEST AND INSPECTIONS FORM SHALL BE TESTED.
6. ANCHORAGE OF ALL EQUIPMENT TO BE INSTALLED, AS A PART OF THIS PROJECT SHALL BE DETAILED ON THE APPROPRIATE PLANS, EXCEPT FOR THE FOLLOWING (ASCE 7, 13.1.4 AS MODIFIED BY THE 2022 CBC, 1617A.1.18):
   1. FURNITURE (EXCEPT STORAGE CABINETS).
   2. TEMPORARY OR MOVABLE EQUIPMENT (SEE 2022 CBC, 1617A.1.18 FOR EXCEPTIONS).
   3. DISCRETE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND FIXED EQUIPMENT IN SEISMIC DESIGN CATEGORY D, E, OR F THAT ARE POSITIVELY ATTACHED TO THE STRUCTURE AND ANCHORAGE IS DETAILED ON THE PROVIDE, PROVIDE EITHER
      A. THE COMPONENT WEIGHS 400 POUNDS OR LESS, AND THE CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT, AND FLEXIBLE CONNECTION CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. (SEE 2022 CBC, 1617A.1.18 FOR EXCEPTIONS):
      OR
      B. THE COMPONENT WEIGHS 20 POUNDS OR LESS, OR IN THE CASE OF A DISTRUBUTED SYSTEM, 5 LB/FT OR LESS.
   (SEE 2022 CBC, 1617A.1.18 FOR EXCEPTIONS):
7. EQUIPMENT THAT DO NOT MEET ANY OF ABOVE EXCEPTIONS MUST BE SUPPORTED AND ANCHORED TO RESIST THE FORCES PRESCRIBED BY CHAPTER 13 OF ASCE 7 AS MODIFIED BY THE CBC 2022 SECTIONS 1617A.1.18 AND THE ANCHORAGE SHALL BE APPROVED BY THE APPROPRIATE DESIGN PROFESSIONAL OF RECORD AND HCAI AS A PART OF FIELD REVIEWS/OBSERVATIONS. THE INSPECTOR OF RECORD SHALL ASSURE THAT THE ABOVE REQUIREMENTS ARE ENFORCED. REFERENCE CAC TITLE 24, PART 1, SECTIONS 7-125.
8. PIPES, DUCTS, AND CONDUITS SHALL BE INSTALLED PER OPM-0043-13 (MASON) DRAWINGS AND DETAILS.
9. EQUIPMENT ANCHORAGE APPROVAL: EQUIPMENT ANCHORAGE DETAILS MUST BE APPROVED BY HCAI PRIOR TO FABRICATION AND INSTALLATION. IF THE EQUIPMENT HAS BEEN SPECIFIED SUCH THAT ANCHORAGE DETAILS CAN BE DETERMINED, THEN THE DETAILS MUST BE SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS. NO REFERENCE TO "OR EQUAL" IS ALLOWED UNLESS IT IS CLEARLY SPECIFIED THAT ANY "OR EQUAL" SUBSTITUTIONS MUST BE APPROVED BY HCAI BY MEANS OF A CHANGE ORDER.
10. ANCHORAGE PRE-APPROVAL: WHERE CONTRACT DRAWINGS REFERENCE ANCHORAGE PRE-APPROVAL NUMBERS (OPM) FOR SPECIFIC PIECES OF EQUIPMENT THE ENGINEER SHALL VERIFY THAT THE PRE-APPROVAL IS APPROPRIATE. IF THE INSTALLATION VARIES IN ANY WAY FROM THE SHOWN IN THE ANCHORAGE PRE-APPROVAL DOCUMENT, THE ENGINEER SHALL PROVIDE COMPLETE CALCULATIONS FOR ANCHORAGE AND BRACING OF THE COMPONENT AND SYSTEM.
11. PRE-APPROVALS FOR THE SEISMIC BRACING OF PIPES, DUCTS AND CONDUITS: ALL OF THE PRE-APPROVED SYSTEMS REQUIRE THAT THE SEISMIC LATERAL FORCE, Fp INCLUDING CONSIDERATION OF Ap AND Rp BE DETERMINED AT EACH LEVEL OF THE BUILDING SO THAT BRACE SPACING CAN BE CALCULATED. STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE ALL PARAMETERS REQUIRED TO COMPUTE Fp (SUCH AS SEISMIC ZONE, Ip AND hr PROVIDE hx for EACH FLOOR WHERE PRE-APPROVED IS USED) ON THE CONTRACT DRAWINGS.

    THE CONTRACTOR SHALL PROVIDE AND THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUECY OF ANY SUPPLEMENTARY FRAMING THAT IS NEEDED TO RESIST THE LOADS, MAINTAIN STABILITY AND/OR IS REQUIRED FOR THE INSTALLATION OF THE PRE-APPROVED SYSTEM. THE SUPPLEMENTARY FRAMING SHALL BE SUBMITTED TO HCAI FOR APPROVAL BY MEANS OF A CHANGE ORDER.

    A COPY OF THE CHOSEN BRACING SYSTEM(S) INSTALLATION GUIDE/MANUAL SHALL BE ON THE JOBSITE PRIOR TO STARTING THE INSTALLATION OF HANGERS AND/OR BRACES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COPIES OF HCAI PRE-APPROVALS AND FURNISH THE IOR WITH ONE COPY OF EACH.

    DO NOT MIX COMPONENTS OF TWO OR MORE PRE-APPROVED BRACING SYSTEMS. ONLY ONE PRE-APPROVED BRACING SYSTEM MAY BE USED FOR A RUN OF PIPE, DUCT OR CONDUIT. ANY SUBSTITUTION OF A COMPONENT OF A PRE-APPROVED BRACING SYSTEM REQUIRES HCAI REVIEW AND APPROVAL.
12. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXITING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRE-STRESSED CONCRETE (PRE OR POST TENSIONED). LOCATE THE PRE-STRESSED TENDONS BY USING A NONDESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
13. A COPY OF TITLE 24 PARTS 1, 2, 3, 4 AND 5 SHALL BE KEPT ON SITE.
14. THE AUTOMATIC SPRINKLER SYSTEM SHALL CONFORM TO REQUIREMENTS OF THE NFPA PAMPHLET #13 AND SPECIFICATION.
15. REVISIONS TO THE SPRINKLER SYSTEM SHALL NOT BE STARTED UNTIL COMPLETE PLANS AND SPECIFICATIONS HAVE BEEN APPROVED BY THE OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT.
16. USE CLASS I RATED COUPLING AS APPROVED BY FACTORY MUTUAL RESEARCH APPROVAL STANDARDS CLASS NUMBER 1680 FOR ALL HUBLESS CAST IRON DRAINAGE OR RAINWATER PIPING ABOVE DELIVERY ROOMS, NURSERIES, INTENSIVE CARE UNITS, ISOLATION ROOMS, CLEAN ROOMS, CLEAN LINEN STORAGE ROOMS. SPECIAL PRECAUTIONS TO PROTECT AREAS FROM POSSIBLE LEAKAGE FROM NECESSARY OVERHEAD PIPING SYSTEM SHALL COMPLY WITH CPC CHAPTER 3, SECTION 310.9.
17. THE HOLE OPENING SHALL BE 1/16" LARGER THAN BOLT/ ANCHOR SIZE. NO SLOTTED OR PRE-PUNCHED STRUT WILL BE ALLOWED.
18. PROVIDE TEES AND VALVES ON WATER LINES FOR CHLORINATION
19. FREEZE WATER PIPING TO REDUCE SHUT DOWN TIME.
20. WHERE PROVIDED, THROUGH-PENETRATION FIRESTOP SYSTEM AND MEMBRANE PENETRATION DETAILS ARE FOR REFERENCE ONLY. THROUGH-PENETRATIONS AND MEMBRANE PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM OR MEMBRANE PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER OR AS OTHERWISE PERMITTED BY CBC, SECTION 714. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS AND MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS FOR LISTED SYSTEMS. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS, MEMBRANE PENETRATION PROTECTION AND OTHER PERMITTED MEANS AND METHODS OF PENETRATION PROTECTION SHALL BE SUBMITTED FOR HCAI FDD REVIEW AND APPROVAL PRIOR TO INSTALLATION.

PLUMBING ABBREVIATIONS

ABV	ABOVE
ABC, OH	ABOVE CEILING, OVERHEAD
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AIP	ABANDON IN PLACE
BR	BRANCH
CL	CENTERLINE
CO	CLEANOUT
CW	COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DIA, ø	DIAMETER
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FSR	FIRE SPRINKLER RISER
GCO	GRADE CLEANOUT
HW	HOT WATER
HWR	HOT WATER RETURN
I.E.	INVERT ELEVATION
(N) (E)	NEW, EXISTING
NIC	NOT IN CONTRACT
POC	POINT OF CONNECTION
P, TRV	PRESSURE & TEMPERATURE RELIEF VALVE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
(R) (D)	RISE, DROP
RD, OFL	ROOF DRAIN, OVERFLOW
RI	ROUGH-IN
RO	RUN-OUT
SMS	SHEET METAL SCREWS
SOV	SHUT OFF VALVE
TA, FA	TO ABOVE, FROM ABOVE
TB, FB	TO BELOW, FROM BELOW
TBR	TO BE REMOVED
TP	TRAP PRIMER
UG, UF	UNDERGROUND, UNDERFLOOR
UON	UNLESS OTHERWISE NOTED
UTR	UP THROUGH ROOF
V, VR, VTR	VENT, VENT RISER, VENT THRU ROOF
WT	WATERTIGHT
WCO	WALL CLEANOUT

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

A) STATE OF CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24,

2022 EDITION OF THE CALIFORNIA BUILDING CODE.
2022 EDITION OF THE CALIFORNIA ELECTRICAL CODE.
2022 EDITION OF THE CALIFORNIA FIRE CODE.
2022 EDITION OF THE CALIFORNIA MECHANICAL CODE.
2022 EDITION OF THE CALIFORNIA PLUMBING CODE.

B) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) LIFE SAFETY CODE

PIPING MATERIAL SCHEDULE

1. WASTE AND VENT PIPE ABOVE GROUND FROM LAVATORIES OR SINKS, RAINWATER LEADERS AND OVERFLOWS ABOVE THE FLOOR: CAST IRON SOIL PIPE AND FITTINGS WITH NO HUB JOINTS CONFORMING TO THE REQUIREMENTS OF CISPI STANDARD 301, ASTM A-888 OR ASTM A-74 FOR ALL PIPE AND FITTINGS. JOINTS SHALL CONFORM TO CISPI 310 AND SHALL BE HUBLESS COUPLINGS COMPOSED OF STAINLESS STEEL SHIELD, CLAMP ASSEMBLY AND ELASTOMERIC SEALING SLEEVE. DWV DRAINAGE TUBING AND FITTINGS ARE ACCEPTABLE WHEN APPROVED. CONDENSATE DRAINS SHALL BE TYPE L HARD COPPER, WITH LONG SWEEP ELBOWS AND CLEANOUT TEES AT EACH CHANGE IN DIRECTION. CONNECT CONDENSATE DRAINS TO AIR CONDITIONING UNITS WITH P-TRAP AND RUN TO AN APPROVED RECEPTOR AND DRY WELL. PROVIDE VIBRATION ELIMINATORS AT A.C. UNITS.
2. WATER PIPE (HOT AND COLD WATER): TYPE L COPPER TUBING, HARD TEMPER, WITH WROUGHT COPPER FITTINGS. CAPPED OR PLUGGED OUTLETS SHALL BE SCHEDULE 40 SCREWED BRASS. PROVIDE FULL SOLDER CUP FITTINGS.

PLUMBING FIXTURE CONNECTION SCHEDULE

FIXTURE NAME	SYMBOL	VENT	WASTE		COLD WATER		HOT WATER	
			BR	RI	BR	RI	BR	RI
SINK	SK	1½"	2"	1½"	¾"	½"	¾"	½"

PLUMBING FIXTURE SCHEDULE

SK-1 HANDWASH SINK:
"JUST" MODEL SLADA17519A55-J, 19"x18"x5½", SINGLE BOWL, 18 GA. TYPE 304 STAINLESS STEEL, COUNTER MOUNTED, SELF RIMMING. "CHICAGO FAUCET" MODEL 116.103.AB.1T, GOOSENECK SENSOR OPERATED FAUCET, 1.5 GPM NON AERATING LAMINER FLOW OUTLET, SINGLE HOLE, 120 VOLT AC POWER SUPPLY TRANSFORMER (120V TO 12VAC). PROVIDE THERMOSTATIC MIXING VALVE MODEL 131-AB-NF WITH INTERNAL CHECK VALVE, PROVIDE EBPS EMERGENCY BACK-UP POWER BATTERY, PROVIDE 17 GA. CHROME PLATED BRASS P-TRAP.

PLUMBING LEGEND

	COLD WATER LINE
CD	CONDENSATE DRAIN
F	FIRE SERVICE LINE
G	GAS
	HOT WATER LINE
	HOT WATER RETURN
LPG	LIQUID PETROLEUM GAS
OFL	OVERFLOW
X X X X X	PIPING OR EQUIPMENT TO BE REMOVED
RWL	RAINWATER LEADER
	RISE OR DROP IN DIRECTION OF FLOW
	SANITARY SOIL OR WASTE LINE
SCD	SECONDARY CONDENSATE DRAIN LINE
TP	TRAP PRIMER LINE
	VENT
	CLEANOUT & WALL CLEANOUT
	FIRE DEPARTMENT CONNECTION
	FLOOR/ GRADE CLEAN OUT
	FLOOR DRAIN
	HOSE BIBB/ WALL HYDRANT
	TRAP
	TRAP PRIMER
	BALANCING VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	FLEXIBLE CONNECTION
	GATE VALVE
	SHUT OFF COCK
	PRESSURE GAUGE
	PRESSURE REDUCING VALVE
	REDUCER
	PRESSURE & TEMPERATURE RELIEF VALVE
	SHUT OFF VALVE
	STRAINER
	STRAINER & DRAIN VALVE WITH HOSE FITTING
	SOLENOID VALVE
	THERMOMETER
	UNION
MA	MEDICAL AIR
PA	PLANT COMPRESSED AIR
N	NITROGEN LINE
ND	NITROUS OXIDE
OX	OXYGEN LINE
MV	VACUUM LINE

COMPLIANCE NOTES

MECHANICAL AND PLUMBING EQUIPMENT SHALL CONFORM TO THE FOLLOWING AS STATED IN THE ENERGY EFFICIENCY STANDARDS, 2022.

1. BE CERTIFIED BY THE MANUFACTURER AS COMPLYING WITH THE EFFICIENCY REQUIREMENTS AS PRESCRIBED IN SECTIONS:
   - 110.1 APPLIANCES REGULATED BY THE APPLIANCE EFFICIENCY STANDARDS:
   - 110.2 HVAC EQUIPMENT EFFICIENCY AND PACKAGED CONTROLS:
   - 110.3 SERVICE WATER HEATING EFFICIENCY AND CONTROLS:
   - 110.4 POOL AND SPA HEATING EFFICIENCY AND CONTROLS:
   - 110.5 RESTRICTIONS ON PILOT LIGHTS:
2. BE SPECIFIED AND INSTALLED IN ACCORDANCE WITH SECTIONS.
   - 120.1 REQUIREMENTS FOR VENTILATION:
   - 120.2 REQUIRED CONTROLS FOR HVAC SYSTEMS:
     - 102.2 (H) DEMAND SHED CONTROLS.
     - 120.2 (I) ECONOMIZER FAULT DETECTION & DIAGNOSTIC.
   - 120.3 REQUIREMENTS FOR PIPE INSULATION:
   - 120.4 REQUIREMENTS FOR DUCT INSULATION:
   - 120.5 REQUIREMENTS FOR MECHANICAL SYSTEMS
   - 120.8 BUILDING COMMISSIONING
   - 120.9 REQUIREMENTS FOR COMMERCIAL BOILERS

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REGISTERED PROFESSIONAL ENGINEER — JERRAY J. SWART — No. M 40357 EXP 6/30/25 — MECHANICAL — STATE OF CALIFORNIA

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Email: office@turleyinc.com

Project Engineer:	NS	Job Number:	25125
Project Manager:	NS	Plot Date: May 01, 2025 - 12:47pm	
Project Drafter:	ZH	Logic: hidhan	

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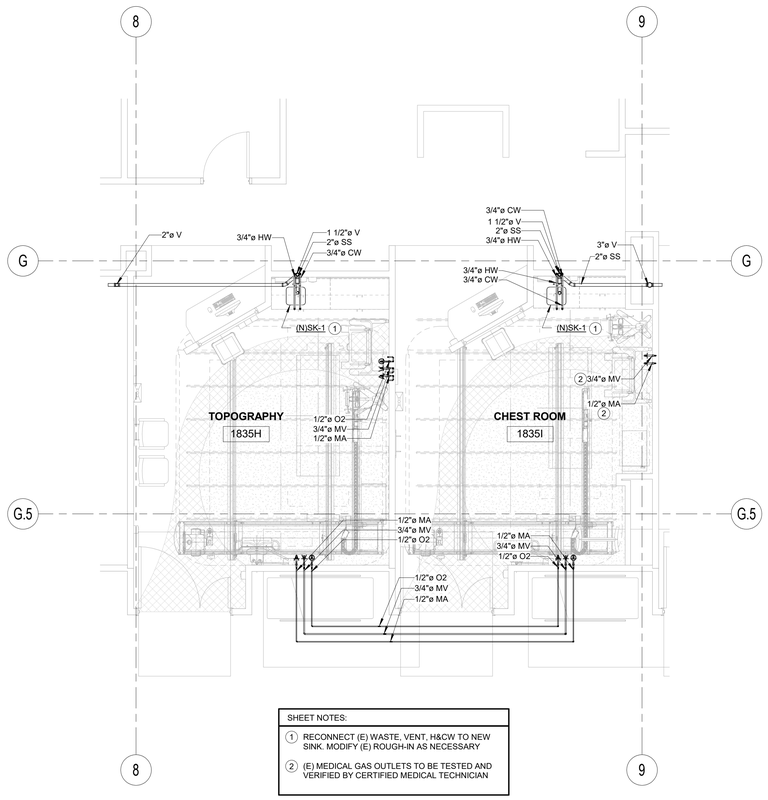
PLUMBING LEGEND, SCHEDULES, AND NOTES

P0.1

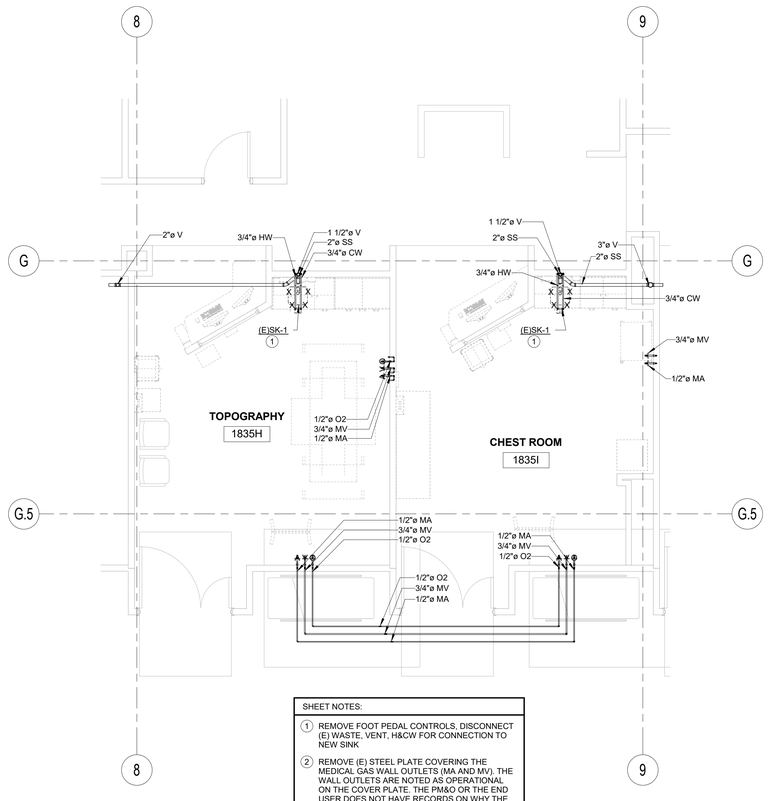


SHEET NOTES:

1. RECONNECT (E) WASTE, VENT, H&CW TO NEW SINK. MODIFY (E) ROUGH-IN AS NECESSARY
2. (E) MEDICAL GAS OUTLETS TO BE TESTED AND VERIFIED BY CERTIFIED MEDICAL TECHNICIAN

2 PLUMBING NEW FLOOR PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"



SHEET NOTES:

1. REMOVE FOOT PEDAL CONTROLS, DISCONNECT (E) WASTE, VENT, H&CW FOR CONNECTION TO NEW SINK
2. REMOVE (E) STEEL PLATE COVERING THE MEDICAL GAS WALL OUTLETS (MA AND MV). THE WALL OUTLETS ARE NOTED AS OPERATIONAL ON THE COVER PLATE. THE PM&O OR THE END USER DOES NOT HAVE RECORDS ON WHY THE OUTLETS WERE COVERED WITH PLATE. THE END USER HAS CONFIRMED THEIR DESIRE TO BE ABLE TO ACCESS AND USE THOSE OUTLETS FOR REMODEL EQUIPMENT ROOM.

1 PLUMBING DEMOLITION FLOOR PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"

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LEVEL01 - PLUMBING FLOOR PLAN

P101

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SHEET INDEX

SHEET NUMBER	SHEET NAME
E0.0	NOTES, SYMBOLS LIST, & SHEET INDEX
E1.1	OVERALL LEVEL 1 FLOOR PLAN
E1.2	OVERALL LEVEL 2 FLOOR PLAN
E2.1	ENLARGED LEVEL 1 PLAN - DEMO & NEW ELECTRICAL
E3.1	ENLARGED LEVEL 1 RCP - DEMO & NEW LIGHTING
E4.0	EQUIPMENT PLANS & DETAILS
E4.1	EQUIPMENT PLANS & DETAILS
E5.0	PARTIAL ONE LINE DIAGRAM

LUMINAIRE SCHEDULE

TYPE MARK	MANUFACTURER	MODEL	DESCRIPTION	MOUNTING	LAMP	VOLTS	WATTS	REMARKS
A	LITHONIA LIGHTING	2BZL4-40L-MVOLT-LP835-N80 OR APPROVED EQUAL	LENSED 2x4 TROFFER	RECESSED	LED	277	39	
D	GOTHAM LIGHTING	EVO-35/45-6WRAMF-MD-X-MVOLT-EZB-NPS80 OR APPROVED EQUAL	6" DOWNLIGHT	RECESSED	LED	120	47	
UC	LITHONIA LIGHTING	UCLD-48IN-35K-90CRI-SWR-WH OR APPROVED EQUAL	UNDER CABINET LIGHTING	SURFACE	LED	120	25	
XR	BEGHELLI	FTZ-HT-LR-1-U OR APPROVED EQUAL	X-RAY IN USE SIGN	SURFACE	LED	277	10	CUSTOM GRAPHIC 'X-RAY IN USE'

STANDARD ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	SURFACE MOUNTED LUMINAIRE.
	RECESSED MOUNTED LUMINAIRE.
	RECESSED MOUNTED DIRECT/INDIRECT LUMINAIRE.
	WALL MOUNTED LUMINAIRE.
	SURFACE MOUNTED LUMINAIRE.
	RECESSED MOUNTED LUMINAIRE.
	LUMINAIRE SHADING INDICATES LUMINAIRE CONNECTED TO EMERGENCY POWER SOURCE.
B	LUMINAIRE TAG, LETTER INDICATES TYPE, SEE LUMINAIRE SCHEDULE.
S	SINGLE POLE TOGGLE SWITCH, MOUNTED +44" ABOVE FINISHED FLOOR TO CENTER OF BOX.
S_aS_p S_kS_{mc}	SWITCH SUBSCRIPTS; a,b,c = DEVICE CONTROL, p = PILOT LIGHT, k = KEYED, mc = MOMENTARY CONTACT.
OS	AUTOMATIC "ON", CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR.
$	LOW VOLTAGE MOMENTARY OVERRIDE SWITCH, MOUNTED +44" ABOVE FINISHED FLOOR TO CENTER OF BOX.
x	NON FUSED DISCONNECT SWITCH. NUMBER ADJACENT INDICATES AMPERE RATING OF SWITCH.
x	FUSED DISCONNECT SWITCH WITH FUSETRON FUSES, SIZE TO SUIT EQUIPMENT NAME PLATE RATING. NUMBER ADJACENT INDICATES AMPERE RATING OF SWITCH.
x	THERMAL MAGNETIC CIRCUIT BREAKER DISCONNECT. NUMBER ADJACENT INDICATES AMPERE RATING OF SWITCH.
	CONTROL AND/OR EQUIPMENT, N.I.E.S., INSTALL AND CONNECT AS REQUIRED.
	MOTOR, N.I.E.S., CONNECT AS REQUIRED.
	EQUIPMENT DESIGNATION
	DISTRIBUTION PANEL/MOTOR CONTROL CENTER.
	BRANCH CIRCUIT PANELBOARD, SURFACE MOUNTED.
	BRANCH CIRCUIT PANELBOARD, FLUSH MOUNTED.
	TERMINAL CABINET, SURFACE MOUNTED, SIZE AND TYPE AS INDICATED.
	TERMINAL CABINET, FLUSH MOUNTED, SIZE AND TYPE AS INDICATED.
	GROUND BUS BAR.
	20 AMP 125V 3W DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX.
	20 AMP 125V 3W DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX. CONNECT TO EMERGENCY POWER SOURCE.
	20 AMP 125V 3W DOUBLE DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX.
	20 AMP 125V 3W DOUBLE DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX. CONNECT TO EMERGENCY POWER SOURCE.
	20 AMP 125V 3W DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX WITH GROUND FAULT INTERRUPTER.
	20 AMP 125V 3W DUPLEX CONVENIENCE RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX WITH GROUND FAULT INTERRUPTER. CONNECT TO EMERGENCY POWER SOURCE.
	XX/XX AMP XXXV X RECEPTACLE, MOUNTED +18" ABOVE FINISHED FLOOR TO CENTER OF BOX.
J	JUNCTION BOX, SIZE AND TYPE AS INDICATED OR REQUIRED.
	TELEPHONE/DATA OUTLET, 4 11/16" SQUARE X 2 1/8" DEEP BOX [WITH 1 [2]-DEVICE RING AND PLATE.] MOUNTED 18" ABOVE FINISHED FLOOR TO CENTER OF BOX. STUB 1.25"C 6" INTO ACCESSIBLE CEILING SPACE WITH A 4" RADIUS BEND. TERMINATE WITH INSULATING BUSHING.
N.I.E.S.	NOT IN ELECTRICAL SECTION OF THESE PLANS AND SPEC'S.
'G'	GREEN INSULATED GROUND WIRE, #12 AWG UNLESS NOTED.
AFF	ABOVE FINISHED FLOOR.
NL	NIGHT LIGHT.
(E)	EXISTING.
(N)	NEW.
(D)	DEMOLISH.
XX	NUMBERED NOTE.
	RACEWAY INSTALLED IN CEILING OR WALL. ROUTE EXPOSED IN ALL UNFINISHED AREAS.
	RACEWAY INSTALLED BELOW FINISHED FLOOR OR GRADE.
	EXISTING CONDUIT RUN TO BE ABANDONED. CONDUIT ABOVE THE FLOOR AND BELOW THE STRUCTURE ABOVE SHALL BE REMOVED.
	EXISTING CONDUIT RUN, VERIFY ROUTING ON THE JOB.
	ARROW AT END OF RACEWAY INDICATES HOME RUN TO RESPECTIVE PANELBOARD OR SWITCHBOARD.
	BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AWG CIRCUIT WITH 1 #12 AWG GROUND.
	STRAIGHT CROSS-LINES IN BRANCH CIRCUIT RACEWAY INDICATE NUMBER OF #12 AWG WIRES IN A CIRCUIT. SHORT LINES INDICATE UNGROUNDED CONDUCTORS. LONG LINES INDICATE NEUTRAL CONDUCTORS. WIRES SHOWN ARE IN ADDITION TO 1 #12 AWG GROUNDING CONDUCTOR.
#10	BRANCH CIRCUIT WITH GROUNDING WIRE LARGER THAN #12 AWG. NUMBER ADJACENT TO CURVED CROSS-LINE INDICATES WIRE SIZE.
#10	BRANCH CIRCUIT RACEWAY WITH WIRE OTHER THAN #12 AWG. NUMBER ADJACENT TO STRAIGHT OR CURVED CROSS-LINES INDICATES WIRE SIZE. UNGROUNDED AND NEUTRAL CONDUCTORS SHALL BE THE SAME SIZE UNLESS OTHERWISE NOTED.
	INDICATES RACEWAY TURNING UP.
	INDICATES RACEWAY TURNING DOWN.

GENERAL NOTES

THE CONTRACTOR SHALL VISIT JOB SITE AND VERIFY CONDITIONS BEFORE BIDDING.

THE FACILITY SHALL REMAIN IN OPERATION DURING ALL PHASES OF WORK. WHERE SYSTEM SHUTDOWNS AND POWER OUTAGES ARE UNAVOIDABLE, SUCH WORK SHALL BE SCHEDULED WITH THE FACILITY MANAGER AND SHALL OCCUR AT SUCH TIMES AS TO CAUSE THE LEAST DISRUPTION OF NORMAL FACILITY FUNCTIONS. INCLUDE ALL PREMIUM LABOR IN BID PROPOSAL TO COVER WORK REQUIRED TO BE PERFORMED BEFORE OR AFTER "NORMAL" WORKING HOURS.

COORDINATE SEQUENCE OF WORK WITH OWNER. MAKE ALL NECESSARY CONNECTIONS AS REQUIRED TO MAINTAIN POWER DURING THE STAGES OF WORK.

EXISTING DEVICES SHOWN WERE TAKEN FROM EXISTING DRAWINGS (NOT "AS BUILT" DRAWINGS) AND LIMITED SITE SURVEYS AND MAY NOT BE EXACTLY AS SHOWN. CONTRACTOR SHALL VISIT JOB SITE AND VERIFY CONDITIONS PRIOR TO BIDDING.

REFER TO THOSE DRAWINGS SHOWING OTHER WORK, AND COORDINATE PLACEMENT OF WORK WITH THAT OF OTHER TRADES. REPORT ANY CONFLICT TO ARCHITECT PRIOR TO INSTALLING WORK, ADJUST WORK AS DIRECTED BY ARCHITECT.

EXISTING DEVICES SHOWN WITH INCOMPLETE, OR WITHOUT BRANCH CIRCUITRY WERE INSTALLED AND/OR ALTERED BY OWNER. CONTRACTOR SHALL RELOCATE EXISTING BRANCH CIRCUITRY AND MAKE ALL NECESSARY RECONNECTIONS AS REQUIRED TO FACILITATE REMODEL. VERIFY ALL WORK REQUIRED ON THE JOB AND RECORD ON RECORD DRAWINGS.

CORE DRILL EXISTING WALLS AND FLOORS AS REQUIRED TO FACILITATE CONDUIT INSTALLATION. SEAL ALL PENETRATIONS WATER AND SMOKE TIGHT AND IN CONFORMANCE WITH CBC SECTION 713.1 AND C.E.C. 300.21. FIRE STOP MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE OSHPD FIRE MARSHAL. NO REBAR SHALL BE CUT DURING CORE DRILL OPERATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NEW FIRE STOPPING OF ALL NEW OR EXISTING CONDUIT OR CABLE PENETRATIONS IN NEW OR EXISTING FIRE RATED WALLS WITHIN THE LIMITS OF WORK.

REMOVE AND REINSTALL EXISTING LIGHT FIXTURES AS REQUIRED TO FACILITATE INSTALLATION OF WORK OF OTHER TRADES UNDER THIS PROJECT. VERIFY ALL WORK REQUIRED ON THE JOB.

ALL EQUIPMENT INSTALLED OR CONNECTED BY THE CONTRACTOR SHALL BE LABELED OR CERTIFIED FOR ITS USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY.

EMERGENCY SYSTEM WIRING SHALL BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING. WIRING SHALL NOT ENTER THE SAME RACEWAY, BOX OR CABINET WITH OTHER WIRING PER CEC 517.30(C). PROVIDE PERMANENT SEPARATION BARRIER OR SEPARATE TERMINAL BOX AS REQUIRED PER CEC 314.28(D).

NO PIPING, DUCTS, EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE IN THE DEDICATED SPACE FOR SWITCHBOARD(S), PANELBOARD(S), AND/OR MOTOR CONTROL CENTER(S) PER CEC 110.26(f).

UNLESS OTHERWISE INDICATED, ALL 20 AMP 120 OR 277 VOLT BRANCH CIRCUITS SHALL HAVE DEDICATED NEUTRALS. DO NOT SHARE NEUTRALS.

DEMOLITION NOTES

1. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION.
2. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS AND CEILINGS SCHEDULED FOR REMOVAL.
3. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.
4. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
5. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. ANY FIRE RESISTANCE RATED CONSTRUCTION DAMAGED DURING THE SCOPE OF WORK SHALL BE REPAIRED TO MATCH THE EXISTING RATED CONDITION PER 2010 CFC SECTION 703.1.
6. REMOVE EXPOSED ABANDONED WIRE AND CABLE. PATCH SURFACES WHERE REMOVED CABLES PASS THROUGH BUILDING FINISHES.
7. DISCONNECT ABANDONED CIRCUITS, OUTLETS AND REMOVE CIRCUIT, DEVICES, WIRE AND CABLE. REMOVE ABANDONED BOXES, OUTLETS IF RACEWAY, WIRE AND CABLE SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED BOXES WHICH ARE NOT REMOVED.
8. ENSURE ACCESS TO EXISTING BOXES, WIRING CONNECTIONS AND OTHER INSTALLATIONS WHICH ARE TO REMAIN ACTIVE AND WHICH REQUIRE ACCESS. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

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NOTES, SYMBOLS LIST, & SHEET INDEX

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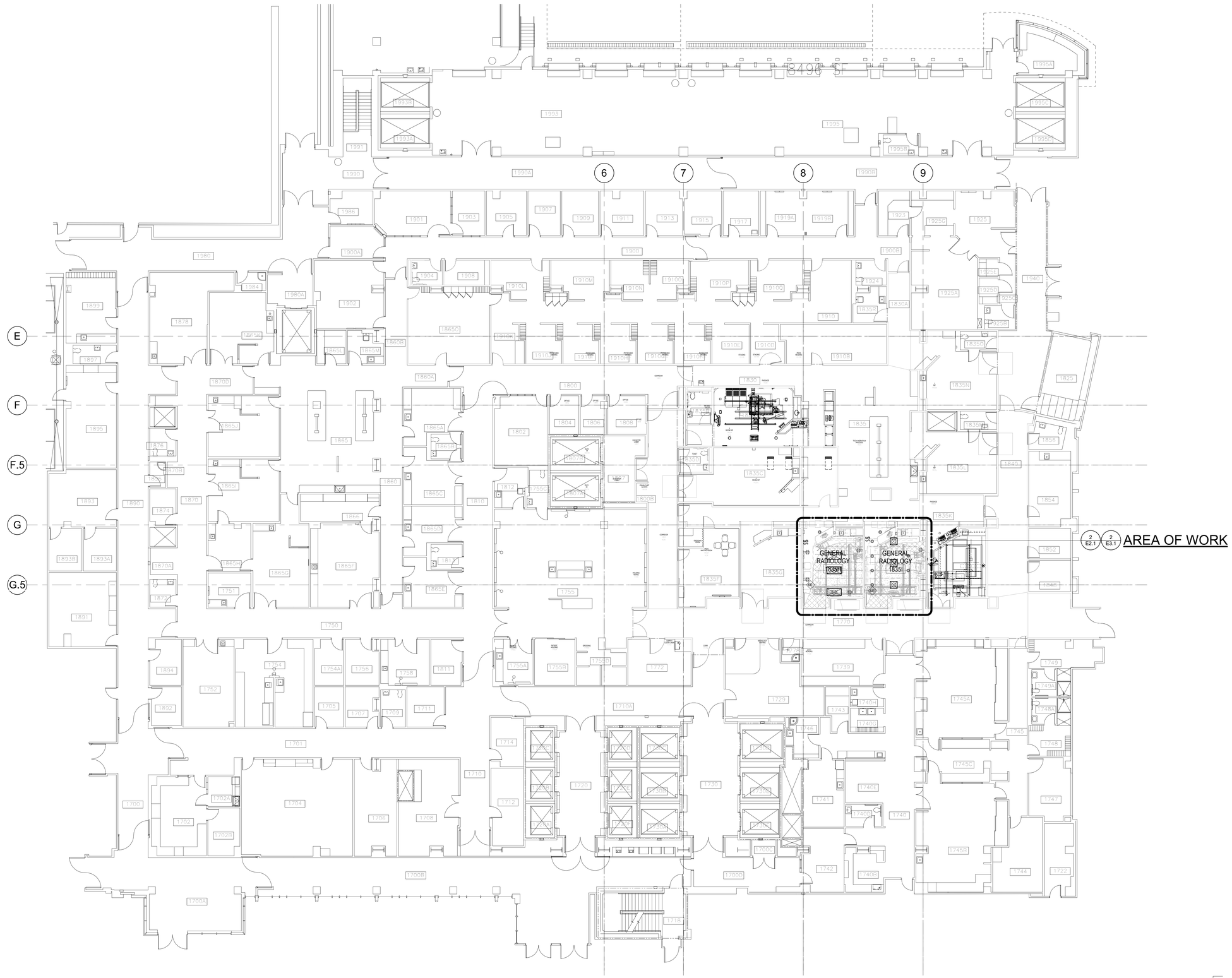

1 OVERALL LEVEL 1 FLOOR PLAN
3/32" = 1'-0"

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OVERALL LEVEL 1 FLOOR PLAN

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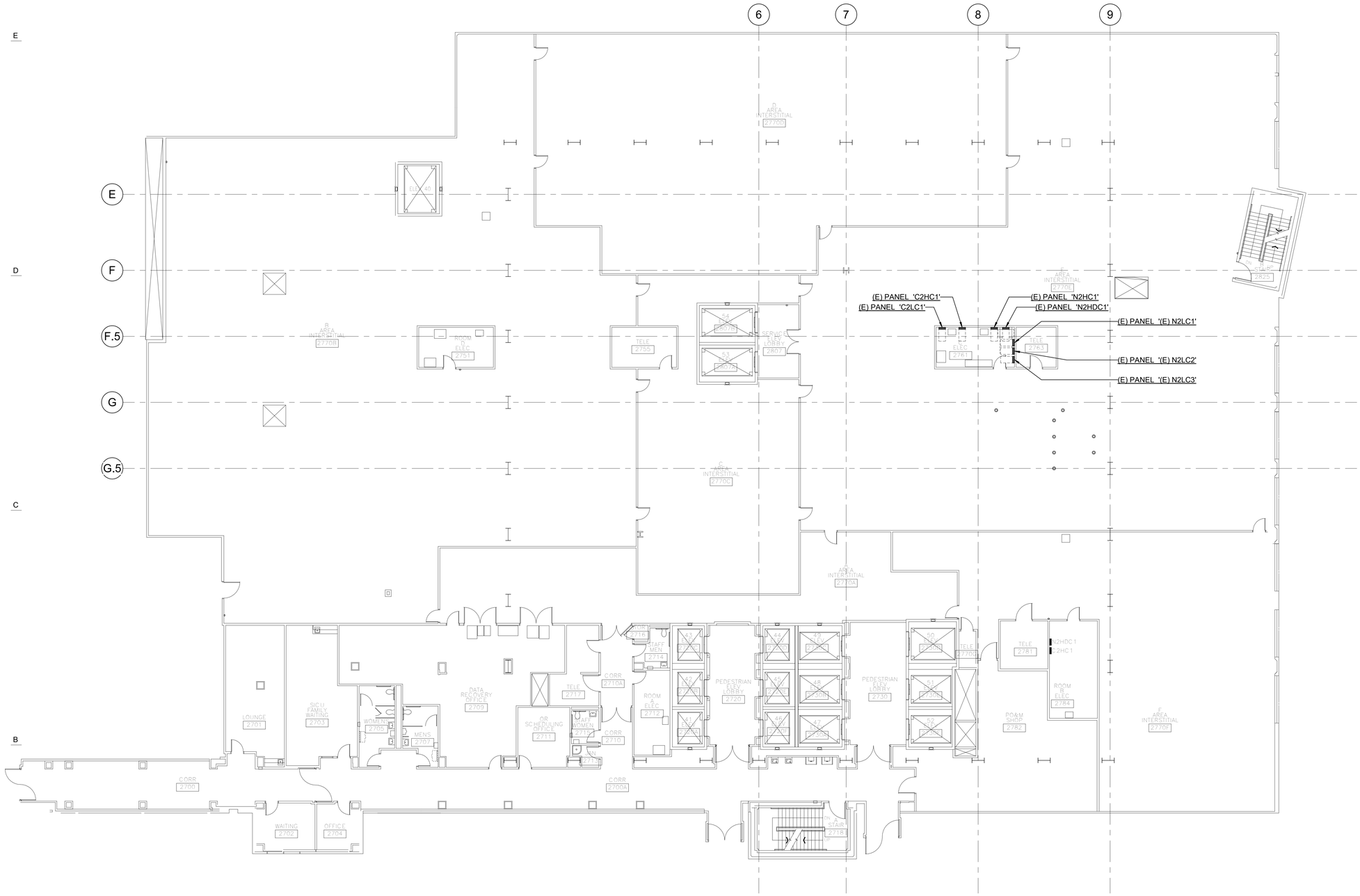

1 OVERALL LEVEL 2 FLOOR PLAN
3/32" = 1'-0"

NORTH

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OVERALL LEVEL 2 FLOOR PLAN

E1.2

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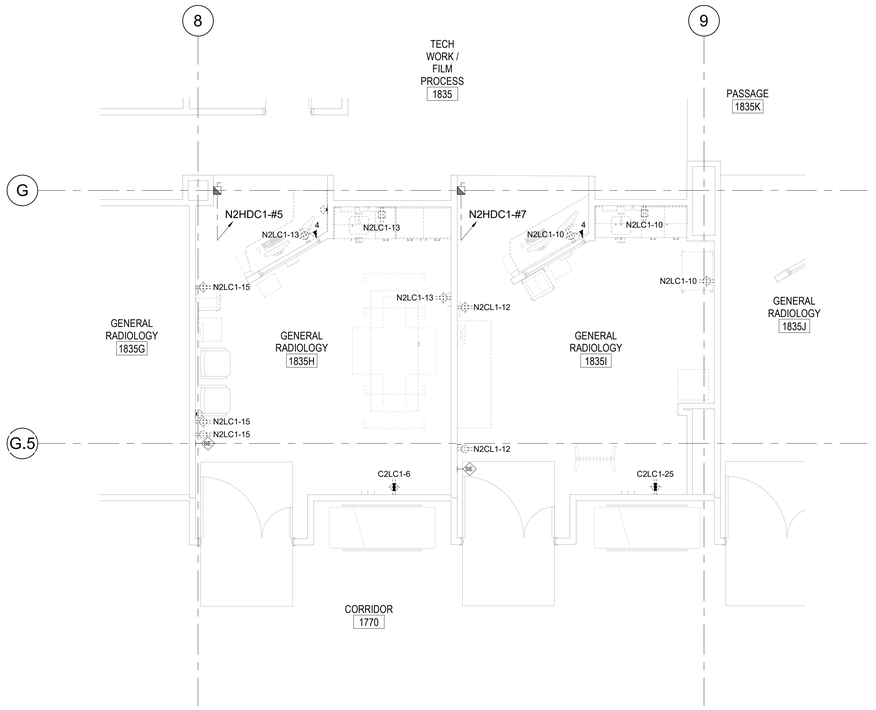
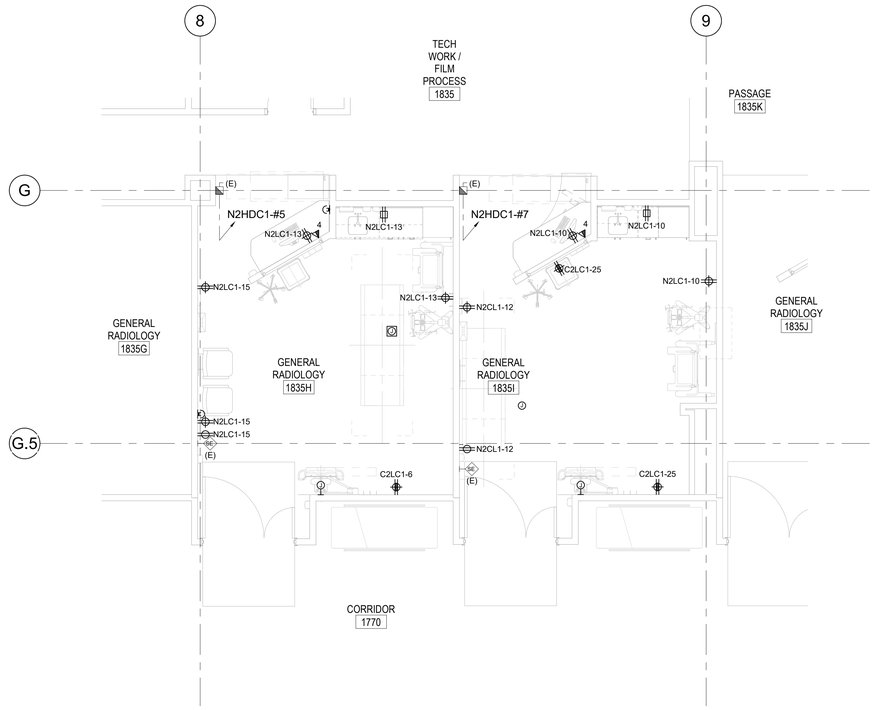
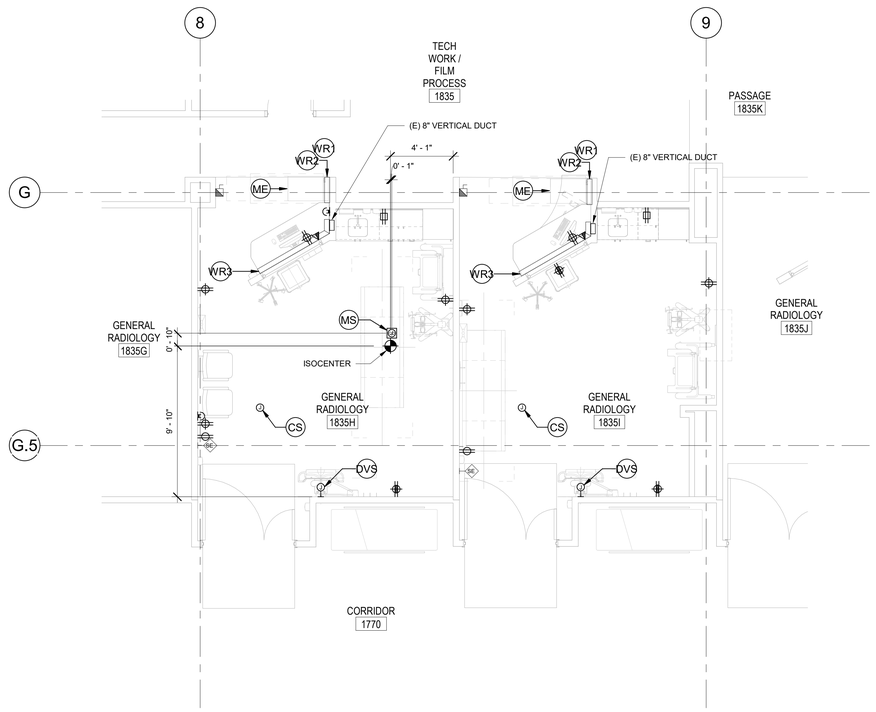


1 ENLARGED LEVEL 1 PLAN - DEMO ELECTRICAL
1/4" = 1'-0"



2 ENLARGED LEVEL 1 PLAN - NEW ELECTRICAL
1/4" = 1'-0"



3 ENLARGED LEVEL 1 PLAN - X-RAY ELECTRICAL PATHWAYS
1/4" = 1'-0"

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ENLARGED LEVEL 1 PLAN - DEMO & NEW ELECTRICAL

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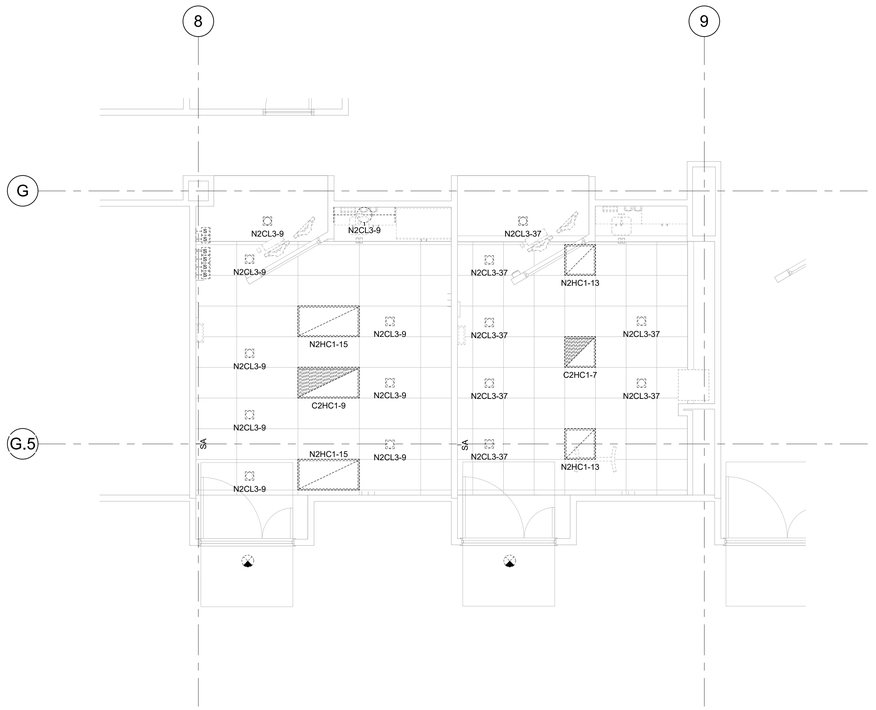
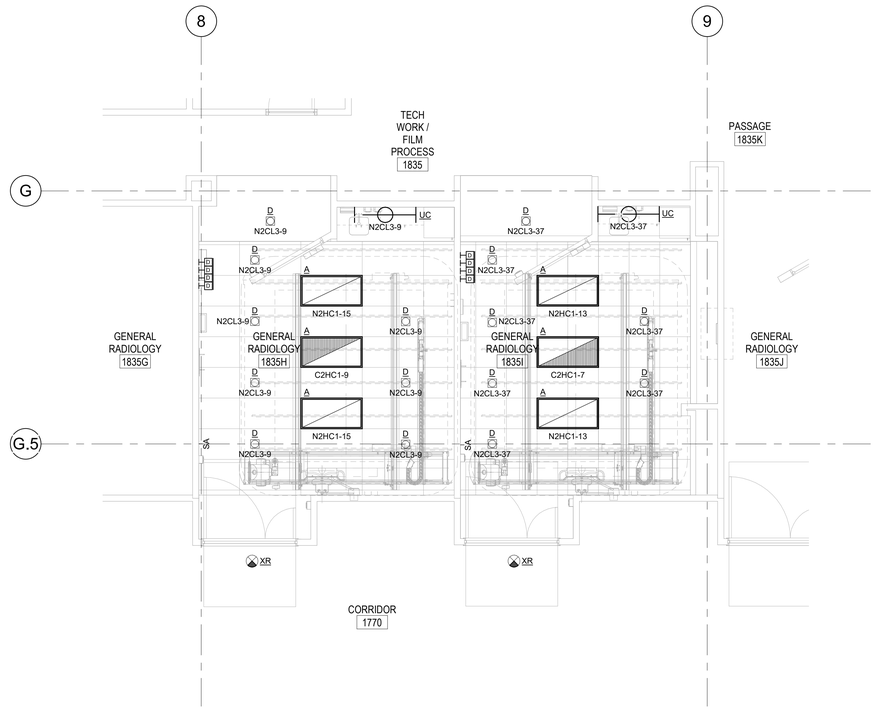


1 ENLARGED LEVEL 1 RCP - DEMO LIGHTING
1/4" = 1'-0"



2 ENLARGED LEVEL 1 RCP - NEW LIGHTING
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DATE: 06/27/25

AGENCY APPROVAL

ENLARGED LEVEL 1 RCP - DEMO & NEW LIGHTING

E3.1

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Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
Floor			
B	MS	8" (203mm) W x 8" (203mm) L x 4" (102mm) D floor box, flush mounted with removable gasketed screw-type cover plate.	ED1
Ceiling			
B	CS	8" (203mm) W x 8" (203mm) L x 6" (152mm) D ceiling box, flush mounted with removable screw-type cover plate.	
Duplexes			
B		120V, 20A dedicated duplex outlet. Coordinate exact location with local Philips Service.	
Network Connectors			
B	N	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access through customer's network to VPN device capable of connecting to the Philips Remote Service Network (RSN) Datacenter is needed. Refer to page N1 for RSN connectivity options. Locate within 10' (3048mm) of network card. Network Fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc. are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of the components.	N1

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Electrical Legend

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B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
Wall			
B	CB	480V, 3 phase 50 AMP circuit breaker with shunt trip. Run power from breaker to ME, leaving an 8' (2438mm) tail. See Sheet ED1 for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	ST	Shunt Trip (emergency off) Large mushroom-head button on remote control station with contacts to operate feature of CB. Location per local code or owner requirements (mandatory for VA and DOD installations). (Not shown on plan)	
B	WL	Warning Light - Provide an surface or flush mounted light fixture above door to indicate when X-Ray is on. (Not shown on plan)	ED1
B	DS	Door Switch - 120V, 5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1695 or equivalent), if required by local code or physicist of record. (Not shown on plan)	ED1
B	S1	Single pole general purpose ON/OFF switch with red cover. Safety switch is required between scanner unit and "WL" for Philips Service, if a warning light is used. Locate near system disconnect if possible or near "ME" wall box. (Not shown on plan)	ED1
B	ME	19 1/4" (489mm) W x 67" (1702mm) H x 4" (102mm) D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 75" (1905mm) A.F.F. to top of box. Conduits to terminate at conduit knock outs provided on top, bottom, or sides of terminal wall box. If raceway is used at top and / or bottom of terminal wall box, remove panel(s) of terminal box by drilling out pop rivets. Top and bottom panels will slide out without the need for cutting. Cutting of the box is prohibited as it will void the UL listing. Weight is approximately 125lbs per box. See ED1 sheet for wall box ordering instructions.	ED1
B	TB	Three Terminal Blocks (one "A" Block, one "E" Block, and one "D" Block) with each Block assembled on a customer/contractor provided DIN rail. All Blocks to be mounted inside "ME" Back Box. Customer/contractor to supply and install cables to and from the Terminal Blocks. (See Sheet ED1 and ED2 for details)	ED1 ED2
B	DVS	6" (152mm) W x 6" (152mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 39" (991mm) A.F.F. to bottom of box.	
B	WAP	4" (102mm) W x 4" (102mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 10" (254mm) below ceiling/top of wall to top of box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	WR1	4" (102mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 4" (102mm) A.F.F. to bottom of raceway. *	ED1
B	WR2	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 75" (1905mm) A.F.F. to bottom of raceway. *	ED1
B	ELW	Grommet opening on WR3. Exact size to be determined by local Philips Service. Location shown is recommended and may be changed - verify relocation with local Philips Service. For cables to ELW.	
B	WR3	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted 6" (152mm) above finished floor with removable screw-type cover plate.	ED1

*WR1 and / or WR2 are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper locations as required. As noted for "ME", the top and bottom panels can be removed by drilling out the pop-rivets and pulling the panel out. Raceway size and length can be changed as needed as long as the raceway is a minimum of 19 ¼" (489mm) in length to cover the entire opening of the removed top or bottom panel(s) and the terminal wall box remains at a mounting height of 75" (1905mm) A.F.F. Raceways cannot be deeper than the terminal wall box, they must fit securely behind the terminal wall box flanged-edge.

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PHILIPS

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Standard Reference Drawing
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Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD2240005
Date Drawn: 9/17/2024
Quote: None
Order: None

EL

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General Electrical Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

2. Materials and Labor
The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc., as separately specified herein.

3. Electrical Ducts and Boxes
Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: power wiring and/or cables, Group B: signal and/or data and protective ground wiring and/or cables, Group C: x-ray high voltage cables. The use of 90 degree ells is not acceptable. On ceiling duct and wall duct use 45 degree bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.

4. Conduit
Conduit point-to-point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.

5. Conductors
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.

6. Disconnecting Means
A disconnecting means shall be provided as separately specified.

7. Warning Lights and Door Switches
"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

8. Dimmer Switches
X-ray room lights should be provided with dimmer switches.

(13.0)

Electrical Notes

1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
2. The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.
3. All pre-terminated, cut-to-length cables will be supplied and installed by Philips. See Conduit List for information regarding all other cables (e.g. cables to breakers, etc.).
4. Provide and install 4 - 2"(50mm) diameter chase nipples between adjacent wall boxes (not required if raceway installed above and below wall boxes).
5. Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non - accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above-ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above-ceiling must be kept as near to finished ceiling as possible.
6. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever governs.
7. Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.
8. All sections of raceway and conduit shall be grounded with an independent #6AWG green wire that is to be attached using solderless lugs. All ceiling mounted structural support members and ceiling plates shall also be grounded. All grounding connections, terminals, etc. shall be installed in a manner to provide accessibility for inspection, maintenance, repair, etc.
9. The contractor is to ensure system cables that run from the system cabinet to the table are not run under the slab in ground floor installations. They need to be run in a trough or a raceway in the floor per NEC section 390 Underfloor Raceway. Conduits may not be allowed in a basement slab. The cables from the cabinets to the table are not certified in a wet environment/area.

(20.0)

Electrical Requirements

Electrical power distribution at the facility shall comply with:

- Utilization voltages per ANSI C84.1 - 1982 range A.
- Voltage to be supplied is 3 phase, 3 wire power and ground (delta or wye) unless otherwise noted in equipment specifications.
- Phase conductors to be sized for instantaneous voltage drop per NEC 517-73 and Philips recommendations.
- Neutral and ground conductors to be sized equivalently to phase conductors, unless otherwise noted.
- Metal conduit shall not be used as the equipment ground conductor.
- Clamping type surge suppressors are highly recommended in addition to standing facility lighting arrestors. Equipment to be protected from ANSI/IEEE C62.41-1980 location category B impulses.
- ANSI/NFPA 70 - National Electrical Code (NEC)
  Article 250 - Grounding
  Article 517 - Health Care Facilities
- ANSI/NFPA 99 - Health Care Facilities Code
- NEMA standard XR 9 - Power Supply Guidelines for X-Ray Machines

(13.0)

Power Quality Guidelines

1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.
2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality: static UPS systems, series filters, power conditioners, voltage regulators.

   Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

(13.0)

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Project
Radiography 7300 C
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Standard Reference Drawing
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Room:

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Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD2240005
Date Drawn: 9/17/2024
Quote: None
Order: None

EN

7.22.2024

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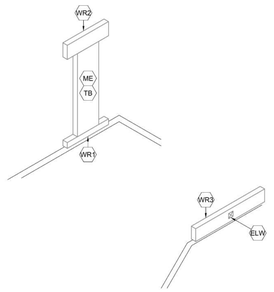
Isometric Layout
(Not to scale)



Raceway Diagram
(Not to scale)

Refer to Electrical Legend and Layout - Sheet E1

The use of 90 degree ells is not acceptable; use 45 degree bends at all raceway corners. The use of crossover tunnels at all applicable locations is required.

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Conduit Required

General Notes
1. All conduit runs must take most direct route point to point.
2. All conduit runs must have a pull string.

A Conduit supplied and installed by contractor - Philips cables installed by Philips.
B Conduit supplied and installed by contractor - Philips cables installed by contractor
C Conduit and cables supplied and installed by contractor
D Conduit existing - cables supplied and installed by Philips
E Conduit existing - cables supplied by Philips, installed by contractor
F Conduit existing - cables supplied and installed by contractor
G Conduit optional - for future upgrade. Verify with Philips Sales/Service.

* Cable Type
F Fiber Optic
H High Tension Power Cables
P Power / Ground
S Signal Cables
V Video Cables

	Run No.	Conduit From	Conduit To	Conduit Quantity	Cable Type *	Minimum Conduit Size	Maximum Conduit Length	Special Requirements
C	1	Power Panel	CB	1	P	Per N.E.C.	Per N.E.C.	
C	2	CB	ME	1	P	2"	50'	8' of the 50' cable to be left as a tail. Contractor to supply and install cables from "CB" to "TB" inside "ME".
C	3	CB	ST	1	P	3/4"	50'	
C	4	ME	S1	1	P	1/2"	--	Contractor to supply and install cables to and from "TB" inside "ME". Max combined cable length = 50'
C	5	S1	WL	1	P	1/2"	--	
C	6	ME	DS	1	P	1/2"	50'	Contractor to supply and install cables to and from "TB" inside "ME".
A	7	ME	ELW	1	P	2"	88'	
A	8	ME	ELW	1	S	3"	88'	
A	9	ME	MS	1	P	2"	55'	
A	10	ME	MS	1	S	2"	55'	
A	11	ME	DVS	1	P	2"	55'	
A	12	ME	DVS	1	F / S	2"	55'	
A	13	ME	CS	1	H / P	3"	45'	If WR2 is used, conduit must terminate directly above ME wall box for routing
A	14	ME	CS	1	S	3"	45'	
A	15	ELW	MS	1	F / S	2"	98'	
A	16	ELW	DVS	1	S	1"	78'	
A	17	WAP	ELW	1	S	1"	98'	Ethernet cable. Conduit if required by local code.

Note: Optional conduit intended for future upgrade to fixed detector. Conduit is **not** required for Table or Wall Stand with SkyPlate option. Verify with Philips Sales/Service.

Refer to Electrical Layout and Legend - Sheet E1

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Email:
Drawn By:

Project Details
Drawing Number
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Date Drawn: 9/17/2024
Quote: None
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E2

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Electrical Layout
1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

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Philips Contacts
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Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD2240005
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Order: None

E1

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X-RAY BRIDGING DOCUMENTS
2315 STOCKTON BLVD,
SACRAMENTO, CA 95817

#	Date	Revision

NOT FOR CONSTRUCTION

PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
CHECKED BY: Checker
DRAWN BY: Author
DATE: 06/27/25

AGENCY APPROVAL

EQUIPMENT PLANS & DETAILS

E4.0

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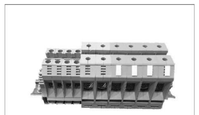
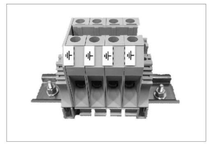
Detail - Screw Connection Terminal Blocks

(Not to Scale)





A Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J50 Yellow	4	#10 - 1/0 AWG, Yellow
1492-J50 Gray	2	#10 - 1/0 AWG, Gray
1492-J16 Gray	4	#18 - 4 AWG, Gray

D Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J3 Yellow	6	#28 - 12 AWG, Yellow
1492-J16 Gray	1	#18 - 4 AWG, Gray

E Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J16 Gray	4	#18 - 4 AWG, Gray

TB (24.0)

Pre-Assembled Blocks are available through Anixter:

Possible Supplier: Anixter, Inc. www.Anixter.com

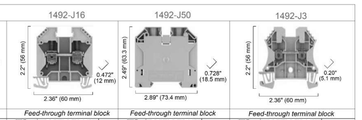
- Anixter Phone Number: 860.282.5300
- Primary Sales Contact: Joe Digiovanni 860-282-5347 joe.digiovanni@anixter.com
- Secondary Sales Contact: Lori Perras 860-205-4095 Lori.perras@anixter.com

- Part# 800170 for "A" Block (Quantity: 1)
- Part# 800173 for "D" Block (Quantity: 1)
- Part# 800174 for "E" Block (Quantity: 1)

* Customer/Contractor to provide the four blocks (one A, two D, and one E). Contractor to show the Philips Service the four blocks are available at least one week prior to system delivery and installed inside the "ME" wall box prior to system delivery date. Each block must have its parts assembled on a customer/contractor supplied DIN rail as shown in pictures above.

Screw Connection Terminal Blocks

Standard Feed-Through Blocks



Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

Specifications	Feed-through terminal block			Feed-through terminal block				Feed-through terminal block			
Certifications		CSA IEC ATEX			CSA IEC ATEX				CSA IEC ATEX		
Voltage Rating	600V AC/DC	1000V AC/DC	690V AC/DC	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC	600V AC/DC	800V AC/DC	550V AC/DC	
Maximum Current	85 A	76 A	66 A	150 A		150 A	126 A	25 A	20 A	24 A	21 A
Wire Range (Rated Cross Section)	#18…4 AWG	16 mm2	16 mm2 (#16…6 AWG)	#10…1/0 AWG	#8…1/0 AWG	50 mm2	#10…1/0 AWG 50 mm2	#22…12 AWG	#26…12 AWG	2.5 mm2	2.5 mm2 (#20…14 AWG)
Wire Strip Length	0.63 in. (16 mm)			0.94 in. (24 mm)				0.39 in. (10 mm)			
Recommended Tightening Torque	35.0 lb·in (4.0 N·m)			31.5 lb·in (3.6 N·m)				4.5…7.1 lb·in (0.5…0.8 N·m)			
Density	25 pcs/ft (83 pcs/m)			16 pcs/ft (54 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

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Project Details
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Order: None

ED2

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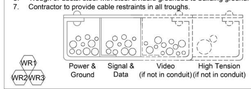
Detail - Cable Trough Divisions

(Not to scale)

Troughs or ducts must be separated by metal barriers into three sections.

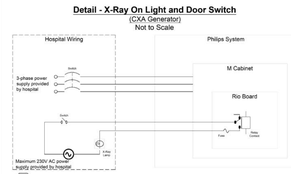
1. High voltage (H.T.) cables to be routed separately from all other cables.
2. Power cables and ground cables can be routed together.
3. Signal cables and data cables can be routed together but must be separated from power cables.
4. Video cables to be routed separately from all other cables.
5. It is important that all cables are placed in the appropriate trough and at no given point do any cables from one division cross with cables from another. Trough separation must be continuous from the beginning to the end of the run. Utilize crossover tunnels as appropriate.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.



WR1 WR2 WR3 (21.0)

Detail - X-Ray On Light and Door Switch

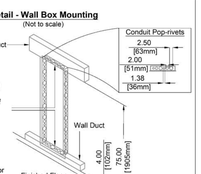
(CXA Generator)
Not to Scale



S1 WL DS (24.0)

Detail - Wall Box Mounting

(Not to scale)



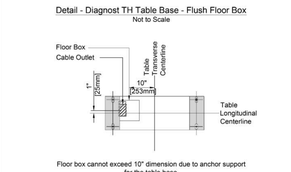
Pop-rivets on top and bottom can be removed for direct integration with raceway ducts. DO NOT remove top and bottom if conduit hubs are used.

Wall Ducts are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper location to meet the siting requirements.

ME TB (19.0)

Detail - Diagnost TH Table Base - Flush Floor Box

Not to Scale



Floor box cannot exceed 10" dimension due to anchor support for the table base.

MS (13.1)

Wall Box Ordering Details

Distinctive Manufacturing Group Method of Business
Transactions for Philips Customers

Part# 989001220367 Philips Xray Back Box

1) Three ordering methods:
-Email: backbox@thaiinguss.com
-Phone: 260-495-1818
-Fax: 260-495-1822

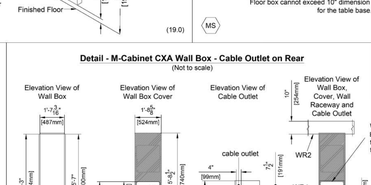
2) Payment Terms - Credit Card Only
-MasterCard
-Visa
-Discover
-American Express

3) Lead Time
-3 Week Lead time

4) Freight
-All shipments will be shipped on skid
-Freight will be Pre-paid and added (PP+) to the invoice at time of shipment

Detail - M-Cabinet CXA Wall Box - Cable Outlet on Rear

(Not to scale)



ME (24.0)

Important Notes:
- New replacement backboxes must be installed at the standard height
- Existing backboxes cannot be relocated or modified; doing so will void the UL rating.
- Existing backboxes that meet standard height requirements can be re-used.

Wall Box Cover
Bottom cover punch out to be used. Top of the cover punch out should not be higher than height of the cabinet.

Wall Box
General contractor to pop out top/bottom of box as required. Provided by customer/contractor (NA only).

Power Quality Requirements

(M-Cabinet CXA 80)

Power Output:	80 kW
Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460, or 480 VAC, 60 Hz
Line Voltage Variation:	± 8% steady-state
Line Voltage Balance:	2% maximum of nominal voltage between phases
Frequency Variation:	± 1% (± 0.6 Hz)
Voltage Surges:	To 110% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Voltage Sags:	To 90% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Line Impulses:	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-ground Voltage:	2.0 volts maximum RMS value
Neutral-ground Impulses:	No more than 1 per hour that exceeds 25 volts and 1 Mjoule
High Frequency Noise:	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour maximum
Ground and Neutral Conductor Impedance:	0.1 Ω @ 60Hz maximum

Branch Circuit and Wire Gauge Requirements

Branch Power:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 amperes (@ 480V) (Slow Blow)
Maximum Instantaneous Power:	105 kVA (800 mA @ 100 kV) (Short-term), < 5 amperes (Long-term)

Recommended conductor sizes for 1% impedence of branch conductors to circuit breaker (CB), based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#2 AWG	80 feet	96 feet	105 feet	115 feet
#1 AWG	101 feet	122 feet	134 feet	146 feet
1/0 AWG	128 feet	154 feet	168 feet	184 feet
2/0 AWG	161 feet	194 feet	212 feet	232 feet
3/0 AWG	203 feet	244 feet	267 feet	292 feet
4/0 AWG	258 feet	311 feet	340 feet	372 feet
250 MCM	303 feet	364 feet	399 feet	436 feet
300 MCM	363 feet	437 feet	478 feet	523 feet
Instantaneous Current	160 A	--	--	135 A
Maximum Phase-Phase Impedance	0.2 Ω	--	--	0.3 Ω
Maximum Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4%	9.5%	8.7%	7.9%

Minimum copper wire size, circuit breaker (CB) to equipment: #4 AWG, maximum 50' in length, (Customer/contractor provided).

*The ground conductor for the power feeder shall be the same size as the phase conductor wires.

**Residual current device to be installed depending on local regulations.

CB (20.0)

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THIS SHEET IS PART OF THE DOCUMENT SET LISTED ON SHEET C1 AND SHOULD NOT BE SEPARATED.

PHILIPS

Project
Radiography 7300 C
Value/ProPlus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD2240005
Date Drawn: **9/17/2024**
Quote: None
Order: None

ED1

7.22.2024

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http://www.archnexus.com

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UC DAVIS HEALTH
1835H AND 1835I
NG DOCUMENTS

2315 STOCKTON BLVD,
SACRAMENTO, CA 95817

DAVIS TOWER
X-RAY BRIDGI

#	Date	Revision

NOT FOR CONSTRUCTION

PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
CHECKED BY: Checker
DRAWN BY: Author
DATE: 05/27/25

AGENCY APPROVAL

EQUIPMENT PLANS & DETAILS

E4.1

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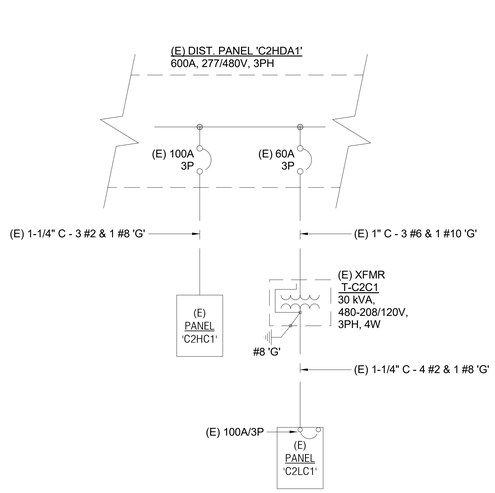
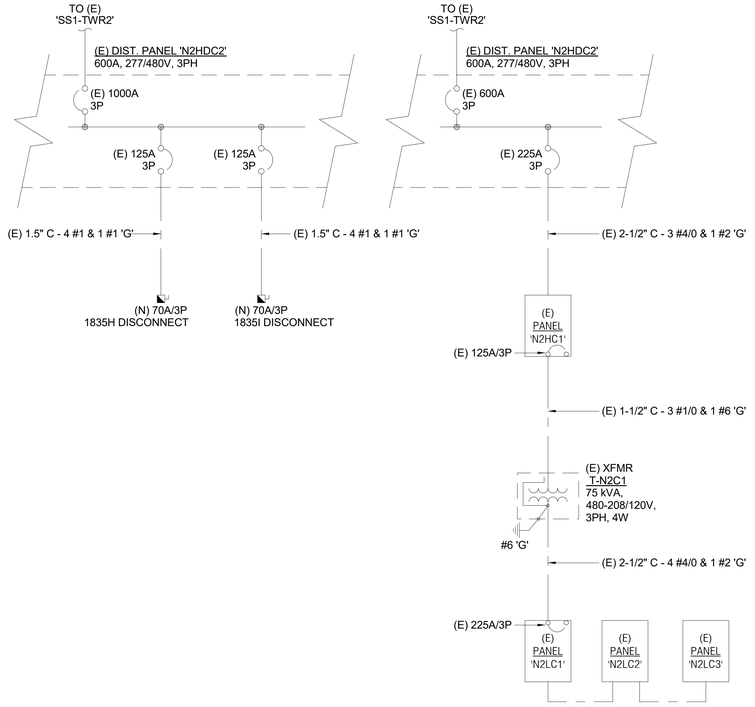


CRITICAL POWER



NORMAL POWER

1 PARTIAL ONE-LINE DIAGRAM

NO SCALE

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DESIGNERS: ECOM
DRAWN BY: ECOM

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DAVIS TOWER 1835H AND 1835I
X-RAY BRIDGING DOCUMENTS
2315 STOCKTON BLVD,
SACRAMENTO, CA 95817

#	Date	Revision

NOT FOR CONSTRUCTION

PROJECT PROCUREMENT

NEXUS PROJ. #: 25011
CHECKED BY: Checker
DRAWN BY: Author
DATE: 06/27/25

AGENCY APPROVAL

PARTIAL ONE LINE DIAGRAM

E5.0

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PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By
00	4/23/2025	Created preliminary site preparation support document per quote: Q-00478301. Referenced project N-WES080576 for room background.	AC
A	5/19/2025	Rotated drawing orientation 90 degrees per PM request. Updated equipment configuration per quote: Q-00478107; added comfort position. Relocated ME to control room, shifted DVS and table 6 $\frac{1}{2}$" plan east, shifted table 1" plan north. Updated planning notes on A2.	AC

Table of Contents

Section A - Equipment Plan

General Notes ---------- AN
Site Layout ---------- A1
Equipment Layout ---------- A2
Ceiling Height Guide ---------- A3

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com

Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

C1

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

AN

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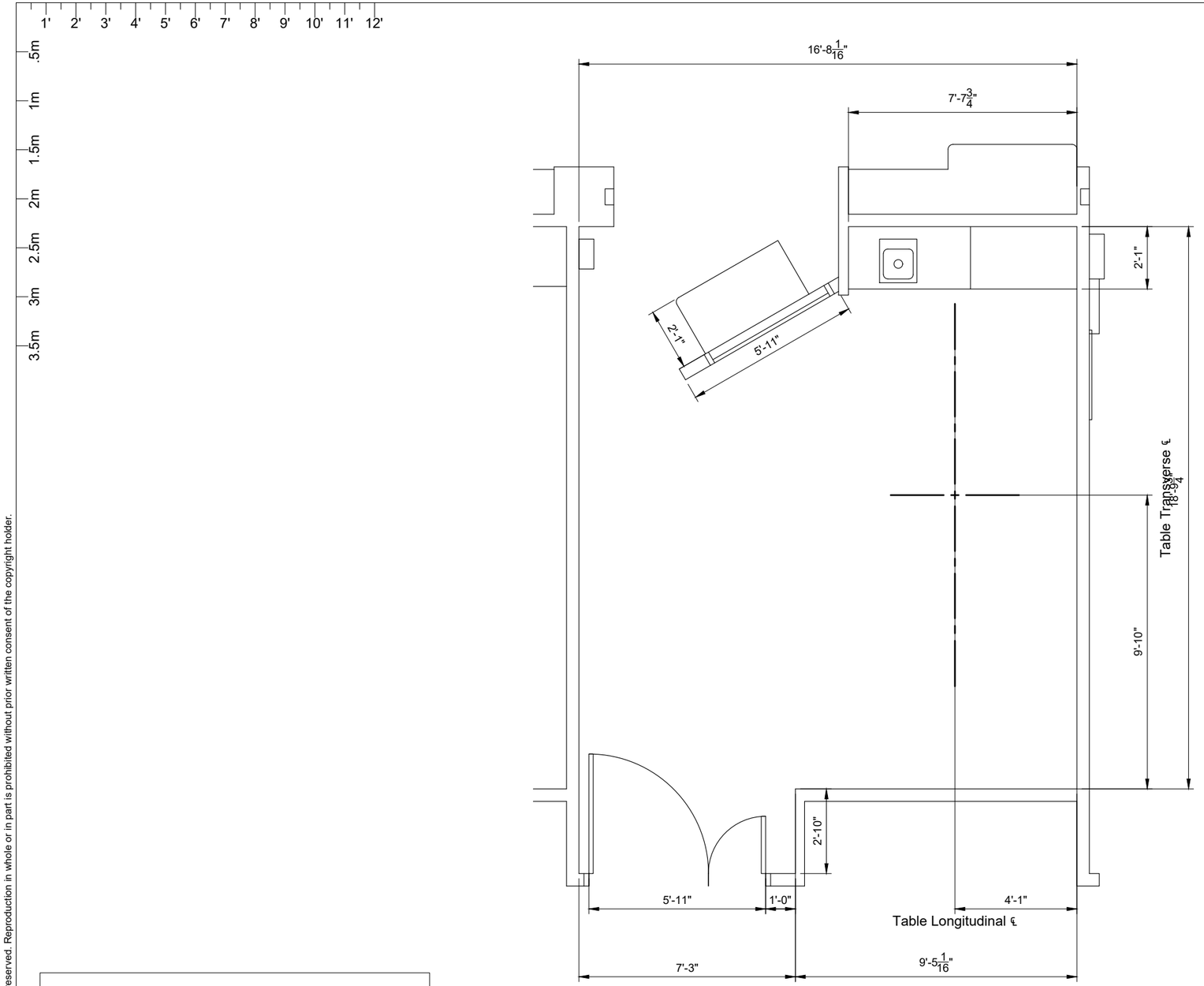

Legend

- Walls
- Soffit
- Existing (to be removed)
- Beams or other building construction elements

Site Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

General Notes

* Counters and cabinetry shown to be supplied and installed by contractor.
* Field to verify all room dimensions.
* Refer to A.D.A. Guidelines for doors and clearances. Verify all other applicable code(s) with the architect of record.
* Room background was gathered from past drawing #: "N-WES080576" dated 9/18/2008 as reference. Existing conditions such as room dimensions, isocenter, Unistrut, soffit, built-ins etc. to be verified by the customer/contractor before proceeding to Final.

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com

Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

A1

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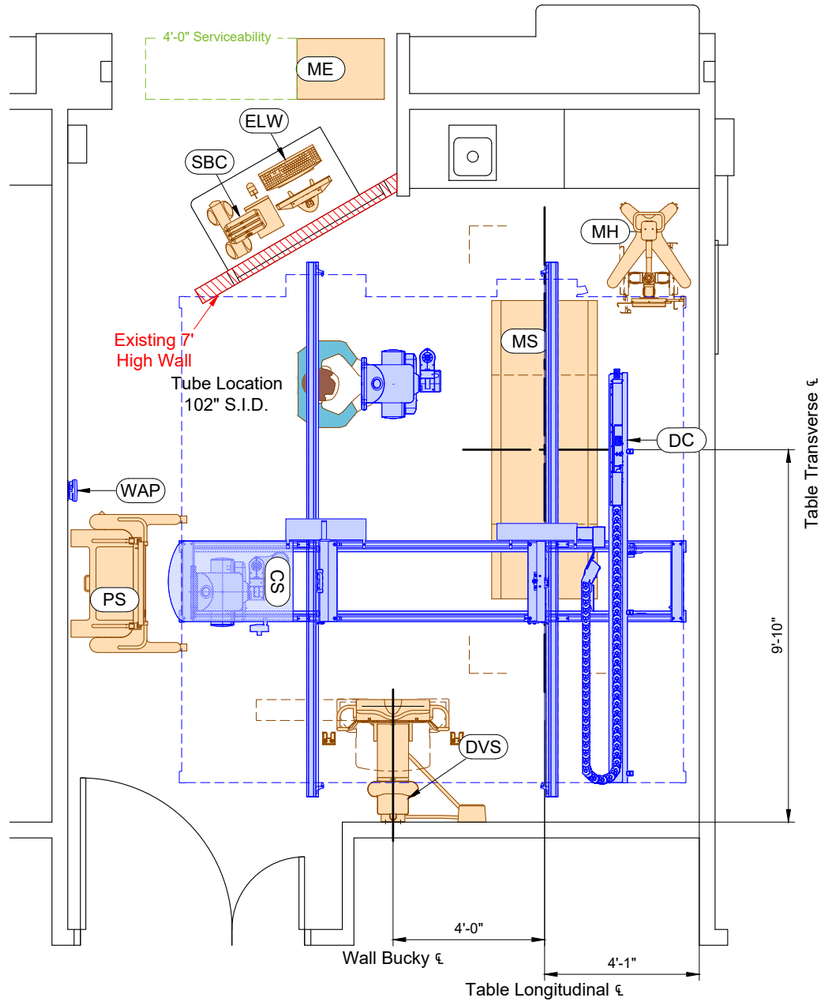

Equipment Layout

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Detail Sheet: Weight (lbs)	Detail Sheet: Heat Load (btu/hr)
A	ME	Generator M-Cabinet CXA	221	342
A	MS	DigitalDiagnost TH/TH2 (Wide Tabletop)	593	614
A	CS	Ceiling Suspension CSM3 Comfort Position Long	862	1365
A	DC	Drag Chain	66	--
A	DVS	Digital Vertical Stand (VS2) Tiltable (Right)	562	614
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536
A	WAP	Wi-Fi Access Point	2	--
A	SBC	SkyPlate Battery Charger	2	--
A	PS	Patient Support	154	--
A	MH	Mobile Holder	146	--

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

* Cross-table shots for angled views will not be available behind the table. Patient will need to be flipped on table in order to obtain angled bilateral cross table views.
* Optional stitching shots at 102" S.I.D. will be available. See layout.
* Limited stretcher access to Wall Bucky. Recommend to move tabletop for improved access.
* Staff flow access to casework may be difficult when patient table (MS) is floated plan north.
* Due to non-standard location of generator cabinet (ME), please note:
  1) Average heat dissipation = 342 btu/hr.
  2) Noise measured @ 1 meter distance in 1 meter height over floor < 52 dB(A).

Notes to Philips Field Personnel

* Tabletop to be installed before table base is bolted to the floor.
* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]
* All room dimensions to be verified in field.
* Verify exact location and configuration of existing Unistrut and electricals with local Philips service for re-use.
* Ceiling rails must connect to all Unistrut. Additional clips may need to be ordered. Maximum Unistrut spacing is 1346mm (53").
* One (1) Additional Unistrut will need to be installed.
* Field to verify existing conduit lengths, sizes, quantities, and origination and termination points.
* New electrical boxes for ME/DVS/CS will be required to be installed.

PHILIPS

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Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
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Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

A2

7.22.2024

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1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12'

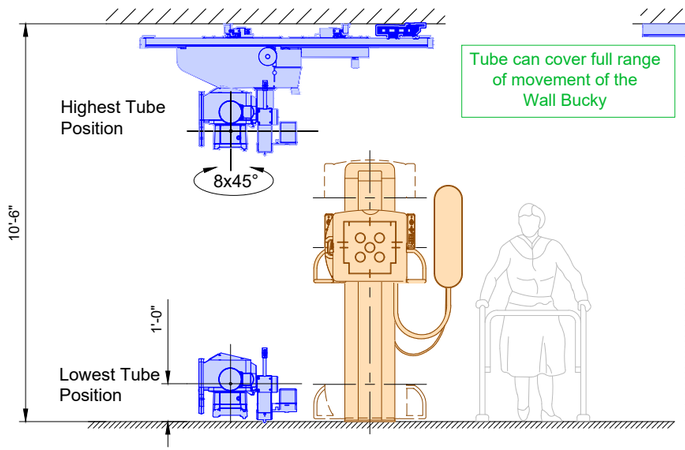
.5m 1m 1.5m 2m 2.5m 3m 3.5m

Ceiling Height Guide for High Performance VS and Value Room

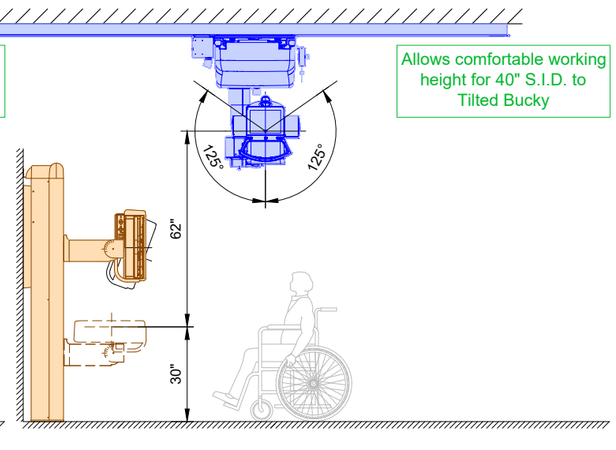
Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

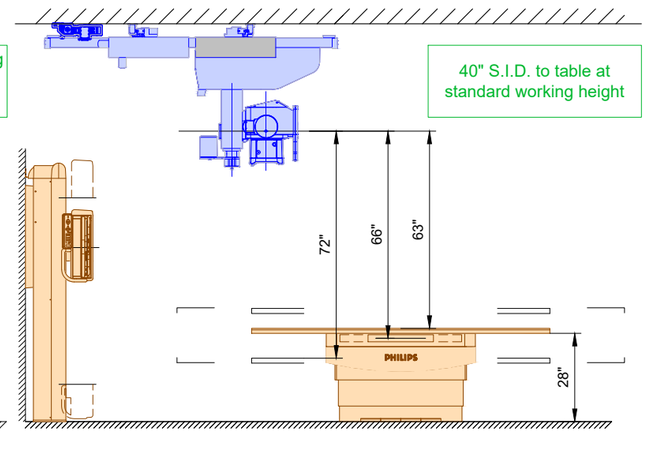
* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



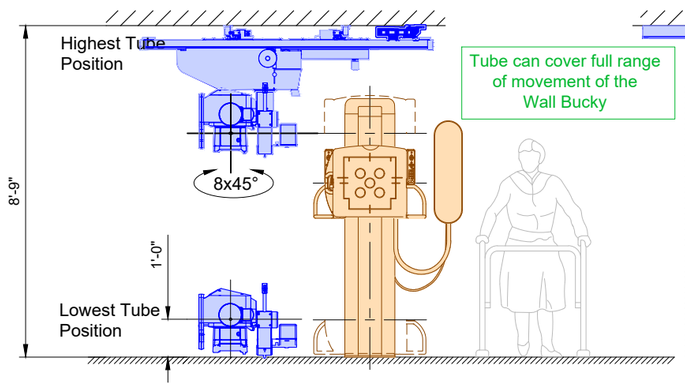
Tube can cover full range of movement of the Wall Bucky



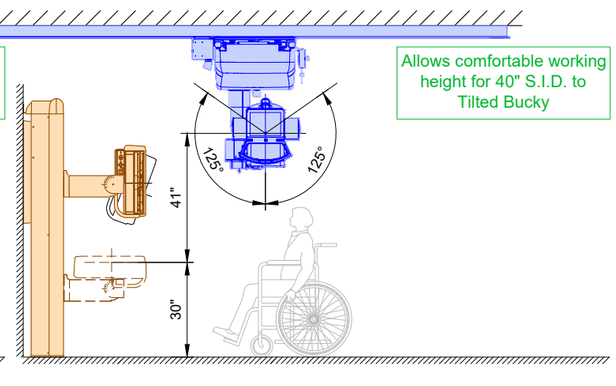
Allows comfortable working height for 40" S.I.D. to Tilted Bucky



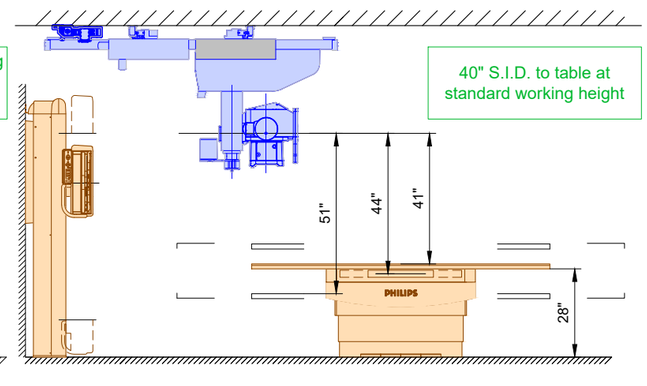
40" S.I.D. to table at standard working height



Tube can cover full range of movement of the Wall Bucky



Allows comfortable working height for 40" S.I.D. to Tilted Bucky



40" S.I.D. to table at standard working height

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

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Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

A3

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PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By
00	4/23/2025	Created preliminary site preparation support document per quote: Q-00478301. Referenced project N-WES070739 for background.	AC
A	5/19/2025	Removed patient table (MS) and shifted DVS 4" plan north per PM request.	AC

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Ceiling Height Guide ---------- A3

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835 I

Philips Contacts
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Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250201 A
Date Drawn: 5/19/2025
Quote: Q-00478301
Order: None

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835 I

Philips Contacts
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Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250201 A
Date Drawn: 5/19/2025
Quote: Q-00478301
Order: None

AN

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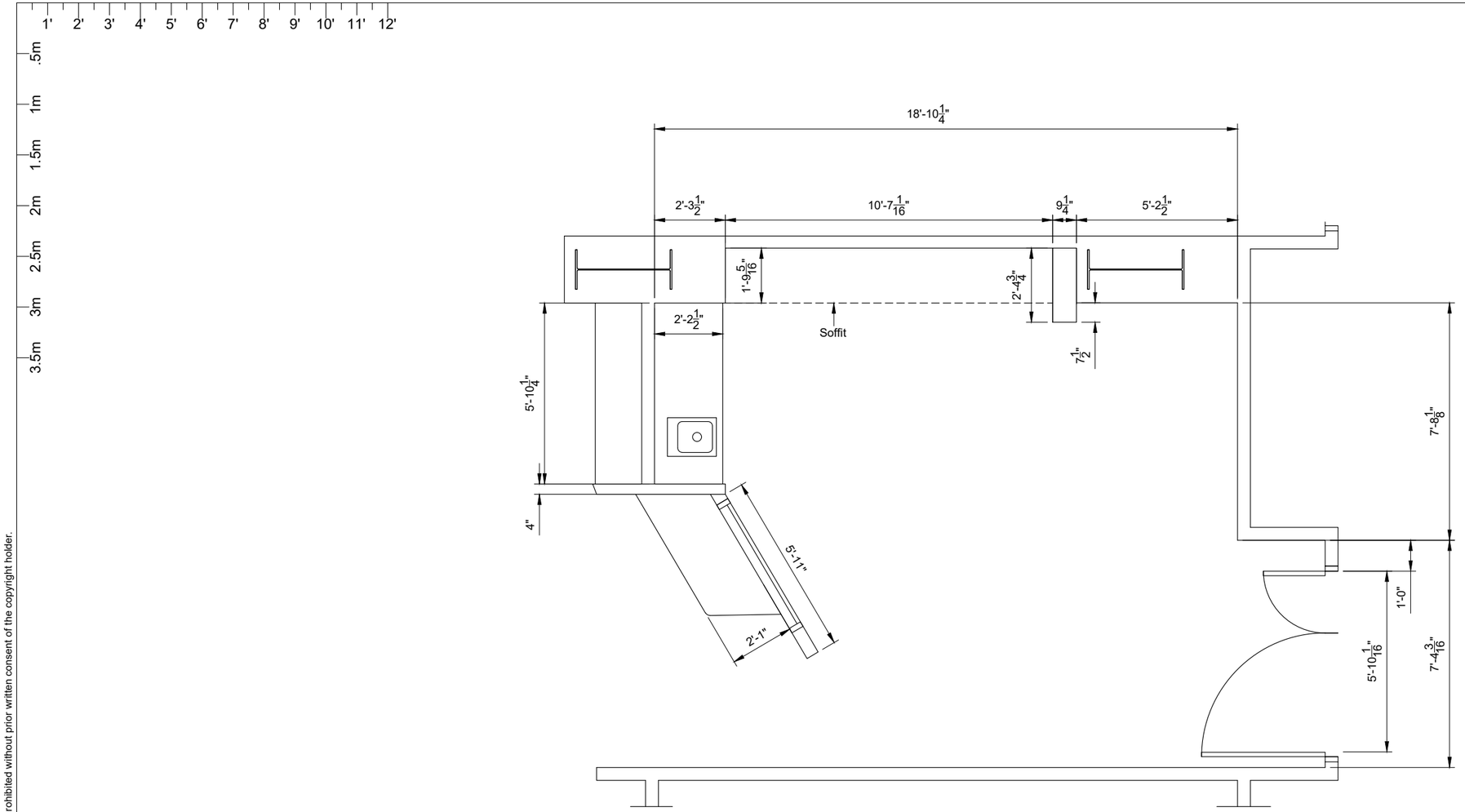

Legend

- Walls
- Soffit
- Existing (to be removed)
- Beams or other building construction elements

Site Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

General Notes

* Counters and cabinetry shown to be supplied and installed by contractor.
* Field to verify all room dimensions.
* Refer to A.D.A. Guidelines for doors and clearances. Verify all other applicable code(s) with the architect of record.
* Room background was gathered from past drawing #: "N-WES070739" dated 9/26/2008 as reference. Existing conditions such as room dimensions, isocenter, Unistrut, soffit, built-ins etc. to be verified by the customer/contractor before proceeding to Final.

PHILIPS

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N-WES250201 A
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A1

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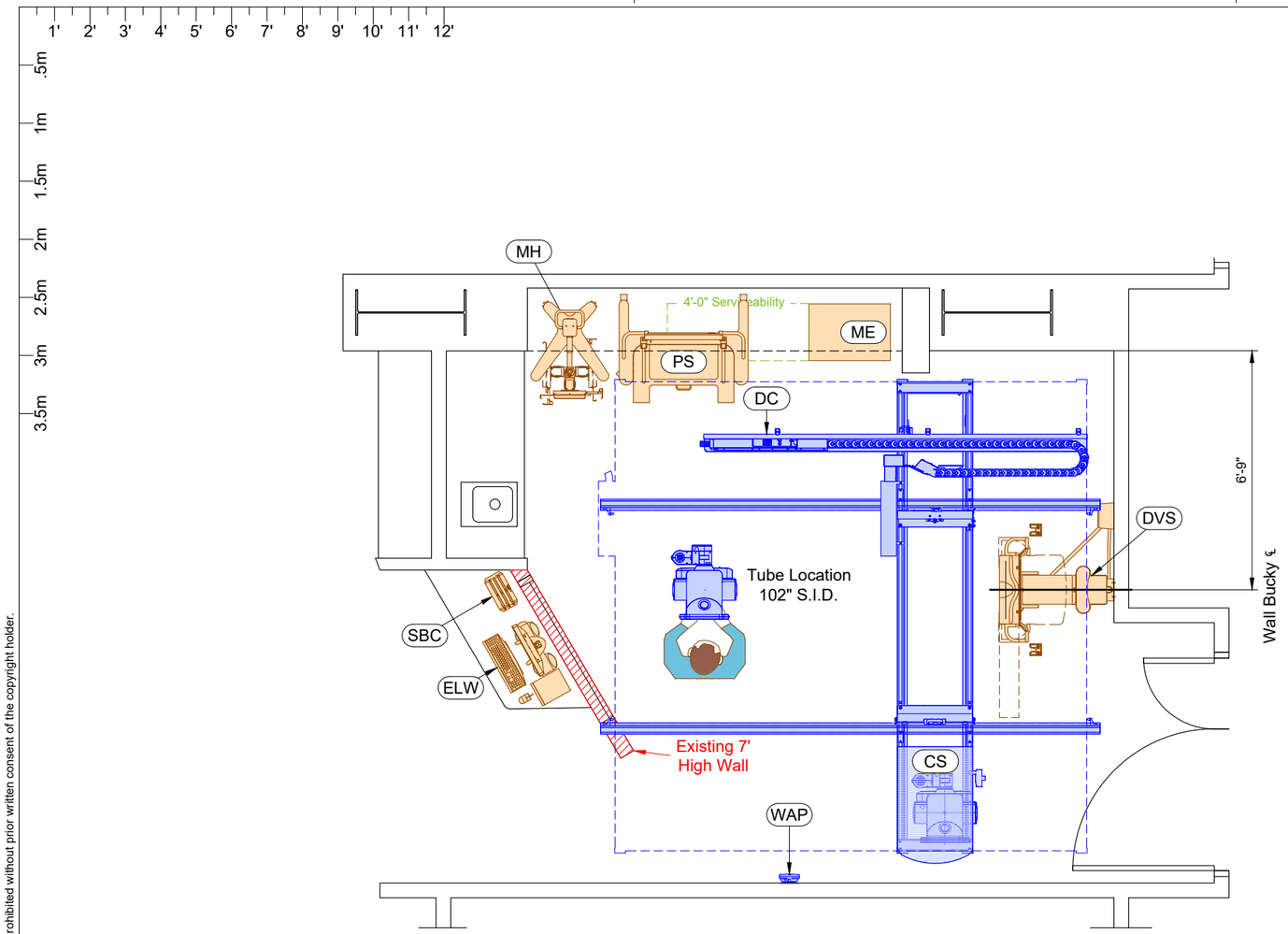

Equipment Layout

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Detail Sheet: Weight (lbs)	Detail Sheet: Heat Load (btu/hr)
A	ME	Generator M-Cabinet CXA	221	342
A	CS	Ceiling Suspension CSM3 Comfort Move Long	862	1365
A	DC	Drag Chain	66	--
A	DVS	Digital Vertical Stand (VS2) Tiltable (Right)	562	614
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536
A	WAP	Wi-Fi Access Point	2	--
A	SBC	SkyPlate Battery Charger	2	--
A	PS	Patient Support	154	--
A	MH	Mobile Holder	146	--

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

⚠1 Exact equipment configuration to be verified with local Philips Sales. MS table is listed on quote, but not shown due to Philips Project Manager request.

* Optional stitching shots at 102" S.I.D. will be available. See layout.
* Potential trip hazard due to patient support anchor plates.

Notes to Philips Field Personnel

* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]
* All room dimensions to be verified in field.
* Verify exact location and configuration of existing Unistrut and electricals with local Philips service for re-use.
* Ceiling rails must connect to all Unistrut. Additional clips may need to be ordered. Maximum Unistrut spacing is 1346mm (53").
* Field to verify existing conduit lengths, sizes, quantities, and origination and termination points.
* New electrical boxes for ME/DVS/CS will be required to be installed.

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835 I

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Project Details
Drawing Number
N-WES250201 A
Date Drawn: 5/19/2025
Quote: Q-00478301
Order: None

A2

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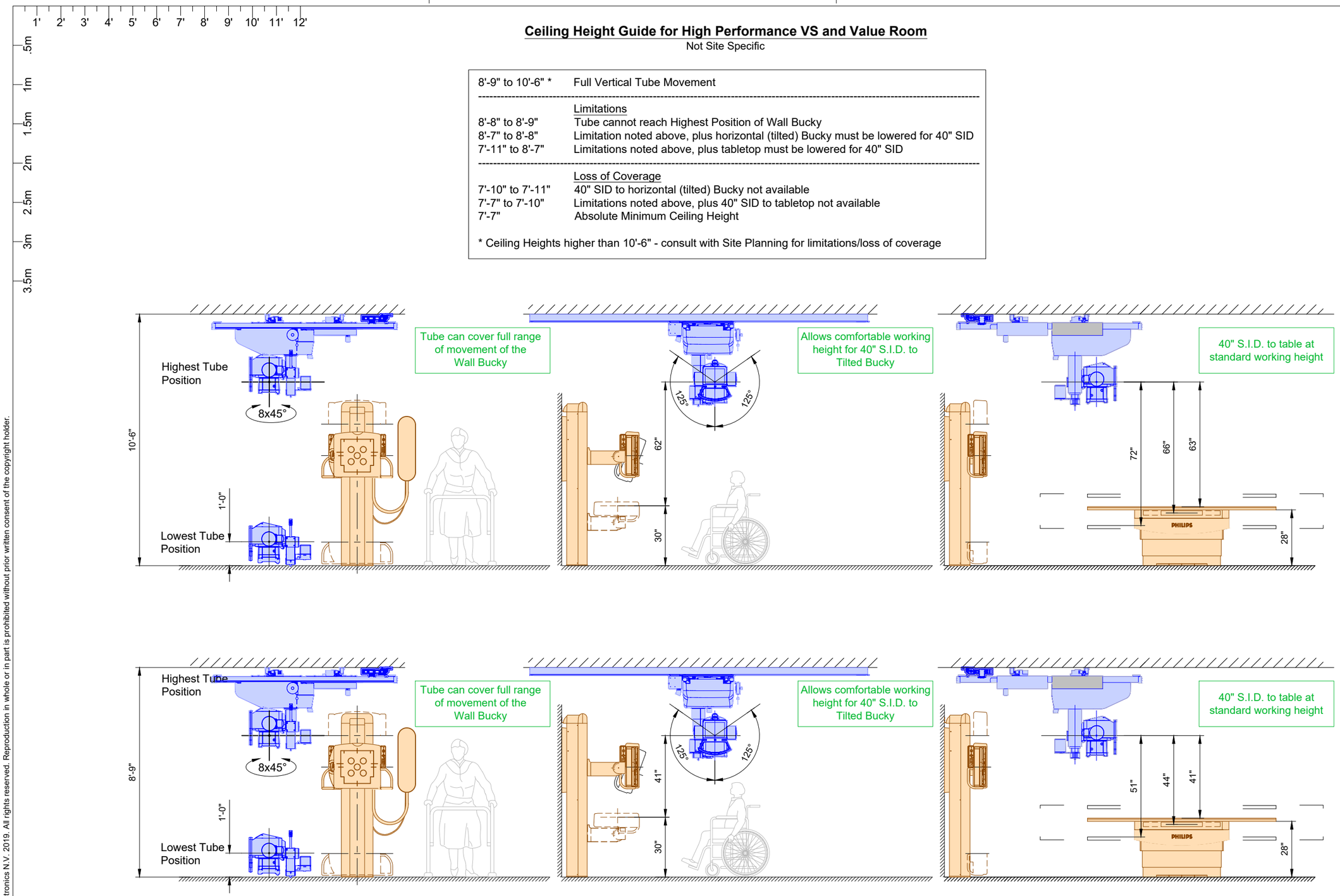
Ceiling Height Guide for High Performance VS and Value Room

Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



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Quote: Q-00478301
Order: None

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7.22.2024

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5.3 SPECIFICATIONS

PROJECT PROCUREMENT
JUNE 27, 2025

UCDH DAVIS TOWER 1835H AND 1835I X-RAY BRIDGING DOCUMENTS

PROJECT MANUAL

2315 STOCKTON BLVD.
SACRAMENTO, CA 95817

AN PROJECT NO: 25011
UCDH PROJECT NO: 9558190

ARCH | NEXUS

TABLE OF CONTENTS

***PLEASE NOTE REFERENCE TO DESIGN STANDARDS BELOW FOR ITALIZED SECTIONS CAN BE FOUND ON UCDH WEBSITE*:**

https://health.ucdavis.edu/facilities/work-with-us/design-standards

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NOT USED

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01 25 50 CONTRACT MODIFICATION PROCEDURES
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01 31 00 COORDINATION
01 32 00 CONTRACT SCHEDULES
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01 34 00 CONTRACTOR(S) EMERGENCY PROCEDURES
01 35 00 SPECIAL PROCEDURES
01 39 00 GREEN BUILDING POLICY IMPLEMENTATION
01 41 00 REGULATORY REQUIREMENTS
01 42 00 REFERENCES
01 45 00 QUALITY CONTROL
01 45 10 SEISMIC CONTROL OSHPD
01 45 50 INSPECTION AND TESTING OF WORK
01 56 00 TEMPORARY BARRIERS ENCLOSURES AND CONTROLS
01 56 10 AIRBORNE CONTAMINANTS CONTROL
01 56 20 REQUIREMENTS FOR ACCESS TO CEILING SPACES CONTAINING ASBESTOS
01 61 00 PRODUCT REQUIREMENTS
01 72 00 PREPARATIONS
01 73 00 CUTTING AND PATCHING
01 74 00 CLEANING
01 75 00 STARTING AND ADJUSTING SYSTEMS
01 76 00 PROTECTING INSTALLED CONSTRUCTION
01 77 00 CLOSEOUT PROCEDURES
01 78 00 CLOSEOUT SUBMITTALS
01 81 00 PLUMBING AND HVAC TESTING PROCEDURES
01 82 00 DEMONSTRATION AND TRAINING

DIVISION 02 — EXISTING CONDITIONS

02 07 00 SELECTIVE DEMOLITION

DIVISION 03 — CONCRETE

NOT USED

DIVISION 04 — MASONRY

NOT USED

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06 10 00 ROUGH CARPENTRY (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)
06 20 00 FINISH CARPENTRY (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)
06 40 00 ARCHITECTURAL WOODWORK (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)

DIVISION 07 — THERMAL AND MOISTURE PROTECTION

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07 92 00 JOINT SEALANTS (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)

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08 14 00 WOOD DOORS (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)
08 70 00 DOOR HARDWARE (SEE UCDH FACILITY ARCHITECTURAL STANDARDS)

DIVISION 09 — FINISHES

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22 63 13 MEDICAL GASES AND MECHANICAL VACUUM (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)

DIVISION 23 — HEATING VENTILATING AND AIR CONDITIONING

23 00 00 DESIGN CRITERIA FOR MECHANCIAL (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 05 13 COMMON MOTOR REQUIREMENTS (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 05 19 METERS AND GAGES FOR HVAC PIPING (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 05 48 VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 07 19 HVAC INSULATION (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 08 00 COMMISSIONING OF HVAC (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 09 00 INSTRUMENTATION & CONTROL FOR HVAC (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 30 00 HVAC AIR DISTRIBUTION (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)
23 81 00 DECENTRALIZED UNITARY HVAC EQUIPMENT (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)

DIVISION 25 — INTEGRATED AUTOMATION

25 00 00 BUILDING AUTOMATION SYSTEM (BAS) (SEE UCDH FACILITY MECHANICAL PLUMBING STANDARDS)

DIVISION 26 — ELECTRICAL

26 00 00 ELECTRICAL – GENERAL AND TESTING REQUIREMENTS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 00 60 POWER SYSTEM STUDY (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 00 90 SELECTIVE DEMOLITION FOR ELECTRICAL (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 13 MEDIUM VOLTAGE CABLE, TERMINATIONS, SPLICES, AND STRUCTURES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 32 PULL BOXES AND JUNCTION BOXES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 33 CONDUIT, FITTINGS, AND RACEWAYS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 09 13 POWER MONITORING AND CONTROL SYSTEMS (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 09 23 LIGHTING CONTROL DEVICES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 27 26 WIRING DEVICES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 28 00 LOW-VOLTAGE CIRCUIT PROTECTION DEVICES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 43 13 SURGE PROTECTIVE DEVICES (SEE UCDH FACILITY ELECTRICAL STANDARDS)
26 51 00 INTERIOR LIGHTING (SEE UCDH FACILITY ELECTRICAL STANDARDS)

DIVISION 27 — COMMUNICATIONS

27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS
27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS
27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
27 05 36 CABLE TRAYS FOR COMMUNICATIONS SYSTEMS
27 05 53 IDENTIFICATION AND LABELING OF COMMUNICATIONS SYSTEMS
27 15 00 COMMUNICATIONS HORIZONTAL CABLING

DIVISION 28 — ELECTRONIC SAFETY AND SECURITY

NOT USED

DIVISION 31 — EARTHWORK

NOT USED

DIVISION 32 — EXTERIOR IMPROVEMENTS

NOT USED

DIVISION 33 — UTILITIES

NOT USED

DIVISION 34 — TRANSPORTATION

NOT USED

DIVISION 35 — WATERWAYS AND MARINE CONSTRUCTION

NOT USED

DIVISION 40 — PROCESS INTERCONNECTIONS

NOT USED

DIVISION 41 — MATERIAL PROCESSING AND HANDLING EQUIPMENT

NOT USED

DIVISION 42 — PROCESS HEATING, COOLING, AND DRYING EQUIPMENT

NOT USED

DIVISION 43 — PROCESS GAS AND LIQUID HANDLING, PURIFICATION AND STORAGE EQUIPMENT

NOT USED

DIVISION 44 — POLLUTION CONTROL EQUIPMENT

NOT USED

DIVISION 45 — INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT

NOT USED

DIVISION 46 — WATER AND WASTEWATER EQUIPMENT

NOT USED

DIVISION 48 — ELECTRICAL POWER GENERATION

NOT USED

SECTION 01110
SUMMARY OF THE WORK

PART I - GENERAL

1.01 SECTION INCLUDES

A. Description of the Work

B. Contractor Warrants

C. Contract Document Intent and Relationships

D. University Furnished / Contractor Installed Products

E. Concurrent Work Under Separate Contracts

F. Site Condition Survey and Protection of Existing Improvements

G. Contractor Use of Site and Premises

H. University Beneficial Occupancy (if applicable)

I. Project Phasing (if applicable)

1.02 DESCRIPTION OF THE WORK

A. Project is titled: DAVIS TOWER RADIOLOGY 1835H 7 1835I UPGRADES UCDMC Project No.: 59070

B. Project is located at 2315 Stockton Ave., Sacramento, CA 95817 University of California, Davis Medical Center, Sacramento, California, as shown on the vicinity map.

Project Consists of replacement of two x-ray machines in rooms 1835H and 1835I with structural supports, electrical connections and mechanical upgrades. Includes new finishes, painting and casework upgrades. The project will be phased so that only one x-ray room at a time will be off-line.

C. Build-out as shown and herein specified, complete and ready for occupancy, the following remodeled facility shown on the Contract Documents.

1.03 CONTRACTOR WARRANTS

A. Contractor warrants that it is skilled and experienced in the use and interpretation of Contract Documents such as those included in the bid documents for this Contract. The Contractor further warrants that it has carefully reviewed the Contract Documents for this Work and has found them to be free of ambiguities and sufficient for bid purposes.

B. Contractor warrants that it has inspected the Project Site and, based on these observations, has satisfied itself as to the nature and location of the Work; and any special conditions likely to be encountered at the site which may affect the performance

of the Work.

C. Contractor warrants that its bid is based solely on the Contract Documents provided, its own observations, and written explanations and interpretations obtained from University's Representative and not on any explanation or interpretation, oral or written, from any other source.

1.04 CONTRACT DOCUMENT INTENT AND RELATIONSHIPS

A. Contract Documents Intent: Provide all labor, material, equipment, tools, transportation, insurance, services and all other requirements necessary to construct the project described in the Contract Documents.

B. Relationship of Contract Documents: Drawings, Specifications and other Contract Documents in the Contract are intended to be complementary. What is required by one shall be as if required by all. What is shown or required, or may be reasonably inferred to be required, or which is usually and customarily provided for similar work, shall be included in the Work. For example, the drawings may not show every variation of an anchor clip that is required to support a curtain wall from its structural support; it can be reasonably inferred that variations of or additions to these clips are necessary to complete the installation of the working system and therefore all such clips are understood to be included in the Work.

C. Discrepancies in Contract Documents: In the event of error, omission, ambiguity or conflict in the Contract Documents, Contractor shall bring the matter to University's Representative's attention in a timely manner, for University's Consultant's determination and direction in accordance with provisions of the General Conditions of the Contract.

D. Bidding and Contract requirements: Information for bidding, Conditions of the Contract and other Contract documents will be produced by the University and may be included in the Contract Documents for convenience. Such documents are not Specifications. Specifications are found in Divisions 1 through 16 of the Contract, as listed in the Table of Contents of the Contract.

E. Contract Drawings: The Drawings provided with and identified in the Contract are the Drawings referenced in the Agreement.

1. Drawings produced for this project may encompass Civil, Landscape, Architectural, Structural, HVAC, Plumbing, Piping, Fire Protection, and Electrical portions of the Work. Interior Design drawings may also be provided for product selection and installation information.

2. The location, extent and configuration of the required construction and improvements are shown and noted on the Drawings. A list of Drawings is included in the Contract Documents.

3. Drawings are arranged according to design discipline. Such organization and all references to trades, subcontractor, specialty contractor or supplier shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of the work to be performed by any trade.

4. Where the terms "as shown", "as indicated", "as noted", "as detailed", "as scheduled" or terms of like meaning, are used in the Drawings or Specifications,

it shall be understood that reference is being made to the List of Drawings and the Specifications as bound in the Contract Documents.

5. Where reference to the word "plans" is made anywhere in the Drawings, Specifications and related Contract Documents, it shall be understood to mean the Drawings listed in the List of Drawings.

F. Contract Specifications: The Specifications provided as a part of the Contract Documents are the Specifications referenced in the Agreement.

1. The Specifications are organized by Divisions and Sections in accordance with the recommended practice of the Construction Specifications Institute. Such an organization shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of the work to be performed by any trade.

2. Specifications are included in the Contract, which also includes other Bidding and Contract Documents. Contents of the Contract are listed in the TABLE OF CONTENTS.

3. Information for bidding, Conditions of the Contract and other Contract documents will be produced by the University. Such documents are not Specifications. Specifications are found in Division 1 through 16 of the Contract.

1.05 UNIVERSITY-FURNISHED, CONTRACTOR-INSTALLED PRODUCTS

A. University-Furnished Products: University will furnish, for installation by Contractor, products which may be identified on the Drawing and in the Specifications as UFCI (University-Furnished / Contractor-Installed).

B. Relationship to Work Under the Contract: Work under the Contract shall include all provisions necessary to fully incorporate such products into the Work, including, as necessary, fasteners, backing, supports, piping, conduit, conductors and other such provisions from point of service to point of connection, and field finishing, as shown on the Drawings and/or specifications herein. See Section 01310 - COORDINATION for additional requirements.

1.06 SITE CONDITION SURVEY & PROTECTION OF EXISTING IMPROVEMENTS

A. Site Condition Survey: Prior to commencing work, the Contractor, University's Representative and other University representatives shall tour the Project site together to examine and record the existing condition of site, adjacent buildings, and improvements. This record shall serve as a basis for determination of damage (if any) due to the construction process. The record shall be signed by all parties participating in the tour.

B. Protection of Existing Improvements: Locate all known existing utilities prior to proceeding with construction. Existing utilities shall be kept in service where possible and protected by the Contractor from damage. If any structure or utility is damaged, take immediate action to ensure the safety of persons and University property and effect repair. If previously undiscovered structures or utilities are encountered, request University's Representative to provide direction on how to proceed with the work. Cracks, sags or damage to adjacent structures or improvements not noted in the original survey

shall be reported to University's Representative.

C. University does not normally charge for its shutdown support services. However, if poor planning or execution of a shutdown by Contractor causes excessive time and effort for University, University reserves right to backcharge Contractor for additional work.

1.07 CONTRACTOR USE OF SITE AND PREMISES

A. Site Access: Limit access to site as indicated on the drawings. If routes and access points are not indicated, access shall be as directed or approved by the University's Representative.

B. Hours of Operation: Construction activities are limited to the hours of 7:00 AM to 5:00 PM, Monday through Friday. Prior University approval is required for Contractor construction work at any other time or day.

C. Construction Limit: Limit construction activities to areas indicated on Drawings as Project Area or, if not indicated, to areas immediately adjacent to buildings and as necessary for immediate construction or utility services and sitework, See Section 01510 - TEMPORARY UTILITIES for additional requirements.

D. Utility Outages and Shutdowns: Schedule utility outages and shutdowns to times and dates acceptable to University's Representative. Duration of outages and shutdowns shall not hinder University normal business operations. Provide fourteen (14) days' notice of all utility outages and shutdowns.

1.10 PROJECT PHASING [Use as applicable] or NOT USED

A. The WORK OF THIS contract is divided into two Phases.

1. The Work of Phase I consists of all work in Room 1835I.
2. The work of Phase 2 consists of all work in Room 1835J.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not applicable to this Section

END OF SECTION 01110

SECTION 01230
ALTERNATES

PART I - GENERAL

1.01 GENERAL

A. This Section identifies each Alternate and describes basic changes to the Work only when that Alternative is made a part of the Work by specific provision in the Agreement.

B. Lump Sum Base Bid and Alternates shall include costs of all supporting elements required, so that combination of Lump Sum Base Bid and any Alternates shall be complete. Scope of Work for all Alternates shall be in accordance with applicable Drawings and Specifications.

C. Except as otherwise specifically provided by University, Work described in Alternates shall be completed with no increase in Contract Time.

D. This Section includes only non-technical descriptions of the Alternates. Refer to Sections of Division 2 - 16 of the Specifications for technical descriptions of the Alternates.

E. Coordinate related Work and modify surrounding Work as required to properly and completely integrate Alternates into the Work.

1.02 DESCRIPTION OF ALTERNATES

A. None

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not applicable to this Section

END OF SECTION 01230

SECTION 01250
CLARIFICATION/INFORMATION PROCEDURES

PART I - GENERAL

1.01 DESCRIPTION

A. This Section contains the procedures to be followed by Contractor for submitting a Request for Information (RFI) upon discovery of any apparent conflicts, omissions, or errors in the Contract Documents or Drawings or upon having any question concerning interpretation.

B. Section Includes

1. RFI Administrative requirements

2. RFI Procedures

3. RFI Execution

1.02 RELATED DOCUMENT SECTIONS

A. Conditions of the Contract: Governing requirements for changes in the Work, in Contract Sum and Contract Time.

B. Section 01610 – PRODUCT REQUIREMENTS: Product options, substitutions, omissions and improper descriptions.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Description: Section provides procedure for Contractors to obtain interpretation or clarification of the Contract Documents, or identify apparent conflicts, omissions, or errors in the Contract Documents.

B. Responsible Person for Contractor: Submit name of the individual authorized to receive Requests for Information documents, and who is responsible for forwarding Request.

C. RFI Format: Submit all Requests for Information on the form attached at the back of this Section.

1.04 RFI PROCEDURES

A. RFI Format, Numbering and Subject:

1. RFI Format: Submit all requests for clarification or additional information in writing to the University's Representative using the RFI Request for Information form provided at the back of this Section or obtained from University's Representative.

2. RFI Numbering: Number RFI's sequentially. Follow RFI number with sequential alphabetical suffix for resubmissions. For example, the first RFI is numbered

"001". The second RFI is numbered "002" and so on. The first resubmittal of RFI "002" will be numbered "002a".

3. RFI Subject: Limit each RFI to one (1) subject only.

B. RFI Submittal conditions:

1. Discovery of unforeseen condition or circumstance not described in the Contract Documents.

2. Discovery of an apparent conflict, discrepancy or inconsistency in or between portions of the Contract Documents.

3. Discovery of a situation, direction or apparent omission that cannot be reasonably inferred from the intent of the Contract Documents.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 EXECUTION OF RFI's

A. Faxed RFI requests will be accepted. University's Representative's fax number is 916-734-7751. Notification time begins from date stamp of University's fax machine. Faxed RFI requests received after normal business hours and/or received on non-normal workdays, as defined in Specification Section 01310 – COORDINATION, Item 1.07.F.4.A will begin notification time starting at 7:00 AM the following business day.

B. Failure to provide proper information: RFI's will not be recognized or accepted if, in the opinion of University's Representative, one of the following conditions exist:

1. Contractor submits the RFI as a request for substitution.

2. Contractor submits the RFI as a Submittal.

3. Contractor submits the RFI as a Contract Document discrepancy or omission without through review of the Documents (Capricious submission).

4. Contractor submits the RFI assuming portions of the Contract Documents are excluded or by taking an isolated portion of the Contract Document in part rather than in whole.

5. Contractor submits the RFI in an untimely manner without proper coordination and scheduling of Work of other Trades.

C. Response Time: Request clarifications or information immediately upon discovery of need. Submit RFI's in a timely manner allowing full response time to avoid impacting Contract Schedule.

1. University's Representative, whose decision will be final, shall resolve issues and respond to questions of Contractor, in most cases, within fourteen (14) days. Actual time may be lengthened for complex issues, or shortened for expedited situations, as mutually agreed in writing.

2. After submission of an RFI by Contractor and prior to receipt of the RFI response from University, the Contractor proceeds with effected Work at own risk. Any portion of the Work not constructed in accordance with University interpretation, clarification, instruction or decision is subject to removal and replacement at Contractor expense.

D. Failure to Agree: In the event of failure to agree to the scope of the Contract requirements, Contractor shall follow procedures set forth in Article 4 of the General Conditions of the Contract.

END OF SECTION 01250

REQUEST FOR INFORMATION

A/C #: _____ **Project Title:** _____
RFI #: _____ **Date:** _____ **OSHPD #:** _

University of California, Davis, Medical Center Facilities Design & Construction 4800 2nd Avenue, Suite 3010, Sacramento, CA 95817 **Attn.: Project Manager** P: 916-734-#### C: ###-###-#### F: 916-734-#### Email: ########@ucdavis.edu	From:	

SUBJECT: _____

SPEC SECTION/DRAWING #: _____ **PARA:** _____ **DETAIL:** _____
RM # _____ **GRID #** _____

TRANSMITTAL RECORD	Requestor to FD&C	FD&C to A/E	A/E to FD&C	FD&C to Requestor	Notes
Date Submitted					

INFORMATION NEEDED: _____

CONTRACTOR'S PROPOSED RESOLUTION: _____

REQUESTOR SIGNATURE: _____ **REPLY REQUIRED BY:** _____

☐ **ATTACHMENTS:** _____

REPLY: _____

REPONDER SIGNATURE: _____ **DATE:** _____

UNLESS OTHERWISE INDICATED ABOVE, THE REPLY TO THIS RFI IS NOT INTENDED TO BE A CHANGE DIRECTIVE. SHOULD THE CONTRACTOR, SUBCONTRACTOR, OR SUPPLIERS FEEL THAT THE REPLY WILL IMPACT THE PROJECT COST OR SCHEDULE; IT SHOULD IMMEDIATELY BE CONVEYED TO THE UCDMC FD&C PROJECT MANAGER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

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SECTION 01255
CONTRACT MODIFICATION PROCEDURES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Change Order Administrative Requirements

B. Documentation of Change in Contract Sum and Contract Time

C. Change Procedures

D. Field Orders

E. Stipulated Sum Change Orders

F. Unit Price Change Orders

G. Time and Material Change Orders

H. Execution of Change Orders

I. Reconciliation of Change Orders

1.02 RELATED DOCUMENT SECTIONS

A. General Conditions of the Contract: Governing requirements for changes in the Work, in Contract Sum and Contract Time.

B. Section 01250 – CLARIFICATION/INFORMATION PROCEDURES

C. Section 01290 – MEASUREMENT AND PAYMENT: Applications for Payment.

D. Section 01610 – PRODUCT REQUIREMENTS: Product Options, substitutions, omissions and improper descriptions.

E. Section 01770 – CLOSEOUT PROCEDURES: Project record documents.

1.03 CHANGE ORDER ADMINISTRATIVE REQUIREMENTS

A. Responsible Person for Contractor: Submit name of the individual authorized to receive construction change documents, and who is responsible for informing others in Contractor's employ of subcontractors of changes in the work.

B. Forms found in the Exhibits of the Contract:

1. COST PROPOSAL Form

2. COST PROPOSAL SUMMARY Form

3. SUPPORTING DOCUMENTATION FOR THE COST PROPOSAL SUMMARY Form

4. CHANGE ORDER Form

1.04 DOCUMENTATION OF CHANGE IN CONTRACT SUM AND CONTRACT TIME

A. Documentation of Changes in Contract Sum and Contract Time: Provide full information required for evaluation of proposal of proposed changes and to substantiate costs of changes in the Work.

1. Maintain detailed records of Work completed on time and material basis.

2. Document each quotation for a change in Contract Sum and Contract Time with sufficient data to allow evaluation of the quotation.

B. Additional Data: Upon request, provide additional data to support computations.

1. Quantities of products, labor and equipment.

2. Taxes, insurance and bonds.

3. Overhead and profit.

4. Justification for change in Contract Time, if claimed.

5. Credit for deletions from Contract, similarly documented.

1.05 CHANGE PROCEDURES

A. University's Supplemental Instructions: Minor changes in the Work, not involving adjustments to the Contract Sum or Contract time, as authorized by the General Conditions of the Contract, may be presented using Supplemental Instructions or correspondence containing similar information.

B. University Initiated Changes: A "Request for Proposal" may be issued by University's Representative, which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications.

1. The Request for Proposal may include an estimate of additions or deductions in the Contract Sum or Contract Time for executing the change and may include stipulations regarding overtime work and the period of time the requested response from the Contractor shall be considered valid.

2. Contractor shall prepare and submit a response to the Request for Proposal within fourteen (14) days.

C. Contractor initiated Changes: Contractor may propose a change by submitting a request for change to University's Representative, describing proposed change and its full effect on the Work.

1. Include statement describing reason for change, and full description of effects on Contract Sum, Contract Time, related Work and work being performed under separate contracts.

2. Requests for substitutions shall be included under this category, with procedures as specified in Section 01610 – PRODUCT REQUIREMENTS.

1.06 FIELD ORDER

A. Field Order: University's Representative may issue a "Field Order", signed by University's Representative, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The document will describe changes in the Work, and will designate the method of determining what, if any, change is due in the Contract Sum or the Contract Time.

2. Promptly execute the change in the Work.

B. Cost and Time Resolution: Costs and time adjustments for changes in the Work shall be per provisions of the General Conditions of the Contract, unless otherwise agreed to prior to issuance.

1.07 CHANGE ORDERS

A. Stipulated Sum Change Orders: Contractor's response to Request for Proposal or Field Order will be considered and a mutually acceptable adjustment in Contract Sum and Contract Time will be determined. Change Order for this stipulated amount will be prepared by University's Representative for execution by University and Contractor.

B. Unit Price Change Order: Change Order will be prepared by University's Representative for execution by University and Contractor, based on mutually acceptable quantities and pre-determined unit prices.

1. For unit cost or quantities not pre-determined, the Work shall be accomplished under a Stipulated Sum Change Order, if there is no dispute over the estimated or stipulated maximum cost and time for the change.

2. If the amounts are not defined or are disputed, a Field Order will be prepared and issued by University's Representative.

C. Time and Material Change Orders: As directed for changes for where amounts are not defined or are disputed, Contractor shall execute the Work, keeping accurate records of time, both labor and calendar days, and cost of materials.

1. Contractor shall prepare and submit an itemized account and supporting data after completion of the change, within the time limits indicated in the Conditions of the Contract.

2. University's Representative will determine the change allowable in Contract Sum

and Contract Time, as provided elsewhere in the Contract Documents, and make recommendation to University for acceptance of Change Order.

3. Contractor shall provide full information as required and requested for evaluation of proposed changes, and to substantiate costs for changes in the Work.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 EXECUTION OF CHANGE ORDERS

A. Execution of Change Orders: University's Representative shall prepare Change Order documents for signature by parties as provided in the Conditions of the Contract.

3.02 RECONCILIATION OF CHANGE ORDERS

A. Schedule of Values: Promptly revise the Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjustment to the Contract Sum.

B. Schedules: Upon completion of the Change Order, promptly revise progress schedules to reflect changes in Contract Time, revising sub-schedules to adjust time for other items of Work as may be affected by the change. Submit revised schedules with next Application for Payment.

END OF SECTION 01255

SECTION 01270
UNIT PRICES

PART I - GENERAL

1.01 DESCRIPTION

A. Unit price quotations are to be inserted in the appropriate spaces in the Bid Form for each unit price item of Work described herein.

B. Unit prices stated in the Agreement shall be used to complete adjustments of the Contract Sum for approved unit price items of Work. Such adjustments shall be made by Change Order.

C. Unit prices shall include all labor, materials, tools, and equipment, direct and indirect costs necessary to complete the item of Work and coordinate the Work and shall include all overhead and profit. Contractor shall accept compensation computed in accordance with the unit prices as full compensation for furnishing such Work.

D. Compensation will be paid for those items of Work described below in sub-Section 2.01.

1.02 SPECIFIED WORK

A. Applicable Sections of the Specifications describe the materials and methods required for the various unit price items of Work.

PART II - PRODUCTS

2.01 UNIT PRICES

List of Unit Price Items and Descriptions

1. None

PART III - EXECUTION

3.01 UNIT PRICES

A. Immediately notify University's Representative when conditions require use of unit price items.

B. The applicability of, measurement methods for, documentation of, and final adjustment of, the Contract sum for unit price items of Work shall be determined by University's Representative.

C. After performing unit price items as described by University's Representative, Contractor shall take necessary measurements in the presence of University's Representative and shall submit calculations of quantities to University's Representative for approval. Contractor shall notify University's Representative one (1) day in advance of taking measurements.

END OF SECTION 01270

SECTION 01290
MEASUREMENT AND PAYMENT

PART I - GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and presentation of Application for Payment.

1.02 RELATED DOCUMENTS AND SECTIONS

A. GENERAL CONDITIONS of the Contract: Progress Payments and Final Payment.

B. Section 01320 – CONTRACT SCHEDULES

C. Section 01770 – CLOSEOUT PROCEDURES

1.03 PAYMENT APPLICATION FORM

A. Payment Application Form: Prepare Applications for Payment using Exhibit 4 provided in the Contract or, if otherwise directed, prepare Applications for Payment on AIA Document G702 – Application and Certification for Payment; include continuation sheets as necessary, using AIA Document G703 – Continuation Sheet.

1.04 PREPARATION OF APPLICATIONS

A. Preparation of Applications for Payment: The following requirements supplement the provisions of the General Conditions of the Contract. Refer to the GENERAL CONDITIONS OF THE CONTRACT.

1. Present required information typewritten on the required forms. Media-driven forms are acceptable.

2. Execute certification by wet ink signature of authorized officer of the Contractor.

3. Use data from the approved Schedule of Values. Provide dollar value in each column of application for each line item and portion of Work performed and for products stored, if permitted.

a. List value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for progress Payments. Round off values to nearest dollar. Listed items of work shall be identified by Specification Section number.

b. List products and operations of each major subcontract as separate line item.

c. Include Work Allowances (if any) within line item of Work.

d. Coordinate listings with Progress Schedule.

e. Component listings shall each include a directly proportional amount of Contractor's overhead and profit.

f. For items on which payments will be requested for stored products. List sub-values for cost of stored products with taxes paid.

g. Submit a sub-schedule for each separate Phase of Work specified in Section 01110 – SUMMARY OF THE WORK. Include scheduling of sequences for Phase of the Work as indicated in the Contract Documents.

h. The sum of values listed shall equal total Contract Sum.

4. List each authorized Change Order as an extension on the continuation sheet, listing the Change Order number and dollar value as for an original item of Work. Change Order shall be broken down same as Application for Payment.

5. No Change Order shall be included with Application for Payment until approved in writing by University and University's Representative.

B. Final Payment: Prepare Application for Final Payment as specified in Section 01770 – CLOSEOUT PROCEDURES.

1.05 SUBMISSION OF APPLICATIONS FOR PAYMENT

A. Submission of Applications for Payment: The following requirements supplement provisions of the General Conditions of the Contract. Refer to the GENERAL CONDITIONS OF THE CONTRACT.

1. Submit five (5) copies of each Application for Payment with original wet ink signature. Round values to nearest dollar or as specified for the Schedule of Values.

2. Submit an updated Construction Progress Schedule with each Application for Payment and specified in Section 01320 – CONTRACT SCHEDULES.

3. Submit one (1) copy of the Schedule of Values in accordance with the General Conditions of the Contract. Form and content shall be acceptable to University. Transmit under transmittal letter. Identify Project by A/C # and name.

a. List installed value of each major item of Work and for each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments. Round off values to nearest dollar. Listed items of Work shall be identified by Specification section number.

b. For each major subcontract, list products and operations of that subcontract as separate line items.

c. Coordinate listings with Progress schedule.

d. Component listings shall each include a directly proportional amount of Contractor's overhead and profit.

e. For items on which payments will be requested for stored products, list sub-values for cost of stored products with taxes paid.

f. Submit a sub-schedule for each separate Phase of Work specified in

Section 01110. Include scheduling of sequences within each phase indicated on the drawings.

g. The Sum of values listed shall equal total Contract Sum.

h. When University's Representative requires substantiating information, submit data justifying line item amounts in question.

i. Provide one (1) copy of data with cover letter for each copy of Application. Show Application number and date, and line item by number and description.

4. Submit Applications for Payment, Continuation Sheets and Schedule of Values under transmittal letter. Contractor shall identify all payment application documents by University's Project Name and University's Project Number.

1.06 SUBSTANTIATING DATA

A. University's Representative may request substantiating information. Submit data reconciling line item amounts in question.

B. Provide one (1) copy of data with cover letter for each copy of submittal. Show Application number and date and line item by number and description.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01290

SECTION 01310
COORDINATION

PART I - GENERAL

1.01 SECTION INCLUDES

A. Project Meetings

B. Submittals Requirements

C. General Contractor Coordination

D. Coordination of Subcontractor and Separate Contracts

E. University Criteria

1.02 RELATED REQUIREMENTS

A. Section 01110 – SUMMARY OF THE WORK: Description of Contract Documents.

B. Section 01320 – CONTRACT SCHEDULES

C. Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

D. Section 01350 – SPECIAL PROCEDURES: Interim Life Safety Measures (ILSM).

E. Section 01450 – QUALITY CONTROL

F. Section 01455 – INSPECTION OF WORK

G. Section 01510 – TEMPORARY UTILITIES

H. Section 01520 – CONSTRUCTION FACILITIES

I. Section 01550 – VEHICULAR ACCESS AND PARKING: Traffic Regulation.

J. Section 01560 – TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS

K. Section 01610 – PRODUCT REQUIREMENTS

L. Section 01730 – CUTTING AND PATCHING

M. Section 01770 – CLOSEOUT PROCEDURES: Coordination of completion reviews, inspections and submission of documents.

N. Section 01780 – CLOSEOUT SUBMITTALS: Record Drawings.

1.03 MEETINGS

A. Pre-Construction/Site Mobilization Conference: University's Representative will administer site mobilization conference at Project site for clarification of responsibilities of University, University's Representation and Contractor, use of site and for review of administrative procedures. Site mobilization conference shall be held within fourteen (14) days of Notice to Proceed, unless otherwise directed by University's Representative.

1. Agenda: Pre-Construction/Site Mobilization Conference shall cover the following topics at a minimum:

a. Special Project Procedures: Implementation of requirements as specified in Section 01310 – COORDINATION.

b. Subcontractors List: Distribute and discuss list of subcontractors and suppliers.

c. Construction Schedule: Distribute and discuss initial construction schedule and critical work sequencing of major elements of Work, including coordination of University furnished/Contractor installed (UFCI) products and work under separate contracts, by utility agencies and companies and University.

d. Designation of Key personnel: Designate key personnel and update project directory for University, University's Consultants, Contractor, major subcontractors, major materials suppliers, serving utility agencies and companies, other contractors performing work under separate contracts and governing authorities having jurisdiction.

e. Project Communication Procedures: Review requirements and administrative requirements for written and oral communications.

f. Change Procedures: Review requirements and administrative procedures for Change Orders, Field Orders, University's Representative's Supplemental Instructions, and Contractor's Requests for Information.

g. Coordination: Review requirements for Contractor's coordination of Work; review sequence and schedule for work being performed for University under separate contracts.

h. Submittals Administration: Review administrative procedures for shop drawings, project data and sample submittals and review of preliminary submittals schedule.

i. Project Record Drawings: Review requirements and procedures for project record drawings and specifications.

j. Construction Facilities and Temporary Utilities: Designate storage and staging areas, construction office areas; review temporary utility provisions; review University requirements for use of premises.

k. Materials and Equipment: Review substitution requirements; review schedule for major equipment purchases and deliveries; review materials and equipment to be provided by University (UFCI products).

l. Site Access by University's Representative and University's Consultants: Review requirements and administrative procedures Contractor may institute for identification and reporting purposes.

m. Testing and Inspection: Review tests and inspections by independent testing and inspection agencies, manufacturers, and governing authorities having jurisdiction.

n. Permits and Fees: Review Contract requirements; review schedule and process for obtaining permits and paying fees.

B. Billing Meetings: A billing meeting will be conducted by the University's Representative each month prior to submittal of the Application for Payment. Agenda: review of the percent complete relating to the submitted Schedule of Values.

C. Progress Meetings: Progress meetings shall be periodically scheduled throughout progress of the Work. Frequency shall be as determined necessary for progress of Work. Generally, it is intended progress meetings be held once a week as designated by the University's Representative.

1. Administration: University's Representative shall make physical arrangements for meetings and prepare agenda with copies for participants, preside at meetings, record minutes and distribute copies within four (4) days to Contractor University’s Consultants, and other participants affected by decisions made at meetings.

2. Attendance: Contractor's Project Manager and jobsite Superintendent shall attend each meeting. Contractor's subcontractors and suppliers may attend as appropriate to subject under discussion. University will have a representative at each meeting. University's Consultants, as appropriate to agenda topics for each meeting and as provided in University/Consultant Agreement, will also attend.

a. Suggested Agenda for Progress Meetings:

1) Building Code/Fire Marshal Issues

2) Design Issues

3) Submittals and Long Lead Items

4) Request for Information

5) Safety Issues

6) Scheduling Status/2 Week Look Ahead

7) Inspection Requests

8) Utility Shutdowns and Dig Notifications

9) Instructional Bulletins and Field Orders

10) Change Orders/Cost Proposals

11) Payment Applications and As-Built Drawings

12) Miscellaneous Business

13) Other items affecting progress of the Work

D. Guarantees, Bonds, Service and Maintenance Contracts Review Meeting: Eleven months following the date of Substantial Completion, a meeting will be conducted by University's Representative to review the guarantees, bonds and service and maintenance contracts for materials and equipment.

E. In addition to meetings listed above, Contractor shall hold coordination meetings and pre-installation conferences to assure proper coordination of Work.

1. Pre-installation Conferences: When required in individual Specification Sections, convene a pre-installation conference prior to commencing Work.

a. Require attendance by representatives of firms whose activities directly affect or are affected by the Work specified.

b. Review conditions of installation, preparation and installation procedures and coordination with related Work and Work under separate contracts.

F. Location of all meetings will be as designated by University's Representative. Participants at all meetings shall be University's Representatives, Consultants and/or Vendors, Contractor, Superintendent, Subcontractors and others as appropriate.

1.04 SUBMITTALS

A. Coordination of Submittals: Schedule and coordinate submittals as specified in Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, Section 01770 – CLOSEOUT PROCEDURES and Section 01780 – CLOSEOUT SUBMITTALS.

1. Coordinate submittal effort of various trades, subcontractors and suppliers having interdependent responsibilities for installing, connecting, and placing into service such equipment, materials or installations as necessary for the Work.

2. Coordinate requests for substitutions to assure compatibility of space, operating elements, and effect on work of others.

3. Contractor shall submit the following submittals to the University's Representative who will forward directly to the appropriate State Agencies for their review and approval:

a. Fire Protection Drawings: Refer to Section 15300.

b. Fire Alarm System: Refer to Section 16720.

c. Additional OSHPD Deferred Approvals: Refer to list of deferred approvals as shown on the Contract Documents.

B. Coordination/Engineering Drawings: Submit in accordance with Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES and as specified herein.

C. Work Plans: Submit as specified herein.

1.05 COORDINATION

A. Coordination: Contractor shall coordinate the Work as stated in the General Conditions of the Contract. Work of the Contract includes coordination of the entire work of the Project, from beginning of construction activity through Project closeout and warranty periods. Contractor shall also coordinate Work under the Contract with work under separate contracts by University. Contractor shall cooperate with University and others as directed by University's Representative in scheduling and sequencing the incorporation into the Work of University Furnished/Contractor Installed (UFCI) products identified in the Contract Documents.

1. Coordinate completion and cleanup of work of the separate trades, subcontractors, vendors, etc., in preparation for University occupancy

2. After University occupancy, coordinate access to site by various trades, subcontractors, vendors, etc., for correction of defective work and/or work not in accordance with Contract Documents, to minimize University disruption.

3. Assemble and coordinate closeout submittals specified in Section 01770 – CLOSEOUT PROCEDURES.

B. Construction Interfacing and Coordination: Layout, scheduling and sequencing of Work shall be solely Contractor's responsibility. Contractor shall bring together the various parts, components, systems and assemblies as required for the correct interfacing and integration of all elements of Work. Contractor shall coordinate Work to correctly and accurately connect abutting, adjoining, overlapping and related elements, including work under separate contracts by University and utility agencies, if any.

C. Installation of Systems into Project Space: Follow routings shown for pipes, ducts and conduits as closely as practicable, as shown on the Contract Documents with due allowance for available physical space; make runs parallel with line of building. Utilize space efficiently to maximize accessibility for other installations, future maintenance and repairs. In finished areas, except as otherwise shown, conceal pipes, ducts and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

D. Utility Work: Work occurring on or in the immediate vicinity of critical utilities must be directly supervised at all times by Contractor's qualified personnel. Requirements stated herein for notification, work plans, dig notification forms and marking locations of existing utilities shall apply. Contractor will be held fully liable for costs and damages due to unplanned interruption of critical utilities, including any personal injury to Hospital patients, visitors or staff.

1. Provide supervision and coordination necessary to meet requirements of electrical power connection as set forth by the Sacramento Municipal Utility District (SMUD).

2. Provide reasonable and convenient staging and access areas to permit SMUD, its vendors or subcontractors, to install, modify or remove electrical transformers or other components of the electrical power system furnished and installed by SMUD.

1.06 COORDINATION OF SUBCONTRACTORS AND SEPARATE CONTRACTS

A. Conflicts: Conflicts shall be resolved by the Contractor. Contractor bears primary responsibility for conflict resolution regarding the coordination of all building trades, subcontractors and suppliers.

B. Superintendence of Work: Contractor shall appoint a field superintendent who shall direct, supervise, and coordinate all Work in the Contract Documents.

C. Subcontractors, Trades and Materials Suppliers: Contractor shall require all subcontractors, trades, crafts and suppliers to coordinate their portions of Work with the Superintendent to prevent scheduling, sequencing, dimensional and other conflicts and omissions.

D. Coordination with Work Under Separate Contracts: Contractor shall coordinate and schedule Work under Contract with work being performed for Project under separate contracts by University. Contractor shall make direct contacts with parties responsible for work of the Project under separate contracts, in order to provide timely notifications and to facilitate information exchanges.

E. Service Connections: Except as otherwise indicated, final connection of mechanical services to general work is defined as being mechanical work; final connection of electrical services to general work is defined as electrical work.

1.07 UNIVERSITY CRITERIA

A. During the Base Construction time, Contractor shall allow University 14 days to move University equipment and/or provide furnishings into the project area. Contractor shall notify University's Representative in writing a minimum of fourteen (14) calendar days prior to completion of area described above.

1. Contractor shall show this time as a distinct activity on the detailed project schedule.

B. Equipment Coordination: Contractor and University supplied equipment will require complete installation data be exchanged directly between Contractor and vendors and subcontractors involved as progress of Project requires. Individual requesting information shall advise when it is required. Incorrect, incomplete, delayed or improperly identified equipment causing delay or error in installation will require entity causing such action to be liable for modifications or replacements necessary to provide correct and proper installation, including relocations.

C. Contractor shall provide large scale casework and equipment drawings for casework and

equipment service rough-in locations (dimensioned from building features), service characteristics, and locations of studs or blocking where such locations are critical to mounting or otherwise installing equipment and casework. Furnish sizes and spacing required for mechanical and electrical cutouts, and a complete brochure of fittings, sinks, outlets, or other information to provide a complete assemblage of the items and accessories being furnished.

D. Interruption of Services: Construction Work shall accommodate University's use of surrounding and adjacent premises during the construction period and shall provide continuous public access and use of surrounding and adjacent facilities. Contractor shall not deny access to public use facilities until an alternate means of public use has been provided. An interruption of service is defined as any event which in any way interrupts, disrupts or otherwise discontinues, even momentarily, the services provided by University to its patients and staff. Adequate notice, as described below, shall be given to University when any interruption of services or interference with the use of existing buildings and roads are anticipated. Any interruption of service will be made only by University upon such notice. Interruptions to University services will not be made without prior notification and approval by University. Contractor shall never interrupt any University service without direct University participation.

1. Dig Notification: Contractor shall complete and submit for review to University's Representative, a Dig Notification Form, included at the end of this section, and obtain written authorization from University prior to the commencement of any digging activities. Digging activities include exploratory demolition, soils excavation, concrete core drilling, and saw cutting. Contractor shall include all pertinent information with the Dig Notification Form and submit with detailed work plan fourteen (14) days prior to desired digging activity.

2. Contractor shall mark locations of all known utilities on ground of dig area with marker paint.

3. Prior to commencement of digging activities, Contractor shall verify project inspector has inspected the dig site and confirmed the site marking as accurate, complete and in conformance with site utility plans.

4. Contractor shall verify with University's Representative that all interested hospital departments have been notified of intent to begin digging operation.

5. Record documents are required for dig activities. Contractor shall provide as-built drawings.

E. Shutdown Procedures: Contractor shall complete and submit for review and approval to University a Request for Shutdown form, included at the end of this section. Contractor shall include all pertinent information to assist University in coordination of shutdown activities. The Shutdown Request Form shall be submitted with a detailed work plan addressing the proposed shutdown not less than fourteen (14) calendar days prior to desired shutdown.

F. The University does not normally charge for its shutdown support services. However, if poor planning and/or poor execution of a shutdown by the Contractor causes excessive time and effort for University personnel, the University reserves the right to backcharge the Contractor for this effort required to support such shutdown.

1. Contractor shall verify with University's Fire Marshal that all appropriate Interim Life Safety Measures (ILSM) are in place.

2. Contractor shall determine that proper and appropriate coordination and notification has been completed, including written authorization from University's Representative, prior to shutdown.

3. Service shutdowns shall require specific work plans to be submitted to and coordinated with University's Representative. Work Plan should reflect various work trades, activities or entities requiring active participation with University teams to coordinating hospital functions with construction activities.

    a. Contractor shall request, schedule, and conduct a General Work Plan Meeting prior to any work activity occurrence. During this meeting Contractor and University shall produce and agree to a list of work activities, which will require digging and/or shutdown coordination and procedures.

    b. University's Representative, upon receiving the agreed submission for coordination, shall schedule the actual digging and/or shutdown at the earliest possible date not later than fourteen (14) days from receipt of the submission. Operation of valves, switches, etc. to affect shutdowns shall be operated by University personnel only.

    c. A shutdown is defined as any interruption of services provided by University to its patients and staff.

4. Planned service shutdowns shall be accomplished during periods of minimum usage. Contractor shall plan work to restore service in minimum possible time, and shall cooperate with University to reduce number of shutdowns.

    a. Notwithstanding the provisions of Article 14.6 of the General Conditions of the Contract, Contractor may be required to perform certain types of work outside normal time periods.

        1) Non-normal times shall include, but not be limited to, periods of time before 7:00 AM and after 5:00 PM in the evening, weekend days, or legal holidays, or such periods of time which constitute split shifts or split working periods.

        2) Contractor shall include allocation of the cost of this work as part of the base bid and shall not be entitled to additional compensation as a result of such work during non-normal time periods.

        3) Contractor shall include the non-normal periods as distinct activities on the detailed project schedule.

        4) Contractor is advised and Contractor shall be prepared, at University written request, to perform certain shutdown and asbestos related work during non-normal time periods.

G. Utility locations: General location of utility lines and services may be shown on the drawings or described elsewhere, University does not warrant the accuracy of the locations shown or described. Determination of the actual on-site locations of utility lines and services prior to the commencement of work shall be the responsibility of the Contractor. Contractor shall complete layout/research for Points of Connection (P.O.C.) and clean/prep piping at P.O.C. All capping, relocation or removal of such lines and services shall be performed by Contractor as a part of the Contract. New/continued piping and services installation shall be prefabricated and in place prior to the shutdown.

All materials and tools required to complete the work must be at the shutdown location(s). Contractor shall not assume existing valves will hold 100%. Contractor is required to have at least one (1) alternate method (including parts and equipment) to complete installation once shutdown has started. Note: only wheel type cutters shall be used on copper pipe to reduce contamination to existing systems/valves.

H. Detailed Work Plans: Contractor shall develop and submit for review and approval to University's Representative detailed work plans for specific work activities, both inside and outside the work area, associated with impact to, or interruption of services and operation, and dig activities. Work Plans shall include written description of work activity, detailed schedule with proposed sequence of operation and activity duration, type of equipment to be used, a copy of site plan highlighted to indicate sequencing and location of work and equipment, completed Request for Shutdown and/or Dig Notification forms as applicable, conformance to ILSM, and control methods for noise, vibration and airborne contaminants.

1. Work Plan submittal will not be accepted unless all required information is provided at time of submittal.

2. Submit Work Plan at least fourteen (14) calendar days prior to the commencement of any associated work activities.

3. Coordination/Engineering Drawings: These drawings are for the Contractor's and University's use during construction and shall not be construed as replacing any shop drawings, "as-builts", or record drawings required elsewhere in the Contract Documents. University's review of these drawings is for design intent only and shall not relieve the Contractor of the responsibility for coordination of all work performed per the requirements of the Contract.

   a. Contractor shall prepare and submit complete ¼" = 1' - 0" coordination drawings, including plans, sections, details as are appropriate indicating the area layout, complete with debris removal area and materials access points, and all mechanical and electrical equipment in all areas and within ceiling spaces for new and existing conditions, including bottom of all duct, plenum, pipe and conduit elevations. Drawings shall show all structural and architectural restraints and other obstructions that may affect the work. Electronic or photo reproduction of University's Architectural Drawings is not acceptable.

   b. Each Subcontractor shall ensure all relevant mechanical and electrical equipment, piping, conduit, ceiling hangers, etc., are shown and will fit, together with necessary items such as lights, ducts, fans, pumps, piping, conduit and the like.

c. Submit completed and fully coordinated drawings together with six (6) prints together with Contractor's comments indicating possible areas of conflict for review to University's Representative prior to start of work.

d. Penetrations: Contractor shall prepare a sleeving layout (¼" scale) indicating size and locations of sleeves. Trades shall indicate to Contractor their requirements and locations. Provide copies to applicable trades and University's Representative.

e. Completion of work: All coordination drawings shall be submitted together with record (as built) drawings of all trades involved in accordance with Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01310

REQUEST FOR SHUTDOWN (RFS) INFO/IMPACT REPORT

PROJECT NAME: _____

UCDMC RFS #: _____

A/C #: _____ **OSHPD #:** _____ **CONTRACTOR RFS #:** _____

TODAY'S DATE: _____ SHUTDOWN DATE: _____ **SUSPEND DATE:** _____

TO: UC DAVIS HEALTH SYSTEM **Facilities Design & Construction** **4800 2nd Avenue, Suite 3010** **Sacramento, CA 95817** **P: 916-734-7024** **F: 916-734-7751** **Attention: Project Manager**	**FROM:**

Request Date: _____ Shutdown Target Date: _____

Requested By: _____ Requestor's Phone #: _____

Shutdown Work (**Utility Specific**): _____

Scope (**Brief Description of Work**): _____

Impact (**Areas & Users**): _____

Additional Comments: _____

DIG NOTIFICATION FORM

A/C #: _____ OSHPD #: _____ DATE: _____

TO: UC DAVIS HEALTH SYSTEM **Facilities Design & Construction** **4800 2nd Avenue, Suite 3010** **Sacramento, CA 95817** **P: 916-734-7024** **F: 916-734-7751** **Attention: Project Manager**	**FROM:**

1. Has USA been notified? YES ☐ NO ☐
   When? _____
2. Are all known utilities marked? YES ☐ NO ☐
3. Location of dig shown on attached site plan? YES ☐ NO ☐
   Purpose _____
4. Dates digging will take place _____
   Place _____

Signed: _____

UNIVERSITY USE ONLY

Date received: _____

1. Utilities verified by IOR? YES ☐ NO ☐
2. Dig activities coordinated with all parties? YES ☐ NO ☐
3. Comments: _____

Date Authorized: _____ Signed: _____

Date Returned: _____ Signed: _____

Comments: (Utilities encountered, disruptions, successes, weather, etc.)

Copies: ☐ UCDMC ☐ Consultants ☐ _____ ☐ _____ ☐ File

SECTION 01320
CONTRACT SCHEDULES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Construction Progress Schedules

B. Submittals Schedules

C. Review of Schedules and Submittals

D. Construction Progress Reports

1.02 RELATED DOCUMENTS AND SECTIONS

A. GENERAL CONDITIONS OF THE CONTRACT: Requirements to provide schedules.

B. Section 01110 – SUMMARY OF THE WORK: Subcontractor and materials suppliers list.

C. Section 01255 – CONTRACT MODIFICATION PROCEDURES: Supporting data.

D. Section 01290 – MEASUREMENT AND PAYMENT: Supporting data submittals.

E. Section 01310 – COORDINATION: Progress Meetings.

F. Section 1330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES: Shop drawings, product data and samples submittals.

G. Section 01450 – QUALITY CONTROL: Test and Inspections Reports.

H. Section 01770 – CLOSEOUT PROCEDURES: Occupancy/Acceptance/Final Payment Submittals.

I. Section 01780 – CLOSEOUT SUBMITTALS: Preparation of maintenance and operating data.

1.03 CONSTRUCTION PROGRESS SCHEDULES

Prepare the Contract Schedules as Bar Charts showing continuous flow from left to right. Specific calendar dates shall be clearly and legibly shown for the start and finish of each Work activity.

Using opaque reproductions on substantial paper, with sheet size a multiple of 8-½" x 11" and large enough to clearly read characters. Prepare the schedule in sufficient detail to demonstrate adequate planning for the Work, and so that it represents a practical plan to complete the Work within the Contract time. Clearly indicate complete sequence of construction by major activity, including phasing with dates for beginning and completion of each element of Work.

1. Identify all holidays and non-working days on the Schedules.

2. Identify all Work activities that constitute the project critical path including:

   a. Major Contractor-furnished equipment, materials, and building elements, and scheduled activities requiring submittals or University's prior acceptance. Show dates for submissions, reviews, and acceptance of each submittal. Dates shall be shown for the procurement, fabrication, delivery, and installation of major equipment, material, and building elements, and for scheduled activities designated by University Representative.

   b. System test dates.

   c. Scheduled overtime Work if required by Contract Documents.

   d. Dates Contractor to request: designated working spaces, storage areas, access, and other facilities to be provided by University Representative; responses from University on designated issues; University-furnished equipment; University-furnished utilities.

   e. Dates for connection and relocation of existing utilities; dates for connections to or penetrations of existing structures.

   f. Scheduled inspections as required by Code, or as otherwise specified.

3. Critical path activities are defined as Work activities which, if delayed or extended, will delay or extend the scheduled completion of one (1) or more of the milestones specified in this Section or in the scheduled completion of the Work, or both. All other Work activities are defined as non-critical path Work activities and are considered to have associated float.

4. Float is defined as the time a non-critical Work activity can be delayed or extended without delaying the scheduled completion of milestones specified in this Section or the scheduled completion of Work, or both. Neither contractor nor University shall have exclusive right to the use of float. The entity using the float of any non-critical activity shall document the effect on the updated Contract Schedule.

5. Delays of non-critical Work activity shall not be the basis for an extension of Contract Time until the delays consume the float associated with the specific non-critical work activity and cause the Work to become critical.

6. Presentation of each Work activity on the Contract Schedule shall include a brief description of the Work activity, the duration of the Work activity in calendar days, and a responsibility code identifying the subcontractor, trade or vendor performing the Work activity.

7. Contractor shall furnish cost estimates for each Work activity that cumulatively equals the total contract cost. Mobilization costs may be shown separately; other costs, such as profit, and bond shall be pro-rated throughout all activities.

B. Updating:

1. Review Contract Schedule with University's Representative once each week to incorporate all changes in the progress, sequences, and scope of Works activities into the Contract Schedule. Contractor shall submit at each weekly progress meeting to University Representative, a two (2) week "look ahead" schedule in a bar chart format which incorporates all changes in progress, services, and scope of work activities.

2. Prepare and submit to University's Representative updated Contact Schedule once each month. Contractor shall submit the updated Contract Schedule, in the form acceptable to University, at least seven (7) days prior to submitting the Application for Payment.

3. Updated Contract Schedule shall accurately represent the as-built condition of completed and in-progress Work activities as of the date of the updated Contact Schedule.

4. Updated Contract Schedule shall incorporate all changes mutually agreed upon by Contractor and University during preceding periodic reviews and all changes from Change Orders and Field Orders. University will determine acceptability of updated Contract Schedule within seven (7) days of its receipt.

5. The Accepted, updated Contract Schedule shall be the Contract Schedule of record for the period it is current and shall be the basis of payment during that period.

1.04 SUBMISSIONS

A. Preliminary Contract Schedule: Submit a preliminary schedule to University's Representative either:

1. Within ten (10) days of receipt of the Notice of Selection as apparent lowest responsible bidder or, with the Agreement under separate transmittal letter.

2. Adjustments to Preliminary Contract Schedule: Within seven (7) days of receipt of the Preliminary Contract Schedule, University's representative will notify Contractor in writing of acceptance of Schedule, or submit to Contractor request for adjustments to Contract Schedule.

B. Contract Schedule: Submit the finalized Contract Schedule, in the form and having general content acceptable to University's Representative within fifteen (15) days following Notice to Proceed and prior to submitting the first Application for Payment. Submit monthly revised Contract Schedules thereafter, accompanying the Applications for Payment. Within seven (7) days of receipt of the Contract Schedule, University's Representative will notify Contractor in writing of acceptance of the revised Contract Schedule.

1. Payment Processing Restriction: No Application for Payment will be processed nor any progress payment become due until Contract Schedule is accepted by University.

2. Posting: Post one (1) copy minimum, of most recent Contract Schedule in the construction job site office, readily available to University and University's Representative.

3. Archive: Preserve a minimum of two (2) copies of all superceded schedules, with a minimum of one (1) copy available at job site office for review by University or University's Representative.

C. Submittals Schedule: Prepare Submittals Schedule in a format at Contractor's option, either bar chart, PERT, or GANTT format, using opaque reproductions on substantial paper, with sheet size a multiple of 8-½" x 11" and large enough to clearly read characters. Coordinate format with Contract Schedule, specified above.

1. Submittals Schedule Content: List all items specified to be submitted, indicating submittal number, submittal type (product data, shop drawings, samples, quality control report, maintenance and operating data, and other descriptions); scheduled data submittal shall be made and date review be complete in order to maintain construction schedule.

2. Administration: Submit initial Submittals Schedule within fourteen (14) days of date of Agreement. After review, resubmit Submittals Schedule within ten (10) days and thereafter submit updated Submittals Schedules at each Construction Progress Meeting. Submit one (1) copy each to University and University's Consultant. Posting/Archiving shall be same as Contract Schedule.

1.05 REVIEW OF SCHEDULES AND SUBMITTALS

A. University Representative and University's Consultant's Review of Schedules: Schedule review by University's Representative and University's Consultants shall be only for general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents.

1. Review by University's Representative and University's Consultants shall not relieve the Contractor of compliance with requirements of the Contract Documents.

2. Changes in the Work shall not be authorized by submittals review actions.

3. No review action by University's Representative or University's Consultants, implicit or explicit, shall be interpreted to authorize changes in the Work. Changes shall only be authorized by separate written Change Order, in accordance with the General Conditions of the Contract.

B. University, University’s Representative or University’s consultants timely review of submittals and resubmittals.

1. University, University’s Representative or University’s Consultants shall have fourteen (14) calendar days to review all submittals and an additional fourteen (14) days of review of all resubmittals.

2. University, University’s Representative or University’s Consultant will prepare

and keep log of review time of submittals.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01320

SECTION 01330
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Administrative requirements for shop drawings, product data and samples submittals

B. University's and University's Consultant's review of submittals

C. Contractor's review of submittals

D. Shop Drawing Submittals

E. Product Data submittals

F. Sample submittals

G. Field Samples and mock-ups

H. Submittal Schedule requirements

1.02 RELATED SECTIONS

A. Section 01110 – SUMMARY OF THE WORK: Subcontractor and materials suppliers list.

B. Section 01320 – CONTRACT SCHEDULES: Submission and review of schedules and submittals.

C. Section 01450 – QUALITY CONTROL: Test and Inspection Reports.

D. Section 01770 – CLOSEOUT PROCEDURES: Occupancy/Acceptance /Final Payment Submittals.

E. Section 01780 – CLOSEOUT SUBMITTALS: Preparation of Maintenance and Operating Data.

1.03 ADMINISTRATIVE REQUIREMENTS

A. General Submittals Review: Submittals shall be made in accordance with requirements specified herein and in individual Sections.

1. Submittals shall be a communication aid between Contractor, University’s Representative, and University's Consultant(s) by which interpretation of Contract Documents requirements may be confirmed in advance of construction.

2. Submit on all products to be used on the Project. Make all submittals through the University unless otherwise directed.

a. The University’s Representative shall provide timely review of submittals and re-submittals.

1) University’s Representative shall have fourteen (14) calendar days from receipt to review all submittals fourteen (14) calendar days from receipt to review re-submittals.

2) University’s Representative will prepare and keep a log of review time of all submittals.

3. Substitutions shall be submitted in accordance with Section 01610 – PRODUCT REQUIREMENTS.

4. Make submittals sufficiently in advance of construction activities to allow shipping, handling and review by the University's Representative and their consultants.

B. University's and University's Consultants Review: University's Consultant's review will be only for general conformance with the design intent of the Contract Documents. Review of submittals is not conducted for purpose of determining accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Review actions of the University's Consultant or University shall not relieve Contractor from compliance with requirements of the Contract Documents. Changes shall only be authorized by separate written Change Order in accordance with the General Conditions of the Contract.

C. Contractors Review: Contractor shall review, mark-up as appropriate and stamp Shop Drawings, Product Data, and Samples prior to submission. Submittal shall clearly show it has been reviewed by Contractor for conformance with the Contract Documents and for coordination with requirements of the Work. Notify University's Representative in writing, at time of submission, of any changes in the submittals from requirements of Contract Documents.

1.04 SUBMITTAL REQUIREMENTS

A. Prompt Submission: Submittals shall be submitted promptly in accordance with Submittal Schedule and in such sequence as to cause no delay in the Work or in the work of any separate contractor. Present information in a clear and thorough manner to aid orderly review.

B. Preparation: Title each submittal with Project name and A/C number, submittal date and dates of any previous submissions. Clearly mark each copy to identify product or model.

1. Identify each item on submittal by reference to Drawing sheet number, detail, schedule, room number, assembly or equipment number, Specification number Reference Standard (such as ASTM or Fed Spec Number) and other pertinent information to clearly correlate submittal with Contract Documents.

2. Include the names of the Contractor, Subcontractor, Supplier and Manufacturer.

3. Include field dimensions, clearly identified as such to establish relationship to

adjacent or critical features of the Work or materials.

4. Include pertinent information such as performance characteristics and capacities, wiring or piping diagrams and controls, catalog numbers and similar data.

5. Modify manufacturer's standard schematic drawings and diagrams and other diagrams to delete information not applicable to the Work. Supplement standard information to provide information specifically applicable to the Work.

6. Identify changes from requirements of the Contract Documents.

7. Include 8" x 3" blank space on face of submittal for review stamps.

8. Include Contractor's review stamp, initialed or signed, and dated, certifying to the review of the submittal, verification of materials, field measurements, conditions, and compliance of the information within the submittal with the requirements of the Work and of the Contract Documents.

C. Number of submittals required:

1. Product Data and Non-reproducible Submittals: Submit the number of copies Contractor will need, plus five (5) copies for University use.

2. Initial/Re-submitted Shop Drawing Review(s): Submit eight (8) complete opaque reproductions for University's Representative review and comments.

3. Final Shop Drawing Review and Approval: After obtaining University's Representative approval of initial/re-submitted shop drawing submittals, as described in Section 1.04.C.2 above, Contractor shall submit one (1) reproducible transparency and two (2) opaque reproductions. After University's Representative final shop drawings approval is obtained, University will make all necessary prints for University's and will return reproducible transparency set to Contractor for their use. Contractor is responsible for providing all approved shop drawings for their use and their subcontractors and or suppliers use.

4. Samples: Submit number specified. Samples shall be of sufficient size and quality to clearly illustrate the functional characteristics of the products, with integrally related parts and attachment devices, including full range of colors, textures and patterns.

D. Identifying Submittals: Identify each submittal by Specification section number followed by a number indicating sequential submittal for that Section. Re-submittals shall use the same number as the original submittal, followed by a letter indicating sequential re-submittal. Examples:

1. 09250 – 1 First submittal for Section 09250 – Gypsum Board

2. 09250 – 2 Second submittal for Section 09250 – Gypsum Board

3. 09250 – 2A Re-submittal of second submittal for Section 09250 – Gypsum Board

4. 09250 – 2B Second re-submittal of second submittal for Section 09250 – Gypsum Board

E. Resubmission Requirements: Revise and resubmit as specified for initial submittal. Identify any Changes other than those requested. Note any departures from Contract Documents or changes in previously reviewed submittals.

F. Grouping of Submittals: Unless otherwise specifically permitted by University's Representative, make all submittals in groups containing all associated items as described in each Specification Section. The University's Representative will reject partial submittals as incomplete.

G. Unsolicited Submittals: Unsolicited submittals will be returned NOT REVIEWED.

1.05 DISTRIBUTION

A. Reproduce and distribute finalized copies of Shop Drawings and Product Data, to the following:

1. Contractor's Project site file.

2. Record Documents file maintained by Contractor.

3. Pertinent Separate Contractors.

4. Pertinent Subcontractors.

5. Pertinent Supplier or Manufacturer.

1.06 FIELD SAMPLES AND MOCK-UPS (If applicable or NOT USED)

A. Erect at the project site, at a location directed by University's Representative, mock-ups to a size as specified.

1. The following mock-ups are required for this project:

2. (**CONSULTANT TO LIST**)

B. Fabricate each Sample and mock-up to be complete and fully furnished. Unless otherwise agreed, full-size complete samples will be returned and may be incorporated into field mock-ups and Work.

C. Mock-ups shall be removed by the Contractor at conclusion of the Work at no additional cost to the University.

1.07 SUBMITTAL SCHEDULE

A. Submittals Schedule: refer to Section 01320 – CONTRACT SCHEDULES.

1. The Submittal Schedule is a schedule for submission of Shop Drawings, Product Data and Samples by Contractor, and the processing and return of same by University.

2. Contractor shall prepare the Submittal Schedule as described herein and coordinate it with the Contract Schedule. No submittals will be processed before the Submittal Schedule has been submitted to and accepted by University.

3. Submittal Schedule shall be adjusted to meet needs of construction process and the Contract Schedule. Submit two (2) copies of the Submittal Schedule after it is completed and each time it is update by Contractor.

4. Contractor shall NOT begin fabrication or Work which requires submittals until the return of final reviewed and approved submittals have been received by the Contractor.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01330

SECTION 01340
CONTRACTOR(S) EMERGENCY PROCEDURES

PART I - GENERAL

1.01 The purpose of this specification is to outline, to the Contractor, the University's policy and procedures for effective project site management of an emergency situation during the construction of projects at the UC Davis Medical Center.

1.02 This procedure applies to all Contractors and their subcontractors who have contractual agreements with the UC Davis Medical Center.

PART II - DEFINITIONS

2.01 Disaster – any natural or human-made event that causes major disruption such as damage to the organization's buildings or grounds from severe weather conditions, earthquakes, other natural phenomena or loss of utilities (power, water and telephones), acts of civil disobedience, accidents or emergencies within the organization or in the surrounding community.

2.02 Code Green – a code notifying all employees that an emergency event (internal or external) has occurred and UCDMC operations will be immediately shifting to its emergency management mode. The terminology for a disaster occurring outside the Main Hospital facility is **CODE GREEN – EXTERNAL**, and for an incident occurring within, **CODE GREEN – INTERNAL**.

2.03 Code Green Alert – there will be times when UCDMC will have the opportunity to ready itself in advance of an emergency event (e.g., floods, work stoppage/strike, etc.). The Director (or designee) will place the hospital on a **CODE GREEN – ALERT**. During this alert status, departments will make immediate assessment of their on-site resources and prepare to augment those resources to ensure adequate levels of support are available.

2.04 Code Red – Fire

2.05 Code White – Hazardous Material / Chemical Spill

2.06 Control Facility – the County of Sacramento has designated UCDMC as the Control Facility for Sacramento County. The Control Facility coordinates medical control of patients and victims dispersal to hospitals in the community/region.

2.07 External Disasters – those disasters taking place in the community or region or in UCDMC facilities other than the Main Hospital, Trauma Nursing Unit (TNU) (Building 94) or Building 64.

2.08 Internal Disasters – those disasters taking place within the Main Hospital, TNU (Building 94) or Satellite Surgery Suite (SSS, Building 64).

2.09 Other emergency situations include the following systems failures as outlined in the UC Davis Emergency Response Plan.

A. Water system failure

B. Telephone system failure

C. Fire

D. Electrical system failure

E. Security

F. Chemical spill

G. Evacuation

PART III - PROCEDURES

3.01 The Contractor will be issued a UC Davis Medical Center Emergency Response Plan at the project

A. Pre-construction meeting. This plan must be posted at the project site at all times in a visible location known to all project contractors.

B. Contractor is directed to contact appropriate emergency personnel as outlined in the Emergency Response Plan information during an emergency.

C. If the emergency involves an outside utility company, Contractor is to contact utility company directly. Known outside utilities located at the UC Davis Medical Center campus are as follows.

1. Emergency Telephone Numbers

a.	SMUD (Electrical)	916-732-7119
b.	PG&E (Gas)	800-745-5000
c.	Sacramento Water District (Water)	916-264-5011

SECTION 01350
SPECIAL PROCEDURES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Interim Life Safety Measures (ILSM)

B. Security Procedures

C. Hazardous Materials Procedures

1.02 RELATED SECTIONS

A. General Conditions of the Contract

B. Section 01110 – SUMMARY OF THE WORK

C. Section 01310 – COORDINATION

D. Section 01320 – CONTRACT SCHEDULES

E. Section 01560 – TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS

F. Section 01561 – AIRBORNE CONTAMINANTS CONTROL

G. Section 01730 – CUTTING AND PATCHING

H. Section 01740 – CLEANING

1.03 INTERIM LIFE SAFETY MEASURES (ILSM)

A. ILSM Definition: Interim Life Safety Measures are those activities that are undertaken during construction, repair, and improvement operations that are established to temporarily compensate for the deficiencies caused in fire safety and protection that may be associated with such projects.

B. Quality Assurance: Interim Life Safety Measures (ILSM) program shall comply with The Joint Commission Standards, Life Safety (LS) Section, LS.01.02.01.

1. Contractor shall be responsible for setting up control procedures to adhere to ILSM Criteria Implementation Matrix and/or the ILSM Inclusion Criteria. Contractors shall notify University's Representative of anticipated and actual problems complying with ILSM.

2. Contractor shall submit proposed Fire and Life safety impairments (21) days prior to implementation. Submittal of ILSM does not infer or guarantee acceptance by University. All submitted measures shall be reviewed and returned to Contractor indicating approval, approval as noted, or rejection, revision, or re-submittal requirement by University in writing no less than fourteen (15) calendar days

prior to proposed implementation. If re-submittal is required, twenty-one (21) day review period from date of re-submittal, will be required.

C. Project ILSM Procedures: If a life safety code deficiency occurs, or is identified by any source, or the requirements of the current Life Safety Code are not being met; Interim Life Safety Measures must be implemented to the extent necessary to compensate for any deficient element(s) predicated on magnitude, severity, extent and duration before corrective actions are completed.

Any minor life safety code deficiency that could be corrected within 45 days that is confined to a single smoke compartment or fire zone will not merit for declaring a hospital-wide ILSM(s) but would require reduction in flammable and combustible loads in the affected smoke compartment or zone as well as issuing a work order to complete the Plan For Improvement (PFI) within 45 days of discovery.

The ILSM Criteria Implementation Matrix and/or the ILSM Inclusion Criteria forms completed by a University Representative are used to determine when and to what extent applicable ILSM measures as it pertains to each condition is required to be implemented. Based on the ILSM Inclusion Criteria assessment form, it may not be necessary to declare the need to implement ILSM measures under certain conditions as delineated in the form. When ILSMs are determined to be required, an ILSM Implementation Matrix shall be utilized by the contractor.

ILSMs must be implemented upon project development and must be continuously enforced through project completion. A comprehensive plan of correction is to be developed by the Project Representative, or designee using the ILSM Evaluation Form.

D. Any impairment or shutdown of a passive or active fire and life safety device/system for a period of 4 hours or longer in a 24 hour period will require implementation of an ILSM. Some of the most common impairments are outlined below. The listing of these ILSM examples is not intended to limit or preclude preventative actions that may be required to temporarily compensate for other life safety deficiencies that may arise during construction activities due to unforeseen conditions, the contractor's changing work plan, or required continuing activities of University. Comments following each ILSM are known ILSM requirements at time of bid. These comments are made to assist Contractor in bid preparation and later preparation of ILSM plan for the Project. University makes no guarantee these comments address all conditions requiring action by Contractor.

1. ILSM example #1: Ensure exits provide free and unobstructed egress. Maintain free and unobstructed access and exits from all buildings to public ways. Maintain escape facilities for construction workers at all times. Inspect means of egress in construction areas daily.

2. ILSM example #2: Maintain free and unobstructed access to emergency departments/services.

3. ILSM example #3: Ensure fire alarm, detection, and suppression systems are not impaired.

4. ILSM example #4: Ensure temporary construction partitions are smoke tight and built of noncombustible or limit combustible material that will not contribute to the

5. ILSM example #5: Provide additional firefighting equipment and use training for construction workers.

6. ILSM example #6: No smoking. Contractor shall follow the Universities smoking policy.

7. ILSM example #7: Develop and enforce storage, housekeeping, and debris removal practices that reduce the flammable and combustible fire load of the building to the lowest level necessary for daily operations.

8. ILSM example #8: Conduct a minimum of two (2) fire drills per shift per quarter.

9. ILSM example #9: Conduct regular hazard surveillance of buildings, grounds, and equipment with special attention to excavations, construction areas, construction storage, and field office.

10. ILSM example #10: Train personnel when structural or compartmentalization features compromise fire safety measures.

11. ILSM example #11: Conduct organization-wide safety education programs to ensure awareness of any LSC (Life Safety Control) deficiencies, construction hazards, and ILSM.

1.04 SECURITY PROCEDURES

A. Security Program: Protect Work, existing premises, and University operations from theft, vandalism, and unauthorized entry.

1. Security of the area shall be strictly maintained. Contractor shall control entrance of persons and vehicles related to University operations.

B. Entry Control: Restrict entry of persons and vehicles into Project site and existing facilities. Allow entrance only to authorized persons with proper identification. Maintain log of workers and visitors, make available to University's Representative.

1. Contractor shall control entrance of persons and vehicles related to University operations.

C. Personnel Identification: Provide identification card to each person authorized to enter premises, showing: Personal photograph, name and assigned number, expiration date, and employer. Maintain a list of accredited persons; submit copy to University's Representative on request.

D. Miscellaneous Restrictions: Do not allow cameras on site; do not allow photographs except with written approval of University.

1.05 HAZARDOUS MATERIALS PROCEDURES

A. Except as otherwise specified, should Contractor encounter site materials, reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or other hazardous materials that have not been rendered harmless, Contractor shall immediately stop work in the affected area and report the condition to University's Representative in writing. The work

in the affected area shall not thereafter be resumed except by written agreement of University and Contractor if in fact the material is identified as hazardous and has not been rendered harmless. The work in the affected area shall be resumed in the absence of hazardous materials, or when such materials have been rendered harmless.

B. Spills, discharges, overruns, or similar occurrences involving hazardous materials on site shall be promptly reported in writing to University's Representative. If Contractor fails to notify University in a prompt and timely manner of an occurrence, University will contract with licensed hazardous materials abatement contractor to clean up the hazardous material. Contractor shall pay all costs of removal, including financial penalties incurred, the result of the Contractor's failure to act promptly in response to the product emergency.

C. Contractor shall provide means and personnel to contain and control product emergencies, or shall provide means and methods to render hazardous materials harmless.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01350

SECTION 01390
GREEN BUILDING POLICY IMPLEMENTATION

PART I – GENERAL

1.01 SECTION INCLUDES

A. Fundamental Building Systems Commissioning

B. Construction Waste Management: Divert 80% from Landfill

C. Construction Indoor Air Quality (IAQ) Management Plan: During Construction

1.02 RELATED DOCUMENTS AND SECTIONS

A. Section 01560 – Temporary Barriers, Enclosures and Controls

B. Section 01561 – Airborne Contaminants Control

C. Section 01610 – Product Requirements

D. Section 01740 – Cleaning

E. Section 01750 – Starting and Adjusting Systems

F. Section 01760 – Protecting Installed Construction

G. Section 01770 – Closeout Procedures

H. Section 01780 – Closeout Submittals

I. Section 01810 – Plumbing/HVAC Testing Procedures

J. Section 01820 – Demonstration and Training

K. Section 02725 – Storm Drainage Water Quality

L. Section 14240 – Hydraulic Elevators

M. Section 14580 – Pneumatic Tube Systems

N. Division 15 – Mechanical Work (All)

O. Division 16 – Electrical Work (All)

1.03 COMMISSIONING

A. Commissioning is a systematic process of ensuring that all building systems and assemblies perform interactively according to University objectives and requirements and the design according to the contract documents. The commissioning process encompasses and coordinates the traditionally separate functions of system

documentation, equipment start-up, control system calibration, systems testing, testing and balancing, and training. The commissioning process does not take away from or reduce the responsibility of the Contractor to provide a finished and fully functioning product. Commissioning during construction is intended to achieve the following specific objectives:

1. Ensure that applicable equipment, systems, and assemblies are installed according to the manufacturer's recommendations and to accepted industry standards, and that they receive adequate operational checkout by the Contractor.

2. Ensure and document that equipment, systems, and assemblies function and perform according to University objectives and requirements and the Contract Documents.

3. Ensure that operations and maintenance (O&M) manuals are complete.

4. Ensure that University operating and maintenance personnel for all systems are adequately trained.

B. Commissioning will be performed under the authority and management of the University Plant Operations & Maintenance Department (PO&M), as an independent organization whose individuals are not directly responsible for project design or construction management.

C. Contractor Commissioning Responsibilities

1. Designate a Commissioning Coordinator to organize, schedule, and coordinate the execution of Contractor and subcontractor commissioning responsibilities.

2. Ensure that commissioning activities are represented in the contract schedule.

3. Notify the University when system testing for mechanical and electrical items, installations, and equipment per mechanical and electrical specifications will be conducted.

4. Provide all labor, materials, and subcontractor support required for system testing and commissioning to the University.

5. Attend and participate in commissioning planning and other associated meetings to facilitate the commissioning process.

6. Provide additional documentation prior to normal O&M manual submittals to the University for development of installation, start-up, and testing procedures.

7. Assist in clarifying the operation and control of commissioned equipment or assemblies in areas where the specifications, control drawings, or equipment documentation is not sufficient preparing testing procedures.

8. Review test procedures developed by the University to ensure feasibility, safety, and equipment protection.

9. Execute testing for selected systems and assemblies under the direction of the University.

10. Ensure that the local authorities having jurisdiction are present to witness any acceptance testing of systems that are a condition of building occupancy (fire alarm, fire damper, sprinkler system, etc.).

11. Train University personnel and prepare O&M manuals in accordance with the Contract Documents.

1.04 CONSTRUCTION WASTE MANAGEMENT: DIVERT 80% FROM LANDFILL

A. Landfill Diversion Requirement: Divert 80% minimum of total project waste from landfill.

B. Storage bins

C. Submittals

1. Waste Management Plan (WMP): Provide the following information:

a. Waste Material Estimating Sheet (Appendix A at the end of this Section): Project title, name of company which will implement the plan, and date.

b. Estimated job site waste to be generated, including types and quantities.

c. Proposed Alternatives to Landfilling: List each material planned to be salvaged or recycled, including quantities and proposed destination.

2. Waste Management Progress Reports: Submit the following information to the UCDHS Sustainability Administrator on a monthly basis (information for June is due by July 20):

a. Waste Management Log (Appendix B at the end of this Section):

b. Project title, name of company completing report and dates of period covered by the report.

c. Date, destination, and quantity of each type of material landfilled, salvaged or recycled.

d. Weighmaster tickets can be substituted for items a and c (except for salvaged items). In all instances, weighmaster tickets must be provided with this submittal.

e. Alternative report formats may be acceptable, but must be reviewed and approved by the UCDHS Sustainability Administrator before being used in lieu of the requirements above.

3. Legible copies of manifests, weight tickets, and receipts. Manifests shall be from recycling and/or disposal site operators that can legally accept the materials for the purpose of reuse, recycling or disposal.

4. Maintain at the Project site Waste Management Logs for each load of materials removed from site.

D. PROJECT MEETINGS

1. Discuss Waste management plans and implementation at the following meetings:

   a. Pre-construction meeting.

   b. Regular job-site meetings.

E. PROJECT CONDITIONS

1. Hazardous materials are excluded from the work of this Section. If hazardous materials are encountered or suspected, stop work in the suspect area. Refer to Section 01350 Special Procedures.

F. CONSTRUCTION WASTE RECYCLING SERVICES

1. Construction waste recycling services for materials shall be those proposed by the Contractor and approved by the University.

G. The following may be suitable for diversion from landfill, though the Contractor and Contractor recyclers are responsible for final determination of suitable materials.

1. Concrete: Clean concrete, concrete with rebar, asphalt concrete.

2. Metals: Steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass or bronze, including banding, ductwork, framing, roofing and siding, flashing, piping and rebar.

3. Aggregate.

4. Wood: Clean dimensional wood, wood pallets, engineered wood products including plywood, particleboard, I joists.

5. Vegetation.

6. Cardboard, paper, packaging.

7. Masonry: Brick, ceramic tile, CMU.

8. Gypsum board.

9. Acoustic ceiling panels.

10. Carpet and pad.

11. Paint.

12. Insulation.

13. Plastics: ABS, PVC

14. Beverage containers

H. WASTE MANAGEMENT PLAN IMPLEMENTATION

1. Coordinate waste materials handling and separation for all trades.

2. Document results of the implementation of the Waste Management Plan.

3. Provide separation bins for temporary onsite storage, handling, transportation, recycling, salvage, and landfilling for all demolition and waste materials.

4. Keep recycling and waste bins areas neat, clean and clearly marked in order to avoid contamination or mixing materials.

5. Maintain logs onsite for each load of materials removed from site.

1.05 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN: DURING CONSTRUCTION

A. Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building including:

1. Meet or exceed the recommended design guidelines of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines, 1995, Chapter 3. Compliance with SMACNA Guidelines shall start no later than the scheduled HVAC start up date. SMACNA Guidelines for HVAC protection and for protection of absorptive materials may need to start at an earlier stage, in accordance with the construction schedule.

2. Protect stored on-site or installed absorptive materials from moisture damage.

3. Comply with requirements of Section 15890 – Ductwork.

B. Develop and implement an Indoor Air Quality Management Plan for the pre-occupancy phase.

1. Comply with requirements of Section 15890 Ductwork.

C. Submittals

1. Construction Indoor Air Quality Management Plan.

a. Submit documentation demonstrating that an Indoor Air Quality Management Plan was developed and implemented, including:

2. SMACNA IAQ Guidelines Chapter 3 implementation.

3. Stored on-site or installed abortive materials were successfully protected from moisture damage.

4. Maintaining ductwork internal cleanliness.

5. Documentation including product data, that if any air handling systems were used during construction, that any return and exhaust grilles were protected with filtration media with a Minimum Efficiency Reporting Value (MERV) of at least 13

(per ASHRAE 52.2) including filtration media manufacturer's name, model number, and MERV value.

6. Documentation, including product data, that all filtration media was replaced prior to occupancy with filtration media with a Minimum Efficiency Reporting Value (MERV) of at least 13 (per ASHRAE 52.2) including filtration media manufacture's name, model number, and MERV Value.

7. Provide photographs verifying plan compliance at different phases of construction.

8. Submit documentation that a minimum two weeks building 100% outside air flush-out was completed, including dates when the flush-out was begun and completed and what steps were taken to guarantee 100% outside air usage.

9. Submit documentation for the filtration media used during the flush-out period, including filtration media manufacturer's name, model number, and MERV value.

D. Implementation

1. HVAC Protection

a. Comply with Section 15890 – Ductwork

2. Source Control

a. Prefabricated insulated ductwork and insulating materials should be protected against moisture. Ductwork materials shall be stored in a dry and clean environment pending installation.

b. Containers of wet products shall be kept closed when not used. Waste materials that can release odor or dust shall be covered or sealed.

3. Housekeeping

a. Minimize accumulation of dust fumes, vapors, or gases upon HVAC start up.

b. Do not run the HVAC system until after dust generating finishes, such as spray applied fireproofing and gypsum board, have been installed.

c. Suppress dust with wetting agents or sweeping compounds. Efficient and effective dust collecting methods such as damp cloths, wet mops, and vacuum with particulate filters, or wet scrubbers shall be used.

d. Increase the cleaning frequency when dust build-up is noticed.

e. Remove spells or excess applications of solvent-containing products as soon as possible.

f. Also refer to Section 15890 – Ductwork for requirements.

g. Water accumulated inside the building shall be removed promptly.

Porous materials such as insulation, ceiling tiles, gypsum wall board, carpet and fabric furnishings shall be protected from exposure to moisture.

h. Store volatile liquids, including fuels and solvents in closed containers and outside of the building when not in use.

4. Scheduling

a. When possible, install carpets, furnishings and highly absorbent materials after all VOC-emitting products have been installed and fully cured.

b. Provide sufficient ventilation and air circulation after VOC-emitting materials are installed.

c. New MERV 13 filters shall be installed immediately following the flush and prior to building occupation. Refer to Section 15890 – Ductwork for additional requirements. Monitoring of IAQ Plan

d. A minimum of 18 photographs, documenting the progress of the IAQ management Plan implementation, shall be taken at the following stages:

1. Site delivery and storage processes

2. Installation, protection, and housekeeping activities

3. Commissioning, flushing, and re-filtering of HVAC systems

Enclose with each photograph a narrative identifying the date and location where the photograph was taken, and the SMACNA strategy applied.

e. Subcontractor site coordination meetings shall be held monthly. The purpose of these meetings shall be to review the appropriate components of the IAQ Plan and to document the progress of the plan implementation. SMACNA IAQ Guidelines Appendix C shall be used as the Planning Checklist and Appendix D shall be used as the Inspection Checklist by the subcontractor.

5. Building Flush-Out

a. Building flush-out and report: The subcontractor shall conduct a building flush-out and prepare a flush-out report. The flush-out report should include:

1. Total days required and actual days conducted.

2. Hours per day required actual hours conducted.

3. Outside air percentage recommended and actual used.

PART II – PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART III – EXECUTION – NOT APPLICABLE TO THIS SECTION

END OF SECTION 01390

APPENDIX A
WASTE MATERIALS ESTIMATING SHEET
(Use as many sheets as needed)

PROJECT TITLE: _____

COMPANY: _____

DATE: _____

		TOTAL AMOUNT GENERATED	AMOUNT RECYCLED	AMOUNT SALVAGED	AMOUNT LANDFILLED
MATERIAL	**DESTINATION**	**TONS**	**TONS**	**TONS**	**TONS**
TOTALS					

APPENDIX B
WASTE MANAGEMENT LOG
(Use as many sheets as needed)

PROJECT TITLE: _____

COMPANY: _____

LOG DATES: _____ through _____

Date	Material	Destination	Tons			
			Salvaged	Recycled	Landfilled	Total
Totals						

Note: provide weighmaster tickets with specific information on type of material recycled and weight.

SECTION 01410
REGULATORY REQUIREMENTS

PART I - GENERAL

1.01 SECTION INCLUDES

A. Relationship between Code, Ordinances, Standards and Contract Documents

B. Applicable Codes, Laws and Ordinances

C. Project Inspections

D. Office of Statewide Health Planning & Development Projects

1.02 RELATED SECTIONS

A. Section 01350 – SPECIAL PROCEDURES

B. Section 01420 – REFERENCES

C. Section 01450 – QUALITY CONTROL

1.03 RELATIONSHIP BETWEEN CODES, ORDINANCES, STANDARDS AND THE CONTRACT DOCUMENTS

A. Authority: All codes, ordinances and standards referenced in Contract Documents shall have full force and effect as though printed in their entirety in the Contract Specifications.

B. Precedence:

1. Where specified requirements differ from requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.

2. Where Contract Drawings or Contract Specifications require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, the Contract Drawings and Contract Specifications shall take precedence so long as such increase is legal.

3. Where no requirements are identified in Contract Documents, comply with all requirements of applicable codes, ordinances and standards of governing authorities having jurisdiction.

1.04 APPLICABLE CODES, LAWS AND ORDINANCES

A. Building Codes:

1. Work shall meet or exceed the requirements of and be performed in accordance with applicable code requirements and requirements of all other regulatory agencies, including, but not limited to the following (current editions):

a. California Building Standards Administrative Code – Title 24 Part 1

b. California Building Code, based on 2012 International Building Code – Title 24 Part 2 Volume 1

c. California Building Code, based on 2012 International Building Code – Title 24 Part 2 Volume 2

d. California Electrical Code, based on 2011 National Electrical Code – Title 24 Part 3

e. California Mechanical Code, based on 2012 Uniform Mechanical Code – Title 24 Part 4

f. California Plumbing Code, based on 2012 Uniform Plumbing Code – Title 24 Part 5

g. California Energy Code – Title 24 Part 6

h. California Elevator Safety Construction Code – Title 24 Part 7

i. California Historical Building Code – Title 24 Part 8

j. California Fire Code, based on 2012 International Fire Code – Title 24 Part 9

k. California Code for Building Conservation – Title 24 Part 10

l. California Referenced Standards Code – Title 24 Part 12

m. NFPA 13 – Installation of Sprinkler Systems

n. NFPA 14 – Installation of Standpipe and Hose System

o. NFPA 72 – National Fire Alarm Code

p. NFPA 80 – Fire Door and Other Opening Protection

q. NFPA 99 – Health Care Facilities

r. NFPA 101 – Life Safety Code for hospital projects

s. NFPA 252 – Standard Method of Fire Door Assembly

t. NFPA 701 – Standard Method of Fire Test for Flame Propagation of Textiles and Films

u. California Code of Regulations, Current Editions:

1) Title 8, Industrial Relations

2) Title 17, Public Health (Chapter 7)

3) Title 19, Public Safety

4) Title 21, Public Works

5) Title 22, Social Security

6) Title 24, Parts 1, 2, 3, 4, 5, 9 and 12

7) Title 25, Energy Insulation Standards

v. Americans with Disabilities Act (ADA) 2010

w. OSHPD

x. Rules and regulations of private and public utilities

y. American National Standards Institute (ANSI)

z. American Society of Testing Materials (ASTM)

aa. Federal Specifications (Fed. Spec.)

bb. Underwriters Laboratories

cc. National Fire Protection Association (NFPA) (as adopted by State agencies)

dd. National Council on Radiation Protection and Measurement

2. All dates to comply with edition accepted by University and California State Fire Marshal (CSFM).

3. Unless otherwise specified, specific references to codes, regulations, standards, manufacturers' instructions, or requirements of regulatory agencies, when used to specify requirements for materials or design elements, shall mean the latest edition of each in effect at the date of submission of bids, or the date of the Change Order, as applicable.

4. References on Drawings or in Specifications to "code" or "building code' not otherwise identified shall mean the codes specified above, together with all additions, amendments, changes, and interpretations adopted by code authorities of the jurisdiction having authority over the project.

B. Other Applicable Laws, Ordinances and Regulations:

1. Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of Federal, State and local governmental agencies and jurisdictions having authority over the Project.

2. Work shall be accomplished in conformance with all regulations of Public Utilities

and utility districts.

3. Where such laws, ordinances, rules and regulations require more care or greater time to accomplish Work, or require better quality, higher standards or greater size of products, Work shall be accomplished in conformance to such requirements with no change to Contract Time or Contract Sum, except where changes in laws, ordinances, rules and regulations occur subsequent to execution date of the Agreement.

4. **GENERAL CONTRACTOR SHALL NOT SELF-PERFORM SPECIALTY CONTRACTING WORK DEFINED IN SECTIONS 7055 – 7059.1 OF THE CALIFORNIA BUSINESS AND PROFESSIONS CODE UNLESS THE GENERAL CONTRACTOR HAS THE SPECIALTY CONTRACTORS LICENSE APPROPRIATE FOR THE WORK PERFORMED. OTHERWISE, SPECIALTY CONTRACTORS SHALL BE RETAINED BY THE GENERAL CONTRACTOR TO PERFORM SPECIALTY WORK IDENTIFIED IN THE PROJECT SCOPE".**

1.05 PROJECT INSPECTIONS

A. Provision of inspectors by University, if any, or by Office of Statewide Health Planning and Development pursuant to this Section and Section 1.4 above shall be subject to the following:

1. Contractor shall allow inspectors full access to Project at all times.

2. Contractor shall not take any direction, approvals or disapprovals from inspectors.

3. Contractor shall not rely on inspectors to ensure Work is completed in accordance with Contract Documents.

4. Acts of omissions of any inspector (including without limitation inspector's failure to observe or report deficiencies in Contractor's Work) shall not relieve Contractor for responsibility to complete Work in accordance with Contract Documents.

1.06 OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT PROJECTS

A. Office of Statewide Health Planning and Development (OSHPD), located at 400 "R" Street, Suite 200, Sacramento, CA. 95811, is the agency having jurisdiction over all acute care medical project design and construction.

B. OSHPD will approve an inspector for the Project who shall have full access to the Project at all times.

C. OSHPD will require Verified Report forms to be filed per testing, inspection and observation form during construction and a final verified report at completion of the project. Separate verified reports are required from Consultants, Project Inspector, and Contractor.

D. OSHPD will require a Building Permit for project submitted by University's Representative. No OSHPD Building Permit fees are required to be paid by the Contractor.

E. OSHPD will require Change Order Approval submitted by University's Representative.

F. OSHPD will require a Licensed Contractor's Declaration from the Contractor.

1.07 DEFERRED APPROVAL

A. Where noted in the Contract Documents, certain items of materials and/or systems may require OSHPD/SFM deferred approval pending submittals of shop drawings. For these items, Contractor shall submit details and structural calculations for anchorage; to comply with State of California Code of Regulations Title 24, table T17-23-J. Calculations shall be made by a licensed Structural Engineer registered in the State of California.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01410

SECTION 01420
REFERENCES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Definitions and terms used in Contract Documents

B. Reference Standards used in Contract Documents

C. Common abbreviations and acronyms which may be used in Contract Documents

1.02 RELATED SECTIONS

A. Section 01410 – REGULATORY REQUIREMENTS

1.03 DEFINITIONS OF TERMS

A. Basic Contract Definitions: Words and terms governing the Work are defined in the General Conditions of the Contract, provided in the Contract Documents.

B. Additional words and terms are used in the Drawings and Specifications and are defined as follows:

1. Applicable: As appropriate for the particular condition, circumstance or situation.

2. Approve (d): Used in conjunction with action on submittals, applications, and requests, is limited to duties and responsibilities stated in the General Conditions. Approvals shall only be valid if obtained in writing and shall not apply to matters regarding the means, methods, techniques, sequences and procedures of construction. Approval shall not release Contractor from responsibility to fulfill Contract requirements.

3. And/or: If used, shall mean that either or both of the items so joined are required.

4. By others: Work on the project that is outside the scope of Work to be performed under the Contract, but that will be performed by University, separate contractors or other means.

5. Contractor-Furnished/University-Installed (CFUI): Items, systems or equipment purchased by the Contractor as part of the project and handed over to the University for installation.

6. Directed: As instructed by University or University's Representative, in writing, regarding matters other than the means, methods, techniques, sequences and procedures of construction. Terms such as "directed", "requested", "authorized", "selected", approved", "required", and "permitted" mean "directed by University's Representative", requested by University's Consultant" or University's Representative and similar phrases. No implied meaning shall be interpreted to extend the University's Representative responsibility into Contractor's supervision

of construction.

7. Equal or Equivalent: As determined by the University's Consultant as being of the same quality, appearance, utility, durability, finish, function, suitability, and performance.

8. Furnish: Means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations".

9. Indicated: Refers to graphic representations, notes or schedules on Drawings, or Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help locate the reference.

10. Install: Describes operations at the site including unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, protecting, cleaning, and similar operations.

11. Installer: "Installer" is the Contractor or an entity engaged by the Contractor, as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

    a. Experienced Installer: The term "experienced", when used with "installer" means having a minimum of five (5) previous Projects similar in size to this Project, and familiar with the precautions required, and with requirements of the authority having jurisdiction.

12. Jobsite: Same as site.

13. Necessary: as determined in the professional judgement of the University Representative through the University's Consultant as being necessary for the Work, in conformance with the requirements of the Contract Documents, and excluding matters regarding the means, methods, techniques, sequences and procedures of construction.

14. Noted: Same as indicated.

15. Owner-Furnished/Contractor-Installed (UFCI): Item, system or equipment furnished by University at its cost and installed by the Contractor as part of the Work.

16. Per: In accordance with or in compliance with.

17. Products: Materials, systems or equipment.

18. Project site: Same as site.

19. Proper: As determined by the University's Representative as being proper for the Work, excluding matters regarding the means, methods, techniques, sequences and procedures of construction, which are solely the Contractor's responsibility to

determine.

20. Provide: Means "furnish and install, complete and ready for use".

21. Regulation: Includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

22. Required:

    a. As required by regulatory requirements of governing authorities.

    b. As required by referenced standards.

    c. As required by existing job conditions.

    d. As generally provided by accepted construction practices of the locale.

    e. As indicated on the Drawings and in the Specifications.

    f. As otherwise required by the Contract Documents.

23. Scheduled: Same as indicated.

24. Selected: As selected by University's Representative or University's Consultant from the full national product selection of the manufacturer, unless otherwise specifically limited in the Contract Documents to a particular quality, color, texture or price range.

25. Shown: Same as indicated.

26. Site: Same as Site of the Work or Project Site; the area or areas or spaces occupied by the Project and including adjacent areas and other related areas occupied or used by the Contractor for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.

27. Testing Laboratories: Same as Testing and Inspection Agency.

28. Testing and Inspection Agency: An independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

29. University-Furnished/Contractor-Installed (UFCI): Same as Owner-Furnished/Contractor-Installed.

1.04 REFERENCE STANDARDS

A. References: The Drawings and Specifications contain references to various standards, standard specifications, codes, practices and requirements for products, execution, tests,

and inspections. These reference standards are published and issued by the agencies, associations, organizations and societies listed in this Section or identified in individual Sections of the Specifications.

B. Relationship to Drawings and Specifications: Such references are incorporated into and made a part of the Drawings and Specifications to the extent applicable.

C. Referenced grades, Classes and Types: Where an alternative or optional grade, class or type of product or execution is included in a reference but is not identified in the Drawings or Specifications, provide the highest, best and greatest of the alternatives or options for the intended use and prevailing conditions.

D. Copies of Reference Standards:

1. Reference standards are not furnished with the Drawings and Specifications. It is the responsibility of the Contractor, subcontractors, manufacturers, suppliers, trades and crafts to be familiar with these generally recognized standards of the construction industry.

E. Jobsite Copies:

1. Contractor shall obtain and maintain at the Project site copies of reference standards identified on the Drawings and in the Specifications in order to properly execute the Work.

F. Edition Date of References:

1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date of the Contract.

2. All amendments, changes, errata, and supplements as of the effective date shall be included.

G. ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision or amendment. It is the responsibility of the Contractor to be familiar with and have access to these nationally, and industry recognized specifications and standards.

1.05 ABBREVIATIONS & ACRONYMS

A. Abbreviations and Names: Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable.

B. Refer also to the "Encyclopedia of Associations", published by Gale Research Co., available in most libraries.

C. The following are commonly used abbreviations which may be found on Contract

Drawings and in Contract Specifications:

AA	Aluminum Association
AAA	American Arbitration Association
AAC	Architectural Anodizers Council
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ACPA	American Concrete Pumping Association
ADA	Americans with Disabilities Act
ADC	Air Diffusion Council
AFSA	American Fire Sprinkler Association
AGA	American Galvanizers Association (formerly AHDGA)
AGA	American Gas Association
AGC	Associated General Contractors of American
AI	Asphalt Institute
AIA	American Institute of Architects
AIMA	Acoustical and Insulation Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Movement and Control Association International
ANSI	American National Standards Institute
APA	Engineered Wood Association (formerly American Plywood Association)
APWA	American Public Works Association
ARMA	Asphalt Roofing Manufacturers Association
ASAC	American Subcontractors Association of America
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ASPE	American Society of Plumbing Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BOC	Board of Corrections
CABO	Council of American Building Officials
CAC	California Administrative Code (see California Code of Regulations (CCR)
CAL/OSHA	State of California Construction Safety Orders
CBC	California Building Code
CCR	California Code of Regulations
CEC	California Electrical Code
CFC	California Fire Code
CFR	Code of Federal Regulations
CIMA	Construction Industry Manufacturers Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers' Institute
CMC	California Mechanical Code
CPC	California Plumbing Code
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
CTIOA	Ceramic Tile Institute of America, Inc.
DHI	Door and Hardware Institute
DSA	Division of the State Architect
EJMA	Expansion Joint Manufacturers Association
FGMA	Flat Glass Marketing Association
FM	Factory Mutual Research Organization
FS	Federal Specification (from GSA)
GA	Gypsum Association
GSA	General Services Administration
IAPMO	International Association of Plumbing and Mechanical Officials

IEEE	Institute of Electrical and Electronics Engineers, Inc.
ISO	International Organization for Standardization
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
MIA	Masonry Institute of America
ML/SFA	Metal Lath/Steel Framing Association
MM	State of California, Business and Transportation Agency, Department of Transportation, "Materials Manual"
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
NAAMM	National Association of Architectural Metal Manufacturers
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NFC	National Fire Code
NFPA	National Fire Protection Association
NFSA	National Fire Sprinkler Association
NGA	National Glass Association
NIBS	National Institute of Building Sciences
NIST	National Institute of Standards and Technology
NPCA	National Precast Concrete Association
NRCA	National Roofing Contractors Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NSPE	National Society of Professional Engineers
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
OSHPD	Office of Statewide Health Planning and Development (State of California)
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting and Decorating Contractors of America
PDI	Plumbing and Drainage Institute
PS	Product Standard (U.S. Department of Commerce)
RIS	Redwood Inspection Service
SDI	Steel Deck Institute
SFM	State Fire Marshal (California)
SFPE	Society of Fire Protection Engineers
SGCC	Safety Glazing Certification Council
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Society for Protective Coatings (Steel Structure Painting Council)
SSPWC	Standard Specifications for Public Works Construction
SWRI	Sealant, Waterproofing and Restoration Institute
TCA	Tile Council of America
UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USS	United States Standard
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WWPA	Western Wood Products Association

D. Words and terms not otherwise specifically defined in this Section or in the Contract Documents, shall be as customarily defined by trade or industry practice, by reference standard and by specialty dictionaries such as Dictionary of Architecture and Construction (Cyril M. Harris, McGraw-Hill Educational; 4th Edition, September 5, 2005).

E. Additional abbreviations, used on the Drawings, are listed thereon.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01420

SECTION 01450
QUALITY CONTROL

PART I - GENERAL

1.01 SECTION INCLUDES

A. Contractor's Quality Control

B. Quality of the Work

C. Inspections and tests by governing authorities

D. Inspections and tests by serving utilities

E. Inspections and tests by manufacturer's representatives

F. Inspections and Independent testing and Inspection Laboratories/Agencies

G. Contractor responsibilities in inspections and tests

H. Contractor responsibilities regarding UCDMC testing laboratory

I. Test reports

J. Geotechnical engineer

1.02 RELATED SECTIONS

A. Section 01310 – COORDINATION

B. Section 01410 – REGULATORY REQUIREMENTS: Compliance with applicable codes, ordinances and standards.

C. Section 01455 – INSPECTION OF WORK

D. Section 01610 – PRODUCT REQUIREMENTS: Product Options, substitutions, transportation and handling requirements, storage and protection requirements, and system completeness requirements.

1.03 CONTRACTOR'S QUALITY CONTROL

A. Contractor's Quality Control: Contractor shall ensure that products, services, workmanship and site conditions comply with requirements of the Contract Documents by coordinating, supervising, testing and inspecting the Work and by utilizing only suitably qualified personnel.

B. Quality Requirements: Work shall be accomplished in accordance with quality requirements of the Contract Documents, including, by reference, all Codes, laws, regulations and standards. When no quality basis is prescribed, the quality shall be in accordance with the best-accepted practices of the construction industry for the locale of

the Project, for projects of this type.

C. Quality Control Personnel: Contractor shall employ and assign knowledgeable and skilled personnel as necessary to perform quality control functions to ensure the Work is provided as required.

1.04 QUALITY OF THE WORK

A. Quality of Products: Unless otherwise indicated or specified, all products shall be new, free of defects and fit for the intended use.

B. Quality of Installation: All Work shall be produced plumb, level, square and true, or true to indicated angle, and with proper alignment and relationship between the various elements.

C. Protection of Completed Work: Take all measures necessary to preserve completed Work free from damage, deterioration, soiling and staining, until Acceptance by University.

D. Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Unless more stringent requirements are indicated or specified, comply with manufacturer's instructions and recommendations, reference standards and building code research report (ICC) requirements in preparing, fabricating, erecting, installing, applying, connecting and finishing Work.

E. Deviations from Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Document and explain all deviations from reference standards and building code research report requirements and manufacturer's product installation instructions and recommendations, including acknowledgement by the manufacturer that such deviation is acceptable and appropriate for the Project.

F. Verification of Quality: Work shall be subject to verification of quality by University's Representative and University's Consultant in accordance with provisions of the General Conditions of the Contract.

1. Contractor shall cooperate by making Work available for inspection by University's Representative, University's Consultant or their designated representatives.

2. Such verification may include mill, plant, shop, or field inspection as required.

3. Provide access to all parts of the Work, including plants where materials or equipment are manufactured, fabricated or stored.

4. Provide all information and assistance as required, including that by and from subcontractors, fabricators, materials suppliers and manufacturers, for verification of quality by University's Representative or University's Consultant.

5. Contract modifications, if any, resulting from such verification activities shall be governed by applicable provisions in the General Conditions of the Contract.

G. Observations by University's Consultants: Periodic and occasional observations of the

Work in progress will be made by University's Consultant and their consultants as deemed necessary to review progress of Work and general conformance with design intent.

H. Limitations on Inspections, Tests and Observations: Neither employment of independent testing and inspection agencies nor observations by University's Consultant and their consultants shall relieve Contractor of obligation to perform Work in full conformance to all requirements of Contract Documents.

I. Acceptance and Rejection of Work: University's Representative reserves the right to reject all Work not in conformance to the requirements of the Contract Documents.

1. If initial tests or inspections made by University's Testing Laboratory or University's Geotechnical Engineer reveal any portion of the Work fails to comply with Contract Documents, or if it is determined that any portion of Work requires additional testing or inspection, additional tests and inspections shall be made as directed by University's Representative.

2. If such additional tests or inspections establish such portions of the Work comply with Contract Documents, all costs of such additional testing or inspection will be paid by University.

3. If such additional tests or inspections establish such portions of the Work fail to comply with Contract Documents, all costs of such additional tests and inspection shall be deducted from the Contract sum.

J. Correction of Non-conforming Work: Non-conforming Work shall be modified, replaced, repaired or redone by Contractor at no change in the Contract Sum or Contract time.

K. Acceptance of Non-Conforming Work: Acceptance of non-conforming Work, without specific written acknowledgement and approval of University shall not relieve Contractor of the obligation to correct such Work.

L. Contract Adjustment for Non-conforming Work: Should University or University's Consultants determine it is not feasible or in University's interest to require non-conforming Work to be repaired or replaced, an equitable reduction in Contract Sum shall be made by agreement between University and Contractor. If equitable reduction in Contract Sum cannot be agreed upon, a Directed Change Order will be issued and the amount in dispute resolved in accordance with applicable provisions of the General Conditions of the Contract.

1.05 INSPECTIONS AND TESTS BY GOVERNING AUTHORITIES

A. Regulatory Requirements for Testing and Inspection: Comply with California Building Code (CBC) requirements and all other requirements of governing authorities having jurisdiction.

B. Inspections and tests by governing Authorities: Contractor shall cause all tests and inspections required by governing authorities having jurisdiction to be made for Work under this Contract.

1. Such authorities include University's Building Inspection (code compliance),

University's Fire Department (SFM) and similar agencies.

1.06 INSPECTIONS AND TESTS BY SERVING UTILITIES

A. Inspections and Tests by Serving Utilities: Contractor shall cause all tests and inspections required by serving utilities to be made for Work under this Contract. Scheduling, conducting and paying for such inspections shall be solely the Contractor's responsibility.

1.07 INSPECTIONS AND TEST BY MANUFACTURER'S REPRESENTATIVES

A. Inspections and Tests by Manufacturer's Representatives: Contractor shall cause all tests and inspections specified to be conducted by materials or systems manufacturers, to be made. Additionally, all tests and inspections required by materials or systems manufacturers as condition of warranty or certification of Work shall be made, the cost of which shall be included in the Contract Sum.

1.08 INSPECTION BY INDEPENDENT TESTING AND INSPECTION LABORATORIES

A. Definitions:

1. The term "University's Testing Laboratory" means a testing laboratory retained and paid for by University for the purpose of reviewing material and product reports, performing material and product testing and inspection, and other services as determined by University.

B. University will select an independent testing and inspection laboratory or agency to conduct tests and inspections as called for in the Contract Documents and as required by governing authorities having jurisdiction.

1. Responsibility for payment for tests and inspection shall be as indicated in the schedule below. All time and costs for Contractor's services related to such tests and inspections shall be included in Contract Time and Contract Sum.

C. Contractor shall notify University, and if directed by University's Representative testing and inspection laboratory, when Work is ready for specified tests and inspections.

D. Contractor shall pay for all additional charges by testing and inspection agencies and governing authorities having jurisdiction due to the following:

1. Contractor's failure to properly schedule or notify testing and inspection agency or authority having jurisdiction.

2. Changes in sources, lots or suppliers of products after original tests or inspections.

3. Changes in means, methods, techniques, sequences and procedures of construction that necessitate additional testing, inspection and related services.

4. Changes in mix designs for concrete and mortar after review and acceptance of submitted mix design.

E. Test and inspections shall include, but not be limited to, the following:

Material Inspections and Tests Paid by:

Structural Steel	Welding Inspection	University
	High-strength Bolting Inspection	University

F. Test and Inspection Reports: After each inspection and test, one (1) copy of report shall be promptly submitted to University's Representative, Contractor and to agency having jurisdiction (if required by code).

1. Reports shall clearly identify the following:

   a. Date issued

   b. Project name and Project number

   c. Identification of product and Specification Section in which Work is specified

   d. Name of inspector

   e. Date and time of sampling or inspection was conducted

   f. Location in Project where sampling or inspection was conducted

   g. Type of inspection or test

   h. Date of tests

   i. Results of tests

   j. Comments concerning conformance with Contract Documents and other requirements

2. Test reports shall indicate specified or required values and shall include statement whether test results indicate satisfactory performance of products.

3. Samples taken but not tested shall be reported.

4. Test reports shall confirm that methods used for sampling and testing conform to specified test procedures.

5. When requested, testing and inspection agency shall provide interpretations of test results.

6. Verification reports shall be prepared and submitted, stating tests and inspections specified or otherwise required for Project, have been completed and material and workmanship comply with the Contract Documents. Verification reports shall be submitted at intervals not exceeding six (6) months, at Substantial Completion of the Project, and at all times when Work of Project is suspended.

1.09 CONTRACTOR RESPONSIBILITIES IN INSPECTIONS AND TESTS

A. Tests, inspections and acceptances of portions of the Work required by the Contract Documents or by Applicable Code Requirements shall be made at the appropriate times. Except as otherwise provided, Contractor shall notify University's Representative to make arrangements for such tests, inspections and acceptances. Contractor shall give University's Representative timely notice of all required inspections as outlined in Specification Section 01455 – INSPECTION OF WORK, Item 1.05, Scheduling Inspections – Notification Requirements.

B. If such procedures for testing, inspection or acceptance reveal failure of any portion of the Work to comply with requirements of the Contract Documents, Contractor shall bear all costs made necessary by such failure including those of repeated procedures, including compensation for University's Consultant's services and expenses.

C. If University and/or University's Consultants are to observe tests, inspections or make acceptances required by the Contract Documents, University and/or University's Consultant will do so promptly and, where practicable, at the normal place of testing.

D. Cooperate with testing and inspection agency personnel, University, University's Consultant's and their consultants. Provide access to Work areas and off-site fabrication and assembly locations, including during weekends and after normal work hours.

E. Provide incidental labor and facilities to provide safe access to Work to be tested and inspected, to obtain and handle samples at the Project site or at source of products to be tested, and to store and cure test samples.

1.10 CONTRACTOR RESPONSIBILITIES REGARDING UCDMC TESTING LABORATORY

A. Secure and deliver to University's Testing Laboratory adequate quantities of representative samples of materials proposed for use as specified.

B. Submit to University's Representative the preliminary design mixes proposed for concrete and other materials, which require review, by University's Consultants and/or University’s Testing Laboratory.

C. Submit copies of product test reports as specified.

1.11 TEST REPORTS

A. University's Testing Laboratory shall submit one (1) copy of all reports to University's Representative, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

B. University will distribute one (1) copy of the reports to University's Consultants and Contractor.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01450

SECTION 01451
SEISMIC CONTROL – OSHPD

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide all required seismic restraints and calculations in order to insure that the installation of all architectural, mechanical, and electrical equipment/components are in compliance with all applicable seismic codes, standards, and specific information listed herein.

1.02 QUALITY ASSURANCE

A. ASTM standards

C. 2013 California Building Code, Title 24 (CBC)

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data and installation instructions for each type of material listed in this Section.

B. Submit special seismic certification (OSP) for mechanical and electrical equipment/components as noted on CBC 1705A.12.4. Contractor shall bear all costs associated with any and all tests, engineering calculations and documentation required to obtain OSHPD approval in accordance with this section in a timely manner if the Contractor chooses to select equipment that does not already have special seismic certification as noted on the design documents.

C. Submit OSHPD Pre-approved Manufacturer’s Certification (OPM) as noted on the design drawings.

PART 2 - PRODUCTS

2.01 SEISMIC RESTRAINT REQUIREMENTS

A. SUMMARY

1. This section covers the seismic restraint requirements for suspended vibration and non-vibration isolated items, systems and/or related suspended equipment.

2. The designers of record as referenced in this specification shall be the project architect, structural engineer and the appropriate system engineer (e.g., electrical, etc.).

3. OSHPD OPM shall be considered the specified seismic design for this project. Other designs may be submitted as an alternate provided they meet or exceed all of the requirements contained within these specifications, and provided they meet or exceed all of the OSHPD pre-approved service loads, installation applications, engineering services, etc. Furthermore, said other OSHPD pre-

approved designs must be submitted to the designers of record for review and acceptance, and to OSHPD as a deferred approval prior to installation, with all costs including but not limited to project delay costs, to be borne by the contractor.

B. SEISMIC RESTRAINT DESIGN

1. The attachment, supports and seismic restraints of suspended non-structural components and distribution systems listed below shall be designed to resist the total design seismic forces prescribed in the CBC.

   a. All equipment/components including but not limited to: electrical, mechanical, plumbing, and architectural.

   b. Without referencing OPM or OSHPD approved seismic attachment and supports shown on the design document, seismic support and attachment shall be engineered and built by the applicable system contractor. Engineering shall be (signed & sealed) by a licensed California Structural Engineer and submitted to the designers of record and OSHPD for acceptance prior to installation. Cost to be borne by the contractor.

   c. Design and installation shall consider seismic relative displacement in accordance with ASCE 7-10 – 13.3.2.

2. Seismic restraint transverse and/or longitudinal spacing shall not exceed CBC requirements and the lesser of the following;

   a. That which develops seismic design forces equal to or less than the capacity of the building structure.

   b. That which develops seismic design forces that are equal to or less than the capacity of weakest part, component, anchorage, etc., contained within the seismic brace assembly.

   c. 40’ feet transversely and/or 80’ feet longitudinally where pipes, conduits, and their connections are constructed of ductile materials (copper, ductile iron, steel or aluminum and brazed, welded or screwed connections).

   d. 20’ feet transversely and/or 40’ feet longitudinally where pipes, conduits, and their connections are constructed of nonductile materials (e.g., cast iron, no-hub pipe and plastic).

   e. 20’ feet transversely and/or 40’ feet longitudinally for bus ducts and cable trays, baskets, channels.

3. Contractor shall not adopt, use or otherwise implement the omission of any seismic restraints without prior review and acceptance by the designers of record. Submittals for omission of seismic restraints shall be limited to piping, ducts and conduits. All submittals for omission of seismic restraints must include~~d~~ the following, and must be (signed & sealed) by a licensed California Structural Engineer and approved by OSHPD;

a. Project specific cover letter clearly indicating that said engineer has (with respect to the attached submittal for omission of seismic restraints) completely review the project documents including these specifications, the items/systems designs individually and in coordination with all other trades, and that all code and/or project specified requirements for omission of restraints have been meet individually and in combination with each other, that (if the attached submittal for omission is approved) said engineer has been hired/retained by contractor to visit the project site without limit to review and inspect the installation of the items/systems which have been reviewed and approved for installation without seismic restraints.

b. Engineered details and engineering for all vertical supports and their connections to the building structure to qualify, that top connections cannot develop moments, that lateral motion will not cause loss of item/system support, that lateral motion of the item/system will not cause damaging impact with other items/systems, that lateral motion of the item/system will not directly or indirectly impact any life safety, emergency services and/or hazardous items/systems or their supports.

4. Seismic hardware brackets shall provide a (Captive) 360-degree connection that completely encloses or encircles the rod, anchor, bolt, fastener, etc. Open hook and/or open slot seismic hardware brackets shall not be allowed.

5. Seismic restraint assembly connections shall not incorporate the use of break-off bolts or nuts and pneumatic fasteners.

6. Seismic restraint cables shall be looped through the seismic hardware bracket and turned back onto itself at the point of assembly/connection. Cables shall not be installed or attached to the seismic hardware bracket in a straight through (non turn back) method of assembly/connection.

7. Seismic hardware brackets, connectors and related components shall be constructed entirely of malleable iron or steel. Seismic assemblies shall not include the use of cast components.

8. Ceiling and other types of single strand wire shall not be used as a seismic restraint, sway brace and/or safety restraint material.

9. The connection to the building structure of non-seismic sway bracing and/or safety restraints shall meet or exceed that required for the attachment of seismic restraints to the building structure.

10. Seismic restraints shall be installed to provide a minimum of (2) transverse and (1) longitudinal braces per run. A “run” shall be defined as a length of 5’ feet or more.

11. The accumulated load of multiple items to any given support (with or without seismic restraints) shall be limited so as not to overload the building structure and the support assembly.

12. Pipes, conduits, and other items attached to trapeze hangers shall be located

above each individual trapeze hanger so that the accumulated load is evenly distributed.

13. Trapeze systems installed in a multi-layer configuration shall have seismic restraints designed and installed for each individual trapeze layer.

14. Vertical supports shall be designed and installed to account for vertical tension and compression loads including accumulated seismic component increases.

15. Vertical supports, single hanger, trapeze hangers and their clamps, clips and methods of connection shall be constructed of ductile materials (e.g., copper, ductile iron, or steel).

16. Do not use insulation inserts (e.g., cal-sil, metal, etc.) at seismic brace connection locations without prior written approval from the structural engineer. Do not connect seismic bracing to insulation inserts without prior written approval from the structural engineer.

17. Design of supports, seismic restraints and anchorage to the structure shall consider all conditions that involve thermal, structural separation, relative displacement, building expansion and contraction.

18. Use following criteria for seismic bracing of electrical conduits:

    a. Wherever combined weights of multiple conduits plus contents on a trapeze equals or exceeds the weight of a single 2-½" conduit plus contents, brace trapeze system in accordance with CBC.

19. The following conduit plus contents weight data may be used for EMT in lieu of SMACNA guidelines:

CONDUIT PLUS CONTENTS WEIGHT DATA	
EMT SIZE (IN)	**LBS/FT**
½	0.53
¾	0.88
1	1.30
1-¼	1.90
1-½	2.70
2	4.40
2-½	5.70
3	9.40
3-½	10.00
4	12.50

20. Weight per trapeze support assembly must be calculated from above table and spacing between support assemblies.

21. For assemblies carrying less than 320 LB., down to equivalent of a single 2-½" conduit plus contents, use 320 LB criteria or submit alternate details for approval.

22. All single conduits 2-½" and larger shall be braced in accordance with these guidelines and SMACNA details.

23. SMACNA details shall not be used without prior approval by Structural Engineer of Record (SEOR).

C. ACCEPTABLE MANUFACTURERS

1. OSHPD Pre-approved Certified Manufacturer (OPM)

D. ANCHORS, INSERTS AND FASTENERS

1. All anchors, inserts, fasteners or connections to the structure shall be submitted to the structural engineer of record for review and acceptance prior to installation.

2. Do not use any anchor or insert in concrete or metal decking with concrete fill, which does not have a signed structurally engineered design value based on its installed application and one of the following:

   a. ICC evaluation report

   b. OSHPD pre-approved

3. Cast-in-place inserts used in concrete or metal decking with concrete fill, shall be constructed entirely of malleable iron or steel.

4. Cast-in-place inserts that contain internal threads shall include the installation of a jam or lock nut to secure the connection of the vertical support rod to the cast-in-place insert.

5. Cast-in-place inserts that allow for horizontal adjustment shall not be allowed, unless an engineered solution is provided to assure positive captive positioning and securement of the attachment.

6. Do not use powder driven and power driven (Shoot-In) fasteners, expansion nails or internally threaded anchors in concrete or metal decking with concrete fill without prior approval of the Project Manager.

7. All beam clamps shall be constructed of malleable iron or steel. All single flange mounted beam clamps shall include a retaining strap or J-hook and must be submitted to the project structural engineer of record of review and acceptance prior to installation. Beam clamps shall not be used to resist seismic loads.

E. FIELD QUALITY CONTROL

1. Inspection of seismic restraints by the Inspector of Record (IOR), and/or Authority Having Jurisdiction (AHJ).

2. Make all corrections recommended by the designers of record after approval by the University and OSHPD.

PART 3 - EXECUTION

3.01 SEISMIC ANCHORING AND RESTRAINTS

A. Equipment anchors:

1. All equipment shall be anchored. Anchor equipment per details shown on the drawings where provided.

2. Anchor installation shall be in accordance with the current ICC report.

3. Anchor details provided are based on specific equipment information. Submit design for approval for anchoring of equipment which varies from design.

B. Conduit supports:

1. Conduits shall be supported and braced per CBC Title 24.

C. Lighting fixture supports:

1. Provide independent seismic support system for all lighting fixtures.

D. Minimum clearance:

1. Diagonal braces and hanger supports shall maintain 6 inches minimum clearance from unbraced ducts and conduits, and 1 inch minimum clearance from braced ducts and conduits.

3.02 INSTALLATION AND TESTING OF MECHANICAL ANCHORS:

A. Where permitted in other Sections of this specification, drilled-in expansion-type anchors or other post-installed concrete anchors may be used in hardened concrete.

B. All post-installed concrete anchors shall be tested. Testing shall be performed in the presence of the Inspector of Record. Number of anchors to be tested shall be as shown on the drawings with a minimum of 50% of anchors installed and at each support. Testing shall be performed by torque or pull test, and to the values noted on the drawings. Test loads, frequency and acceptance criteria of post-installed anchors in concrete shall be in accordance with CBC 1913A.7.

C. Internally threated shell-type anchors and displacement controlled anchors (e.g., drop-in anchors, screw anchors, adhesive anchors, etc.) shall not be tested using a torque wrench.

D. Screw anchors shall be installed with a calibrated torque wrench and may be loosened a maximum of one full turn to facilitate the positioning of a tension test collar. Following the tension test, the anchor shall be re-torqued in accordance with the manufacturer’s installation instructions.

E. Tension test of chemical/adhesive anchors and power actuated fasteners shall be in accordance with CBC, Title 24, and as noted on the drawings.

F. All testing procedures shall be in accordance with CBC 1913A.7, and as noted on the drawings.

END OF SECTION 01451

SECTION 01455
INSPECTION AND TESTING OF WORK

PART I - GENERAL

1.01 SECTION INCLUDES

A. Project Inspections and Procedures

B. Scheduling Inspectors – Notification requirements

1.02 RELATED SECTIONS

A. Section 01310 – COORDINATION

B. Section 01320 – CONTRACT SCHEDULES

C. Section 01350 – SPECIAL PROCEDURES

D. Section 01410 – REGULATORY REQUIREMENTS

E. Section 01450 – QUALITY CONTROL

1.03 DEFINITIONS

A. IOR: Inspector-of-Record

B. ACO: Area Compliance Officer for OSHPD

C. DSE: District Structural Engineer for OSHPD

D. FM: Fire Marshal (may include both OSHPD FM and State FM)

E. TL: Testing Laboratory

1.04 PROJECT INSPECTIONS AND TESTING PROCEDURES

A. Inspections: This Project is under the jurisdiction of the Office of Statewide Health Planning and Development. The following inspections will be requested on this project, as appropriate. Also see Part 3 for non-OSHPD inspection items or Part 3, Item 3.12 for OSHPD requirements.

1. Reinforcing Bar inspections prior to placement of concrete

2. Concrete placement inspection

3. Wall framing inspection

4. Wall close-in inspection

5. Gypsum board installation inspection

6. Mechanical rough-in inspection

7. Electrical rough-in inspection

8. Above ceiling fire and seismic bracing and support inspections

9. Fire-stop and Fire-caulk penetration inspection

10. Fireproofing inspection

11. Fire alarm, fire sprinkler testing and inspections

12. Fire Damper inspections

13. Seismic bracing and post-installed anchor bolt inspections for all mechanical, electrical, low voltage and specialty systems.

14. Final inspections

B. Procedures: University's Representative shall be the Contractor's contact for all inspection requests. Contractor shall fill out Inspection Request Form for all inspections.

1. Contractor shall properly plan and coordinate inspection requests. Schedule delays caused by Contractor's failure to plan and/or coordinate inspection requests will not be considered for adjustments to Contract Time or Contract Sum.

2. A complete set of OSHPD/SFM stamped and approved Contract Drawings and Contract Specifications, including applicable shop drawings and building permit shall be available on site for review by the Inspector-of-Record. The Contractor, Subcontractors and other responsible parties shall be present during inspection walk-throughs. All areas of project scope shall be ready and accessible for inspection. Contractor shall provide access equipment as applicable for the inspector’s needs.

1.05 SCHEDULING INSPECTIONS – NOTIFICATION REQUIREMENTS

A. Advance Inspection Notification: University's Representative for this project requires the following advance notifications to schedule appropriate inspection agencies at the project site.

1. IOR Inspection Request Notification: Twenty-four (24) hours. Note: Inspection requests received by 2:00 PM will be scheduled for next day inspection. Inspection requests received after 2:00 PM will be scheduled for the following day; (example: Inspection request received at 2:01 PM on a Monday would be scheduled for inspection on Wednesday). Weekend and off-hours inspection requests will be scheduled on a case-by-case basis with a minimum of seventy-two (72) hour inspection request notification.

2. OSHPD Field Compliance Inspectors: Fourteen (14) calendar days.

3. Testing Laboratory Inspections: Twenty-four (24) hours.

a. All testing laboratories and testing procedures must be scheduled by University's Representative. Inspections and/or testing directly scheduled by Contractor will not be accepted.

b. Contractor will bear all costs associated with unauthorized inspections and testing.

4. State Fire Marshal Inspection request Notification: Seventy-two (72) hours.

B. Methods of Inspection Notification:

1. All inspection notifications shall be in writing using inspection forms located at back of this Section. Incomplete forms will be returned as non-compliant and no inspection will be scheduled until all required inspection information is provided.

2. Faxed inspection requests will be accepted. University's Representative fax number is 916-734-1375 notification time begins from date stamp of University's fax machine. Faxed notification requests received after normal business hours and/or received on non-normal workdays, as defined in Specification Section 01310 – COORDINATION, paragraph 1.07.F.4.A will begin notification time starting at 7:00 AM the following normal business day.

3. Emailed inspection requests will be accepted. University's Representative email address is fdc.inspectors@ucdmc.ucdavis.edu. Notification time begins from the date and stamp of the email, provided it is sent during normal business hours. Emailed inspection requests sent after normal business hours and/or received on non-normal workdays, as defined in Specification Section 01310 – COORDINATION, paragraph 1.07.F.4.A will begin notification time starting at 7:00 AM the following normal business day.

C. Off-hours Inspection Requests: Contractor shall provide time windows for all off-hour or other than normal work hour inspections. University's Representative shall have final authority in setting times of off-hour inspections.

D. Re-inspections:

1. More than two (2) re-inspections: The cost of re-inspections of the same work, more than twice, shall be deducted from Contract Sum. IOR's hourly rates are $115.00 per hour during normal work hours and $150.00 per hour for all off-hour inspections. University will provide itemized invoice for Contractor's records.

2. Work unprepared for inspection: Re-inspections of the same work scheduled by Contractor, but not ready for inspection will be identified as a re-inspection.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

Note: Part 3 describes typical inspection requirements for each individual inspector's jurisdiction for non-OSHPD projects. Part 3 is provided as a reference source for Contractor's use and Scheduling, as applicable. Part 3 is not intended to be all-inclusive and Contractor shall verify actual inspection requirements needed for this project. See Item 3.12 for Testing, Inspection Observation for OSHPD.

3.01 FIRE SPRINKLERS (Title 24, Part 2, Volume 1, Chapter 9; NFPA Bulletin 13)

A. Approved drawings shall be on job-site from start to completion of project.

B. Certification by installer (Title 24, Part 9, Article 1006.3.4.2).

C. Final inspection: signs in place, labeling, fire extinguishing system flow alarm test.

3.02 FIRE ALARM SYSTEM (Title 24; Part 9, Article 1006)

Note: Fire Sprinkler and Fire Alarm systems tests shall be performed in presence of State Fire

UCDH DAVIS TOWER 1835H AND 1835I X-RAY BRIDGING DOCUMENTS

A. Approved drawings shall be on job-site from start to completion of project.

B. Verify Emergency Power source.

C. Activate all initiating devices.

D. Certification by installer (Title 24, Part 9, Article 1006.3.4.2).

E. Complete test of system per Title 24, Part 9, CFC, Article 1003.3.4.1).

3.03 MEANS OF EGRESS (Title 24, Part 2, Volume 1, Chapters 10)

A. Construction - floors, walls, ceilings, penetrations per listings.

B. Electrical boxes - no back to back, 24 inches horizontal separation (Section 709).

C. Electrical boxes - 100+ square inches to be wrapped/protected.

D. Flame Spread, Fuel Contribution and Smoke Density for finishes (Chapter 8).

3.04 FIRE WALL/FLOOR/CEILING PENETRATION ASSEMBLIES (Title 24, Part 2, Volume 1, 700 and 710)

A. Fire-stopped per Title 24, Part 2, Volume 1, Section 708.

B. Listed by an Approved Agency.

C. Fireproofing (Section 704.6, Testing UBCC Standard 7.6).

3.05 EMERGENCY LIGHTING

A. Generator Test (Title 24, Part 3, Section 700-4; Section 701-5).

B. Emergency lights - locations (Title 24, Part 2, Volume 1, Chapter 10, Section 1003.2.8.5).

3.06 MECHANICAL CHECKLIST FOR CLOSE-OUT (Title 24, Part 4)

A. Mechanical Testing

1. Air balance completed and reviewed by Mechanical Engineer-of-Record.

2. Hospitals (Chapter 3, Section 314.1, Table 2110-A).

3. Air and Hydronic reports forwarded to Mechanical Engineer of Record.

3.07 PLUMBING CHECKLIST FOR CLOSE-OUT (Title 24; Part 2, Chapter 29; Part 5)

A. Piping Systems (Title 24, Part 5)

1. Domestic Water Line Sterilization Test (Title 24, Part 2, Section 609.9; Title 22, Division 4, Chapter 16, Article 5).

2. Domestic Water System (hot, cold) Pressure test (Title 24, Part 5, 609.4).

3. Vent & Waste System Pressure test (Title 24, Part 5, 712.0).

B. Medical Gas System Testing (NFPA 99, Chapter 4) (Witnessed by SFM).

1. Pressure test - 150 psig - Oxygen, Medical Air & Nitrous Oxide (4-3.4.1.2).

2. Pressure test - 200 psig - Nitrogen (4-5.1.3.4).

3. 24-hour pressure test - 60 psig - Vacuum system (4-10).

4. 24-hour pressure test - 20% over operating pressure [A-4.3.4.1.2 (b)(e)].

5. Alarm test for system [4-3.4.1.3 (d)].

6. Area Valves, location, labeled, alarms tested (4-4.1 & 4-5.1.4).

7. Laboratory testing affidavits - welding/brazing (4-6.2.3.3).

8. Verified Medical Air Quality - Installation and 24 hour later.

9. Certification of system (Purity, Cross Connection, Alarms, Etc.) [4.5].

10. Certification of Bulk System [NFPA 50 (Oxygen) & CGA G-8.1 (Nitrous Oxide)].

11. Approved drawings and documents for submittal to University's Representative for permanent records).

3.10 ELECTRICAL CHECKLIST FOR CLOSE-OUT (Title 24, Part 3, and Part 1, Chapter 7, Section 7-141, 7-149)

A. Main Panel/Service

1. Identification and Labeling of Equipment (110-21, 110-22, 230-70).
2. Grounding test and Certification (250, 250-56).

B. Emergency Power and Standby Systems (Article 700 & 701) [Test Logs from IOR]

1. Identification and Labeling of equipment (110-21, 110-22, 517-22).
2. Lighting and Lighting Levels (517-22).
3. Receptacles (410L, 517-13, 517-18, 517-19).
4. Nurse and Staff Call [517-33(a)].
5. Fire Alarm (760).

C. General Electrical Requirements

1. Working space/Headroom [Table 110-26(a); 110-33; 110-34].
2. Circuits and lights tested (410-45).
3. Receptacle polarity and grounding [200-10(b)].
4. Identification and Labeling of equipment (110-21; 110-22).
5. Identify circuits (Critical Care Areas) (517-19).

D. Miscellaneous Electrical Requirements

1. Test logs from Contractor and Inspector-of-Record.
2. Electrical Engineer-of-Record acceptance of system.
3. Owner In-Service training on Equipment.
4. Equipment Manuals and Instruction to Owner.
5. Warrantees and Equipment Certification.
6. As-Built/Record Drawings to Owner.

3.11 FIRE MARSHAL INSPECTION REQUIREMENTS

A. Framing Inspections

1. Structural members in fire-resistive construction.

2. Check fireproofing per approved design tested assembly description.

B. Fire-Rated Partition Locations

1. Check for stud and nailing/screwing spacing per approved design tested assembly description.

2. Check for fire blocking in combustible construction.

3. Check for rated door/window frame installation (manufacturer's installation instructions shall be available for review).

4. Check for electrical installation, for example; number and size of electrical boxes, panels, cabinets, etc.

5. Check hangers, seismic bracing for sprinkler piping installation, if applicable (this would be checked during overload pressure test inspection phase of sprinkler system).

C. Close-In Inspections

1. Check fire-blocking and draft stops in combustible construction.

2. Check gypsum board installation in accordance with approved design assembly description for rated assembly.

3. Check integrity of firewall construction where recessed cabinets, panels, excessive electrical/plumbing are installed.

4. Check for through-penetrations and fire-stop systems in all walls or floor/ceiling assemblies.

D. Final Construction Inspections

1. Final project walk-through: Example, Emergency lighting will be tested to verify exit illumination of both interior and exterior, while generator (if applicable) is tested at same time.

3.12 OSHPD – Testing, Inspection and Observation (see attached).

END OF SECTION 01455

INSPECTION REQUEST

A/C #: _____ **OSHPD #:** _____ **UCDHS IR #:** _____ **Contractor IR #:** _____ **Date:** _____

Project Name: _____ **Spec Section (s):** _____

To: UC Davis Medical Center (UCDMC)	**From:**
Facilities Design & Construction – Inspection Trailer	
4430 V Street, Building 35-A	
Sacramento, CA 95817	
P: 916-734-5060	**P:**
F: 916-734-1375	**Email:**
Email: fdc.inspectors@ucdmc.ucdavis.edu	**Attn.:**

Drawing Ref.: _____ **Detail:** _____ **Shop Drawing:** _____

Project Schedule Activity ID No.: _____ **Date of Inspection:** _____ **Time Requested:** _____

Type of Inspection: _____

Location of Inspection (i.e., Floor, Column Line, etc.): _____

All work Requested for Inspection has been reviewed for compliance with the contract documents by Contractor's Superintendent prior to notification of Inspection Request.

Signed: _____ **Date:** _____

UCDHS USE ONLY

Date Received: _____ **Re-inspection Requested for Previous UCDHS IR #:** _____ **Time of Inspection:** _____

Date of Inspection: _____ **Inspector:** _____ ☐ **Inspection Report Attached**

Inspector Arrival Time: _____ **Inspector Departure Time:** _____

Comments: _____

☐ **Approved** ☐ **Approved as Noted** ☐ **Not Approved** ☐ **Cancelled**

Inspection Request Notes or Description of Items of Deficiency if needed below (Part 1, Chapter 7, Section 7-145, item 6)

Project Field Record of Construction Progress Summary of Work in Progress (Part 1, Chapter 7, Section 7-145, item 6)
Project Phase (Building Foundation, Structural, Wall Framing, Electrical Rough-In, Sprinkler Rough-In, etc.)

Project Phase Percentage Complete (% of the phase completed): _____	**Overall Project Percentage Complete:** _____

NON-CONFORMING WORK NOTICE

A/C #: _____ **OSHPD #:**_____ **Notice #:**_____ **Date:**_

To:	**From: UC Davis Medical Center (UCDMC)**
	Facilities Design & Construction – Inspection Trailer
	4430 V Street, Building 35-A
	Sacramento, CA 95817
P:	**P: 916-734-5060**
Email:	**F: 916-734-1375**
Attn.:	**Email: fdc.inspectors@ucdmc.ucdavis.edu**

Spec Section Ref.: _____ **Paragraph:**_____ **Drawing Ref.:**_____

Detail: _____

In accordance with Article 12 of the General Conditions, the following defective condition(s) has/have become apparent:

Reported by: _____

CORRECTIVE ACTION SHOULD BE TAKEN AS SOON AS POSSIBLE AND COMMENCE NO LATER THAN TEN (10) CALENDAR DAYS AFTER THIS NOTICE. COORDINATE THE VERIFICATION OF THE CORRECTIVE ACTIONS WITH THE INSPECTOR OF RECORD. IF FURTHER INFORMATION IS NEEDED, ADVICE UNIVERSITY'S REPRESENTATIVE IN ACCORDANCE WITH THE GENERAL CONDITIONS.

Description of corrective action taken: _____

Accepted by: _____ **Date:**_____

CC:

SECTION 01560
TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS

PART I - GENERAL

1.01 SECTION INCLUDES

A. Barriers and Enclosures

B. Protected Walkways and Weather Closures

C. Tree and Plant Protection

D. Temporary Controls

1.02 RELATED SECTIONS

A. Section 01110 – SUMMARY OF THE WORK

B. Section 01350 – SPECIAL PROCEDURES

C. Section 01561 – AIRBORNE CONTAMINANTS CONTROL

D. Section 01740 – CLEANING

1.03 BARRIERS AND ENCLOSURES

A. Barricades: Provide to prevent public entry, to protect existing trees and plants, and to protect existing facilities and adjacent properties from damage during construction period. Relocate and extend as construction progress requires.

B. Partitions and Ceiling Enclosures:

1. Fire Enclosures-Rated-Corridors and Rated Assemblies: Provide non-combustible dust-proof barrier framed with metal studs spaced 24" o/c maximum and covered on both sides with ⅝" thick Type-X rated gypsum wallboard taped, braced so to be self supporting without fastening to existing finishes.

a. Provide gaskets of closed cell neoprene, or strips of fiberglass insulation between barriers and existing finish.

b. Finish exposed surfaces with two (2) coats of paint (color as selected by University), maintain in neat, orderly appearance and paint barrier on public side. Temporary emergency exit and or directional signage indicating Emergency Exits will be furnished and installed by Contractor.

c. Provide temporary doors in corridors with twenty (20) minute fire-rated assemblies and locksets to limit use.

d. Use of access doors and routes by workmen to be approved by

University's Representative.

2. Fire Retardant Enclosures - Non-Rated Assemblies: Provide non-combustible dust-proof barriers framed with metal studs and covered on public side with Fire Retardant plastic laminate sheathing material. Flame spread 10 - smoke development 45 - fuel contribution undeterminable, as manufactured by Reef Industries, Inc., P.O. Box 33248, Houston, TX 77033 or equal.

   a. Joints shall be taped and sealed over framing studs.

   b. Bracing shall be self-supporting without fastening to existing finishes.

   c. Provide gaskets of closed cell neoprene, or strips of fiberglass insulation between barriers and existing finishes.

   d. Provide non-staining taped seal to surrounding materials to insure seal.

   e. Non-Rated Assemblies for Dust Control: Use ½" Type-X or equal gypsum wallboard applied on occupancy side on framing member. Joints over studs shall be taped and sealed. Other detail similar to 1.03-B.2 above.

C. Removal: Remove temporary materials, equipment and construction at completion; repair damage caused by installation or use of barricades and enclosures. Restore existing facilities used during construction to specified, or to original condition.

1.04 TEMPORARY CONTROLS

A. Dust Control: Contractor shall take appropriate steps throughout project to prohibit airborne dust due to work under this contract. Execute work by methods to minimize raising dust from construction operations. Water shall be applied wherever practical to settle and hold dust to minimum, particularly during demolition and moving of materials. No chemical dust prohibitor shall be used without written approval by University's Representative.

B. Noise Control: Control noise as directed by University's Representative.

C. Pollution Control: Use of noxious or toxic materials for all applications in alterations or work in buildings occupied by University personnel shall be done after proper notification and approval by University, this includes work performed on weekends or other unoccupied times.

   1. Provide methods, means and facilities to prevent contamination of soil, water and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.

D. Waste Control: All waste materials resulting from process of clearing and construction shall be disposed of as follows:

   1. General Refuse: All refuse and debris, combustible and incombustible, resulting from construction process, shall be removed from University property as described in the General Conditions of the Contract. Contractor shall not use any

refuse container belonging to University.

2. Hazardous Refuse: Solvents, oils and any other hazardous material shall be disposed of in containers and removed from site. At completion of work, any contaminated soil shall be removed and replaced with good soil by Contractor at no expense to University. Coordinate disposal with UCDMC EH&S department.

3. All material and equipment removed as part of the Project is property of University, unless specifically designated otherwise; such material and equipment shall be delivered to a location at Medical Center, as directed by University, to be selectively sorted by University; remaining debris shall be disposed of by Contractor at no expense to University.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01560

SECTION 01561
AIRBORNE CONTAMINANTS CONTROL

PART I - GENERAL

1.01 SUMMARY

A. Section Includes: University airborne contaminants control policy procedures and an Infection Control Risk Assessment (ICRA) and plan.

1.02 POLICY

A. Airborne contaminants control is critical in all hospital areas. Contractor shall limit dissemination of airborne contaminants produced by construction-related activities, including dust, chalk, powders, aerosols, fumes, fibers and other similar materials, in order to provide protection of immuno-compromised and other patients, staff, diagnostic operations, or sensitive procedures or equipment, from possible undesirable effects of exposure to such contaminants.

1. Dust in ceilings and construction debris contains fungus, which if inhaled by patients, can cause pneumonia and even death. Construction activities causing disturbance of existing dust, or creating new dust, or other airborne contaminants, must be conducted in tight enclosures cutting off any flow of particles into patient areas.

2. Ceilings, walls in Protection Areas and other areas in Hospitals as indicated on drawings must be secure at all times.

B. An Infection Control Risk Assessment (ICRA) and plan to mitigate dust is required for each project. The risk assessment identifies patient groups at risk for infection due to construction dust. The dust mitigation plan is designed to contain dust within the construction zone. Some hospitalized patients are fragile. These patients are at risk for acquiring infections from bacteria and viruses that are transported on air currents from the construction zone to the patient areas. Dust is a method for germs to move through the hospital. The ICRA and dust mitigation plan assures a clean, safe environment for the patients hospitalized during construction. Hospital management is expecting your assistance in providing the best possible environment for the patients. We appreciate your partnership in the campaign to prevent a hospital acquired infection related to construction dust.

C. Related Sections:

1. Section 01730 – CUTTING AND PATCHING: Removal of debris may be outside of normal work hours and shall be in tightly covered containers.

2. Section 01350 – SPECIAL PROCEDURES: Perform work in accordance with requirements of this section.

3. Section 01510 – TEMPORARY UTILITIES: Provide high efficiency particulate air (HEPA) filters as specified in Section 01561, negative pressure ventilation, or special control of existing system as determined by University's Representative.

4. Section 01560 – TEMPORARY BARRIERS, ENCLOSURESAND CONTROLS: Extend barriers above ceilings as required to seal off and contain airborne contaminants.

5. Section 01560 – TEMPORARY CONTROLS: Contain waste materials during removal; bagging, wrapping, and transporting.

6. Section 01740 – CLEANING: Use wet cleaning methods and HEPA-filtered vacuum cleaners as required to minimize release of airborne contaminants. Contain waste materials, debris and rubbish as noted above. Disinfect Containment and Protection Areas as directed by University's Representative

D. Dust Mitigation Requirements for Category IV.

1. An ICRA Daily Compliance Survey is also attached at the end of this section. The Contractor must complete and submit this daily checklist to the University's Representative. Any areas of non-compliance must be specifically listed and addressed for corrective measures when identified.

2. Other mitigations as listed by classification are shown on page 11 of this section.

1.03 SUBMITTALS

A. Submit to Project Inspector Daily ICRA Compliance Survey.

B. Schedules: Submit work areas and procedure schedules for containment of airborne contaminants.

C. Work Plan: Drawings and details of construction of necessary temporary barriers, and description of procedures to be used to achieve and maintain control of construction-related airborne contaminants.

1.04 QUALITY CONTROL

A. Pre-construction Meeting: Before any construction on site begins, Contractor's Superintendent is required to attend a mandatory pre-construction orientation session held by University's Representative for training and instruction on precautions to be taken.

B. A written report from a qualified air balance regulator shall be submitted confirming specified air velocity whenever a barricade is erected or modified in designated Protection Area. Negative air machines shall be connected to emergency power and run continuously.

C. Notification: A minimum of fourteen (14) calendar days written notification to University's Representative of possible construction activity causing airborne contaminants in Protection Areas.

D. Training: There will be ICRA training for Contractor's and crews prior to issuance of Security Badge and start of work.

1.05 TESTING

A. Air Samples: University will provide baseline particle counts and conduct periodic air sampling of Protection Areas during construction to monitor effectiveness of containment procedures.

B. Air Pressure: Using visual indicators, University will verify the maintenance of negative air pressure in Containment Area relative to Protection Areas on a daily basis.

1.06 DEFINITIONS

A. Contaminant producing activities include, but are not limited to:

1. Demolition and removal of walls, floors, ceilings, and other finish materials.

2. Demolition of plumbing, mechanical and electrical systems and equipment.

3. Finish operations such as sanding, painting, and application of special surface coatings.

B. Containment Areas: As determined by University's Representative and as shown. Includes area of construction, adjacent staging and storage areas, and passage areas for workers, supplies and waste; includes ceiling spaces above and adjacent to construction, if shown.

C. Protection Areas: As determined by University's Representative and as shown as Protection Areas. Includes hospital areas adjacent to Containment Area, either occupied or used for passage, as well as areas connected to construction area by mechanical system air intake, exhaust and ductwork.

1.07 PERFORMANCE REQUIREMENTS

A. University's Representative's Responsibilities:

1. Determination of the Containment and Protection Areas, as well as the standard of limitations of the Contractor's responsibilities, required for the project.

2. Statement of Requirements: Description in graphic and written form as required to communicate the above based on evaluation of the construction area and the impact of the project on patient care.

B. University's Responsibilities:

1. Assist University's Representative to determine Containment and Protection Areas.

2. Perform testing and monitoring as specified.

C. Contractor's Responsibilities:

1. Specific means and methods of achieving and maintaining control of airborne contaminants during construction.

2. Contractor's shall implement all mitigation measures as listed in the ICRA/Dust Mitigation Plan, Class IV.

3. Contractor shall ensure that all workers are trained and adhere to the mitigation requirements.

4. Notification: Contractor shall notify University's Representative in writing, a minimum of fourteen (14) calendar days prior to starting construction activity, which might be expected to produce excess levels of airborne contaminants in containment area so that additional precautions may be taken.

PART II - PRODUCTS

2.01 MATERIALS

A. Carpet or Mats: Provide at barricade entrances, vacuumed or changed as often as necessary to prevent accumulation of dust.

B. Dust Caps: Block off all existing ventilation ducts within the construction area. Method of capping ducts shall be dust tight and withstand airflow.

C. Portable Enclosures: Whenever openings are made into existing ceilings, provide portable enclosure enclosing ladder and sealing off opening, fitted tight to ceiling. Refer to Section 01560 for requirements.

D. Polyethylene: Polyethylene shall be fire retardant type listed by Fire Underwriter's Laboratories, Griffolyn #T55R with Griffolyn fire retardant tape, or equal, (no known equal).

PART III - EXECUTION

3.01 INSPECTION

A. Before any demolition or construction begins, a complete field review of all Protection Areas (infection control areas) and policies will be conducted and work plan revised if required by Contractor, Inspector and UCDMC Environmental Health & Safety Personnel.

3.02 CONTAINMENT

A. Requirement: Maintain levels of airborne contaminants within limits as defined.

3.03 PROTECTION

A. General: Contractors shall completely comply with the ICRA/Dust Mitigation Plan, Class IV at the end of this section. Provide and maintain all barriers, filters, ventilation, and cleaning and removal procedures as detailed in work plan.

B. Sealing of Openings: Use duct-tape or other impenetrable sealant to seal barrier wall seams, cracks around window and doorframes, exhaust system ductwork, pipes, joints and ducts.

C. Dust Control: The Contractor shall take appropriate steps throughout the term of the Project to prevent airborne dust due to work under this contract. Water shall be applied wherever practical to settle and hold dust to a minimum, particularly during demolition and moving of materials. No chemical palliatives shall be used without permission of the University's Representative.

1. Spray surfaces with water during dust-producing interior demolition activities. Hard surface floors in work area, adjacent hallways and passage areas require vacuuming with HEPA-filtered vacuum cleaners and frequent wet-mopping during demolition and construction; protect adjacent carpeted areas with plastic and plywood and vacuum with HEPA-filtered vacuum cleaners.

2. Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.

3. Any dust tracked outside of barrier shall be removed immediately.

D. Airborne contaminant barriers or infection control barriers shall be dust-tight. Any dust tracked outside of barrier shall be removed immediately, as specified. All cleaning outside barrier should be by HEPA-filtered vacuum or other approved method.

E. Negative air machines as described herein shall provide airflow into construction area not less than 100 fpm at barricade entrances with doors fully open.

F. Air Quality Infection Control: Fasten windows shut, ventilate barricaded construction areas by use of negative air machines exhausted through filters to the outside of building.

1. Provide a minimum of 2 negative air machines and cease any demolition in high-risk areas not services by negative air machines. Vent negative air machines to outside by removing existing windows and replacing them with vented sheet metal panels having fittings for exhaust holes. Provide added local exhaust during welding.

2. Maintain a minimum airflow of 100 ±10 FPM with door fully open at barricade entrance openings.

3. Change HEPA-filters as frequently as necessary for duration of the project to maintain a negative pressure of 0.02" WG in the construction area and filter particles as small as 0.12 microns in size.

4. Negative air units are to be DOP tested and certified prior to being placed in service, after a HEPA filter change, and when dropped or damaged or moved extensively.

G. Workers: Instruct workers to refrain from tracking dust into adjacent hospital areas or opening windows or doors that allows airborne contaminants into adjacent hospital areas.

H. Exterior Work: The Contractors will, at their own expense, direct exhaust from equipment away from building air intakes; assure that filters on building air intakes are operational and protected from excessive amounts of airborne contaminants.

I. Any ceiling access panels opened for investigation beyond sealed areas shall be replaced immediately when unattended.

1. Whenever access panels are opened in occupied areas, for work above ceilings, provide duct tight polyethylene enclosure enclosing ladder and sealing off opening, fitted tight to ceiling.

J. Provide thorough cleaning of existing surfaces, which become exposed to dust, before start of University's room occupancy.

K. Removal of construction barriers and ceiling protection shall be done carefully, in Protection Areas (Infection Control), possibly outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.

L. All vacuuming outside areas not under negative pressure shall be with a certified HEPA-filtered vacuum as described.

M. All removal of debris shall occur daily and deposited to the outside in tightly covered containers.

N. Contractor must block off or install temporary filters at existing ventilation intakes that may receive dust from construction area.

O. All polyethylene and other materials used for temporary enclosures shall be fire retardant type.

3.04 ENFORCEMENT

A. Process: Failure to maintain required containment will result in issuance of written warning; if situation is not corrected within eight (8) hours of receipt of warning, University will have cause to stop the work as provided in Article 2.3 of the General Conditions. Any egregious violation of safety requirements shall be grounds for Immediate Work Stoppage.

3.05 SCHEDULE OF REQUIREMENTS

A. Baseline levels of dust particles and Aspergillus spores in Protection Areas and levels not to be exceeded during construction are shown on the following page.

END OF SECTION 01561

ICRA TRAINING TEST FOR CONSTRUCTION PERSONNEL

NAME: _____

EMPLOYER: _____

DATE: _____

PROJECT: _____

1. What is the reason for keeping the construction zone clean and dust free?

a. To make sure patients do not develop illness caused by construction dust.

b. To keep the dust particles in the air at a minimum because dust can carry germs through the air to the patients and cause illness.

c. Both a. and b.

2. A project can be shut down if there is too much dust.

a. True

b. False

3. Circle each way you can prevent dust from getting into patient areas.

a. Enter and leave the construction zone on the designated path assigned by the project coordinator.

b. Wash my hands when leaving the construction zone.

c. Walk over the tacky mats to remove dust from my shoes.

d. Don’t go into public areas with dust on my clothing. I remove dust from my clothing before leaving the construction zone.

e. Make sure all demolition materials are placed in a closed, sealed container before taking it outside. I use the egress designated for the crew.

f. Floors are damp mopped hourly to keep them dust free.

g. I use a HEPA filter vacuum to clean dust from floors for Class IV activities. Brooms create too much dust.

DAILY ICRA COMPLIANCE SURVEY

DATE_____ **TIME**_____

BARRIERS

Appropriate for patient population/project ☐ yes ☐ no
COMMENT: _____

Construction signs posted for the area ☐ yes ☐ no
COMMENT: _____

Doors properly closed and sealed ☐ yes ☐ no
COMMENT: _____

Tacky mats clean and adequate ☐ yes ☐ no
COMMENT: _____

AIR HANDLING

All windows closed behind barrier ☐ yes ☐ no
COMMENT: _____

Negative air at barrier entrance ☐ yes ☐ no
COMMENT: _____

Negative air machine running ☐ yes ☐ no
COMMENT: _____

PROJECT AREA

Demolition debris removed in covered container ☐ yes ☐ no
COMMENT: _____

No fans in use ☐ yes ☐ no
COMMENT: _____

Trash in appropriate containers ☐ yes ☐ no
COMMENT: _____

Routine clearing done on job site ☐ yes ☐ no
COMMENT: _____

Floors mopped hourly ☐ yes ☐ no
COMMENT: _____

TRAFFIC CONTROL

Restricted to construction personnel & necessary staff only ☐ yes ☐ no
COMMENT: _____

All doors and exits free of debris ☐ yes ☐ no
COMMENT: _____

Designated elevator is used ☐ yes ☐ no
COMMENT: _____

DRESS CODE

No visible dust on clothing when crew member is outside construction zone
COMMENT: _____

Required to enter ☐ yes ☐ no
Required to leave ☐ yes ☐ no

ACTIONS TAKEN BY SURVEYOR: _____

INFECTION CONTROL RISK ASSESSMENT
MATRIX OF PRECAUTIONS FOR CONSTRUCTION & RENOVATION

Project Title: _____

Project No.: _____

Location: _____

Scope of work: _____

Step 1:
Using the following table, **identify** the **Type of Construction Project Activity (Type A-D)**

TYPE A	**Inspection and Non-Invasive Activities** Includes, but is not limited to: • removal of ceiling tiles for visual inspection only, e.g., limited to 1 tile per 50 square feet • painting (but not sanding) • wall covering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection
TYPE B	**Small scale, short duration activities which create minimal dust** Includes, but is not limited to: • installation of telephone and computer cabling • access to chase spaces • cutting of walls or ceiling where dust migration can be controlled
TYPE C	**Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies** Includes, but is not limited to: • sanding of walls for painting or wall covering • removal of floor coverings, ceiling tiles and casework • new wall construction • minor duct work or electrical work above ceilings • major cabling activities • any activity which cannot be completed within a single work shift
TYPE D	**Major demolition and construction projects** Includes, but is not limited to: • activities which require consecutive work shifts • requires heavy demolition or removal of a complete cabling system • new construction

Step 1: _____

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Steps 1-4 Adapted with permission from Tew Property Management, Minneapolis, MN; Barnes Hospital, St. Louis, MO; Bartley ESI Inc. Beverly Hills, MI 2002. Jbartley@ameritech.net – Updated, 2009.

Step 2:
Using the following table, **identify the Patient Risk Groups** that will be affected. If more than one risk group will be affected, select the higher risk group:

Low Risk	Medium Risk	High Risk	Highest Risk
• Office Areas	• Cardiology • Echocardiography • Endoscopy • Nuclear Medicine • Physical Therapy • Radiology/MRI • Respiratory Therapy	• CCU • Emergency Room • Labor & Delivery • Laboratories (specimen) • Medical Units • Newborn Nursery • Outpatient Surgery • Pediatrics • Pharmacy • Post Anesthesia Care Unit • Surgical Units	• Any area caring for immunocompromised patients • Burn Unit • Cardiac Cath Lab • Central Sterile Supply • Intensive Care Units • Negative pressure isolation rooms • Oncology • Operating rooms including C-section rooms

Step 2: _____

Step 3: Match the

- **Patient Risk Group** (**Low, Medium, High, Highest**) with the planned…
- **Construction Project Type** (**A, B, C, D**) on the following matrix to find the…
- **Class of Precautions** (**I, II, III, IV**) or level of infection control activities required.
- **Class I-IV or Color-Coded Precautions are delineated on the following page.**

IC Matrix – Class of Precautions: Construction Project by Patient Risk

	Construction Project Type			
Patient Risk Group	**Type A**	**Type B**	**Type C**	**Type D**
LOW Risk Group	**I**	**II**	**II**	**III / IV**
MEDIUM Risk Group	**I**	**II**	**III**	**IV**
HIGH Risk Group	**I**	**II**	**III IV**	**IV**
HIGHEST Risk Group	**II**	**III / IV**	**III / IV**	**IV**

Note: INFECTION CONTROL APPROVAL WILL BE REQUIRED WHEN CONSTRUCTION ACTIVITY AND RISK LEVEL INDICATE THE CLASS III OR CLASS IV CONTROL PROCEDURES ARE NECESSARY.

Step 3: _____

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Steps 4-14 Adapted with permission Fairview University Medical Center, Minneapolis, MN Forms modified /updated; provided courtesy of Judene Bartley, ECSI Inc. Beverly Hills, MI 2002. Jbartley@ameritech.net – Updated, 2009.

DESCRIPTION OF REQUIRED INFECTION CONTROL PRECAUTIONS BY CLASS

Class	During Construction Project	Upon Completion of Project
I	1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace a ceiling tile displaced for visual inspection.	1. Clean work area upon completion of task.
II	1. Provide active means to prevent airborne dust from dispersing into atmosphere. 2. Water mist work surfaces to control dust while cutting. 3. Seal unused doors with duct tape. 4. Block off and seal air vents. 5. Place dust mat at entrance and exit of work area 6. Remove or isolate HVAC system in areas where work is being performed.	1. Wipe work surfaces with cleaner/disinfectant. 2. Contain construction waste before transport in tightly covered containers. 3. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area. 4. Upon completion, restore HVAC system where work was performed.
III	1. Remove or Isolate HVAC system in area where work is being done to prevent contamination of duct system. 2. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. 3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 4. Contain construction waste before transport in tightly covered containers. 5. Cover transport receptacles or carts. Tape covering unless solid lid.	1. Do not remove barriers from work area until completed project is inspected by the owner's Safety Department and Infection Prevention & Control Department and thoroughly cleaned by the owner's Environmental Services Department. 2. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 3. Vacuum work area with HEPA filtered vacuums. 4. Wet mop area with cleaner/disinfectant. 5. Upon completion, restore HVAC system where work was performed.
IV	1. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 2. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins. 3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 4. Seal holes, pipes, conduits, and punctures. 5. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave work site. 6. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.	1. Do not remove barriers from work area until completed project is inspected by the owner's Safety Department and Infection Prevention & Control Department and thoroughly cleaned by the owner's Environmental Services Dept. 2. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction. 3. Contain construction waste before transport in tightly covered containers. 4. Cover transport receptacles or carts. Tape covering unless solid lid. 5. Vacuum work area with HEPA filtered vacuums. 6. Wet mop area with cleaner/disinfectant. 7. Upon completion, restore HVAC system where work was performed.

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Step 4: Identify the areas surrounding the project area, assessing potential impact

Unit Below	Unit Above	Lateral	Lateral	Behind	Front
Risk Group	Risk Group	Risk Group	Risk Group	Risk Group	Risk Group

Step 5: Identify specific site of activity e.g., patient rooms, medication room, etc.

Step 6: Identify issues related to: ventilation, plumbing, electrical in terms of the occurrence of probable outages.

Step 7: Identify containment measures, using prior assessment. What types of barriers? (e.g., solids wall barriers, etc.); Will HEPA filtration be required?

(Note: Renovation/construction area shall be isolated from the occupied areas during construction and shall be negative with respect to surrounding areas)

Step 8: Consider potential risk of water damage. Is there a risk due to compromising structural integrity? (e.g., wall, ceiling, roof, etc.)

Step 9: Work hours: Can or will the work be done during non-patient care hours?

Step 10: Do plans allow for adequate number of isolation/negative airflow rooms?

Step 11: Do the plans allow for the required number & type of handwashing sinks?

Step 12: Does the infection prevention & control staff agree with the minimum number of sinks for this project? (Verify against FGI Design and Construction Guidelines for types and area)

Step 13: Does the infection prevention & control staff agree with the plans relative to clean and soiled utility rooms?

Step 14: Plan to discuss the following containment issues with the project team, e.g., traffic flow, housekeeping, debris removal (how and when), etc.

APPENDIX: IDENTIFY AND COMMUNICATE THE RESPONSIBILITY FOR PROJECT MONITORING THAT INCLUDES INFECTION PREVENTION & CONTROL CONCERNS AND RISKS. THE ICRA MAY BE MODIFIED THROUGHOUT THE PROJECT. REVISIONS MUST BE COMMUNICATED TO THE PROJECT MANAGER.

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Infection Control Construction Permit

		Permit No.:	
Location of Construction:		Project Start Date:	
Project Coordinator:		Estimated Duration:	
Contractor Performing Work:		Permit Expiration Date:	
Supervisor:		Telephone:	

YES	NO	CONSTRUCTION ACTIVITY	YES	NO	INFECTION CONTROL RISK GROUP
		TYPE A: Inspection, non-invasive activity			GROUP 1: Low Risk
		TYPE B: Small scale, short duration, moderate to high levels			GROUP 2: Medium Risk
		TYPE C: Activity generates moderate to high levels of dust, requires greater 1 work shift for completion			GROUP 3: Medium/High Risk
		TYPE D: Major duration and construction activities requiring consecutive work shifts			GROUP 4: Highest Risk

CLASS I	1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace any ceiling tile displaced for visual inspection. 3. Minor Demolition for Remodeling	
CLASS II	1. Provides active means to prevent air-borne dust from dispersing into atmosphere 2. Water mist work surfaces to control dust while cutting. 3. Seal unused doors with duct tape. 4. Block off and seal air vents. 5. Wipe surfaces with cleaner/disinfectant.	6. Contain construction waste before transport in tightly covered containers. 7. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area. 8. Place dust mat at entrance and exit of work area. 9. Isolate HVAC system in areas where work is being performed; restore when work completed.
CLASS III **Date** **Initial**	1. Obtain infection control permit before construction begins. 2. Isolate HVAC system in area where work is being done to prevent contamination of the duct system. 3. Complete all critical barriers or implement control cube method before construction begins. 4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 5. Do not remove barriers from work area until complete project is checked by Infection Prevention & Control and thoroughly cleaned by Environmental Services.	6. Vacuum work with HEPA filtered vacuums. 7. Wet mop with cleaner/disinfectant 8. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 9. Contain construction waste before transport in tightly covered containers. 10. Cover transport receptacles or carts. Tape covering. 11. Upon completion, restore HVAC system where work was performed.
CLASS IV **Date** **Initial**	1. Obtain infection control permit before construction begins. 2. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 3. Complete all critical barriers or implement control cube method before construction begins. 4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 5. Seal holes, pipes, conduits, and punctures appropriately. 6. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site. 7. All personnel entering work site are required to wear shoe covers.	8. Do not remove barriers from work area until completed project is checked by Infection Prevention & Control and thoroughly cleaned by Environmental Services. 9. Vacuum work area with HEPA filtered vacuums. 10. Wet mop with disinfectant. 11. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 12. Contain construction waste before transport in tightly covered containers. 13. Cover transport receptacles or carts. Tape covering. 14. Upon completion, restore HVAC system where work was performed.

Additional Requirements:				
				EXCEPTIONS/ADDITIONS TO THIS PERMIT ARE NOTED BY ATTACHED MEMORANDA.
Date	Initials	Date	Initials	

Permit Requested By:		Permit Authorized By:	
Date:		Date:	

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SECTION 01562
REQUIREMENTS FOR CEILING ACCESS TO SPACES CONTAINING ASBESTOS

PART I – PURPOSE

This section outlines policy and procedures for access to ceiling spaces containing or suspected of containing asbestos fireproofing and/or asbestos thermal insulation.

PART II – POLICY

Work that may disturb asbestos but is not intended to result in intentional asbestos removal shall be controlled in accordance with this section as well as Cal/OSHA requirements for Class III asbestos work contained in 8 CCR 1529 and general requirements of 8 CCR 5208. Moving ceiling tiles or horizontal hatches to access ceiling spaces with asbestos fireproofing or containing debris from asbestos thermal insulation is Class III asbestos work. The university representative may approve modifications to these procedures. This section outlines minimum requirements. Controls that exceed these requirements may be used.

PART III – PROCEDURES

A. Training

Personnel performing work in spaces containing or suspected of containing asbestos material shall have a minimum of 16 hours of OSHA/EPA certified training for Class III work by an accredited Asbestos Certifying Agency. If the 16 hour training certification is unavailable, then a OSHA/EPA 32 hour Worker Training will have to be obtained. In addition, the Supervisor is required to have a 40 hour Supervisor Training Certification. The OSHA/EPA certified (AHERA) worker or supervisor training qualifies the individual for Class III worker and Class III competent person work.

B. Competent Person

A Competent Person (either AHERA – 40 hour trained or Class III 16 hour trained) shall inspect the area to determine precautions prior to entry, to determine that the controlled area is properly established, and to determine that appropriate cleanup has occurred at the end of the job. The person performing the work may serve as the competent person as well.

C. Standard Access Procedure

1. Mini-enclosure
   Use an asbestos mini-enclosure, or an equivalent enclosure constructed on site. Use a HEPA filter vacuum to create a negative pressure in the enclosure. The enclosure must be posted with warning signs bearing the following information: DANGER, ASBESTOS, CANCER AND LUNG DISEASE HAZARD, AUTHORIZED PERSONNEL ONLY. Access into the enclosure must be restricted to trained personnel. Any debris generated by ceiling access must be cleaned up by HEPA vacuum immediately.

   Before leaving the enclosure carefully examine clothing and bottoms of shoes and remove any debris with a HEPA vacuum. At the end of the job disposable clothing must be removed at the site and bagged as asbestos waste. Use a labeled asbestos waste bag. Close the bag, label it and ensure it is delivered to the hazardous waste disposal yard. After completion of these procedures for ceiling tile removal, the enclosure may be moved and the ceiling left

open until the end of the shift, unless additional requirements are imposed by Infection Control. The same controls used for ceiling tile removal must be used for ceiling tile replacement. Any debris generated by ceiling tile replacement must be cleaned up by HEPA vacuum immediately. If necessary, the ceiling opening may be closed with plastic sheeting and duct tape.

2. Air sampling
   Periodic air sampling is required when the project requires extensive ceiling access to verify that ceiling tile access is not resulting in elevated asbestos exposures. The air sampling frequency will be established by the University. When this is required the University will provide the air monitoring. When air samples are performed, a 30-minute sample must be collected. If the operation lasts beyond 30 minutes, an additional sample must be collected for the remainder of the operation.

3. Clean up of debris
   All debris shall be cleaned up promptly. The floor of the mini-enclosure shall be HEPA vacuumed before moving.

4. Personal Protective Equipment
   Typical protective equipment for class III work shall be disposable coveralls (e.g., Tyvek) and respirator with HEPA filter cartridges suitable for asbestos protection.

D. Ceiling space crawl where there is asbestos fire proofing or asbestos debris may be present (no abatement work)

1. **Protective equipment** will be as for ceiling access, single layer Tyvek and filtering facepiece respirator required. If employee notices tear of outer coverall during work - use duct tape to repair tears to outer coverall, or exit and replace outer cover. Remove and bag coverall and respirator in mini-enclosure as in ceiling access procedure. If coveralls were torn, vacuum any noticeable debris from underlying clothing. Clothing must be changed at work and may not be taken home.

2. **Control of debris during ceiling crawls**. In all cases vacuum clearly recognizable insulation debris in the immediate area of the ceiling access. If practical, vacuum visible insulation debris for the full path of travel. If this is not practical the employee must use other procedures to ensure safe removal of visible insulation debris in the path of travel that would be disturbed by the crawl. For example, wet paper towels and plastic bags may be used to pick up and contain visible debris. Other control methods may be used provided they meet the following criteria:
   - dry sweeping is not permitted
   - employees must not walk on, crawl on or otherwise crush visible clearly recognizable insulation debris
   - the control method must not result in a release of airborne fibers.

D. HEPA filter testing and certification

The HEPA vacuum for ceiling work and HEPA filter for mini-enclosure must have passed DOP testing within 12 months and must be re-certified after filter replacement.

E. Access for inspection after ceiling tile has been moved and the mini-enclosure removed

Inspection above the ceiling, after ceiling tile has been moved and the mini- oved, may be performed without special asbestos awareness training or protective equipment. Access of this type is limited to visual inspection through the ceiling opening. Full entry to the space or ceiling crawl must meet the requirements of paragraphs C and D of this section. Personnel who perform this work must be notified that asbestos is present in the area and of which materials in the area contain asbestos.

G. Asbestos Waste Management

Personnel are required to appropriately bag all asbestos debris, disposable personal protective equipment, and other materials potentially contaminated with asbestos. Bags shall be clear, 6 mil, imprinted with the required asbestos warning. Appropriate packaging includes double-bagging, and wetting the materials in the inner bag. Each bag shall be legibly marked with the UC Davis Medical Center address and EPA ID number (CAD 076124981).

For those projects generating five (5) or fewer bags of asbestos-contaminated materials, UCDHS Environmental Health and Safety (EH&S) will manage the disposal of the bags; contact EH&S at 916-734-2740 for disposal. Materials must be bagged and marked as described above prior to EH&S acceptance.

Asbestos disposal is the responsibility of the Contractor on those projects generating more than five (5) bags of asbestos-contaminated material. If a Uniform Hazardous Waste Manifest is required for transportation, such manifest must be signed by a representative of UCDHS EH&S.

SECTION 01610
PRODUCT REQUIREMENTS

PART I - GENERAL

1.01 SECTION INCLUDES

A. Product Options

B. Product Substitutions

C. Product Transportation and Handling Requirements

D. Product Storage and Protection

E. Product System Completeness

1.02 RELATED SECTIONS

A. Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

B. Section 01410 – REGULATORY REQUIREMENTS

C. Section 01450 – QUALITY CONTROL

1.03 PRODUCTS

A. Product Selection: Provide products that comply with Contract Documents, are undamaged and unused at installation.

B. Product Completeness: Provide products complete with all accessories, trim, finish, safety guards and other devices needed for complete installation and for intended use and effect.

C. Products: Items purchased for incorporation in Work, whether purchased for project or taken from previously purchased stock; this includes materials, equipment, assemblies, fabrications and systems.

1. Named Products: Items identified by manufacturer's product name, including make or model designation indicated in the manufacturer's published product data.

2. Materials: Products that are shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed or installed to form part of the Work.

3. Equipment: A product with operating parts, whether motorized or manually operated, requiring connections such as wiring or piping.

D. Specific Product requirements: Refer to requirements of Section 01450 – QUALITY CONTROL and other Sections in Division 2 through 16 for specific requirements for

products.

E. Code Compliance: All products, other than commodity products prescribed by Code, shall have current listing service report or research report. Minimum Requirements: Specified requirements are minimum requirements.

F. Interchangeability: To fullest extent possible, provide products of the same kind from single source. Products supplied in quantity shall be same product and interchangeable throughout the Work. When options are specified for selection of any of two (2) or more products, product selected shall be compatible with products previously selected.

G. Nameplates: Except for required labels and operating data, do not attach manufacturer's name plates or trademarks on surfaces exposed to view in occupied spaces or on the exterior of building.

H. Equipment Nameplates: Provide permanent nameplate on each item or service-connected or power-operated equipment. Locate on inconspicuous accessible surface. Nameplate shall contain the following information and essential operating data:

1. Name of product and manufacturer

2. Model and serial number

3. Capacity and Speed

4. Ratings and other pertinent information

I. Listing Service: Products, for which listing service standards have been established and for which their service label is available, shall bear the appropriate listing service label.

1.04 PRODUCT OPTIONS

A. Products Specified Only by Description: Where the Contract Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that provides the appropriate characteristics and otherwise complies with the requirements.

B. Performance Specification: Where Contract Specifications require compliance with performance requirements, provide products that comply and are recommended for application. Manufacturer's recommendations may be contained in Product literature, or by certification of performance.

C. Compliance with Standards: Where Contract Specifications require compliance with a standard, select a product that complies with the standard specified.

1. Wherever catalog numbers and specific brands or trade names followed by the designation "to match existing or University Standard" are used in conjunction with product(s) required by the Contract Specification, no substitution will be considered.

D. Products Specified by Naming One (1) or More Manufacturers:

Specified manufacturer(s): Provide specified product(s) of the specified manufacturer. Wherever

more than one (1) manufacturer's product is specified, the first-named product is the basis for the design used in the Work and the use of alternative-named products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by University, Contractor shall assume all costs required to make necessary revisions and modifications to the design, including additional costs to university for evaluation of revisions and modifications of the design resulting from the substitutions submitted by Contractor.

a. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or equal" supporting data for second manufacturer's product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitution.

2. Quality Standard: Products(s) of the specified manufacturer shall serve as standard by which the product(s) of other named manufacturers are evaluated.

E. "Or Equal" Provision: Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by Contract Specification to establish standard of quality, utility, and appearance required.

1. "Or Equal" Products: Equivalent products of manufacturers other than the specified manufacturer may be provided if determined by University's Representative to be acceptable in accordance with substitution provisions following:

a. Contractor shall submit to University's Representative, within thirty-five (35) days after the date of commencement of the Work specified in the Notice to Proceed, a typewritten list containing descriptions of each product proposed for substitution.

b. Contractor shall provide supporting data as required herein.

c. University will evaluate Contractor's proposal. The decision of University shall be final.

d. University will accept, in writing, proposed substitutions that are in University's opinion equal in quality, utility and appearance to the product specified. Such acceptance does not relieve Contractor from complying with requirement of the Contract Documents.

e. Contractor shall be responsible for all costs of any changes resulting for Contractor's proposed substitutions that affect other work, or the Work of Separate Contractor.

f. Failure to place orders for specified products sufficiently in advance of required date for incorporation into the Work will not be considered justification for Contractor to request a substitution or deviation from requirements of the Contract Documents. The thirty-five (35) day submittal period does not excuse Contractor from completing the Work within the Contract Time.

2. Contractor's Determination: Prior to submitting "or equal" product(s) for consideration, Contractor shall review and determine product(s) meet or exceed the quality and warranty provisions of the specified product.

3. Late Substitution Requests: If a request for substitution occurs after the thirty-five (35) day period, the substitution may be reviewed at the discretion of University and the costs of such review, as approved by University, shall be deducted from the Contract Sum.

a. Product Availability Waiver: Substitutions will be considered after the thirty-five (35) day period only when a product becomes unavailable due to no fault of the Contractor.

F. Visual Matching: Where Contract Specifications require matching a sample, University's decision on proposed product match is final. If no product matches and complies with other requirements, comply with provisions for "substitutions" for selection of a matching product in another category.

G. Visual Selection: Where requirements include the phrase "….as selected from manufacturer's standard colors, patterns, textures…" or a similar phrase, select a product that complies with other requirements. University will select color, pattern and texture from the product line selected.

1.05 SUBSTITUTIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract shall be considered "substitutions". The following are not considered substitutions:

1. Revisions to Contract Documents requested by University's Representative or University's Consultant.

2. Specified options of products and construction methods included in Contract Documents.

3. Compliance with governing regulations and orders issued by governing authorities.

B. Substitution Provisions: Requests for Substitutions will only be considered if Contractor submits the following data:

1. Furnish complete technical data including drawings, performance specifications, samples, test reports and any additional information required by University's Representative, for each product proposed for substitution.

a. Submit minimum of four (4) copies.

b. In reviewing supporting data for substitution, University will use, for purpose of comparison, all characteristics of specified product as it appears in manufacturer's published data even though all characteristics may not have been particularly mentioned in the Contract Specifications.

If more than two (2) substitutions of supporting data are required, University's costs of reviewing additional supporting data will be deducted from the Contract Sum.

c. Submit statement indicating substitution's effect on the Construction Schedule, if any.

d. Submit cost information, including proposal of net deduction, if any, from Contract Sum.

2. Furnish statement by Contractor that proposed substitution is in full compliance with requirements of Contract Documents and Applicable Codes.

3. Furnish list of Subcontractors, if any, that may be affected by the substitution.

4. If proposed substitution requires portions of the Work to be redesigned or removed in order to accommodate substituted product, submit design and engineering calculations prepared by the licensed design professional of record.

5. Contract Document Revisions: Should Contractor-proposed or alternate sequence or method of construction require revision of Contract Documents, including revisions for purpose of determining feasibility, scope or cost, or revisions for the purpose of obtaining approval by governing authorities having jurisdiction, revisions will be made by University's Consultant who is the design professional of record.

a. Services of University's Consultants, including time spent in researching and reporting on proposed substitutions or alternate sequences and methods of construction, shall be paid by Contractor when such activities are considered additional services to the design services contracts of University.

b. Cost of services by University's Consultants shall be paid on a time and material basis, based on current hourly fee schedules, with reproduction, long distance telephone and shipping costs reimbursable. Such fees shall be paid whether or not the proposed substitution or alternate sequence or method of construction is ultimately accepted by University and Change Order executed. Such fees owed shall be deducted from the Contract sum on the next Application for Payment.

6. Submit all proposed substitutions in writing to University using the Request for Substitution form provided at the back of this Section.

C. University may reject any substitution not proposed as described above and presented within the time prescribed.

D. Revisions to submittals: If University's Representative, in reviewing list of substitutions, requires revisions or corrections to previously accepted Shop Drawings and supplemental supporting data, Contractor shall promptly do so. If any proposed substitution is judged by University's Representative to be unacceptable, the specified product shall be provided at no cost to the University.

E. Samples: Samples may be required. Tests required by University's Representative for

determination of quality and utility shall be made by Contractor's independent testing Laboratory, at expense of Contractor, with prior University acceptance of test procedure.

1.06 TRANSPORTATION, DELIVERY AND HANDLING

A. Transport products by methods to avoid product damage.

B. Schedule delivery to minimize long-term storage and prevent overcrowding construction spaces. Coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

C. Deliver products in undamaged condition in manufacturer's original sealed container or packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

D. Provide equipment and personnel to handle products by methods to prevent soiling, marring or other damage.

E. Promptly inspect products on delivery to ensure products comply with Contract Documents, quantities are correct, and to ensure products are undamaged and properly protected. Promptly remove damaged or defective products from site and replace at no adjustment to the Contract Sum and/or Contract Time.

1.07 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store products to facilitate inspection and measurement of quantity or counting of units.

C. Store heavy materials away from structures in a manner that will not endanger supporting construction.

D. Store sensitive products in weather-tight enclosures. Store products subject to damage by the elements above ground, under cover in a weather-tight enclosure, with ventilation adequate to prevent condensation.

1. Maintain temperature and humidity within range required by manufacturer's instructions.

2. Exterior Storage:

a. Store products above ground on blocking or skids to prevent soiling, staining and damage.

b. Cover products that are subject to damage by the elements with impervious protective sheet coverings. Provide adequate ventilation to prevent condensation.

c. Store sand, rock, aggregate or other loose granular material in well-drained area on solid surfaces. Prevent mixing with foreign matter.

3. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and maintained under required conditions, free from damage and deterioration.

E. Protection After Installation: Provide barriers, substantial coverings, notices and other materials or methods as necessary to protect installed work from traffic, subsequent construction operations and weather.

1. Maintain temperature and humidity conditions in interior spaces for Work in accordance with manufacturers' instructions for materials and equipment being protected.

2. Remove protective measures when no longer required and prior to Acceptance of the Work.

1.08 SYSTEM COMPLETENESS

A. The Contract Drawings and Contract Specification are not intended to be comprehensive directions on how to produce the Work. Rather, the Drawings and Specifications are instruments of service prepared to describe the design intent for the completed Work.

B. It is intended that equipment, systems and assemblies be complete and fully functional even though not fully described. Provide all products and operations necessary to achieve the design intent described in the Contract Documents.

C. Contractor is urged to report to University's Representative immediately when elements essential to proper execution of the Work are discovered to be missing or misdescribed in the Contract Documents or if the design intent is unclear.

D. Should an essential element be discovered as missing or misdescribed prior to receipt of bids or establishing a negotiated Contract Sum, an Addendum or Clarification will be issued so that all cost may be accounted in the Contract Sum.

E. Should an obvious omission or misdescription of a necessary element be discovered and reported after execution of the Agreement, Contractor shall provide the element as though fully and correctly described.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products.

B. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01610

REQUEST FOR SUBSTITUTION

Substitution #: _____ **Submittal #:** _____ **Date:** _____

A/C #: _____ **OSHPD #:** _____

PROJECT NAME: _____

TO: UC DAVIS MEDICAL CENTER **Facilities Design & Construction** **4800 2ND Avenue, Suite 3010** **Sacramento, CA 95817** **P: 916-734-7024** **F: 916-734-7751** **Attn.: (Project Manager)**	**FROM:** _____

Name of Party Submitting Request for Substitution: _____

Reason for Submitting Request for Submission: _____

Specification Section and Paragraph #: _____

Substitution Manufacturer name and address: _____

Proposed substitution (trade name of product, model or catalog #): _____

Fabricators and Suppliers (as appropriate): _____

PRODUCT DATA: ATTACH PRODUCT DATA AS SPECIFIED IN SPECIFICATION SECTION 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES Similar projects using product (list dates of installation and names/phone numbers of Owners):

Similar comparison of proposed substitution with specified product (indicate variation(s), and reference each variation to appropriate Specification Section paragraphs): **-ATTACH COMPARISON SUMMARY-**

(SUBSTITUTION REQUEST CONTINUES)

Quality and performance comparison between proposed substitution and specified product:

Availability of maintenance services and replacement materials:

Effect of proposed substitution on Construction Schedule:

Effect of proposed substitution on other work or products:

SECTION 01720
PREPARATION

PART I - GENERAL

1.01 SECTION INCLUDES

A. Surveying and Field Engineering Services

1.02 RELATED SECTIONS

A. Section 01450 – QUALITY CONTROL

1.03 REGISTRATION REQUIREMENT

A. Contractor shall employ civil engineers/land surveyors, which are registered and licensed in the state of California and acceptable to the University.

1.04 LINE AND GRADES

A. Contractor shall provide all construction survey work required for accurate location of the Work. Horizontal and vertical control for the Work shall be from project reference marks as shown on Contract Drawings. University's decision will be final in all questions regarding proper location of work.

B. Contractor shall verify final configuration of project during demolition work. Minor adjustments of work to accommodate existing field conditions shall be responsibility of Contractor.

C. Replace control points that may be lost or destroyed, base requirements on original survey control, at no increase in the Contact Sum.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 INSPECTION

A. Verify locations of survey control points prior to starting work. Promptly notify University's Representative of any discrepancies discovered.

3.02 SURVEY REFERENCE POINTS

A. Protect survey control points prior to starting site work; preserve permanent reference points during construction. Make no changes without prior written notice to University's Representative.

B. Promptly report loss or destruction of any reference point or relocation required to University's Representative. Replace dislocated survey points based on original survey control.

3.03 SURVEY REQUIREMENTS

A. Establish minimum of three (3) permanent benchmarks on site, referenced to establish control points. Record locations, with horizontal and vertical data, on Project Record Documents.

B. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means:

1. Site improvements, including pavements, stakes for grading, fill and topsoil placement, utility locations, slopes and invert elevations.

2. Grid or axis for structures.

3. Building foundation, column locations and ground floor elevations.

4. Controlling lines and levels required for mechanical and electrical work.

5. Verify layouts as Work proceeds to assure compliance with required lines, levels and tolerances.

C. Periodically certify layouts by same means.

3.04 RECORDS

A. Maintain complete and accurate log of all control and survey work as it progresses.

B. On completion of foundation walls and major site improvements, prepare certified survey showing all dimensions, locations, angles and elevations of construction.

END OF SECTION 01720

SECTION 01730
CUTTING AND PATCHING

PART I - GENERAL

1.01 SECTION INCLUDES

A. Requirements and limitations for cutting and patching Work.

1.02 RELATED SECTIONS

A. Section 01110 – SUMMARY OF THE WORK

B. Section 01310 – COORDINATION

C. Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

D. Section 01610 – PRODUCT REQUIREMENTS

E. Individual Specifications Sections.

1. Cutting and patching incidental to Work specified in this Section.

2. Coordination with work in other Sections for openings required to accommodate Work specified in those other Sections.

1.03 SUBMITTALS

A. Contractor shall complete and submit for review to University's Representative, a Coring/Sawcutting Form, included at the end of this Section, and obtain written authorization for University prior to the commencement of any dig activities. Contractor shall include all pertinent information with the Coring/Sawcutting Form and submit with detailed work plan fourteen (14) days prior to desired coring/cutting activity.

1. Structural integrity of any element of Project.

2. Integrity of weather-exposed or moisture-resistant element.

3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight-exposed elements.

5. Work of University.

6. Utility supply, drains, fire alarm, communication.

B. Include in request:

1. Identification of Project, including University's Project Name and A/C number.

2. Location and description of affected Work.

3. Necessity for cutting and patching.
4. Description of proposed work, and products to be used.
5. Alternatives to cutting and patching.
6. Effect on work of University.
7. Written permission of University.
8. Date and time work will be executed.

1.04 NOTIFICATIONS

A. Before starting welding or cutting work involving the use of gas or electric welding equipment, or any brazing work involving gas or electric brazing equipment Contractor shall complete the online Hazardous Conditions Permit form at http://ww.ucdmc.ucdavis.edu/fire. Contractor shall allow seventy-two (72) Hours for Fire Marshal's approval and issuance of Hazardous Conditions Permit. This permit will be issued without cost to Contractor and may be applicable to more than one (1) building. Contractor shall be responsible for reporting to Fire Department either by telephone or in person at beginning and end of each day's work. Provide minimum written notice of fourteen (14) calendar days prior to such activities.

1. Welding and brazing personnel must be certified by a University or OSHPD approved laboratory and must maintain this certification during the work of this Contract.
2. Contractor is responsible for notifying University of all apparent locations of Asbestos. When any such location is discovered by Contractor, information relating thereto shall be immediately communicated to University's Representative at 916-734-7024.
3. Contractor shall then follow any and all instructions as indicated by University's Representative.

PART II - PRODUCTS

2.01 MATERIALS

A. Product substitution: For any proposed change in materials, submit request for substitution under provision of SECTION 01610 – PRODUCT REQUIREMENTS.

PART III - EXECUTION

3.01 EXAMINATION

A. General: Execute cutting, fitting and patching including excavation and fill, to complete Work and:

1. Fit the several parts together, to integrate with other work.

2. Uncover work to install ill-timed work.

3. Remove and replace defective and non-conforming work.

4. Remove samples of installed work for testing.

5. Provide openings in elements of Work for penetrations of mechanical and electrical work.

B. Examination, General: Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

1. After uncovering existing Work, inspect conditions affecting proper accomplishment of Work.

2. Beginning of cutting or patching shall be interpreted to mean that existing conditions were found acceptable by Contractor.

C. Ground Penetrating Radar: Determine by Ground Penetrating Radar all existing reinforcing, conduit and piping located in concrete walls and slabs prior to demolition. Clearly mark all locations and review with University Representative prior to demolition.

3.02 PREPARATION

A. Temporary Supports: Provide supports to assure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

B. Weather Protection: Provide protection from elements in all areas that may be exposed by uncovering work. Maintain excavations free of water.

3.03 CUTTING AND PATCHING

A. Execute cutting, fitting, and patching to properly complete Work.

B. Coordinate installation or application of products for integrated Work.

C. Uncover completed Work as necessary to install or apply products out of sequence.

D. Remove and replace defective or non-conforming Work.

E. Provide openings in the Work for penetrations of mechanical and electrical Work.

3.04 PERFORMANCE

A. Execute cutting and patching by methods to avoid damage to adjoining Work, and that will provide appropriate surfaces to receive final finishing.

B. Execute cutting and patching of weather-exposed, moisture-resistant and sight-exposed surfaces by methods to preserve weather, moisture and visual integrity.

C. Restore work with new Products as specified in individual Sections of Contract Documents.

D. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not allowed without prior approval from University. Coordinate timing of all sawing and cutting work with the University's Representative.

E. Fit work neat and tight allowing for expansion and contraction. Butt new finishes to existing exposed structure, pipes, ducts, conduit, and other penetrations through surfaces.

F. At penetrations of firewalls, partitions, ceiling, or floor construction, completely seal voids with UL approved fire-rated assembly. Provide temporary closures at the end of each work day. Closures shall be approved by the University Fire Marshal.

G. Refinish surface to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish unit.

H. Where new construction is to join with or match existing work, it shall be finished exactly to that work so as to form a complete unified and finished element.

END OF SECTION 01730

CORING / SAWCUTTING NOTIFICATION

LOCATION: _____ A/C: _____
TITLE: _____

TRACKING NUMBER:
(Provided by PO&M) _____

OSHPD #: _____ DATE: _____

TO: **UC DAVIS MEDICAL CENTER**
Facilities Design & Construction
4800 2nd Avenue, Suite 3010
Sacramento, CA 95817
P: 916-734-7024
F: 916-734-7751

Attn.: (Project Manager)

FROM:

SCOPE:

HAS USA BEEN NOTIFIED? ☐ *YES* ☐ *NO* *When?* _____

ARE ALL KNOWN UTILITIES MARKED? ☐ *YES* ☐ *NO* *By Whom?* _____

LOCATION OF WORK SHOWN ON ATTACHED SITE PLANS? ☐ *YES* ☐ *NO* *Purpose:* _____

DATE(S) CORING OR SAWCUTTING WILL TAKE PLACE: Signed: _____

UCDMC USE ONLY

DATE RECEIVED:

WHO FROM UCDMC WILL AUTHORIZE, SUPERVISE AND VERIFY?
PHONE:

Utilities Verified by IOR? ☐ *YES* ☐ *NO*

Activities coordinated with: ☐ PO&M ☐ Fire ☐ Telecom ☐ Occ. Safety ☐ Other (Itemize):

COMMENTS:

DATE AUTHORIZED: _____ Signed: _____
University Representative
PO&M: _____

COMPLETION DATE: _____

COMMENTS:
(Unknown Utilities Encountered, Disruptions, Successes, Weather, etc.)

SIGNED: _____

Copies to: University Consultants, PO&M, Fire, Telecom, File, Others:

SECTION 01740
CLEANING

PART I - GENERAL

1.01 SECTION INCLUDES

A. Construction Cleaning.

B. Requirements for cleaning during progress of Work, at Substantial Completion of Work and at Acceptance of Work.

C. Disposal of waste materials, debris and rubbish during construction.

1.02 RELATED SECTIONS

A. General Conditions of the Contract: Cleanup.

B. Additional Requirements: Cleaning for specific products or elements of Work are described in Specification Sections describing that Work.

PART II - PRODUCTS

2.01 MATERIALS

A. Use only those cleaning agents and materials that will not create hazards to health or property and that will not damage surfaces.

B. Use only those cleaning agents, materials and methods recommended by manufacturer of the material to be cleaned.

C. Use cleaning materials only on surfaces recommended by cleaning agent manufacturer.

2.02 EQUIPMENT

A. Provide covered containers for deposit of waste materials, debris, and rubbish.

B. Provide at each entry point to the Work, and at other areas as directed by University's Representative, Dryden Engineering, "Micro-Clean Adhesive Mat, #TS/1847", or equal (no known equal). Replace mats daily or as requested by University Representative.

PART III - EXECUTION

3.01 CLEANING

A. Construction Cleaning: During Construction, maintain buildings, premises and property free from waste materials and rubbish. Dispose of such waste and debris at reasonable intervals off of University property.

1. Maintain areas under Contractor's control free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.

2. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to closing such spaces.

3. Clean interior areas daily to provide suitable conditions for Work. Remove debris from areas of work on a daily basis at a minimum, or more often as required to provide suitable conditions for work.

4. Broom clean interior areas prior to start of surface finishing, and continue cleaning on as needed basis.

5. Control cleaning operations so that dust and other particles will not adhere to wet or newly-coated surfaces.

6. Provide a mat, as specified above, for project entrances and exits. Item to be of sufficient size to allow personnel exiting project site to clean debris and dust from shoes. Tracking dust and debris through working areas of hospital and/or related buildings is not acceptable. Any dust or debris tracked out of construction site, either by foot traffic or by debris hauling vehicles, at University option, shall be cleaned and removed by Contractor at no additional cost to the University.

B. Conduct cleaning and disposal operations in compliance with all applicable codes, ordinances, regulations, including anti-pollution laws.

3.02 SUBSTANTIAL COMPLETION CLEANING

A. Execute a thorough cleaning prior to Substantial Completion review by University's Representative.

B. Clean walkways, driveways and streets by thorough brooming and wash-down.

C. Clear debris from storm drainage lines and ways, leaving site ready for stormy weather.

D. Rake landscaped areas clean.

E. Remove waste and surplus materials, rubbish and temporary construction facilities, utilities and controls.

F. Disinfect containment and protection areas as directed by University Representative.

G. For Airborne Contamination areas: Construction cleaning use wet cleaning methods and HEPA-filtered vacuum cleaners are required to minimize release of airborne contaminants. Contain waste materials, debris and rubbish.

3.03 FINAL COMPLETION CLEANING

A. Complete final cleaning before submitting final Application for Payment.

B. Employ professional building cleaners to thoroughly clean building immediately prior to final inspection.

C. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from all sight-exposed interior and exterior surfaces.

D. Restore damaged or marred surfaces.

E. Remove dust from all horizontal surfaces not exposed to view, including light fixtures, ledges and fixture lenses.

F. Clean and polish all glass, mirrors, and bright metal work. Clean and disinfect all plumbing fixtures.

G. Damp wash all resilient flooring. Waxing of resilient flooring shall be done by the University.

H. Thoroughly sweep all floors and vacuum all carpets. Cleaning of Work provided by University under separate contracts, will not be required except if soiled by construction activities under this Contract.

I. Thoroughly clean and polish all resilient flooring, metal and plastic surfaces; remove labels and protective coatings.

J. Replace filters and clean heating and ventilating equipment used for temporary heat and ventilation.

K. Remove waste material or equipment that has been damaged, touch up and /or repair exposed areas; such repairs to be approved by University's Representative.

L. Should final cleaning be inadequate, as determined by University's Representative, and Contractor fails to correct conditions, University's Representative may order thorough cleaning and deduct the cost from Final Payment.

3.04 FINAL COMPLETION SITE CLEANING

A. Broom clean exterior paved surfaces. Rake clean other surfaces of the grounds.

B. Hose down and scrub where necessary all concrete and walks dirtied as a result of the construction work. Thoroughly remove mortar droppings from all walks and pavements.

C. Remove from the site all tools, equipment, construction waste, unused materials, excess earth, and all debris resulting from the Work.

3.05 DISPOSAL

A. Conduct cleaning and disposal operations in compliance with all applicable codes, ordinances, regulations, including anti-pollution laws.

B. Do not bury or burn rubbish or waste material on University premises.

C. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains.

D. Remove waste materials, debris, and rubbish from site and dispose of off-site.

3.06 INSPECTION

A. Prior to final completion or University use of premises, Contractor and University's Representative shall jointly conduct an inspection of sight-exposed interior and exterior surfaces to verify that entire Work is clean.

END OF SECTION 01740

SECTION 01750
STARTING AND ADJUSTING SYSTEMS

PART I - GENERAL

1.01 SECTION INCLUDES

A. Procedures for Starting Systems

1.02 REALATED SECTIONS

A. Section 01810 – PLUMBING/HVAC TESTING PROCEDURES

B. Section 01820 – DEMONSTRATION AND TRAINING

1.03 SUBMITTAL REQUIREMENTS

A. Submit preliminary schedule listing times and dates for start-up of each item of equipment in sequence in writing, minimum of fourteen (14) calendar days prior to any start-up.

B. Submit manufacturer's representative reports within one (1) week after start-up, listing satisfactory start-up dates.

1.04 PROJECT CONDITIONS

A. Building enclosure shall be complete and weather-tight.

B. Excess packing and shipping bolts shall be removed.

C. Interdependent systems shall have been checked and made operational.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 INSPECTION

A. Verify Project conditions comply with requirements for start-up.

B. Verify status of Work meets requirements for starting equipment and systems.

3.02 PREPARATION

A. Coordination: Coordinate sequence for start-up of various item of equipment.

B. Notification: Notify University in writing, minimum of fourteen (14) calendar days prior to start-up of each item of equipment.

C. Information on hand: Have Contract Documents, shop drawings, product data, and operation and maintenance data at hand during entire start-up process.

D. Verify each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, and other conditions that may cause damage.

E. Verify control systems are fully operational in automatic mode.

F. Manufacturer's Criteria: Verify tests, meter readings and specific electrical characteristics agree with electrical equipment manufacturers' criteria.

G. Bearings: Inspect for cleanliness: clean and remove foreign matter, verify alignment. Take corrective action as required.

H. Drives: Inspect for tension on belt drives, adjustment of vari-pitch sheaves and drives, alignment, proper equipment speed, and cleanliness. Take corrective action as required.

I. Motors: Verify motor amperage agrees with nameplate value. Inspect for conditions that produce excessive current flow and that exist due to equipment malfunction. Take corrective action as required.

3.03 STARTING SYSTEMS

A. Execute start-up under supervision of responsible Contractor personnel.

B. Place equipment in operation in proper sequence in accordance with sequencing schedule.

END OF SECTION 01750

SECTION 01760
PROTECTING INSTALLED CONSTRUCTION

PART I - GENERAL

1.01 SECTION INCLUDES

A. Protection for Products Including University Provided Products, After Installation.

B. Protection of Existing Utilities and Interference.

1.02 RELATED SECTIONS

A. Section 01310 – COORDINATION

B. Section 01510 – TEMPORARY UTILITIES

1.03 EXISTING UTILITIES

A. Known Utilities: Known existing utilities are shown on Contract Drawings in approximate locations. Contractor shall exercise care in avoiding damage to existing facilities. Contractor shall be responsible for repair of same if damaged through Contractor's action. Hand excavation shall be utilized when digging in close proximity to existing utilities. University does not guarantee that all utilities or obstructions are shown, or that locations indicated are accurate.

B. Electrical Equipment: No work shall be performed on energized electrical equipment unless scheduled with University's Representative. University reserves right to specify specific conditions for all work involving energized high voltage electrical equipment and its scheduled modification proposal.

C. Uncovering Facilities: Prior to any earthwork for new construction, Contractor shall uncover all existing piping where crossings, interferences or connections are shown on Contract Drawings, from one (1) foot below proposed construction limit to the existing ground surface. Any variation in actual elevations and indicated elevations shall be brought to University's Representative attention. If Contractor does not expose all existing utilities, Contractor shall not be entitled to additional compensation for work necessary to avoid unknown interferences.

D. Interferences: If interferences occur at locations other than general locations shown on Contract Drawings, and such utilities are damaged before such locations have been established, or create an interference, Contractor shall immediately notify University's Representative and a method for correcting said interference shall be supplied by University. Payment for additional work due to interferences not shown on Contract Drawings shall be in accordance with the General Conditions of the Contract. Cost of repair to damaged utilities shall be deducted from the Contract Sum.

E. Accuracy of Drawings: Drawings showing location of equipment, piping, etc. are diagrammatic and job conditions will not always permit installations in locations shown. When a conflict situation occurs, immediately bring to attention of University's Representative for determination of relocation.

F. Deviations from Drawings: Information shown relative to existing power and signal service is based upon available records and data but shall be regarded as approximate only. Minor deviations found necessary to conform with actual locations and conditions shall be made at no change to the Contract Sum.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

A. Installed Equipment and Materials: Adequately protect all installed equipment and materials until completion and acceptance by University's Representative.

B. Existing Facilities: All existing improvements and facilities shall be protected from damage of any type resulting from operations, equipment or workers of Contractor during the construction process.

C. Subsequent Operations: Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.

D. Traffic Areas: Provide protective coverings at walls, projections, corners, and jambs, sills, and soffits of openings in and adjacent to traffic areas.

E. Elevators: Cover walls and floors of elevator cabs, and jambs of cab doors, when elevators are used by construction personnel.

F. Finished Floors: Protect finished floors and stairs from dirt, wear, and damage:

1. Secure heavy sheet goods or similar protective materials in place, in areas subject to foot traffic.

2. Lay planking or similar rigid materials in place in areas subject to movement of heavy objects and where storage of products will occur.

G. Waterproofed and Roofed Surfaces:

1. Restrict use of surfaces for traffic of any kind, and for storage of products.

2. When an activity is mandatory, obtain recommendations for protection of surfaces from manufacturer. Install protection and remove on completion of activity. Restrict use of adjacent unprotected areas.

H. Lawns and Landscaping: Restrict traffic of any kind across planted lawn and landscaped areas.

I. Adjacent Facilities: Care shall be exercised to prevent damage to adjacent facilities including walks, curbs, and gutters. Planking shall be placed where equipment will pass over such obstructions, and facilities damaged by construction operations shall be removed and replaced at Contractor's expense.

J. Overloading: Contractor shall be responsible for overloading any part or parts of structures beyond the calculated capacities of the design. Placing materials, equipment, tools, machinery or any other item shall be done with care to avoid overloading. No loads shall be placed on floors or roofs before they have attained their permanent and safe strength.

K. Damaged Work: All damaged work shall be replaced, repaired and restored to its original condition without change to the Contract Sum. Repair or replace all damaged work promptly as directed by University's Representative.

L. Damaged Utilities: Where existing utilities are damaged or disrupted on account of any act, omission, neglect or misconduct of the Contractor in the manner or method of executing the Work, or due to non-execution of work, such damage shall be immediately repaired to maintain operation regardless of the time of occurrence.

M. Temporary Construction: Provide temporary construction necessary for protection of building and its parts. Close in buildings as soon as possible to protect from weather and vandalism. Protect existing buildings and controlled temperature areas from damage.

N. Doors and Casework: Protect doors, millwork and mill counters and cases and hardware from damage, including abrading and scratching of finishes. Protect doors and frames and hardware from mechanical damage and damage to anodic coatings.

O. Protective Coatings: Remove protective coatings, etc., as required to leave work in condition for painting and finishing, final cleaning, etc.

P. Exterior Work: Protect all exterior work, including existing asphalt paving and landscaping and buildings.

END OF SECTION 01760

SECTION 01770
CLOSEOUT PROCEDURES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Project Closeout Procedures

B. Contract Closeout Procedures

1.02 RELATED SECTIONS

A. Section 01310 – COORDINATION

B. Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES: Administrative general requirements for submittals.

C. Section 01560 – TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS: Removal of Controls.

D. Section 01740 – CLEANING: Final Cleaning.

E. Section 01780 – CLOSEOUT SUBMITTALS

1.03 FINAL COMPLETION ACTIONS

A. On Application for Payment that coincides with date Substantial Completion is claimed, show 100% completion for portion of Work claimed substantially complete.

B. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

C. Change building locks from construction to permanent keying, as directed by University's Representative.

D. Complete start-up testing of systems, and instruction of University personnel. Remove temporary facilities from site, along with construction tools, mock-ups, and similar elements.

1.04 SUBSTANTIAL COMPLETION REVIEW

A. Preliminary Punch List Review: At Contractor's request, University's Representative will attend preliminary contract closeout review, not later than fourteen (14) calendar days prior to anticipated Substantial Completion review date.

1. Contractor shall provide at preliminary review a typewritten list (Preliminary Punch List) of items to be completed and corrected.

2. List shall identify items by location (e.g., room number and name) and consecutive number (e.g., 307-5 might identify item 5 in room 307, Roof-4 would

identify item 4 on Roof).

3. Segregate architectural, plumbing, HVAC and electrical Work on separate lists.
4. University's Representative and Contractor shall conduct a brief walk-through of Project to review scope and adequacy of list.

B. Contractor's Certification: When determined by Contractor that Work is substantially complete, Contractor shall notify University's Consultant and University's Representative.

1. Submit to University's Representative written certification that:

a. Contract Documents have been reviewed.

b. All portions of Work have been carefully inspected.

c. Work is complete in accordance with Contract Documents.

d. Equipment and systems have been tested, adjusted and balanced and are fully operational.

e. Operation of systems has been demonstrated to University personnel.

f. Work is ready for University's Consultant's Substantial Completion review.

2. Provide minimum seven (7) working days notice to University's Representative prior to desired date for Punch List review.

C. Punch List Review: University's Representative and University's Consultants as may be required, will attend a Contract closeout review and conduct a walk-through of Project to review Contractor's list of items to be completed and corrected (Punch List). Contractor and University's Consultant shall note deficiencies, if any.

1. Contractor shall prepare list and record additional items as University's Representative may determine require completion and correction from walk-through.

a. If deficiencies are noted University's Representative and University's Consultant shall promptly notify Contractor in writing, listing observed deficiencies.

b. If no deficiencies are noted, or when noted deficiencies are removed from the Punch List, University's Representative shall promptly notify Contractor.

2. Contractor shall re-type and distribute list with University's Representative and University's Consultant's additions.

3. Contractor shall remedy deficiencies.

4. Costs of additional visits to site by University's Consultants to review completion and correction of Work shall be deducted from the Contract Sum.

D. Uncorrected Work: Refer to requirements specified in SECTION 01450 – QUALITY CONTROL regarding Contract adjustments for non-conforming work.

E. Cleaning and Clearing: Prior to Substantial Completion review, execute cleaning and clearing site of temporary facilities and controls, as specified in SECTION 01560 – TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS.

F. Testing and Inspection: Prior to Substantial Completion review, complete all tests and inspections and submit applicable reports and approvals.

1. Complete materials tests and inspections.

2. Complete testing, inspection, balancing, sterilization and cleaning of plumbing and HVAC systems.

3. Complete testing and inspection of electrical system.

4. Complete operational tests of equipment.

G. Consultant's Certification: University's Consultant will complete and issue notice of Substantial Completion on American Institute of Architect's Form G704 – CERTIFICATE OF SUBSTANTIAL COMPLETION.

1. Certificate will be completed when University's Consultant determines that list of items to be completed and corrected (Punch List) are sufficiently complete for University to occupy Project for the use intended.

2. University's Consultant will forward copies of completion certification to University and Contractor.

3. IF OSHPD PROJECT: Submit two (2) originals of Contractor's Final OSHPD Verified Reports to University's Representative certifying completion of the Work in conformance with the Contract Documents. Report forms will be supplied by University's Representative.

H. Acceptance of the Work shall not relieve Contractor of any responsibility for defects that develop during the guarantee period and are caused by Contractor's failure to perform work in accordance with requirements of Contract Documents.

1.05 FINAL COMPLETION SUBMITALS

A. Evidence of Compliance with Requirements of Governing Authorities:

1. Certificate of Occupancy.

2. Compliance Notification: In conformance with State of California Energy Conservation Standards, Contractor shall, at time of request for final inspection, issue to University's Representative notarized certificate stating completed work appears, in every material respect, to be in compliance with approved Contract Documents. Provide only if specifically required.

B. Final Specifications Submittals: Submit to University's Consultant all documents and

products required by Specifications to be submitted, including the Following:

1. Project Record Drawings: Submit under provision of SECTION 01780 – CLOSEOUT SUBMITTALS.
2. Operation and Maintenance Data: Submit under provision of SECTION 01780 – CLOSEOUT SUBMITTALS.
3. Guarantees, Warranties, Bonds, Service and Maintenance Contracts: Submit under provision of SECTION 01780 – CLOSEOUT SUBMITTALS.
4. Spare Parts and Maintenance Materials: Submit under provision of SECTION 01780 – CLOSEOUT SUBMITTALS.
5. Keys and Keying Schedule: At completion of Project, all keys shall be returned to University's Representative. Failure to return a key will obligate Contractor for all costs of re-keying facility.

C. Certificates of Compliance and test Report Submittals: Submit to University's Representative certificates and reports as specified and required, including the following:

1. Sterilization of water system
2. Sanitary sewer system tests
3. Gas system tests
4. Lighting, power and signal system tests
5. HVAC equipment and air balance tests

D. Lien and Bonding Company Releases: Submit to University's Representative, copies of all conditional and unconditional general/subcontractor lien releases showing satisfaction of encumbrances and release of liens of Project by completion and submission of Exhibits of the General Conditions of the Contract, as applicable. Signatures shall be notarized.

E. Subcontractor's List: Submit to University's Representative five (5) copies of updated Subcontractor and Materials Supplier List.

F. Warranty Documents: Prepare and submit to University's Representative all warranties and bonds as specified in SECTION 01780 – CLOSEOUT SUBMITTALS.

1.06 STATEMENT OF ADJUSTMENT OF ACCOUNTS

A. Submit final statement reflecting adjustments to Contract Sum indicating:

1. Original Contract Sum
2. Previous Change Orders
3. Changes under allowances

4. Changes under unit prices

5. Deductions for uncorrected work

6. Penalties

7. Deductions for liquidated damages

8. Deductions for re-inspection fees

9. Other adjustments to Contract Sum

10. Total Contract Sum as adjusted

11. Previous payments

12. Sum remaining due

B. University will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

1.07 APPLICATION FOR FINAL PAYMENT

A. Final Payment: After completion of all items listed for completion and correction, after submission of all documents and products, and after final cleaning, submit final Application for Payment, identifying total adjusted Contract Sum, previous payments and sum remaining due. Refer to SECTION 01290 – MEASUREMENT AND PAYMENT and the General Conditions of the Contract.

B. Submit Record Documents to University's Representative with final Application for Payment.

1.08 PROJECT AS-BUILT DOCUMENTS

A. Maintain on site, one (1) set of the following as-built documents and record actual construction and all revisions to the Work:

1. Contract Drawings

2. Contract, with Specifications, Addenda, Change Orders, and modifications to the Contract.

3. Approved shop drawings, product data and samples.

4. Store As-built Documents separate from documents used for construction.

B. Drawings: Record information continuously as Work progresses. Do not conceal Work permanently until required information is recorded.

C. Specifications: In PART 2 – PRODUCTS in each Section, legibly mark and record actual Products installed or used, including:

1. Manufacturer, trade name, product model or catalog number and supplier of

each product or item of equipment installed.

2. Product substitutions or alterations utilized.

3. Changes made by Addenda, Modification, Change Order, Field Order, and clarifications or interpretations made by Letter of Instruction.

D. As-built Drawings: Keep up to date during entire progress of the Work and make available to University at any time. Recording of the As-built condition shall be carefully and neatly done by a competent drafter, familiar with the trade involved, using methods acceptable to University's Representative. Legibly and to scale, mark a reproducible set of Contract Drawings to record all changes in size, location, and other features of installation in the actual construction, including:

1. Measured depths of foundations and footings encountered, measured in relationship to finish First Floor datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent ground improvements.

   a. Locations of work buried under or outside building footprint, such as plumbing and electrical lines and conduits.

   b. Record all locations of underground work, points of connection, valve locations, manholes, catch basins, capped stub-outs, invert elevations, etc.

3. Field changes of dimension and detail.

   a. Locations of all significant work concealed inside building, the locations of which are changed by Contractor from those shown on Contract Drawings.

   b. Locations of all items, not necessarily concealed, which vary from locations shown on the Contract Drawings.

   c. Record sufficient information so that concealed work may be located with reasonable ease and accuracy.

4. Actual numbering of each electrical circuit.

5. Details not on original Contract Drawings.

6. Additional drawings as required to properly describe changes.

7. Reproducible set of Contract Drawings will be provided to Contractor by University's Representative.

E. Shop Drawings: Provide reproducible Record copy, made from final Shop Drawings, updated to show actual conditions for work specified in individual Sections.

F. Large Scale Drawings: Divisions 15 and 16 of the Contract Specifications require preparation of large-scale, detailed layout drawings for the work of those Divisions.

These layout drawings are not shop drawings as defined by the General Conditions of the Contract but together with Shop Drawings or layout drawings of all other affected sections, are used to check, coordinate and integrate the Work of the Various Sections. Maintain and submit these layout drawings as part of the Project Record Drawings.

G. Acceptance: All Record Documents are subject to review and acceptance by University.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01770

SECTION 01780
CLOSEOUT SUBMITTALS

PART I - GENERAL

1.01 SECTION INCLUDES

A. Equipment Data

B. Operation and Maintenance Instructions

C. Instruction of UCDMC personnel

D. Schedule of Submittals

E. Spare Parts and Maintenance Materials

F. Guarantees, Warranties, Bonds, Service and Maintenance Contracts

G. Project As-built Documents

1.02 RELATED SECTIONS

A. Section 01310 – COORDINATION

B. Section 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

C. Administrative general requirements for submittals.

D. Section 01450 – QUALITY CONTROL: Manufacturer's tests and inspections as a condition of warranty.

E. Section 01610 – PRODUCT REQUIREMENTS

F. Section 01770 – CLOSEOUT PROCEDURES

1.03 EQUIPMENT DATA AND OPERATION AND MAINTENANCE INSTRUCTIONS

A. Preparation of data shall be done by persons:

1. Trained and experienced in maintenance and operation of described products.

2. Familiar with requirements of this Section.

3. Skilled in technical writing to extent required for communication of essential data.

4. Skilled as drafters competent to prepare required drawings

B. Equipment Manual Format: Prepare in the form of a data and instructional manual.

1. Binders: Commercial quality, 8-½" x 11", three-ring binders with hardback, cleanable, plastic covers; 1" minimum, 1-½" maximum ring size. Provide separate binders, submitted separately for each discipline, i.e. Site Work, Doors and Windows, Conveying Systems, Mechanical, Plumbing, Electrical, etc. Correlate data into related consistent groupings. Provide two (2) copies of data in Adobe PDF format on CD as well.

2. Cover: Identify each binder with typed or printed title "EQUIPMENT DATA AND OPERATION AND MAINTENANCE INSTRUCTIONS".

   a. List Project title and Project number and particular building as applicable.

   b. Identify contents.

3. Organization: Arrange content by systems under Section numbers and sequence in accordance with the Project Specifications Table of Contents. Provide tabbed flyleaf for each separate product and system with typed description of product and major component parts of equipment.

4. Text: Manufacturer's printed data or typewritten data on 20 pound paper.

5. Drawings: Provide with reinforced punched binder tabs. Bind in with text; fold larger drawings to size of text page. Do not hole punch drawings. Insert drawings in clear plastic holder.

C. Table of Contents, Each Volume: Provide title of Project, Project number, with names, addresses, and telephone numbers of University's Representative, as applicable, and Contractor, including name of contact person. Provide schedule of products and systems, indexed to content of the volume.

1. For each Product or System: List names addresses and telephone numbers of subcontractor, original supplier and manufacturer, as applicable, including name of contact person. Include name and address of local source of supplies and replacement parts.

2. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete information not applicable.

3. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

4. Additional Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in SECTION 01450 – QUALITY CONTROL.

5. Warranties and Bonds: Bind in copy of each.

D. Manual for Materials and Finishes:

1. Building Products, applied Materials, and Finishes: Include product data, with

catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured Products.

2. Instruction for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

3. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

4. Additional Requirements: As specified in individual Specification Sections.

5. Table of Contents: Provide a listing in Table of Contents for design data, with tabbed binder divider page and space for insertion of data.

E. Manual For Equipment And Systems

1. Record Instructions: Forward to University's Representative, upon completion of work, and before work will be considered for acceptance, complete bound sets of instructions of entire plant and component parts, including manufacturer's certificates, warranty slips, parts lists, descriptive brochures, and maintenance and operating instructions, in quantities set forth in various Divisions. Print information on heavy white paper, tab properly and identify for each reference. Submit drafts for review before preparing final sets, six (6) copies required.

2. O & M Instructions: Provide and install, where directed, printed sheet under clear plastic cover, giving concise operating and maintenance instruction for equipment.

3. Each Item of Equipment and Each System: Inclusive description of unit or system, Model Number, Serial Number, and component parts. Identify function, normal characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts. Best to include all information provided in final approved equipment submittal. Design drawing data may not reflect what was actually provided.

4. Panelboard Circuit Directories: Provide electrical service characteristics, controls and communications.

5. Wiring Diagrams: Include color-coded wiring diagrams as installed.

6. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.

7. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and re-assembly instructions; and alignment, adjusting, balancing, and checking instructions. Provide servicing and lubrication schedules, and list of lubricants required.

8. Instructions: Include manufacturer's printed operation and maintenance instructions. Include sequence of operation by controls manufacturer.

9. Parts Data: Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

10. Control Data: Provide as installed control diagrams by controls manufacturer.

11. Piping Data: Provide Contractor's coordination drawings, with color piping diagrams as installed. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

12. Design Data: Provide a listing in table of Contents for design data, with tabbed binder divider page and space for insertion of data.

13. Reports: Include test and balancing reports as specified in SECTION 01810 – TESTING, ADJUSTING AND BALANCING PROCEDURES.

14. Additional Requirements: As specified in individual Specification Sections.

F. Instruction of University's Personnel: Instruct University designated personnel to their full and complete understanding, procedures necessary to operate and maintain equipment and systems on continuing basis. Provide training of staff.

1. Schedule: Before final inspection, instruct University designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, perform instructions for other seasons within six (6) months of completion.

2. Basis of Information: Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

3. Instructional Material: Prepare and insert additional data in the manual when need for such data becomes apparent during instruction.

G. Equipment Data and Operation and Maintenance Instructions Submittals:

1. Submittals: Comply with administrative requirements specified in SECTION 01330 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

2. Preliminary Draft Submittal: Submit two (2) copies of preliminary draft or proposed formats and outlines of contents no later than ten (10) days of equipment submittals approval. University's Representative will review draft and return one (1) copy with comments.

3. Advance Submittals: For equipment, or component parts of equipment to be put into service during construction and operated by University, submit documents within ten (10) calendar days after equipment approval.

4. Final Submittal: After completion of instruction of University operation and maintenance personnel and final inspection, revise content of documents to include additional information deemed necessary from instruction experience of University's personnel and any changes made during construction. Submit three (3) copies of completed volumes in final form a minimum of ten (10) calendar days after final inspection.

1.04 SPARE PARTS AND MAINTENANCE MATERIALS

A. Products Required: Where called for in Contract Specifications, deliver to University's Representative, materials, etc., for use in maintenance work. Provide list of materials delivered to University's Representative, indicating date and acceptance by University's Representative.

1. Provide quantities of products, spare parts, maintenance tools, and maintenance materials specified in individual Sections to be provided to University's Representative, in addition to that required for completion of the Work.

2. Products supplied shall be identical to those installed in the Work. Include quantities in original purchase from supplier to avoid variations in manufacture.

B. Storage, maintenance: Store products with products to be installed in the Work, as specified in SECTION 01610 – PRODUCT REQUIREMENTS: Product Storage and Protection.

C. Delivery to site: Prior to final payment, deliver and unload spare products to project site. Coordinate with University's Representative and obtain receipt. University will handle and store products.

1.05 WARRANTIES AND GUARANTEES

A. Warranties and Guarantees, general: Guarantees from subcontractors shall not limit Contractor's warranties and guarantees. Whenever possible, Contractor shall cause warranties of subcontractors to be made directly to University. If such warranties are made to Contractor, Contractor shall assign such warranties to University prior to final payment. When equipment and products, or components thereof, bear a manufacturer's warranty or guarantee that extends the time period of Contractor's warranty or guarantee, so state in the warranty or guarantee.

1. Standard Product Warranties: Preprinted written warranties published by individual manufacturers for particular products and specifically endorsed by manufacturer to University.

2. Special Warranties: Written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for University.

3. Provisions for Special Warranties: Refer to General Conditions of the Contract for terms of Contractor's special warranty of workmanship and materials.

4. Specific Warranty Requirements: requirements are included in the individual Sections of Division 2 through 16 of the Contract Specifications, including content

and limitations.

5. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors requirement to countersign special warranties with Contractor.

6. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.

7. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to original warranty with an equitable adjustment for depreciation.

8. Replacement Cost: On determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. Contractor shall be responsible for cost of replacing or rebuilding defective work regardless of whether University has benefited from use of the work through part of its useful service life.

9. UCDMC Recourse: Written warranties made to University are in addition to implied warranties, and shall not limit duties, obligations, right and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which University can enforce such other duties, obligations, rights, or remedies.

10. Rejection of Warranties: University reserves right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

11. University reserves right to refuse to accept work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.

12. When designated portion of Work is completed and occupied or used by separate agreement with Contractor during the construction period, submit properly executed warranties to University's Representative within fourteen (14) calendar days of completion of that designated portion of the Work.

13. Submit written guarantees, in the form contained at end of this Section.

B. Form of Warranty or Guarantee: All written warranties and guarantees, excepting manufacturers' standard printed warranties and guarantees, shall be submitted on Contractor's, subcontractor's, material supplier's, or manufacturer's own letterhead, addressed to University. Warranties and guarantees shall be submitted in duplicate, and complying with the form letter following. Warranty and guarantee letters shall be signed by all responsible parties and by Contractor in every case, with modifications only as approved by University to suit the conditions pertaining to the warranty or guarantee.

C. Submission requirements:

1. Contractor shall collect and assemble required warranties, guarantees, bonds, and service and maintenance contracts. Provide two (2) original signed copies of each.

2. Table of Contents: Neatly typed and in orderly sequence, provide complete information for each items as follows:

a. Product or Work item.

b. Product or work suppliers firm name, address, telephone number and name of principal.

c. Scope of guarantee, bond, service or maintenance agreement.

d. Date of beginning of guarantee, bond, service or maintenance contract.

e. Duration of guarantee, bond, service or maintenance contract.

f. Contractor's name, address, telephone number and name of principal.

g. Provide information for University personnel:

1) Proper procedure in case of failure.

2) Circumstances that might affect validity of guarantee or bond.

D. Form of Submittal: Prepare in duplicate packets.

1. Size: 8-½" x 11" sheets punched for 3-ring binder. Fold larger sheets to fit into binders.

2. Identify each packet on cover with typed or printed title, "GUARANTEE AND BONDS", and the following:

a. Title of Project

b. Project Number

c. Name of Contractor

3. Binders: Commercial quality, 3-ring, with durable and cleanable plastic covers.

E. Time of Submittals: Submit within ten (10) calendar days of Substantial Completion, prior to request for final payment. When work activity is delayed materially beyond date of Substantial Completion, provide updated submittal within ten (10) calendar days after Final Completion, listing date of Final Completion as the start of the Guarantee period.

F. Submittals Required: Submit guarantees, bonds, service or maintenance contracts specified in individual Sections of the Specifications.

1. Contractor shall collect and assemble all written warranties and guarantees into a binder.

2. Submit all required Warranties and Guarantees on letterhead of Contractor.

1.06 PROJECT RECORD DOCUMENTS

A. Maintenance of Record Documents and Samples:

1. Provide complete set of Record Drawings and Specifications, showing every change from original Contract set, including all Addenda, Change Order, job decisions, etc. Prints for this purpose may be obtained from University's Representative.

2. When work is complete and prior to final payment, submit one (1) complete set of all record documents, marked to show any deviation from the original Contract set. These documents are to be an accurate description of all work as-built.

3. Prior to Application for final payment, a set of drawings shall be obtained from University's Representative and all changes, as noted on the Record Drawings shall be incorporated thereon. The set of drawings, together with one (1) copy therefrom, shall be delivered to University's Representative.

4. Label and file record Documents and samples in accordance with Section number listings in the Project Specifications Table of Contents. Label each document "PROJECT AS-BUILT" in neat, large, printed letters. Each document and sample shall include the University's Project title and Project number for reference purposes.

5. Maintain Record Documents in a clean dry and legible condition. Do not use Record Documents for construction purposes. Keep record Documents and samples available for inspection by University.

6. Record Schedule: Contractor shall provide Record Schedule of construction activities. Schedule shall be in same format as specified in SECTION 01320 – CONTRACT SCHEDULES.

B. Submittals: At Contract closeout, deliver Record Documents and samples as required by SECTION 01770 – CLOSEOUT PROCEDURES.

1. Transmit with cover letter in duplicate, listing:

a. Date.

b. Project title and Project number.

c. Contractor's name, address and telephone number.

d. Number and title of each Record Document.

e. Signature of Contractor or authorized representative.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION – Not Applicable to this Section

END OF SECTION 01780

GUARANTEE

Project Title: _____

Project Location: _____

Project Number: _____ DATE: _____

GUARANTEE FOR _____ (the "Contract"),
(Specification SECTION and Contract No.)
between The Regents of the University of California ("University") and

_____ ("Contractor").
(Name of Contractor or Subcontractor)

hereby guarantees to University that the portion of the Work described as follows:

_____

_____

_____

_____

which it has provided for the above referenced Project, is of good quality; free from defects; free from any liens, claims, and security interests; and has been completed in accordance with Specification SECTION _____ and the other requirements of the Contract.

The undersigned further agrees that, if at any time within _____ months after the date of the guarantee the undersigned receives notice from University that the aforesaid portion of the Work is unsatisfactory, faulty, deficient, incomplete, or not in conformance with the requirements of the Contract, the undersigned will, within 10 days after receipt of such notice, correct, repair, or replace such portion of the Work, together with any other parts of the Work and any other property which is damaged or destroyed as a result of such defective portion of the Work or the correction, repair, or replacement thereof; and that it shall diligently and continuously prosecute such correction, repair, or replacement to completion.

In the event the undersigned fails to commence such correction, repair, or replacement within 10 days after such notice, or to diligently and continuously prosecute the same to completion, the undersigned, collectively and separately, do hereby authorize University to undertake such correction, repair, or replacement at the expense of the undersigned; and Contractor will pay to University promptly upon demand all costs and expenses incurred by University in connection therewith.

SUBCONTRACTOR

Signed: _____ Title: _____

Typed Name: _____

Name of Firm: _____

Contractor License Classification & Number: _____

Address: _____

Telephone Number: _____

CONTRACTOR

Signed: _____ Title: _____

Typed Name: _____

Name of Firm: _____

Contractor License Classification & Number: _____

Address: _____

Telephone Number: _____

REPORT OF WORK REQUIRED BY WARRANTY

To:	(PM's NAME), University Representative
From:	

On the date noted, the University identified the following work required under warranty:

Prepared by: _____ _____ _____
(Print Name) Signature Date

In accordance with the terms and conditions of the Contract, the Contractor has agreed that, if at any time within _____ months after the date of the guarantee the Contractor receives notice from University that the aforesaid portion of the Work is unsatisfactory, faulty, deficient, incomplete, or not in conformance with the requirements of the Contract, the Contractor will, within 10 days after receipt of such notice, correct, repair, or replace such portion of the Work, together with any other parts of the Work and any other property which is damaged or destroyed as a result of such defective portion of the Work or the correction, repair, or replacement thereof; and that it shall diligently and continuously prosecute such correction, repair, or replacement to completion.

Prompt notification to be provided by the University Representative to the appropriate Contractor.

SECTION 01810
PLUMBING/HVAC TESTING PROCEDURES

PART I - GENERAL

1.01 SECTION INCLUDES

A. Procedures for Adjusting and Balancing Systems

1.02 RELATED SECTIONS

A. Section 01450 – QUALITY CONTROL: Testing organization services.

B. Section 01750 – STARTING, AND ADJUSTING SYSTEMS: Starting and adjusting equipment prior to commissioning.

C. Section 15890 – DUCTWORK: Testing.

D. Section 15990 – PLUMBING/HVAC FINAL TESTING, ADJUSTING & BALANCE

E. General Conditions of the Contract: Inspections, tests and approvals required by governing authorities.

1.03 SUBMITTAL REQUIREMENTS

A. Service Provider: Prior to start of work, submit name or organization proposed to perform services. Designate managerial responsibilities for coordination of all testing activities.

B. Qualifications: Submit documentation to confirm organization qualifications.

C. Report Forms: Submit three (3) preliminary specimen copies of each report form proposed for use.

D. Final Report Submission: Fourteen (14) calendar days prior to completion submit three (3) copies of final reports. Submit reports of testing that are postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor’s control, promptly after execution of those services.

1.04 GENERAL PROCEDURES

A. Procedural Compliance: Comply with procedural standards of certifying association under whose standard services will be performed.

B. Notification: Notify University's Representative, in writing, minimum of fourteen (14) calendar days prior to beginning service operation.

1. Record Keeping: Accurately record date for each step.

2. Report to University’s Representative any defects or deficiencies noted during performances of services.

1.05 FINAL REPORTS

A. Organization having managerial responsibility shall make reports.

B. Each Form shall bear signature of recorder, and that of supervisor of reporting organization.

C. Identify each instrument used and latest date of calibration of each.

1.06 CONTRACTOR RESPONSIBILITIES

A. Prepare each system for testing.

B. Coordinate with testing organization; provide access to equipment and systems. Operate systems at designated times, and under conditions required for proper testing.

C. Notify testing organization fourteen (14) calendar days prior to time system will be ready for testing.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 PREPARATION

A. Provide instruments required for testing operations. Make instruments available to University to facilitate spot checks during testing. Retain possession of instruments and remove at completion of services.

B. Verify installation of system to be tested is complete and in continuous operation.

C. Verify ambient conditions and related facilities are in full operation.

3.02 SCHEDULE OF SYSTEMS REQUIRING TESTING SERVICES

A. Test piping at completion of roughing in, in accordance with the following schedule and show no loss in pressure or visible leaks after minimum duration under water pressure as set forth:

TEST SCHEDULE SYSTEM TESTED	TEST PRESSURE PSIG	DURATION
All Soil, Waste Drain and Vent Piping, and All Storm Drains	Test with water to top of highest vent, minimum of 10'.	2 Hours
All Underground Soil, Waste Drain, Vent Piping and Storm Drain Piping	5 psig - *Air	15 Minutes
Heating and Chilled Water Distribution System Connections	225 psig	4 Hours
Domestic Hot & Cold Water Piping	150 psig at rough in	2 Hours
Low Pressure Steam And Condensate	150 psig	2 Hours
High Pressure Steam	50% above Design Operation Pressure	4 Hours
Fire Sprinkler Piping Water	200 psig	2 Hours
Ductwork	See Section 15890 for testing requirements	

The air test shall be made by attaching an air compressor testing apparatus to any suitable opening, and after closing all other inlets and outlets to the system, forcing air into the system until there is a uniform gage pressure.

B. Testing equipment, materials, and labor shall be furnished by Contractor.

C. Repair piping systems sections which fail required piping test, by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.

END OF SECTION 01810

SECTION 01820
DEMONSTRATION AND TRAINING

PART I - GENERAL

1.01 SECTION INCLUDES

A. Procedures for Demonstration of Equipment Operation and Instruction of University Personnel.

1.02 RELATED SECTIONS

A. Section 01780 – CLOSEOUT SUBMITTALS

B. Section 01810 – PLUMBING/HVAC TESTING PROCEDURES

1.03 SUBMITTALS

A. Submit preliminary schedule for University Representative approval, listing times and dates for demonstration of each item of equipment and each system, in writing, minimum of fourteen (14) calendar day prior to activities.

B. Submit reports within (1) week after completion of demonstrations, that demonstrations and instructions have been satisfactorily completed. Give time and date of each demonstration, and hours devoted to demonstration with a list of persons present.

1.04 QUALITY ASSURANCE

A. Equipment installed under Contract shall operate quietly and free of vibration. Adjust, repair, balance properly, or replace equipment producing objectionable noise or vibration in occupied areas of building. Provide additional brackets, bracing, etc., to prevent such noise or vibration. Systems shall operate without humming, surging or rapid cycling.

B. University will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon time.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 PREPARATION

A. Verify equipment has been inspected and put into operation.

B. Have copies of completed operation and maintenance manual at hand for use in demonstration instructions.

3.02 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of equipment and systems to University two (2) weeks prior to date of final inspection. For equipment requiring seasonal operation, perform instructions for other seasons within six (6) months of completion.

B. Use operation and maintenance manuals as basis of instruction. Review contents of

manual with personnel in detail to explain all aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

END OF SECTION 01820

SECTION 02070
SELECTIVE DEMOLITION

PART I - GENERAL

1.01 DESCRIPTION

A. Scope: Work under this Section shall include:

1. Provide selective demolition as indicated on the drawings and as required by new construction.

2. Asbestos and hazardous materials demolition or removal work is not part of this contract.

1.02 SUBMITTALS

A. Submit for approval selective demolition schedule, including schedule and methods for capping and continuing utility service.

1.03 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Use experienced workmen.

1.04 PROJECT CONDITIONS

A. Coordinate all demolition work with Owner, with special attention to noise, dust, debris removal, or other disturbances.

B. Schedule utility shutdowns at least 48 hours in advance. Maintain fire protection services during demolition operations.

C. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose off site.

PART II - PRODUCTS – Not Applicable to this Section

PART III - EXECUTION

3.01 DEMOLITION

A. Do not damage building elements and improvements indicated to remain.

B. All items not listed for “salvage and return to Owner” remain property of Owner, and shall be collected for reuse or recycling as directed by the Owner’s Representative. Contractor shall not remove any items of salvage or recycle value from the project site without the express permission of the Owner’s Representative.

C. Do not close or obstruct streets, walkways, driveways or other occupied or used spaces or facilities without the written permission of the Owner and authorities having jurisdiction. Do not interrupt utilities serving occupied or used facilities without the written permission

of the Owner and authorities having jurisdiction. If necessary, provide temporary utilities.

D. Cease operations if public safety or remaining structures are endangered. Perform temporary corrective measures until operations can be continued properly.

3.02 SCHEDULE

A. Items to remain in place and protected for reuse: See section 01390 – Green Building Policy Implementation.

B. Items to be salvaged for reinstallation in this project:

C. Items to be salvaged and delivered to Owner:

1. Doors and hardware

2. Toilet accessories

3. Light fixtures

4. Plumbing fixtures

D. Utilities requiring interruption, capping, or removal.

END OF SECTION 02070

SECTION 13090
RADIATION PROTECTION

PART I – GENERAL

1.01 SECTION INCLUDES

A. Sheet lead applied to gypsum board.

B. Lead lined doors.

C. Lead lining to door and glazed frames.

D. Leaded glass.

1.02 RELATED SECTIONS

A. Division 8, Section 08100 – HOLLOW METAL DOORS AND FRAMES

B. Division 8, Section 08210 – WOOD DOORS

C. Division 8, Section 08710 – FINISH HARDWARE

D. Division 8, Section 08810 – GLASS AND GLAZING

E. Division 8, Section 09250 – GYPSUM BOARD

F. Section 09900 – PAINTING

1.03 REFERENCES

A. ASTM B 749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.

B. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.

C. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board.

D. NCRP Report 49 - Structural Shielding Design and Evaluation for Medical Uses of X Rays and Gamma Rays of Energies up to 10 MeV; National Council on Radiation Protection and Measurements.

E. NCRP Report 147 – Structural Shielding Design for Medical X-Ray Imaging Facilities.

F. Comply with requirements of CCR Title 24 where standards and criteria exceed NCRP Reports No. 49 and No. 147.

1.04 DEFINITION

A. Radiation Protection: Contain, without leakage, emitted radiation from radiology equipment scheduled for installation (see drawings), measured at wall surface with a measuring device simulating the emitting equipment.

B. Protection: Walls, fixed control screens, including wall interruptions for doors, and glazing.

1.05 SUBMITTALS

A. See Section 01330 - Shop Drawing, Product Data and Samples, for submittal procedures.

B. Shop Drawings: Indicate layout, details, dimensions, interface with adjoining work.

C. Product Data: Provide data on leaded glass, leaded plastic, and sheet lead.

D. Manufacturer's Certificate: Certify that leaded glazing capabilities meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with NCRP Reports No. 49 and No. 147.

B. Maintain one copy of each document on site.

C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

D. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years documented experience.

E. Single Source Responsibility: Provide radiation protection materials, equipment and accessories produced as standard products from a single manufacturer, regularly engaged in the protection of x-ray shielding material.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Lead-Lined-Door Frames: Comply with applicable requirements of Section 08100 – Hollow Metal Door and Frames. Protect frames during transit, delivery, storage and handling to prevent damage.
   1. Deliver frames crated to provide protection during transit and job storage.
   2. Inspect frames for damage upon delivery. Repair minor damage, provided repaired finish is equal in all respects to new work and is acceptable to Architect; otherwise, remove and replace damaged frames.
   3. Store frames under cover. Place on wood supports at least 4inches high, or on floors in manner that will prevent rust and damage.

B. Lead-Lined Wood Doors: Comply with applicable requirements of Section 08210 - Wood Doors. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration.
   1. Comply with manufacturer's instructions and National Wood Manufacturers Association (NWMA) recommendations on care and finishing of wood doors.
   2. Packaged prefinished doors individually at factory prior to shipping, using manufacturer's standard plastic or paper wrapping.

C. Lead-Lined Gypsum Board: Comply with applicable requirements of Section 09250 - Gypsum Board Assemblies. Protect gypsum board during transit, delivery, storage and handling to prevent damage.
   1. Deliver materials in original packages, containers or bundles bearing brand name and

identification of manufacturer or supplier.
2. Store materials inside under cover. Keep materials dry, protected from weather, surface contamination and damage from construction traffic and other causes.
3. Handle to prevent damage to edges, ends or surfaces.

D. Lead Glass: Clear, Lead-bearing for x-ray radiation protection, thickness to specified lead equivalent according to shielding report.

E. See Section 01610 – Product Requirements

1.08 REGULATORY REQUIREMENTS

A. Conform to applicable health and occupation code for integrity of radiation protection and continuity of protected construction.

1.09 PRE-INSTALLATION MEETING

A. Convene one week prior to commencing work of this section.

1.10 PROJECT CONDITIONS

A. Coordinate the work with construction of partitions, placement of frames.

PART II – PRODUCTS

2.01 X-RAY RADIATION PROTECTION MANUFACTURERS

A. Manufacturers:
1. A & L Shielding Inc. or equal
2. Ameray Corporation.
3. Atomic Industries, Inc.
4. Radiation Protection Products
5. Ray-Bar Engineering Corp.
6. Or equal.

B. Sheet Lead and Associated Materials:
1. Sheet Lead: ASTM B 749, and Federal Specification QQ-L-201F, Grade C, lead (lbs/sq ft) as indicated on drawings.
2. Gypsum Board: ASTM C 1396/C 1396M, paper/paper faced, square edges and square ends; 48” x 96” size, ⅝” thick.
3. Fire Rated Gypsum Board: Min. ⅝” thick, where required as part of a rated assembly laminate lead to back of gypsum board approved as part of specified UL rated assembly.
4. Screws/Nails: Standard steel screws or nails for wood or steel stud application.

C. Fabrication:
1. Lead Laminated Gypsum Board: Fabricate with a single thickness, unpierced, monolithic sheet of lead bonded to one surface of board, extend lead sheet 1” beyond one side and one end of board.
2. Lead Lined Wood Doors: Specified in Section 08210 - Wood Doors
3. Lead Lined Door and Glazed Frames: Specified in Section 08100 – Hollow Metal Doors and Frames
4. Hardware: Specified in Section 08710.

D. Components and Accessories:
   1. Leaded Glass: ASTM C 1048 fully tempered, clear, lead content equivalent to protection requirements of adjacent lead sheet protection.
   2. Control Windows: Prefabricated lead frame, thickness to suit wall; included with lead glass glazing strips, anchors and fasteners. Construct frame to overlap lead plastic perimeter not less than ⅜" and provide removable glass stops.
   3. View Window Frames and Clear lead plastic.
   4. Window Glazing Screws: Steel.
   5. Radiation Protection Plaque: Wall mounted, designating lead thickness in wall, degree of continuity, exceptions.
   6. All components and accessories to meet manufacturer's standards maintaining equivalent system protection.

E. Finishes:
   1. Field painted surfaces: As specified in Section 09900 - Painting.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify that substrate construction is ready to receive work and opening dimensions are as indicated on shop drawings.

B. Request inspection by Health Physicist or Medical Physicist for lead patches or penetrations prior to installation of gypsum board.

3.02 INSTALLATION - SHEET LEAD

A. Lap edges and ends of lead sheets 1". Apply lead patches, same thickness as lead sheet, over penetrations (except screw heads), to achieve continuity of protection.

B. Extend lead protection from finished floor to a height of 84".

C. Comply with OSHA requirements for lead handling, cutting, installing, and disposal. Use only non-powered tools to cut gypboard. Other requirements include use of gloves when handling lead, eye protection, floor protection, and proper disposal of lead and lead shavings.

3.03 INSTALLATION - COMPONENTS AND ACCESSORIES

A. Install components and accessories in accordance with manufacturer's instructions as shown, and as specified.

B. Install lead lined frames as specified in the section where the frames are specified and in accordance with the lead lining fabricator's instructions.

C. Install lead lined doors as specified in the section where the doors are specified; coordinate installation of door hardware.

D. Install lead-lined gypsum board over support with lead face against supports, with steel fasteners spaced at 4" on center. Lap edges and ends of lead 1". Apply lead patches with same thickness as lead sheet over penetrations, except screws.

1. Predrill gypsum board or drill pilot holes for fasteners to prevent deformation of fasteners and distortion of gypsum board.
2. Apply gypsum board with long edged parallel to supports and lead lining facing supports. Provide blocking at end joints. Install lead strips 1-½" wide and same thickness as gypsum board lead lining to face of supports and blocking where joints occur. Secure lead strips to blocking and supports with fasteners along outer edge.
3. Fasten gypsum board to supports with standard steel fasteners spaced as recommended by board manufacturer. Drive fastener heads slightly below exposed surface.
4. Comply with all provisions of Section 09250 - Gypsum Board, for joint treatment and preparation for finishing.

E. Install leaded glass in prepared frames in accordance with "wet method" described in Section 08810 – Glass and Glazing.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01455 - Inspection of Work.

B. Inspection and testing will be performed by a Health Physicist or Medical Physicist of the University Office of Environmental Health and Safety (EH&S) in coordination with regulatory agency requirements, to ascertain conformance of installation regarding radiation passage for leakage.

C. Repair or replace defective work including other work affected thereby and conduct additional testing to satisfaction of health physicist, at no additional expense to Owner.

3.05 PROTECTION

A. See Section 01610 – Product Requirements.

3.06 CLEANING

A. See Section 01740 - Cleaning.

END OF SECTION 13090

SECTION 13280
ASBESTOS ABATEMENT AND IN-PLACE MANAGEMENT

PART I - GENERAL

1.01 DESCRIPTION

A. The safe abatement and in-place management of asbestos containing materials (ACM) and presumed asbestos containing materials (PACM) for the project is the primary purpose of this specification. The contract provisions guarantee all university community members are protected from exposure as a result of work being performed by the contractor.

1.02 SCOPE OF WORK

A. Work Included – General

1. The Contractor shall furnish all labor, material, equipment, services, testing, employee training, fit test, medical exams, transportation, insurance, and daily expense to meet the requirements of this specification.

2. The Contractor shall obtain all required permits, licenses, registrations, and notifications, and regulatory approvals required by law and UC Davis policy.

3. All asbestos abatement activities associated with this contract shall be performed between the hours of ****7:00 AM to 5:00 PM**** **(**EDIT HOURS**)** unless coordinated with the University's Representative. (****THIS MUST MATCH 3.05A**)**

4. The Contractor shall guard against unnecessary disturbances or damage to sensitive finishes on buildings, building systems, and equipment.

5. Any job with more than one class designation shall be performed at the higher standard. For example, a contract let for class II and class III work will be performed at the class II level.

B. Work Included – Specific

1. The Contractor is responsible for identifying the exact locations and number of work areas listed below by referring to University supplied project drawings and by working with the University's Representative.

2. Asbestos Abatement

a. See RFP Documents-Front End

3. In-Place Management of Asbestos

a. See RFP Documents-Front End

1.03 SITE CHARACTERIZATION

A. A thorough site surveillance was conducted by the University or the University's Representative's Consultant (EPA trained and DOSH certified). Materials found or presumed to contain asbestos at this job site are listed in the table below:

Asbestos Containing Material(s)				
Building System Description	*RACM Yes or No*	*Class I, II, or III*	*% of Asbestos*	*Quantity (approx.)*
**				

1. PLM laboratory reports, database information, and statements of verification are available to the Contractor by contacting the University's Representative.

2. As a further aid to site characterization, the University's Representative's shall perform background samples (PCMs) just prior to the Contractor beginning asbestos work.

B. Prior to setting up a full containment in occupied spaces (offices, hallways, bathrooms, break rooms, etc.), the University's Representative's shall take wipe samples. A positive result from a wipe sample shall require the Contractor to pre-clean the area.

C. Hazardous materials, other than ACM/PACM that have the potential to be disturbed at this job site are listed in the table below:

Other Hazardous Materials at Job Site			
Material Description	*Type of Hazard*	*% of Content*	*Quantity (approx.)*

1. The Contractor shall review non-asbestos hazardous material protocols with the University's Representative and the EH&S Representative.

1.04 JOB WALK PROTOCOL

A. The pre-bid walk through will include the inspection of contaminated areas cited in 1.2.B. All bidders are required to wear respirators and protective clothing per CCR, Title 8, Section 1529. Prior to entering contaminated areas, the bidder must show proof of (1) AHERA or awareness training and (2) a respirator fit test within the past six months. ****CHECK THIS PARAGRAPH - PLAN PRE-BID MEETING TO MATCH****

B. Short Duration Access (30 minutes/day) - Decon Available

1. Entry protocols - Enter clean room and log in, put on respirator, perform negative pressure fit test, double suit (over street clothes), step through shower stall (if available), step through dirty room and enter contaminated space.

2. Exit protocol - Enter dirty room, take off outer suit, wet wipe exposed skin and mask, dispose of outer suit and wet wipes in asbestos bag, pass through shower (if available), enter clean room, remove inner suit, remove mask (tape filters), sign out. Wash hands and face at first opportunity.

C. Short Duration Access (30 minutes/day) - Decon Not Available

1. Entry protocols - Sign log, put on double suit, put on respirator, perform negative pressure fit test and enter restricted access area.

2. Exit protocol - Remove outer suit, wet wipe exposed skin and mask, place suit and wet wipes in asbestos bag, exit restricted access area, remove inner suit, remove mask, place tape over filters, and sign out.

D. Long Duration Access (>30 minutes/day) - 3 Stage Decon

1. Entry protocols - Enter clean room and log in, put on respirator, perform negative pressure fit test, put on a single suit, step through shower stall, step through dirty room and enter contaminated space.

2. Exit protocol - Enter dirty room, take off suit, dispose of suit, enter shower room and wash, wipe mask, enter clean room, wet wipe inner mask, tape over filters and log out.

1.05 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations

1. ACM: Asbestos Containing Material

2. AHERA: Asbestos Hazard Emergency Response Act

3. CSLB: Contractor’s State Licensing Board

4. DHS: California Department of Health Services

5. DOP: Dioctyl Phthalate

6. DOSH: Division of Occupational Safety and Health

7. ELAP: Environmental Laboratory Accreditation Program

8. EH&S: UC Davis Department of Environmental Health & Safety

9. NEA: Negative Exposure Assessment

10. NPE: Negative Pressure Enclosure

11. NVLAP: National Voluntary Laboratory Accreditation

12. PACM: Presumed Asbestos Containing Material

13. RACM: Regulated Asbestos Containing Material

14. TSI: Thermal System Insulation

B. Definitions: The following definitions are provided for additional clarification and may exceed the requirements in CCR, Title 8, 1529 and Sacramento Metropolitan Air Quality Management District (SMAQMD).

1. ACM and PACM are defined in 8 CCR 1529; which includes friable and non-friable asbestos. The University position is to follow the higher standard, so friable and non-friable jobs will be governed by the Cal/OSHA regulations. These regulations include the use of worker protection, NPEs, air monitoring, etc. for non-friable work.

2. Ambient Air Quality refers to the quality of local air conditions prior to the commencement of asbestos related work.

3. Class I asbestos work involves the removal (abatement) of TSI or surfacing material when (1) more than one glove bag is used, (2) more than one 60” X 60” bag is used or (3) the work is not repair or maintenance as defined by class III.

4. Class II asbestos work involves the removal (abatement) of non-TSI or non-surfacing when (1) more than one glove bag is used, (2) more than one 60” X 60” bag is used or (3) the work is not repair or maintenance as defined by class III. Examples of Class II work include wall board, floor tile and sheeting, roofing and siding shingles, construction mastics, etc.

5. Class III asbestos work involves repair and maintenance of ACM/PACM that is either Class I or Class II, but does not exceed either one glove bag or one 60” disposal bag.

6. Class IV work refers to clean-up operations of Class I, II, or III projects. Class IV work does not refer to incidental contact by maintenance workers (see 8 CCR 5208 for custodial/maintenance workers guidelines).

7. Negative Pressure Enclosures refer to full containment, mini-containments, and glove bags under negative pressure with HEPA filtration.

1.06 SUBMITTALS

A. The submittals listed in 1.6 B must be completed and accepted by the University’s Representative with the concurrence of the EH&S Representative prior to the contractor beginning any work.

B. List of Submittals:

1. References (three projects of similar scope and size).

2. Notifications (federal, state, local or UC Davis).

3. Permits (federal, state, local, or UC Davis).

4. Certificates of Asbestos Training (AHERA).

5. Respiratory fit test records (within past six months).

6. Physician's certificates of medical fitness (within 1 year).

7. DOSH Registration.

8. DOP certificates (for all HEPA vacuums and negative air machines). Submit after equipment has arrived on campus.

9. List of HEPA vacuums and negative air machine (mfg. model and serial numbers.

10. Material Safety Data Sheets (for all products used at the job site).

11. List all laboratories used for personal, area, and clearance samples. Provide proof of ELAP certification.

12. California Asbestos Abatement Contractor's License.

13. Waste Disposal Plan including name of disposal site, waste transporter, and waste transporter certification.

14. Substitute Materials Information (for any material not listed in 2.1).

1.07 CONTRACTOR QUALIFICATIONS

A. The contractor performing asbestos abatement work shall be currently registered as an Asbestos Abatement Contractor with the California Contractor's Licensing Board.

B. The contractor performing asbestos abatement work shall be currently registered with the California Department of Industrial Relations, Division of Occupational Safety and Health.

C. The contractor's personnel performing asbestos abatement work shall meet the following training requirements, which exceed the standards in CCR, Title 8, Section 1529:

1. Class I: Supervisors and Workers must be AHERA trained.

2. Class II: Supervisors and Workers must be AHERA trained.

3. Class III: Supervisors and Workers must be AHERA trained.

4. Class IV: Supervisor must be AHERA trained. Workers must have Awareness training.

1.08 REGULATIONS

A. The contractor performing asbestos abatement work shall comply with applicable federal, state, local, and University laws and regulations. The list of regulators and regulations, cited below, is not meant to be comprehensive, but to serve as reference for the most commonly used standards:

1. FEDERAL

a. EPA

1) 40 CFR, Part 763, Subpart E – AHERA

b. OSHA

1) 29 CFR 1926.1101 - Construction Standard

2) 29 CFR 1910.1001 - General Industry Standard

3) 29 CFR 1910.147 - Lock Out - Tag Out

c. NESHAPS

1) 40 CFR 61, Subpart M - Asbestos Emissions

2) 40 CFR 61, Subpart A

d. DOT - Regulations **MAY NEED TO EDIT**

2. STATE

a. Cal/OSHA

1) CCR, Title 8, Section 1529 - Construction Standard

2) CCR, Title 8, Section 3203 - Injury Illness Prevention

3) CCR, Title 8, Section 5194 - Hazard Communication

4) CCR, Title 8, Section 5157 - Confined Space

5) CCR, Title 8, Section 5208 - General Industry Standard

3. LOCAL

a. Sacramento Metropolitan Air Quality Management District (SMAQMD)

1) Reg. IX, Rule 9.9

2) Reg. IV, Rule 4.3

4. UC DAVIS

a. Policy and Procedures

b. Campus Standards

1.09 NOTIFICATION AND PERMITS

A. Contractor is responsible for notifying federal, state, local agencies, obtaining all required permits/extensions, and bearing all related costs.

B. UC Davis

1. Hot or Hazardous Material Permit (Call the UC Davis Fire Department at 916-734-3060 for instructions).

2. EH&S Waste Manifest Protocols (Call EH&S Representative, at 916-734-7325 for instructions)

C. Sacramento Metropolitan Air Quality Management District

1. Provide ten (10) days notification to Sacramento Metropolitan Air Quality Management District (SMAQMD) for any demolition or renovation job with RACM that exceeds a combined amount of 260 linear feet, 160 square feet or 35 cubic feet.

D. NESHAPS

1. Contractor does not need to notify NESHAPS separately from the Sacramento Metropolitan Air Quality Management District (SMAQMD), if Contractor provides the required additional NESHAPS information on the Sacramento Metropolitan Air Quality Management District (SMAQMD) form. If a job does not require Sacramento Metropolitan Air Quality Management District (SMAQMD) notification, Contractor shall notify NESHAPS.

E. CAL/OSHA

1. Only DOSH registered contractors are permitted to perform class I, II, and III work at University. While no per job notification is required, Contractor is responsible for notifying DOSH when an asbestos job potentially exceeds the limits of their registration.

2. Contractor is responsible for all royalties and license fees related to the use of the patented GPAC filtration system. University shall be held harmless from all suits or infringement actions by or toward Contractor. Contact GPAC at 800-992-2740 for clarifications.

1.10 UNIVERSITY CONTACTS

A. University’s Representative: **FD&C PROJECT MANAGER**

FAX: 916-734-7751

Phone: 916-734-7024

B. University Asbestos Coordinator: NOT USED

FAX:
Phone:

C. EH&S Representative:

FAX: 916-734-7360
Phone: 916-734-7325

D. University's Representative's Consultant: **TBD**

Pager #:
FAX:

PART II - MATERIALS AND EQUIPMENT

2.01 MATERIALS

A. Material Safety Data Sheets (MSDS)

1. As specified in the Hazardous Communication standard, Contractor shall provide material safety data sheets for all products they use on University campus. The MSDS files shall be located in or near the job site entrance.

B. Surfactants

1. Contractor may use Foster 32-90, Certane 2075, or equal, for amended water applications. The Foster product is manufactured by H.B. Fuller Co., Foster Products Corporation, Oakdale, MN. The Certane product is manufactured by Certech, Eden Prairie, MN.

C. Encapsulants

1. The following products or their equals will be applied using a brush or an airless sprayer. Contractor shall follow strict manufacturer instructions regarding surface preparation, ambient air retractions, depth of penetration or recommended thickness (dry), and curing time.

a. For penetrating & lockdown purposes use Foster 32-60 or Certane 909, or equal.

b. For bridging purposes use Foster 32-32 or Certane 2000, or equal.

c. For high temperature applications, e.g., steam pipes, use Foster 84-18 or Certane 1000, or equal.

2. Any proposed equal to the products listed above must meet the following criteria: submit product information prior to the start of the job and receive approval by the University's Representative with the concurrence of the EH&S

Representative; non-toxic and non-irritating as defined by the Hazardous Substance Control Act; sufficiently tinted to provide contrast with the material being coated; and have a minimum 60 lbs./inch Batelle Standard impact rating.

3. All products will be rated UL Class A and have a flame resistance/spread rate less than or equal to 25 as designated by the ASTM code E 162.

D. Polyethylene Bags and Sheeting

1. Bags and sheeting used for capturing asbestos waste are required to be (1) six millimeters thick and (2) meet the following standards: UL Standard No. 263, ASTM E-84, NFPA Standard 701 & 255; and have a flame resistance/spread rate less than or equal to 25 ASTM (E-162).

2. Startex Corp.(Lakeville, MN), North Plastics (Cottage Grove, MN) Bermis Co. (Terre Haute, IN) provide acceptable bags and sheeting. If an equal is proposed, comply with the provisions in 2.1 C 2 above.

3. The contractor will ensure all asbestos waste is properly labeled (per DHS and EH&S standards) prior to disposal.

E. Adhesive Removers

1. All adhesive removers shall meet the Hazardous Substance Control Act standards for non-toxic and non-irritating properties.
2. All adhesive removers shall be (a) non-flammable and (b) contain less than 1% (by volume) any chlorinated hydrocarbon solvents.

2.02 EQUIPMENT

A. HEPA vacuums and negative air machines shall be leak tested using Dioctyl Phthalate (DOP) on-site by a firm independent of the contractor.

B. Tools and equipment shall arrive at the job site free of asbestos debris and dust.

C. All electric tools and equipment shall be connected to a GFI.

PART III - EXECUTION

3.01 SAFETY MEETING

A. There are three types of required safety meetings; pre-reconstruction, initial and weekly.

1. Pre-construction safety meetings may include representatives from the following groups: FD&C; affected building occupants, general contractor, asbestos subcontractor (if applicable) and EH&S. The following subjects will be discussed; impact to building occupants, waste disposal and work related safety programs.

2. On the first day of work, Contractor shall conduct a safety meeting for its employees which alerts them to the specifics hazards of the job. If needed, Contractor shall conduct the safety meeting in primary language of its

employees.

3. On a weekly basis, Contractor shall conduct a safety meeting with its employees.

3.02 WORK SITE PREPARATION

A. Prior to beginning any on-site work preparation, Contractor shall walk the job area with the University's Representative to discuss site characterization, regulated area set-up, access controls, background samples, security, and safety issues.

B. Post all regulatory notices, permits, sign in/out roster and air ample results at the primary entrance to the job site.

C. Contractor, in coordination with the University's Representative, shall ensure all electrical and HVAC equipment servicing the work area is disconnected and locked out. Electrical tools in the work zone shall be connected to a ground-fault circuit interrupter (GFCI).

D. Contractor shall remove existing filters from the heating, ventilating and air conditioning systems serving the work area. Existing openings are to be sealed with double layers of plastic and cardboard or plywood inserts as necessary.

E. Contractor shall ensure all negative air machines and HEPA vacuums are delivered to the site clean and sealed.

F. Contractor shall ensure all HEPA filtration units are leak tested (DOP) on site. Each piece of equipment shall be tested in compliance with the ANSI Z9.2 Standard (trapping and retaining 99.97% of all particles larger than 0.3 microns).

G. Prior to connecting to the University's domestic water system, Contractor shall install a backflow prevention device.

H. In order for the University's Representative to conduct timely inspections (see 3.11), Contractor is obligated to inform the University's Representative when they are ready to be inspected.

I. All Class I, II, and III work shall be conducted within a regulated area (8 CCR 1529 see p. 164.2).

J. If a wipe sample result was positive, Contractor is responsible for pre-cleaning the work area before starting the job. Pre-cleaning involves both HEPA vacuuming and wiping methods. The University's Representative shall visually inspect the area before allowing the Contractor to proceed. If an area fails the visual inspection, Contractor shall repeat the cleaning process.

3.03 WORK SITE CONTROL

A. Contractor shall restrict the work areas to authorized, trained and protected personnel; including, the Contractor's employees, University Representatives, and state agency representatives.

B. At regulated job sites, the Contractor shall use caution tape to demarcate the boundary of the work zone and post two types of warning signs. The first sign is required by 8 CCR 1529:

1. First Sign:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED IN THIS AREA

2. Second Sign:

CAUTION
ASBESTOS DUST HAZARD
AVOID BREATHING DUST

C. All unauthorized personnel are to remain outside the regulated area. Contractor is to call the University's Representative or the UC Davis Police at 911 for problem situations

D. If inclement weather threatens the job site, Contractor shall take all necessary measures to ensure asbestos contaminated debris does not migrate from regulated areas.

E. If wind speed threatens the job site, Contractor shall erect a wind barrier or suspend operations until the wind is below 15 mph.

3.04 RECORD KEEPING

A. Contractor shall maintain the following records at the regulated work area:

1. Site Log (sign-in/sign-out).
2. Incident Log & Emergency Action Plan.
3. Personal air sampling results.
4. Area samples inside and outside the regulated area.
5. Supervisor (contractor) and worker training certificates, fit tests, medical clearance certificates.
6. Sacramento Metropolitan Air Quality Management District (SMAQMD) notification.

B. The University's Representative's shall retain all records of wipe, bulk, initial, and area (perimeter) samples and submit results in a report at the end of the project.

3.05 ADMINISTRATIVE CONTROLS

A. ****NOT USED OR **** Asbestos work will be performed after normal working hours (Monday-Friday, 8 AM to 5 PM)

B. Abatement jobs done in high heat environments requires the Contractor to provide sufficient breaks to maintain a safe work environment.

C. Contractor shall clean the work site on a daily basis.

D. During the removal process for class I and class II (Friable RACM) an AHERA trained supervisor must be on-site.

3.06 ENGINEERING CONTROLS

A. Negative Pressure Enclosure (NPE)

1. A negative pressure enclosures is required when an asbestos containing material is friable or could become friable during the removal process. Non-friable material that remains non-friable during the removal process does not require a negative pressure enclosure.

2. There are three types of negative pressure enclosures: full containment, mini-containment's, and glove bags.

3. Full containment requires the contractor to comply with all provisions in CCR, 8, 1529 and Rule 9.9. The following items are provided as a reminder of key elements and is not meant to be comprehensive: double six polyethylene on all walls and floors, three stage decontamination unit with shower, sufficient negative pressure to maintain .02” of water column pressure, viewing port, smoke tested, manometer alarm, and emergency response protocols.

4. Mini-containments are for Class III work. The construction of a mini-containment requires two layers of six mil polyethylene, two chambers, a HEPA vacuum exhausting the second chamber, the chambers are affixed to the area to be abated, and smoke tested. Comply with all mini-containment requirements as stated in 8 CCR 1529.

5. Glove bag jobs will comply with the provisions in 8 CCR 1529. The type of glove bag must correspond to the type of activity, e.g., angle glove bags for curved pipe sections, vertical glove bags for vertical pipe, etc. Glove bags must be smoke tested.

B. HEPA Units

1. HEPA vacuums, tools, and air filtration equipment must be leak tested (DOP) on-site. The outside of all units must be clean and free of asbestos dust. All vacuum ports must be sealed; including filters, when the units arrive on the job site.

C. Wet Methods

1. Prior to removing ACM/PACM, the contractor will adequately wet the material with an approved surfactant per the EPA publication Asbestos/NESHAPS Adequately Wet Guidance. Once removed, the waste must be kept wet until it is bagged. If needed, HEPA vacuum excess moisture from bags, burrito wraps or floors.

3.07 WORKER PROTECTION

A. The following protective measures are required for asbestos related work associated with this project:

1. Employee Training

a. Contractor shall provide information to its employees about asbestos hazards per the Hazard Communication standard (8 CCR, 5194).

b. Asbestos abatement workers and supervisors must be trained by an accredited AHERA course provider.

2. Respiratory Protection

a. Respiratory protection must be provided to all Contractor employees where there is the potential for exposure to asbestos dust at or above the permissible exposure limit. Respiratory protection will be provided at no cost to the Contractor's employees (8 CCR 1529 p.164.7).

b. Contractor asbestos employees who wears a respirator must have passed a fit test within the previous six months (8 CCR 1529 p.164.8) to perform contract work.

3. Protective Clothing

a. Workers shall be provided with sufficient sets of protective clothing whenever there is potential exposure to asbestos dust at or above the permissible exposure limit. Tyvex, Kleenguard coveralls, or an equal with hood and feet are acceptable. The coveralls will be available at no cost to the Contractor's employees, University consultants and state officials.

b. Contractor shall provide rubber or latex gloves, rubber boots, eye protection, ear plugs and hard hats as needed per the California Code of Regulations, Title 8, Hazard Communication and Personal Protective Equipment sections.

4. Medical Surveillance

a. As required by 8 CCR 1529 (see p.164.11) the asbestos Contractor shall establish a medical surveillance program for all employees who may be exposed to asbestos dust at or above the permissible exposure limit.

b. Contractor will provide copies of the physician's written opinion for each employee who works on the campus (8 CCR 1529 see p. 164.12).

c. All Contractor asbestos workers and supervisors shall pass the medical, FVC, FEV and chest x-ray examinations prior to working on the campus.

3.08 PERSONAL HYGIENE

A. No employee will be allowed to consume food, tobacco products or beverage in the regulated work area or any part of the building scheduled for asbestos abatement or in-place management operations.

B. Contractor will establish a location outside the work area, which will be designated for employee eating and drinking. Employees must utilize the on-site decontamination facilities prior to entering the designated eating/drinking location.

3.09 AIR MONITORING PROGRAM

A. Personal Air Samples - Contractor Responsibility

1. The asbestos Contractor must presume Class I, II, and III work shall exceed the PEL and conduct an initial and negative exposure assessments.

2. One certified asbestos worker per job type per shift will wear a personal air monitor (8 CCR 1529 p.164.2). Sample results will be faxed to EH&S 916-734-7360, EH&S Representative; University‘s Representative, **PM NAME**, FAX 916-734-7751; and University’s Representative’s Consultant, **TBD** FAX **TBD**.

3. Daily monitoring may be discontinued for a particular operation when a negative exposure assessment has shown the operation was performed below PEL for three continuous shifts. This exception does not apply when the scope of the job has changed, ACM/PACM has changed or the University’s Representative feels the work protocol is compromised, e.g., less skilled workers are not performing up to standard.

4. Negative Exposure Assessments (NEA) established outside the University are unacceptable. NEAs performed on the campus that “closely resemble” current work shall be considered. Final acceptance of an NEA is made by EH&S and the University’s Representative.

B. Area Sampling

1. Daily Monitoring - University's Representative's Responsibilities

a. The University’s Representative is responsible for monitoring the air quality outside the regulated areas. If any sample exceeds 0.1f/cc in excess of background air samples, the University’s Representative shall halt work until the Contractor has identified and corrected the work practice that caused the release.

2. Daily Monitoring - University's Representative's Responsibilities

a. The University’s Representative is responsible for monitoring air quality

(PCM) within the regulated area; including the clean room. Any sample at or above .1f/cc in the clean room requires a cessation of work until the area is cleaned, the cause of the problem has been determined and solved, then wipe down and re-sample the clean room. Air samples in the work zone that exceed the protection level of a respirator requires a cessation of activity and review of work practices by the Contractor's supervisor and the University's Representative.

3.10 SPECIFIC WORK PROTOCOLS

A. The specific work protocols are intended as a supplement to the contract provisions. Contractor must comply with specific work protocols and all other specifications. Where a conflict in specifications exits, the higher standard applies.

1. Acoustical Ceiling Tiles (suspended ceiling)

a. Class II or III

b. Non-friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum, Wet Method

e. Class III Land Fill

f. Work Practices:

1) Remove individual ceiling tiles from grid work using caution not to damage the metal grid work. Protect lighting fixtures and smoke/heat detectors scheduled to remain.

2) Where removal of metal grid work is required, tie-up lighting fixtures and/or heat/smoke detectors. Removal of metal grid work will include all wire hangers, perimeter and interior grid work.

3) Where lighting fixtures are scheduled to be removed, clean lighting fixtures and apply a single layer 6-mil plastic or bag and sealed with tape. All lighting fixtures shall be turned over to the University's Representative.

4) HEPA vacuum and wipe down all exposed surfaces above the ceiling system removed and then apply an approved encapsulant or lockdown material.

2. Acoustical Wall and Ceiling Tiles (glued on)

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) Remove tile in small sections capturing individual tiles in a container as close to the point of removal as possible, in order to minimize the amount of material dropping to the floor.

2) Debris and waste spilled onto floors, ladders or other surfaces shall be cleaned up as soon as possible. Under no circumstances shall debris be left at the end of the workday.

3) Scrape and remove tile adhesive flush with wall and ceiling surfaces.

3. Air Cell Pads

a. Class II or III

b. Non-friable

c. Personal or NEA, Respirator Required

d. Dispose at class III Land Fill

e. No NPE if class III, NPE for class II, Wet Method, HEPA vacuum

4. Asbestos Cement Pipe (intact)

a. Class II

b. Non-friable

c. Personal or NEA, Respirator Required

d. No NPE

e. Dispose at a Class III Land Fill

f. Work Practices:

1) Disconnect service to the pipe.

2) Mark pipe in lengths of approximately six (6) to ten (10) feet or other reasonable length to handle.

3) Wrap pipe with lagging intact with two (2) separate layers of 6-mil plastic, securely and completely taped.

a) ***Exception:*** When the pipe must be cut, the Contractor shall comply with the following procedure:

(1) Using glove bag technique, remove lagging at each point where pipe will be cut. Seal exposed lagging ends with bridging agent.

(2) Cut pipe using appropriate tools. All portion of pipe which might vibrate during cutting must be wrapped prior to beginning cutting.

5. Ceiling and Fire Proofing (sprayed on coating)

a. Class I

b. Friable

c. Personal, area and clearance air monitoring required

d. Respirator Required

e. Use wet method, NPE, HEPA vacuums

f. Dispose in appropriate, locked, container, location to be determined by University's Representative

g. Work Practices:

1) Asbestos shall be removed in small sections.

a) Contractor is responsible for providing ladders and staging platform necessary to accomplish abatement work. The asbestos shall be captured in a container as close to the point of removal as possible, in order to minimize the amount dropped to the floor.

2) Debris and waste spilled onto floors, ladders or other surfaces shall be cleaned up and bagged. Under no circumstances shall debris be left at the end of the workday.

6. Cable Installation (drilling)

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum, Wet Method

e. Dispose in Class III Land Fill

1) Exception: Comply with University entry protocols for restricted access areas.

7. Cable Installation (no drilling)

a. Class II or III

b. Non-Friable

c. Personal or NEA, No Respirator

d. No NPE

1) Exception: Comply with University entry protocols for restricted access areas

8. Glasweld, waincot, and adhesives

a. Class II or III

b. Non-friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum

e. Dispose at Class III Land Fill

f. Work Practices:

1) Remove material in manageable sections without sizable quantities of materials dropping to the floor.

2) Do not sand, grind, blast or mechanically chip or abrade surfaces to remove adhesive.

3) Scrape wall surfaces to remove excess adhesive flush with wall surface.

4) Wipe down all exposed surfaces prior to applying an approved encapsulant or lockdown material.

9. Gaskets

a. Class III

b. Non-friable

c. Personal or NEA, No Respirator Required

d. No NPE

e. Dispose at Class III Land Fill

f. Work Practices:

1) Comply with MSDS for handling adhesive removers

2) Use Permatex, or equal, no known equal.

10. Gypsum board and joint compound

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) Remove material in sections manageable without sizable quantities of materials dropping to the floor.

2) Do not use power tools to cut material to be removed. Only hand cutting with scoring knifes shall be permitted. Keep all cuts moistened to minimize dust.

3) Keep debris and dropped waste material to a minimum. Under no circumstances shall debris be left at the end of the workday.

4) Work shall include removal and disposal of gypsum board to include all fasteners.

5) HEPA vacuum and wipe down all exposed surface that remain and apply an approved encapsulant or lockdown material.

11. Gypsum board and joint compound (spot removal)

a. Class III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) Apply duct tape completely around area required to be removed for attachment of mini-containment.

2) Construct mini-containment or attach modified glove bag to wall surfaces; attach materials with taped portion being attached to tape strips applied directly to perimeter wall, floor and ceiling surfaces. Allow adequate room for maneuvering of hands within containment.

3) Spray gypsum board to be removed with surfactant and hand cut perimeter of material to be removed with a knife. Do not use handsaws or other tools which will make material friable.

4) Allow wetted material to drop into bottom of glove bag.

5) Evacuate air from glove bag and wall cavity using HEPA vacuum; tie off lower section of glove bag prior to spraying wall and ceiling surfaces and cavity with encapsulant.

6) For locations requiring back to back abatement; leave glove bag or mini-containment in place until work has been completed on both sides of the wall.

7) Cut off lower section of sealed glove bag and leave remaining portions of glove bag in-place until encapsulate has cured.

12. HVAC insulation and fabric

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

13. Linoleum floor backing and adhesives

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

14. Paints (textured)

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum, Wet Method

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

15. Plaster Wall (exterior)

a. Class I or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class I, HEPA vacuum, Wet Method

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

16. Plaster Wall and Ceiling (interior)

a. Class I or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class I, HEPA vacuum, Wet Method

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) Remove plaster material in manageable sections without sizable quantities of materials dropping to the floor.

2) Work shall include removal and disposal of plaster, expanded metal mesh and non-structural ceiling joists. Bag all materials as

removed. Tape sharp edges as needed to prevent the bag from being punctured.

3) Do not use power tools to cut material to be removed. Keep all cut material edges and surfaces moistened to minimize dust.

4) Keep debris and minor dropped waste to a minimum, and immediately moisten and clean up. Under no circumstances shall debris be left at the end of the workday.

5) HEPA vacuum and wipe down all exposed surfaces to remain prior to applying an approved encapsulant or lockdown material.

17. Rubber Cove Base and Adhesive

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum, Wet Method

e. Class III Land Fill

f. Work Practices:

1) Provide protective splash barriers for all wall surfaces. Contractor shall provide decontamination systems at all personnel exits from the work area.

2) Remove material in manageable sections.

3) Do not sand, grind, blast or mechanically chip or abrade surfaces to remove adhesive.

4) Scrape off excess adhesive flush with wall surface.

5) Wipe down all exposed surfaces prior to applying an approved encapsulant or lockdown material.

18. Roofing Material

a. Class II or III

b. Friable and Non-friable

c. Personal or NEA, Respirator Required

d. No NPE, Wet Method, HEPA vacuum

e. Class I or Class III Land Fill

f. Work Practices:

1) If appropriate, remove ballast as non-asbestos containing material according to usual roofing practice. Mechanized ballast removal is permitted provided ACM roofing felts are not disturbed.

2) Power tools shall not be used to remove asbestos-containing roofing materials. Only shovels, spud bars, scrapers, hand axes or other hand tools may be used.

3) With hand ax or similar tool, chop the membrane into hand manageable sections or "tiles" (approximately 2' X 2').

4) Before lifting cut membrane sections, mist the open cuts between sections with surfactant.

5) With hand tools pry the membrane tiles free.

a) Scrape wall and roof substrate to remove roofing mastic. Apply additional surfactant as needed to thoroughly saturate cut edges, and any loose debris exposed or generated by the cutting and removal operations.

6) As membrane tiles are removed, place them in clear 6-mil bags without labels. Use caution not to over fill bags. Seal bags close with tape.

7) If holes in filled bags are discovered anywhere in the removal or disposal process, seal with duct tape.

8) Asbestos-containing roofing materials shall not be chuted to the ground, nor handled in any manner; i.e., tossed, dropped or smashed in a manner which creates dust or particulate ACM. Materials are to be bagged and hand carried or lowered by crane or mechanical lift to the ground.

9) Bagged material must be hand carried or cradle lifted from the roof to an appropriate waste disposal vehicle or container.

10) If materials are lowered by crane or mechanical lift, University’s Representative shall approve crane placement in advance.

11) Asbestos-containing roofing tiles or shingles are to be handled in a manner similar to bituminous roofing materials (also, see section on transite). In general minimize breakage of individual tiles and shingles.

12) Apply surfactant to loose debris remaining when roofing materials have been removed. HEPA vac the substrate and apply lock-down encapsulant.

13) Prior to completion of each day's work, clean the area of work, surrounding area and new single-ply membrane roofing system (SMR) of debris, rust and other substances detrimental to the new SMR system. If necessary, Contractor shall be responsible for providing temporary protection covering for new SMR system.

19. Soil (asbestos contaminated)

a. Class II or III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) All foundation vents, grates and other openings will be securely sealed with plastic and tape.

2) Contractor shall set grade stakes on minimum fifteen (15) foot centers throughout the area from which soil is to be removed. Depth of removal shall be: (**SPECIFY)**.

3) Contaminated soil shall be dampened and kept damp during removal operation.

20. Steam/Hot Water Pipe Lagging (horizontal, vertical, joints, valves)

a. Class I or III

b. Friable

c. Personal or NEA, Respirator Required

d. NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices

g. Class III Work Practices:

1) Contractor shall comply with UCD access protocols, which requires respirator and double suit.

2) Apply duct tape completely around the pipe at point where glove bag will be attached.

3) Slit glove bag down sides; install on pipe with taped portions being attached to tape strips applied to pipe. Allow adequate room for maneuvering of hands at top of glove bag.

4) While assistant sprays lagging continuously with water amended with surfactant, cut lagging around its circumference using handsaws, knives, or other cutting tools.

5) Remove wetted lagging, drop into bottom of glove bag.

6) Clean surface under section of removed lagging using toothbrush, towel, etc.

7) Evacuate glove bag using HEPA vacuum cleaner; tie off glove bag.

8) Remove glove bag from pipe. Seal glove bag using at least two closures. Seal exposed lagging ends with bridging agent.

h. Class II Work Practices

1) Set up full containment

2) Establish baselines and conduct area monitoring throughout the project.

21. Transite (siding, shingles pipe, furnace flue, and duct)

a. Class II or III

b. Friable and Non-friable

c. Personal or NEA, Respirator Required

d. No NPE, Wet Method

e. Class III Landfill

f. Work Practices:

1) Provide protective splash barriers for all exposed surfaces.

2) Remove material in manageable sections and lengths without sizable quantities of materials dropping to the floor or ground using wet methods.

3) Where possible, remove mechanical fasteners without any abrading of transite material.

4) Disconnect service to pipe being removed.

5) Place plastic underneath pipe and supports to catch falling pieces.

6) Carefully supporting all portions of pipe/paneling, break into sections using chain snap cutter or the means of cutting or breaking without creating dust. Power cutters or saws are not acceptable.

22. VAT, rubber cove base and adhesive

a. Class II or III

b. Non-friable

c. Personal or NEA, Respirator Required

d. No NPE if class III, NPE for class II, Wet Method, HEPA vacuum

e. Class III Landfill

f. Work Practices:

1) Flooring shall be removed only by hand or mechanical methods which do not create dust. These include dry ice/blanket, hand and power scrapers, spud bars, etc. Do not sand, grind, blast or mechanically chip or abrade.

2) Adhesive shall be removed only by wet methods or by approved solvent.

23. Window Putty

a. Class III

b. Friable

c. Personal or NEA, Respirator Required

d. No NPE, Wet Method, HEPA vacuum

e. Dispose in appropriate, locked, container, location to be determined by University's Representative

f. Work Practices:

1) For the purposes of this contract, the primary distinction between Class I or Class II from Class III is the quantity.

24. Above Ceiling Work - Areas with Asbestos Containing Fire Proofing or Pipe debris

a. Class III - only for repair or maintenance work, no abatement

b. Friable

c. Personal air sample or NEA, Respirator Required

d. NPE, Mini-containment is minimum

e. Disposal in appropriate and locked container, location to be determined by University Representative.

f. Work practices:

1) Use of a respirator, disposable protective coverall, and gloves are required to enter above the ceiling.

2) A mini-containment or other NPE must be set up to enter the above ceiling area through. The mini containment/NPE must be kept under negative pressure using at a minimum a HEPA vacuum that has been certified within the last year or last filter change, whichever is more recent.

3) Clean the entry area above the ceiling with a HEPA vacuum before completely entering the space.

4) If practical, vacuum visible insulation debris for the full path of travel. If this is not practical the employee must use other procedures to ensure safe removal of visible insulation debris in the path of travel that would be disturbed by the crawl. For example, wet paper towels and plastic bags may be used to pickup and contain visible debris. Other control methods may be used provided they meet the following criteria:

a. dry sweeping is not permitted

b. employees must not walk on, crawl on or otherwise crush visible clearly recognizable insulation debris

c. the control method must not result in a release of airborne fibers

5) If disposable coveralls get torn during ceiling crawl, immediately repair the torn coverall with duct tape or exit the area and put on a new coverall. Before leaving the mini-containment inspect the personal clothes and shoes/boots of any person that entered the above ceiling area and remove any visible debris using the HEPA vacuum.

6) Upon completion of work at that location, inspect the floor where the mini-containment was set up and remove any debris using the HEPA vacuum.

3.11 INSPECTIONS

A. Inspection Responsibilities - Contractor

1. Prior to beginning any asbestos-related work, Contractor's asbestos supervisor shall inspect the regulated work areas for any building damage, hazardous conditions, and/or irregularities that may contribute to an unsafe work environment. Any condition that poses a hazard or potential hazard to the Contractor's employees or the University community must be immediately reported to the University's Representative.

2. Contractor is responsible for monitoring and enforcing all requirements of this specification. This responsibility includes communicating scheduling changes to the University's Representative to allow inspections at each phase of the project.

3. Contractor shall provide protocols for responding to a manometer alarm after they have left the job site. Under no circumstances shall Contractor shut off negative air machines at the end of the shift, unless the job has received final clearance.

B. Inspection Responsibilities - University's Representative's Responsibilities

1. The University's Representative shall walk the job site with the Contractor to review pre-cleaning operations and any safety or security issues. The University's Representative shall attend contractor safety meetings.

2. The University's Representative shall verify pre-cleaning was performed in accordance with the specifications.

3. After the Contractor has completed set-up and before commencing operations, the University's Representative shall check completeness of the following items: regulated area is demarcated and posted, permits are posted, poly sheeting is six mil, double layers, all HEPA equipment is leak tested (DOP), electrical tools are connected to GFI, HVAC is shut off and all ports blocked with six mil poly, electrical panels are tagged and locked out, electrical outlets are sealed with 6 mil poly, a fire extinguisher is available inside and outside the containment, and water connections are made with a back flow prevention device. If NPE is used, the inspector will verify: .02" of water pressure is maintained and the manometer alarm is on; three stage decontamination is sealed and air flow is correct, smoke test results and the shower is functioning.

4. Prior to asbestos abatement or in-place management activities beginning, the University's Representative shall match on-site personnel with asbestos training certificates, fit tests and medical exam records. Workers without on-site documentation shall not be allowed in the regulated area.

5. The University's Representative is responsible for (1) reviewing all wipe, bulk, background, area and personal samples and (2) alerting EH&S at 916-734-7325;

FAX 916-734-7360 and the University's Representative, of any sample exceeding .1 f/cc.

6. During abatement or in-place management activities, the University's Representative shall check for the following: all personnel are signing in and out, wet methods are being used, debris is collected at the end of each shift, workers are properly attired and wearing respirators, work is performed in a safe manner, and an emergency exit is demarcated.

7. At the end of each shift, the Contractor must adequately wet waste, collect all loose debris, place it in double 6 mil bags, and label the material. The asbestos waste may remain inside the containment, provided access controls are secure. If the Contractor cannot guarantee access control, the asbestos waste must be secured in a locked storage container.

8. The University's Representative's Consultant must file a daily report with the University's Representative.

9. After abatement or in-place management activities are complete and before lockdown or encapsulant is sprayed, the University's Representative shall verify: completeness of abatement or in-place management work, approved lockdown and encapsulants are being used, and MSDS are on-site.

10. The University's Representative shall review clearance protocols with the Contractor prior to clearance monitoring. If clearance is not achieved, the University's Representative shall ensure the Contractor re-cleans and re-samples the regulated area.

11. After, clearance has been achieved, the University's Representative shall ensure clean up is complete (see 3.12), all waste has been removed in accordance with University protocols, keys are returned and the Contractor has restored occupied room to their original condition.

3.12 CLEAN-UP

A. Daily Clean-Up

1. Debris shall be adequately wetted, collected, then placed in two clear, 6 mil plastic bags. Excess air shall be HEPA vacuumed from the bag, then secured with tape. No bag shall exceed a gross weight of 30 lbs.

2. Materials exceeding the size on a 60" bag shall be adequately wetted, then double wrapped in clear 6 mil plastic sheeting.

3. At the end of each work shift, all asbestos waste shall be secured in a locked container.

B. Final Clean-Up

1. Dispose of all loose material as asbestos waste.

2. HEPA vacuum debris and dust on the inner layer of poly.

3. Wipe down interior surface of inner layer of poly.

4. Spray lockdown on all poly surfaces and enclose air space.

5. After lock down is dry, remove inner layer of poly and dispose as asbestos waste.

6. HEPA vacuum dust and debris outer layer of poly.

7. Wipe down interior surface of outer layer of poly.

8. Spray lockdown on all poly surfaces and enclosed space.

9. When step 8 is achieved, the area is ready for clearance sampling.

3.13 WASTE DISPOSAL

A. Contractor shall comply with all waste protocols established by EH&S. These protocols explicitly require Contractor to properly complete the Uniform Waste Manifest form. Failure by Contractor to complete Contractor's portion of the form shall result in the Contractor assuming the fine imposed by the responsible agency.

B. Packaging Asbestos Waste

1. All asbestos containing waste material must be packaged n one of three ways: (1) placed two 6 mil clear polyethylene bags, (2) placed n sealed drums (DOT approved) or (3) double wrapped in (AKA “burrito style”) in opaque 6 mil polyethylene sheeting. For options 1 and 3 wet wipe the outer surface before storing material.

C. Labeling Asbestos Waste

1. Each bag, drum, or “burrito” wrap shall have a label affixed with the following information: (1) Hazardous Waste warning, (2) Generator’s Name, address, and phone number, (3) Location information, e.g., Building, department, room, (4) manifest document number, and (5) date. Contractor can generate the label or use bags with label information stenciled on the side.

D. Storing Asbestos Waste

1. At the end of each shift, all asbestos waste shall be stored in a lockable container or shipped off site. Accumulated waste shall not be allowed to remain in the regulated work area overnight. No container shall be allowed to remain on campus for greater than 90 continuous days from date the first bag was stored.

E. The Waste Identification Notice and Certification must be completed by the Contractor to comply with waste stream identification requirements (Title 22, CCR). See attached form.

F. Uniform Waste Manifest Procedures

1. Prior to transporting waste from the campus to a disposal facility, the Contractor shall prepare a California Uniform Hazardous Waste Manifest (form DTSC 8022A). After completing Contractor's portion of the form, Contractor shall return the manifest to EH&S. An EH&S representative shall sign off and return a copy to the Contractor. Only authorized EH&S personnel can sign on behalf of the University (generator).

G. Contractor must complete the Waste Shipment Record supplied by EH&S (see attached).

H. The three forms (Waste Identification, Uniform Waste Manifest, and the Waste Shipment Record) must be submitted together as a single approval request to EH&S.

I. Transporting Asbestos Waste

1. A registered waste transporter, hired by the Contractor, is responsible for transporting asbestos waste from the University campus to a disposal facility. Contractor must allow three (3) working days for the University to process the uniform waste manifest. The transporter must make pick-ups during normal working hours (8:00 AM to 5:00 PM Monday through Friday). The transporter's vehicle must be clearly marked with warning signs. To avoid illegal transport of asbestos waste, Contractor is responsible for knowing if the job site is contiguous with the main University campus. If Contractor must cross public streets to load asbestos waste in the container, the Contractor must comply with–Sacramento Metropolitan Air Quality Management District (SMAQMD) Requirements.

J. Record Keeping

1. The University's Representative is responsible for assisting EH&S with collecting all documents related to waste disposal operations.

K. Fees

1. Contractor is responsible for all fees and charges related to waste disposal operations; including, waste steam profiles. Refer to SW-846-1311 (TCLP) and CCR, Title 22 Section 66261 (STLC) for identification requirements

3.14 CLEARANCE PROTOCOL

A. Project Specific

1. The clearance protocol to be used shall be clearly stated and communicated, in writing, in advance of the University's Representative's Consultant beginning the clearance procedure.

a. The containment area for each of the main work phases/containments (up to 3 maximum), shall be cleared using the TEM Method described below.

b. Mini-containments in which more than three square feet of ACM is disturbed shall be cleared using the PCM Method described below.

B. PCM Clearance Method

1. Clearance protocol for PCM Method shall conform to NIOSH 7400.

2. Air samples shall be collected on cassettes with a 0.45 micron pore size.

3. The clearance criteria shall be 0.010 fiber/cc air for all required samples.

4. A minimum of 2 to 5 inside samples, 1 outside samples, and 1 lab blank shall be collected for each area. The number of inside samples depends on the footprint or floor area of the contiguous work area. For each part of 400 square feet above 800 square feet, take 1 additional sample up to a maximum of 5 samples.

5. Of the samples collected, a minimum of 2 inside samples, and 1 outside sample will be analyzed. The blanks will only be analyzed in the event of suspected cartridge contamination.

C. TEM Clearance Method

1. Clearance protocol for TEM Method shall conform to EPA AHERA.

2. Air samples shall be collected on cassettes with a 0.45 micron pore size.

3. The Contractor may elect to sample first with PCM to get a rough indication of the level of cleanliness.

4. After look-down/encapsulant is settled and dry, use electric fans or leaf blowers to circulate the air within the negative pressure enclosure (referred to as the aggressive method).

5. Clearance sampling and analysis must comply with 40 CFR Part 763, Appendix A to Subpart E TEM analytical methods.

6. Prior to beginning clearance testing, the University's Representative's Consultant will review total number of samples, number of blanks, location of samples, and volume rate requirements.

7. Any sample exceeding 70 structures per millimeter squared or .020 structures/cc of air requires the Contractor to reclean and sample at no additional expense to the University.

3.15 PROJECT CLOSE OUT

A. Before the final certificate for payment is issued to the Contractor the following information shall be provided to the University's Representative:

1. Provide an "As-Built" summary to include:

a. Contractor's name, address, CSLB certification number, DOSH registration number, and tax identification number.

b. Name of hazardous transporter, address, phone number and registration number.

c. ELAP laboratory name(s), address(es), and phone number(s) used to perform PCMs, TEMs, and/or PLMs.

d. Building owner's name (Regents of the University of California).

e. Building name and campus address.

f. Project name and contract number.

g. Describe scope of work; including, location (room numbers, approximate square footage, building system types).

h. Provide an inventory of the ACM/PACM removed from the job site. Include, building system, Class(es), quantity, note whether the project was abatement or managed in-place, note whether the building system(s) was replaced - use yes or no, and the percentage of the total contract each building system abated or managed in-place represents.

i. Total dollar amount paid by the University for asbestos related work including invoice date(s) and date(s) payment received.

j. Number of employees who worked on the job.

k. Date on-site work began.

l. Date on-site was completed.

m. Work methods.

n. Did the University provide specification - use yes or no.

o. Name, address, phone number and EPA registration number of waste disposal site.

B. Documentation

1. The contractor will provide copies of all laboratory reports, protocols, and procedures that may be requested by the University's Representative.

END OF SECTION 13280

REMOVE THIS TABLE PRIOR TO PRINTING FINAL COPY EDIT BOLD OR RED TYPE AND BETWEEN [ ] MAKE SURE THAT YOUR AUTHORIZATION INDICATES THAT THE UNIVERSITY'S HAZARDOUS MATERIALS CONSULTANT WILL BE PERFORMING THE SERVICES INDICATED.

SECTION 13281
HAZARDOUS MATERIALS MANAGEMENT – LEAD

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. WORK INCLUDED - GENERAL

1. The Contractor shall furnish all labor, material, equipment, services, testing, employee training, fit testing, medical exams, transportation, and daily expense to meet the requirements of this Specification.
2. The Contractor shall obtain all required permits, licenses, registrations, notifications, and regulatory approvals required by law (federal, state and local) and University of California Davis (UCD) policy.
3. All lead-related activities associated with this Contract shall be performed during the work period specified in each contract.
4. The Contractor shall guard against unnecessary disturbances or damage to sensitive finishes on buildings, building systems, and equipment.

B. WORK INCLUDED – SPECIFIC

1. The Contractor is responsible for identifying the exact locations and number of Work areas listed below by referring to University supplied Project Drawings and by working with the University's Representative or University's Hazardous Materials Consultant.
2. **This remediation is [Interim controls] [Abatement].**
3. **Refer to Table 1 below for material to be remediated.**

TABLE 1 - LEAD REMEDIATION		
Building	**Room No. or Area Description**	**Building System Types**

1.2 SITE CHARACTERIZATION

NOTE: MAKE SURE THAT YOU HAVE RECEIVED THE SURVEY REPORT FOR THE INFORMATION AVAILABLE TO BIDDERS SECTION REFERENCED IN BELOW PARAGRAPH.

A. DHS Certified Lead Inspector/Assessor conducted site surveillance for the University. Materials found or presumed to contain lead at this Project site are listed in Table 2 below. Note: Table 2 shall not be used for bidding purposes. Refer to the Hazardous Materials, the Architectural, the Plumbing, the Mechanical and the Electrical demolition

drawings for the approximate locations of the materials requiring interim controls or abatement. Please see the Building Survey Report, included in the Information Available to Bidders

TABLE 2 - LEAD CONTAINING MATERIALS					
Building	**Building System Type**	**Percent Lead**	**Quantity (Approx.)**	**Location**	**Consultant**

B. Hazardous materials, other than LCM/PLCM that have the potential to be disturbed at this Project site are listed in the table below:

TABLE 3 - OTHER HAZARDOUS MATERIALS AT PROJECT SITE				
Building	**Material Description**	**Type of Hazard**	**Percent of Content**	**Quantity**

C. Prior to handling other hazardous materials at the Project site, the Contractor shall review University's protocols with a UCDHS EH&S Representative.

1.3 ABBREVIATIONS AND DEFINITIONS

A. Abbreviation

AA	Atomic Absorption – Flame (EPA SW-846)
ABATEMENT	Removal of all Lead in the Entire building/location
AIHA	American Industrial Hygiene Association
AL	Action Level (30 μg/M3 per 8 hour TWA)
BLL	Blood Lead Level
CCR	California Code of Regulations
CDHS	California Dept. of Health Services
CEPA	California Environmental Protection Agency
CFR	Code of Federal Regulations
CSLB	Contractor's State Licensing Board
DIR	Division of Industrial Relations
dL	Deciliter
DOSH	Division of Occupational Safety and Health
DOT	Federal Department of Transportation
DTSC	California Department of Toxic Substances Control
EH&S	Environmental Health and Safety Office
ELLAP	Environmental Lead Laboratory Accreditation Program
ELPAT	Environmental Lead Proficiency Analytical Testing Program
EPA	U.S. Environmental Protection Agency
FVC	Forced Vital Capacity
FEV	Forced Expiratory Volume
GFCI	Ground Fault Circuit Interrupter
HUD	U.S. Dept. of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
ICRA	Infection Control Risk Assessment
INTERIM CONTROLS	Removal at specific locations to accommodate remodel < 20 years
LBP	Lead Based Paint (paints, varnish, shellac, etc. >0.5% lead by weight)
LCM	Lead Containing Material
μg	Micro gram – part per billion (ppb)
MSDS	Material Safety Data Sheet

NAAQS	National Ambient Air Quality Standards
NAM	Negative Air Machine
NESHAPS	National Emissions Standard for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NPE	Negative Pressure Enclosure
NVLAP	National Voluntary Laboratory Accreditation
O&M	Operations and Maintenance
OSHA	Federal Occupational Safety and Health Administration
PEL	Permissible Exposure Limit (50 μg/M3 8 hr. TWA)
PLCM	Presumed Lead Containing Material
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
TCLP	Toxicity Characteristic Leaching Procedure (mg/L)
TTLC	Total Threshold Limit Concentration (wet-weight mg/kg)
TSP	Tri Sodium Phosphate
TWA	Time Weighted Average
STLC	Soluble Threshold Limit Concentration (mg/L)
UCDHS	UC Davis Health System
ULPA	Ultra Low Penetrating Air
XRF	X-ray fluorescence
ZPP	Zinc Protoporphyrin

B. Definitions: The following definitions are provided for additional clarification and may exceed Federal, State or local regulatory requirements.

1. The definition of lead contaminated materials complies with COSHA, OSHA, CEPA, EPA, HUD and DHS. Interpretation of the most appropriate definition is made by UCDHS EH&S.

1.4 SUBMITTALS

A. Submit in accordance with Section 01334 Shop Drawings, Product Data and Samples, and Section 01770 Closeout Procedures.

B. Submit proposed material substitutions complying with requirements listed in Section 01630 Product Substitution Procedures.

C. References: Submit names, addresses and telephone numbers of at least 3 Project managers or Owners (not employed by Contractor) for whom Contractor has performed lead remediation jobs of similar size and character to the Work specified in this Contract.

D. General: Submittal requirements listed below shall be completed and accepted by University's Representative prior to scheduling the start of Project Site Work. Submit the number of copies Contractor requires, plus 4 copies that will be retained by the University. Work shall not begin until such approval has been given, and a bound copy of Project submittal is placed at an easily accessible location at the Project site.

E. Notifications and Permits: Submit copies of all regulatory agency notifications and permits.

1. Contactor is required to submit a "Lead-Work Pre-Job Notification" (8 CCR 1532.1(p)) for all projects, regardless of the amount of lead involved; a copy is to be provided to the UCDHS EH&S Representative.

F. Worker Training and Safety Programs

1. Training Certificates: For each employee who will be employed on the Project, submit a copy of each employee's lead training certification. UCDHS requires all contractor and subcontractor personnel directly involved with lead abatement to have current DHS lead training certificates at a level appropriate for the project task (e.g., Project Designer, Project Monitor, Supervisor, Worker, Inspector/Assessor).
2. Qualifications of person taking Personal Air Samples: Submit a copy of the DHS certificate for the field technician who will be collecting personal air samples.

G. Safety Programs: On company letterhead, submit confirmation that the Contractor has written safety programs for:

1. Injury Illness Prevention (mandatory for all projects),
2. Hazard Communication (mandatory for all projects),
3. Fall Protection (when applicable),
4. Lock Out Tag Out (when applicable),
5. Confined Space (when applicable).
6. Respiratory Protection (8 CCR 5144) (mandatory)
7. Medical Surveillance (8 CCR 1532.1(i)) (mandatory)
8. Lead Compliance (8 CCR 1532/1(e)(2)) (mandatory)

H. Work Plan and Schedule: Submit proposed Work plan and schedule for accomplishing lead remediation activities. The Work plan shall be Project specific and address Project site preparation, site and engineering controls, Worker protection and exposure monitoring, and protection of building occupants from exposure to LCM at or above the permissible exposure limit. Schedule of work must be submitted and approved before work begins. University's Representative will forward a copy to Hazardous Material Consultant for review prior to commencement of work.

I. Product Data Sheets and Material Safety Data Sheets (MSDS): For all products proposed for use on the Project, submit copies of the manufacturers' material safety data sheets to UCDHS EH&S for review, and copies of the Product Data Sheets to the University Representative for review.

J. Laboratory Qualifications: Any laboratory performing AA (flame), TCLP, STLC or TTLC for the Contractor shall submit evidence of ELLAP and ELPAT certification and accreditation. Laboratories performing worker exposure sample analysis must submit evidence of AIHA IHLAP certification for metals if they do not have ELLAP or ELPAT certification.

K. HEPA/ULPA Equipment Test: Submit copies of Leak test results to the University's

Representative prior to starting Project site Work. Leak testing shall be performed at the Project site. The Leak test results shall identify equipment by make, model and serial number.

L. Emergency Contact List: Submit an emergency contact list; include name, phone number, fax number and pager number for Contractor's supervisor or competent person who can be reached on a 24-hour basis.

M. Hazardous Waste Disposal Plan: Submit a Waste Disposal Plan that includes estimated number of containers), size of container(s), hazardous material transporter name and proposed disposal site before start of project. The disposal facility must be approved by the UCDHS EH&S representative.

N. Lead As-Built Summary: Submit a Lead As-Built Summary within 14 calendar days of the last day of field Work and prior to a request for final application for payment.

1.5 CONTRACTOR QUALIFICATIONS

A. Contractor licensing for this work will require a C33 or C61/D-38.

1.6 RULES AND REGULATIONS

A. The Contractor shall comply with the most recent edition of applicable Federal, State, local, and University standards, laws, codes and regulations. If a conflict exists between referenced regulatory requirements and Contract Documents, the Contractor shall notify the University's Representative in writing and request the conflict be resolved. Contractor performing Work contrary to mandated laws shall bear full legal and financial responsibility for the violations.

B. The list of regulators and regulations, cited below, serve as a reference for the most commonly used standards governing the lead industry:

1. FEDERAL REGULATORS AND REGULATIONS
   a. EPA - Environmental Protection Agency
      (1) 40 CFR Part 261 et al. - Resource Conservation and Recovery Act
      (2) Title X - Residential Lead Poisoning Prevention Act
      (3) National Ambient Air Quality Standards
   b. OSHA - Occupational Safety and Health Administration
      (1) 29 CFR 1926.62 - Construction Lead Standard
      (2) 29 CFR 1910.1025 - General Industry Lead Standard
      (3) 29 CFR 1910.147 - Lock Out - Tag Out
   c. DOT - Department of Transportation
      (1) 49 CFR Parts 173, 178 and 179
2. STATE REGULATORS, LAWS AND REGULATIONS
   a. Cal/OSHA - California Division of Occupational Safety and Health
      (1) 8 CCR 1532.1 - Construction Lead Standard
      (2) 8 CCR 5216 - General Industry Lead Standard
      (3) 8 CCR 5194 - Hazard Communication
      (4) 8 CCR 5157 - Confined Space
      (5) 8 CCR 5144 – Respiratory Protection
      (6) 8 CCR 3203 - Injury and Illness Prevention

b. DTSC - Department of Toxic Substances Control
   (1) (Health and Safety Code Chapter 6.5 Hazardous Waste Control, Article 6 Transportation and Article 6.5 Hazardous Waste Haulers
   (2) CCR, Title 22, Division 4, Sections 66000,et al.
c. CIWMB - California Integrated Waste Management Board
d. California Department of Health Services (DHS)
   (1) CCR, Title 17, Division 1, Chapter 8
e. SWRCB State Water Resources Control Board – CCR, Title 23
f. CSLB - California Contractors State License Board
g. Health and Safety Code 25157.8 (AB 2784 Natural Resources)

1.7 NOTIFICATION AND PERMITS

A. The Contractor is responsible for notifying Federal, State and local agencies, obtaining all required permits/extensions and paying all related fees, as required.

B. UC Davis

1. To obtain a Hot Work Permit from the UCDHS Fire Protection Office, call 916-734-3036 for instructions.
2. A Uniform Hazardous Waste Manifest shall be prepared by the Contractor or the transporter and approved by UCDHS EH&S for each load of hazardous waste transported from the work site. EH&S must notified at least 24 hours prior to the anticipated time of shipment.

C. Sacramento Metropolitan Air Quality Management District has no notification requirements unless entire structure is demolished.

D. Contractor is to submit a Lead-Work Pre-Job Notification to CAL/OSHA as required by 8 CCR 1532.1.

1.8 UNIVERSITY CONTACTS

A. **University's Representative: Name**

1. **Phone:**
2. **Fax:**
3.

B. **UCDHS EH&S Representative:Bob Lawson**

1. **Phone: 916-734-2740**
2. **Fax: 916-734-7309**
3. **Pager: 916-762-1994**
4. **Hazardous Waste Manifest and Disposal Facility Review/Approval**
   a. John Danby, 916-734-7329, pager 916-762-5210

C. **University Hazardous Material Consultant: Name**

1. **Phone:**
2. **Fax:**

PART 2 - PRODUCTS

2.1 MATERIALS

A. Material Safety Data Sheets (MSDS)

1. The Contractor shall provide MSDS for all products used on UC Davis job sites. The MSDS files shall be located near the Project site entrance.

2. One complete set of Material Safety Data Sheets is to be provided to UCDHS EH&S for review prior to the start of work.

B. Encapsulants

1. The choice of the correct encapsulant for a project is determined by agreement between the Contractor and the University's Representative. Two factors to consider in the choice are wear life (aim for 20 years) and usage patterns. Products shall be applied using a brush or an airless sprayer. The Contractor shall follow strict manufacturer's instructions regarding surface preparation, ambient air conditions, depth of material penetration, recommended thickness of a dry application, and curing time.
   a) For penetrating and lockdown purposes Foster 32-60, Certane 909, or equal is recommended.
   b) For bridging purposes Foster 32-32, Certane 2000, or equal is recommended.
   c) For high temperature applications, e.g., steam pipes, Foster 84-18, Certane 1000, or equal is recommended.
2. Any proposed equal to the products listed above must meet the following criteria: submit product information prior to the start of the Project and must receive approval bythe University Representative and UCDHS EH&S Representative; non-toxic and non-irritating as defined by the Hazardous Substance Control Act; sufficiently tinted to provide contrast with the material being coated; and have a minimum 60 psi Batelle Standard impact rating.
3. All products shall be rated UL Class A and have a flame resistance/spread rate less than or equal to 25 as designated by the ASTM code E 162. Any exceptions must be pre-approved by UCHDS Fire Prevention Office 916-734-3036.

C. Polyethylene Products

1. Floor and wall sheeting used for lead containments or critical barriers are required to be: a) 6-mil (floor) and 4-mil (walls); and, b) meet the following standards -- ASTM E-84, with a flame resistance/spread rate less than or equal to 25 ASTM (E-162).
2. Poly-America meets this standard. If an equal is proposed submit information to the University Representative or UCDHS EH&S Representative prior to the start of the Project.
3. The polyethylene sheeting used for containment or critical barriers shall be frosted or black. Polyethylene bags or sheeting used for waste shall be clear, but do not need to meet flame retardant standards.

D. Paint Removers

1. All paint removers shall be pre-approved by UCDHS EH&S.
2. The use of paint removers on the project must strictly comply with manufacturer application instructions and safety warnings.

2.2 EQUIPMENT

A. HEPA/ULPA vacuums and negative air machines must be leak tested on-site by a firm independent of the Contractor.

B. Tools and equipment shall arrive at the Project site free of lead debris and dust.

C. HEPA/ULPA vacuum exteriors must be clean when they arrive on Project site. All openings on the vacuum or the hoses must be taped shut until ready for operation.

D. All electric tools and equipment shall be connected to a GFCI.

E. Power tools used to prepare LBP or LCM surfaces must be connected to a HEPA/ULPA vacuum.

F. Heat Guns with a working temperature less than or equal to 1100º F are permitted.

PART 3 - EXECUTION

3.1 SAFETY

A. In accordance with State and Federal laws, Contractor shall be responsible for conditions of the Project site; including the safety of all persons and property during the performance of Work. To ensure effective communication in safety matters the Contractor shall participate and conduct the following meetings:

1. Mandated pre-construction safety meeting with the University's Representative, University Hazardous Material Consultant, and the UCDHS Hazardous Waste Manifest Representative. The following subjects shall be discussed: Division 13 Specifications; impact to building occupants; waste disposal, and Work related safety programs.
2. On the first day of lead field Work, the Contractor shall conduct a safety meeting (tailgate) for its employees and subcontractor employees that alert them to the specific hazards of the Project. The Contractor must conduct the safety meeting in the primary language of its employees. If needed, more than 1 primary language presentation must occur. This same initial safety meeting must be provided to all personnel new to the project before they are permitted to start work.
3. On a weekly basis, the Contractor shall conduct a safety meeting with its employees.

3.2 WORK SITE PREPARATION

A. Prior to beginning any on-site Work preparation, the Contractor shall walk the Project area with the University Hazardous Material Consultant and UCDHS EH&S Representative to discuss site characterization, regulated area set-up, access controls,

background samples, security, and safety issues.

B. Post all regulatory notices, permits, sign in-out roster and air sample results at the primary entrance to the Project site.

C. The Contractor, in coordination with the University Hazardous Material Consultant and UCDHS EH&S Representative shall ensure all electrical and HVAC equipment servicing the Work area is disconnected and locked out. Electrical tools in the Work zone must be connected to a GFCI.

D. The Contractor shall seal existing HVAC openings, windows, vents, open pipes, skylights, ducts, doorways, corridors, and diffusers with double layers of plastic and cardboard or plywood inserts as necessary.

E. The Contractor shall pre-clean fixed objects, grates, and interior surfaces prior to establishing containment or critical barriers. The area to be pre-cleaned will be a minimum of 10 feet outside the Controlled area or surrounding structure which ever is closest and sufficient to attain clearance sampling results of 40 µg/sf. The Contractor will pre-clean exposed fixed objects, grates, and interior surfaces within the containment.

F. The Contractor shall install approved backflow prevention devices before connecting to the University's domestic water system. Contact the University's Representative for a list of approved devices.

G. The Contractor is obligated to coordinate inspection schedules with the University's Representative and the University Hazardous Material Consultant.

H. The Contractor shall establish Project site control barriers.

3.3 WORK SITE CONTROL

A. The Contractor shall restrict the Work areas to authorized personnel; including, the Contractor's employees, University's Representatives, UCDHS EH&S Representative, University Hazardous Material Consultant and regulatory agency representatives.

B. At regulated Project sites, the Contractor shall use caution tape to demarcate the boundary of the Work zone and post lead warning signs.

1. The following sign is required by Title 8, CCR 1532.1

WARNING: LEAD WORK AREA
POISON

C. All unauthorized personnel are to remain outside the regulated area. The Contractor shall call the University's Representative, EH&S Representative or the University Hazardous Material Consultant about problem situations.

D. If inclement weather threatens the Project site, the Contractor shall take all necessary measures to ensure lead-contaminated debris does not migrate from regulated areas. Steps shall also be taken to prevent water intrusion/water damage to the work site and adjacent areas.

E. If wind speed threatens the Project site, the Contractor shall erect a wind barrier or suspend operations until the wind is below 15 mph.

3.4 RECORDKEEPING

A. The Contractor shall maintain the following records at the regulated Work area:

1. Site Log (sign-in/sign-out).
2. Incident Log and Emergency Action Plan.
3. Personal air sampling results.
4. Area sample results from inside and outside the regulated area shall be posted.
5. Lead Supervisor (Contractor) and Lead Worker training certificates, fit tests, and medical clearance certificates.
6. Federal, state or local notifications.

B. All Items 1 through 4 and 6 shall be submitted with the “As-Built” summary Identified in “Project Close-Out”.

C. The University Hazardous Material Consultant shall retain all records of wipe, bulk, initial, area (perimeter), and clearance samples. Results are reported on a daily basis to UCDHS EH&S. At the end of the Project, all sampling records are submitted as a complete package in the Project close out.

3.5 ADMINISTRATIVE CONTROLS

A. Any remediation Project performed in high heat environments requires the Contractor to provide sufficient breaks to maintain a safe environment for their Workers.

3.6 ENGINEERING CONTROLS

A. Negative Pressure Enclosure (NPE)

1. A Negative Pressure Enclosure is required when LCM or PLCM is likely to trigger exposures >AL.
2. There are 3 possible NPEs for the Project: full containment; mini-containment and glove bag.
3. Full containment protocols shall follow CCR Title 8, 1529. The following items are provided as a reminder of key elements and are not meant to be comprehensive: walls –2 layers are 4-mil polyethylene, floors – 2 layers 6-mil polyethylene, ceilings – 2 layers of 4-mil polyethylene; 3 stage decontamination unit with shower; sufficient negative pressure to maintain.04” of water column pressure; viewing port; NPE is smoke tested; appropriately-calibrated manometer alarm, and emergency response protocols.
4. Mini-containments: The construction of a mini-containment requires 2 layers of 6-mil polyethylene, 2 chambers, a HEPA/ULPA vacuum exhausting the second chamber, the chambers are affixed to the area to be abated and smoke tested. Comply with all mini-containment requirements stated in 8 CCR 1529.
5. Glove bag jobs shall comply with the provisions in 8 CCR 1529. The type of glove bag must correspond to the type of activity; e.g., angle glove bags for curved pipe sections, vertical glove bags for vertical pipe, etc. Glove bags must be smoke tested to establish that they are under negative pressure conditions.

B. Lead Shielding

1. Where lead shielding is to be removed, the contractor shall install six-mil plastic on the floor immediately surrounding the wall being removed that contains the lead shielding.
2. The lead shielding shall be removed using manual tools such as screw drivers, razor knives, shears, and pry bars. Power tools, heat guns, cutting torches, and other high temperature generating processes are prohibited due to rapid friction and heat increasing the potential to create fumes or dust.
3. Contractor shall use methods to minimize lead to the greatest extent possible (e.g., removing an entire wall instead of removing sheetrock from lead shielding prior to removal).

C. HEPA/ULPA Equipment

1. The Contractor shall ensure all HEPA/ULPA filtration units are leak tested on Project site by an independent testing contractor. Each piece of equipment shall be tested in compliance with the ANSI Z9.2 Standard (trapping and retaining 99.97% of all particles larger than 0.3 microns). Documentation of testing is to be maintained at the work site.
2. The Contractor shall HEPA/ULPA vacuum visible debris prior to set-up, during the removal process and at the conclusion of each shift.
3. HEPA/ULPA equipment used to establish negative air pressure within a space must run 24-hours a day until the Project is complete.
4. The Contractor shall ensure make-up air is drawn through an inlet that can be easily sealed in the event of a negative air failure. The inlet sealing method must also be effective when there is a failure in the system after normal Work hours.
5. All HEPA/ULPA filters must be disposed as hazardous waste.

D. Wet Methods

1. Prior to removing LCM/PLCM, the Contractor shall adequately wet the material with an approved surfactant. During and after removal, the waste must remain wet. If needed, HEPA/ULPA vacuum excess moisture from bags, burrito wraps or floors.

E. Removal Operations

1. The Contractor must have its DHS-Certified Lead Supervisor on-site during the removal of any lead.
2. During gross removal operations, keep the waste wet, continually bag the waste, and ensure all accumulated debris is completely sealed by the end of the shift. After gross debris is bagged, use wet wipe methods and HEPA/ULPA vacuums to clean the polyethylene sheeting.

F. Infection Control

1. An Infection Control Risk Assessment will be developed for this project by the University’s Representative and approved by the Medical Center’s Infection Control Nurse. Depending upon the location of the Work and the potential for

dust generation that could impact patient care, the ICRA may require more stringent controls than those described under this specification. Adequacy of controls may be verified by periodic airborne particle counting, conducted by an EH&S technician or a designee. Contractor understands that any operations generating particles in excess of particle count requirements will cause Contractor to modify site controls. Contractor is responsible for maintaining controls to cause particle counts to meet the criteria established in the ICRA. A copy of UCDHS' "Interpretative Guidelines for Dust Particle Monitoring of Indoor Air" is attached for reference.

3.7 WORKER PROTECTION

A. The following protective measures are required for lead-related Work associated with this Project. These measures are not intended to be all-inclusive:

1. Employee Training/Supervision
   a. The Contractor shall provide information to its employees about lead and other hazards per the Hazard Communication standard (8 CCR, 5194) and other Cal/OSHA standards (e.g., asbestos) as appropriate for the Project.
   b. All contractor and subcontractor personnel are to be trained to the level of their project assignment in accordance with DHS requirements in 17 CCR. Div. 1, Ch. 8.
2. Respiratory Protection
   a. The Contractor shall provide respiratory protection to all employees where there is the potential for exposure to lead dust at or above the permissible exposure limit. Respiratory protection shall be provided at no cost to the Contractor's employees.
   b. The Contractor's employees who wear a respirator must have passed a fit test within the previous 12 months to perform contract work at the University.
3. Protective Clothing
   a. The Contractor shall provide Workers with sufficient sets of protective clothing. Tyvek™, Kleenguard™ or equivalent, coveralls (with hood and feet protection) or equal are acceptable. The Contractor shall also provide coveralls to qualified UC Davis personnel, University Hazardous Material Consultant, State and local officials.
   b. The Contractor shall provide rubber or latex gloves, rubber boots, eye protection, earplugs and hard hats as needed per the 8 CCR, Hazard Communication and Personal Protective Equipment standards.
4. Medical Surveillance
   a. As required by 8 CCR 1532.1, the Contractor shall establish a medical surveillance program for all employees performing lead work.
   b. The Contractor shall confirm in writing that all project personnel are participating in the program.

3.8 PERSONAL HYGIENE

A. The Contractor shall require that no employee be allowed to apply cosmetics, or consume food, tobacco products, or beverages in the regulated Work area or any part of the building scheduled for lead remediation operations.

B. The Contractor shall establish a location outside the Work area, which shall be designated for employee eating and drinking. Employees must utilize the on-site decontamination facilities prior to entering the designated eating/drinking location.

3.9 AIR MONITORING PROGRAM

A. Personal Air Samples - Contractor Responsibility

1. The Contractor shall presume remediation activities shall exceed the PEL and conduct initial and daily exposure assessments.
2. Exposure assessments are to be conducted in accordance with 8 CCR 1532.1(d).

B. Area Sampling

1. Daily Perimeter Monitoring – University Hazardous Material Consultant Responsibilities
   a. The University Hazardous Material Consultant is responsible for monitoring the perimeter of the work zone; including, negative air exhaust. Air samples that exceed 30 ug/m3 per 8 hr. TWA require the University Hazardous Material Consultant to halt Work and notify the UCDHS EH&S Representative. Work may resume after the Contractor has identified and corrected the Work practice that led to the high reading.
2. Daily Monitoring – University Hazardous Material Consultant Responsibilities
   a. The University Hazardous Material Consultant is responsible for monitoring air quality within the regulated area, including the clean room. Any sample at or above 30 $\mu g/M^3$ TWA in the clean room requires a cessation of Work until the area is cleaned and the cause of the problem has been determined and solved; the UCDHS EH&S Representative is to be notified immediately of any such actions. The Contractor shall wipe down and re-sample the clean room. Air samples in the Work zone that exceed the protection level of a respirator require a cessation of activity.The Contractor's competent person and the University Hazardous Material Consultant shall review Work practices.

3.10 SPECIFIC WORK PROTOCOLS

A. Specific Work protocols, cited below, provide minimum guidance for the performance of site Work.

1. Initial Site Clean-Up
   a. LBP/LCM chips, visible dust and debris shall be removed from surfaces and soil (including landscape e.g. trees, bushes, etc.) in preparation for Remediation jobs.
   b. The University's Hazardous Material Consultant determines the extent of pre-cleaning. The area to be pre-cleaned will be a minimum of 10' outside the Controlled area or surrounding structure which ever is closest and sufficient to attain clearance sampling results of 40 µg/sf. The Contractor will pre-clean exposed fixed objects, grates, and interior

surfaces within the controlled area. As a minimum standard, pre-cleaning shall include HEPA vacuuming surfaces adjacent to and under critical barriers.

c. LBP/LCM contaminated chips, debris etc. shall be collected using worker protection measures, HEPA vacuums, wet methods, polyethylene bags, lead warning labels and proper disposal protocols.

2. Interim Controls (In-Place-Management)

a. This is a control measure to reduce or eliminate lead exposure for less than 20 years; it is not considered abatement. Several strategies are used to control potential exposure to LCM left in place; including, dust removal, paint stabilization, treatment of impact/friction surfaces, and soil coverings.

b. Establish a regulated area with barrier tape, warning sign at all possible entrances and visual barriers.

c. Erect critical floor barriers to contain liquid and dry waste for interior and exterior job sites. The barriers shall be large enough to contain any LCM debris dislodged during the surface preparation phase. A portion of the critical floor barrier, furthest from surface preparation activities, shall be reserved for decontamination. A line of duct tape shall mark the 2 activity zones. Critical barrier walkways are used to connect multiple job sites. The use of NPEs is governed by CAL/OSHA standards. However, anytime the AL is exceeded the University's Representative may direct that a NPE be immediately established. The Contractor shall erect critical wall barriers when directed by the University's Hazardous Material Consultant.

d. Minimum requirements for Employee cleanliness are; Set-up a 2-bucket cleaning station for personnel to clean exposed skin. The cleaning station shall be placed on a portion of the critical floor barrier specifically established for decontamination. Liquid soap and disposal towels shall be available at the site.

e. Use paste strips, paint remover (pre-approved), wet sanding, wire brushes and or HEPA equipped sanders to prepare LCM surfaces. All edges must be feather wet-sanded.

f. If the scope of work requires LBP on impact or friction surfaces be removed then, they must be stripped to the substrate; especially for interior doors and window. Cleaning LBP that has been absorbed deeply into wood grain is not required, but an impact resistant coating shall be applied as an initial and finish coat(s).

g. Dry blasting LCM is not permitted except by special circumstances pre-approved by the UCDHS EH&S Representative.

h. Water blasting LCM surfaces (with or without grit, vacuum assisted) require pre-testing for correct pressure, angle and tip design. All possible leak points must be sealed (i.e. around windows). Direct water spray shall not be allowed within 1" of leak points. Water must be trapped, filtered to 0.3 microns and stored in a lockable container until a TCLP has been performed. Any processes and setups to use water blasting must be reviewed and approved by the UCDHS EH&S Representative; emphasis will be placed on provisions for containing and controlling water.

i. After LCM surfaces have been prepared, use a three-bucket system for cleaning prepared surfaces. The first bucket contains a detergent, the

second bucket is the primary rinse and the third bucket is the secondary rinse.

3. Abatement
   a. Abatement permanently eliminates LCM products for a period of time greater than 20 years. Abatement strategies are applied by building equipment/components (e.g., motor, and wall), by room or by building. Unless a whole unit is free of lead, the component, room or building is not considered lead-free.
   b. Establish a regulated area with barrier tape, warning sign at all possible entrances and visual barriers.
   c. Erect critical floor barriers to contain liquid and dry waste for interior and exterior job sites. The barriers shall be large enough to contain any LCM debris dislodged during the surface preparation phase. A portion of the critical floor barrier, furthest from surface preparation activities, shall be reserved for decontamination. A line of duct tape shall mark the 2 activity zones. Critical barrier walkways are used to connect multiple job sites. The use of NPEs is governed by CAL/OSHA standards. However, anytime the AL is exceeded the University's Representative may direct a NPE be immediately established. The Contractor shall erect critical wall barriers when directed by the University's Representative.
   d. Minimum requirements for Contractor Employee cleanliness are; Set-up a 2-bucket cleaning station for personnel to clean exposed skin. The cleaning station shall be placed on a portion of the critical floor barrier specifically established for decontamination. Liquid soap and disposal towels shall be available at the site.
   e. Use paste strips, paint remover (pre-approved), wet sanding, wire brushes and or HEPA equipped sanders to prepare LCM surfaces. All edges must be feather sanded. LBP on impact or friction surfaces must be stripped to the substrate; especially for interior doors and window. Cleaning LBP that has been absorbed deeply into wood grain is not required, but an impact resistant coating shall be applied as an initial and finish coat(s).
   f. Dry blasting LCM is not permitted except by special circumstances pre-approved by the UCDHS EH&S Representative.
   g. Water blasting LCM surfaces (with or without grit, vacuum assisted) require pre-testing for correct pressure, angle and tip design. All possible leak points must be sealed (i.e. around windows). Direct water spray shall not be allowed within 1" of leak point Runoff must be trapped, filtered to 0.3 microns and stored in a lockable container until a Waste Stream Testing has been performed. Any processes and setups to use water blasting must be reviewed and approved by the UCDHS EH&S Representative; emphasis will be placed on provisions for containing and controlling water.
   h. After LCM surfaces have been prepared, use a three-bucket system for cleaning prepared surfaces. The first bucket contains a high phosphate detergent, the second bucket is the primary rinse and the third bucket is the secondary rinse.

3.11 INSPECTIONS

A. Inspection Responsibilities - Contractor

1. Prior to beginning any lead-related Work, the Contractor's lead supervisor shall inspect the regulated Work areas for any building damage, hazardous conditions and/or irregularities that may contribute to an unsafe Work environment. Any condition that poses a hazard or potential hazard to the Contractor's employees or the University's employees, patients and visitors must be immediately reported to the University's Representative.
2. Prior to encapsulation, all surfaces are to be HEPA vacuumed, wet wiped and HEPA vacuumed.
3. The Contractor is responsible for monitoring and enforcing all requirements of this specification.
4. The Contractor is responsible for notifying and allowing sufficient time for the University Hazardous Material Consultant to conduct inspections at all phases of the Project.
5. The Contractor shall establish emergency response protocols for a manometer alarm sounding after they have left the Project site. Under no circumstances shall the Contractor shut off negative air machines, unless the Project has received final clearance.
6. All waste will be characterized and separated. Wastes will be sampled individually as directed by the University Hazardous Materials Consultant to determine levels of lead before containerizing for shipment.

B. Inspection Responsibilities – University Hazardous Material Consultant

1. The University Hazardous Material Consultant shall walk the Project site with the Contractor and the UCDHS EH&S Representative to review scope of work, pre-cleaning operations and any safety or security issues. The University Hazardous Material Consultant shall attend the Contractor's safety meetings.
2. After the Contractor has completed set-up and before commencing operations, the University Hazardous Material Consultant shall check for completeness of the following required items, including: regulated area is demarcated and posted, permits are posted, poly sheeting is correct mil thickness, all HEPA/ULPA equipment is leak tested, electrical tools are connected to GFI, HVAC is shut off and all ports blocked with 6 mil polyethylene/cardboard/plywood, electrical panels are tagged and locked out, electrical outlets are sealed with 6 mil poly, a fire extinguisher is available inside and outside the containment, and water connections are made with a back flow prevention device. If a NPE is used: the Contractor shall maintain a minimum of 0.04" of water pressure; the manometer alarm is to remain on until clearance is achieved; 3 stage decontamination is sealed; air flow is correct as verified by smoke tests, and the shower is functioning with hot and cold water.
3. Prior to lead abatement or interim control activities beginning, the University Hazardous Material Consultant shall match on-site personnel with lead training certificates, fit tests and medical exam records. Workers without on-site documentation shall not be allowed in the regulated area.
4. The University Hazardous Material Consultant is responsible for:
    a. Reviewing all wipe, bulk, background, area, personal samples, and all waste stream profiles.
    b. Alerting the UCDHS EH&S Representative of any sample result exceeding 30 $\mu g/M^3$ per 8 hr. TWA.
5. During abatement or interim control activities, the University Hazardous Material Consultant shall check for the following required items, including: all personnel

are signing in and out, wet methods are being used, debris is collected at the end of each shift, Workers are properly attired and wearing respirators, Work is performed in a safe manner, and an emergency exit is demarcated. The lead waste may remain inside the containment, provided access controls are secure. If the Contractor cannot guarantee access control, the lead waste must be secured in a locked storage container.

6. The University Hazardous Material Consultant must file a daily lead report with the University's Representative and the UCDHS EH&S Representative.
7. After abatement or interim control activities are complete and before lockdown or encapsulant is sprayed, the University Hazardous Material Consultant shall verify completeness of abatement or interim control Work; all visible debris is removed, approved lockdown or encapsulants are being used; application amount meets manufacturer specifications, and overspray is controlled.
8. If clearance is not achieved, the University Hazardous Material Consultant shall ensure the Contractor re-cleans and re-samples the regulated area.
9. University Hazardous Material Consultant shall review contractor's waste characterization for the most efficient disposal for the University; all recommended disposal processes must be reviewed and approved by the UCDHS EH&S Representative.

3.12 ENCAPSULATION , FINAL CLEAN-UP AND RESTORATION

A. Encapsulation

1. Remove all waste
2. HEPA/ULPA vacuum the entire workspaces, including, walls, floors and ceiling.
3. Wash down (Wet Wipe) all interior surfaces, equipment and supplies.
4. HEPA/ULPA vacuum the entire workspaces, including, walls, floors and ceiling.
5. Clean and remove all equipment and supplies.
6. Using an approved encapsulant, spray all surfaces at the manufacturer's pressure and application rates. If painting is to follow remediation then the University's Representative may approve a base coat of the painting system to be applied as an encapsulant.

B. Final Clean-Up

1. After the encapsulation is dry and clearance has been achieved, HEPA/ULPA vacuum, then remove polyethylene sheeting and dispose as non-hazardous waste.
2. Remove critical barriers, negative pressure enclosures, and other sealed openings (HVAC ducts, etc.), HEPA/ULPA vacuum and dispose as non-hazardous waste.

C. Restoration

1. Fixtures, equipment or objects relocated to storage areas designated by the University's Representative shall be restored to their exact position. The Contractor assumes full financial responsibility for damage to these objects.

3.13 WASTE DISPOSAL

A. Packaging Lead Waste
   1. All lead containing waste material must be packaged and labeled in accordance with U.S. DOT, DTSC and EPA requirements.

B. Storing Lead Waste
   1. At the end of each shift, all lead waste shall be stored in a lockable container or shipped off site. Accumulated waste shall not be allowed to remain in the regulated Work area overnight. No container shall be allowed to remain at the Medical Center for greater than 90 continuous days from date the first bag was stored.

C. Uniform Hazardous Waste Manifest Procedures
   1. The Contractor or transporter is responsible for providing appropriate Uniform Hazardous Waste Manifests for the transport of the waste materials. Only authorized EH&S personnel can sign on behalf of the UC Davis Medical Center (generator).

D. Transporting Lead Waste to Class 1 Landfill
   1. A DTSC registered waste transporter, hired by the Contractor, is responsible for transporting hazardous lead waste from the Medical Center to Chemical Waste Management, 35251 Old Skyline Road, Kettleman City, CA 93239, an EPA permitted disposal facility. Under certain conditions, UCDHS EH&S will permit hazardous lead waste to be transported to an alternative facility.
   2. The transporter must make pick-ups during normal Working hours - 8:00 AM to 5:00 PM, Monday through Friday. The Contractor must comply with DOT label requirements for their vehicles.
   3. The Contractor must make shipments of lead waste containing less than 1,000 mg/kg lead but greater than 350 mg/kg of lead to a Class 1 landfill. This shipment does not require a registered waste hauler.

E. Disposal
   1. The selection of a Treatment, Storage and Disposal Facility as an alternative to Kettleman Hills for disposal of lead waste must be reviewed and approved by the EH&S representative prior to arranging for the shipment of the waste.
   2. The Contractor shall provide waste documents from the Waste Disposal site as verification of the weight and proper disposal site, to the UCDHS EH&S Representative within 15 days of each container disposal.
   3. Lead waste that has been contaminated with another hazardous waste (e.g. solvents) must be tested and disposed according to all applicable standards.
   4. All lead waste will be sampled for Characterization before determination of Hazardous or Non-Hazardous material is made. Sequence of testing is as follows:
      a. TTLC with a result of 50mg/kg or more of lead must be retested using STLC method.
      b. A STLC result of 5.0 mg/l or more must be retested using TCLP.
      c. A TCLP result of 5.0 mg/l or more deems the waste Federal RCRA.
      d. A TCLP of <5mg/l is categorized as State Hazardous Waste (Class 1).
      e. A TTLC with a result of >350 mg/kg but <5.0 mg/l (STLC and TCLP) must go to landfill chartered to accept this level of lead although it is not hazardous. (See Item 6 below)
   5. Contractor shall provide a waste stream report to the University Hazardous Material Consultant identifying the number of containers and an explanation of how the samples were taken (composite or individual container sampling). A waste stream profile must be conducted on each unique waste stream.

Confirmation will be provided by the Contractor, indicating all waste streams have been sampled per project specifications.

6. All waste with total lead greater than 350 ppm (mg/kg) disposed of in California, must be disposed of at a permitted Class 1 Hazardous waste landfill, or at other landfills that have specific permits to accept these wastes. However, the wastes are not classed as hazardous wastes unless for a reason other than lead content. The California hazardous waste threshold for total lead is 1,000 ppm and the soluble threshold concentration (STLC) for lead is 5ppm.

F. Recordkeeping

1. The Contractor shall provide the UCDHS EH&S Representative with copies of all waste disposal documents.

G. Fees

1. The Contractor is responsible for all fees and charges related to lead waste transport and disposal operations; including, waste steam profiles. Refer to SW-846-1311 (TCLP) and CCR, Title 22 Section 66261 (STLC) for waste stream identification requirements

H. Non-Hazardous Waste Manifest

1. The UCDHS EH&S Representative is responsible for reviewing and signing non-hazardous waste manifests. Prior to the Representative signing the manifest, the University Hazardous Material Consultant shall inspect the load and confirm its non-hazardous status.

I. Recycled Metals

1. Recycling ferrous or non-ferrous metals with adhered lead paint is encouraged by the University. Particularly, the University expects that lead shielding will be recycled. This section defines "Hazardous Waste" for the purpose of defining waste stream as material that is placed in a land fill. Employee protection regulations remain the same during disturbance of lead. The Contractor is required to remove all loose and flaking paint. The Contractor is responsible for removing all other hazardous material that is unacceptable by the recycling firm. The Contractor is required to recycle where possible. The contractor will obtain a letter from the recycler acknowledging that the recycler is aware of the lead paint and has an Injury Illness Prevention Policy (IIPP) that addresses the handling of this material that meets OSHA and EPA regulations. At this time there is no University requirement for testing (TTLC, STLC, or TCLP) if material is recycled.

a. Refer to Section 01738 Construction & Demolition Waste Management (Exhibits 31 and 32) and Section 01906 Hazardous Materials Procedures for further instructions.

3.14 CLEARANCE PROTOCOL

A. Abatement and Interim Control Projects

1. Prior to any clearance sampling, the regulated areas shall be visually inspected by the University Hazardous Material Consultant for the presence of LBP chips, visible settled dust or debris. Final clearance sampling shall not take place until the area has successfully passed this visual clearance.
2. Wipe samples shall be collected by the University Hazardous Material Consultant prior to the application of an encapsulant. Using a “S” pattern, the Consultant shall wipe 1 square foot of the surface being tested with a commercial wipe moistened with non-alcohol wetting agents. Clearance wipe sampling shall be conducted on each unique building component.
3. The University Hazardous Material Consultant and University’s Representative following HUD guidelines, shall select the total number of clearance samples for each job site.
4. HUD Interim Clearance Standards are the basis for interpreting analytical results. 40 $\mu g/ft^2$ for wipe sample(s).
5. If the Contractor performs any activity that disturbs or triggers LCM after clearance, they are obligated to pay for re-cleaning and re-testing until clearance is achieved.

3.15 PROJECT CLOSE OUT

A. Before the final certificate for payment is issued to the Contractor the following information shall be provided to the University’s Representative:

1. Using Exhibit 25 Lead Remediation-As-Built Summary (located in the Exhibits section of the Contract Documents) provide “As-Built” summary to include:
   a. Contractor’s name, address, CSLB certification number, DOSH registration number, and tax identification number.
   b. Name of hazardous transporter, address, phone number and registration number.
   c. ELAP laboratory name(s), address(es), and phone number(s) used to perform AA (flame), TCLP, TTLC or STLC.
   d. Building name and campus address
   e. Project name and contract number
   f. Describe scope of Work; Interim Controls or Abatement and location (room number[s]); provide drawings detailing the areas in which lead work that was accomplished.
   g. Provide an inventory of the LCM/PLCM removed from the Project site. Include; building system, quantity, note whether the Project was Abatement or Interim Controls, the percentage of the total lead job for each building system type and cost.
   h. Total dollar amount paid by the University for lead-related Work including invoice date(s) and date(s) payment received.
   i. Number of employees who worked on the Project
   j. Date on-site Work began
   k. Date on-site Work was completed
   l. Work methods
   m. Did the University provide specification (answer yes or no).
   n. Name, address, phone number and EPA registration number of waste disposal site.
   o. Note that all copies of waste documents from the Waste Disposal site for hazardous material must be received by the University’s Representative as part of this section.

B. Documentation

1. The Contractor shall provide copies of all laboratory reports Lead Work protocols, and disposal documents requested by the University's Representative. All documents relating to actual employees used for remediation purposes (see Section 3.4, A).

END OF SECTION 13281

SECTION 22 05 53
PLUMBING IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Valve identification
2. Piping identification
3. Signage

1.2 REFERENCE STANDARDS

A. ANSI/ASME A13.1 – Scheme for the Identification of Piping Systems.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: Submit samples of each color, lettering style, and other graphic representation required for each identification material or system.

C. Schedules:

1. Valve identification chart and schedule, including valve numbering system, valve tag number location, function type, and valve manufacturer's name and model number.
2. Lists of pipe and equipment to be labeled.

1.4 QUALITY ASSURANCE

A. Coordinate color coding with the University's Representative for preferred color schemes and service abbreviations and valve and equipment numbering schemes prior to submittal review.

B. Coordinate installation of identifying devices with completion of covering of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices, pipe identification and flow arrows before installing acoustical ceilings and similar concealment.

E. Coordinate painting schemes of plumbing piping, if required, with University's Representative prior to submittal review.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer:

1. Brady/Seton

2. Stranco

3. Rowmark

4. Or equal

2.2 MANUFACTURER'S IDENTIFICATION

A. Manufacturer's nameplate, name, or trademark shall be permanently affixed to all equipment and material furnished under this Specification. The nameplates of the Subcontractor or Distributor are not acceptable.

2.3 VALVE IDENTIFICATION

A. Attached to stem of each control valve and line shutoff valve installed under Division 22, with No. 16 brass chain, color-coded plastic laminate tag. Engrave laminate tags with 1-inch designated numbers in accordance with typed schedule showing valve size, locations, service, similar to the following form:

RW: 3-inches
Shutoff, Toilets
3rd Floor
Column F-8

1. Engrave identification tags "normally open" (green) or "normally closed" (red).

2. Do not identify valves where the use is obvious, such as equipment isolation valves.

3. Tag all valves except fixture stops.

4. Label plumbing valves "Plbg" plus valve identification number.

5. Number tags to conform to directory listing number, location, and use.

B. Access panel markers: Provide manufacturer's standard 1/16 inch thick engraved plastic laminate access panel markers, with abbreviations and numbers corresponding to concealed valve. Include 1/8 inch center hole to allow attachment.

2.4 PAINTED IDENTIFICATION MATERIALS

A. Stencils: Standard fiberboard stencils, prepared for required applications with the letter sizes generally complying with recommendations of ANSI A13.1 for piping and similar applications, but not less than3/4 inch high letters for access door signs and similar operational instructions.

B. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

C. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ANSI A13.1 for colors.

2.5 PIPE IDENTIFICATION

A. General requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

C. Small pipes: For external diameters less than 6 inches (including isolation if any), provide full-band pipe markers, extending 360 degrees around pipe at each location, fastened by one of the following methods:

1. Snap-on application of pre-tensioned semi-rigid plastic pipe marker.

2. Adhesive lap joint in pipe marker overlap.

3. Laminated or bonded application of pipe marker to pipe (or insulation).

4. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 3/4 inch wide; full circle at both ends of pipe marker, tape lapped 1-1/2 inches.

D. Large pipes: For external diameters of 6 inches and larger (including isolation if any), provide either full-band or strip-type pipe markers, but not narrower than 3 times letter height (and of required length), fastened by one of the following methods:

1. Laminated or bonded application of pipe marker to pipe (or insulation).

2. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 1-1/2 inch wide; full circle at both ends of pipe marker, tape lapped 3 inches.

3. Strapped to pipe application of semi-rigid type, with manufacturer’s standard stainless steel bands.

E. Pipe Label Contents: Include identification of piping service using piping system nomenclature as specified, scheduled or shown, and abbreviate only as necessary for each application. Include pipe size and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions or as separate unit on each pipe label to indicate flow direction.

2. Lettering Size: At least 1-1/2 inches high.

F. Locate pipe markers as follows:

1. Within one foot of each valve, fitting, thermometer or gauge (except on plumbing fixtures).

2. At each branch or riser take off.

3. At each passage through walls, floors and ceiling construction.

4. At each pipe passage to underground.

5. On all horizontal pipe runs every 20 ft, at least twice in each room and each story traversed by piping system.

6. Identify piping contents, flow direction, supply and return.

7. Where capped piing is provided for future connections, provide legible and durable tags indicating symbol identification.

8. At wall and ceiling access panels.

9. Practicable variations or changes in locations and spacing may be made with specific approval of the University's Representative to meet specific conditions.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

B. Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, including valve tags in finished mechanical spaces, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.

3.2 PIPE SYSTEM IDENTIFICATION

A. General: Provide for all systems unless indicated otherwise.

B. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:

1. At access doors, manholes, and similar access points that permit view of concealed piping.

2. Near major equipment items and other points of origination and termination.

3. 50 feet intervals.

C. Types: Install pipe markers of one of the following types on each system, and include arrows to show normal direction of flow:

1. Stenciled markers, including color-coded background band or rectangle, and contrasting lettering of black or white. Extend color band or rectangle 2 inches beyond ends of lettering.

2. Stenciled markers, with lettering color complying with ANSI A13.1.

3. Plastic pipe markers, with application system as indicated under "Materials" in this Section. Install on pipe insulation segment where required for hot non-insulated pipes.

4. Stenciled markers, black or white for best contrast, wherever continuous color-coded painting of piping is provided.

D. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.

1. Near each valve and control device. Within one foot of each valve, fitting, thermometer or gauge (except on plumbing fixtures).

2. At each branch or riser take off, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.

3. At each passage through walls, floors and ceiling construction, or enter non-accessible enclosures.

4. At each pipe passage to underground.

5. At access doors, manholes and similar access points which permit view of concealed piping. At wall and ceiling access panels. Practicable variations or changes in locations and spacing may be made with specific approval of the University’s Representative to meet specific conditions.

6. Near major equipment items and other points of origination and termination.

7. Spaced intermediately at maximum spacing of 50 feet (15m) along each piping run, except reduce spacing to 25 feet (8 m) in congested areas of piping and equipment.

8. On all horizontal pipe runs every 20 ft, at least twice in each room and each story traversed by piping system.

9. On piping above removable acoustical ceilings, except omit intermediately spaced markers.

10. Where capped piping is provided for future connections, provide legible and durable tags indicating symbol identification.

11. Identify piping contents, flow direction, supply and return.

3.3 VALVE IDENTIFICATION

A. General: Provide valve tag on every valve cock and control device in each piping system; exclude check valves, and similar rough-in connections of end-use fixtures and units. List each tagged valve in valve schedule for each piping system.

B. Valves Concealed in Suspended Ceilings: Provide 1/4-inch-high plastic tape marker identifying the valve number on the nearest ceiling grid member.

3.4 ADJUSTING AND CLEANING

A. Adjusting: Relocate any plumbing identification device which has become visually blocked by Work of this Division or other Divisions.

B. Cleaning: Clean face of identification devices.

3.5 EXTRA STOCK

A. Furnish minimum of 5% extra stock of each plumbing identification material required, including additional numbered valve tags (not less than 3) for each piping system, additional piping system identification markers, and additional plastic laminate engraving blanks of assorted sizes.

1. Where stenciled markers are provided, clean and retain stencils after completion of stenciling and include used stencils in extra stock, along with required stock of stenciling paints and applicators.

END OF SECTION 22 05 53

SECTION 27 05 00
COMMON WORK RESULTS FOR COMMUNICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes, but is not necessarily limited to, common standards and procedures for the Communications Work.

B. This Section outlines areas of responsibility between Owner, Architect, and Contractor.

C. Owner will assist with a collaborative process to determine the most cost effective and efficient means to reach the common goal of providing communications within the facility for the project, including assessing user needs and assessing required pathways. The Owner is available upon request to assist at no additional cost to the project. It is incumbent upon the construction team management to approach and engage the Owner at the appropriate times for collaboration.

D. As part of the project, the construction team must design, engineer, and provide complete, all means of support, suspension, attachment, fastening, bracing, and restraint (hereinafter “support") of the Communications Systems; and provide engineering of such support by parties licensed to perform work of this type in the project jurisdiction.

1.2 ITEMS PROVIDED BY OWNER

A. Registered Communications Distribution Designer (RCDD) support services

B. IT project management

C. Submittal approvals

D. Network equipment

E. 802.11 Wireless Access Point hardware

1. Installation by construction team when wireless access point mounting requires seismic support or a construction activity such as screwing, drilling, or welding.
2. Owner will provide 802.11 design services.

F. Rack and Stack

G. Plug Pack Distribution (Pre-terminated switch port cabling provided and installed by the Owner)

H. Patch Cords and Patching

I. IT UPS System (installation by construction team)

J. PDU Power distribution Equipment

K. VOIP Router, Voice Gateway, VOIP equipment

L. Camera NVR/Server

M. Overhead Paging Amplifier

N. TV Distribution Amplifier

O. Closet Cleaning postproduction

1.3 ITEMS PROVIDED BY CONSTRUCTION TEAM

A. Building Drawings and Floor Plans
B. Site Plans
C. Furniture Plans
D. As-Built Drawing Submittals
    1. As-built drawing per section 1.10
    2. Cabling Schedule
    3. Desktop Inventory Sheet
        a. Spread sheet listing cable number and location for every cable installed.
            1) Cable number; room number, wall (north, south, east, west)
E. Attachments to structure
F. In wall cabling
G. In wall cabling supports
H. Wireless Access point seismic support installation where required.
I. Cabling test results
J. Patch Panels
K. Horizontal Wire Managers
L. Vertical Wire Managers (installation by construction team)
M. Racks for mounting cabling and equipment (installation by construction team).
N. Horizontal cable, jacks, faceplates, surface mount boxes, cable trays, termination hardware, and all materials needed for a complete horizontal cabling plant as defined in the Section and associated Sections and the construction documents not otherwise listed for provision by the Owner.
O. Fiber housing, cassettes, and splicing.
P. Construction Clean Closet Cleaning

1.4 RELATED SECTIONS

A. 27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS
B. 27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
C. 27 05 53 IDENTIFICATIONS FOR COMMUNICATIONS SYSTEMS
D. 27 15 00 COMMUNICATIONS HORIZONTAL CABLING

1.5 REFERENCES AND STANDARDS

A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
    1. UC Davis Health Telecommunications Standards
    2. American National Standards Institute (ANSI)
    3. Telecommunications Industry Association (TIA)
    4. Building Industry Consulting Services International (BICSI)

5. American Society for Testing and Materials (ASTM)
6. Institute of Electrical and Electronic Engineers (IEEE)
7. National Electrical Manufacturers Association (NEMA)
8. Underwriters Laboratories, Inc. (UL)
9. Local Authorities Having Jurisdiction (AHJ)

B. Codes: Perform Work executed under this Section in accordance with applicable requirements of the latest edition of governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:

1. United States Department of Labor (DOL) Regulations (Standards - 29 CFR)
2. Part 1910, “Occupational Safety and Health Standards”
3. California Code of Regulations (CCR) Title 24, California Building Standards Code Part 2, Basic Building Regulations and Part 3, California Electrical Code (CEC).
4. 2022 California Building Code (CBC).
5. 2022 California Fire Code (CFC).
6. 2022 California Mechanical Code (CMC).
7. National, State and any other binding building and fire codes.
8. FCC Regulations:
   a. Part 15 – Radio Frequency Devices & Radiation Limits
   b. Part 68 – Connection of Terminal Equipment to the Telephone Network
9. Underwriter's Laboratories (UL): Applicable listing and ratings, including but not limited to the following standards:
   a. UL 444: Communications Cables
   b. UL 497: Protectors for Paired-Conductor Communication Circuits.
   c. UL 1651: Optical Fiber Cable
   d. UL 1690: Data-Processing Cable
   e. UL 1963: Communications-Circuit Accessories
   f. UL 2024A: Optical Fiber Cable Routing Assemblies.
10. ANSI/TIA/EIA-568.1-E Commercial Building Telecommunications Cabling Standard.
11. ANSI/TIA/EIA-569-E Commercial Building Standard for Telecommunications Pathways and Spaces.
12. ANSI/TIA/EIA-598-D Optical Fiber Cable Color Coding.
13. ANSI/TIA/EIA-606-C Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
14. ANSI/J-STD-607-D Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
15. ANSI/TIA/EIA-758-B Customer-Owner Outside Plant Telecommunications Cabling Standard.
16. EIA testing standards.
17. Insulated Cable Engineers Association (ICEA):
    a. ANSI/ICEA S-83-596-2016 Fiber Optic Premises Distribution Cable
    b. ANSI/ICEA S-87-640-2023 Fiber Optic Outside Plant Communications Cable

c. ANSI/ICEA S-90-661-2021 Category 3, 5, & 5e Individually Unshielded Twisted Pair Indoor Cable for Use In General Purpose and LAN Communication Wiring Systems
d. ICEA S-104-696-2019 Standard for Indoor-Outdoor Optical Cable

18. Telecommunications Distribution Methods Manual (TDMM)

1.6 ABBREVIATIONS

A. ADA Americans with Disabilities Act
B. AFC Above Finished Ceiling
C. AFF Above the Finished Floor
D. BDF Building Distribution Frame – See Telecommunications Room (TR)
E. BLDG Building
F. CAT Category (Related to network cable types)
G. DIV Division
H. (E) Existing
I. ER IT Equipment Room – See Telecommunications Room (TR)
J. GE Grounding Equalizer – Part of the Telecom Grounding System
K. HR Homerun
L. ID Inside Diameter
M. IDF Intermediate Distribution Frame – See Telecommunications Room (TR)
N. IT UC Davis Health IT Department (also UC, UCDH, UCD IT, IT Facilities)
O. LAN Local Area Network
P. MAX Maximum
Q. NIC Not in Contract
R. OD Outside Diameter
S. TBB Telecom Bonding Backbone – Part of the Telecom Grounding System
T. TGB Telecommunications Ground Busbar
U. TMGB Telecommunications Main Ground Busbar
V. TR Telecommunications Room, TR may also be used interchangeably with ER, IDF, MDF, or Communications Room
W. TYP Typical
X. UCD UC Davis Health IT Department (also UC, UCDH, UCD IT, IT Facilities)
Y. UFE University Furnished Equipment
Z. UON Unless Otherwise Noted

1.7 DEFINITIONS

A. Telecommunications Room (TR) – An enclosed space for housing telecommunications equipment, cable, terminations, and cross-connects. The room is the recognized cross-connect between the backbone cable and the horizontal cabling. The minimum size of a TR shall be 10’ x 16.’
B. Intermediate Distribution Frame (IDF) – See Telecommunications Room (TR)

C. Entrance Facility (EF) (Telecommunications) – An entrance to the building for both private and public network service cables (including antennae) including the entrance point at the building wall and continuing to the entrance room or space. The minimum size of a TR shall be 10’ x 16.’

D. Pathway – A physical infrastructure utilized for the placement and routing of telecommunications cable.

E. Infection Control – Clinical Environment Infection Control or ICRA

F. “Cabling”: A combination of cables, wire, cords, and connecting hardware [e.g., cables, conductor terminations, connectors, outlets, patch panels, blocks, and labeling].

G. “Identifier”: A unique code assigned to an element of the telecommunications infrastructure that links it to its corresponding record.

1.8 QUALITY ASSURANCE

A. Contractor Firm Qualifications:

1. All work for the Communications (low voltage) Infrastructure installation shall be self-performed by the Communications Contractor; subcontractors shall not be allowed under the Communications Contractor unless approved by UCDH.

B. Communications Contractor shall:

1. Be a Panduit Corp. PCI (Panduit Certified Installer) Design and Installation Contractor or approved equal.
2. Be a firm which is regularly and professionally engaged in the installation and testing of the specified communications equipment and infrastructure.
3. Be licensed to install low voltage electronic cabling systems in the State of California where applicable (C7 License).

C. Communications Contractor shall demonstrate experience in providing successful installation of data infrastructure systems:

1. Submit documentation for a minimum of three and a maximum of five successful low voltage communications infrastructure system installation projects completed within the past three years.

D. Contractor Key Personnel Qualifications:

1. Provide key personnel who are regularly and professionally engaged in the business of the application, installation and testing of the specified low voltage communications systems, equipment, and infrastructure. There may be one key person or more key persons proposed for this project depending upon how many of the key roles each has successfully provided.
2. Each of the key personnel shall demonstrate experience in providing successful low voltage communications systems, equipment, and infrastructure within the past three years.

E. A Registered Communications Distribution Designer (RCDD) shall be employed by the Design Builder and directly engaged in the project for all Communications Infrastructure design and installation efforts.

1. The RCDD shall be a direct employee of the Communications Contractor, within the Design Build team structure.
2. The RCDD shall be required to have oversight and supervision of the entire Communications Infrastructure installation process and quality control.

3. The RCDD shall be the Design Builder's Designer of Record for the Communications Infrastructure scope of work.
4. RCDD direct responsibilities shall include but may not be limited to: Thorough coordination with Owner regarding all design and installation efforts related to the project. A Pre-construction coordination meeting and site inspection with Owner prior to beginning any work. Oversight of Communications installation efforts, development of shop drawings and assembly of product data submittals. Quality control review and stamping of finalized Communications as-built drawings for submittal to Owner. Quality control review of Communications systems installation throughout the entire construction phase, to ensure all work is performed in compliance with approved construction drawings.

F. Critical on-site quality control installation reviews to be conducted in conjunction with Owner technical staff shall include but may not be limited to:
1. Validation of design to conform with Infection Control guidelines required as it applies with the type of structure and services to be provided in each specific area.
2. Verifying proper installation of all Communications cable tray, backbone conduits, device back boxes, conduit infrastructure and cabling pathways. Site inspection and sign-off must be performed prior to concealing conduit infrastructure and prior to the installation of any low-volt cabling.
3. Verifying proper installation of all Communications cabling. Site inspection and sign-off must be performed prior to closing-up associated accessible ceilings.
4. Verifying the layout and installation of all equipment and cabling within the Telecom Rooms, throughout the duration of the construction phase.

G. Supervisors and installers assigned to the installation of this system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered cabling Installers, Technician Level. Submit documentation of current BICSI certification for each of the key personnel. Submit documentation for a minimum of three and a maximum of five successful cabling system installations for each of the key personnel in an environment resembling that which is being bid upon.
1. In lieu of BICSI certification, supervisors and installers assigned to the installation of this system or any of its components shall have a minimum of three years' experience in the installation of the specified copper and fiber optic cable and components. The personnel on site performing work pertaining to this job shall be certified on the system being installed. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products.
2. Submit documentation for a minimum of three and a maximum of five successful cabling system installations for each of the key personnel in an environment resembling that which is being bid upon. Documentation for each key person shall include at least two successful system installations provided that are equivalent in system size and in construction complexity to the telecommunications system proposed for this project. Include specific experience in installing and testing telecommunications systems and provide the names and locations of at least two project installations successfully completed using optical fiber and copper telecommunications cabling systems.
3. All the existing telecommunications system installations offered by the key persons as successful experience shall have been in successful full-time service for at least 18 months prior to the issuance date for this project.

4. Provide the name and role of the key person, the title, location, and completed installation date of the referenced project, the referenced project Owner point of contact information including name, organization, title, and telephone number, and generally, the referenced project description including system size and construction complexity.

H. Indicate that all key persons are currently employed by the Communications Contractor or have a commitment to the Communications Contractor to work on this project. All key persons shall be employed by the Communications Contractor at the date of issuance of this project, or if not, have a commitment to the Communications Contractor to work on this project by the date that the bid was due to the Owner's Representative.
   1. Note that only the key personnel approved by the Owner's Representative in the successful proposal shall perform work on this project's low voltage systems, equipment, and infrastructure. Key personnel shall function in the same roles in this contract, as they functioned in the offered successful experience. Any substitutions for the Communications Contractor's key personnel require approval from the Owner's Representative.

I. Designated Supervisor: Designate which key person will serve as a designated supervisor for the project. This supervisor shall be present and responsible for the project site during all phases of installation and testing of the Work in this Section. This supervisor shall be the same individual through the execution of the Work unless illness, loss of personnel, or other circumstances reasonably beyond the control of the Contractor intervene.

1.9 SUBMITTALS

A. All Submittals shall be provided electronically in PDF format. All Drawing Submittals shall be provided in PDF and AutoCAD (latest version) DWG format.

B. Submittals shall be organized in a coordinated package complete with all information specified herein. Incomplete or uncoordinated submittals will be returned with no review action.

C. Contractor shall submit the following items:
   1. Contractor Key Personnel and Certifications
   2. Complete Bill of Materials (BOM) List
   3. Manufacturer Product Data Sheets, as defined below.
   4. Shop Drawings, as defined below.
   5. Proposed Installation Schedule
   6. Cabling Certification Test Plan and proposed test equipment

D. Manufacturer Product Data Submittals shall include:
   1. Submit product data sheets for all equipment being provided.
   2. Collate in sequence by Section Number, and clearly mark proposed product on data sheet. Include Safety Data Sheet, where applicable.
   3. Clearly identify any proposed product substitutions or known deviations.

E. Precede each submittal book with a summary TOC. per example schedule below:
   1. Specification Section
   2. Drawing Reference

3. Manufacturers Model No.

F. The following is a general summary list of Submittal items required to be delivered at 30-day burn-in period.
   1. As part of project close-out activities, Contractor shall submit Record Documents for review and approval by the Owner.
   2. All Record Documents shall be provided electronically in PDF format. All Record Document Drawings shall be provided in PDF and AutoCAD (latest version) DWG format.

1.10 CLOSEOUT SUBMITTALS

A. Contractor shall submit the following items:
   1. Record As-Built Shop Drawings indicating the final, 'as-built' condition of all associated equipment, infrastructure, and work.

B. Shop Drawing Submittals shall include:
   1. Drawing index/symbol/schedule sheet.
   2. Clearly indicate all new work versus existing work.
   3. Site Plans, Floor Plans, and Reflected Ceiling (work 7' AFF+)
   4. Drawings shall be developed in AutoCAD .DWG format, utilizing most current architectural backgrounds available for the project.
   5. All drawings shall be properly scaled.
   6. Indicate all device locations and types. Include addressing for all network outlets.
   7. Indicate all cabling routes, types, and quantities.
   8. Indicate all conduit routing, quantities, sizes, and wire fill. Indicate basket tray and J-hook routes.
   9. Indicate fire stopping requirements for all penetrations.
   10. Indicate 'cable bundle groups' no larger than:
      a. CAT6A – 74
   11. When bundling low voltage cabling together the lowest common denominator determines the largest cable group allowed unless the cable is LP listed.

C. Riser Diagrams indicating:
   1. Backbone cabling and termination locations. Associated cabling pathways, sizes, and cable fill. Telecommunications Grounding System.

D. Enlarged Room Plans and Elevations indicating:

E. Provide dimensioned drawings for all telecommunications rooms. Complete, dimensioned rack and wall elevations of all equipment. Consideration must be given to equipment heights within. Plywood backboards and grounding equipment.

F. Racks, cabinets, cable tray, ladder rack, wire management. Termination equipment for all copper and fiber cabling. Conduit and cable entrance points and fire stopping. Electrical panels, power circuits and HVAC provisions.

G. Ensure coordinated arrangement of equipment with other trades. Typical Device Installation Details indicating: J-hooks, conduit, cable tray, and associated support systems. Network outlet faceplate layout and wiring terminations. Device back box and conduit rough-in requirements.

H. Details of other associated devices and equipment.

I. The shop drawing package must be stamped and signed by a Registered Communications Distribution Designer (RCDD). Signatures by a Professional Engineer (PE) licensed in the project jurisdiction for work of this type as required by the AHJ.

J. Cable Certification Test Results. Submit electronically in native format and include associated software license as applicable.

K. Completed punch list reports.

L. Manufacturer Operation and Maintenance (O&M) Manuals.

M. Warranty information.

N. Keys and any portable equipment.

1.11 WARRANTY SERVICE

A. Closeout Submittals, Warranties and Guarantees, provide the following.

1. Response Time: Provide a qualified technician familiar with the work at the project site within four hours after receipt of a notice of malfunction. Provide the Owner's Representative with telephone number attended 10 hours a day, five days a week, to be called in the event of a malfunction.
2. Provide all Warrantees as defined in each Communication Systems Section.

B. PanGen Structured Cabling Solutions System Warranty

1. Contractor shall provide a Panduit Certification Plus System Warranty on all installed copper and fiber permanent links. Such warranty shall provide a complete system warranty to guarantee high end-to-end performance for all applications designed to operate over the class of cabling installed. The guarantee shall include all connectivity components and cable within the permanent link and cover the system for duration of 25 years.

PART 2 - MATERIALS

2.1 COMMUNICATIONS SYSTEMS PRODUCTS SUMMARY

A. The following is a general summary list of Communications Systems equipment, components, and cabling required for the project. This is not intended to be a comprehensive list of materials. See additional Sections for complete materials requirements.

B. Racks: Seismic racks shall be RXL (# RXL-2823-BK80T). Standard racks shall be RXL (# RXL-2200-BK80T). Racks will be 8’ high for new builds and remodels where space is available. 7’ high racks will be used as an alternate where space is not available for taller racks.

C. Wire Managers: Panduit PE2V Series full height vertical cable manager.

1. 10" Wide Front/Back unless otherwise noted on plans.
2. 96 inch or 84 inch sized to match the racks being installed.

D. Primary Bonding Busbar (PBB) & Secondary Bonding Busbar (SBB); CPI_Mfg.Part:40153-012

E. Data Patch Panels: Panduit CP48BLY

F. Fiber Terminations: LC

G. Modular Jack CAT6A
   1. Panduit Mini-Com CJ6X88TGVL
   2. Colored Icons as needed per UC service designation.
   3. Icons are Panduit PAN_CID(XX) (gray for cables in ceiling)
H. Copper cabling, Category 6A (Data)
   1. High Speed, TIA Category 6A cabling, Plenum Rated
   2. General Cable GenSpeed 6A Part No. 7151855 Purple
I. Copper cabling, Category 6A Shielded (VOIP Paging)
   1. High Speed, TIA Category 6A cabling, Plenum Rated
   2. General cable GenSpeed 6A Part No. 7151855 purple
J. Telecommunications Outlets (Workstation side)
   1. Modular Furniture Surface Mount Box, Black
   2. Panduit CBX2BL-AY (2-port), CBX4BL-AY (4-port)
   3. Modular Surface Mount Box Attachment System - Mini-Com CBM-X magnetic
   4. Modular Surface Mount Box Blank Insert - Panduit CMB(BL)
K. Faceplate (Workstation side)
   1. Panduit Mini-Com Stainless Steel Faceplates Single Gang CFP {2,4,6} SY or Double Gang CFP {4,8,10} S-2GY
   2. Faceplate Blank Insert – Panduit CMB(WH)

PART 3 - EXECUTION

3.1 TELECOMMUNICATIONS SPACES

A. Telecom Room (TR) minimum size 10' x 16'.
B. UC Davis Health Telecommunications Standards do not include provisions for AV, unless otherwise indicated in the Design Criteria for the project. IT will be cooperative in assessing some parameters as they interact with IT support systems.
C. Telecommunication Spaces are to use EZ-Path Fire-Rated Pathways systems for cabling access.
D. Provide 36" of working clearance in front and back of racks and electronic equipment.
E. A positive pressure type of HVAC system using hot and cold aisles.
F. Walls shall be covered with fire-resistant treated plywood from 6” AFF to 8’6” AFF, and all surfaces sealed to mitigate airborne dust.
G. IT uses a typical three-rack configuration with a B-line seismic for equipment and a standard 19" rack for cabling. Vertical wire management for planning shall be sized at 10" unless otherwise noted on the drawings.
H. Lighting shall be provided with a minimum of 500 lux (50 foot-candles) measured at any point in the TR, including 6 inches above the finished floor. Photometrics shall consider position of racks and equipment and light fixtures shall be placed to prevent shadows between rows of equipment racks.
I. TR Floors shall be covered in VCT (Vinyl Composition Tile) or Epoxy. Sealed concrete is not acceptable.

J. Mechanical equipment of fixtures that are not directly related to the support of the TR shall not be installed of pass through the TR per California Mechanical Code 2022: 320.4.2.

K. Plumbing Equipment and fixtures that are not directly related to the support of the TR shall not be installed in or pass through the TR per California Plumbing Code 2019: 310.13

L. Electrical equipment and fixtures that do not serve the TR shall not be installed in or pass through the telecom room per California Electrical Code 2019.517.24

3.2 RACK COMPONENTS AND ELEVATIONS

A. Owner will develop an equipment layout and rack elevation including the Telecom Room (TR) layouts. Typical components within the TR include, but not limited to:
   1. Network Equipment
   2. Fiber Termination Unit
   3. UPS/ PDU I Power distribution
   4. NM2/ NM4/ Horizontal wire management
   5. VOIP Router/Voice Gateway
   6. VOIP transition equipment
   7. Voice cabling
   8. Distribution Patch Panels
   9. Clinical Engineering Equipment
   10. Plug Pack Distribution
   11. Camera NVR /Server
   12. Nurse Call Devices
   13. Overhead Paging Amplifier

B. See related Sections for materials provided by the Owner and those furnished by the Contractor.

3.3 EXAMINATION

A. Conditions: Verify conditions, provided under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

B. Pathways: Verify that pathways and supporting devices, provided under other sections, are properly and permanently installed, and that temporary supports, devices, etc., have been removed.

C. Field Measurements: Verify dimensions of pathways, including length of pathways. For example, “true tape” the conduits to verify cabling distances.

3.4 FIELD QUALITY CONTROL

A. Staffing: Provide a qualified foreman who is in charge of the Work and who is present at the job site at times Work is being performed. Supervise the work force executing the Work. Perform the installation within the restraints of the construction schedule.

B. Project Management: Coordinate and attend weekly status meetings to review the overall progress and issues to be resolved throughout the course of construction.

Prepare and distribute meeting agenda prior to and meeting notes after meetings in a format acceptable to the General Contractor.

C. Scheduling: Prepare an overall construction schedule based on the results of the planning meetings with the General Contractor. Issue schedule to General Contractor for approval. Prepare and issue updated schedules whenever there are modifications.

D. Inspection: Perform inspection after installation. Keep areas of work accessible and notify code authorities, or designated inspectors, of work completion released for inspection. Document completion, and inspection as required.

3.5 INSTALLATION

A. Conform to applicable federal, state, and local codes, and telephone standards.

B. Attend one pre-construction meeting with the Owner to coordinate the requirements of the communications systems.

C. Coordinate the entire installation with the General Contractor, and their subcontractors, to meet the construction schedule. Include coordination meetings as required to fulfill this requirement.

D. Manufacturer's Instructions:

1. Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

E. Maintain jobsite file and comply with Material Safety Data Sheets (MSDS) for each product delivered to jobsite.

3.6 REPAIR/RESTORATION

A. Replace or repair work completed by others that you deface or destroy. Pay the full cost of this repair/replacement.

B. Paint damaged areas to existing painted surfaces caused by Work.

C. Punch List:

1. Inspect installed work in conjunction with the General Contractor and develop a punch list for items needing correction.
2. Provide punch list to Owner for review prior to performing punch walk with Owner.

D. Re-Installation:

1. Make changes to adjust the system to optimum operation for final use. Make changes to the system such that any defects in workmanship are correct and cables and the associated termination hardware passes the minimum test requirements.
2. Repair defects prior to system acceptance.

E. Cleaning

1. Clean daily. Remove temporary coverings and protection of adjacent work areas. Remove unused products, debris, spills, or other excess materials. Remove installation equipment.
2. Leave finished work and adjacent surfaces in neat, clean condition with no evidence of damage.
3. Repair or replace damaged installed products.

4. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Legally dispose of debris.

3.7 DEMONSTRATION

A. On completion of the acceptance test, schedule a time convenient with the Owner or Owner's Representative for instruction in the configuration, operation, and maintenance of the system.

B. Provide 4 hours, minimum, of on-site orientation and training by a factory-trained representative. Document dates and times of training and submit a "sign in" sheet for individuals trained, as part of the close out documentation.

3.8 CERTIFICATION

A. Provide to Owner or Owner's Representative a written form of acceptance for signature. Corrections must be completed before Owner or Owner's Representative and Engineer will give acceptance.

END OF SECTION

SECTION 27 05 29
HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, and services to completely execute the provision of communications supports and cable hook system as described in this specification, including but not limited to:

1. Strut supports.
2. Cable hooks (J-hooks)
3. Beam clamps.
4. Concrete fasteners
5. Touch-up materials
6. Conduit supports.
7. Equipment supports.
8. Fastening hardware
9. Poke-through device.

1.2 SYSTEM DESCRIPTION

A. Provide devices specified in this Section and related Sections for support of communications equipment specified for this project.

B. Provide support systems that are adequate for the weight of equipment, conduit and wiring to be supported.

1.3 SEISMIC REQUIREMENTS

A. Seismic design requirements criteria, as shown on all drawings related to the project, including architectural and structural, as defined below shall apply to all work defined within the following specification sections:

1. SECTION 27 05 00 COMMUNICATIONS HORIZONTAL CABLING
2. All support systems and termination apparatus associated with the telecommunications system.

B. Contractor to install seismic restraints for all telecommunications racks and UPS systems. In accordance with construction documents. Include floor mounted items weighing more than 400 pounds and wall mounted or suspended items weighing more than 20 pounds.

C. Installation according to engineered drawings and anchorage calculations provided by the structural engineer in accordance with California Code of Regulations, Title 24, 2007 California Building Code.

D. Supports for such items, including racks, conduit, cable trays and similar shall provide support, bracing, and anchorage, designed by the structural engineer in accordance with CBC Chapter 16A.

E. Supports to be sized to suit load and selected to match mounting conditions.

1.4 REFERENCES

A. Comply with References requirements of Section 27 05 00

B. In additional to those codes, standards, etc., listed in Section 27 05 00, comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:
   1. ASTM A 510 Specifications for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.
   2. ASTM B 633 Specifications for Electrodepositing Coatings of Zinc on Iron and Steel, Sections SC2 and SC3.
   3. ASTM A 653 Specifications for Steel Sheet, Zinc-Coated (Galvanized) by Hot Dip Process.
   4. ASTM A 591 Specifications for Electrodepositing Coatings of Zinc on steel wire or sheets.
   5. ASTM A 123 Specifications for Zinc (Hot Galvanized) Coatings on Iron and Steel.

1.5 RELATED SECTIONS

A. 27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS
B. 27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
C. 27 05 53 IDENTIFICATIONS FOR COMMUNICATIONS SYSTEMS
D. 27 15 00 COMMUNICATIONS HORIZONTAL CABLING

1.6 DEFINITIONS

A. Definitions as described in Section 27 05 00 shall apply to this section.
B. “Cable Hanger”: A metal, most often steel, cable support device shaped (section view) similar to the letter J; alternately, a fabric strap. The device is available in different sizes supporting different quantities of cables and is also available with different attachment hardware to be supported by different methods (e.g., wire support, beam flange clip, etc.).
C. Cable Runway or Ladder Rack: Overhead means to get cabling from point to point whether it be vertical or horizontal within Telecommunications Spaces such as TR’s and the TER.
D. “J-Hook”: Another name for cable hangers.

PART 2 - PRODUCTS

2.1 FASTENERS, STRAPS, AND BEAM CLAMPS

A. Equal products by the following manufacturers will be considered providing that all features of the specified product are provided:
   1. Concrete fasteners
      a. Hilti.
      b. Phillips "Red-Head."
      c. Remington.
      d. Ramset.
      e. Simpson Strong-Tie.
      f. Or approved equal.
   2. Concrete inserts and construction channel:
      a. Unistrut Corp.
      b. GS Metals "Globe Strut."
      c. Thomas & Betts.
      d. "Kindorf" Corp.
      e. Or approved equal.

3. Conduit straps:
   a. 0-Z/Gedney.
   b. Erico "caddy" Fastening Products.
   c. Thomas & Betts.
   d. "Kindorf" Corp.
   e. Or approved equal.
4. Beam Clamps
   a. Cooper B-line.
   b. Super Strut.
   c. Unistrut.
   d. Or approved equal.

2.2 CABLE HANGERS

A. Ceiling Hung J-Hooks
   1. Specifically intended to carry the load of up to 74 communications cables without applying excess forces to cables at bottom of bundle.
   2. Integral broad bottom edge to spread cable load with flat bottom and provide a minimum of 1-5/8" cable bearing surface.
   3. Integral hanger rod attachment hardware at top. Load rated for application.
   4. Incorporates smooth 90-degree radius edges to prevent snagging cable jackets on installation.
   5. Designed so the mounting hardware is recessed to prevent cable damage.
   6. Integral mechanical cable latch retainer to provide containment of cables within the hook. The retainer shall be removable and reusable.
   7. Suitable for direct attachment to walls, hanger rods, beam flanges, purlins, strut, floor posts, etc.to meet job conditions.
   8. Multi-tiered cable hooks to be used where required to provide separate cabling compartments, or where additional capacity is needed.
   9. Finishes: cable hooks for non-corrosive areas shall be pre-galvanized steel, ASTM A653. Where additional strength is required, cable hooks shall be spring steel with a zinc-plated finish, ASTM B633, SC3.
   10. Cable hooks for corrosive areas shall be stainless steel, AISI Type 304.
   11. Manufacturer:
      a. Cooper B-Line series BCH21 (max 32 CAT-6A cables), BCH32 (max 50 CAT-6A cables), BCH64 (max 72 CAT-6A cables).
      b. Caddy/Erico cablecat.
      c. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Comply with the Executive requirements of Section 27 05 00.

3.2 EXAMINATION

A. Thoroughly examine site conditions for acceptance of supporting device installation to verify conformance with manufacturer and specification tolerances. Notify the University’s

Representative of conditions that would adversely affect the installation or subsequent utilization of the system. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Installer is responsible for the integrity of the structures to which the system is attached, including their capability of safely accepting the loads imposed as evaluated by a qualified engineer.

C. The University's Representative reserves the right to request additional supports where in their sole opinion said supports are required. Any additional supports shall be installed at no additional cost to the University.

3.3 PREPARATION

A. Prepare and maintain the following clearances from EMI sources (per BICSI Standards).
   1. Power cable (in grounded conduit) = 6 inches
   2. Power cable (unshielded) = 24 inches
   3. Fluorescent lights = 5 inches
   4. Transformers = 48 inches

B. Provide all low voltage Communications Systems Pathways and Electronic Security and Safety System Pathways.

3.4 DISTRIBUTION PATHWAY VIA CEILING HUNG CABLE HOOKS (J-HOOKS)

A. The cabling support system shall be installed in accordance with the manufacturer's instructions and as indicated on Contractor's submittal documentation, prior to final acceptance/approval by the University.

B. Provide dedicated supports at sixty inches (60”) separation, maximum, per a given route. Suspend wire or rod using components appropriate for the structure – e.g., powder-actuated clip fastener for wire, beam flange clip or angled flange clip for either wire or rod, or an embedded anchor for the threaded rod. Do not share support (wire/rod) with other trades. Do not support the hanger on ceiling grid support wires. Do not support the hanger from ductwork, piping, or other equipment hangers.

C. Provide independent pathways for each low voltage system (network, 800MHZ Radio, access control, DAS, BMS, etc.).

D. Maintain minimum 6” clearance above suspended ceilings.

E. Cable Tray cables are not to exceed a 25% fill when the project is complete. 25% fill is a visual fill of 50% of the cable tray.

3.5 CONDUIT

A. Conduit used for pathway is to be designed with a maximum 40% visual fill.

B. EZ path retrofit EZDR-400 or EZDR-200 will be provided on all conduits when required for compliance.

3.6 FLOOR BOXES AND POKE THROUGH DEVICES

A. All Floor boxes shall be sized and approved by UCD IT and FD&C's furniture group.
   1. Wiremold RC9AM2TCBK flush poke -thru with accessories as required.
   2. One 1-1/4" trade standard, data.
   3. One 1-1/2" trade standard, av or other.

4. Floor poke through assembly, dual service feed-through fitting. Commonly used wire mold RC9AM2TCBK flush poke -thru with accessories as required. One 3/4" trade standard and one 1-1/4" trade standard.
5. Wiremold 4ffatcbs flush furniture feed poke -thru with accessories as required.
6. Or approved equal.

END OF SECTION

SECTION 27 05 33
CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide telecommunications pathways in accordance with ANSI TIA-569-E, as shown on the plans or as designed by an RCDD.

B. Provide conduits as required by fire code and where wall cavities are obstructed.

C. Provide Ring and String where allowed in wall cavities and locations are accessible.

D. Provide a minimum of a 1 ¼" conduit for wall drops as needed.

E. All junction boxes shall be sized and designed by a registered RCDD communications designer.

F. Conduit for communications is NOT to adhere to the parallel of the exterior wall configuration required by the electrical specification. Cable Distance is priority for communications cabling and dictates path taken.

1.2 RELATED SECTIONS

A. 27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS

B. 27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS

C. 27 05 53 IDENTIFICATIONS FOR COMMUNICATIONS SYSTEMS

D. 27 15 00 COMMUNICATIONS HORIZONTAL CABLING

1.3 SUBMITTALS

A. Product Data: For each product indicated.

B. Submittals are to be approved by IT Facilities Department and consultant.

1. Obtain written approval from the Consultant for the product data submittal prior to materials and equipment purchase order and prior to installation.
2. Format: Submit each product data as an electronic (PDF) document.
3. Labeling: For each submittal, provide a cover page including the following information:
    a. Client Name
    b. Project Name and Address
    c. Submittal Name (e.g., "Product Data Submittal for LCD Panel Backbox.")
    d. Specification Section Number (e.g., "Section 27 05 33).
    e. Date of Submittal
    f. Contractor Name

C. Submit conduit shop drawings for cable path other than wall drops.

D. Confirm low voltage pathway quantity and fill ratio expected.

E. Include junction box locations and sizes.

PART 2 - PRODUCTS

2.1 WORK AREA OUTLET BOX

A. Work area outlet box.
   1. 4 11/16” x 2 1/8” deep boxes on wall drops where required.

2.2 JUNCTION BOXES

A. Junction Boxes
   1. Sized to accommodate bend radius of cabling being installed.

2.3 FLOOR BOXES, POKE-THROUGHS AND MONUMENTS

A. Floor Box, Flush Devices
   1. All Floor boxes shall be sized and approved by IT facilities and FD&C’s furniture group.
   2. Manufacturers
      a. Wiremold RC9AM2TCBK Flush Poke -Thru with accessories as required.

B. Floor Poke Through Assembly, dual service feed-through fitting.
   1. Commonly used.
      a. Wiremold RC9AM2TCBK Flush Poke -Thru with accessories as required.
         1) One 3/4" trade standard
         2) One 1-1/4" trade standard
      b. Wiremold 4FFATCBS Flush Furniture Feed Poke -Thru with accessories as required.

2.4 WIRELESS, SECURITY AND OTHER PERIPHERAL CABLING INSTALLATIONS

A. Conduit and/or electrical outlet box shall not be installed for wireless access point installations unless required by AHJ or physical conditions of the area.

B. Consider the device being installed when calling out conduit and housings for security and peripheral devices due to differing requirements.

2.5 FIRE PENETRATIONS

A. EZ path retrofit EZDR-400 shall be provided where applicable as fire stop materials on all conduits.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Distribution Pathway via EMT Raceway:
   1. Structured cabling installation is to meet BICSI cable distance limitations. Remaining parallel to the building structure is not a requirement.
   2. All ends of conduits shall be cut square, reamed, and fitted with insulated bushing.
   3. All conduit which passes through firewalls shall adhere to applicable fire code.

3.2 PREPARATION

A. Fill ratios are to be calculated by the designer and installer during their respective design and installation phases of the project.

B. Cable Tray cables are not to exceed a 25% fill when the project is complete. 25% fill is a visual fill of 50% of the cable tray.

C. Conduit used for pathway is to be designed with a maximum 40% visual fill.

D. EZ path retrofit EZDR-400 or EZDR-200 will be provided on all conduits when required for compliance.

3.3 MOUNTING AND INSTALLATION – WORK AREA OUTLET BOX

A. Provide back boxes at all wall phones and employee time clocks.

B. The distance between pull boxes shall not exceed 100 feet.

C. Conduits exceeding two 90-degree bends shall be upsized to the next trade size and never exceed 240 degrees.

D. Support and fasten pathway and pull boxes as defined in the electrical specifications.

E. Conduit purposed for floor box(es) must have the respective conduit turn up in an adjacent or nearby wall or column that is stubbed to nearest accessible ceiling.

F. Manufacturer’s instructions:

1. Comply with manufacturer’s product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.
2. Maintain jobsite file of Material Safety Data Sheets (MSDS) for each product delivered to jobsite packaged with an MSDS.

3.4 PENETRATIONS

A. Provide EZ path fire penetrations where applicable.

B. Provide conduit penetrations per electrical Specifications.

3.5 STATION CABLE PATHWAY INSTALLATION

A. Work Area Outlet Boxes:

1. Unless otherwise noted on the plans, all cut in boxes and surface station outlet boxes are to be installed at a height of 18" A.F.F. (above finished floor) to center, except for those otherwise called out.
2. Those plates or boxes that are to be used for telephone wall jacks shall be installed according to ADA requirements.
3. All cabling outlets shall be installed so that their edges are parallel to the vertical and horizontal edges of the surface on which they are mounted.

3.6 FINAL INSPECTION AND CERTIFICATION

A. Punch Walks and Punch Lists

1. Punching the Work of individual Sections of Division 27 may be combined.
2. Execute a punch walk with the Consultant to observe work.
3. Develop a punch list for items needing correction. Issue this punch list to Consultant.
4. Correct the Work as noted on punch list.
5. Execute follow up punch walk with the Engineer and the Owner or Owner’s Representative to verify punch list items have been corrected.

END OF SECTION

SECTION 27 05 36
CABLE TRAYS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This section included cable trays in corridors and telecom spaces.

1.2 SUBMITTALS

A. Submittal requirements:
   1. Submittals are to be approved by UCD IT and consultant.
   2. Provide shop drawings indicating cable tray does not to exceed 25% visually full when the project is complete. 25% full is a visual fill of 50%.
   3. Provide product data for the following:
      a. Manufacturer's data/cut sheets, product drawing/specifications and installation instructions for all products (submit with bid).
         1) Clearly mark the provided documentation to denote which part number/specific product is being submitted.

1.3 RELATED SECTIONS

A. 27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS
B. 27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS
C. 27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
D. 27 05 53 IDENTIFICATIONS FOR COMMUNICATIONS SYSTEMS
E. 27 15 00 COMMUNICATIONS HORIZONTAL CABLING

1.4 QUALITY ASSURANCE

A. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the owner or owner representative.

B. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based upon the acceptable manufacturers listed. Where “approved equal” is stated or a substitution is requested, equipment shall be equivalent in every way to that of the equipment specified. All substitutions are subject to the control and approval of the owner or the owner representative.

C. Strictly adhere to all BICSI, Telecommunications Industry Association (TIA) recommended installation practices when installing communications and data cabling.

D. Material and work specified herein shall comply with the applicable requirements of:
   1. ANSI/TIA/EIA-569-E Commercial Building Standard for Telecommunications Pathways and Spaces.
   2. ANSI/TIA/EIA-606-C Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
   3. ANSI/J-STD-607-D Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
   4. BICSI – Telecommunications Distribution Methods Manual

5. NEMA – VE-1 – Metal Cable Tray Systems
6. NEMA – VE-2 – Metal Cable Tray Installation Guidelines

PART 2 - PRODUCTS

2.1 BASKET TRAY

A. Basket Tray
   1. Open Wire Frame Construction.
   2. Welded wire mesh with continuous safety edge wire lip.
   3. Mesh forms grid at nominally 2" by 4"
   4. Electroplated zinc galvanized carbon steel.
   5. Accessories: Provide a complete system of accessories, including bonding and grounding connections, conduit connectors, to terminate conduits extended to basket edge, radius shields to protect cabling at inside corners, and waterfall drop-outs at each end of cabling racks and cabinets or where needed to terminate open wiring systems.
   6. Manufacturers:
      a. Cablofil.
      b. PW Industries.
      c. Or approved equal.

2.2 CABLE TRAY WATERFALL (CONTRACTOR FURNISHED AND INSTALLED)

A. Provide cable tray waterfall or drop out at ends of all runs.
   1. Cooper B-line 9A-1104.
   2. Cooper B-line 99-1124.
   3. Or approved equal.

2.3 CABLE TRAY TRANSITIONS (CONTRACTOR FURNISHED AND INSTALLED)

A. All turns, bends, and direction changes shall use manufacturer's radius 90 degree, 3-way, & 4-way transitions. Field constructed 90s, 3-ways, and 4-way transitions shall only be permitted if the manufacturers solution is proven to not be constructable.

PART 3 - EXECUTION

3.1 CABLE TRAY APPLICATION

A. Communications cable tray installations shall conform to the following:
   1. Basket Tray- Horizontal station cabling outside of the communications rooms where more than 100 cables are within the pathway.

B. Size and Fill Ratio:
   1. Basket Tray is not to exceed 50% visually full when the project is complete. 25% full is a visual fill of 50%. Size as shown on the drawings.

3.2 INSTALLATION

A. Each of the cable tray systems shall be installed and supported in accordance with the manufacturer's instructions and as indicated on Contractor's submittal documentation, prior to final acceptance/approval by the University.

B. Installation shall be performed and accomplished in a professional manner, by qualified personnel.

C. Installation to maintain at least 12" vertical clearance over the top of each tray for use by University’s personnel.

D. Provide access 24" wide along one side of each tray unless conditions will not allow such clearances. Deviation must be cleared by IT before installing tray. Conditions of installation not approved by IT shall be replaced at no cost to the University.

E. A minimum of 6 inches of clearance from the top of the finished ceiling to the bottom of the cable tray shall be provided.

F. Cable distance limitation of 275 ft shall be adhered to when laying out cable support infrastructure.

G. Cable fill ratio is not to be exceeded during the initial installation of cabling.

H. Separation of systems other than IT are the responsibility of the contractor. IT requires a separation of all non-Ethernet protocol systems from all Ethernet protocol systems installed.

I. Basket Tray shall not penetrate any firewall. EZ Path products shall be used as the solution with the cable or basket tray stopping short of the wall by 1 to 2 feet.

J. Where basket tray becomes inaccessible, transition to an equivalent size conduit pathway shall be provided. If fire stopping is required at either end of the conduit(s), an EZ Path retrofit EZDR-400 shall be provided on all conduits.

K. Center mount “T” style cable tray supports shall not be permitted.

END OF SECTION

SECTION 27 05 53
IDENTIFICATION AND LABELING OF COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Provide all labor, materials, tools, and equipment required for permanent intelligible labeling for items including but not limited to communications cabling (structured and non-structured) innerduct, connectors, faceplates, jacks, receptacles, patch panels, and racks.

B. All labels will be preprinted, or computer printed type. Handwritten labels are not acceptable.

C. This section includes minimum labeling requirements for the following:

1. Room designations
2. Communications cabling
3. Closet Hardware including patch panels, terminal blocks, protectors, and racks.
4. Work Area Outlets
5. Wireless Access Points
6. Pathways and Spaces
7. Grounding and Bonding

1.2 VISUAL APPEARANCE

A. Clear plastic covers over faceplate labels are not permitted.

B. Shall be preprinted or computer printed type, minimum 12pt. font.

C. Black SMBs are to be labeled with white on black.

D. Stainless will be labeled with black on white.

E. White (if required) will be labeled with black on white.

1.3 LABELING STANDARDS AND REQUIREMENTS

A. All new labeling is to reflect UCD labeling standards.

B. Contact the University's Representative for a copy of the current standards prior to proceeding.

C. Bring to the University Representative’s attention any project conditions not described in these specifications and the University's current standards and conform to the direction received.

D. Identification and administration work specified herein shall comply with the applicable requirements of:

1. ANSI/TIA/EIA-606-C Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.

1.4 RELATED SECTIONS

A. 27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS

B. 27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS
C. 27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
D. 27 15 00 COMMUNICATIONS HORIZONTAL CABLING

PART 2 - PRODUCTS

2.1 COMMUNICATION CABLING LABELS, GENERAL

A. Shall meet the legibility, defacement, exposure, and adhesion requirements of UL 969.
B. Shall be preprinted or computer printed type, minimum 12pt. font. Handwritten labels are not acceptable.

2.2 COMMUNICATION CABLING LABELS, INTERIOR

A. Provide vinyl substrate with a white printing area and black print.
B. If cable jacket is white, provide cable label with printing area which is either orange or yellow, such that the labels are easily distinguishable.
C. Shall be flexible vinyl or other substrates to apply easy and flex as cables are bent.
D. Shall use aggressive adhesives that stay attached even to the most difficult to adhere to jacketing.
E. Manufacturers:
   1. Cable Type- 4 pair UTP /4 pair UTP Zero Skew - Panduit S100X150VAC or approved equal.
   2. Cable Type- 4 pair STP - Panduit S100X150VAC or approved equal.
   3. Cable Type- 25 to 100 pair copper - Panduit S100X650VAC or approved equal.
   4. Cable Type- 2 strand fiber - Panduit F100X300AJT or approved equal.
   5. Cable Type- 4-12 strand fiber - Panduit S100X150VAC or approved equal.
   6. Cable Type- RG-6 and RG-59 Coax - Panduit S100X150VAC or approved equal.
   7. Cable Bundles - Panduit UIHL12-XO or approved equal.
   8. Other Interior Cabling - Panduit S100X650VAC or approved equal.

2.3 GROUNDING AND BONDING, PATHWAY, AND SPACE LABELS

A. Panduit C200X100FJC or approved equal.

2.4 WORKSTATION LABELS

A. Panduit - White C061X030FJC
B. Panduit - White C750X050YIJ or approved equal.

2.5 LOCATION NAMEPLATES

A. Provide laminated plastic nameplates for each equipment enclosure, rack, switch, and device, as specified.
B. Comply with ASTM D 709.

C. Each nameplate inscription shall identify the function and, when applicable, the position.
D. Nameplates shall be melamine plastic, 0.125-inch thick, black with white center core.
E. Surface shall be matte finish. Corners shall be square.
F. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be one by three inches.
G. Lettering shall be a minimum of 0.25-inch-high normal block style for location nameplates or a minimum of 1-inch-high normal block style for rack nameplates.
H. Panduit C300X100APT or approved equal.

2.6 COMMUNICATION CABLING LABELS, OUTSIDE PLANT

A. Cable Tags in Manholes, Handholes, and Vaults
   1. Provide tags for communications cable or wire located in manholes, handholes, and vaults.
      a. The tags shall be polyethylene.
      b. Machine printed - Do not provide handwritten letters.
   2. Polyethylene Cable Tags
      a. Provide tags of polyethylene that have an average tensile strength of 22.4 MPa (3250 pounds per square inch) 3250 pounds per square inch; and that are two millimeter (0.08 inch) 0.08 inch thick (minimum), non-corrosive non-conductive; resistive to acids, alkalis, organic solvents, and salt water; and distortion resistant to 77 degrees C 170 degrees F. For fiber optic cables provide Panduit PST-FO or equal. For Copper cables provide Panduit PST-1028 or equal.
      b. Provide a one-piece nylon, self-locking tie for cable tags.
      c. Ties shall have a minimum loop tensile strength of 778.75 N (175 pounds) 175 pounds. The cable tags shall have black block letters, numbers, and symbols 25 mm (one inch) one inch high on a yellow background.
      d. Letters, numbers, and symbols shall not fall off or change positions regardless of the cable tags' orientation.
   3. Manufacturers:
      a. Panduit
      b. Brady
      c. Or equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Verify all room numbers, racks, conduits, cable tray, cables, equipment housing, vaults and items within this document have been labeled.
B. Contractor applied labeling shall reflect final space and Telecommunications structure designations.
C. Accurate labeling shall be provided on the as-built shop drawing submittals.

3.2 IDENTIFICATION AND LABELING

A. Telecommunications Rooms
   1. Labels shall be affixed at the entry to all telecommunications rooms and spaces (Includes entrance facilities, telecommunications equipment rooms, communication equipment spaces and work areas).
   2. All IT rooms are numbered but not designated “equipment” due to security concerns.

B. Cable Tray and Conduits
   1. Cable tray structured versus AV or analog systems pathway labeling and designations are the responsibility of the installer to designate the services that are to use the pathway or what portion of the pathway.
   2. Any permanent label that is clearly visible is acceptable.

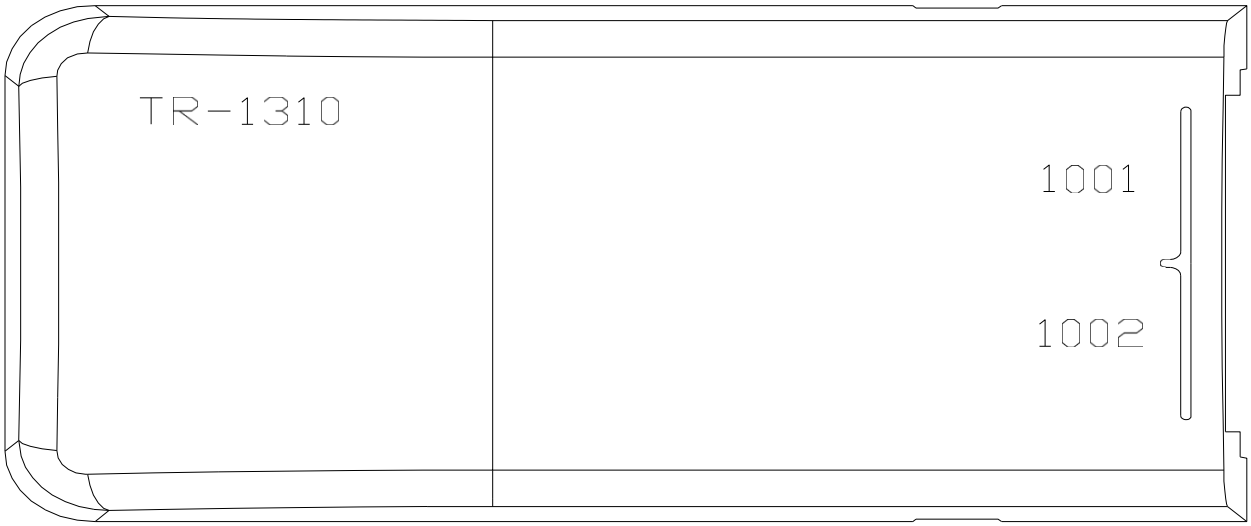
C. Rack and Cabinet Labeling
   1. Provide laminated plastic nameplates for each equipment enclosure, row and rack designations as shown on elevations provided by UCD IT.

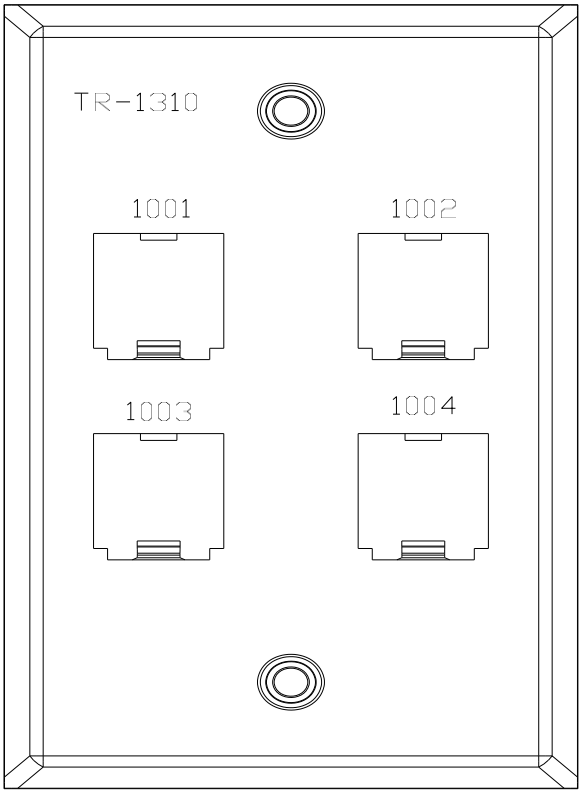
D. Copper Patch Panels – Horizontal
   1. Label with Jack numbers.

E. Tie Cable Patch Panels
   1. Label the pair count at the top of the patch panel, separated from all others.
   2. Place the cable's identification text centered on the top label strip. (example:18CA75, TIE 1672A).

F. 110 Blocks
   1. Not used other than MPOE, OSP installation.
   2. Label with University provided designation.

G. Workstations
   1. Use adhesive type labels and affix labels to faceplate per diagram provided.
   2. Provide sequential 4 or (Occasionally 5 digit) jack number (starting dependent on the floor designation) beginning with an X such as X056, X being floor# followed by the closet sequenced cable number. All faceplate labels shall contain the following items:
      a. Building and Closet Designation such as 34-1100 (building#, IT closet#)
      b. TR Designation such as TR1.1 or TR 1A (University established designation)
   3. Under no circumstances are jacks to be installed with a drop/name or location number as a label or a matrix identifier.
   4. See diagrams below:





H. Wireless Access Point (WAP) Labeling
   1. The University's Representative will provide locations for Wireless Access Point installations with the University's assigned designated identifiers adhered to the Access Point itself.
   2. Building Designation / room or area designation – AP / a, b, c (if multiple APs within room).

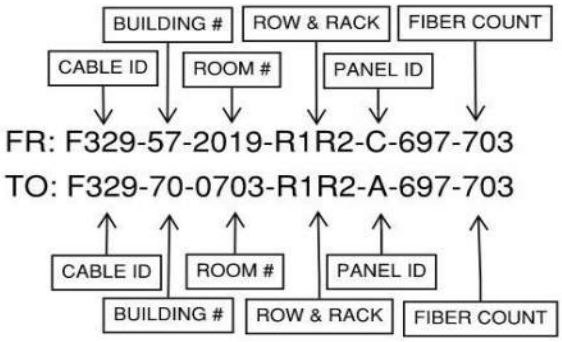
3. WAP labeling consists of the Icon being a designated color at the device, Icon being a designated color in the patch panel, and a band being installed on both ends of the patch cord that connects the cable in the TR room.

I. Grounding and Bonding
   1. Label the TMGB (telecommunications main ground busbar) with an adhesive label.
   2. Label the TGB(s) (telecommunications ground busbar) with an adhesive type of label(s).

J. Other Cable Numbering
   1. Other cabling types, such as Coax installed in a TR shall be numbered uniquely, such as C=Coax.
   2. Cameras and APs are Data Cabling, which falls into the Data Cabling labeling scheme.
   3. Point to point Data Cables require independent numbering such as A1001 for items such as in room video distribution such as N-stream equipment.

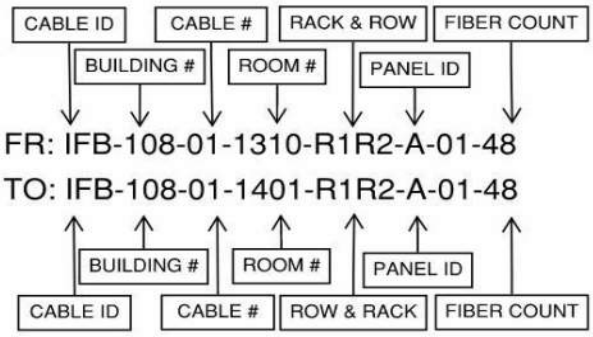
K. Fiber Patch Panels
   1. Fiber patch panels shall be marked using adhesive labels indicating the range of circuits installed to it. All fiber optic cable patch panels shall be labeled with the pair count of every fiber pair, the cable’s assigned identifier, and the patch panel's assigned identifier.
   2. Coordinate with IT before applying any labels.
   3. All labels shall consist of the following:

FIBER OPTIC INTERBUILDING (between buildings) LABELING CONVENTION



Example:
Origination (from): Label begins with fiber cable designation (fiber identifier such as F329) - followed by the building number (57) - room number (2019) - row & rack locations (R1R2) - fiber termination panel ID (A) - fiber count (697-708)
Destination (to): Label begins with fiber cable designation (fiber identifier such as F329) - followed by the building number (57) - room number (2019) - row & rack locations (R1R2) - fiber termination panel ID (A) - fiber count (697-708)
"From" and "To" will be reversed at the destination end.

FIBER OPTIC INTRABUILDING (within building) LABELING CONVENTION



Example:
Origination (from): Label begins with fiber cable designation (IFA=UCDH campus, IFB=off campus location) - followed by the building number (108) - intra-building cable number (01) - room number (1310) row & rack locations (R1R2) - fiber termination panel ID (A) - fiber count (01-48)
Destination (to): Label begins with fiber cable designation (IFA=UCDH campus, IFB=off campus location) - followed by the building number (108) - intra-building cable number (01) - room number (1401) - row & rack locations (R1R2) - fiber termination panel ID (A) - fiber count (01-48)
"From" and "To" will be reversed at the destination end.

L. Fire stopping.
   1. Each fire stopping location shall be labeled at each location where fire stopping is installed, on each side of the penetrated fire barrier, within 12 in. of the fire stopping material.
   2. Labels shall adhere to the requirements set forth by the authority having jurisdiction (AHJ).

M. Indoor Communications Cables

1. Horizontal and Indoor Backbone cables shall be marked within 12 inches of each endpoint or to innerduct in which the cable is installed.
2. Label each end of each riser cable where the cable terminates.
3. Backbone cables shall be marked at each endpoint and at all intermediate locations, pull/access point, or junction boxes through which the cable passes, as well as on each floor and in each room the cable is openly visible in.

N. Copper Riser Cabling.
1. Label all copper backbone cables of at least 25 pair construction to contain the following information:
   a. Installation Date
   b. University Assigned Cable ID: (Example: 70 Tie 0P609).

O. Fiber Riser cabling.
1. Label all fiber backbone cables to contain the following information:
   a. Installation Date
   b. University Assigned cable ID:(Example: IFA134)

END OF SECTION

SECTION 27 15 00
COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Provisioning, installation, termination, and testing of twisted pair, horizontal cabling in modular furniture and hard wall workstations located throughout the project area. Work under this section will include:
   1. Wireless Access Point cabling
   2. Printer Stations
   3. IP Camera Cabling
   4. Monitor and CATV cabling.
   5. IP Medical Equipment in Exam Rooms
   6. All workstation cabling as defined on the construction documents.

1.2 TYPICAL WORK AREA OUTLETS

A. A typical work area outlet (per chair) or (Drop) shall consist of two (2) (Purple end to end) Category 6A Data cables, unless otherwise indicated.
   1. When re-cabling a building or office consideration shall be made to add Data Cables to support devices that will continue to be viable after a transition to a VoIP network such as fax machines, fire alarms, elevator phones, pay phones etc.

B. A typical work area outlet shall have a slack loop of 10 feet at the field end of the run.

1.3 OTHER OUTLET CONFIGURATIONS

A. Wireless Access Points
   1. A typical wireless access point (WAP) Outlet shall consist of two (2) (Purple end to end) Category 6A Data cables, unless otherwise indicated.

B. Timeclock Outlet
   1. A typical time cock outlet shall consist of one (1) (Purple end to end) Category 6A Data cable, unless otherwise indicated.

C. Other outlet configurations as defined by and coordinated with Owner IT.

D. All Outlet types listed above shall have a slack loop of 10 feet at the field end of the run.

1.4 RELATED SECTIONS

A. 27 05 00 COMMON WORK RESULTS FOR COMMUNICATIONS
B. 27 05 29 HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS
C. 27 05 33 CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS
D. 27 05 53 IDENTIFICATIONS FOR COMMUNICATIONS SYSTEMS

PART 2 - PRODUCTS

2.1 MODULAR JACK COMPONENTS, GENERAL

A. Modular Jacks rated Category 6A.

1. Panduit Mini-Com CJ6X88TGVL.
2. Colored Icons as needed per UCDM service designation.
3. Panduit PAN_CID(XX).

2.2 COPPER CABLING, CATEGORY 6A

A. High Speed, TIA category 6A Cabling, Plenum Rated
   1. General Cable GenSpeed 6A Part No. 7151855 Purple.

2.3 TELECOMMUNICATIONS OUTLET COMPONENTS

A. Modular Furniture Surface Mount Box, Black
   1. Panduit CBXQxBL-A Where x = number of ports
   2. Modular Surface Mount Box Attachment System Mini-Com CBM-X
   3. Modular Surface Mount Box Blank Insert Panduit CMB(BL)

B. Faceplate
   1. Panduit- Mini-Com Faceplates (CFP (2,4,6) SY I CFP (4,8,10) S-2GY
   2. Coordinate finish with Architect prior to submittals.

C. Faceplate Blank Insert
   1. Panduit CMB(WH)

D. One Hole Wall Plate
   1. Leviton 84004-40 Stainless where requested.
   2. Leviton 80720-W White where requested.
   3. Coordinate finish with Architect prior to submittals.

E. Black Loom
   1. Panduit loom CLT100F/CLT150F (choose size appropriate for cable installation quantity)
   2. Thomas & Betts black liquid tight EFC150

F. Duplex In-Line Jack frame, one to four jacks (only where required, NOT standard installation)
   1. Panduit Mini-Com 106 Duplex Module Frame

PART 3 - EXECUTION

3.1 CABLING RUN LENGTHS

A. Distance limitation of the in-wall cabling shall be thoroughly reviewed and calculated to be less than 275' when including the anticipated plug pack cabling length in the telecommunications room (TR).

B. Contractor to field verify the performance including cable length of the proposed installation in a mockup using the proposed cabling, jacks, raceway, and test equipment prior to proceeding.
   1. Locate proposed cable pathway drawing for the upcoming cable run.
   2. Contractor to install One (1) typical copper work area outlet complete with jacks at both ends.
   3. Use the proposed pathway and cabling to the furthest location from the TR.
   4. Install a cable simulating the cable length of the Plug Pack configuration.
   5. The cabling contractor is to perform testing of these cables patched together to determine the true length of this mockup.
   6. Test Results are to be inspected and reviewed by the University's Representative prior to proceeding with the rest of the installation.

7. Any deficiencies in the installation of the mockup are to be corrected by the Contractor and re-inspected by the University's Representative prior to proceeding with the rest of the installation.

3.2 MODULAR JACK COMPONENTS

A. Category 6A Data Jacks performance shall meet requirements as defined in TIA standards.
B. Follow manufacture's Installation procedures.

3.3 TELECOMMUNICATIONS OUTLET EXECUTION

A. Modular Furniture Surface Mount Box, One to Four Jacks
   1. Surface mount box magnetically attached to furniture.
   2. Removing knockouts in the base of the furniture shall be avoided.
B. Telecommunications Outlets. New, Copper Jacks, Wall Mount, Flush Mount Assembly.
   1. Complete outlet assembly, including but not limited to:
   2. Faceplate with manufacturer's standard jack openings
   3. Blank connector modules at faceplate openings not filled with connector modules.
   4. Features: Single gang with openings for the required number of cables. Provide flat stainless steel.
   5. Features: Double gang with openings for the required number of cables. Provide flat stainless steel.
C. Voice Telephone Station Plates and Jacks (special provision)
   1. Wall Mounted Analog Telephone
   2. Wall mounted IP Telephone Station
   3. Single outlet wall plate w8P8C data Jack

3.4 COPPER CABLING DATA VOICE/DISTRIBUTION

A. Maintain the following clearances from EMI sources (Per BICSI Standards)
   1. Power cable – 6 in.
   2. Fluorescent Lights - 12 in.
   3. Transformers- 48 in.
B. Monitor cable length limitations.
   1. All cable installations shall be continuous, un-spliced runs.
   2. All wiring above ceilings shall be installed in cable tray or cable hangers.
   3. Cable in accessible ceilings shall be supported 5' on center (min) attached to building structure.
   4. Cable shall have no physical defects such as cuts, tears, or bulges in the outer jacket.
   5. Cables jackets that are chaffed or burned exposing internal conductor insulation or have any bare copper ("shiners") shall be replaced.
   6. Limit cable bends to a minimum radius of 4 times cable diameter except where otherwise noted herein.
   7. Refrain from exceeding fill ratio on horizontal cabling installations.
   8. Do not put large sweeps or service loops in vertical wire managers.
   9. Provide slack, which is to be no less than 2.5" and no greater than 5.0", in the station cable at the station outlet end. The Work Area Outlet shall provide enough slack to be serviceable without excess.
   10. Service loop at outlet locations: Provide a (10') Ten Foot Slack Loop for all horizontal cabling, supported on J-hook with wire above all drop locations.

11. All data and voice station cable shall be terminated at the individual receptacle modules in accordance with ANSI/TIA-568-C, assignment T568B.

3.5 TESTING

A. All system cabling and terminations shall be installed in accordance with manufacturer's instructions and as indicated on Contractor's submittal documentation, prior to final acceptance/approval by the University.

B. Installation shall be performed and accomplished in a professional manner, by qualified personnel.

3.6 PERFORMANCE STANDARDS

A. Horizontal (Station) category 6A Copper cabling - Permanent Link

1. Testing shall commence while the University's equipment in the area of service is operational and creating worst case emissions associated with its operation while in good working order. Every effort shall be made to include worst case influence on the materials installed shall be taken.
2. In accordance with the field test specifications defined in TIA-568-C.2 "Commercial Balanced Twisted-Pair Telecommunications Cabling and Components Standard", every horizontal station cabling link in the project shall be tested for:
   a. Wire Map Length Insertion Loss NEXT Loss
   b. PS NEXT Loss
   c. ACR-F Loss
   d. PS ACR-F Loss
   e. Return Loss
   f. Propagation Delay
   g. Delay Skew

B. Using the listed category 6A cable test set, test installed cabling using Permanent Link procedure and submit report demonstrating that the link meets the following:

1. Each permanent link shall demonstrate a positive PSACR beyond 350 MHz to meet and exceed the bandwidth requirements of TIA-568-C.2 Category 6A standards.
2. Each permanent link shall demonstrate 2 dB of cross talk headroom over TIA -568-C.2 Category 6A standard for NEXT, PSNEXT, ELFEXT and PSELFEXT bit error rate.
3. Report whether tested link passes or fails.
4. Note exceptions to required Category standards. Remedy and retest.
5. Test and report on each intermediate cabling segment separately, including station cabling, horizontal distribution (each segment, if multiple) and telecommunications room wiring.
6. Test each end-to-end cable link.
7. Submit machine-generated documentation and raw data of all test results on Contractor-provided, and University's Representative approved, forms; and in electronic format approved by the University's Representative.
8. Test stations wire only after all pairs of station wire in a work area have been terminated at both ends, and no work of this Section or other Sections may cause physical disturbance to the wiring.
9. Correct any and all transpositions found. Retest.
10. If any conductor in a station wire tests either open or short, then the entire station wire is to be removed, replaced, and re-tested.

11. The Contractor shall test all cables and submit all horizontal copper cable test result data in electronic format, with the resulting file formatted with one test result per 8.5"x 11" page. Export or Download the test results from the cable tester for submission in native format.
12. Data found to be altered from the manufacturers recommended settings may result in retention by the University of a 3rd Party Test Company to retest the installed cabling at the expense of the Contractor.
13. Events exceeding industry standards will cause the test result to be rejected. Direct review by UCD IT will be required to allow for an exception of a test result.
14. Data found to be incomplete may result in retention by the University of a 3rd Party Test Company to retest the installed cabling at the expense of the Contractor.
15. Contractor shall submit (1) copy of software capable of viewing the electronic test result files. Testing Results shall be reviewed and verified by the University before payments are remitted.

C. Test Equipment
   1. Contractor shall provide all test equipment as required to perform the scope of work.
   2. Test the communication systems cabling using at least one (1) each of the following test measurement devices or their functional equivalents:
      a. Level IIIe field testers as defined in TIA-1152 - Fluke DSX-5000, or equal.
      b. The tester including the appropriate interface adapter must meet the specified accuracy requirements. The accuracy requirements for the permanent link test configuration (baseline accuracy plus adapter contribution) are specified in Table 4 of TIA-1152
      c. The RJ45 test plug shall fall within the values specified in TIA-568-C Annex C for NEXT, FEXT and Return Loss.
      d. The tester interface adapters must be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters.
      e. In order to deliver optimum accuracy, permanent link interface adapter for the tester shall be used, which can be calibrated to extend the reference plane of the Return Loss measurement to the permanent link interface.
      f. The contractor shall provide proof that the interface has been calibrated within the period recommended by the vendor.
      g. To ensure that normal handling on the job does not cause measurable Return Loss change, the adapter cord cable shall not be of twisted-pair construction.
      h. Site portable communications systems (walkie-talkie, cell phone, or similar to aid in communications between test device locations)

END OF SECTION

5.4 PHYSICISTS REPORT

UCDAVIS HEALTH
Department of Radiology
Shiyang Wang, Ph.D.
Assistant Professor, Radiology
Division of Medical Physics

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Sacramento, CA 95817
Office Telephone: (916) 734-7310
E-mail: shing@ucdavis.edu

May 14th, 2025

To whom it may concern:

This document is a Shielding Design Report for two dedicated radiographic rooms.

Facility Information
Facility Name: University of California Davis Health
Facility Address: 4301 X St, Sacramento, CA 95817
Installation Division: Radiology

Equipment Information
Location: Davis Tower room 1835H, 1835I
Machine Type: Radiography
Make: Philips
Model: 7300 C
Maximum Technique Factors: 150 kV, focal spot 0.6mm max power 33kW; 1.2mm, max power 100 kW
Number of Tubes: 1
Energy Waveform: High frequency
CA Machine No: N/A

Description of Imaging Technology
Reduce time-consuming retakes and focus more closely on your patients. Smart Workflow, powerful AI-enabled productivity features, and automated examination technologies help assure rapid availability of high-quality digital images for more confident diagnoses.

Figure 1. Philips Radiography 7300 C.

Workload

The estimated number of exams expected to be performed on a weekly basis in 1835H and 1835I: 135 exams per week (total)
[Approx 7000 exams per year] Per Jeffery M Elmasian 5/13/2025
Most patients are greater than 18 years old.
The estimated number of exams per week used in the calculation is 135 pt/week.

Architectural Information

Drawings can be found in Appendix A and B of this document. The adjacent rooms include a workroom, patient exam rooms, corridors, and X-ray rooms.

Composition of Floor & Ceiling

The composition of the floors and ceilings is a minimum of 4.5 inches normal weight concrete on am 18 gage (0.04 inch) steel deck.

Shielding Summary

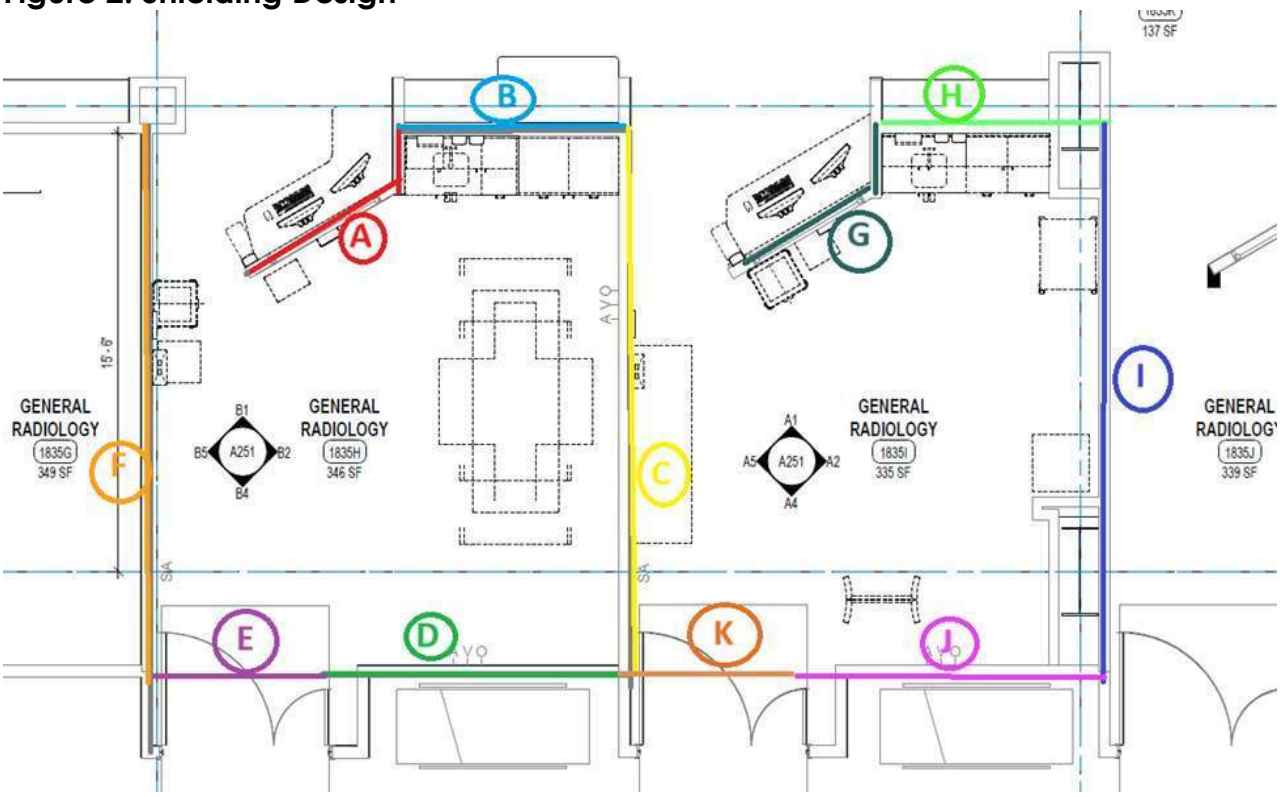
The tables below summarize the shielding requirements and proposed construction materials for the radiography room (see Figure 2. for more details).

Shielding Requirements:Davis Tower, X-Ray Room 1835H				
Barrier	**Adjacent Space**	**Barrier Material**	**Min Barrier Thickness Required (mm)**	**Proposed Construction (Minimum Nominal Weight lb/ft²)**
Wall A	Control booth	Lead	0.2	Exist shielding sufficient
Wall B	Work area	Lead	0.6	Exist shielding sufficient
Wall C (cross-table)	Corridor	Lead	0.8	Exist shielding sufficient
Wall D (w/ Wall Bucky)	Corridor	Lead	1.4	**1.5lb/ft² add to existing shielding**
Door E	Corridor door	Steel	1.9	Existing shielding sufficient
Wall F	X-ray Room	Lead	0.4	Exist shielding sufficient
Ceiling	Full Occupancy	Concrete	26.5	4.5 in concrete acceptable
Floor	Full Occupancy	Concrete	95.3	4.5 in concrete acceptable

Shielding Requirements:Davis Tower, X-Ray Room 1835I				
Barrier	**Adjacent Space**	**Barrier Material**	**Min Barrier Thickness Required (mm)**	**Proposed Construction (Minimum Nominal Weight lb/ft²)**
Wall G	Control booth	Lead	0.2	Existing shielding sufficient
Wall H	Work area	Lead	0.6	Existing shielding sufficient
Wall I (cross-table)	Corridor	Lead	0.8	Existing shielding sufficient
Wall J (w/ Wall Bucky)	Corridor	Lead	1.4	**1.5lb/ft² add to existing shielding**
Door K	Corridor door	Steel	1.7	Existing shielding sufficient
Wall C	X-ray Room	Lead	0.4	Existing shielding sufficient
Ceiling	Full Occupancy	Concrete	26.5	Existing concrete acceptable
Floor	Full Occupancy	Concrete	95.3	Existing concrete acceptable

Note: From previous shielding reports (see Appendix C.) Door E and Door K had **2. 5lb/ft²** of lead installed. It is sufficient for the shielding requirement.

Figure 2. Shielding Design



Additional Requirements

1. All shielding will extend from the floor to a height of 7 feet.
2. All windows, frames, doors, and door frames on a wall must meet the minimal shielding requirements specified for that wall.
3. Any penetrations in the shielding, such as outlets, must meet the minimal shielding requirements. This can be achieved by wrapping the backs with lead.
4. The technologist must always have a clear line of sight to the patient or functional video monitoring.
5. The technologist must be able to communicate with the patient (both provide instructions and always hear responses) in person or via an intercom.

Shielding must be recalculated if:

1. The workload estimate is provided or increases by more than 25%
2. The adjacent spaces are reassigned
3. The equipment is designated to be a different room
4. The equipment placement within the room changes by more than 2 ft.

Summary

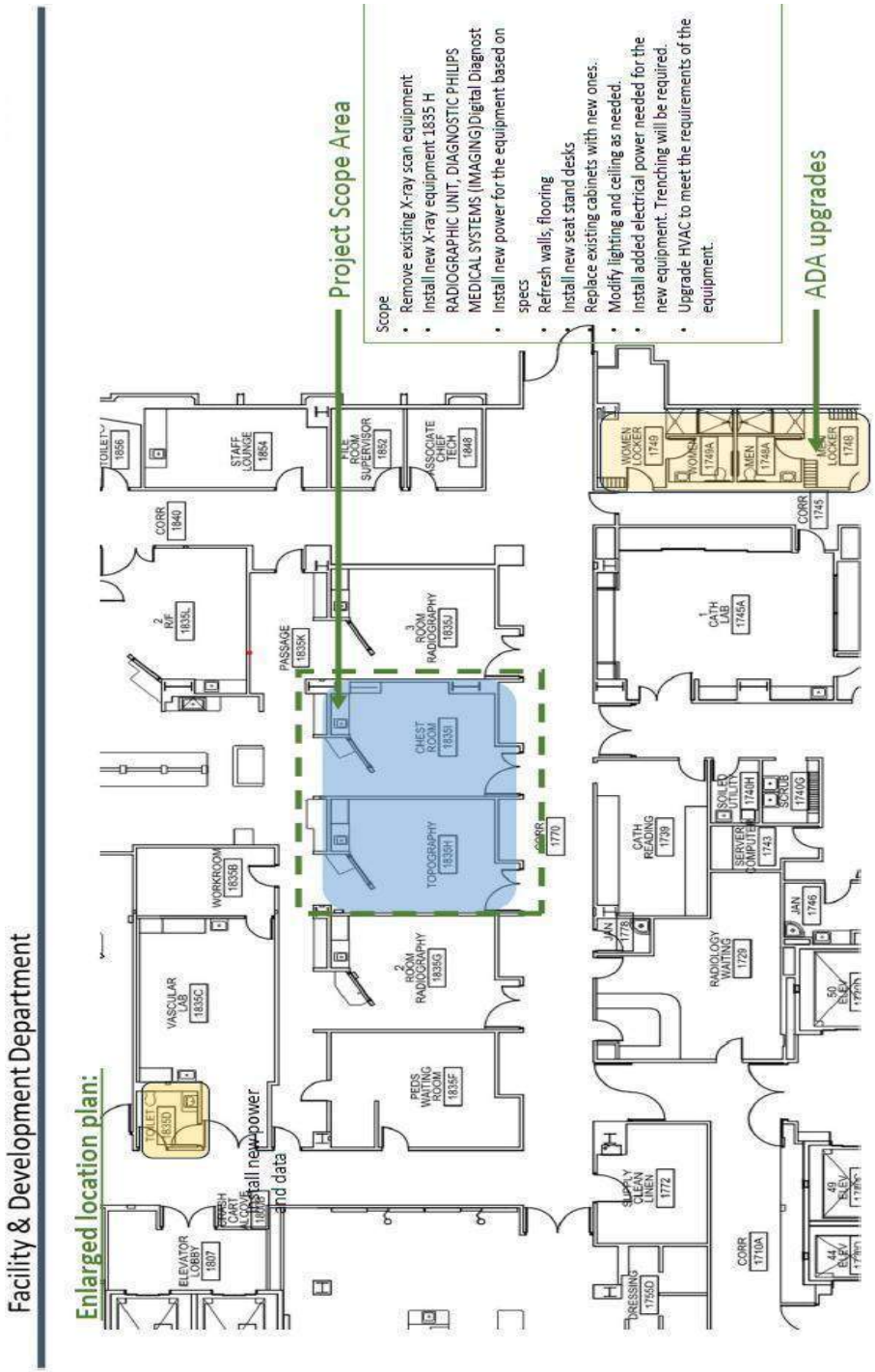
In accordance with NRCP Reports 49 & 147, the proposed facility design meets or exceeds shielding requirements. Please feel free to contact me (shing@health.ucdavis.edu, 916-734-7310) if you have any questions regarding this report.

Sincerely,

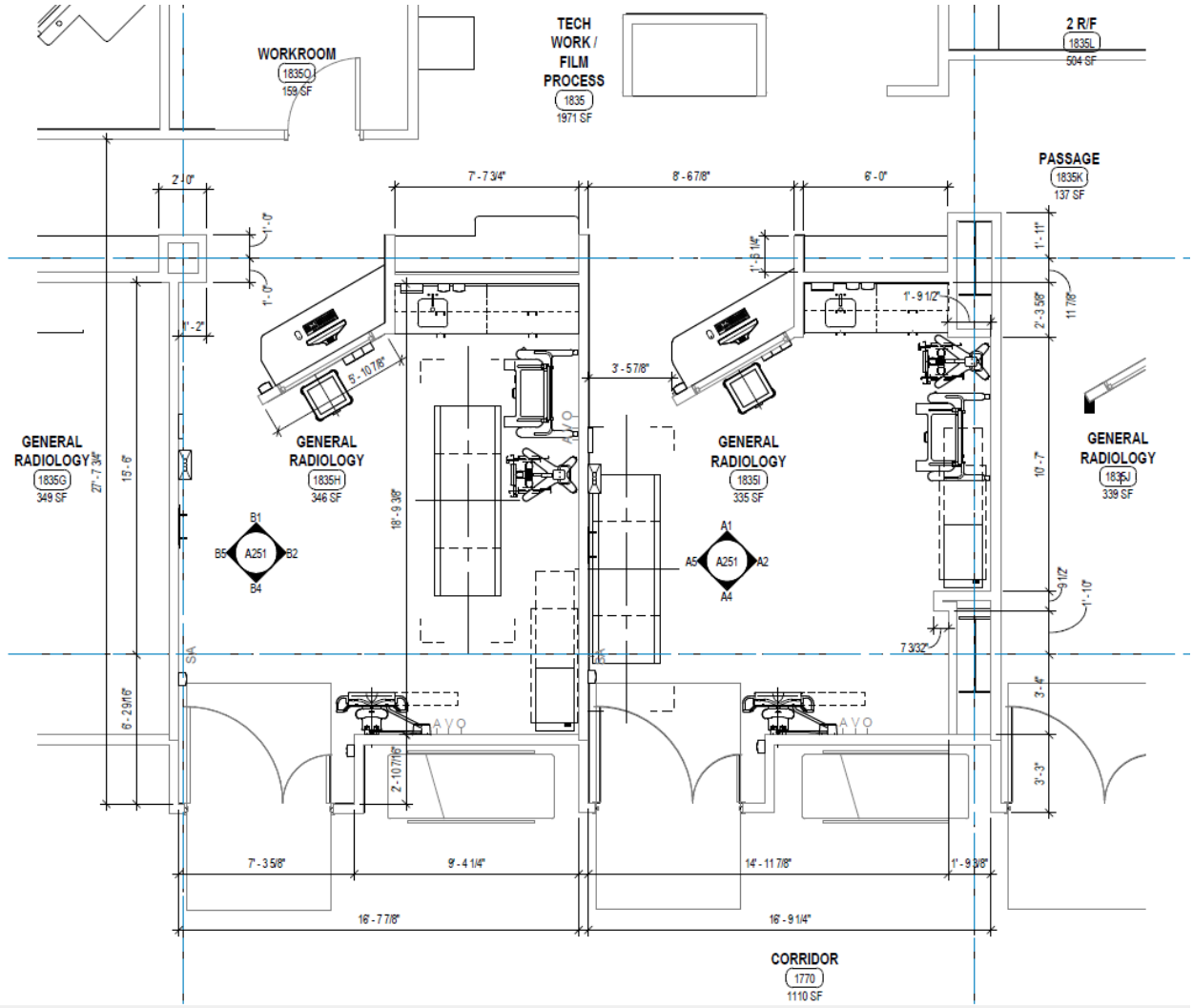
Shiyang Wang, Ph.D.
Medical Physicist

Appendix A: Facility Floor Plan

Shielded room is highlighted in blue. DT1835H, DT1835I



Appendix B: Room Floor Plan

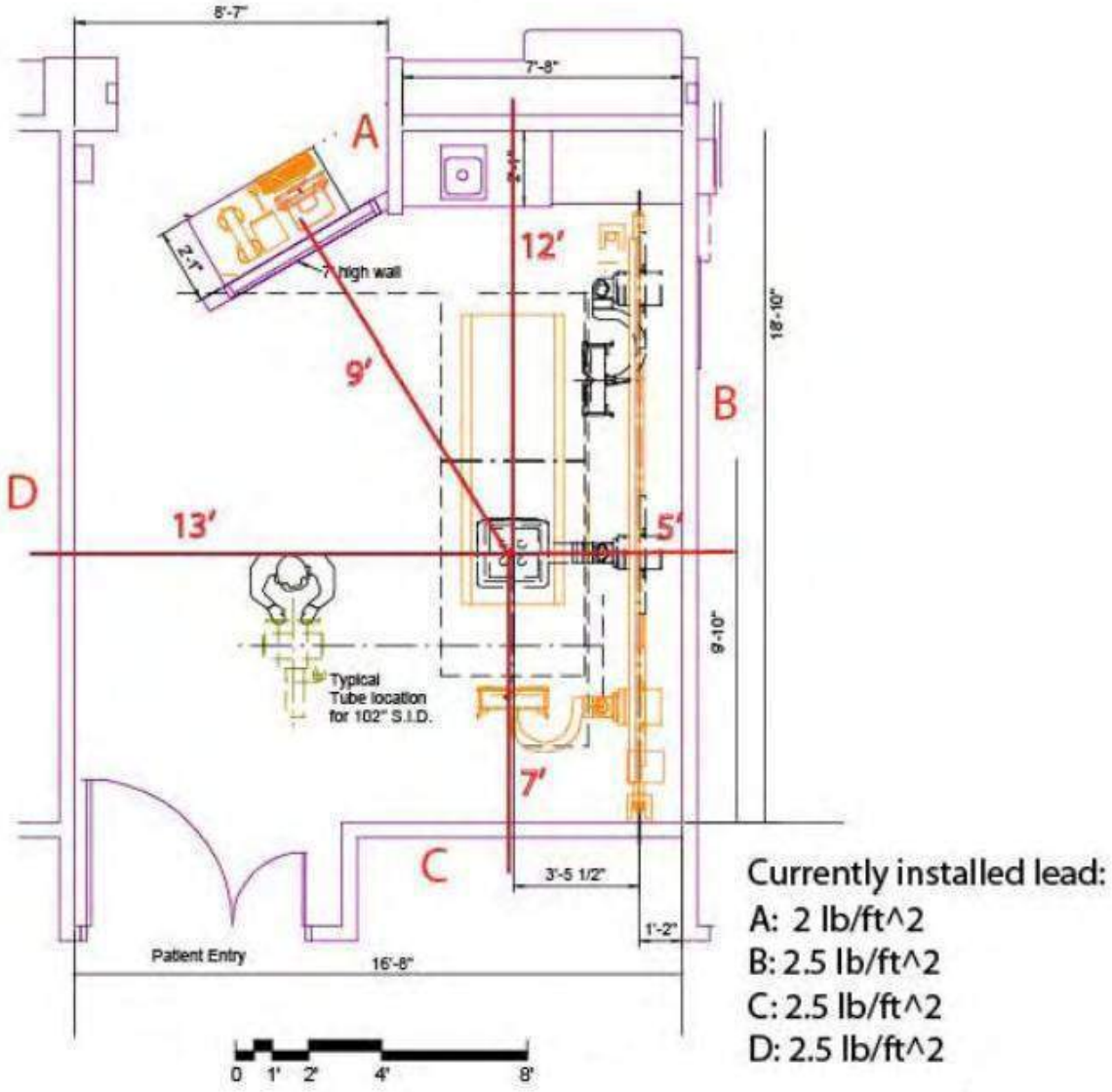


Appendix C: Existing Shielding (From Previous Shielding Reports)

DAVIS TOWER ROOM 1835H
Digital Diagnost TH-D (dual detector)

Shielding Report from J. Anthony Seibert on March 24, 2009

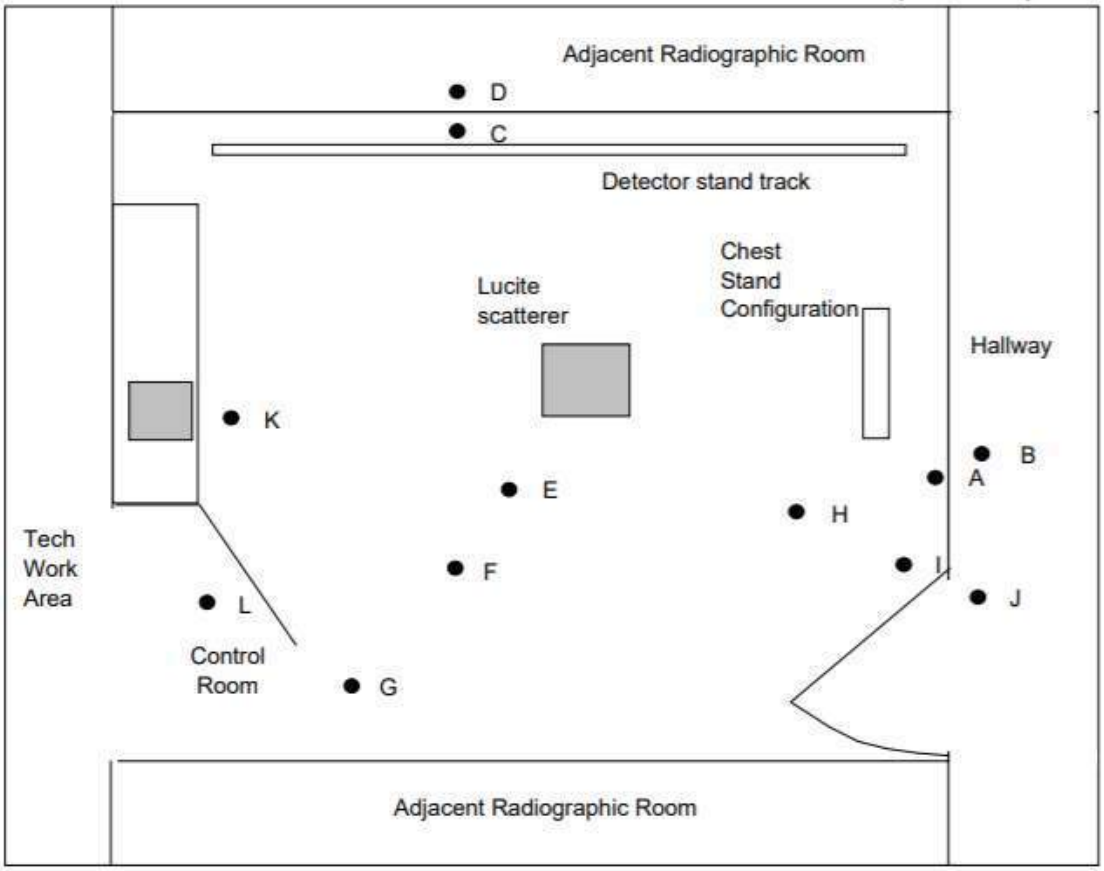
Equipment Layout



Currently installed lead:
A: 2 lb/ft^2
B: 2.5 lb/ft^2
C: 2.5 lb/ft^2
D: 2.5 lb/ft^2

Environmental Survey: Radiographic Room, UC Davis Medical Center
Davis Tower, 1835 I

From Dec 12 2008
Acceptance report



SCATTERED RADIATION

120 40 mAs

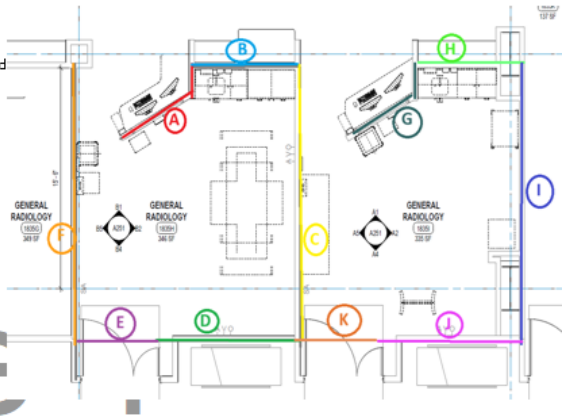
Pos	Dist (ft)	Exposure (mR)
E	2	8.58
F	4	2.46
G	10	0.38
H	7	0.97
I	9	0.47
J	11	0.00
K	9.5	0.42
L	11	0.00

PRIMARY TRANSMISSION

120 kVp	10 mAs Incident	(mR) Transmitted	Factor
A & B	25.9	0.035	0.0014 (>4 lb Pb)
C & D	37.3	0.049	0.0013 (>4 lb Pb)

Appendix D: Calculation Details

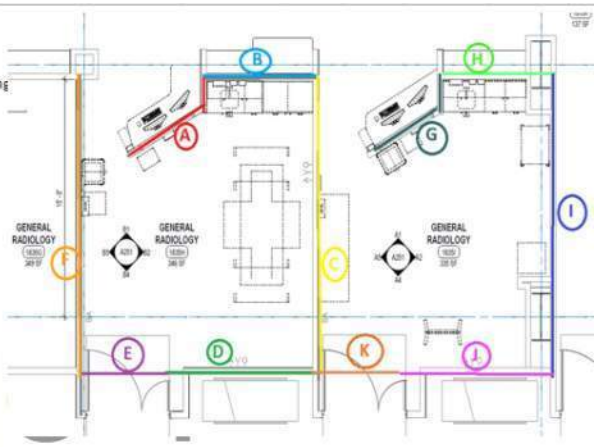
Shielding Requirements: Davis Tower, X-Ray Room 1835H					
Barrier	Adjacent Space	Barrier Material	Min Barrier Thickness Required	Proposed Construction (Minimum Nominal Weight lb/ft²)	Existing Shield
Wall A	Control booth	Lead	0.2	Exist shielding sufficient	2
Wall B	Work area	Lead	0.6	Exist shielding sufficient	2
Wall C (cross-table)	Corridor	Lead	0.8	Exist shielding sufficient	2.5
Wall D (w/ Wall Bucky)	Corridor	Lead	1.4	1.5 (preshielding included)	2.5
Door E	Corridor door	Steel	1.9	A door with at least 2 mm steel is acceptable	2.5
Wall F	X-ray Room	Lead	0.4	Exist shielding sufficient	2.5
Ceiling	Full Occupanc	Concrete	26.5	4.5 in concrete acceptable	
Floor	Full Occupanc	Concrete	95.3	4.5 in concrete acceptable	



Acquisition Mode	Workload (pt/wk)	NRCP 147, Table 4.5 Kp @ 1m (3.28 ft) (mGy/pt)	NRCP 147, Table 4.7 Ksec @ 1m (3.28 ft) (mGy/pt)	NRCP 147, Table 4.7 Kleak @ 1m (3.28 ft) (mGy/pt)
DX (all other Barriers)	135	5.2	0.0480	0.0005
DX (floor)	100	5.2	0.0330	0.0001
DX (wall bucky)	35	2.3	0.0069	0.0004

Barrier	Adjacent Space	Type	Occupancy (T)	Use Factor (U) (primary)	Distance (ft)	K_{tot} (mGy/w	K_{leak} [P] (mGy/wk)	Barrier material	Type	alpha	beta	gamma	Thickness (mm)
Wall A	Control booth	Controlled	1.00	0.00	9.0	0.71	0.10	Lead	P+S+L	2.35	15.90	0.50	0.16
Wall B	Work area	Uncontrolled	1.00	0.02	12.0	1.31	0.02	Lead	P+S+L	2.35	15.90	0.50	0.55
Wall C (cross-table)	X-ray Room	Controlled	0.50	0.09	5.0	10.48	0.10	Lead	P+S+L	2.26	13.08	0.56	0.83
Wall D (w/ Wall Bucky)	Corridor	Uncontrolled	0.20	1.00	7.0	23.92	0.02	Lead	P (wall)	2.35	15.90	0.50	1.42
Door E	Corridor door	Uncontrolled	0.13	0.02	8.2	0.33	0.02	Steel	P+S+L	0.22	3.10	0.57	1.86
Wall F	X-ray Room	Uncontrolled	0.50	0.02	13.0	0.57	0.02	Lead	P+S+L	2.35	15.90	0.50	0.38
Ceiling	Full Occupanc	Uncontrolled	1.00	0.00	13.6	0.33	0.02	Concrete	S+L	0.04	0.14	0.49	26.49
Floor	Full Occupanc	Uncontrolled	1.00	0.89	16.4	22.48	0.02	Concrete	P+S+L (floor)	0.04	0.14	0.42	95.32

Shielding Requirements: Davis Tower, X-Ray Room 1835I					
Barrier	Adjacent Space	Barrier Material	Barrier Thickness Required	Proposed Construction (Minimum Nominal Weight lb/ft²)	Existing shielding
Wall G	Control booth	Lead	0.2	Exist shielding sufficient	2.5
Wall H	Work area	Lead	0.6	Exist shielding sufficient	2.5
Wall I (cross-table)	Corridor	Lead	0.8	Exist shielding sufficient	2.5
Wall J (w/ Wall Bucky)	Corridor	Lead	1.4	.5 add to existing shieldin	2.5
Door K	Corridor door	Steel	1.7	A door with at least 2 mm steel is acceptable	2.5
Wall C	X-ray Room	Lead	0.4	Exist shielding sufficient	2.5
Ceiling	Full Occupanc	Concrete	26.5	4.5 in concrete acceptable	1.0
Floor	Full Occupanc	Concrete	95.3	4.5 in concrete acceptable	3.8



Acquisition Mode	Workload (pt/wk)	NRCP 147, Table 4.5 Kp @ 1 m (3.28 ft) (mGy/pt)	NRCP 147, Table 4.7 Ksec @ 1 m (3.28 ft) (mGy/pt)	NRCP 147, Table 4.7 Kleak @ 1 m (3.28 ft) (mGy/pt)
DX (all other Barriers)	135	5.2	0.0480	0.0005
DX (floor)	100	5.2	0.0330	0.0001
DX (wall bucky)	35	2.3	0.0069	0.0004

Barrier	Adjacent Space	Type	Occupancy (T)	Use Factor (U) (primary)	nce (ft)	K_{tot} (mGy/wk)	K_{leak} [P] (mGy/wk)	Barrier material	Type	alpha	beta	gamma	Thickness (mm)
Wall G	Control booth	Controlled	1.00	0.00	9.0	0.71	0.10	Lead	P+S+L	2.35	15.90	0.50	0.16
Wall H	Work area	Uncontrolled	1.00	0.02	11.5	1.42	0.02	Lead	P+S+L	2.35	15.90	0.50	0.57
Wall I (cross-table)	X-ray Room	Controlled	0.50	0.09	5.0	10.48	0.10	Lead	P+S+L	2.26	13.08	0.56	0.83
Wall J (w/ Wall Bucky)	Corridor	Uncontrolled	0.20	1.00	7.8	19.76	0.02	Lead	P (wall)	2.35	15.90	0.50	1.35
Door K	Corridor door	Uncontrolled	0.13	0.02	9.0	0.28	0.02	Steel	P+S+L	0.22	3.10	0.57	1.67
Wall C	X-ray Room	Uncontrolled	0.50	0.02	13.0	0.57	0.02	Lead	P+S+L	2.35	15.90	0.50	0.38
Ceiling	Full Occupancy	Uncontrolled	1.00	0.00	13.6	0.33	0.02	Concrete	S+L	0.04	0.14	0.49	26.49
Floor	Full Occupancy	Uncontrolled	1.00	0.89	16.4	22.48	0.02	Concrete	P+S+L (floor)	0.04	0.14	0.42	95.32

5.5 TEST AND BALANCE REPORT

MESA3, Inc. www.MESA3.com
Improving facility performance, efficiency, safety and compliance since 1985

San Jose (HQ)
1945 Las Plumas Ave.
San Jose, CA 95133
P) 408-928-3000
F) 408-928-3003

Pre-Design Survey Report # 10304.1 Rev.0
DT 1835 H & I X-Ray Upgrades

UCDMC
2315 Stockton Blvd.
Sacramento, CA

Architect:	Not Listed	Mechanical Engineer:	Not Listed
General Contractor:	Not Listed	Mechanical Contractor:	Not Listed

Certification

All systems have been tested and balanced in accordance with the project plans and specifications and to the optimum performance capabilities of the equipment. Testing and balancing has been performed in accordance with the standards published by the Associated Air Balance Council and the results of these tests published herein.

Guarantee

- If for any reason MESA3 has failed to comply with either the above certification or the contract document requirements, except for equipment malfunction, inadequacy or improper design, MESA3 shall re-perform the services as required to bring the report into compliance. No extra charges for these services shall be made. The services covered in this report are guaranteed for a period of **ONE YEAR** following the date of the report. This guaranty shall be null & void should any person change, modify, readjust, or alter the described systems in any manner without our prior acknowledgment with the exception of normal maintenance.
- Also, included within this report is an additional ***AABC National Performance Guaranty*** issued by the Associated Air Balance Council.

Personnel Record

Project Manager: Paul Mocny
Project Engineer: Jordan Mocny

Tests Performed By:
Mike McCormack
Matt McCormack

Prep/QC By:
Justin Knepp

Report Approval:

Jordan Mocny, TBE #23-01-129
AABC Certified Test and Balance Engineer

3/14/2025
Date

MESA3, Inc. ASSOCIATED AIR BALANCE COUNCIL AABC TBE • 23-01-129 • Jordan P. Mocny

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Test Procedure Notice	8
Test Equipment Detail	9
Coded Survey Plan	Attached

Test-Balance-Certify-Monitor-Calibrate-Commission-Validate
San Jose 408-928-3000 Sacramento 916-803-0268
24hr Emergency 408-928-3000 x150 www.MESA3.com

Report Comments

1.00 EXECUTIVE SUMMARY

1.01 All devices and systems were successfully surveyed and results documented herein.

1.02 See individual test sheets for details.

2.00 BACKGROUND

2.01 This test and balance project was initiated as part of planned X-Ray upgrades in the 1835H & I spaces of Davi Tower.

3.00 PROPOSED SCOPE

3.01 Perform HVAC Testing & Balancing services per plans and project specifications.

4.00 FORMAT NOTES

4.01 For record, in order to have the most accurate data contained within each cell of the report, all formulas and calculations include all of the decimal places even if not displayed. (i.e.: The "*Precision as Displayed*" is not turned on).

5.00 PROCEDURE CLARIFICATIONS

5.01 FLOWHOOD USE

a) Application: Capture Hood readings are corrected for air temperature & atmospheric pressure to achieve the highest accuracy available.

b) Limitations: Capture Hood test equipment has a calibrated range from 30 to 3,000 cfm. Physical airflows below 30 cfm may be displayed as zero by the FlowHood even if airflow is present. As such, if the hood displays a value of zero cfm, this will be reported by MESA3 as "<30 cfm".

c) For VAV systems, if other registers were able to be acceptably measured (>30 cfm) in minimum airflow mode, then the minimum airflow for any "<30" cfm was calculated based on the register reducing by the same average percentage as the others for use in determining VAV total flow.

Test-Balance-Certify-Monitor-Calibrate-Commission-Validate
San Jose 408-928-3000 Sacramento 916-803-0268
24hr Emergency 408-928-3000 x150 www.MESA3.com

UCDMC
2315 Stockton Blvd.
Sacramento, CA

Air Distribution

System / Area: **AHU 1-1S & 2S**

Doc: TAB-A11-Air Dist Rev 1.6-110429 ©MESA3 1998-2025

Register					Design		Flow Spec + 10%		Flow Spec - 10%								
							Date		By	Test Eq#		Date		By	Test Eq#		
							3/7/25		MM,MJM	3101		3/7/25		MM,MJM	3101		
I.D.	Room	Type	Size or Model	Ak	FPM or ΔP	CFM	Test #	1 - Survey				Test #	2 - Survey				Note Code
							% Open	SP/VP	FPM	CFM	Analysis	% Open	SP/VP	FPM	CFM	Analysis	
Room 1835H																	
348		WSG	12x4			170				146	86%				No Test		
349		WSG	12x4			170				174	102%				No Test		
CAV 1.48 Total						340				320	94%				No Test		
Room 1835I																	
350		WSG	12x4			170				0	0%				141	83%	
351		WSG	12x4			170				0	0%				160	94%	
CAV 1.49 Total						340				0	0%				301	89%	1

Note	Comment	Date	By
1	CAV was found with Ind CFM at 674, and the damper at 0%. The CAV was autozeroed and retested.	3/7/25	MM
2	AHU 1-1S is running at 48.8 Hz, and AHU 1-2S is running at 46.9 Hz.	3/7/25	MM

MESA3 Mechanical Environmental Systems Analysis and Adjustment Agency
Test-Balance-Certify-Monitor-Calibrate-Commission-Validate
San Jose 408-928-3000 Sacramento 916-803-0268
24hr Emergency 408-928-3000 x150 www.MESA3.com

UCDMC
2315 Stockton Blvd.
Sacramento, CA

Air Distribution

System / Area: **AHU 1-1E & 2E**

Doc: TAB-A11-Air Dist Rev 1.6-110429 ©MESA3 1998-2025

Flow Spec + **10%** Flow Spec - **10%**

Register					Design		Date	By	Test Eq#	Date	By	Test Eq#	
							3/7/25	MM,MJM	3101				
I.D.	Room	Type	Size or Model	Ak	FPM or ΔP	CFM	Test #	1 - Survey		Test #			Note Code
							% Open	SP/VP	FPM	CFM	Analysis	% Open	SP/VP	FPM	CFM	Analysis	
Room 1835H																	
1368		CEG	24x12			340				333	98%						
Room 1835I																	
1370		CEG	24x12			340				278	82%						

Note	Comment	Date	By
1	AHU 1-1E is running at 48.9 Hz, and AHU 1-2E is running at 52.3 Hz.	3/7/25	MM

AABC National Performance Guaranty

Pursuant to the agreement between

MESA3, Inc.

AABC Certified Testing & Balancing Agency

and UC Davis Health

Client

All systems shall be tested and balanced in accordance with the project plans and specifications and to the optimum performance capabilities of the equipment. Testing and balancing shall be done in accordance with the standards published by the Associated Air Balance Council.

If the Agency listed above fails to comply with the specifications for any reason other than termination of business by the AABC agency or equipment malfunction or inadequacy which prevents proper balancing of the systems, AABC will investigate and, if warranted, will provide supervisory personnel to assist the member Agency to perform work in accordance with AABC Standards. This supervision will be provided at no additional cost to the building owner.

This Guaranty is valid for one year from the date of submission of a test and balance report, provided the Agency is a current member of AABC, and may only be invoked in writing by the building owner, architect, or engineer of record. The Guaranty is limited to the terms and conditions as stated herein.

Project Name: MESA3 # 10304.1 Rev.0 UCDMC DT 1835H & I X-Ray Upgrades Survey

Address: 2315 Stockton Blvd.

Sacramento, CA

Name of Engineer: Zach Price (UCDH Rep.)

Engineering Firm: --

Email Address: --

Address: --

--

Date: 2025-03-14

TBE #: 23-01-129

By: Jordan Mocny

AABC Certified TBE

AABC
Associated Air Balance Council
1518 K Street, N.W.
Washington, D.C. 20005
202-737-0202 • Fax 202-638-4833
info@aabc.com • www.aabc.com

Report Abbreviations

General:	
AC/H	Air Changes per Hour
AFF	Above Finished Floor
ASHRAE	American Society of Heating, Refrigeration & Air-Conditioning Engineers
DNA	Data Not Available
DNL	Data Not Listed
FIO	For Information Only
I/O	Information Only
LOA	Lack Of Access
NA	Not Applicable
N/A	Not Applicable
NI	Not Installed
NIC	Not In Contract
NM	Not Measured
NR	No Requirement
NVL	No Valid Location for testing
HVAC Air Balancing:	
Ak	Area Coefficient
B.TRAV	Branch Traverse
CD	Ceiling Diffuser
CEF	Ceiling Exhaust Fan
CEG	Ceiling Exhaust Grille
CER	Ceiling Exhaust Register (w/ OBD)
CH	Canopy Hood
CRG	Ceiling Return Grille
CSR	Ceiling Supply Register (w/ OBD)
CRR	Ceiling Return Register (w/ OBD)
DD	Dual Duct Terminal Unit
DH	Ducted HEPA
ESP	External Static Pressure
FEG	Floor Exhaust Grille
FER	Floor Exhaust Register (w/ OBD)
FFU	Fan Filter Unit
FH	Laboratory Fume Hood
FPH	Fan Powered HEPA
FRG	Floor Return Grille
FRR	Floor Return Register (w/ OBD)
FSR	Floor Supply Register (w/ OBD)
LCD	Linear Ceiling Diffuser
LSD	Linear Slot Diffuser
LWE	Low Wall Exhaust
LWR	Low Wall Return
LWS	Linear Wall Supply
M.TRAV	Main Traverse
OA / OSA	Outside Air
OBD	Opposed Blade Damper
OPEN	Open Duct
PD	Pressure Dependent
PI	Pressure Independent
RA	Return Air
SA	Supply Air
SD	Single Duct Terminal Unit
St. Pt.	Set Point
TAF	Terminal Air Filter
TRAV	Traverse
TSP	Total Static Pressure
VFD	Variable Frequency Drive
WEG	Wall Exhaust Grille
WER	Wall Exhaust Register (w/ OBD)
WRG	Wall Return Grille
WRR	Wall Return Register (w/ OBD)
WSG	Wall Supply Grille
WSR	Wall Supply Register (w/ OBD)
HVAC Water Balancing:	
BG-CS	Bell & Gossett - Circuit Setter
BG-TDV	Bell & Gossett - Triple Duty Valve
BG-CB	Bell & Gossett - Circuit Balance Valve
TA-CBV	Tour & Anderson - Circuit Balance Valve
Annu	Annubar flow measuring station
Cleanroom Performance Testing (Certification)	
BSC	Bio Safety Cabinet (Class-II)
DOP	Dioctyl Phthalate
EMI	Electromagnetic Interference
IES (IEST)	Institute of Environmental Sciences & Technology
NSF	National Sanitation Foundation
Particle	Non-viable or viable particulate
PSL	Polystyrene Latex spheres
PAO	Polyalphaolefin
Systems Commissioning	
BA	Breathing Air
BSC	Building Systems Commissioning
BSCA	Building Systems Commissioning Administrator
CDA	Clean Dry Air
CO	Carbon Monoxide
CO2	Carbon Dioxide
Cx	Commissioning
MEP	Mechanical-Electrical-Plumbing-Piping
NO	Nitric Oxide
NO2	Nitrogen Dioxide
Calibration Services	
Component Cal	Calibration of a single portion of the measurement chain of events, typically includes recording of transmitter signal.
Loop Cal	Calibration of the entire measurement chain of events, typically includes recording of indicated values.
Component & Loop Cal	Simultaneous calibration of both a single portion of the measurement chain and the entire chain, typically includes recording of transmitter signal and indicated values.
Calibration Part	ID number referring to the individual calibration number and total number of sequential calibrations which are or could be performed jointly to an individual instrument as part of an overall calibration plan. [i.e.: 3-Point Component Cal with adjustment (1 of 2), followed by 1-Point Loop Cal with no adjustment (2 of 2)].
Standard	Instrument used as reference during calibration procedure.
NIST	National Institute of Standards and Technology
Facility	
cGCP	current Good Clinical Practices
cGLP	current Good Laboratory Practices
cGMP	current Good Manufacturing Practices
ISPE	International Society for Pharmaceutical Engineering
IQ	Installation Qualification
OQ	Operational Qualification
PQ	Performance Qualification

Test Procedure Notice

1. INDUSTRY PROCEDURES

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with an industry standard, procedure, recommended practice or guideline.

1.1. Copies of industry documents may be purchased from the publishing association or group. Feel free to contact MESA3 for the address and phone numbers of any association of interest.

1.2. Abbreviations for issuing agencies, which MESA3 frequently reference are as follows.

1.2.1.	AABC	Associated Air Balance Council
1.2.2.	IEST-RP-CC	Institute of Environmental Sciences Recommended Practice - Contamination Control
1.2.3.	NSF-49	National Sanitation Foundation - Class II Biosafety Cabinetry
1.2.4.	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers guidelines
1.2.5.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association

2. PROJECT SOP's

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with a "Project SOP" or "Project Procedure".

2.1. If formal "project specific" procedures were developed by MESA3 for use in MESA3's execution of services associated with this project, even if these procedures were disseminated during the course of the project or have been included in this final report, MESA3 retains the copyright ownership to all such procedures.

2.2. If procedures were developed by MESA3 specifically for use by the Client, these documents shall bear the Client's name and only mention MESA3 under a "prepared by" caption. These documents are the property of the Client.

3. MESA3 SOP's

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with a MESA3 SOP (Standard Operating Procedure).

3.1. MESA3 SOP's are created by MESA3, at MESA3's sole expense, for the sole purpose of being used by MESA3 employees in performing company related services and are the intellectual property of MESA3 with all rights reserved.

3.2. Due to the trade secret nature of these controlled documents, they are considered PROPRIETARY AND CONFIDENTIAL by MESA3. They shall not be copied or disclosed in any manner either in whole or in part in any way, shape or form to any person other than to MESA3 employees for any reason whatsoever without the prior expressed written consent of the President of MESA3 with the exception that the copying or disclosing of the "Page 0 Confidentiality Notice" of any MESA3 SOP to either the Client or the Client's duly appointed Representative shall be allowed.

3.3. Any MESA3 client who wishes to perform a Quality Assurance (QA) Audit of a MESA3 SOP procedure referenced within this report may do so provided the following conditions are met.

3.3.1. The QA Audit shall be scheduled in advance with the President of MESA3. It can be performed at either MESA3's main office or at any site of the Client's choosing within 50 miles of MESA3's main office at no charge. A QA Audit performed at a site greater than 50 miles from MESA3's office can be accommodated so long as the Client compensates MESA3 for reasonable travel expenses.

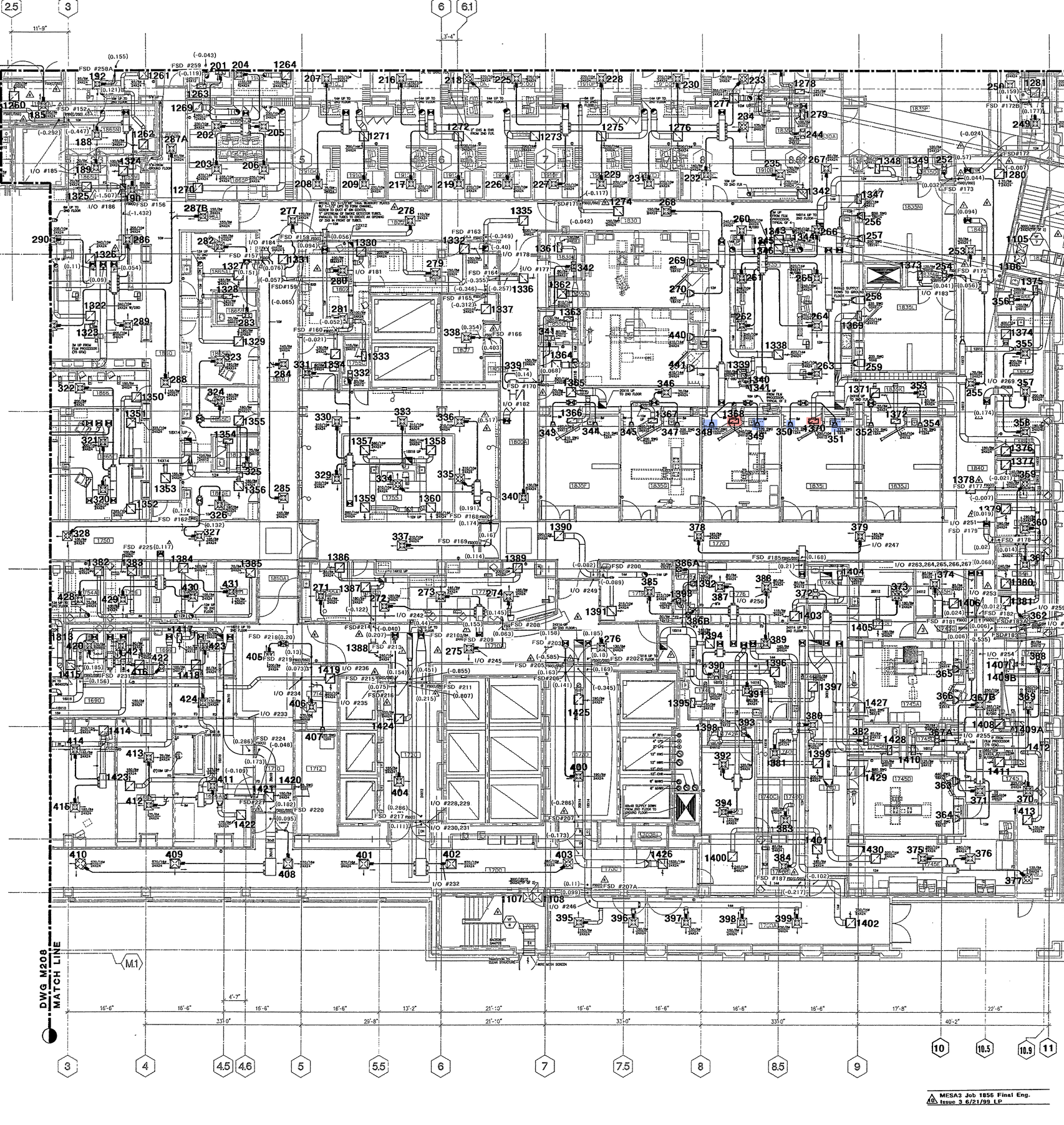
3.3.2. The personnel performing the QA Audit shall be either direct employees of the Client and be charged with QA activities for the client, or shall be employees of a government regulatory agency, which is performing a QA Audit of the Client's operations.

3.3.3. The QA Audit personnel shall execute a confidentiality agreement as prepared by MESA3 prior to conducting the audit. This agreement shall primarily stipulate that the QA Auditors agree not to discuss or disseminate the contents of this MESA3 procedure in whole or in part in any way, shape or form; except that they shall be free to disclose the results and conclusions of their QA Audit with other QA employees of the client and/or to the employees of government regulatory agencies so long as they inform the recipient of the proprietary and confidential nature of the MESA3 document that has been audited.

Test Equipment Detail

Refer to individual test sheets for a record of which instrument was used during testing as identified by the "MESA3 EQ #".

Application	Description	Manufacturer	Model	MESA3 EQ #	Current Cal	Cal Due
Air Press, DP, Vel, Vol, & Temp	Pressure / Velocity / Flow	Evergreen Telemetry	S-PVF-1	3101	7/24/24	07/2025
	Wrist Display	Evergreen Telemetry	--	One per tech:Not Calibrated		
	Temp Sensor	Evergreen Telemetry	--	--	--	--
	Air Data Multimeter	Shortridge	ADM-860C	--	--	--
				--	--	--



RM#	ROOM NAME
1690	CORRIDOR
1694	CLASSROOM
1695	VASCULAR OFFICE
1696	EQUIP TEST & REPAIR
1696A	EQUIPMENT HOLDING
1697	LEAD TECH ULTRASOUND
1699	PUBLIC TOILET – UNISEX
1700	CORRIDOR
1700A	VESTIBULE
1700B	TANK CLOSET
1706	FIRE COMMAND
1708	STAIR A
1710	CORRIDOR
1710A	CORRIDOR
1712	ELECTRICAL ROOM A
1713	CONSULT
1714	HOUSEKEEPING
1719	WAITING
1720	PEDESTRIAN ELEVATOR LOBBY
1730	PATIENT ELEVATOR LOBBY
1740	PASSAGE
1740A	PASSAGE
1740B	PEDS RECEP & CONTROL
1740C	DRESS
1740D	DRESS
1740E	HOLDING
1740F	NURSE STATION
1742	FAMILY WAIT & PLAY
1742A	PUBLIC TOILET – UNISEX
1744	MULTI–PURPOSE
1745	FILM PROCESS/ TECH WORK
1745A	PEDIATRIC R/F ROOM
1745B	PATIENT TOILET – UNISEX
1745C	STAFF TOILET – UNISEX
1745D	PEDIATRIC RADIOLOGY
1745E	PEDS PHYSICIANS READING
1745F	DARK ROOM
1745G	PASSAGE
1745H	RADIOLOGIST OFFICE
1745I	ULTRASOUND
1746	SOILED HOLDING
1749	PATIENT TOILET – UNISEX
1750	CORRIDOR
1754	RADIOPHARMACY
1754A	PHARM OFFICE
1755	HOLDING/ NURSE
1755A	PRIVATE HOLDING
1755B	DISPATCH
1755C	PATIENT TOILET – UNISEX
1756	NURSING OFFICE
1758	PHARM STRESS
1770	CORRIDOR
1772	CNTRL RAD CONTROL & RECEP
1774	HOUSEKEEPING
1776	CLEAN SUPPLY CLEAN LINEN
1778	HOUSEKEEPING
1800	CORRIDOR
1800A	CORRIDOR
1800B	ALCOVE CRASH CART
1802	PURCHASING OFFICE
1804	SUPPLY RECEIVING
1807	SERVICE ELEVATOR LOBBY
1810	CORRIDOR
1810A	CORRIDOR
1811	CONSULT
1812	SOILED HOLDING
1813	PATIENT TOILET – UNISEX
1825	STAIR B
1830	PASSAGE
1830A	PASSAGE
1835	TECH WORK/FILM PRO
1835A	R/F ROOM 3
1835B	PATIENT TOILET – UNISEX
1835C	R/F ROOM 4
1835D	PATIENT TOILET – UNISEX
1835E	PASSAGE
1835F	RADIOGRAPHY ROOM 1
1835G	RADIOGRAPHY ROOM 2
1835H	TOMOGRAPHY ROOM
1835I	CHEST ROOM
1835J	RADIOGRAPHY ROOM 3
1835K	PASSAGE
1835L	R/F ROOM 2
1835M	PATIENT TOILET – UNISEX
1835N	R/F ROOM 1
1835O	PATIENT TOILET – UNISEX
1835P	SHELL
1835R	SOILED HOLDING
1840	CORRIDOR
1842	OFFICE
1844	TECH SUPERVISOR
1846	TECH SUPERVISOR
1848	ASSOCIATE CHIEF TECH
1852	FILE ROOM SUPERVISOR
1854	STAFF LOUNGE
1856	STAFF TOILET – UNISEX
1860	PASSAGE
1860A	PASSAGE
1860B	PASSAGE
1865	FILM PROCESS/ TECH WORK
1865A	INTERVENT ULTRASOUND 2
1865B	PATIENT TOILET – UNISEX
1865C	INTERVENT ULTRASOUND 1
1865D	ULTRASOUND 2
1865E	ULTRASOUND 1
1865F	VASCULAR LAB
1865G	NUCLEAR MED 1
1865K	NUCLEAR MED 4
1865L	FILM STORAGE
1865M	SOILED UTILITY
1865N	NUC MED STAFF OFFICE
1865O	ULTRASOUND READING
1865P	NUC MED READING
1866	VASCULAR LAB WORKROOM
1900	CORRIDOR
1900A	CORRIDOR
1900B	CORRIDOR
1902	PROJECT COORDINATOR
1904	STAFF TOILET – WOMEN
1908	COPY/ STORAGE
1910	PHYSICIANS VIEWING
1910A	FLUORO VIEWING
1910B	STAGING
1910C	ON–LINE VIEWING
1910D	PHYSICIANS VIEWING
1910E	PHYSICIANS VIEWING
1910F	PHYSICIANS VIEWING
1910G	PHYSICIANS VIEWING
1910H	PHYSICIANS VIEWING
1910I	PHYSICIANS VIEWING
1910J	PHYSICIANS VIEWING
1910K	STAGING
1910L	PHYSICIANS VIEWING

FSD DETECTOR DESIGNATION LEGEND

FSD(D) = SUPPLY DUCT DETECTOR
FSD(E) = EXHAUST DUCT DETECTOR
FSD(S) = SPACE MOUNTED DETECTOR
FSD(C/DSD) = SPACE MOUNTED AND DUCT MOUNTED DETECTOR

SHEET NOTES:

1. FOR EXACT LOCATION OF CEILING DIFFUSER AND GRILLE, SEE ARCHITECTURAL REFLECTED CEILING PLAN
2. WHERE NOT SHOWN ON PLAN, DUCT SIZES TO DIFFUSER SHALL BE SIZED AS FOLLOWS:

CFM RANGE	DUCT SIZE
A: 50 – 120	6ø
B: 121 – 200	8ø
C: 201 – 300	10ø
D: 301 – 500	12ø
E: 501 – 750	14ø

3. WHERE CONFLICT BETWEEN FLOOR PLAN AND CAV BOX SCHEDULE, BOX INLET SHALL BE SIZED AS FOLLOWS:

CFM RANGE	CAV INLET SIZE
A: 50 – 250	6ø
B: 251 – 600	8ø
C: 601 – 900	10ø
D: 901 – 1200	12ø
E: 1201 – 2100	14ø

4. PROVIDE AUTO AIR VENT AT HIGH POINT OF PIPE
5. FOR CEILING DIFFUSER MOUNTING, SEE DETAIL 2/M606.
6. FOR CAV BOX MULTIPLE OUTLET MOUNTING, SEE DETAIL 3/M606.
7. FOR HOT WATER PIPING TO RE–HEAT COIL, SEE DETAIL 5/M606.
8. FOR FIRE DAMPER MOUNTING, SEE 4/M606.
9. FOR FIRE/SMOKE DAMPER MOUNTING, SEE 5/M606.
10. FOR FIRE DAMPER WITH GRILLE MOUNTING, SEE 1/M606.
11. FOR PIPE THRU WALL, SEE DETAIL 9/M606.
12. FOR PIPE THRU FLOOR, SEE DETAIL 10/M606.
13. FOR 1/4" = 1'–0" PLANS SEE M400 SERIES DRAWINGS.
14. WHERE NOT SHOWN ON PLAN, DUCT SIZES FROM CAV BOXES AT SECOND FLOOR ABOVE THAT PENETRATE FLOOR THROUGH TO THIS LEVEL SHALL BE SAME SIZE AS THE DISCHARGE PLENUM OF THE CAV BOXES.

MESA3 Job 1856 Final Eng.
10 Issue 3 6/21/99 LP

MESA³
Mechanical Engineering Systems Assurance
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Southern California: Tel: 714.753.0273 Fax: 714.753.0241
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"Quality Assurance Services for Building Systems"
- Air & Water Balancing
- Cleanroom Certification
- Cleanroom Protocol Management
- Commissioning & Validation
- cGMP Calibration
- 24hr. HVAC Service

UCD
UC DAVIS MEDICAL CENTER MC

TOWER II / MAIN BUILDING CP–4

STRUCTURAL ENGINEERS:
H. J. Degenkolb Associates, Engineers
350 Sansome Street, Suite 900 — Tel: 415.392.6952
San Francisco, CA 94104 — Fax: 415.981.3157

MECHANICAL ENGINEERS:
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1763 Broadway — Tel: 510.763.4880
Oakland, CA 94612 — Fax: 510.763.5099

VERTICAL TRANSPORTATION
Lerch, Bates Hospital Group
625 Second Street, Suite202 — Tel: 707.765.1153
Petaluma, CA 94952–3123 — Fax: 707.763.1187

INTERIOR DESIGN
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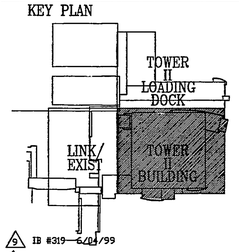
246 First Street, Suite 200 — Tel: 415.957.2750
San Francisco, CA 94105 — Fax: 415.957.2780

EQUIPMENT PLANNING
Facilities Development Inc
2020 North Central Ave, Suite 250 — Tel: 602.382.7000
Phoenix, AZ 85004 — Fax: 602.382.7007

KEY PLAN



9 IB #319 – 6/04/99
8 INSTRUCTION BULLETIN #128 04 DEC. 1998
7 INSTRUCTION BULLETIN #107 20 NOV. 1998
– SUPPLEMENTAL INSTRUCTION SI#M14 11/6/98
6 FSD DESIGNATIONS, IB#0059M 24 SEPT. 1998
5 MISC. MECH. REVISIONS, IB#008M 14 SEPT. 1998
4 INSTRUCTION BULLETIN 21 MAY 1997
3 ADDENDUM #4 REVISIONS 25 OCTOBER 1995
2 ADDENDUM #2 REVISIONS 18 OCTOBER 1995
1 OSHPD BACKCHECK REVISIONS 15 SEPTEMBER 1995
ISSUED FOR GENERAL PACKAGE 10 AUGUST 1995
△ REVISION DATE

HGA
HAMMEL GREEN & ABRAHAMSON INC
ARCHITECTS & ENGINEERS
1201 HARMON PLACE
MINNEAPOLIS, MINNESOTA 55403

PROJECT NUMBERS
A/C 934700A
OSHPD Application No HS–931346–34

APPROVALS
This document has been reviewed in accordance with the requirements of CAC. Title 24

Approved for the owner by _____ Date _____

Approved for the architect or engineer _____

REGISTERED PROFESSIONAL ENGINEER
TED JACOB
M12692
EXP. 9–30–98
MECHANICAL
STATE OF CALIFORNIA

FIRST FLOOR TOWER

13 MESA3 Job 2209 Final Eng. 5/25/00 MB
12 MESA3 Job 2209 Draft Eng. 4/26/00 MB
11 MESA3 Job 2042 Final Eng. 11/5/99 PM
10 MESA3 Job 1856 Final Eng. Issue 3 6/21/99 LP

Testing, Adjusting, and Balancing Plan

COMM. NO. 1500–001–01
SCALE 1/8"=1'–0"
DATE 21 NOVEMBER 1994
DRAWN MW

TAB–207

01/5/00

5.6 REFERENCE DRAWINGS

DT#1 1835 "J"

REPLACE ANALOG X-RAY WITH NEW DIGITAL X-RAY EQUIPMENT

UNIVERSITY OF CALIFORNIA DAVIS MEDICAL CENTER
2315 STOCKTON BOULEVARD
SACRAMENTO, CALIFORNIA 95817
PROJECT # M031560

3 2 RECORD SET 07/17/20

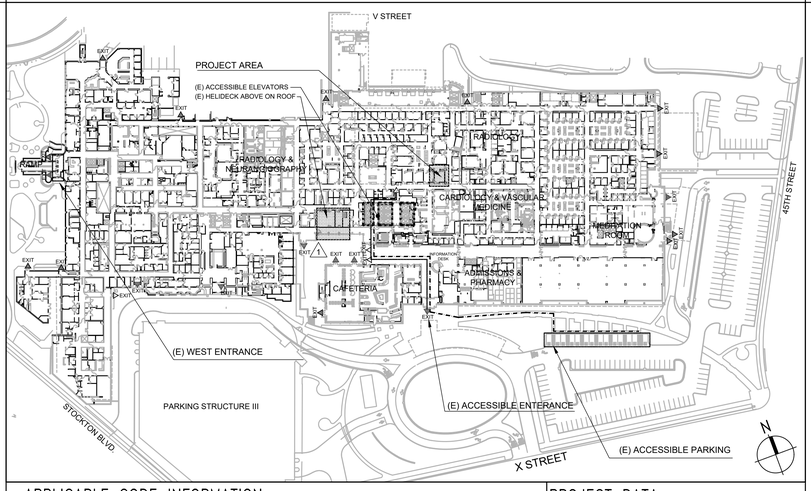
SYMBOLS LEGEND

A2.1 — DRAWING NUMBER / GROUP NUMBER / DISCIPLINE PREFIX
A — COLUMN LINE
1 — HEXAGON, NEW COL. LINE CIRCLE, EXISTING COL. LINE
E / 2 — DOOR SYMBOL: DOOR MARK / HARDWARE GROUP
WINDOW TYPE
200 — LOUVER TYPE SEE
EQ / 11 — EQUIPMENT TYPE
REVISION CLOUD AROUND REVISION OPTIONAL
MATCH LINE, SHADED PORTION IS THE SIDE CONSIDERED
WORK POINT, CONTROL POINT OR DATUM POINT
3 / A3.1 — SECTION IDENTIFICATION / SHEET WHERE SECTION IS DRAWN
3 / A9.1 — DETAIL IDENTIFICATION / SHEET WHERE DETAIL IS DRAWN
C — INTERIOR ELEVATION(S)
4 / A5.1 / A — ELEVATION IDENTIFICATION (UNFOLD ELEVATIONS CLOCKWISE. NO ARROWS MEANS ELEVATION NOT SHOWN.) / SHEET WHERE ELEVATION IS DRAWN
OFFICE / 102 / 1A1 — ROOM IDENTIFICATION, TYPE 1 / ROOM NAME / ROOM NO. / ROOM MATERIAL CODES 1ST NO.–FLOOR/BASE 2ND NO.–WALLS/WAINSCOT 3RD NO.–CEILING
1 — BULLETIN/CHALK/PEG BOARDS
72.0 / 68.5 — NEW FINISH GRADE (DRAWN @ 45°)
EXISTING GRADE (SHOWN HORIZONTALLY)
PROPERTY LINE
70 / 71 — NEW OR FINISHED CONTOURS / EXISTING CONTOURS
T.W. 74.8 — TOP OF WALL
T.C. 73.5 — TOP OF CURB
T.P. 73.0 — TOP OF PAVEMENT

INTERIOR GLAZED PARTITION
GLAZED PASS–THRU
ROLLING COUNTER DOORS
FOLDING PARTITION
TYP. FURRING
A — PARTITION TYPE INDICATION PARTITION SHOWN
ONE HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
TWO HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
RFI / MAGNETIC SHIELDED PARTITION
ONE HOUR SMOKE BARRIER PARTITION
TWO HOUR SMOKE BARRIER PARTITION
NEW ONE HOUR PARTITION
EXISTING ONE HOUR PARTITION
F.E.C. — FIRE EXTINGUISHER CABINET
E.P.B. / T.P.B. — ELECTRICAL OR TELEPHONE PANEL BOARD
HEADWALL
D.F. — DRINKING FOUNTAIN
F.S.C. — FIRE STANDPIPE CABINET
WALL HUNG CABINETS OR SHELVES
4A.1 — COUNTERTOP
N.I.C. — OWNER FURNISHED ITEMS (NOT IN CONTRACT)
LIMIT OF WORK WITHOUT BARRICADE
LIMIT OF WORK WITH BARRICADE
DF — LIMIT OF WORK WITH DUSTPROOF BARRICADE
ALTERNATE
CORNER GUARD
EDGE GUARD
ACCESS PANEL
CUBICLE, DRAPERY OR C.T., D.T., I.V. / INTRAVENOUS TRACKS
PB — PUSH BUTTON ACCESSIBLE DOOR

DIMENSION LINES
CENTERLINE OF COLUMN OR STUD
FACE OF STUD
F.O.C. — FACE OF CONCRETE
F.O.F. — FACE OF FINISH
CLEAR — FINISH FACE TO FINISH FACE
PLUMBING OR PIPE CHASE WALL (FACE OF STUD U.O.N.)
CENTERLINE OF OPENING
CENTERLINE OF OPENING
P — SPEAKER
D — PRODUCTS OF COMBUSTION DETECTOR
S — SURFACE MOUNTED LIGHT FIXTURE
R — RECESSED LIGHT FIXTURE
RECESSED FLUORESCENT FIXTURE
DIFFUSERS, SUPPLY
REGISTER, EXHAUST OR RETURN
SPRINKLER HEAD
SPRINKLER HEAD (EXISTING)
A — CEILING ACCESS PANEL
AREAS WHERE NO WORK IS TO BE DONE
EXISTING WALL OR PARTITION TO REMAIN
WALL OR PARTITION TO REMOVED
DOOR TO BE REMOVED
345 — DOOR TO BE REMOVED & REUSED
EXISTING DOOR TO REMAIN
ST / 1 — EQUIPMENT TO BE REMOVED & REUSED
A / 5 — CABINET TO BE REMOVED & REUSED
T.O.S. 40 — TOP OF STEEL
T.O.S. 40 — TOP OF SLAB
C — CLOCK
LCD TV (NIC)

SITE AND SITE ACCESSIBILITY PLAN (N.T.S.)



APPLICABLE CODE INFORMATION

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE CONSTRUCTION OF THIS PROJECT IN ACCORDANCE WITH THE FOLLOWING FEDERAL, STATE, LOCAL CODES INCLUDING THEIR MOST RECENT AMENDMENTS AND REVISIONS, AND HOSPITAL TANDARDS

2016 CALIFORNIA ADMINISTRATIVE CODE (CAC)
PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)

2016 CALIFORNIA BUILDING CODE (CBC)
PART 2, TITLE 24, CCR
BASED ON THE 2015 INTERNATIONAL BUILDING CODE (IBC)

2016 CALIFORNIA ELECTRICAL CODE (CEC)
PART 3, TITLE 24, CCR
BASED ON THE 2014 NATIONAL ELECTRICAL CODE (NEC)

2016 CALIFORNIA MECHANICAL CODE (CMC)
PART 4, TITLE 24, CCR
BASED ON THE 2015 UNIFORM MECHANICAL CODE (UMC)

2016 CALIFORNIA PLUMBING CODE (CPC)
PART 5, TITLE 24, CCR
BASED ON THE 2015 UNIFORM PLUMBING CODE (UPC)

2016 CALIFORNIA FIRE CODE (CFC)
PART 9, TITLE 24, CCR
BASED ON THE 2015 INTERNATIONAL FIRE CODE (IFC)

1

PROJECT DATA

OSHPD FACILITY # :	10619
OSHPD BUILDING # :	BLD–01445
CONSTRUCTION TYPE:	TYPE 1–A
OCCUPANCY:	I–2
FIRE PROTECTION:	FULLY FIRE ALARMED, FULLY SPRINKLERED(BUILD 2001)
NO. OF STORIES:	13 W/PENTHOUSE
PROJ. ON	1ST FLOOR
PROJECT SQ.FT.	324 SQ. FT.

1

DESIGN CRITERIA

RISK CATEGORY – IV
SITE CLASS – D
SEISMIC DESIGN CATEGORY – E

I_P = 1.5
S_X = 0.657g
S_1 = 0.288g
S_{DS} = 0.558g
S_{D1} = 0.350g

NOTE: THE DESIGN SEISMIC LOAD SHALL BE DETERMINED PER ASCE–7 CHAPTER 13 AS MODIFIED BY CBC 16.13

PROJECT SCOPE

REPLACE EQUIPMENT IN EXISTING ROOM 1835J IN RADIOLOGY DEPARTMENT, NEW CEILING MOUNTED GANTRY ASSEMBLY, NEW CONTROL AREA, AND ASSOCIATED EQUIPMENT.

NO FIRE ALARM SYSTEM OR FIRE SPRINKLER SYSTEM WORK.

PROJECT AREA: 324 SQ. FT.

DEFERRED APPROVALS

NONE

OSHPD NOTES

1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THE RECONSTRUCTION OF THE HOSPITAL BUILDING IN ACCORDANCE WITH THE 2016 EDITION OF TITLE 19 & TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY OSHPD BEFORE PROCEEDING WITH THE WORK.
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADENDA OR A CHANGE ORDER APPROVED BY OSHPD, AS REQUIRED BY TITLE 24, CALIFORNIA CODE OF REGULATIONS.
3. A PROJECT INSPECTOR EMPLOYED BY THE OWNER AND APPROVED BY OSHPD SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS.
4. EQUIPMENT ANCHORAGE DETAILING
   EQUIPMENT SUPPORTS AND ATTACHMENTS
   SUPPORTS AND ATTACHMENTS OF ALL EQUIPMENT TO BE INSTALLED AS A PART OF THIS PROJECT SHALL BE DETAILED ON CONSTRUCTION DOCUMENTS, EXCEPT THOSE EXEMPT BY THE 2016 CBC SECTION 1616A.1.18
   EQUIPMENTS SUPPORTS AND ATTACHMENTS SHALL BE APPROVED BY THE APPROPRIATE DESIGN PROFESSIONAL OF RECORD (RDP) AND OSHPD AS PART OF FIELD REVIEWS/OBSERVATIONS. THE INSPECTOR OF RECORD (IOR) SHALL ASSURE THAT THE ABOVE REQUIREMENTS ARE ENFORCED.
5. WHEN INSTALLING DRILLED–IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON–PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED–IN ANCHOR AND/OR PIN.
6. COPY OF THE OSHPD PRE–APPROVED DOCUMENTS MUST BE MADE AVAILABLE AT THE JOB SITE AT ALL TIMES. INSTALLATION OF THIS ITEM MUST BE DONE IN STRICT ACCORDANCE WITH THE PRE–APPROVED DOCUMENTS
7. LAYOUT DRAWINGS, SHOWING THE BRACING/SUPPORT LOCATIONS AND REFERENCES TO DETAILS FROM THE RELEVANT OSHPD PRE–APPROVALS FOR PIPING/DUCTS/CONDUITS EXCEPT FIRE SPRINKLERS, NEED TO BE SUBMITTED FOR USE BY THE IOR AND OSHPD FIELD STAFF. THE LAYOUT DRAWINGS, PREPARED PER CODE, NEED TO BE REVIEWED AND ACCEPTED BY THE AOR AND EOR (SE AND/OR ME/EE) PRIOR TO STARTING INSTALLATION OF THE BRACING/SUPPORT. IOR SHALL ENSURE THE ABOVE REQUIREMENTS ARE SATISFIED.
8. FOR EXPANSION ANCHOR BOLTS, AND PAD FASTENERS SEE ANCHOR SCHEDULE FOR, EMBEDMENT, AND TESTING REQUIREMENTS.

PROJECT TEAM

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SAN FRANCISCO, CA. 94133
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FAX: 916–443–0313
CONTACT: BRIAN O REIL

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FAX: 916–920–9239
CONTACT: BOB THIELE, PE

ELECTRICAL ENGINEER
ENGINEERING ENTERPRISE
853 LINCOLN WAY, SUITE 105
AUBURN, CALIFORNIA 95603
TEL: 530–886–8556
FAX: 530–886–8557
CONTACT: ANDY BELL, PE

DRAWING INDEX

ARCHITECTURAL
A0.0 TITLE SHEET
A0.2 FIRST FLOOR AREA, AND SITE ACCESSIBILITY PLAN
A0.3 AREA OF WORK, FIRE SEPARATION / ACCESSIBILITY PLAN
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A1.2 DEMOLITION CEILING PLAN
A2.1 NEW FLOOR PLAN
A2.2 NEW EQUIPMENT FLOOR PLAN
A2.3 NEW BASE ANCHORING PLAN AND CEILING MOUNTING PLAN
A5.1 INTERIOR ELEVATIONS–1
A6.1 NEW REFLECTED CEILING PLAN
A9.1 ARCHITECTURAL DETAILS
A9.2 ARCHITECTURAL DETAILS
A9.3 FIRE STOP DETAILS (ACD0003) 1
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S1.1 GENERAL NOTES
S2.1 FIRST FLOOR FRAMING PLAN
S3.1 SECTION AND DETAILS
MECHANICAL
M0.1 MECHANICAL LEGEND, NOTES, SCHEDULES AND INDEX
M1.1 FIRST FLOOR AIR BALANCE PRECAUTIONS PLAN
M2.1 FIRST FLOOR DEMO AND NEW FLOOR PLAN
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P0.1 PLUMBING LEGEND, NOTES, SCHEDULES AND INDEX
P2.1 FIRST FLOOR DEMOLITION AND NEW PLUMBING PLANS
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E0.0 ELECTRICAL LEGEND, NOTES, SCHEDULES AND INDEX
E0.1 NOTES AND SCHEDULES
E1.0 OVERALL PLAN
E1.1 DEMOLITION FLOOR PLAN
E2.0 LIGHTING CEILING PLAN
E3.0 VENDOR DETAILS
E3.1 VENDOR DETAILS
E3.2 WIRING REQUIREMENTS AND DETAILS
E4.0 PARTIAL POWER ONLINE DIAGRAM
E5.0 SYSTEM NETWORK INFORMATION
VENDOR DRAWINGS
PHILIPS DRAWINGS FOR REFERENCE

GENERAL NOTES + INSTRUCTIONS TO THE CONTRACTOR

GENERAL NOTES

1. PERFORM ALL WORK SO THAT IT DOES NOT INTERFERE WITH THE ONGOING OPERATION OF THE HOSPITAL. CONTRACTOR TO SUBMIT, FOR REVIEW, A SCHEDULE OF ALL ANTICIPATED SHUTDOWNS, INDICATING DURATION AND ROOMS AFFECTED, AT LEAST FIVE WORKING DAYS PRIOR TO THE INTERRUPTION. INTERRUPTIONS MUST BE APPROVED IN WRITING BY THE OWNER. NO WORK IS TO BE PERFORMED ON ANY DEVICE, OR ANY SYSTEM PRIOR TO SHUTDOWN. THE OWNER WILL SHUT DOWN THE UTILITIES.

2. THE CONTRACTOR SHALL ERECT TEMPORARY DUST BARRIERS, FIRE RATED TO MATCH EXISTING WALL RATING AND AS REQUIRED BY OSHPD, TO PREVENT DUST FROM ESCAPING INTO OTHER AREAS OF THE HOSPITAL. USE 3–1/2" INSULATION IN BARRIERS ADJACENT TO PATIENT CARE AREAS. USE DAMP MATS AND/OR OTHER MEANS TO PREVENT THE TRACKING OF ANY DUST PARTICLES INTO THE CORRIDOR. PREVENT DUST FROM BEING INTRODUCED INTO THE BUILDING MECHANICAL HVAC SYSTEM. FOLLOW HOSPITAL INFECTION CONTROL REQUIREMENTS.

3. PREVENT DUST BEING TRACKED THOUGH CORRIDORS. TRANSPORT ALL DEBRIS IN COVERED CONTAINERS OR TIGHTLY WRAPPED. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS DAMAGE TO OTHER AREAS OF THE HOSPITAL WHICH MAY BE USED AS ROUTES FOR BRINGING IN MATERIALS AND SUPPLIES, OR OTHER AREAS WHERE WORK IS PERFORMED.

4. THE CONTRACTOR AGREES TO THE OWNER'S USE AND OCCUPANCY OF PORTIONS OF THE WORK BEFORE FINAL ACCEPTANCE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE VARIOUS SUBCONTRACTORS AND SUPPLIERS.

6. THE CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH CAC TITLE 24 AND NFPA 101. THE OWNER SHALL MAINTAIN A COPY OF TITLE 24 ON THE JOB SITE AT ALL TIMES.

7. THE CONTRACTOR SHALL PREPARE SUBMITTALS FOR THE REVIEW OF THE ARCHITECT AS REQUIRED ON THE DRAWINGS AND SPECIFICATIONS AND ALLOW ADEQUATE TIME FOR REVIEW.

8 THE OWNER SHALL RETAIN AND PAY FOR THE SERVICES OF A TESTING LABORATORY. THE CONTRACTOR SHALL DELIVER SAMPLES AS REQUIRED AND NOTIFY THE TESTING LAB OR THE INSPECTOR OF RECORD SUFFICIENTLY IN ADVANCE (72 HOURS MINIMUM) TO SCHEDULE TESTS AS REQUIRED. THE CONTRACTOR SHALL REPAIR ANY WORK WHICH DOES NOT MEET TEST REQUIREMENTS. THE TESTING LAB MUST BE APPROVED BY THE ARCHITECT AND OSHPD.

9. THE CONTRACTOR SHALL EXECUTE A FINAL CLEANING OF THE WORK UPON COMPLETION, REMOVING ANY WASTE AND EXCESS MATERIALS FROM THE SITE.

10. THE CONTRACTOR WILL PREPARE REPRODUCIBLE RECORD DRAWINGS SHOWING DEVIATIONS FROM THE CONTRACT DRAWINGS, AND LOCATIONS OF BURIED OR CONCEALED WORK SUFFICIENT TO LOCATE WORK IN THE FUTURE.

11. THE CONTRACTOR SHALL SUBMIT THREE SETS OF OPERATIONS AND MAINTENANCE DATA, SERVICE AND REPAIR AGENTS AND WARRANTIES FOR FIXTURES AND EQUIPMENT INSTALLED. WARRANTIES ARE REQUIRED FOR EQUIPMENT AND A BLANKET WARRANTY.

12. ADDENDA TO BE SIGNED BY ARCHITECT AND APPROVED BY OSHPD. CHANGE ORDERS TO BE SIGNED BY ARCHITECT AND OWNER AND APPROVED BY OSHPD.

13. THE OWNER SHALL RETAIN AND PAY FOR AN INSPECTOR APPROVED BY ARCHITECT, STRUCTURAL ENGINEER, AND OSHPD.

14. THE CONTRACTOR IS RESPONSIBLE TO PATCH ALL WALLS, FLOORS, AND CEILINGS TO ACCOMMODATE THE WORK OF THE TRADES. CONTRACTOR SHALL VERIFY CONTINUITY OF EXISTING FIRE RATED WALLS IN THE PROJECT AREA, AND SHALL PATCH ANY DEFECTS DISCOVERED IN THOSE WALLS DURING THE COURSE OF THE WORK.

15. VERIFY HOURS PERMITTED FOR NOISY WORK W/OWNER. 1

16. CONTRACTOR SHALL PROVIDE ENGINEERED DRAWINGS AS REQ'D FOR ALL INTERIM SPRINKLER WORK AND FIRE ALARM WORK REQUIRED TO ACCOMMODATE COVERAGE AND FUNCTIONALITY OF THE SYSTEMS DURING CONSTRUCTION. SUBMITTAL PACKAGE SHALL BE REVIEWED BY THE DESIGN TEAM, AND MAY REQUIRE OSHPD APPROVAL PRIOR TO CONSTRUCTION.

17. APPLICABLE FIRE SAFETY MEASURES SHALL BE TAKEN BY THE CONTRACTOR IN COORDINATION WITH THE FACILITY TO ENSURE THE FIRE SAFETY REQUIREMENTS PER CBC CHAPTER 33 ARE MET. INCLUDING BUT NOT LIMITED TO THE FOLLOWING: ACCESS FOR FIRE FIGHTING – 3312, WATER SUPPLY FOR FIRE PROTECTION – 3315, PORTABLE FIRE EXTINGUISHERS – 3004.2, WASTE DISPOSAL – 3304.6, CUTTING AND WELDING – 3304.1, SMOKING – 3305.1, STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS – 3308.4, FIRE PROTECTION DEVICES – 3311, MEANS OF EGRESS – 3304.7, ELECTRICAL – 3308.4, FIRE PROTECTION DEVICES, AND 3308.7, TEMPORARY COVERING OF FIRE PROTECTION DEVICES.

INSTRUCTIONS TO THE CONTRACTOR

GENERAL (SEE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS) –
IT IS THE INTENT THAT THE NEW CONSTRUCTION SHALL MATCH THE MATERIALS AND METHODS OF CONSTRUCTION THAT HAVE BEEN USED IN THE EXISTING PORTIONS OF THE HOSPITAL. WHERE CODES HAVE CHANGED SINCE THAT CONSTRUCTION OCCURRED, NEW WORK SHALL COMPLY WITH CURRENT CODES IN EFFECT.

PROGRESS SCHEDULE –
A PROGRESS SCHEDULE IS REQUIRED AND SHALL BE OF A CPM TYPE, INCLUDING RESOURCE LOADING AND LEAD TIMES OF ALL MATERIALS AND EQUIPMENT. SCHEDULE TO BE SUBMITTED FOR REVIEW PRIOR TO ISSUANCE OF NOTICE TO PROCEED.

SUBSTITUTIONS –
SUBSTITUTIONS MUST BE APPROVED BY THE ARCHITECT IN ADVANCE OF INSTALLATION. IT IS THE INTENT OF THESE DOCUMENTS TO MATCH THE EXISTING MATERIALS AND METHODS OF CONSTRUCTION WHICH COMPRISE THE ORIGINAL CONSTRUCTION OF THE HOSPITAL. ANY REGULATORY AGENCY APPROVALS OR DELAYS WHICH ARE REQUIRED AS A RESULT OF SUBSTITUTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY DESIGN PROFESSIONAL'S TIME REQUIRED TO REVIEW OR PROCESS SUBSTITUTIONS SHALL BE REIMBURSED BY THE CONTRACTOR.

CHANGE ORDERS –
PROFIT AND OVERHEAD FOR CHANGE ORDERS IS LIMITED TO PERCENTAGES OUTLINED IN THE HOSPITAL GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION. THE SAME PERCENTAGE SHALL BE USED FOR ADD OR DEDUCT CHANGE ORDERS.

ADDITIONAL INFORMATION –
SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES OR OMISSIONS IN THE CONTRACT DOCUMENTS, OR BE IN DOUBT AS TO THEIR MEANING, HE SHOULD NOTIFY THE ARCHITECT FOR ADDITIONAL INSTRUCTIONS BEFORE PROCEEDING.

CONTRACTORS RESPONSIBILITY REGARDING THE CONTRACT DOCUMENTS AND VISITING THE SITE –
BEFORE SUBMITTING HIS PROPOSAL, THE CONTRACTOR SHALL EXAMINE THE CONTRACT DOCUMENTS, AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS OF THE SITE, AND MAKE ALLOWANCE FOR THOSE CONDITIONS IN PREPARING HIS PROPOSAL, INCLUDING CONDITIONS ABOVE THE CEILING. NO EXTRAS WILL BE CONSIDERED FOR ITEMS WHICH WERE VISIBLE OR ACCESSIBLE PRIOR TO BIDDING.

BIDDING PROCEDURE –
BID SHALL BE SUBMITTED IN WRITING TO THE OWNER.

REJECTION OF PROPOSAL –
CONTRACTOR ACKNOWLEDGES OWNER'S RIGHT TO REJECT BIDS. IF REQUESTED, THE CONTRACTOR WILL COOPERATE IN VALUE ENGINEERING, ADVISE ON COST SAVING MODIFICATIONS, AND REBID THE WORK AS APPROPRIATE TO ARRIVE AT A STIPULATED SUM ACCEPTABLE TO THE OWNER.

CONTRACT –
UPON ACCEPTANCE OF THE BID OWNER AND CONTRACTOR WILL UTILIZE THE HOSPITAL'S STANDARD CONTRACT FOR CONSTRUCTION.

REQUESTS FOR INFORMATION (RFI'S) –
RFI'S SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT & OWNER. CONTRACTOR SHALL PLAN THE WORK AHEAD TO ALLOW A REASONABLE TIME FOR PROCESSING A RESPONSE.

APPLICATIONS FOR PAYMENT –
SUBMIT TO OWNER ON AIA G702.

RELOCATING EXISTING WORK –
THE CONTRACTOR SHALL RELOCATE EXISTING PIPES, DUCTS, FRAMING MEMBERS, CONDUITS, CABLES, ETC. THAT ARE NECESSARY TO REMAIN IN OPERATION (OR PROVIDE NEW), AND THEIR ASSOCIATED SUPPORT, AS REQUIRED FOR INSTALLATION OF NEW WORK AT NO ADDITIONAL COST TO THE OWNER. MECHANICAL AND ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE, AND SHOW THE INTENT OF THE WORK TO BE PERFORMED. CONTRACTOR TO DETERMINE THE BEST ROUTING AND PLACEMENT BASED ON FIELD CONDITIONS TO MINIMIZE EXISTING UTILITY RELOCATION.

REMOVING EXISTING WORK –
THE CONTRACTOR SHALL REMOVE ALL EXISTING PIPES, DUCTS, CONDUITS, CABLES, ETC. THAT ARE RENDERED UNUSED BY THIS PROJECT, AND THEIR ASSOCIATED SUPPORT, AT NO ADDITIONAL COST TO THE OWNER. REMOVE ABANDONED PIPES, WIRES, CONDUITS, EQUIPMENT, ETC. BACK TO AN ACTIVE "T" OR PANEL.

REMOVING EXISTING EQUIPMENT –
THE CONTRACTOR SHALL REMOVE ALL EXISTING PIECES OF EQUIPMENT THAT ARE RENDERED UNUSED BY THIS PROJECT, AND THEIR ASSOCIATED SUPPORT, AND ASSOCIATED UTILITIES AT NO ADDITIONAL COST TO THE OWNER.

CORRECTING EXISTING NON–CONFORMING CONDITIONS –
THE CONTRACTOR SHALL EXAMINE THE SITE PRIOR TO SUBMITTING A BID, INCLUDING AREAS ABOVE THE CEILING, AND INCLUDE CORRECTING EXISTING NON–CONFORMING CONDITIONS, INCLUDING SUPPORT FOR EXISTING CONDUITS, PIPES, SPRINKLERS, AND DUCTS, AT NO ADDITIONAL COST TO THE OWNER.

ABBREVIATIONS

@	At	(E)	Existing	I.D.	Inside Diameter	P.A.	Planter Area	TBK.	Tack Board
A.C.T.	Acoustic Ceiling Tile	EA.	Each	I.F.	Inside Face	PAD	Power Actuated Fastener	THK.	Thick
A.D.	Area Drain	E.G.	Edge Guard	INS.	Insulation	PB	Push Button Door Operator	T.O.	Top Of
ADJ.	Adjacent, Adjustable	E.J.	Expansion Joint	INT.	Interior	P. LAM.	Plastic Laminate	T.O.C.	Top Of Concrete
A.F.F.	Above Finish Floor	EL.	Elevation	INTER.	Intermediate	P.L.	Property Line	T.O.S.	Top Of Steel
AL.	Aluminum	ELEC.	Electrical	INTCM	Intercom	PL.	Plate	TSO	Telecommunication Service Outlet
A.T.C.	Acoustic Tile Ceiling	EO	Electrical Outlet	JAN.	Janitor	PLY.	Plywood	TTD	Toilet Tissue Dispenser
		EQ.	Equal	JST.	Joist	PLYWD.	Plywood	TYP.	Typical
BB.	Bulletin Board	EQUIP.	Equipment	JT.	Joint	PT.	Paint		
BD.	Board	E.W.C.	Electric Water Cooler			PTD.	Painted	U.O.N.	Unless Otherwise Noted
BETW.	Between	EXIST.	Existing	LCB.	Liquid Chalk Board	P.T.D.	Paper Towel Dispenser	UP.	Upper
BLKG.	Blocking	EXP.	Expansion	LAM.	Laminated	PTN.	Partition		
BM.	Beam	EXP. JT.	Expansion Joint	LEV.	Level	Q.T.	Quarry Tile	V.C.T.	Vinyl Composition Tile
B.O.	Bottom Of	EXT.	Exterior	LIN.	Liquid Nitrogen	QTY.	Quantity	VEN.	Veneer
BOT.	Bottom			LOC.	Location			VER.	Verify
B.P.	Backing Plate	F.D.	Floor Drain			R.	Radius	VEST.	Vestibule
BRG.	Bearing	F.E.	Fire Extinguisher	MAX.	Maximum	RAD.	Radius	V.I.F.	Verify In Field
BTWN.	Between	F.E.C.	Fire Extinguisher Cabinet	M.D.F.	Medium Density Fiberboard	R.D.	Roof Drain	V.C.	Verify With Casework
		F.H.	Flat Head	MECH.	Mechacical	RE:	Refer To	V.W.C.	Vinyl Wall Covering
CAB.	Cabinet	F.H.C.	Fire Hose Cabinet	MEMB.	Membrane	REQ'D.	Required		
CER.	Ceramic	FIN.	Finish	MEZZ.	Mezzanine	RES.	Resilient	W/	With
C.G.	Corner Guard	FLR.	Floor			RESIL.	Resilient	W.C.	Wall Covering
CH	Coat Hook	FLUOR.	Fluorescent	MFR.	Manufacturer	R.H.	Round Head/Robe Hook	WD.	Wood
C.J.	Control Joint	F.O.	Face Of	MIN.	Minimum	RM.	Room	W.P.	Waterproof
℄	Center Line	F.O.S.	Face Of Stud	MISC.	Miscellaneous	R.O.	Rough Opening	W.R.	Water Resistant
CL.	Closet	F.O.W.	Face Of Wall	M.O.	Masonry Opening			W.S.	Wood Screw / Waste Receptacle
CLG.	Ceiling	F.R.	Fire Resistant	MOD.	Module	S.C.	Solid Core / Seat Cover	W.A.G.D.	Waste Anesthesia Gas Disposal
CLR.	Clear	F.S.	Full Size	M.S.	Machine Screw	SCHED.	Schedule		
C.M.U.	Concrete Masonry Unit	FURR.	Furring	MTD.	Mounted	S.C.D.	Seat Cover Dispenser		
COL.	Column	FUT.	Future	MTL.	Metal	S.D.	Soap Dispenser		
CONC.	Concrete					SECT.	Section		
CONST.	Construction	GA.	Gauge	(N)	New	S.E.D.	See Electrical Drawings		
CONT.	Continuous	GALV.	Galvanized	N.C.	Nurse Call	SFD	Smoke Fire Damper		
COORD.	Coordinate	G.B.	Grab Bar	N.I.C.	Not In Contract	SHT.	Sheet		
C.O.W.	Computer on Wheels	G.D.	Garbage Disposal	NO.	Number	SIM.	Similar		
C.R.	Cold Rolled	GSM	Galvanized Sheet Metal	NOM.	Nominal	S.M.D.	See Mechanical Drawings		
C.T.	Ceramic Tile	G.W.B.	Gypsum Wallboard	N.T.S.	Not To Scale	S.M.S.	Sheet Metal Screw		
CTR	Counter	GYP. BD.	Gypsum Wallboard			S.P.D.	See Plumbing Drawings		
CTSK.	Countersink			O.A.D.	Overall Dimension	S.S.	Stainless Steel		
		H.B.	Hose Bibb	O.C.	On Center	S.S.D.	See Structural Drawings		
DBL.	Double	H.C.	Hollow Core	O.D.	Outside Diameter	ST.S.	Self–Drilling, Self–Tapping Sheet Metal Screw		
DCA.	Drilled Concrete Anchor	HDWD.	Hardwood	OPNG.	Opening				
DET.	Detail	H.M.	Hollow Metal	OPP.	Opposite	STD.	Standard		
D.F.	Drinking Fountain	HR.	Hour	O.F.C.I.	Owner Furnished/ Contractor Installed	STL.	Steel		
DIA.	Diameter	H.R.	Hot Rolled	O.F.O.I.	Owner Furnished/ Owner Installed	STRUCT.	Structural		
DIM.	Dimension	HT.	Height	O.F.V.I.	Owner Furnished/ Vendor Installed	SUSP.	Suspended		
DISP.	Dispenser			O.H.	Oval Head				
DN.	Down								
DR.	Door								
DTL.	Detail								
DWG.	Drawing								

REVISION:

1	BACKCHECK # 1	EM	08/17/18
2	BACKCHECK # 2	VN/OB	03/08/19
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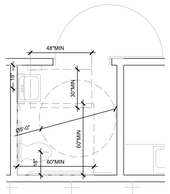
TITLE SHEET

PROJECT #: S181275-34-00

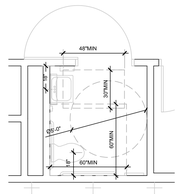
DT#1 1835–J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
CHECKED BY:	RM
SHEET:	A0.0



1 (E) ACCESSIBLE STAFF MALE TOILETS
SCALE: 1/4" = 1'-0"



21 (E) ACCESSIBLE STAFF FEMALE TOILETS
SCALE: 1/4" = 1'-0"

LEGEND

- ONE HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
- TWO HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
- ONE HOUR SMOKE BARRIER PARTITION
- TWO HOUR SMOKE BARRIER PARTITION
- ACCESSIBLE PATH OF TRAVEL
- EXIT PATH
- (E) EXIT
- (E) EXIT DISCHARGE AT GRADE
- I — OCCUPANCY CLASSIFICATION
- SMOKE ZONE: # SQ.FT. — SMOKE COMPARTMENT DESIGNATION
- PROJECT LOCATION
- (E) 2-HOUR SHAFT ENCLOSURE W/ 2-HOUR FIRE RESISTANCE RATING, MIN. UL DESIGN NO. U430 OR U415
- (E) 1 – HOUR CORRIDOR WITH 1 – HOUR RATED WALL PER U430 OR 1-HOUR TUNNEL CORRIDOR CONSTRUCTION WHERE OCCURS.
- (E) 2 – HOUR EXIT PASSAGEWAY

GENERAL NOTES

1) ACCESSIBLE FEATURES TO BE FIELD VERIFIED.

2) THIS SHEET IS PROVIDED FOR REFERENCE ONLY TO SHOW EXISTING ACCESSIBLE FEATURES, EXITING, FIRE-RATED CONSTRUCTION AND OCCUPANCY SEPARATIONS. NO CONSTRUCTION WORK IS INCLUDED.

(E) ACCESSIBLE* STAFF MALE TOILETS SEE 1/–

(E) ACCESSIBLE* STAFF FEMALE TOILETS SEE 21/–

PROJECT LOCATION 5/A1.1 5/A2.1

SUITE SEPARATION UL DESIGN NO. U430

(E) ACCESSIBLE PUBLIC MALE TOILETS

(E) ACCESSIBLE WATER FOUNTAIN

(E) ACCESSIBLE PUBLIC FEMALE TOILETS

(E) ACCESSIBLE TELEPHONES

(E) ACCESSIBLE ENTRANCE

(E) ACCESSIBLE COVERED ENTRY AND PASSENGER LOADING ZONE

(E) ACCESSIBLE PARKING

5 FIRST FLOOR FIRE SEPARATION, EXITING, AND ACCESSIBILITY PLAN
SCALE: 1/32" = 1'-0"

REVISION:

2	BACKCHECK # 2	VN/OB	02/25/19
3	RECORD SET	S.M	07/17/20

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FIRST FLOOR AREA, AND SITE ACCESSIBILITY PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
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WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

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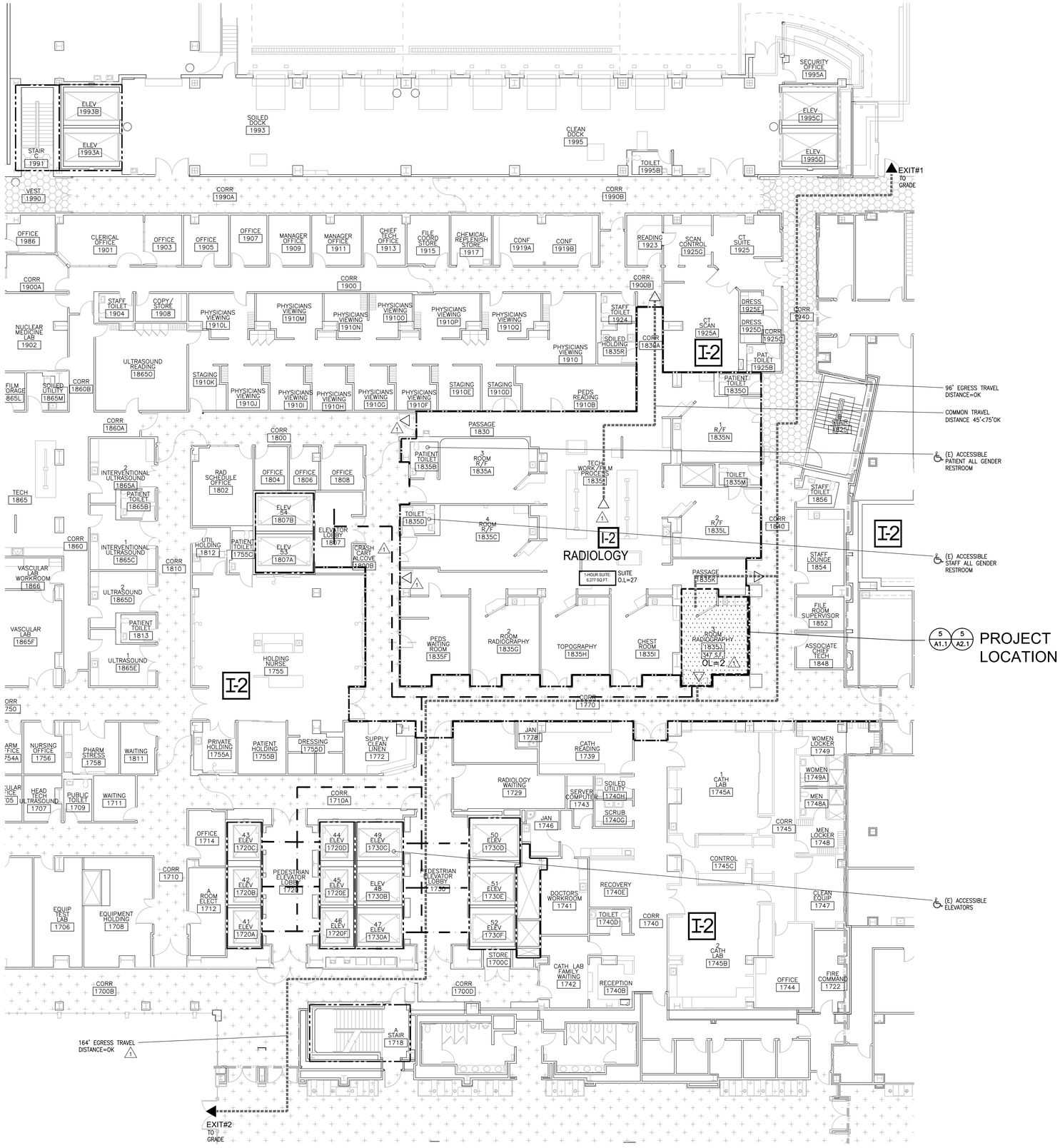
SHEET:	A0.2



5 AREA OF WORK, FIRE SEPARATION, EXITING, AND ACCESSIBILITY PLAN
SCALE: 1/8 = 1'-0"

GENERAL NOTES

1. ACCESSIBLE FEATURES TO BE FIELD VERIFIED.

2. THIS SHEET IS PROVIDED FOR REFERENCE ONLY TO SHOW EXISTING ACCESSIBLE FEATURES, EXITING, FIRE-RATING CONSTRUCTION AND OCCUPANCY SEPARATIONS. NO CONSTUCTION WORK IS INCLUDED.

LEGEND

- (E) ONE HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
- (E) TWO HOUR OCCUPANCY SEPARATION – W/ OPENING PROTECTION
- (E) ONE HOUR SMOKE BARRIER PARTITION
- ACCESSIBLE PATH OF TRAVEL
- EXIT PATH
- EXIT (E) EXIT
- OFFICE 000N 100 S.F. OL=1 — ROOM USE, ROOM NUMBER, SIZE (IN SQUARE FEET), OCCUPANT LOAD
- I — OCCUPANCY CLASSIFICATION
- PROJECT LOCATION
- (E) 2-HOUR SHAFT ENCLOSURE W/ 2-HOUR FIRE RESISTANCE RATING, MIN. UL DESIGN NO. U430 OR U415
- (E) 1 – HOUR CORRIDOR WITH 1 – HOUR RATED WALL PER U430 OR 1-HOUR TUNNEL CORRIDOR CONSTRUCTION WHERE OCCURS.
- (E) 2 – HOUR EXIT PASSAGEWAY

OCCUPANT LOAD CALCULATION

OCCUPANCY: I-2
PROJECT AREA - 347 S.F. TOTAL
INPATIENT TREATMENT AREAS OCCUPANT LOAD FACTOR = 240
347 / 240 = 2 ⚠1 ⚠1
OCCUPANTS 2 < 49, SO 2 EXIT O.K.

TOTAL MAX OCCUPANTS (1). 1 EXITS PROVIDED
NOTE: OCCUPANCY AND NUMBER OF EXITS WILL NOT BE CHANGED AS PART OF THIS PROJECT

EXIT WIDTH CALCULATIONS

EXITS	OCCUPANT LOAD PER 2016 CBC TABLE 1004.1.2	DOOR WIDTH: LOAD FACTOR PER 2013 CBC 1005.3.2	DOOR WIDTH: REQ. WIDTH (INCHES)	DOOR WIDTH: PROVIDED (INCHES)	CORRIDOR WIDTH: LOAD FACTOR PER 2016 CBC 1005.3.2	CORRIDOR WIDTH: REQ. WIDTH (INCHES)	CORRIDOR WIDTH: PROVIDED (INCHES)
EXIT 1	115	0.2	36	72	0.2	36	98
EXIT 2	115	0.2	36	72	0.2	82	98+

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1	BACKCHECK # 1		08/17/18
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AREA OF WORK, FIRE SEPARATION, EXITING, AND ACCESSIBILITY PLAN

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SACRAMENTO, CALIFORNIA 95817

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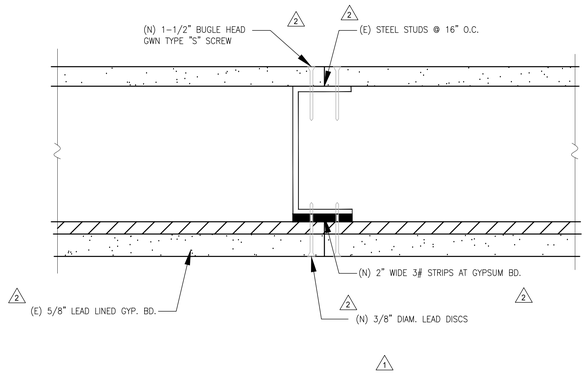
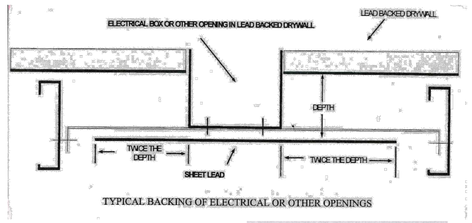
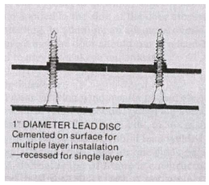
SHEET:	A0.3

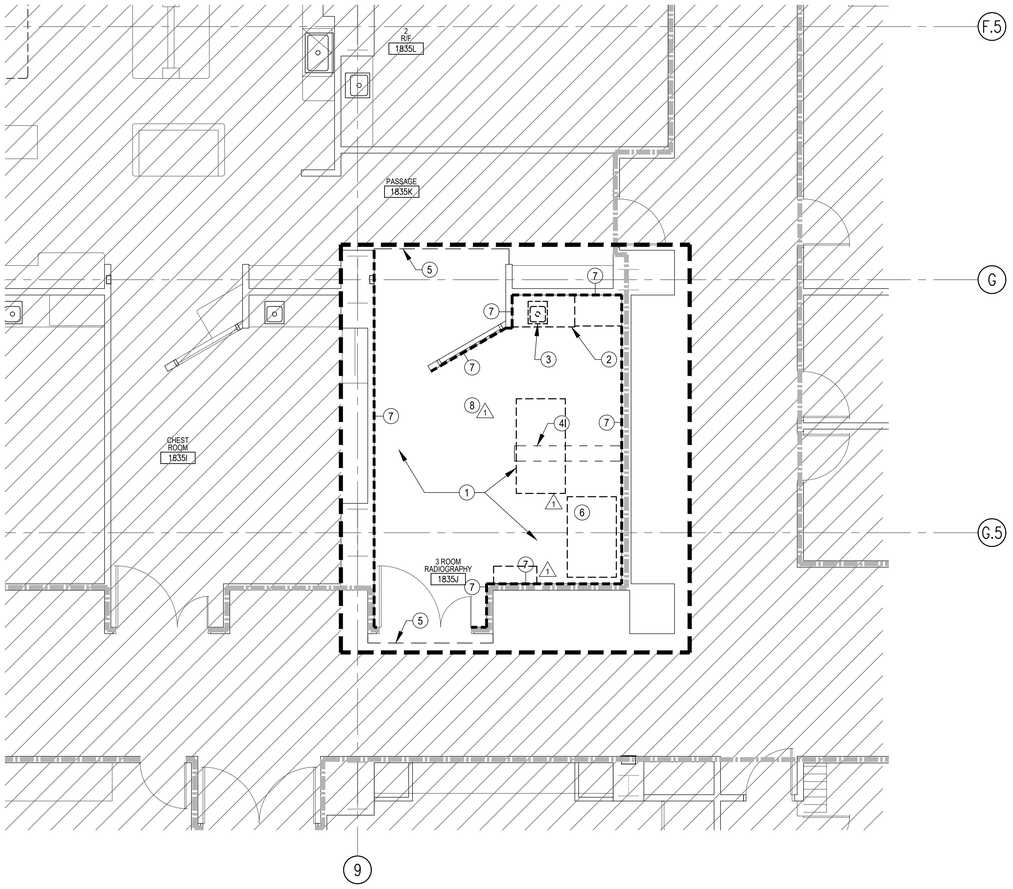




TYPICAL BACKING OF ELECTRICAL OR OTHER OPENINGS



1 LEAD LINED WALL PATCH
N.T.S



5 DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. IF ANY DISPARITY OR CONFLICT IS FOUND BETWEEN THE OSHPD APPROVED DRAWINGS AND THE VENDOR DRAWINGS, THE ARCHITECT SHOULD BE NOTIFIED IN ADVANCE OF ANY CONSTRUCTION.
2. PROTECT HVAC REGISTERS W/ HEPA FILTERS DURING CONSTRUCTION.
3. PROVIDE NEW WALK-OFF, MATCHING AND COMPLYING WITH UCDMC CLASS-3 ICRA REQUIREMENTS.

SHEET NOTES

1. REMOVE (E) EQUIPMENT - DEMO PER UC DAVIS STANDARDS - RETURN TO OWNER
2. REMOVE (E) CASEWORK
3. REMOVE (E) HAND WASH FIXTURE
4. (E) TRENCH TO REMAIN
5. SEAL DOOR/OPENING WITH F.R. VISQUEEN, DO NOT USE DURING CONSTRUCTION
6. REMOVE STORAGE CABINET
7. REPAIR ANY OPENINGS IN WALL LEAD LINING / MATCH EXISTING SEE 1/A1.1
8. REMOVE FLOORING AND RUBBER BASE 1

LEGEND

- (E) CASEWORK TO BE REMOVED
- (E) PARTITION TO REMAIN
- (E) 1HR FIRE RATED WALL
- (E) DOOR TO REMAIN
- AREA NOT IN CONTRACT
- LIMIT LINE OF PROJECT AREA
- (E) ONE HOUR OCCUPANCY SEPARATION - W/ OPENING PROTECTION
- (E) LEAD WALL

DEMOLITION NOTES

1. DO NOT PROCEED WITH DEMOLITION WORK PRIOR TO THE INSTALLATION OF CONSTRUCTION BARRICADE.
2. PROVIDE CONSTRUCTION BARRIER IN EXISTING OCCUPIED AREAS AS SHOWN IN DRAWINGS.
3. VERIFY EXTEND OF DEMOLITION PRIOR TO BEGINNING DEMOLITION WORK.
4. CONTRACTOR SHALL PROTECT ALL EXISTING CONSTRUCTION AND EXISTING LIFE/SAFETY CONSTRUCTION NOT INCLUDED IN THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RESTORATION OF ANY DAMAGES TO THE ORIGINAL CONDITION A NO ADDITIONAL CAST TO OWNER.
5. REMOVE EXISTING FURRING , PARTITIONS, DOOR AND FRAMES, CASEWORK AND CABINETS WHERE SHOWN DASHED.
6. PATCH TO MATCH EXISTING FLOOR, CEILING WALL, PARTITIONS, AND OTHER ITEMS THAT ARE DAMAGED RESULTING FROM DEMOLITION WORK AND NEW CONSTRUCTION WORK.
7. PROVIDE SUPPORT AND BRACINGS FOR EXISTING STRUCTURE, UTILITIES, PIPES, DUCTS, CONDUITS, ETC. DURING DEMOLITION AND NEW CONSTRUCTION WORK WHERE EXISTING SUPPORTS ARE REMOVED DUE TO WORK UNDER THIS CONTRACT. NEW SUPPORT SHALL MEET CURRENT CODE REQUIREMENTS.
8. FOR DEMOLITION OF UTILITY SYSTEMS, REEFER TO MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL DRAWINGS.
9. FOR CEILING DEMOLITION REFER TO SHEET A1.2
10. SEE ALSO DIVISION 1 REQUIREMENTS IN THE SPECIFICATIONS/ PROJECT MANUAL.

1

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DEMOLITION FLOOR PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

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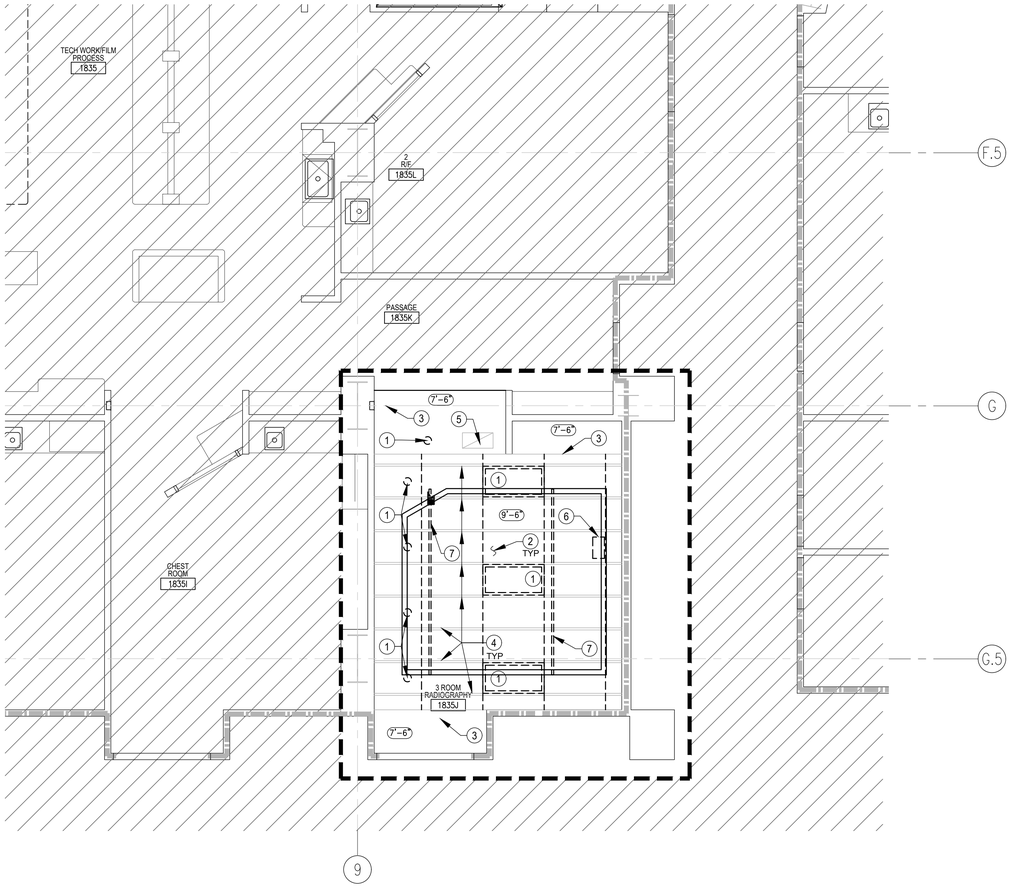
SHEET:	A1.1



5 DEMOLITION CEILING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. SEE SHEET A6.1 FOR NEW CEILING PLAN.

SHEET NOTES

1. REPLACE (E) LIGHT FIXTURES
2. REPLACE (E) ACOUSTICAL CEILING TILES THROUGHOUT ROOM, (E) GRID TO REMAIN, PATCH AS REQUIRED. 1
3. (E) SOFFIT TO REMAIN
4. (E) UNISTRUT RAILS TO REMAIN
5. (E) GRILL TO REMAIN - SEAL DURING CONSTRUCTION
6. REMOVE (E) FIXTURE
7. REMOVE (E) RAILS FOR GANTRY AND EQUIPMENT HUNG FROM THESE RAILS

LEGEND

- AREA NOT IN CONTRACT
- LIMIT LINE OF PROJECT AREA
- (E) PARTITION TO REMAIN
- (E) DOOR TO REMAIN
- (E) SUPPLY HOOD TO REMAIN
- (E) RETURN HOOD TO REMAIN
- 8'-0" CEILING HEIGHT
- (E) SPRINKLER TO REMAIN
- (E) LIGHT TO BE REMOVED
- (E) CEILING GRID TO BE REMOVED

REVISION:

1	BACKCHECK # 1	EM	08/17/18
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DEMOLITION CEILING PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
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2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
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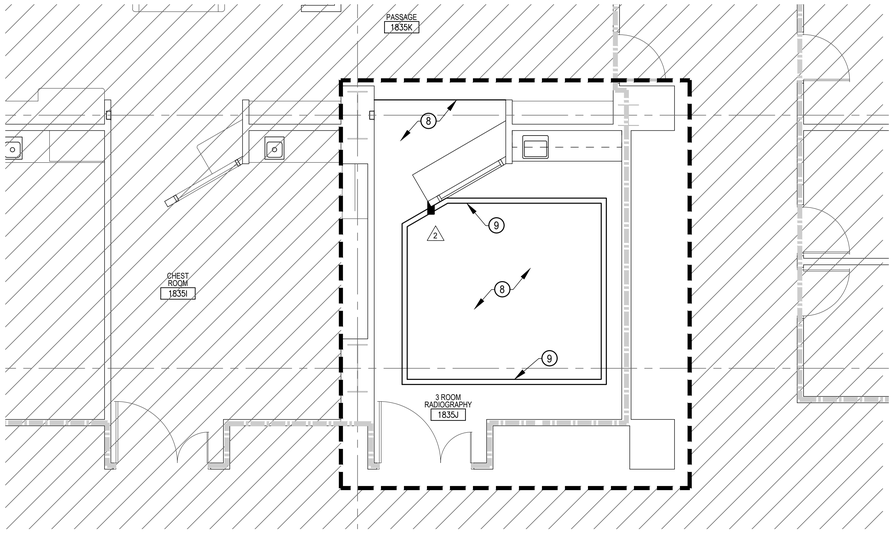
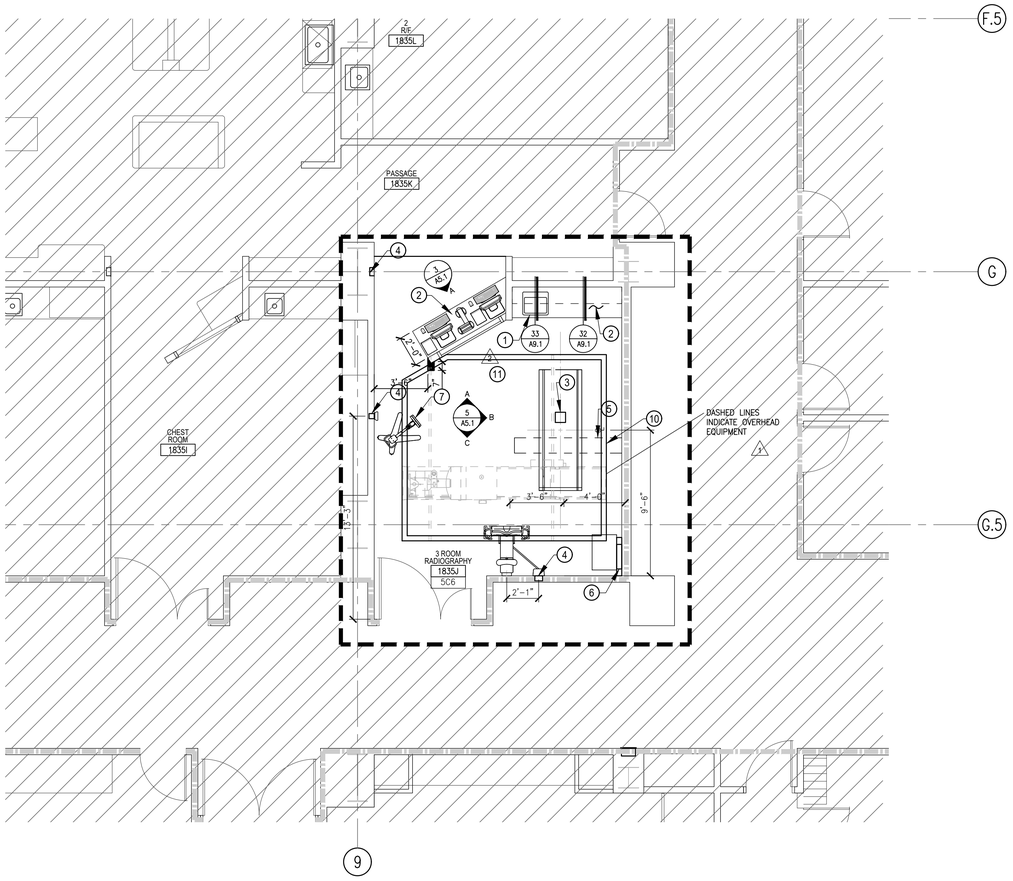
SHEET:	A1.2



2 NEW PLAN – FLOORING
SCALE: 1/4" = 1'-0"



5 NEW FLOOR PLAN
SCALE: 1/4" = 1'-0"

SHEET NOTES

1. (N) ACCESSIBLE SINK
2. (N) ACCESSIBLE CASEWORK WITH CORIAN TOP
3. (N) 4" X 8" FLUSH MOUNTED FLOOR BOX, SEAL LEAD BEHIND W 3#/SF LEAD 2
4. PATCH THE WALL @ NEW DVS JUNCTION BOX
5. (E) TRENCH TO REMAIN
6. (N) RACEWAY WALL MOUNTED, FOR GENERATOR CABINET S.E.D. , SEE VENDOR DRAWINGS SHEET E-2
7. (N) MOBILE EQUIPMENT, SEE SHEET A2.2
8. (N) RESILIENT SHEET ARMSTRONG MEDINTECH 84515 "GOLDEN GLOW"
9. (N) ARMSTRONG MEDINTONE H5351 "INDIGO AND INDIGO MID" 3
10. 4" WIDE CONTRASTING FLOORING STRIPE
11. REPAINT ALL WALLS 1
12. EXTEND EXISTING WALL 18" PAST THE WINDOW EDGE W/2.5# LEAD 2

GENERAL NOTES

1. FLOOR AND WALL FINISHES SHALL BE SMOOTH, WATERPROOF AND DURABLE. THE WALL BASE MATERIAL AND TEXTURES OF THE BASES AND THE INSTALLATION THEREOF SHALL BE SUCHAS TO MINIMIZE DUST CATCHING SURFACES, MOISTURE, INFILTRATION AND THE HARBORING OF VERMIN. 2
2. FOR ALL EQUIPMENT LOCATIONS DIMENSIONS SEE VENDOR DRAWINGS.
3. REPAIR/PATCH ALL HOLES IN ALL LEAD WALLS WITH 3 LB/SF THICK LEAD. ALL EXISTING BARRIERS ARE ADEQUATE TO PROVIDE RADIOATION PROTECTION, SEE PHYSICIST`S REPORT

4. PATCHWORK,AND MODIFICATIONS OF EXISTING X-RAY PROTECTION/RADIATION SHIELDING WALLS AND PARTITIONS FOR MEDICAL DIAGNOSTIC IMAGING APPLICATIONS

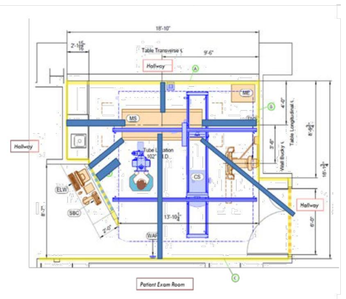
SHEET LEAD PATCHING OF NEW PENETRATIONS IN EXISTING LEAD LINED WALLS MUST BE WITH LEAD OF SAME THICKNESS OR GREATER THAN THE WALL OR PARTITION THEY OCCUR IN. ALL NEW LEAD SHIELDING PATCHING OF NEW PENETRATIONS OR "CUT-OUTS" MUST OVERLAP EXISTING LEAD SHIELDING BY A MINIMUM OF 1/2" (OR UP TO 2" WHEN POSSIBLE) IF ACTUALLY CONTACTING OR TOUCHING EXISTING LEAD,OR PROVIDE A MINIMUM "LINE OF SIGHT" MINIMUM PERIMETER OVERLAP OF 2X THE DISTANCE AWAY FROM THE EXISTING SHEET LEAD,IN EXAMPLE:IF THE NEW LEAD BACKING IS 2" AWAY FROM THE EXISTING LEAD SHIELDING THEN THE NEW LEAD SHIELDING MUST OVERLAP A MINIMUM OF 4" (OR UP TO 6" WHEN POSSIBLE)AROUND THE PERIMETER OF THE ACTUAL CUT-OUT PENETRATION (UP,DOWN,LEFT AND RIGHT).
SHIELDING IS TYPICALLY NOT REQUIRED ABOVE 7'0" HIGH IN MEDICAL DIAGNOSTIC SHIELDING APPLICATIONS.
ANY FIRE-RATED WALLS/PARTITIONS MUST BE CONSTRUCTED TO MEET UL DESIGN U430 UTILIZING RB-LBG LABELED LEAD BACKED DRYWALL.
SEE ORIGINAL "AS BUILT" DRAWINGS TO CONFIRM EXISTING SHIELDING REQUIREMENTS (WALL BY WALL).
SEE ORIGINAL PHYSICIST SHIELDING REPORT TO CONFIRM EXISTING SHIELDING REQUIREMENTS.
IF PLANS AND SHIELDING REPORT ARE IN CONFLICT,ALWAYS UTILIZE THE HEAVIER,MORE CONSERVATIVE SHIELDING REQUIREMENT.
WHERE EVER POSSIBLE CONTRACTOR IS TO PHYSICALLY MEASURE EXISTING LEAD THICKNESS WITH A CALIBRATED MICROMETER TO VERIFY THICKNESS VALUE AND TO MATCH ACCORDINGLY.
IF EXISTING LEAD SHIELDING THICKNESS VALUE IS LESS THAN PERMISSIBLE TOLERANCES ALLOWABLE (NCRP) OF ORIGINAL SHIELDING PLANS OR PHYSICIST REPORT THICKNESS REQUIREMENTS,THEN CONTRACTOR IS TO NOTIFY OWNERS REPRESENTATIVE,PHYSICIST AND ARCHITECT AND UPGRADE ENTIRE WALL OR PARTITION TO MEET CURRENT SHIELDING REQUIREMENTS.
IF WALL REQUIRES NUMEROUS NEW CUT-OUTS AND PENETRATIONS THEN STRIPPING ENTIRE WALL AND INSTALLING ALL NEW LEAD BACKED DRYWALL AND SHEET LEAD SHIELDING MAY BE MORE EFFICIENT AND APPROPRIATE.
IF NEW EQUIPMENT IS BEING INSTALLED OR EQUIPMENT ORIENTATION/LOCATION IS CHANGED OTHER THAN THAT ON WHICH THE ORIGINAL SHIELDING PLANS OR PHYSICIST REPORT WAS BASED ON,THEN A NEW PHYSICIST SHIELDING REPORT MUST BE PROVIDED BASED ON THE NEW EQUIPMENT,ORIENTATION,WORKLOAD AND OTHER APPROPRIATE FACTORS,AND ALL WALLS AND PARTITIONS MUST BE UPGRADED WHERE-EVER ADDITIONAL SHIELDING (OR GREATER) THAN EXISTING SHIELDING IS SPECIFIED AND REQUIRED BEYOND THE ORIGINAL SHIELDING DESIGN (IF ANY).

WE RESPECTFULLY REQUEST THAT YOU FORWARD THE FOLLOWING ADVICE AND REQUIREMENTS TO THE PROJECTS LEAD DEMOLITION SUBCONTRATOR / LEAD ABATEMENT CREW IN ORDER TO AVOID UNNECESSARY ADDITIONAL WORK, MATERIALS,LOSSES IN PRODUCTION TIME OR SCHEDULES, AND TO AVOID ANY POTENTIAL COSTLY BACK CHARGES:
PROTECT FLOOR SURFACE WITH PLASTIC VISQEEN SHEETING AND RAMBOARD. ISOLATE ROOM FROM OTHER AREAS.
FOLLOW ALL APPLICABLE LEAD ABATEMENT PROCEDURES AS REQUIRED BY LOCAL,STATE AND FEDERAL ENVIRONMENTAL CODES.
WEAR PROPER PERSONAL PROTECTION,INFORMS,GLOVES,RESPIRATORS,MONITORING AND OTHER REQUIRED PROCEDURES.
MAKE ALL CUTS WITH A PROPER DRYWALL OR UTILITY KNIFE (NOT SAWZALL OR HAND SAWS)
MAKE ALL CUTS TRUE,PLUMB,STRAIGHT AND SQUARE WITH A STRAIGHT-EDGE,CHALK LINE,LASER OR OTHER GUIDE.
MAKE ALL CUT-OUTS PERFECTLY SQUARE OR RECTANGULAR (NOT STEPPED,JAGGED OR AT AN ANGLE)
CUT THE DRYWALL BACK TO THE DEAD-CENTER OF THE VERTICAL STUD.
CUT THE LEAD LEAVING 2" MINIMUM EXPOSED LEAD BEYOND THE DRYWALL TOWARD THE INSIDE OF THE CUT-OUT.(TOP,BOTTOM,LEFT AND RIGHT)
IF CUTTING ALONG A DOOR OR WINDOW FRAME BE SURE TO ALSO REMOVE THE DRYWALL INSIDE THE FRAME THROAT TO ALLOW FOR NEW DRYWALL TO BE CLEANLY INSTALLED ON WALL AND 1/2" OR MORE INTO FRAME.
BE SURE TO ACTUALLY COMPLETELY REMOVE ALL THE OLD EXISTING SCREW FASTENERS OR USE A GRINDER TO BE SURE NONE STICK OUT BEYOND THE STUD FACE.
ALWAYS PROPERLY DISPOSE OR RECYCLE ALL MATERIALS WITH REQUIRED DOCUMENTATION,NEVER THROW AWAY INTO GENERAL TRASH.
THOROUGHLY CLEAN AND HEPA VAC THE ENTIRE ROOM AND TSP WASH ALL SURFACES AND AREAS.
PERFORM LEAD WIPE TESTS IF REQUIRED AND UNTIL CLEARANCE TESTING RESULTS IS ACHIEVED BELOW PEL.
WE ALL NEED WORK IN THIS TOUGH ECONOMY,AND WE NEED TO WORK TOGETHER INTELLIGENTLY WITH CONSIDERATION FOR EACH OTHER SO ALL INVOLVED CAN WORK EFFICIENTLY,IN PROPER RADIATION SHIELDING CODE COMPLIANCE AND ALSO PROFITABLY.

Shielding Requirements: Rm 1835J

Barrier	Adjacent Space	Barrier Material	Existing Barrier Thickness (lb/ft2)	Existing Barrier Thickness (mm)	Min Barrier Thickness Required (mm)	Proposed Construction (Nominal Weight lb/ft²)
Wall A (cross-table)	Corridor	Lead	3.0	1.2	0.6	Existing Barrier Adequate
Wall B (wall bucky)	Corridor	Lead	3.0	1.2	1.0	Existing Barrier Adequate
Hallway Door	Corridor	Lead	2.0	0.8	0.1	Existing Barrier Adequate
Wall C	Patient exam room	Lead	2.5	1.0	0.6	Existing Barrier Adequate
Wall D	Control booth	Lead	1.0	0.4	0.5	Existing Barrier Adequate
Wall E	Corridor	Lead	2.0	0.8	0.0	Existing Barrier Adequate
Ceiling	Full Occupancy	Concrete	12 inches	30	3	Existing Barrier Adequate
Floor	Distribution	Concrete	6 inches	15	3	Existing Barrier Adequate

2



LEGEND

- (E) PARTITION TO REMAIN
- (N) PARTITION
- A — PARTITION TYPE INDICATION; PARTITION SHOWN - SEE PARTITION SCHEDULE
- S1 S1 — (E) 1 HOUR SMOKE BARRIER
- S2 S2 — (E) 2 HOUR SMOKE BARRIER
- 2 - HOUR OCCUPANCY SEPARATION
- 1 - HOUR OCCUPANCY SEPARATION
- AREA NOT IN CONTRACT
- LIMIT LINE OF PROJECT AREA

ROOM MATERIAL AND FINISH CODES

SYMBOL DETAIL
(SYMBOL SHOWN ON PLAN)

FLOOR/BASE — 1061 — ROOM NUMBER
603 — FINISH CODE
WALL FINISH — CEILING FINISH

FLOOR/BASE		WALL FINISH/WAINSCOT		CEILING FINISH	
0	SPECIAL-SEE DETAIL	0	SPECIAL-SEE DETAIL	0	SPECIAL-SEE DETAIL
1	SEALED CONCRETE	A	CMU	1	PATCH + REPAIR (E) TO MATCH
2	CONCRETE	B	CONCRETE	2	CONCRETE
3	CONCRETE/RESIL	C	GYP. BD. PAINTED	3	GYP. BD. PAINTED
4	RESIL TILE/RESIL	D	PLYWOOD VENEER OVER GYP. BD.	4	12X12 ACOUS. TILE
5	RESIL SHT/INT. COVED BASE	E	FABRIC WALLPAPER OVER GYP. BD.	5	SUSP. 2'X4' ACOUS. TILE (NR)
6	RESIL SHEET/RUBBER BASE	F	ARCHITECTURAL CONCRETE	6	SUSP. 2'X4' ACOUS. TILE CLEAN RM
7	STONE TILE/CER. TILE	G	SANITARY PANEL/GYP. BD.	7	ACOUS. PLASTER
8	CER. TILE	H	CER. TILE, GYP.BD.	8	EXPOSED STRUCTURE
9	2'X2' ACCESS FLOORING			9	CEMENT PLASTER

REVISION:

1	BACKCHECK # 1	EM	08/17/18
2	BACKCHECK # 2	VN/OB	03/08/19
3	RECORD SET	S.M	07/17/20

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NEW FLOOR PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
CHECKED BY:	RM
SHEET:	A2.1

EQUIPMENT SCHEDULE

"LAB" TAG #	DESCRIPTION MANUFACTURER + MODEL #	DIMENSION W"xD"xH"	WEIGHT (LB)	INSTALLATION REQUIREMENT	FURNISHED / INSTALLED	ELECTRICAL REQUIREMENT	DETAIL #	NOTES
1	GENERATOR M-CABINET CXA	28"x20"x39"	259	FLOOR MOUNT	VF/VI/ CA/CC	120V	-	
2	CSM LONG	93"x170"x35" * / 161"x170"x35" **	879	CEILING MOUNT	VF/VI/ CA/CC	120V	-	
3	DIGITAL DIAGNOST TH/TH2	34"x94"x19" * / 47-5/8"x118"x36" **	761	FLOOR MOUNT	VF/VI/ CA/CC	120V	-	
4	BUCKY/DIAGNOST VS DIGITAL TALTABLE	16"x51"x83"	618	WALL MOUNT	VF/VI/ CA/CC	120V	-	
5	ELEVA WORKSROP	11"x20"x18"	127	COUNTER	VF/VI/ CA/CC	120V	-	
6	WIFI ACCESS POINT	3"x7"x8-1/16""	2	WALL MOUNT	VF/VI/ CA/CC	120V	-	
7	SKYPLATE BATTERY CHARGER	5/8"x15 1/8"x11"	2	COUNTER	VF/VI/ CA/CC	120V	-	
8	MOBILE HOLDER	26 1/8"x56"x60"	146	MOBILE	VF/VI/ CA/CC	120V	-	

* - SHORT DISTANCE
** - LONG DISTANCE

VF/VI/ CA/CC - VENDOR FURNISHED, VENDOR INSTALLED, CONTRACTOR ANCHORED,CONTRACTOR COORDINATED

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED BY THE VENDOR PROVIDED SHOP DRAWINGS AND INSTALLATION MANUALS. IF ANY DISPARITY OR CONFLICT IS FOUND BETWEEN THE OSHPD APPROVED DRAWINGS AND THE VENDOR DRAWINGS, THE ARCHITECT SHOULD BE NOTIFIED IN ADVANCE OF ANY CONSTRUCTION.

2. SEE SHEET A6.1 FOR ALL CEILING MOUNTED EQUIPMENT LOCATIONS.

3. FOR ALL EQUIPMENT LOCATIONS DIMENSIONS SEE VENDOR DRAWINGS.

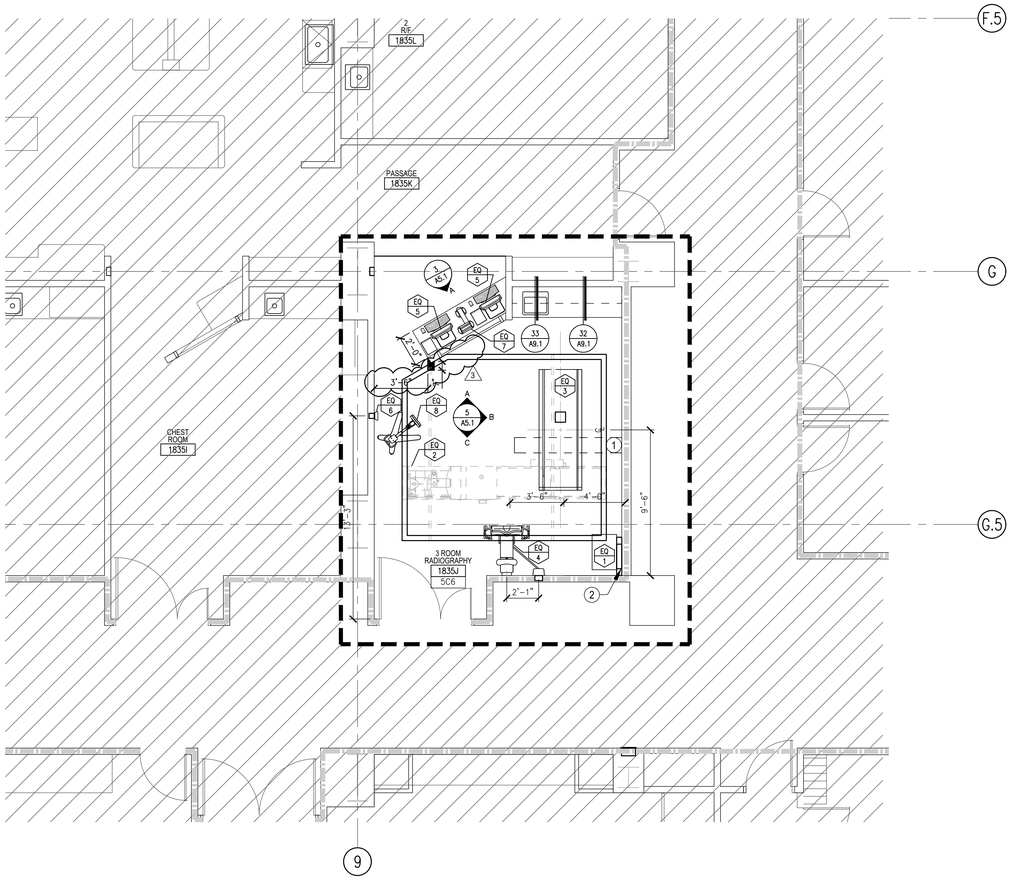
LEGEND

AREA NOT IN CONTRACT

LIMIT LINE OF PROJECT AREA

SHEET NOTES/ EQUIPMENT

1. (E) TRENCH TO REMAIN
2. (N) WALL RACEWAY; SEE PHILIPS VENDOR DRAWING E2



5 NEW EQUIPMENT FLOOR PLAN
SCALE: 1/4" = 1'-0"

N

REVISION:

2	BACKCHECK # 2	VN/OB	03/08/19
1	RECORD SET	S.M	07/17/20

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NEW EQUIPMENT FLOOR PLAN

PROJECT #: S181275-34-00

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X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

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SCALE:	AS NOTED
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CHECKED BY:	RM
SHEET:	A2.2

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED BY THE VENDOR PROVIDED SHOP DRAWINGS AND INSTALLATION MANUALS. IF ANY DISPARITY OR CONFLICT IS FOUND BETWEEN THE OSHPD APPROVED DRAWINGS AND THE VENDOR DRAWINGS, THE ARCHITECT SHOULD BE NOTIFIED IN ADVANCE OF ANY CONSTRUCTION.

2. SEE SHEET A6.1 FOR ALL CEILING MOUNTED EQUIPMENT LOCAITONS.

LEGEND

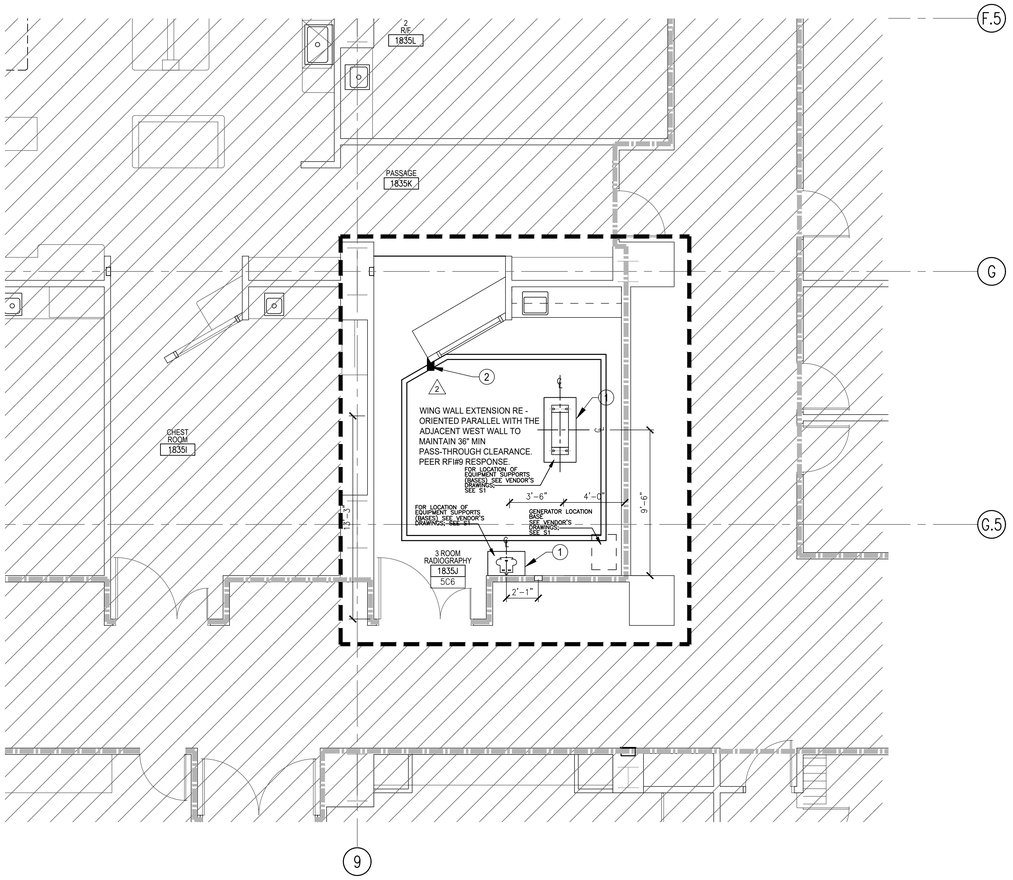
AREA NOT IN CONTRACT

LIMIT LINE OF PROJECT AREA

SHEET NOTES/ ANCHORING

(1) (N) BASE PLATE

(2) WING WALL EXTENSION RE - ORIENTED PARALLEL WITH THE ADJACENT WEST WALL TO MAINTAIN 36" MIN PASS-THROUGH CLEARANCE. PEER RFI#9 RESPONSE.



5 NEW BASE ANCHORING FLOOR PLAN
SCALE: 1/4" = 1'-0"

N

REVISION:

2	BACKCHECK # 2	VN/OB	03/08/19
3	RECORD SET	S.M	07/17/20

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NEW BASE ANCHORING FLOOR PLAN &
NEW CEILING MOUNTING FLOOR PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
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CHECKED BY:	RM
SHEET:	A2.3

EQUIPMENT SCHEDULE

"LAB" TAG #	DESCRIPTION MANUFACTURER + MODEL #	DIMENSION W"xD"xH"	WEIGHT (LB)	INSTALLATION REQUIREMENT	FURNISHED / INSTALLED	ELECTRICAL REQUIREMENT	DETAIL #	NOTES
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2	CSM LONG	93"x170"x35" * 161"x170"x35" **	879	CEILING MOUNT	VF/VI/ CA/CC	120V	-	
3	DIGITAL DIAGNOST TH/TH2	34"x94"x19" * 47-5/8"x118"x36" **	761	FLOOR MOUNT	VF/VI/ CA/CC	120V	-	
4	BUCKYDIAGNOST VS DIGITAL TALTABLE	16"x51"x83"	618	WALL MOUNT	VF/VI/ CA/CC	120V	-	
5	ELEVA WORKSROP	11"x20"x18"	127	COUNTER	VF/VI/ CA/CC	120V	-	
6	WIFI ACCESS POINT	3"x7"x8-1/16""	2	WALL MOUNT	VF/VI/ CA/CC	120V	-	
7	SKYPLATE BATTERY CHARGER	5/8"x15 1/8"x11"	2	COUNTER	VF/VI/ CA/CC	120V	-	
8	MOBILE HOLDER	26 1/8"x56"x60"	146	MOBILE	VF/VI/ CA/CC	120V	-	

* - SHORT DISTANCE
** - LONG DISTANCE

VF/VI/ CA/CC - VENDOR FURNISHED, VENDOR INSTALLED, CONTRACTOR ANCHORED,CONTRACTOR COORDINATED

1

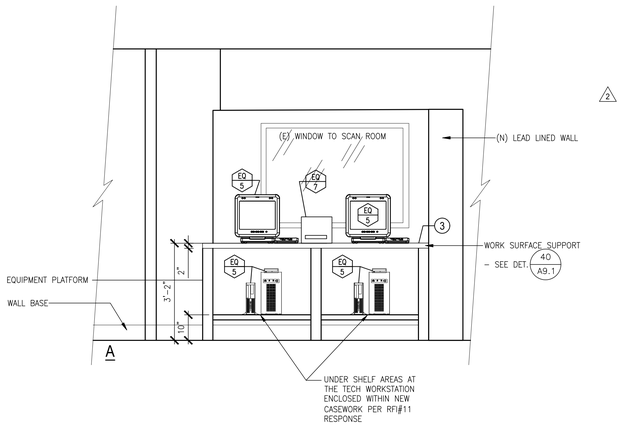
GENERAL NOTES

1. SEE SHEET A2.1 FOR FLOOR PLAN AND ASSOCIATED PLAN DIMENSIONS.
2. SEE SHEET A2.2 FOR EQUIPMENT SCHEDULE.
3. SEE SHEET A6.1 FOR CEILING PLAN.
4. (N) WALL BASES COVED. 2
5. FOR ALL EQUIPMENT LOCATIONS DIMENSIONS SEE VENDOR DRAWINGS.
6. PAINT ALL WALLS. 1

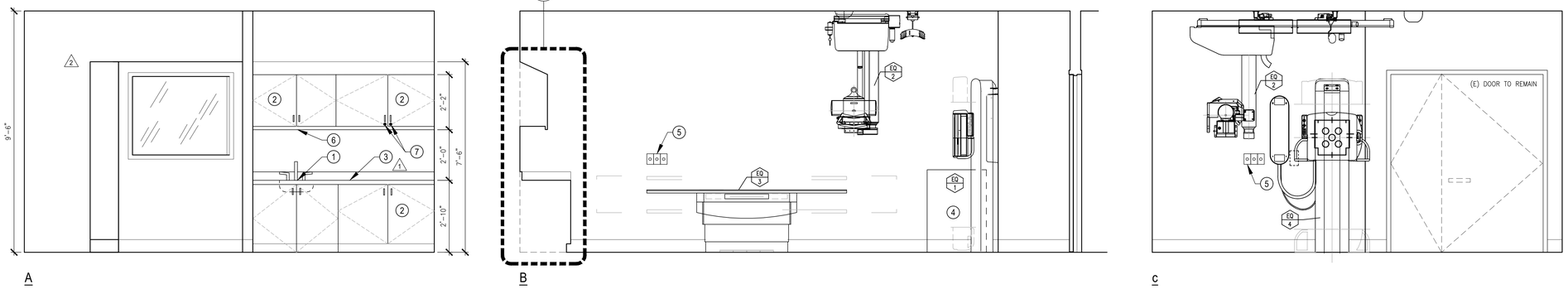
SHEET NOTES

(#)

1. (N) ACCESSIBLE SINK
2. (N) ACCESSIBLE CASEWORK
3. (N) CORIAN TOP COUNTER 1
4. (N) WALL RACEWAY BEHIND, SEE VENDOR DRAWINGS
5. O2 , V, A TO REMAIN
6. (N) UNDER CABINET LIGHTS
7. PROVIDE LOCKS ON THE CABINETS



3 ELEVATION
SCALE: 1/2" = 1'-0"



5 ELEVATION – 1835J
SCALE: 1/2" = 1'-0"

REVISION:

1	BACKCHECK # 1	EM	08/17/18
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INTERIOR ELEVATIONS - 1

PROJECT #: S181275-34-00

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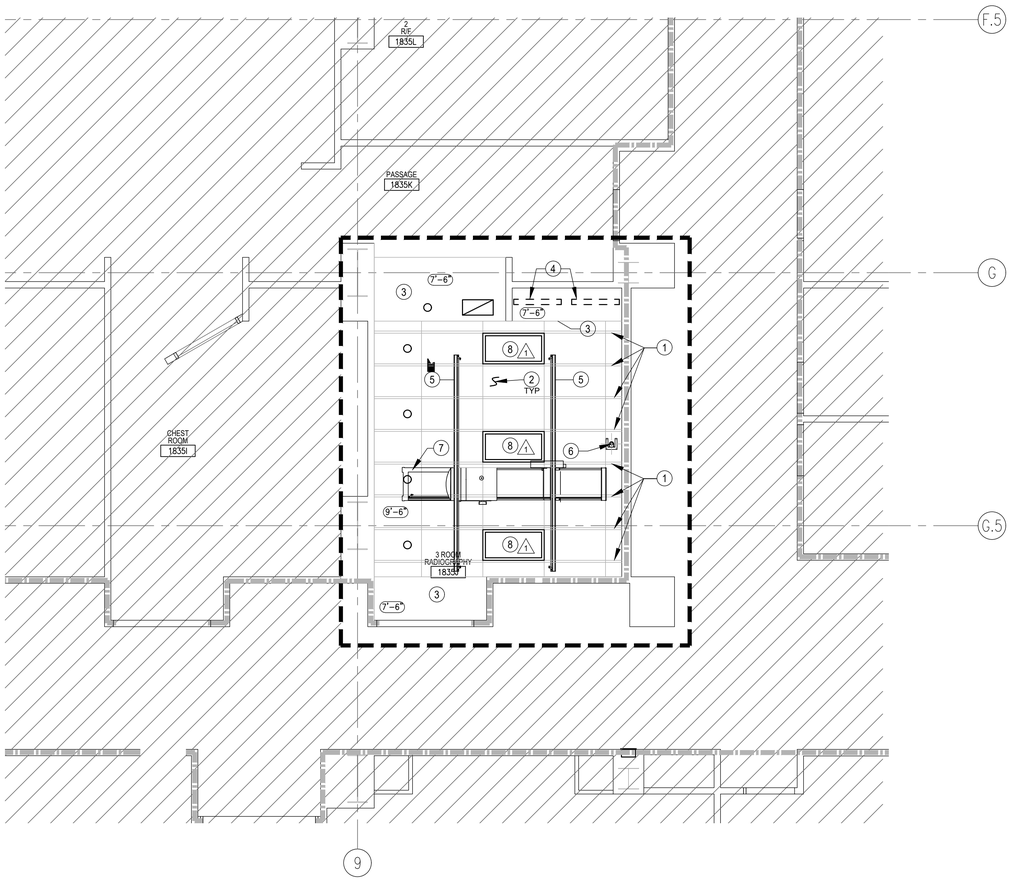
SHEET:	A5.1



5 NEW REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED BY THE VENDOR PROVIDED SHOP DRAWINGS AND INSTALLATION MANUALS.
2. SEE SHEET A2.3 FOR ALL CEILING MOUNTED EQUIPMENT LOCATIONS.

SHEET NOTES

1. (E) UNISTRUT RAIL TO REMAIN
2. (N) ARMSTRONG CIRRUS SECOND LOOK II TEGULAR CEILING. SOME CEILING TILES WITH LEAVES" PATTERN
3. PER RFI RESPONSE 2
4. (E) SOFFIT TO REMAIN, PAINT
5. (N) UNDER COUNTER LIGHT
   (N) RAILS, ATTACHED TO (E) UNISTRUT - SEE 7/S3.1 & 9/S3.1 AND SEE VENDOR DRAWINGS, 26/A6.1
6. AND SEE STRUCTURAL DRAWINGS
7. FOR LOCATION OF NEW EQUIPMENT ALSO SEE VENDOR'S DRAWINGS
8. EQUIPMENT UNDER CEILING
   (N) LIGHTS

LEGEND

- LIMIT LINE OF PROJECT AREA
- (E) PARTITION TO REMAIN
- (E) DOOR TO REMAIN
- NO WORK AREA
- (E) SUPPLY HOOD TO REMAIN
- (E) RETURN HOOD TO REMAIN
- 8'-0" CEILING HEIGHT
- (E) SPRINKLER TO REMAIN
- (N) 2'x4' LED COMPLIANT LIGHT, SED
- (N) 6" DIA. LED COMPLIANT LIGHT, SED
- S1 S1 (E) 1 HOUR SMOKE BARRIER
- S2 S2 (E) 2 HOUR SMOKE BARRIER
- 2 – HOUR OCCUPANCY SEPARATION
- 1 – HOUR OCCUPANCY SEPARATION

REVISION:

1	BACKCHECK # 1	EM	08/17/18
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NEW REFLECTED CEILING PLAN

PROJECT #: S181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
CHECKED BY:	RM
SHEET:	A6.1

PARTITION STUD SCHEDULE

1. ROOM MATERIAL & FINISH CODES ARE INDICATED ON FLOOR PLANS.
2. PARTITION TYPES ARE SHOWN IN THE PARTITION SCHEDULE. NOT ALL PARTITION TYPES MAY BE USED FOR THIS PROJECT.
3. TYPICAL AND NON-TYPICAL PARTITION TYPES ARE GRAPHICALLY INDICATED ON THE FLOOR PLANS AND AREA SEPARATION PLANS. NON-TYPICAL PARTITION TYPES ARE INDICATED BY KEYS AS SHOWN IN THE PARTITION SCHEDULE.
4. METAL STUDS: 3 5/8" X 16 GA. @ 16" O.C. TO STRUCTURE (50 KSI), TYP. U.O.N.
5. COMPENSATION CHANNEL: 16 GA., SIZE TO MATCH STUDS
6. MINIMUM METAL STUDS PROPERTIES:

DEPTH	GAUGE	A(IN²)	Sx(IN³)	Ix(IN⁴)
3 5/8"	20	0.262	0.304	0.551
3 5/8"	18	0.340	0.392	0.710
3 5/8"	16	0.422	0.481	0.873
3 5/8"	14	0.524	0.590	1.069
6"	20	0.344	0.598	1.793
6"	18	0.447	0.772	2.316
6"	16	0.556	0.953	2.860
6"	14	0.693	1.175	3.525
8"	16	0.670	1.434	5.736
10"	16	0.783	1.990	9.950

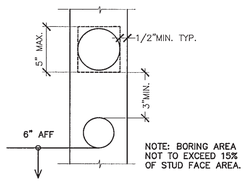
NOTE: SECTON PROPERTIES ARE BASED ON THE STEEL STUD MANUFACTURER'S ASSOCIATION ICC REPORT NO. ESR-3064P, ISSUED FEBRUARY 1ST 2014

7. TRACK: 16 GA. (50 KSI) W/ 1-5/8 FLANGES, SIZE TO MATCH STUDS
8. STAGGER OUTLETS ON RATED PARTITIONS, TYP.

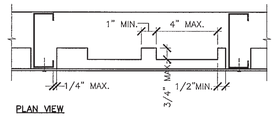
BACKING PLATE SCHEDULE

TYPE	LOAD DIAGRAM/SECTION	PLAN DETAIL
1 FULL HT. CABS. & WALL SHELVING BRACKET MIRRORS, GRAB BARS, GAS CYL. STORAGE	270# MAX TYP. / 760#	METAL STUD 16 GA.; BACKING PLATE 6" X 14 GA. METAL STUD; (5) #10 S.M.S. EA. STUD
2 BASE CABS., DOOR STOPS, DOOR HOLDERS	100# / 49"/#	METAL STUD 16 GA.; BACKING PLATE 6" X 16 GA. METAL STUD; (5) #10 S.M.S. EA. STUD – (2) @ EXTENDED WEBBING
3 TOILET & BATH ACCESSORIES, B:BD & TACK BOARDS ART	10# / 100"/#	(3) #10 S.M.S. EA. STUD; SHEET METAL BACKING PLATE 16 GA. X 6"; METAL STUD 16 GA.

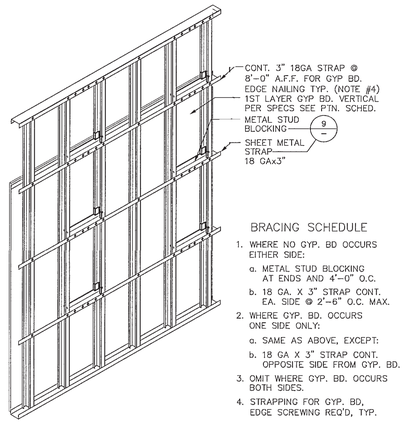
NOTES:
1. EXTEND BACKING PLATE TO NEXT STUD BEYOND END OF FIXTURE OR ACCESSORY.
2. PROVIDE MET. SLEEVES THROUGH WALL FINISH AT FIXTURE AND EQUIPMENT FASTENING.
3. SEE EQUIPMENT SCHEDULE AND DETAILS FOR ADDITIONAL BACKING INFORMATION.
4. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL BACKING INFORMATION.
5. MAX.LOADS SHOWN ARE MAX.ALLOWABLE LOADS FOR THE DIRECTION SHOWN. VERTICAL AND HORIZONTAL LOADS ARE NOT CUMULATIVE. I.E.: MAX. ALLOWABLE LOADS ARE FOR SHEAR-TENSION INTERACTION CALCULATION.
6. BACKING PLATES TO BE SPLICED AT STUDS ONLY. U.O.N.
7. IF (E) STUD TO RECEIVE BACKING PLATES ARE NOT 16 GA., SISTER (N) 16 GA. STUDS FULL HEIGHT AS REQUIRED FOR BACKING/BEARING.



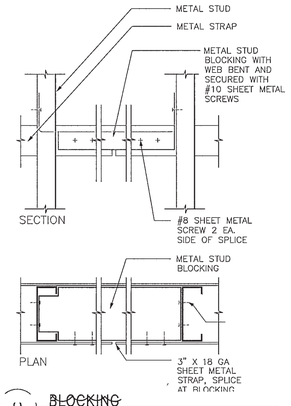
2 STUD BORING LIMITS, TYP.
NO SCALE



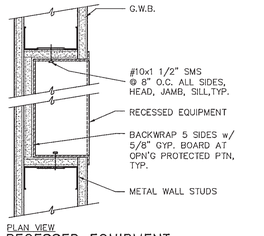
2A BACKING PLATE NOTCHING LIMITS, TYP.
NO SCALE



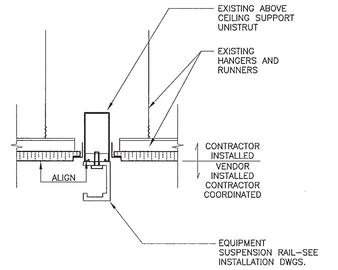
5 TYPICAL BRACING
1/2" = 1'-0"



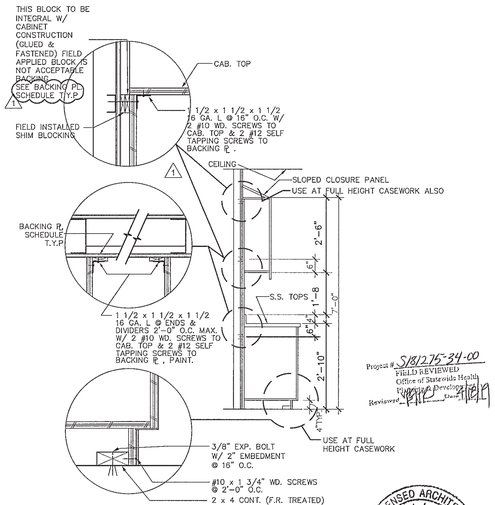
9 BLOCKING
NO SCALE



15 RECESSED EQUIPMENT
SCALE: 3" = 1'-0"



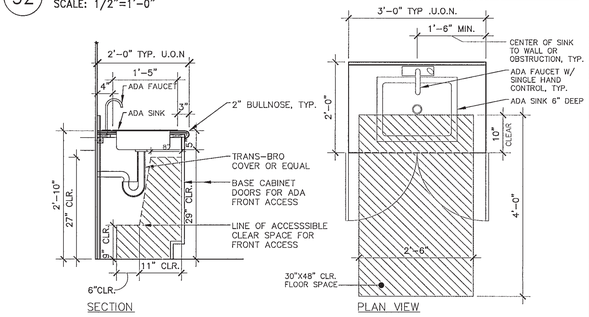
26 EQUIPMENT CEILING RAIL @ CEILING
SCALE: 3"=1'-0"



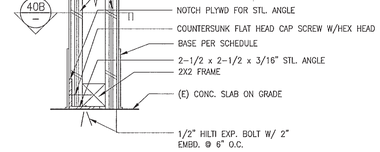
Project # S1812275-34-00
FIELD REVIEWED
Office of Statewide Health Planning & Development
Reviewed by [illegible] Date 4/30/19

LICENSED ARCHITECT
RUSSELL L. MEEK
C-10923
4-30-19
RENEWAL DATE
STATE OF CALIFORNIA

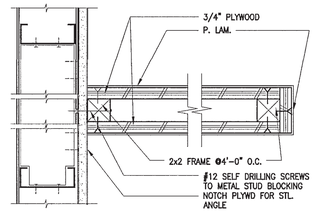
32 CASEWORK ANCHORAGE
SCALE: 1/2"=1'-0"



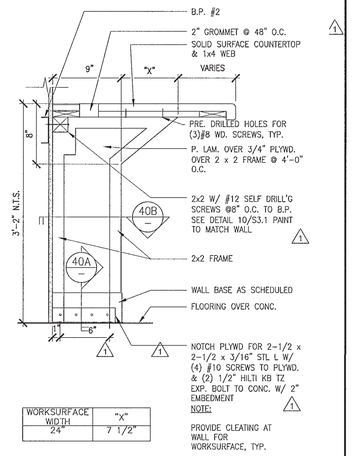
33 ACCESSIBLE SINK @ BASE CABINET UNIT
SCALE: 3/4" = 1'-0"



A. SUPPORT ANCHORAGE
SCALE: 3" = 1'-0"



B. SUPPORT PLAN SECTION
SCALE: 3" = 1'-0"



WORKSURFACE WIDTH	"X"
24"	7 1/2"

C. SECTION
SCALE: 1/2" = 1'-0"

40 WORK SURFACE AND SUPPORT
SCALE: AS SHOWN

REVISION:			
1	BACKCHECK # 1	EM	08/17/18
2	BACKCHECK # 2	VN	01/10/19
3	RECORD SET	S.M	07/17/20

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MEEKS, COATES + EATON ARCHITECTS, INC.
Architecture, Planning, Interior Design, Landscape Architecture
930 MONTGOMERY STREET, SUITE 500
SAN FRANCISCO, CALIFORNIA 94133
415.693.9234 415.693.9235 FAX

ARCHITECTURAL DETAILS

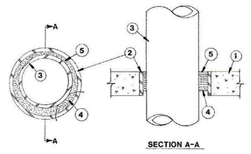
PROJECT #: S1812275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
CHECKED BY:	RM
SHEET:	A9.1

System No. C-AJ-1081
February 04, 1999
F Rating -- 2 and 3 Hr (See Items 1 and 4)
T Rating -- 0 Hr



SECTION A–A

1. **Floor or Wall Assembly --** Min 3-3/4 in. (2-Hr Rating) or min 4-1/2 in. (3-Hr Rating) thick reinforced lightweight or normal weight (100-150 pcf) concrete floor, or min 4-3/4 in. (2-Hr Rating) or min 5 in. (3-Hr Rating) thick reinforced lightweight or normal weight (100-150 pcf) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks*. Max diam of opening is 16 in.**

See **Concrete Block** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Metallic Sleeve --** (Optional) -- Nom 16 in. diam (or smaller) steel pipe, conduit or steel EMT cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

3. **Through Penetrants --** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe --** Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. The annular space shall be min 1/4 in. to max 4 in.

B. **Steel Pipe --** Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. The annular space shall be min 1/4 in. to max 1-15/16 in.

C. **Conduit --** Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) electrical metallic tubing. The annular shall be min 1/4 in. to max 4 in.

D. **Copper Tubing --** Nom 6 in. diam (or smaller) Type M (or heavier) copper tubing. The annular space shall be min 1/4 in. to max 1-13/16 in.

E. **Copper Tubing --** Nom 4 in. (or smaller) Type M (or heavier) copper tubing. The annular space shall be a min 1/4 in. to max 4 in.

F. **Copper Pipe --** Nom 4 in. (or smaller) Regular (or heavier) copper pipe. The annular space shall be a min 1/4 in. to max 4 in.

4. **Forming Material* --** Min 2-3/4 in. (2-Hr Rating)or min 3 in. (3-Hr Rating) thickness of min 3.5 pcf mineral fiber insulation firmly packed into opening as a permanent form. Forming material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

THERMAFIBER INC -- Type SAF

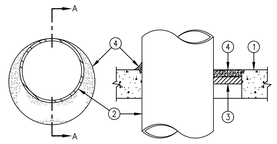
5. **Fill, Void or Cavity Material* -- Sealant --** Min 1 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. Dry mix material mixed with water at a rate of 2.1 parts dry mix to 1 part water by weight in accordance with the accompanying installation instructions.

UNITED STATES GYPSUM CO -- Type FC

5A. **Fill, Void or Cavity Material* --** Not Shown -- Two component fill material used as an alternate to Item 5. Min 1 in. thickness of fill material applied within the annulus, flush with top side of floor or both surfaces of wall. Ready-mixed component mixed with accelerator component at a rate of 66 parts of ready-mixed component to 1 part accelerator component by weight in accordance with the accompanying installation instructions.

UNITED STATES GYPSUM CO -- Type RFC

3 PIPE PENETRATION AT 2 HOUR FLOORING – 1
SCALE: NOT TO SCALE



SECTION A–A

NOTES:

1. FLOOR OR WALL ASSEMBLY: LIGHTWEIGHT OR NORMAL WEIGHT (100–150 PCF) CONCRETE. EXCEPT AS NOTED IN TABLE UNDER ITEM 4, MINIMUM THICKNESS OF SOLID CONCRETE FLOOR OR WALL ASSEMBLY IS 4½". MAX. DIAMETER OF OPENING IS 8".
2. CONDUIT: NOM. 6" DIAMETER (OR SMALLER) STEEL CONDUIT, OR NOM. 4" DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING. MAXIMUM ANNULAR SPACE BETWEEN CONDUIT AND EDGE OF THROUGH OPENING NOT TO EXCEED 2". MINIMUM ANNULAR SPACE BETWEEN CONDUIT AND EDGE OF THROUGH OPENING IS ZERO INCHES (POINT CONTACT). CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
3. PACKING MATERIAL: POLYETHYLENE BACKER ROD OR NOMINAL 1" THICKNESS OF TIGHTLY–PACKED MINERAL WOOL BATT OR GLASS FIBER INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4).
4. FILL, VOID OR CAVITY MATERIAL – CAULK: APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED CAULK THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL, FLUSH WITH WALL SURFACE. THE HOURLY F RATINGS AND THE MINIMUM REQUIRED CAULK THICKNESSES ARE DEPENDENT UPON A NUMBER OF PARAMETERS, AS SHOWN IN THE FOLLOWING TABLE:

MIN. FLOOR OR WALL THKNS, INCHES	NOM. CONDUIT DIAM., INCHES	MAX. ANNULAR SPACE, INCHES	MIN. CAULK THKNS, INCHES	F RATING, HOUR
2–½	½	2–⅜	1	2
4–½	½	1–⅜	¼	2

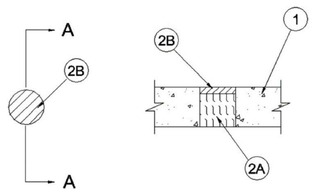
(a) MINIMUM 2" THICKNESS OF MINERAL–WOOL BATT INSULATION REQUIRED IN ANNULAR SPACE.

MINNESOTA MINING & MFG. CO. – TYPE CP–25 WB+

XHEZ SYSTEM NO. CAJ1044
F RATING – 2 HR.
T RATING – 0 HR.

5 PIPE PENETRATION AT 2 HOUR FLOORING – 2
SCALE: NOT TO SCALE

System No. C-AJ-0058
February 19, 2008
F Rating -- 3 Hr
T Rating -- 2-3/4 Hr



1. **Floor or Wall Assembly --** Min 4-1/2 in. (114 mm) thick floor or min 5-1/4 in. (133 mm) wall, reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 4 in. (102 mm).

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Firestop System --** The firestop system shall consist of the following:

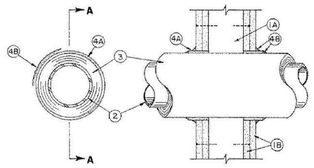
A. **Packing or Forming Materials --** Min 3-3/4 in. (95 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation tightly packed into the opening as a permanent form. Packing material to be recessed from the top surface of floor or both surfaces of wall as required to accomodate the required thickness of putty.

B. **Fill, Void or Cavity Material* -- Putty --** Min 3/4 in. (19 mm) thickness of putty applied within the annulus, flush with top surface of floor or with both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- CP 618 Firestop Putty Stick

4 CONCRETE FILL AT 2 HOUR FLOORING
SCALE: NOT TO SCALE

System No. W-L-5001
May 19, 2005
F Ratings -- 1 and 2 Hr (See Item 1)
T Ratings -- 3/4, 1 and 1-1/2 Hr (See Item 3)
L Rating At Ambient -- 2 CFM/sq ft
L Rating At 400 F -- less than 1 CFM/sq ft



SECTION A–A

1. **Wall Assembly --** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Studs --** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. **Gypsum Board* --** Nom 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Design in the UL Fire Resistance Directory. Max diam of opening is 14-1/2 (368mm) in for wood stud walls and 18 in. (457 mm) for steel stud walls.

The hourly F Rating of the firestop system is 1 hr when installed in a 1 hr fire rated wall and 2 hr when installed in a 2 hr fire rated wall.

2. **Through Penetrants --** One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe --** Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Copper Tubing --** Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

C. **Copper Pipe --** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Pipe Covering* --** Nom 1 or 2 in. (25 or 51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints sealed with metal fasteners or with butt strip tape supplied with the product. When nom 1 in. (25 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum wallboard layers on each side of the wall shall be min 1/4 in. (6 mm) to max 3/8 in. (10 mm) When nom 2 in. (51 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum board layers on each side of the wall shall be min 1/2 in. (13 mm) to max 3/4 in. (19 mm)

See **Pipe and Equipment Covering Materials** (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

The hourly T Rating of the firestop system is 3/4 hr when nom 1 in. (25 mm) thick pipe covering is used. The hourly T Rating of the firestop system is 1 hr and 1-1/2 hr when nom 2 in. (52 mm) thick pipe covering is used with 1 hr and 2 hr fire rated walls, respectively.

4. **Firestop System --** Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows:

A. **Fill, Void or Cavity Materials* -- Wrap Strip --** Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. (51 mm) wide strips. Nom 2 in. (51 mm) wide strip tightly wrapped around pipe covering (foil side out) with seam butted. Wrap strip layer securely bound with steel wire or aluminum foil tape and slid into annular space approx 1-1/4 in. (32 mm) such that approx 3/4 in. (19 mm) of the wrap strip width protrudes from the wall surface. One layer of wrap strip is required when nom 1 in. (25 mm) thick pipe covering is used. Two layers of wrap strip are required when nom 2 in. (51 mm) thick pipe covering is used.

3M COMPANY -- FS-195+

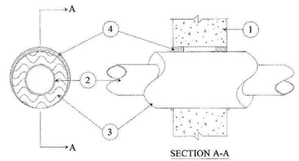
B. **Fill, Void or Cavity Materials* -- Caulk or Sealant --** Min 1/4 in. (6 mm) diam continuous bead applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layer approx 3/4 in. (19 mm) from the wall surface.

3M COMPANY -- CP 25WB+, IC 15WB+, FireDam 150+ caulk or FB-3000 WT sealant

10 PIPE PENETRATION WALL – 1
SCALE: NOT TO SCALE

System No. W-J-6005
August 23, 2011

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Rating — 1 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. **Wall Assembly --** Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 18 in. (457 mm).

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrants --** One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe --** Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe --** Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing --** Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.

D. **Copper Pipe --** Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Pipe Coverings* --** One of the following types of pipe coverings shall be used:

A. **Pipe and Equipment Covering Materials* --** Max 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (continuous point contact) to max 1-1-/4 in. (38 mm).

See **Pipe and Equipment Covering -- Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe Covering Materials* --** Max 2 in. (51 mm) thick unfaced mineral fiber pipe insulation sized to the outside diam of pipe or tube. Pipe insulation secured with min 8 AWG steel wire spaced max 12 in. (305 mm) OC. The annular space the between insulated through penetrant and periphery of opening shall be min 0 in. (continuous point contact) to max 1-1/4 in. (38 mm).

IIG MINWOOL L L C -- High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc .

C. **Sheathing Material* --** Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or butt tape.

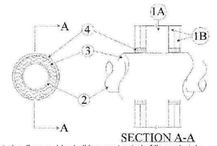
See **Sheathing Materials** -- (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Fill, Void or Cavity Material* -- Sealant --** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At the point contact location between insulated through penetrant and concrete, a min 3/8 in. (10 mm) bead of fill material shall be applied to the concrete insulated through penetrant interface on both sides of the wall.

SPECIFIED TECHNOLOGIES INC -- SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

15 PIPE PENETRATION WALL – 2
SCALE: NOT TO SCALE

System No. W-L-5044
February 19, 1997
F Rating — 2 Hr
T Rating — 3/4 Hr



SECTION A–A

1. **Wall Assembly —** The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. **Studs —** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.

B. **Gypsum Board* —** Two layers of nom 1/2 or 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 7-1/2 in.

2. **Through-Penetrants —** One metallic pipe or tube to be centered within the firestop system. Through-penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipe or tubing may be used:
A. **Copper Tubing —** Nom 4 in. diam (or smaller) Type M (or heavier) copper tubing.

B. **Copper Pipe** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

C. **Steel Pipe —** Nom 3-1/2 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

3. **Pipe Covering —** Nom 1 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or with butt tape supplied with the product. A nom annular space of 1/2 to 5/8 in. is required within the firestop system.

See **Pipe and Equipment Covering — Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Fill, Void or Cavity Materials* —** Dry mix material mixed with water in accordance with the accompanying instructions. Min 1 in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

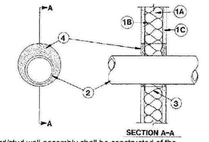
UNITED STATES GYPSUM CO — Type FC

4A. **Fill, Void or Cavity Material*** — Not Shown — Two component fill material used as an alternate to Item 4. Ready-mixed component mixed with accelerator component at a rate of 66 parts of ready-mixed component to 1 part of accelerator component by weight in accordance with the accompanying installation instructions. A min 1 in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

UNITED STATES GYPSUM CO — Type RFC

18 COPPER PIPE PENETRATION AT 2–HOUR WALL
SCALE: NOT TO SCALE

System No. W-L-1039
March 24, 1999
F Rating — 1 Hr
T Rating — 0 and 1 Hr (See Item 2)



SECTION A–A

1. **Wall Assembly —** The fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. **Studs —** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.

B. **Batts and Blankets*** — Nom 1-1/2 in. thick mineral wool batts friction fitted to fill interior of stud cavities.

C. **Gypsum Board*** — The gypsum wallboard type, thickness, number of layers and orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 6 in.

2. **Through Penetrants** — One metallic pipe, conduit or tubing to be installed in either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
A. **Steel Pipe** — Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe. The annular space shall be min 1/4 to max 1-5/8 in. **When steel pipe is used T Rating is 0 hr.**

B. **Conduit** — Nom 4 in. diam or smaller steel electrical metallic tubing or steel conduit. The annular space shall be min 1/4 to max 1-5/8 in. **When conduit is 1/2 in. diam or less, T Rating is 1 hr.**

C. **Copper Tubing** — Nom 4 in. diam (or smaller) Type M (or heavier) copper tubing. The annular space shall be min 1/4 to max 1-5/8 in. **When copper tubing is used, T Rating is 0 hr.**

3. **Forming Material*** — Min 2-1/2 in. thickness of min 3.5 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Forming material to be recessed from both surfaces of wall to accommodate the required thickness of fill material.

THERMAFIBER INC — Type SAF

4. **Fill, Void or Cavity Material* —** Min 1/2 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. Dry mix material mixed at a rate of 2.1 parts dry mix to 1 part water by weight in accordance with the accompanying installation instructions.

UNITED STATES GYPSUM CO — Type FC

4A. **Fill, Void or Cavity Material* —** Not Shown — Two component fill material used as an alternate to Item 4. Min 1/2 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. Ready-mixed component mixed with accelerator component at a rate of 66 parts of ready-mixed component to 1 part of accelerator component by weight in accordance with the accompanying installation instructions.

UNITED STATES GYPSUM CO — Type RFC

20 COPPER PIPE PENETRATION AT 1–HOUR WALL
SCALE: NOT TO SCALE

REVISION:

1	BACKCHECK # 1	EM	08/17/18
2	RECORD SET	S.M	07/17/20

MC+E
©MC+E Architects Inc.2016
MEEKS, COATES + EATON ARCHITECTS, INC.
Architecture, Planning, Interior Design, Landscape Architecture
930 MONTGOMERY STREET, SUITE 500
SAN FRANCISCO, CALIFORNIA, 94133
415.693.9234 415.693.9235 FAX

ARCHITECTURAL DETAILS

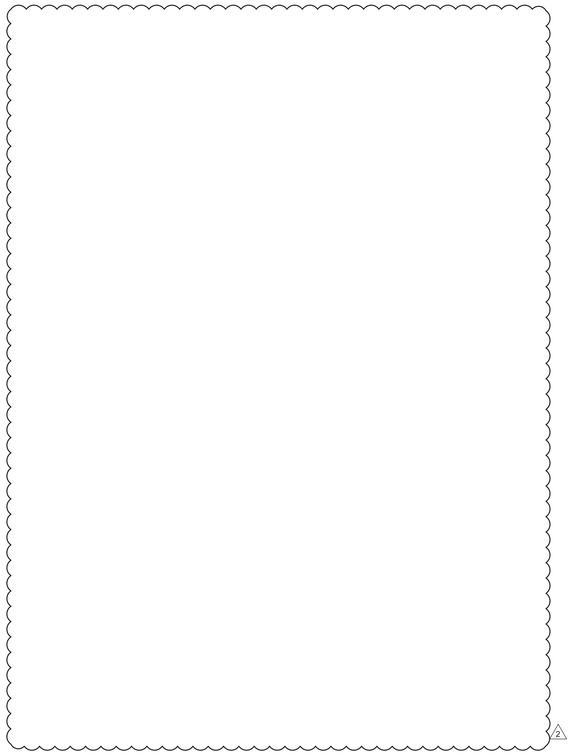
PROJECT #: S181275-34-00

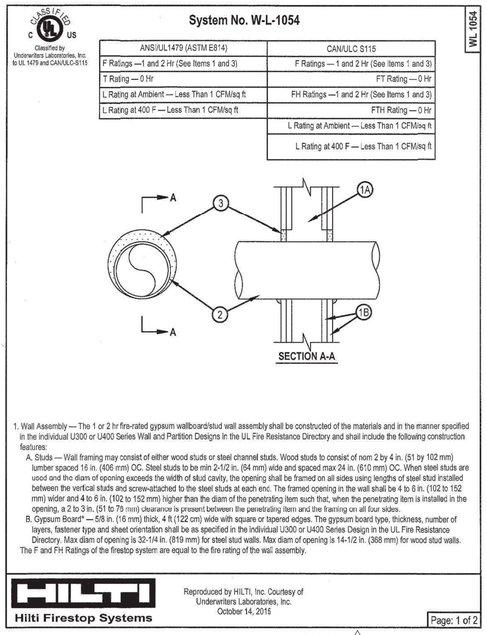
DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	12/05/2017
SCALE:	AS NOTED
DRAWN BY:	OB
CHECKED BY:	RM
SHEET:	A9.2 1

RECORD DRAWINGS





System No. W-L-1054

WL 1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — Less Than 1 CFM/sq ft

SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 8 in. (102 to 152 mm) wider and 4 to 8 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.

Hilti Firestop Systems

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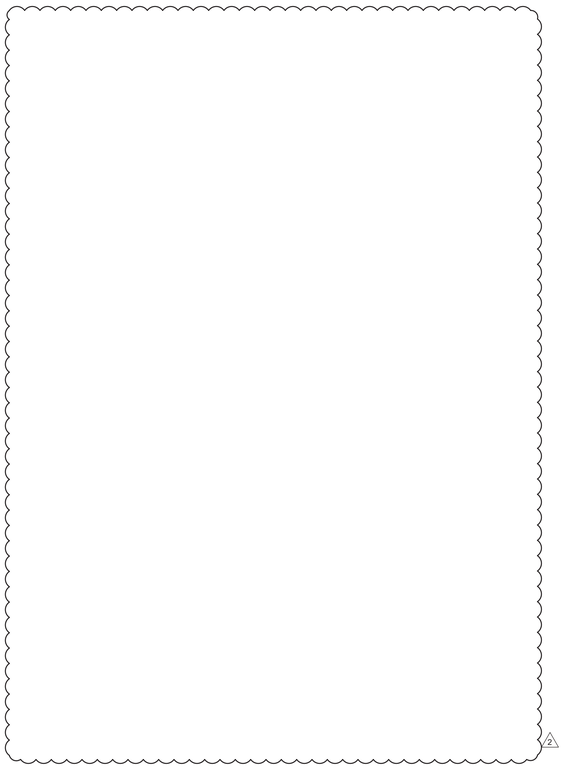
Page: 1 of 2

7 PIPE PENETRATION AT 1-2 HOUR WALL – 1 (2)
SCALE: NOT TO SCALE

Please provide the approved UL Listed EZ Path Assembly as referenced in the body of the scope proposed on 5/28/25, page 15 Telecommunications? MK< IOR 6/2/25



System No. W-L-1054

WL 1054

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 In. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 5 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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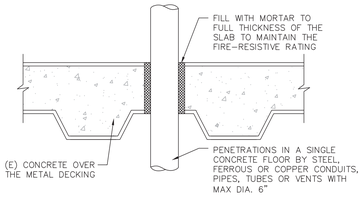
Page: 2 of 2

10 PIPE PENETRATION AT 1-2 HOUR WALL – 1 (2)
SCALE: NOT TO SCALE



CBC 714.4.1 EXCEPTION #2
PENETRATIONS IN A SINGLE CONCRETE FLOOR BY STEEL, FERROUS OR COPPER CONDUITS, PIPES, TUBES OR VENTS WITH A MAXIMUM 6-INCH (152 MM) NOMINAL DIAMETER, PROVIDED THE CONCRETE, GROUT OR MORTAR IS INSTALLED THE FULL THICKNESS OF THE FLOOR OR THE THICKNESS REQUIRED TO MAINTAIN THE FIRE-RESISTANCE RATING. THE PENETRATING ITEMS SHALL NOT BE LIMITED TO THE PENETRATION OF A SINGLE CONCRETE FLOOR, PROVIDED THE AREA OF THE OPENING THROUGH EACH FLOOR DOES NOT EXCEED 144 SQUARE INCHES

15 PIPE PENETRATION FLOOR (2)
SCALE: NOT TO SCALE

LICENSED ARCHITECT
RUSSELL L. MEEKS
C-10923
4-30-21
RENEWAL DATE
STATE OF CALIFORNIA

REVISION:

1	ACD # 4	OB/VN	10/21/19
2	ACD # 4 BC#1	VN	10/21/19

MC+E

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MEEKS, COATES + EATON ARCHITECTS, INC.
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930 MONTGOMERY STREET, SUITE 500
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FIRE STOP DETAILS

PROJECT #: S181275-34-00-ACD0003

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	10/21/2019
SCALE:	AS NOTED
DRAWN BY:	OB/VN
CHECKED BY:	RM
SHEET:	1

A9.3

GENERAL NOTES

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

GENERAL NOTES
100N0001

1. Interpretation of Drawings & Specifications
   a. Where applicable, the Contract Documents have been prepared for this project, they are arranged in several sections, but such separation shall not be considered as the limits of the work required of any separate trade. The terms and conditions of such limitations are wholly between the contractor and his subcontractors.
   b. In general, the working details will indicate dimensions, position and kind of construction, and the specifications, qualities and methods. Any work indicated on the working details and not mentioned in the specifications, or vice versa, shall be furnished as though fully set forth in both. Work not particularly detailed, marked or specified, shall identical or similar to like cases of construction that are detailed, marked or specified. If conflicts occur on drawings and/or specifications, the most expensive materials or methods will prevail.

   Should an error appear in the working details or specifications or in work done by others affecting this work, the Contractor shall notify the Architect at once and in writing. If the Contractor proceeds with the work so affected without having given such written notice and without receiving the necessary approval, decision or instructions in writing from the Owner, then he shall have no valid claim against the Owner, for the cost of so proceeding and shall make good any resulting damage or defect. No verbal approval, decision, or instruction shall be valid or be the basis for any claim against the Owner, its officers, employees or agents. The foregoing includes typical errors in the specifications or notational errors in the working details where the interpretation is doubtful or where the error is sufficiently apparent as to place a reasonably prudent contractor on notice that, should he elect to proceed, he is doing so at his own risk.
2. Construction shall conform to all applicable codes and regulations.
3. Shop Drawing Note:
   a. When not addressed by division 1 of the specifications, paper format Structural Shop Drawings shall be submitted in the form of three copies minimum of each sheet, where electronic format shall be PDF.
   b. The purpose of Shop Drawing submittals by the Contractor is to demonstrate to the Structural Engineer that he understands the design concept by indicating which material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use on a stand alone set of documents. Duplication of design documents for the purpose of shop drawings is not acceptable.
   c. Prior to fabrication, Shop Drawings shall be submitted for review by the Structural Engineer. Shop Drawing submittals shall include, but not necessarily limited to, structural steel, reinforcing steel, # glue-laminated beams.
   d. Prior to submission the Contractor shall review all submittals for conformance with the Contract Documents and shall stamp submittals as being "Reviewed for Conformance".
   e. Shop Drawing submittals processed by the Structural Engineer are not Change Orders.
   f. Any detail on the Shop Drawings that deviates from the Contract Documents shall clearly be marked with the note "This is a change".
   g. Shop drawings or calculations submitted for review that require resubmittal for re-review shall be billed hourly for such time to the General Contractor. Re-review will not proceed without written approval from the General Contractor for additional engineering review services.
4. Safety Note:
   a. It is the Contractors responsibility to comply with the pertinent sections, as they apply to the project, of the "Construction Safety Orders" issued by the State of California latest edition, and all OSHA requirements.
   b. The Contractor shall be responsible for adequate design and construction of all forms and shoring required. Shoring indications (location, direction, duration, etc.) are only shown on the drawings when required in the interest of the final work product. Determination whether shoring is required for temporary or intermediate conditions during construction is wholly the responsibility of the contractor.
   c. The Owner and the Structural Engineer do not accept any responsibility for the Contractor's failure to comply with these requirements.
5. The contractor shall notify the Architect and Structural Engineer where a conflict or discrepancy occurs between the Structural drawings and any other portion of the Contract Documents or existing field conditions. Such notification shall be given in due time so as not to affect the construction schedule. In case of a conflict between Structural drawings and specifications the more restrictive condition shall take precedence unless written approval has been given for the least restrictive.
6. Contractor shall verify all dimensions with Architectural prior to commencing any work. Where no specific detail is shown, the construction shall be identical or similar to that indicated for like cases of construction on this project. Should there be any question, contact the Architect and Structural Engineer prior to proceeding.
7. When construction attaches to or is within an existing building, a complete set of drawings of the existing building shall be kept on the job site. Contractor to obtain these drawings from the Owner (if they are available).
8. Contractor shall provide an allowance equal to 2% of the bid for structural steel, misc. iron and reinforcing steel to be used at the discretion of the Structural Engineer. Unused amount to revert to the Owner upon completion of the job.
9. Any substitutions for structural members, hardware or details shall be reviewed by the Architect and Structural Engineer. Such review will be billed on a time and materials basis to the General Contractor with no guarantee that the substitution will be allowed.
10. Do not scale drawings. Contact the Architect or Structural Engineer for any dimensions not shown.
11. These drawings are not complete until reviewed and accepted by the enforcement agency and signed by the Structural Engineer.

DESIGN CRITERIA
100N0002

1. Codes and Standards
   2016 California Building Code (CBC w/ State of Ca Amendments)
   ASCE 7-10
   ACI 318-14
   AISC 360-10, 341-10, 358-10
   TMS 402-13/ACI 530-13/ASCE 5-13
   TMS 602-13/ACI 530.1-13/ASCE 6-13
   2015 NDS, 2015 SDPWS
4. Lateral loads
   Seismic
   Site Class D
   S_S = 0.651; S_{DS} = 0.556
   S_1 = 0.288; S_{D1} = 0.360
   T_S = 1.5 per ASCE 7-10 sect 13.1.3
   Risk Category IV
   Seismic Design Category: D

DRILLED-IN ANCHOR TESTING CRITERIA
100N0003

1. Wedge anchor testing shall comply with installation torque values provided in manufacturer's evaluation report. Epoxy and screw anchor testing shall comply with tension test values specified in drawings. Testing frequency shall comply with CBC section 1910A.5.3.
2. Apply proof test load to wedge anchors without removing the nut if possible. If not, remove nut and install a threaded coupler to the same tightness as the original nut using a torque wrench to apply the test load. Reaction loads from test (NUTS) may be applied close to the anchor being tested, provided the anchor is not restrained from withdrawing by the fixture(s).
3. Test equipment (including torque wrenches) is to be calibrated by an approved testing laboratory in accordance with standard recognized procedures.
4. The following criteria apply for the acceptance of installed anchors:
   a. HYDRAULIC RAM METHOD: The anchor shall have no observable movement for a minimum of 15 seconds at the applicable test load. For wedge and sleeve type anchors, a practical way to determine observable movement is that the #BOLT/ROD TAG of the ram does not move within the following limits:
      Wedge type anchors:
      i. One-quarter (1/4) turn of the nut for 3/8"Ø anchors.
      ii. One-half (1/2) turn of the nut for 1/4"Ø and larger anchors.
5. Testing shall occur a minimum of 24 hours after installation.
6. Provide special inspection as noted in the ICC report.

ABBREVIATIONS
100SN0001

(c)	- "member" above	LLH	- long leg horizontal
AB	- anchor bolt	LLV	- long leg vertical
abv	- above	loc	- location
add'l	- additional	long	- longitudinal
AHU	- air handling unit	lp	- lag screw
alt	- alternate	LWC	- Lightweight concrete
approx	- approximate	LWIC	- Lightweight insulating concrete
Arch't	- architectural	max	- maximum
(b)	- "member" below	MB	- machine bolt
bldg	- building	Mech't	- Mechanical
blkg	- blocking	mf	- manufacturer
bln	- bulkhead	MI	- malleable iron
bm	- beam	min	- minimum
b.o.	- bottom of	misc	- miscellaneous
bot	- bottom of footing	MK	- mark
bott	- bottom	mtl	- metal
brdg	- bracing	(n)	- new
brg	- bearing	NIC	- not in contract
btwn	- between	NS	- near side
bynd	- beyond	NTS	- not to scale
CL	- center to center	NWC	- Normal weight concrete
CG	- center of gravity	OH	- over
CJ	- construction joint	OPH	- opposite hand
CJP	- Complete Joint Penetration	opng	- opening
℄	- centerline	OSB	- oriented strand board
clg	- ceiling	pc	- piece
cf	- cleat	perp	- perpendicular
CMU	- Concrete Masonry Unit	PJP	- partial joint penetration
cntr	- center	pl	- plate
col	- column	PT	- pressure treated
conc	- concrete	PW	- puddle weld
cond	- condition	ref	- reference
conn	- connection	reinf	- reinforcing or reinforcement
cont	- continuous	req'd	- required
contr	- contractor	rev	- revision
coord	- coordinate	rnd	- round
csk	- countersink	SC	- slip critical
dbl	- double	sch	- schedule
DF	- douglas fir	SDS	- self-drilling screw
diag	- diagonal	SEOR	- Structural Engineer of Record
dist	- distance or distributed	shtg	- sheathing
DL	- dead load	simil	- similar
dwg	- drawing	SJ	- slab control joint
(e)	- existing	SMS	- sheet metal screw
ea	- each	SOG	- slab-on-grade
EF	- each face or edge fastener	SP	- structural panel
EJ	- expansion joint	spcg	- spacing
elec't	- electrical	sq	- square
elev	- elevation	std	- standard
EN	- edge nailing	stiff'r	- stiffener
EOS	- edge of slab	stgrd	- staggered
eq	- equal	stl	- steel
equip	- equipment	str	- structural
EW	- each way	SW	- shear wall
ext	- exterior	tdn	- top & bottom
FC	- face of concrete or framing	tg	- tongue & groove
FC	- face of concrete (or brick) or flat bar	tbd	- to be determined
	clip (Simpson A35 uno)	thrd	- threaded
fdn	- foundation	TN	- toe nail
FF	- finish floor	t.o.	- top of
frmg	- framing	tos	- top of concrete (slab uno)
FS	- face of stud or far side	tot	- top of footing or top of framing
FT	- fire treated	tos	- top of steel
ftg	- footing	tsn	- top of wall
ga	- gauge or gage	trans	- transverse
galv	- galvanized	typ	- typical
glb	- glued laminated beam	uno	- unless noted otherwise
gr	- grade	vert	- vertical
gyp	- gypsum	VIF	- verify in field
HD	- hold down	w/	- with
HDG	- hot dipped galvanized	w/o	- without
hdr	- header	WF	- wide flange
hgr	- hanger	WMS	- welded headed stud
hk	- hook	WP	- work point
horiz	- horizontal	WS	- wood screw
HSS	- high strength bolt	WWF	- Welded Wire Fabric
HSS	- hollow Structural Section	XS	- extra strong
ht	- height	XXS	- double extra strong
info	- information	@	- at
int	- interior	ø	- round or diameter
jh	- joist hanger	&	- and
k	- kips (1000 lbs)	#	- number or pounds
lbs	- pounds	$	- square or square foot
LL	- live load	±	- plus or minus

COLD FORMED METAL FRAMING
540SN0001-1

1. Galvanized sheet steel shall conform to ASTM A653, structural quality, with a minimum yield strength of 33 ksi for 43 mils (18 ga) and thinner and ASTM A653, structural quality, with a minimum yield strength of 50 ksi for 54 mils (16 ga) and thicker. HOT-rolled carbon sheet and strip steel used in the fabrication of coldformed members shall conform to ASTM A1011 with a rust inhibitive coating.
2. Metal studs and joists shall be of size and thickness shown on drawings with the minimum effective section properties shown in the table(s).
3. Minimum thickness shown in table for the thickness specified represents 95% of design thickness per 2007 AISI-NAS w/ S1-2010 supplement.
4. Metal framing shall be per ICC-ES No. 3064P. Contractor shall be responsible for obtaining agency approval for any substitutions.
5. Welding shall be in accordance with AWS D1.3 "Structural Welding Code-Sheet Steel". Welders shall be AWS certified. Welding Rods: E60XX series. All field welding shall have special inspection
6. Typical metal track shall be same gauge as stude which it supports, unpunched, with a flange width of 1 1/4 inches and a depth equal to the nominal stud plus 2 times the track thickness plus the radius. Nested tracks shall be fabricated to fit the outside of a typical metal track. Deep leg tracks shall have a minimum flange width of 2 inches, use slotted slip tracks where specified. See sections and typical metal stud details.
7. Metal studs shall not have punch-outs closer than 10" from the end of the stud or at intermediate lateral bearing points of a stude. Metal studs which are part of built-up header sections shall be unpunched full length.

POWDER ACTUATED FASTENERS (SHOT PINS)
100N0001-1

1. These notes govern all conditions called out on the plans as 'shot pins' unless specifically noted otherwise.
2. All shot pins shall be X-U Universal Knurled Shank Fasteners with shank diameter of 0.157" as manufactured by Hilti Incorporated in accordance with ICC ESR-2269 and the current edition of the Hilti 2008 "Product Technical Guide."
3. All shot pins shall include standard Hilti steel washers.
4. Shot pins driven into steel base material shall maintain a minimum edge distance at all steel elements of 1/2" and minimum fastener spacing shall be 1". Length of pin shall be as required to penetrate thru steel member u.n.o. At 3/4" thick steel, penetration need not exceed 1/2".
5. Shot pins driven into concrete base material shall maintain a minimum edge distance at all concrete elements of 3" and minimum fastener spacing shall be 4". Pins shall have 1 1/4" penetration u.n.o. Minimum concrete thickness shall be 3 times the penetration depth. Concrete shall attain full design strength prior to installing shot pins.
6. Shot pins driven into 3 1/4" minimum light weight concrete fill over 3"x 20 ga minimum metal deck may be installed from the top of from the bottom in either the high or low flute. Pins installed from the top shall be spaced as noted above for typical concrete elements. Pins installed from the bottom in the high flutes shall be installed within 1" of flute center. Pins installed from the bottom in the low flutes shall be installed within 1" of the flute center and shall be no closer than 1 1/8" to the edge of the low flute. Pins installed from the bottom shall be spaced no closer than 5 1/2" parallel to the flutes. Pins shall have 1" penetration into concrete u.n.o. Concrete shall attain full design strength prior to installing shot pins.
7. Shot pins may be driven into 8" nominal minimum thickness fully grouted normal-weight CMU with type S mortar and minimum f'm = 1500 psi at time of installation. Shot pins may be installed into the face shells, horizontal mortar joints or vertically centered in the top of grouted cells. Shot pins shall not be installed in vertical mortar joints or within 1" of vertical mortar joints. No more than one shot pin may occur in an individual masonry unit cell and must be installed a minimum of 4" from the edge of the nail. Shot pins in mortar joints must be a minimum of 8" from the end of the nail and shall have a minimum spacing of 8".
8. The operator, tool, and fastener shall be pre-qualified by the project inspector of record. Shot pin installers shall be certified by Hilti and have a current Hilti issued operators license. Shot pin installation shall meet all OSHA requirements.
9. Shot pins used to attach hanger wires for suspended ceilings shall be tested in accordance with DSA IR 25-2.13

POST INSTALLED ANCHORS
300TN0001-1

1. For concrete construction, epoxy anchors shall be Hilti HIT-HY 200 per ESR-3187, Hilti HIT-RE500 V3 per ESR-3814, Simpson SET-XP per ESR-2508, or Dewalt Powers Fure IIO per ESR-3298 for fnr'd or rolled x rebar. Expansion anchors shall be Hilti KB-TZ per ESR-1917, Simpson Strong-Bolt 2 per ESR-3037, or Dewalt Powers Power-Stud+ SD2 per ESR-3502. Screw anchors shall be Hilti Kwik HUS-EZ (KH-EZ) per ESR-3027, Simpson Titen HD per ESR-2713, or Dewalt Powers Wedgebolt+ per ESR-2526.
2. For masonry construction, epoxy anchors shall be Hilti HIT-HY 70 per ESR-3682, Simpson SET per ESR-1772, or Dewalt Powers 130B+ per ESR-3149 for fnr'd or rolled x rebar. Expansion anchors shall be Hilti Kwik Bolt 3 (KB3) per ESR-3385, Simpson Wedge-All per ESR-1396, or Dewalt Powers Power-Stud+ per ESR-2966. Screw anchors shall be Hilti Kwik HUS-EZ (KH-EZ) per ESR-3056, Simpson Titen HD per ESR-1056, or Dewalt Powers Wedgebolt+ per ESR-3613.
3. Anchor type, size & embedment shall be indicated in drawings. Post-installed anchors for repair shall be evaluated on a case by case basis. Notify Structural Engineer for approval.
4. Anchors shall be installed in accordance with the requirements given in the evaluation report.
5. Provide Special Inspection as indicated in the Statement of Structural Special Inspections and testing.
6. When installing post-installed anchors in existing concrete or masonry, use care and caution to avoid cutting or damaging existing reinforcing bars. Do not install anchors in prestressed concrete elements.
7. Anchors installed from the bottom into metal deck with concrete shall be installed in the center of the low flute of the decking unless noted otherwise in evaluation report. The decking shall have a minimum thickness of 20 gauge. The minimum thickness of the concrete above the high flute of deck shall be as indicated in the evaluation report. See evaluation report for additional requirements, including minimum dimensions for flute width and depth.
8. Adhesive anchors shall be installed in concrete having a minimum age of 21 days at the time of anchor installation per ACI 318, chapter 17.
9. Installer certification and inspection is required for horizontal and upwardly inclined adhesive anchors subjected to sustained tension loading in accordance with ACI 318, chapter 17.
10. The testing of the anchors shall be done by a qualified testing agency and a report of the test results shall be submitted to the governing agency and Architect/Structural Engineer. See notes on this sheet for testing criteria.

STRUCTURAL STEEL
500SN0001-1

1. Fabrication, erection and materials shall conform with the AISC Specification for Structural Steel Buildings, the AISC Seismic Provisions for Structural Steel Buildings, and the California Building Code, latest editions uno in the Design Criteria Notes.
2. Structural Steel wide flange shapes shall conform with ASTM A992. All other Structural Steel rolled shapes (channels, angles, etc) and plates shall conform with ASTM A36, uno.
3. Steel Pipe shall conform to ASTM A53, Types E or S, Grade B.
4. All Hollow Structural Sections (HSS) shall conform to ASTM A500, Grade B.
5. All structural steel shall receive a one coat application of red primer paint. Do not paint areas to be field welded, fireproofed, galvanized, to receive slip-critical high strength bolts or embedded in concrete. Provide additional painting as noted in the specifications.
6. All structural steel shall be erected plumb and true to line. Temporary bracing shall be installed and shall be left in place until other members are provided to properly brace the structure. Contractor responsible for reviewing all base plate and support connection for erection and bracing as required by OSHA and Cal-OSHA requirements.
7. Non-shrink grout under all base plates before adding vertical load.
8. Structural steel below grade shall have 3 inches minimum of concrete cover.
9. Bolted Connections:
   a. Bolted connections shall consist of unfinished bolts conforming to ASTM A307 uno. Where high strength bolts are indicated, bolts conforming to ASTM A325 or ASTM A490 as specified shall be provided. Bolts used in concrete or masonry shall be headed bolts with cut thread, full diameter body style conforming to ASTM F1554 gr. 36, 55 (weldable requirements required), or F568 as indicated on drawings. In lieu of headed anchor bolts, threaded rod conforming to the above specification may be used with a single nut welded to the rod or double nuts tightened to prevent rotation. Anchor rod projection above top of foundation shall be as noted on the drawings.
   b. Bolted connections shall have washers conforming to ASTM F436 uno. Washers may be omitted at snug-tightened and slip-critical connections, except where required by the AISC 360 Specification for Structural Joints using ASTM A325 or A490 bolts.
   c. Base plates shall have nuts and washers at top and bottom of plate. Washers for base plates shall be A36 square or circular plate unless ASTM F844 washers are permitted. Beveled base plate details for plate and beam weldable washers.
10. Additional Requirements for "Slip-Critical" Bolted Connections:
    a. "Slip-critical" connections (A325SC designation with special inspection) are required at all braced frame connections, at all connections along chord lines and lagging lines (where noted on plans), and uno, at all bolted moment connections.
    b. The special inspector must be present during installation and tightening operation of "slip-critical" connections.
11. Provide 3/4" diameter stitch bolts and ring fills, spaced at not more than 2'-0" on center for all double angle members uno.
12. At wood to steel parallel contact, bolt with 1/2" diameter bolts at maximum 24"cc.
13. Holes for unfinished bolts shall be of the same nominal diameter of the bolt plus 1/16", use standard AISC gage and pitch for bolts except as noted otherwise.
14. Welding shall be done by the electric arc process in accordance with American Welding Society Standards, using only certified welders. All groove welds shall have complete penetration unless noted otherwise. All exposed welds shall be ground smooth. All electrodes for welding shall comply with AWS code, E70 series minimum.
15. Weld lengths called for on plans are the net effective lengths required.
16. Minimum fillet welds: 3/16" ≤ t < 1/2"
    1/4" ≤ t < 3/4"
    5/16" ≤ t > 3/4"
17. Welding Procedure Specifications (WPS) for shop and field prequalified weld joints and weld joints qualified by test shall be prepared for review prior to fabrication. All welding procedure items such as base metals, welding processes, filler metals and joint details that meet the requirements of AWS D1.1 Section 3 shall be considered as prequalified. Any change or substitution that is beyond the range or tolerance or requirements for prequalification shall be qualified by test per AWS D1.1 Section 4 part B. Qualification testing is required for partial penetration and complete penetration welds.
18. For nondestructive testing of welded connections excluding primary members of moment resisting frames:
    a. Welded connections shall be tested by nondestructive methods for compliance with AISC N5.5, and job specifications. Ultrasonic Testing shall be in accordance with AWS D1.1, ASTM E164 and ASME Section V. Radiography shall be in accordance with AWS D1.1, ASTM E94 and E99, and ASME Section V. This testing shall be part of the special inspection requirements of CBC Section 1705 performed by an approved independent testing laboratory as follows:
       1. Base metal thicker than 1-1/2 inch when subject to through thickness weld shrinkage strains.
       2. All complete joint penetration groove or butt welds.
       3. All partial joint penetration groove welds when used in column splices.
    b. Any material discontinuities shall be accepted or rejected on the basis of defect rating in accordance with the (larger reflector) criteria of AISC N5.5.

STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING
110TN0001-1

1. Special inspections and testing shall be provided by a Testing and Inspection Agency employed by the Owner (or Owner's Authorized Agent) and approved by the Building Official to provide special inspections and testing for the particular type of construction.
2. Tables of Special Inspections and Testing are derived from the structural provisions of the CBC and referenced standards and are for reference only. The included tables are provided for the convenience of the Owner, Testing Agency and Contractor in developing the scope of work for required testing and inspection of structural systems and components. Final definition of the scope of work is to be determined by the Testing Agency and the Owner (or Owner's Authorized Agent).
3. Frequency of special inspections and testing shall be, at a minimum, as noted for the individual elements within the tables below. The Contractor shall coordinate timing of special inspections and testing with the Special Inspection and Testing Agency.
4. Prior to the start of construction, the Testing and Inspection Agency shall provide documentation to the Building Official demonstrating competence and relevant experience or training of the special inspectors who will perform the special inspections and tests during construction, in accordance with CBC Section 1704A.2.1.
5. The Testing and Inspection Agency shall submit reports of special inspections and tests to the Building Official, Structural Engineer of Record and the Contractor per CBC Section 1704A.2.4. The reports shall indicate whether work inspected or tested conformed to the approved construction documents. Any discrepancies shall be immediately brought to the attention of the Contractor for correction. If discrepancies are not corrected, they shall be brought to the attention of the Building Official and the Structural Engineer of Record.
6. Special inspection and testing records shall be retained by the Contractor on site during the course of construction.
7. The Contractor shall submit a written statement to the Building Official acknowledging responsibility for construction of the main lateral force resisting system prior to commencement of that work as required by CBC section 1704A.4.
8. The Owner or the Owner's Authorized Agent shall submit to the Building Official, a final report documenting special inspections and tests per CBC Section 1704A.2.4, and reports and certificates per CBC Section 1704A.5.
9. All soils and foundation excavation inspections shall be by the Geotechnical Engineer of Record, or a Geotechnical firm hired by the Owner per CBC section 1705A.6.
10. Special inspection is required for all shop fabricated members or assemblies unless stated otherwise in the exceptions in CBC section 1704A.2.5.
11. Definitions:
    a. Continuous - Special inspection by the special inspector who is continuously present when and where the work to be inspected is being performed.
    b. Periodic - Special inspection by the special inspector who is intermittently present where the work to be inspected has been or is being performed.
    c. Quality Assurance (QA) - Monitoring and inspection tasks performed by an agency or firm other than the fabricator or erector to ensure that the materials provided and work performed by the fabricator and erector meet the requirements of the approved construction documents and referenced standards. Quality assurance includes those tasks designated "special inspection" by the applicable codes.
    d. Quality Control (QC) - Controls and inspections implemented by the fabricator or erector, as applicable, to ensure that the material provided and work performed meet the requirements of the approved construction documents and referenced standards.
    e. Observe (O) - Observe these items on a random basis. Operations need not be delayed pending these inspections.
    f. Perform (P) - Perform those tasks prior to final acceptance for each item or element.
    g. Shop Fabrication (F) - The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. The report need not include detailed measurements for joint fit-up, APPS settings, completed welds, or other individual items listed in the tables. For shop fabrication, the report shall indicate the piece mark of the piece inspected. For field work, the report shall indicate the reference grid lines and floor or elevation inspected. Work not in compliance with the contract documents and whether the noncompliance has been satisfactorily resolved shall be noted in the inspection report.
12. Special inspections and testing shall be performed during construction on the work shown in the construction documents as required by CBC Chapter 17A, the tables listed below, and the jurisdiction's special inspection and testing form. If discrepancies elsewhere are noted, contact the SEOR. All exceptions included in CBC Chapter 17A are permitted to be used.
    • Concrete Construction (Post-Installed Anchors)

STEEL CONSTRUCTION - REQUIRED VERIFICATION AND SPECIAL INSPECTIONS
CBC Table 1705A.2.1
110TN0001

Verification and Inspection	Frequency: Continuous	Frequency: Periodic	Referenced Standard
1. Material verification of high-strength bolts, nuts and washers:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents	-	X	AISC 360, Section A3.3 and applicable ASTM material standards
b. Manufacturer's certificate of compliance required	-	X	-
2. Inspection of high-strength bolting			
a. Snug-tight joints	-	X	AISC 360, Section M2.5
b. Pretensioned and slip-critical joints using turn-of-nut with matchmarking, twist-off bolt or direct tension indicator methods of installation	-	X	
c. Pretensioned and slip-critical joints using turn-of-nut without matchmarking, or calibrated wrench methods of installation	X	-	
3. Material verification of structural steel and cold-formed steel deck			
a. For structural steel, identification markings to conform to AISC 360	-	X	AISC 360, Section A3.1
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents	-	X	Applicable ASTM material standards
c. Manufacturer's certified test reports	-	X	-
4. Material verification of weld filler materials:			
a. Identification markings to conform to AWS specification in the approved construction documents	-	X	AISC 360, Section A3.5 & applicable AWS A5 documents
b. Manufacturer's certificate of compliance required	-	X	
5. Inspection of welding			
a. Structural steel and cold-formed steel deck:			
1. Complete and partial joint penetration groove welds	X	-	AWS D1.1 AWS D1.3
2. Multipass fillet welds	X	-	
3. Single-pass fillet welds > 5/16"	X	-	
4. Plug and slot welds	X	-	
5. Single-pass fillet welds ≤ 5/16"	-	X	
6. Floor and roof deck welds	-	X	AWS D1.3
b. Reinforcing steel:			
1. Verification of weldability of reinforcing steel other than ASTM A706	-	X	AWS D1.4 ACI 318: Sections 26.6.4.1, 18.2.8, 20.2.1.4
2. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	-	
3. Shear reinforcement	X	-	
4. Other reinforcing steel	-	X	
6. Inspection of steel frame joint details for compliance:			
a. Details such as bracing and stiffening	-	X	-
b. Member locations	-	X	
c. Application of joint details at each connection	-	X	

a. Where applicable, see also Section 1705A.12, Special Inspections for seismic resistance

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4 - ACD005	12/17/19

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General Notes

OSHPD PROJECT #:
s181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	11/21/2017
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1/S2.1 Equipment Schedule

MK	Philips Equipment Description	weight (lbs)	support				detail
			F	C	W	FW	
ME	Generator M-Cabinet CXA	259	X				3/S3.1
MS	DigitalDiagnost TH/TH2 (Wide Tabletop)	761	X				4/S3.1
ELW	Eleva Workspot (CPU Tower and Uninterruptible Power Supply)	127	X				6/S3.1
DVB	BuckyDiagnost VB Digital Tiltable (Right)	618				X	2/S3.1
CS	CSM Long	879		X			5/S3.1

Notes:

Mounting : C = Ceiling, F = Floor, W = Wall, FW = Floor and Wall.

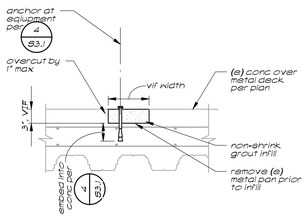
Weight is based on manufacturer specifications

Plan Notes

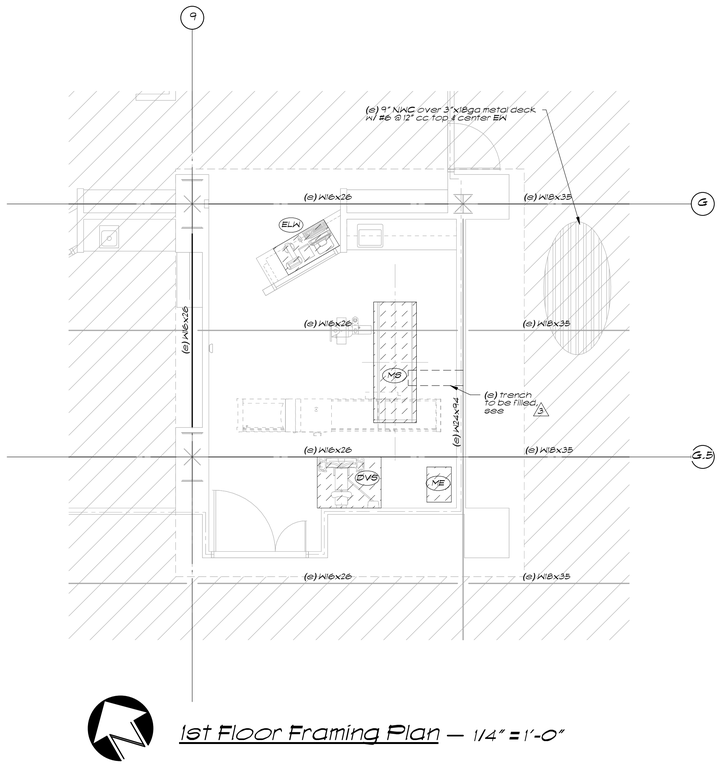
1. See Philips drawings for additional requirements and coordination for construction.
2. All (e) unistrut attachments shall be torque tested to mfr listed values.

   1/4"Ø - 6 ft-lbs
   5/16"Ø - 11 ft-lbs
   3/8"Ø - 19 ft-lbs
   1/2"Ø - 50 ft-lbs
   5/8"Ø - 100 ft-lbs
   3/4"Ø - 125 ft-lbs

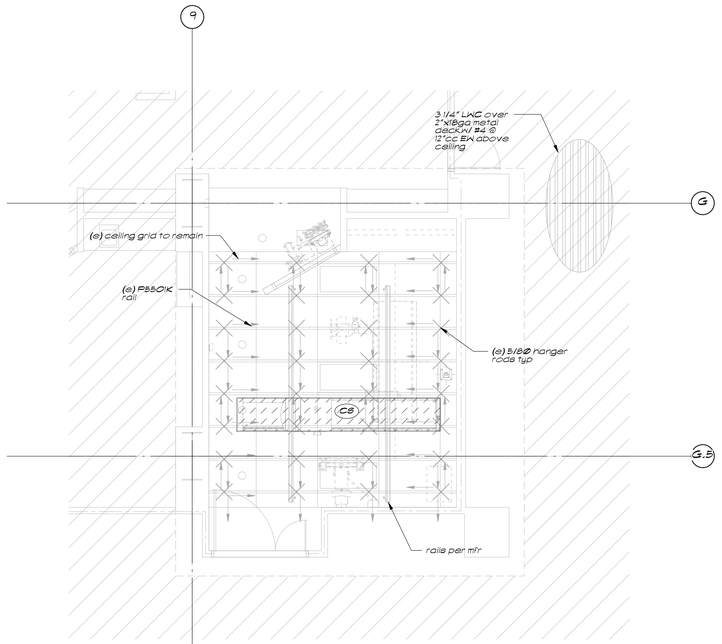
3. Contractor to verify all (e) channel nuts and bolts at the ceiling struts by torque testing to loads shown in note 2 above. 1



Detail 4/S2.1 Drafting 12 — 1" = 1'-0" 3



1st Floor Framing Plan — 1/4" = 1'-0"



1st Floor Ceiling Plan — 1/4" = 1'-0"

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1st Floor Framing Plan

OSHPD PROJECT #:
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DT#1 1835-J RAD
REPLACE ANALOG X-RAY
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2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

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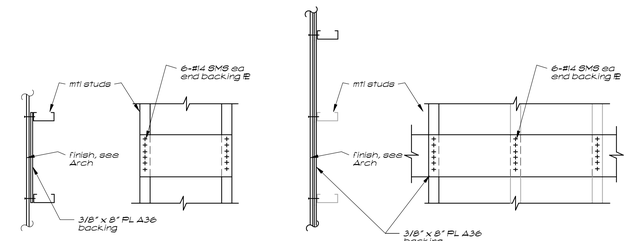
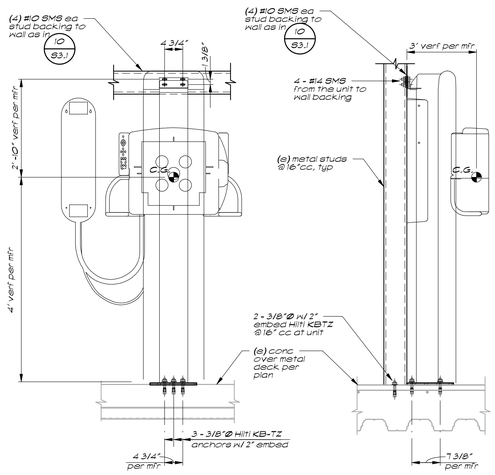


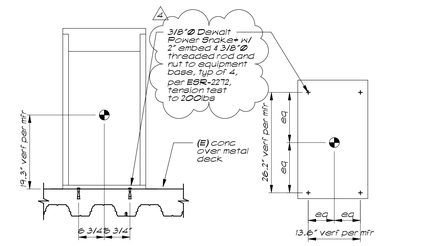
Single Bay Condition — continuous Condition

Detail (1 / S3.1) Backing Detail — 1" = 1'-0"



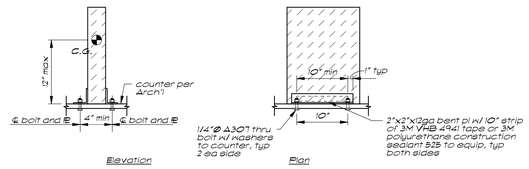
DVS Bucky Diagnost VS Digital Tilttable, max WT. = 618 lbs ⚠2
NOTE: Verify all dimensions w/ mfr. 1/16" max oversize holes

Detail (2 / S3.1) Building 5 — 3/4" = 1'-0"



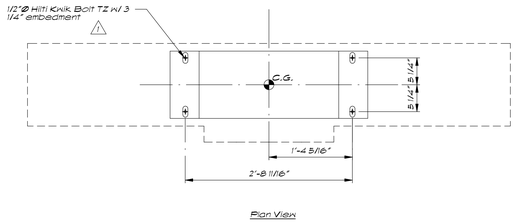
ME Generator M-Cabinet CXA, max WT. = 2589 lbs ⚠2
NOTE: Verify all dimensions with mfr. 1/16" max oversize holes.

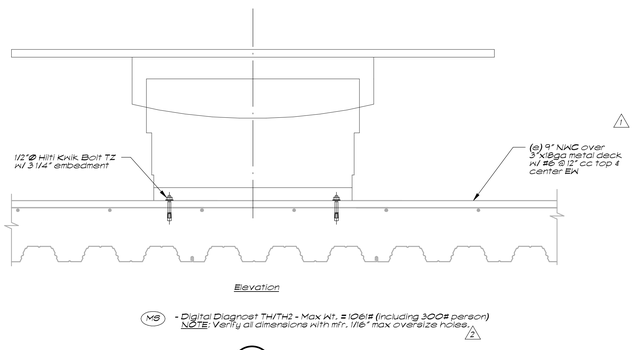
Detail (3 / S3.1) Cabinet — 3/4" = 1'-0"



ELA CPU Tower, max WT = 32#
LPS, max WT = 25.7#
Elevo Examination Control, max WT = 38#
NOTE: Verify all dimensions with mfr

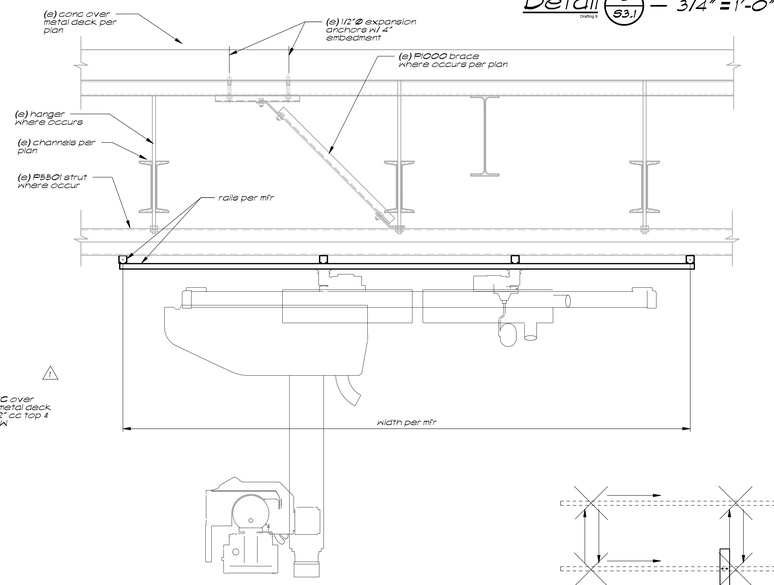
Detail (6 / S3.1) Building 5 — 1" = 1'-0"





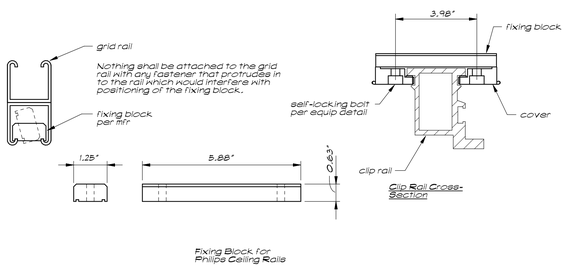
MB - Digital Diagnost TH/TH2 - Max Wt. = 1061# (including 300# person)
NOTE: Verify all dimensions with mfr. 1/16" max oversize holes. ⚠2

Section (4 / S3.1) Building 5 — 1" = 1'-0"



CS -CSM Long III - Max Wt. = 879#
NOTE: Verify all dimensions with mfr

Section (5 / S3.1) Building 5 — 1" = 1'-0"



Detail (7 / S3.1) CS & SI LONG RAIL FIXING BLOCK — 3" = 1'-0"

Detail (8 / S3.1) DETAIL — 1" = 1'-0"

Notes:
1. Contractor shall field verify that (e) grid layout is as shown prior to installation. Notify EOR of any discrepancies
2. Any existing connections to concrete over metal deck need to be identified to allow for capacity check.
3. 3/8"Ø bolts w/ chan nut shall be torqued to 19ft-lb
4. 1/2"Ø bolts w/ chan nut shall be torqued to 50 ft-lb

Detail (9 / S3.1) 120 Long Rail Detail — 1/2" = 1'-0"

Single Bay Condition — Continuous Condition

Note: In lieu of track, a 6"x16ga flat strap may be used to support loads up to 20 lbs/ft w.o max. concentrated load of 50 lbs. Strap shall be cont over 3 studs min. Attach as noted above.

(10 / S3.1) 04080513-12 Typical Backing Detail

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Sections & Details

OSHPD PROJECT #:
s181275-34-00

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

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SHEET INDEX

M0.1	MECHANICAL LEGEND, NOTES, SCHEDULES AND SHEET INDEX
M1.1	FIRST FLOOR AIR BALANCE PRECAUTIONS PLAN
M2.1	FIRST FLOOR DEMO AND NEW PLAN

IMAGING EQUIPMENT COOLING CALCULCATION

HEAT BALANCE	ROOM 1875J	NOTES
SENSIBLE HEAT REJECTION		
BUCKYDIAGNOST CSM AND COMPONENTS	2,439 BTUH	AT 70% OPERATION
CONTROL ROOM EQUIPMENT	0 BTUH	HEAT REJECTED DIRECTLY TO EXHAUST
PEOPLE	500 BTUH	2 PEOPLE
LIGHTS AND PLUG LOAD	1,509 BTUH	340 SQ. FT. 1.3 WATTS/SQ. FT.
TOTAL CALCULATED SENSIBLE HEAT REJECTION	4,448 BTUH	
COOLING CAPACITY		
SA FLOW	340 CFM	
SA CALCULATED SENSIBLE COOLING CAPACITY	6,242 BTUH	BASED ON 55 DEGF SA, 72 DEGF SPACE
SUPPLEMENTAL SENSIBLE COOLING CAPACITY	0 BTUH	NO SUPPLEMENTAL COOLING IN SPACE
TOTAL SENSIBLE COOLING CAPACITY	6,242 BTUH	
+/- DIFFERENTIAL	1,794 BTUH	

COOLING CALCULATION NOTES:
1. EQUIPMENT HEAT REJECTION BASED ON PHILIPS DRAWINGS 04/24/2017

GENERAL NOTES

1. CONTRACTOR SHALL VISIT SITE TO REVIEW SCOPE OF WORK PRIOR TO SUBMISSION OF BID.
2. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT PLACEMENT OF NEW WORK. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK. EXACT PLACEMENT SHALL BE COORDINATED BASED ON ACTUAL FIELD MEASUREMENTS AND CONDITIONS.
3. COORDINATE REQUIREMENTS OF NEW WORK WITH OTHER TRADES AND PROVIDE ALL NECESSARY APPURTENANCES AND INCIDENTAL LABOR, INCLUDING PARTS AND ACCESSORIES, CONNECTIONS, SYSTEM START-UP AND TESTING AS REQUIRED TO ACHIEVE A COMPLETE FULLY FUNCTIONING INSTALLATION READY FOR OPERATION.
4. PRIOR TO FABRICATION, CONTRACTOR SHALL PREPARE FULLY COORDINATED DETAILED SHOP DRAWINGS (DRAWN TO SCALE) OF ALL PROJECT WORK AND SUBMIT TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. SHOP DRAWINGS SHALL INCLUDE DETAILED PLAN VIEW LAYOUTS (1/4" SCALE MINIMUM) SHOWING EQUIPMENT, DUCTWORK AND PIPING WITH DUCT AND PIPE SIZES AND ELEVATIONS ABOVE FINISHED FLOOR. COORDINATE WORK WITH OTHER TRADES AS REQUIRED TO ACHIEVE INTENDED ARCHITECTURAL ELEVATIONS.
5. AVOID ROUTING PIPING ABOVE ELECTRICAL EQUIPMENT AND CABLE TRAYS. WHERE INSTALLATION OF PIPING ABOVE ELECTRICAL EQUIPMENT OR CABLE TRAYS IS UNAVOIDABLE, INSTALL PIPING WITH A MINIMUM NUMBER OF JOINTS. JOINTS, FITTINGS, VALVES OR SIMILAR COMPONENTS SHALL BE LOCATED A MINIMUM OF 36 INCHES FROM EACH SIDE OF EQUIPMENT OR TRAY. PROVIDE DRIP PAN(S) WITH MOISTURE DETECTION ABOVE CRITICAL EQUIPMENT.
6. ALL WORK SHALL COMPLY WITH THE CALIFORNIA CODE OF REGULATIONS, TITLE 24 (2016 EDITION), INCLUDING THE CALIFORNIA BUILDING CODE (CBC), CALIFORNIA MECHANICAL CODE (CMC), CALIFORNIA PLUMBING CODE (CPC), CALIFORNIA FIRE CODE (CFC), CALIFORNIA GREEN BUILDING STANDARDS CODE, CALIFORNIA ENERGY CODE AND CALIFORNIA ELECTRICAL CODE.
7. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH THE GENERAL CONDITIONS OF THE PRIME CONTRACT.
8. CONSTRUCTION SHALL BE ORGANIZED IN SUCH A MANNER AS TO MINIMIZE DISRUPTION TO FACILITY OPERATIONS AND DISTURBANCE OF OCCUPANTS. NOTIFY OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS IN ADVANCE OF ANY REQUIRED SYSTEM SHUTDOWNS, DISTURBANCE OF OR ENCROACHMENT INTO OCCUPIED AREAS. PERFORM ACTIVITIES SUCH AS MASONRY DRILLING AND SAWCUTTING ONLY DURING DESIGNATED HOURS; DAMPEN NOISE AND VIBRATION TRANSMITTED TO OCCUPIED AREAS TO THE GREATEST EXTENT POSSIBLE. MAINTAIN EGRESS FROM OCCUPIED AREAS AT ALL TIMES. DO NOT OBSTRUCT OR OTHERWISE IMPEDE PEDESTRIAN OR VEHICULAR TRAFFICWAYS CRITICAL TO THE ONGOING OPERATION OF THE FACILITY.
9. CONTRACTOR SHALL COMPLY WITH THE FACILITY'S POLICIES AND PROCEDURES REGARDING CONTAINMENT /ISOLATION OF CONSTRUCTION AREAS AND ACTIVITIES THROUGHOUT CONSTRUCTION OF THE PROJECT. PROVIDE DUST PROTECTION, CONSTRUCTION BARRIERS, AND /OR FILTRATION ON HVAC SYSTEM INLETS AS REQUIRED TO PROTECT OCCUPIED AREAS AND AFFECTED HVAC SYSTEMS FROM CONTAMINATION BY AIRBORNE POLLUTANTS (INCLUDING DUST, SMOKE, FUMES AND ODORS) GENERATED BY CONSTRUCTION ACTIVITIES.
10. MEANS, METHODS AND TIMING OF WORK SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE INSOFAR AS THEY AFFECT FACILITY OPERATIONS. MEANS AND METHODS ARE STILL SUBJECT TO ACCEPTANCE BY THE AUTHORITY HAVING JURISDICTION AND MUST COMPLY WITH DESIGN AND CODE INTENT.
11. PRE-APPROVED PIPES, DUCTS, AND CONDUITS SEISMIC BRACING
    A. THE CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS OF THE SUPPORTS, ATTACHMENTS, AND BRACING SYSTEMS IN ACCORDANCE WITH THE PRE-APPROVAL (MASON OPM-0043-13) AND SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL (RDP) IN RESPONSIBLE CHARGE OF THE PROJECT FOR REVIEW TO VERIFY THAT THE DETAILS ARE IN CONFORMANCE WITH THE CODE REQUIREMENTS. THE LAYOUT DRAWINGS SHALL AS A MINIMUM SATISFY THE REQUIREMENTS OF ASCE 7 SECTION 13.6 AS MODIFIED BY THE CBC 2016 SECTION 1616A.
        a) THE STRUCTURAL ENGINEER OF RECORD (SEOR) SHALL VERIFY THAT THE SUPPORTING STRUCTURE IS ADEQUATE FOR THE FORCES IMPOSED ON IT BY THE SUPPORTS, ATTACHMENTS, AND BRACES INSTALLED IN ACCORDANCE WITH THE PRE-APPROVAL IN ADDITION TO ALL OTHER LOADS.
        b) THE SEOR SHALL FORWARD THE SUPPORTS, ATTACHMENTS, AND BRACING DRAWINGS (INCLUDING APPROVED AMENDED CONSTRUCTION DOCUMENTS FOR SUPPLEMENTARY FRAMING WHERE REQUIRED) TO THE DISCIPLINE IN RESPONSIBLE CHARGE WITH A NOTATION INDICATING THAT THE DRAWINGS HAVE BEEN REVIEWED AND ARE IN GENERAL CONFORMANCE WITH THE PRE-APPROVAL AND THE DESIGN OF THE PROJECT.
        c) A "SHOP DRAWING STAMP" MAY BE USED TO INDICATE COMPLIANCE WITH THIS REQUIREMENT.
        d) THE REGISTERED DESIGN PROFESSIONAL (RDP) OTHER THAN SEOR, MAY PROVIDE THE SHOP DRAWING STAMP FOR SMALL PROJECTS AT THE DISCRETION OF THE OSHPD DISTRICT STRUCTURAL ENGINEER.
    B. THE SEOR SHALL DESIGN ANY SUPPLEMENTARY FRAMING THAT IS NEEDED TO RESIST THE LOADS, MAINTAIN STABILITY AND/OR IS REQUIRED FOR INSTALLATION OF PRE-APPROVED SYSTEM.
        a) THE SUPPLEMENTARY FRAMING SHALL BE SUBMITTED TO OSHPD AS AN AMENDED CONSTRUCTION DOCUMENTS (ACD).
    C. THE LAYOUT DRAWINGS (WITH THE SHOP DRAWING STAMP) SHALL BE SUBMITTED TO THE OSHPD TO REVIEW:
        a) STRUCTURE SUPPORTING THE DISTRIBUTION SYSTEM HAS ADEQUATE CAPACITY;
        b) SEISMIC DESIGN FORCES (FP) ARE IN ACCORDANCE WITH THE CBC 2016; AND
        c) VERIFY THAT SUBMITTAL IS WITHIN THE SCOPE OF OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM);
12. REFER TO STRUCTURAL DRAWINGS FOR SEISMIC CRITERIA.
13. THE EQUIPMENT MANUFACTURERS AND MODELS SPECIFIED ON THE DRAWINGS SERVE AS THE BASIS OF DESIGN. NO SUBSTITUTIONS OF ANY EQUIPMENT ARE ALLOWED WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER'S REPRESENTATIVE. ANY PROPOSED SUBSTITUTIONS MUST BE FROM ONE OF THE ALTERNATE MANUFACTURERS LISTED IN THE SPECIFICATIONS; MUST MATCH THE PHYSICAL CONFIGURATION AND REQUIREMENTS OF THE SPECIFIED MODEL INCLUDING OVERALL DIMENSIONS, INLET AND OUTLET CONFIGURATION, REQUIRED CLEARANCES, ACCESS AND POWER REQUIREMENTS; AND MUST MEET SEISMIC CERTIFICATION REQUIREMENTS WHERE MANDATED BY THE AUTHORITY HAVING JURISDICTION. PERFORMANCE FEATURES AND CONSTRUCTION OF ANY PROPOSED SUBSTITUTION SHALL MEET OR EXCEED THOSE SPECIFIED ON THE DRAWINGS AND IN THE SPECIFICATIONS. STRUCTURAL ENGINEERING CALCULATIONS FOR EQUIPMENT SUPPORT AND ANCHORAGE SHALL BE SUBMITTED BY THE CONTRACTOR AT THE TIME OF SUBMITTAL OF ANY SUBSTITUTION FOR REVIEW BY THE ARCHITECT, MECHANICAL AND STRUCTURAL ENGINEERS OF RECORD, AND OSHPD FIELD PERSONNEL. SUBSTITUTIONS REQUIRING CHANGES TO THE CONTRACT DOCUMENTS BY MEANS OF A CHANGE ORDER ARE NOT ALLOWED.
14. WHERE EXISTING UTILITIES NOT SHOWN ON THE DRAWINGS ARE ENCOUNTERED, NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY. SUPPORT AND PROTECT UTILITIES UNTIL PROVISIONS CAN BE MADE FOR RELOCATION OR OTHER SOLUTION.
15. CUTTING AND DEMOLITION WORK SHALL NOT COMPROMISE STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION OR DAMAGE PORTIONS OF EXISTING WORK TO REMAIN.
16. OWNER RESERVES THE RIGHT TO RETAIN ALL MATERIALS AND EQUIPMENT REMOVED FROM THE PROJECT. ANY ITEMS OR MATERIALS NOT DESIRED BY THE OWNER SHALL BE REMOVED FROM THE OWNER'S PROPERTY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
17. COORDINATE METHOD, ROUTE AND TIMING OF MATERIAL AND DEBRIS REMOVAL WITH OWNER'S REPRESENTATIVE PRIOR TO ANY REMOVAL.
18. PATCH AND REPAIR ANY DAMAGE TO WALLS, FLOORS, CEILINGS, CABINETS, HARDWARE, WINDOWS, FIXTURES, ETC. RESULTING FROM PROJECT WORK. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR DRYWALL AND FINISH PATCHWORK AND REPAIR REQUIREMENTS. MATCH EXISTING FINISHES AS CLOSELY AS POSSIBLE UNLESS NOTED OTHERWISE. PATCHES AND REPAIRS SHALL RESTORE FINISH TO "LIKE NEW" CONDITION.
19. SEAL AND PROTECT ALL PIPE, DUCT AND CONDUIT PENETRATIONS OF FLOORS, WALLS, CEILINGS AND ROOF. METHODS AND MATERIALS USED FOR TREATMENT OF PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE U.L. AND FIRE MARSHAL APPROVED.
20. ALL LOCATIONS FOR CORING THROUGH CONCRETE SLAB FLOORS AND WALLS SHALL BE CONFIRMED BY A CALIFORNIA LICENSED STRUCTURAL ENGINEER. USE X-RAY IMAGING WHEN NECESSARY TO LOCATE STRUCTURAL SLAB REINFORCEMENT.
21. ALL ROOFING AND FLASHING ELEMENTS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ALL ROOFING AND FLASHING DETAILS.
22. CONTRACTOR MAY SUBSTITUTE NEW ROUND OR RECTANGULAR DUCT SHOWN ON PLANS WITH ROUND OR RECTANGULAR DUCT OF EQUIVALENT OR GREATER CROSS-SECTIONAL AREA. CONTRACTOR TO INDICATE ON SHOP DRAWING SUBMITTAL WHERE SUCH SUBSTITUTIONS OCCUR.
23. CONTRACTOR SHALL COORDINATE FINAL THERMOSTAT LOCATIONS WITH OTHER TRADES, INCLUDING ARCHITECTURAL, ELECTRICAL AND FIRE ALARM.
24. CONTRACTOR SHALL LABEL ALL VALVES SEQUENTIALLY USING THE EXISTING FACILITY TAG INVENTORY LIST. USE METAL TAGS. TAGS SHALL TO BE 2" DIAMETER AND FABRICATED OF BRASS OR STAINLESS STEEL. TAGS SHALL BE ATTACHED WITH JACK CHAIN MADE FROM THE SAME MATERIAL.

OSHPD INTENT NOTE

THE INTENT OF THE CONSTRUCTION DOCUMENTS IS TO RECONSTRUCT THE HOSPITAL BUILDING IN ACCORDANCE WITH THE 2016 CBSC. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED CONSTRUCTION DOCUMENTS, WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH THE 2016 CBSC, AMENDED CONSTRUCTION DOCUMENTS (ACDs) DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY OSHPD BEFORE PROCEEDING WITH THE WORK.

MECHANICAL LEGEND

ABBREVIATIONS

AC	ABOVE CEILING	FB	FROM BELOW	MAX	MAXIMUM	RPM	REVOLUTIONS PER MINUTE
AD	ACCESS DOOR	FCU	FAN COIL UNIT	MBH	1,000 BRITISH THERMAL UNITS PER HOUR	RS	REFRIGERANT SUCTION
AFF	ABOVE FINISHED FLOOR	FD	FIRE DAMPER			RTS	REFER TO SPECIFICATIONS
AHU	AIR HANDLING UNIT	FLR	FLOOR	MCC	MOTOR CONTROL CENTER		
ARCH	ARCHITECT	FPM	FEET PER MINUTE	MD	MOTORIZED DAMPER	SA	SUPPLY AIR
		FS	FLOW SWITCH	MFR	MANUFACTURER	SCD	SECONDARY CONDENSATE DRAIN
BHP	BRAKE HORSEPOWER	FSD	FIRE SMOKE DAMPER	MIN	MINIMUM	SCH	SCHEDULE
BOD	BOTTOM OF DUCT	FT	FEET	MISC	MISCELLANEOUS	SD	SMOKE DETECTOR
BOP	BOTTOM OF PIPE			MPR	MEDIUM PRESSURE CONDENSATE RETURN	SF	SUPPLY FAN
BTUH	BRITISH THERMAL UNIT PER HOUR	GPH	GALLONS PER HOUR			SHT	SHEET
BV	BUTTERFLY VALVE	GPM	GALLONS PER MINUTE	MPS	MEDIUM PRESSURE STEAM, 16-59 PSIG	SHWP	SECONDARY HOT WATER PUMP
		HC	HEATING COIL			SM	SHEET METAL
CA	COMPRESSED AIR	HEX	HEAT EXCHANGER	(N)	NEW	SQ FT	SQUARE FOOT
CAV	CONSTANT AIR VOLUME	HP	HORSEPOWER	NC	NORMALLY CLOSED	SS, SST	STAINLESS STEEL
CD	CONDENSATE DRAIN	HPR	HIGH PRESSURE CONDENSATE RETURN	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	TA	TO ABOVE
CFM	CUBIC FEET PER MINUTE					TSTAT	THERMOSTAT
CHWP	CHILLED WATER PUMP	HPS	HIGH PRESSURE STEAM, ABOVE 60 PSIG	NIC	NOT IN CONTRACT	TH	THERMOMETER
CHWR	CHILLED WATER RETURN			NO	NORMALLY OPEN	TP	TRAP PRIMER
CHWS	CHILLED WATER SUPPLY	HRP	HEAT RECOVERY PUMP	NTS	NOT TO SCALE	TSP	TOTAL STATIC PRESSURE
CU	CONDENSING UNIT	HRR	HEAT RECOVERY RETURN			TYP	TYPICAL
CWP	CONDENSER WATER PUMP	HRS	HEAT RECOVERY SUPPLY	OA	OUTSIDE AIR		
CWR	CONDENSER WATER RETURN	HVAC	HEATING VENTILATION & AIR CONDITIONING	OC	ON CENTER	UF	UNDER FLOOR
CWS	CONDENSER WATER SUPPLY					US	UNDER SLAB
		HWP	HEATING WATER PUMP	PF	PRE FILTER	UTR	UP THROUGH ROOF
DET	DETAIL	HWR	HEATING WATER RETURN	PH	PHASE	UON	UNLESS OTHERWISE NOTED
DIA	DIAMETER	HWS	HEATING WATER SUPPLY	PLBG	PLUMBING		
DN	DOWN			POC	POINT OF CONNECTION	V	VOLTS
DSD	DUCT SMOKE DETECTOR	IWC	INCHES OF WATER COLUMN	POD	POINT OF DISCONNECT	VAV	VARIABLE AIR VOLUME
DTR	DOWN THROUGH ROOF			PRV	PRESSURE REDUCING VALVE	VD	VOLUME DAMPER
DWG	DRAWING	KW	KILOWATTS	PSI	POUNDS PER SQUARE INCH	VFD	VARIABLE FREQUENCY DRIVE
				PSIG	POUNDS PER SQUARE INCH GAUGE	VTR	VENT THROUGH ROOF
(E)	EXISTING	LAT	LEAVING AIR TEMPERATURE				
(ER)	EXISTING RELOCATED	LBS	POUNDS			WB	WET BULB TEMPERATURE
EA	EXHAUST AIR	LP	LOW PRESSURE	RA	RETURN AIR	W/	WITH
EAT	ENTERING AIR TEMPERATURE	LPR	LOW PRESSURE CONDENSATE RETURN	RF	RETURN FAN	W/O	WITHOUT
EF	EXHAUST FAN			RH	RELATIVE HUMIDITY	WT	WEIGHT
ESP	EXTERNAL STATIC PRESSURE	LPS	LOW PRESSURE STEAM, 5-15 PSIG	RHC	REHEAT COIL		
EWT	ENTERING WATER TEMPERATURE	LWT	LEAVING WATER TEMPERATURE	RL	REFRIGERANT LIQUID		
				RM	ROOM		
FA	FROM ABOVE						

DUCTWORK

CEILING GRILLE, DIFFUSER AND REGISTER

- 10x10 S1 250f (TYP. 2) — NECK SIZE/ SUPPLY CFM (NOTE)
- 10x10 R1 250f (TYP. 2) — NECK SIZE/ RETURN CFM (NOTE)
- 10x10 E1 250f (TYP. 2) — NECK SIZE/EXHAUST CFM (NOTE)

SIDEWALL GRILLE, DIFFUSER AND REGISTER

- 10x10 S1 250f (TYP. 2) — NECK SIZE/ SUPPLY CFM (NOTE)
- 10x10 R1 250f (TYP. 2) — NECK SIZE/ RETURN CFM (NOTE)
- 10x10 E1 250f (TYP. 2) — NECK SIZE/EXHAUST CFM (NOTE)

DAMPERS

- BACKDRAFT DAMPER
- VOLUME DAMPER, MANUAL
- FD — FIRE DAMPER
- FSD — FIRE SMOKE DAMPER
- MD — MOTORIZED DAMPER

DUCT AND DUCT FITTINGS

- NEW DUCT
- EXISTING DUCT
- DUCT TO BE DEMOLISHED
- 10"Ø — ROUND DUCT
- 10x10 — RECTANGULAR DUCT
- CAPPED DUCT
- ACOUSTICALLY LINED
- ROUND AIR DUCT RISE/DROP
- SUPPLY AIR DUCT RISE/DROP
- RETURN AIR DUCT RISE/DROP
- EXHAUST AIR DUCT RISE/DROP
- ROUND AIR DUCT RISER
- SUPPLY AIR DUCT RISER
- RETURN AIR DUCT RISER
- EXHAUST AIR DUCT RISER

DUCT AND DUCT FITTINGS CONTINUED.

- TRANSITION (REDUCER) - RECTANGLE TO RECTANGLE
- TRANSITION - RECTANGLE TO ROUND
- MITERED 90° ELBOW WITH TURNING VANES
- RADIUS 90° ELBOW (RECTANGLE OR ROUND)
- BRANCH TAKE-OFF - RECTANGLE MAIN WITH RECTANGULAR BRANCH
- BRANCH TAKE-OFF - ROUND MAIN WITH 45° ROUND BRANCH
- BRANCH TAKE-OFF - RECTANGLE MAIN WITH ROUND BRANCH
- BRANCH TAKE-OFF - ROUND MAIN WITH ROUND BRANCH
- DUCT SPLIT - RECTANGLE MAIN WITH RECTANGULAR BRANCHES
- DUCT SPLIT - ROUND MAIN WITH ROUND BRANCHES

PIPING

PIPES

- NEW PIPE
- EXISTING PIPE
- PIPE TO BE DEMOLISHED
- CD — CONDENSATE DRAIN
- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- FLOW DIRECTION
- HPR — HIGH PRESSURE CONDENSATE RETURN
- HPS — HIGH PRESSURE STEAM ABOVE 60 PSIG
- HRR — HEAT RECOVERY RETURN
- HRS — HEAT RECOVERY SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- LPR — LOW PRESSURE CONDENSATE RETURN
- LPS — LOW PRESSURE STEAM 5-15 PSIG
- MPR — MEDIUM PRESSURE CONDENSATE RETURN
- MPS — MEDIUM PRESSURE STEAM 16-59 PSIG

VALVES

- AIR VENT (AUTOMATIC / MANUAL)
- ANGLE VALVE
- AUTOMATIC MOTORIZED VALVE
- BALANCING VALVE
- BALL VALVE

VALVES CONTINUED

- BELLOWS FLEX CONNECTOR
- BRAIDED FLEX CONNECTOR
- BUTTERFLY VALVE
- CONTROL VALVE 2-WAY
- CONTROL VALVE 3-WAY
- CHECK VALVE, DIRECTION
- CIRCUIT SETTER VALVE
- GATE VALVE
- GLOBE VALVE
- PETE'S PLUG
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- SHUT-OFF VALVE
- SOLENOID VALVE
- STEAM TRAP
- STRAINER / WITH DRAIN VALVE AND HOSE END CONNECTION
- TRIPLE DUTY VALVE

PIPE FITTINGS

- PIPE RISE/ELBOW UP
- PIPE DROP/ELBOW DOWN
- PIPE RISE/DROP TOP CONNECTION
- PIPE RISE/DROP BOTTOM CONNECTION
- FLANGE CONNECTION
- UNION CONNECTION
- CAPPED PIPE
- REDUCER

CONTROLS

- AUTOMATIC CONTROL DAMPER (OPPOSED BLADE)
- AUTOMATIC CONTROL DAMPER (PARALLEL BLADE)
- DPS — DIFFERENTIAL PRESSURE SWITCH
- DSD — DUCT SMOKE DETECTOR
- FS — FLOW SWITCH
- H — HUMIDISTAT
- PRESSURE GAUGE
- PS — PRESSURE SWITCH
- S — SWITCH
- THERMOMETER
- T1 — TEMPERATURE SENSOR
- VFD — VARIABLE FREQUENCY DRIVE
- 1 2-1 — THERMOSTAT WITH ZONE

GENERAL

- 1 — NEW WORK SHEET NOTE
- 1 — DEMOLITION SHEET NOTE
- 1 — PHOTO SHEET NOTE
- S01 — AIR BALANCE TAG
- 1 — REVISION DELTA
- VAV / 1 — EQUIPMENT TYPE EQUIPMENT NUMBER
- 1 / M1 — DETAIL NUMBER SHEET NUMBER
- 1 / M1 — SECTION NUMBER SHEET NUMBER
- N — NORTH ARROW

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MECHANICAL LEGEND, NOTES, SCHEDULES & SHEET INDEX

PROJECT #: M031560

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	11/21/2017
SCALE:	AS NOTED
DRAWN BY:	NIB
CHECKED BY:	RJT
SHEET:	M0.1

PARTIAL AIR BALANCE SCHEDULE (E) AHU 1-1S/1-2S[1] AND AHU 1-1E/1-2E[2]

ROOM NAME	2013 CMC			2013 CMC CODE CALCULATIONS						DESIGN AIR FLOW				
	TABLE 4A EQUIVALENT	AREA SQ.FT.	CLG. HT. FT.	VOLUME CU.FT.	REL. PRESS	AC/HR	TOTAL CFM	O.S.A. AC/HR	O.S.A. CFM	S.A. CFM	R.A. CFM	E.A. CFM	T.A. CFM (NOTE 3)	OSA CFM
ROOM 1835A	X-RAY (DIAGNOSTIC AND TREATMENT)	340	10	3400	NR	6	340	2	113	340	0	340	0	340
									TOTAL	340	0	340	0	340

AIR BALANCE SCHEDULE NOTES:

1. AIR HANDLER AHU 1-1S/1-2S IS THE SUPPLY AIR HANDLING SYSTEM. THE SYSTEM CONSISTS OF TWO CONNECTED 100% OUTSIDE INTAKE UNITS. EACH UNIT HAS 30% PRE-FILTERS AND 95% FINAL FILTERS AND IS CONNECTED TO EMERGENCY POWER.

2. AIR HANDLER AHU 1-1E/1-2E IS THE EXHAUST AIR HANDLING SYSTEM. THE SYSTEM CONSISTS OF TWO CONNECTED UNITS. EACH UNIT IS CONNECTED TO EMERGENCY POWER.

AIR BALANCE INTENT NOTE

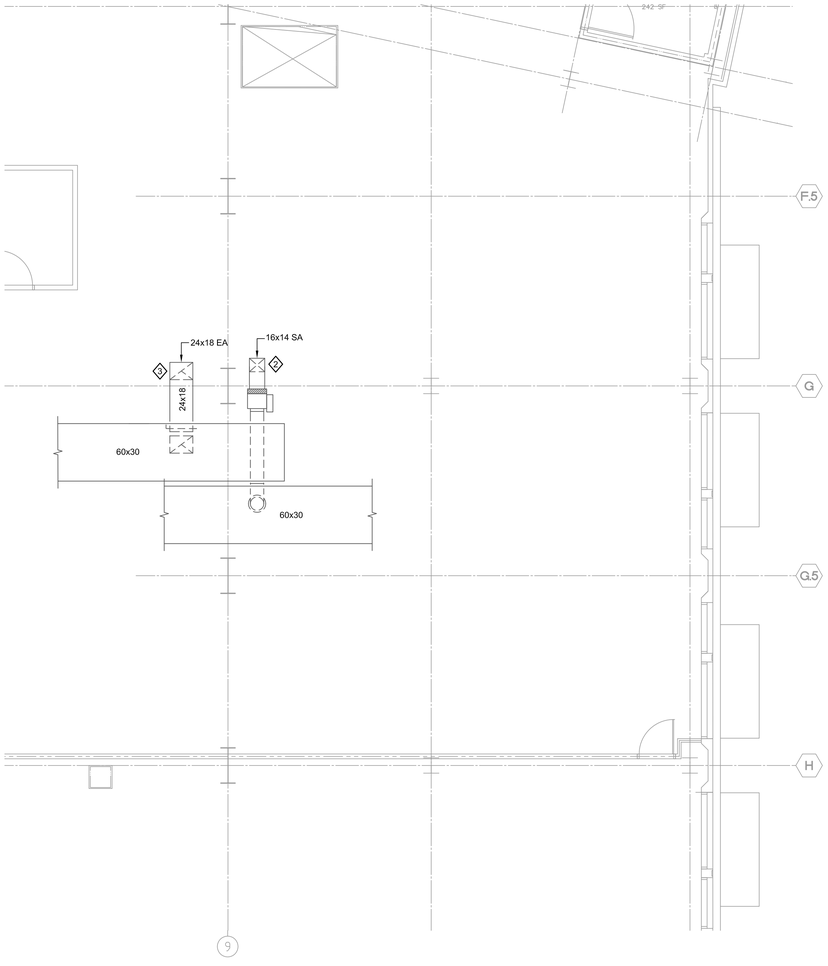
THE INTENT OF MEASURES DESCRIBED IN THE AIR BALANCE PLAN IS THAT THE MODIFICATIONS WITHIN THE PROJECT BOUNDARIES DO NOT IMPACT AIRFLOW TO SPACES OUTSIDE THE PROJECT BOUNDARIES. (OSHPD CAN 2-102.6 NARRATIVE 8, 2013)

AIR BALANCE GENERAL NOTES

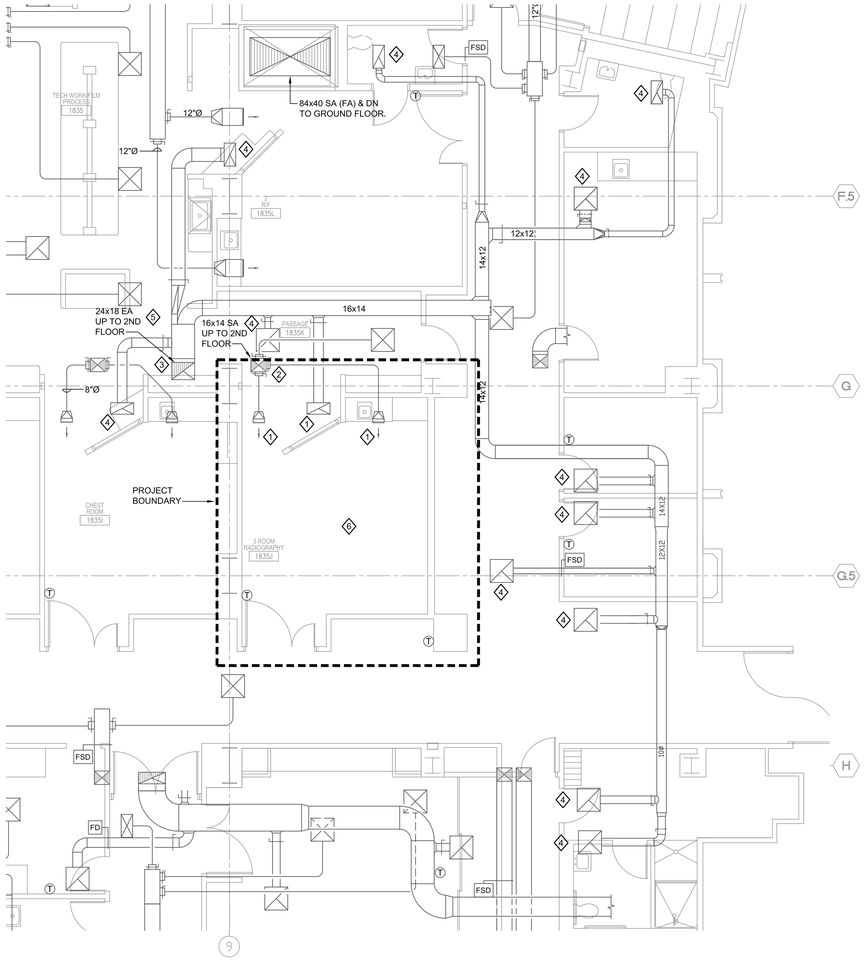
1. THE PROJECT WORK WILL AFFECT COMMON SUPPLY AIR SYSTEMS AHU-1-1S/1-2S AND COMMON EXHAUST AIR SYSTEMS AHU-1-1E/1-2E. PRIOR TO STARTING ANY WORK, PRE-MEASURE AIRFLOW AT ALL INDICATED LOCATIONS (GRILLES, DIFFUSERS, DUCT TRAVERSE, ETC.). SUBMIT PRE- CONSTRUCTION AIR BALANCE REPORT WITH ALL PRE-MEASURED VALUES.
2. PRIOR TO STARTING WORK IN THE PROJECT AREA, PROVIDE HVAC PRECAUTIONS AS DIRECTED BY THE FACILITY.
3. ADJUST MANUAL VOLUME DAMPERS AND AIR MOVING EQUIPMENT (E.G., REPLACE FAN SHEAVE) AS REQUIRED TO ACHIEVE THE PROJECT AIR BALANCE, INCLUDING MAINTAINING AIR FLOW AT PRE-MEASURED VALUES AT ALL INDICATED LOCATIONS.
4. AFTER ANY WORK THAT WOULD IMPACT THE AIR FLOW AT A PRE-MEASURED LOCATION, VERIFY THE AIR FLOW AND ADJUST AS REQUIRED TO THE PRE-MEASURED VALUE.
5. AT END OF NEW CONSTRUCTION, BALANCE AIR FLOW AT THE INDICATED LOCATIONS TO THE FINAL BALANCE AIR FLOW.
6. AT END OF NEW CONSTRUCTION, UNLESS A FINAL BALANCE AIR FLOW IS INDICATED FOR THE PRE-MEASURED LOCATION, VERIFY AIR FLOWS AT ALL PRE-MEASURED LOCATIONS AND ADJUST AS REQUIRED TO THE PRE-MEASURED VALUE.

AIR BALANCE SHEET NOTES

1. SUPPLY OR EXHAUST AIR OPENING TO BE SEALED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES THAT GENERATE DUST.
2. SUPPLY AIR DISTRIBUTION IS CONSTANT AIR VOLUME WITH PRESSURE INDEPENDENT CAV TERMINAL UNITS. THE SUPPLY AIR TERMINAL UNITS WILL COMPENSATE TO CHANGES TO UPSTREAM AIR FLOW.
3. AIR DUCT DROP SERVING ROOM 1835J CONNECTS TO EXISTING 60x30 EXHAUST DUCT PROVIDING 20,000 CFM FLOW CAPACITY AT 0.08" FRICTION LOSS PER 100'. CHANGE IN PROJECT AIR AT THIS LOCATION (340 CFM) IS 1.7% OF FLOW CAPACITY. AIR BALANCE PRECAUTIONS ARE NOT REQUIRED PAST THIS POINT TOWARDS SYSTEM FAN.
4. PRE-MEASURE AIR FLOWS AT THIS LOCATION PRIOR TO BEGINNING WORK. MAINTAIN AIR FLOW AT THIS LOCATION AT THE PRE-MEASRURE VALUE THROUGHOUT ALL PROJECT WORK.
5. ROOM 1835J IS OPEN TO THE ADJACENT ROOMS IN IMAGING DEPARTMENT. THE CHANGE IN THE PRESSURE RELATIONSHIP (SUPPLY AIR FLOW VS. EXHAUST AIR FLOW) IN THE PROJECT SUITE AFTER THE FINAL AIR BALANCE, IS NOMINAL COMPARED TO THE TOTAL DESIGN SUPPLY AIR FLOW IN THE IMAGING DEPARTMENT. THE FINAL AIR BALANCE WILL NOT IMPACT THE AIR FLOWS IN THE ADJACENT SPACE.
6. AT COMPLETION OF WORK PERFORM FINAL PROJECT AIR BALANCE IN ROOM 1835J TO THE VALUES INDICATED ON 2/M2.1



2 SECOND FLOOR AIR BALANCE PRECAUTIONS PLAN
SCALE: 3/16" = 1'-0"



1 FIRST FLOOR AIR BALANCE PRECAUTIONS PLAN
SCALE: 3/16" = 1'-0"

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FIRST AND SECOND FLOORS AIR BALANCE PRECAUTIONS PLAN

PROJECT #: M031560

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

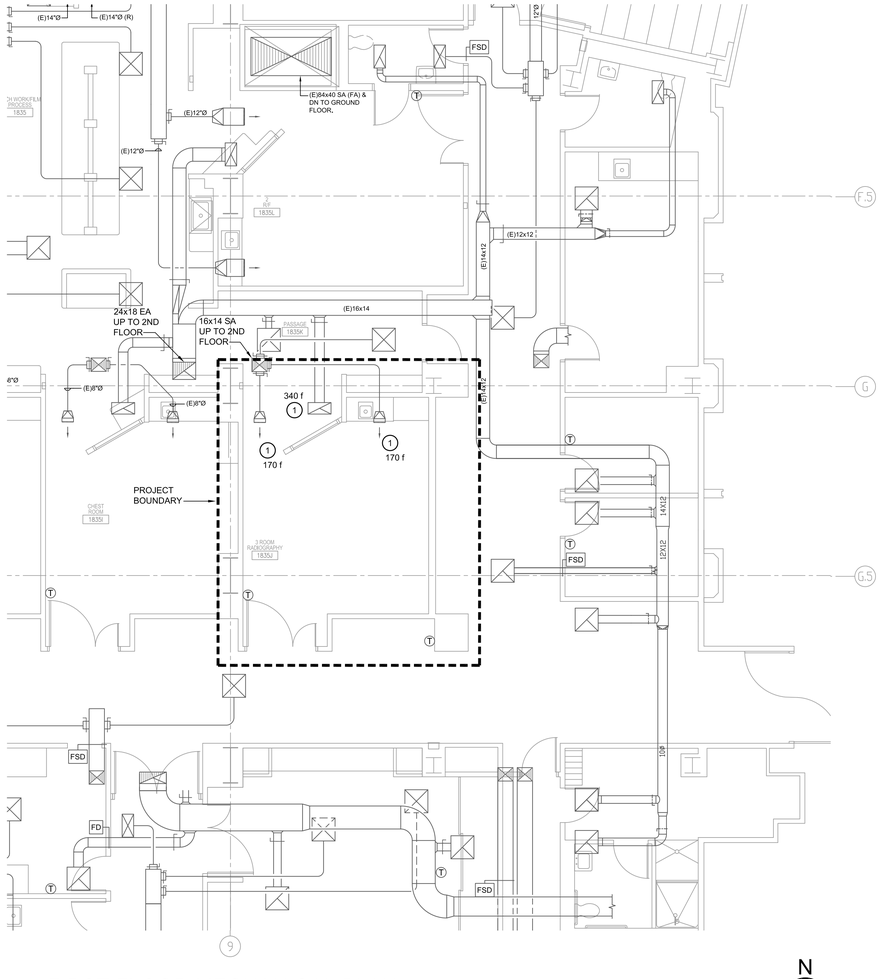
DATE:	11/21/2017
SCALE:	AS NOTED
DRAWN BY:	NIB
CHECKED BY:	RJT
SHEET:	M1.1

NEW WORK SHEET NOTES

1. BALANCE (E) DIFFUSER/GRILLE TO INDICATED AIRFLOWS. REFER TO 1/M1.1 FOR AIR BALANCE REQUIREMENTS AND PRECAUTIONS.

DEMOLITION SHEET NOTES

1. NO DEMOLITION REQUIRED



2 FIRST FLOOR MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

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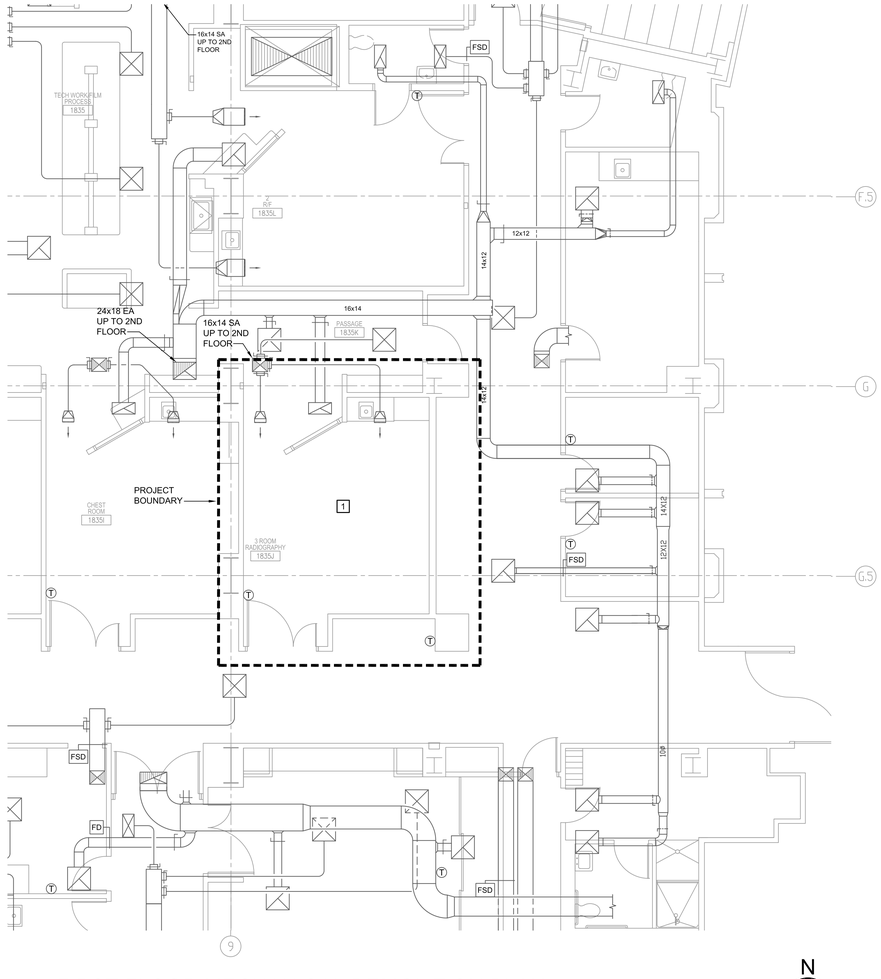

1 FIRST FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 3/16" = 1'-0"

N

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FIRST FLOOR DEMOLITION AND NEW MECHANICAL PLANS

PROJECT #: M031560

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SHEET INDEX

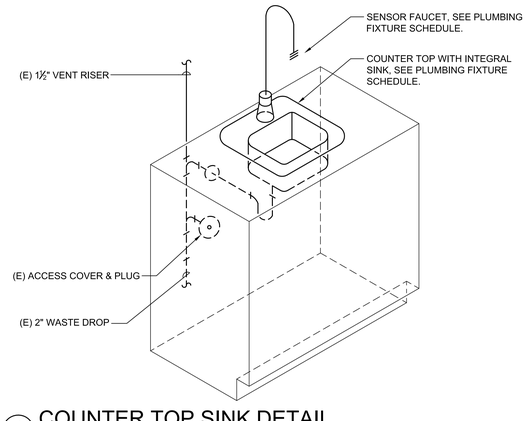
P0.1	PLUMBING LEGEND, NOTES, SCHEDULE AND SHEET INDEX
P2.1	FIRST FLOOR DEMOLITION AND NEW PLUMBING PLANS

GENERAL NOTES

1. CONTRACTOR SHALL VISIT SITE TO REVIEW SCOPE OF WORK PRIOR TO SUBMISSION OF BID.
2. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT PLACEMENT OF NEW WORK. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK. EXACT PLACEMENT SHALL BE COORDINATED BASED ON ACTUAL FIELD MEASUREMENTS AND CONDITIONS.
3. COORDINATE REQUIREMENTS OF NEW WORK WITH OTHER TRADES AND PROVIDE ALL NECESSARY APPURTENANCES AND INCIDENTAL LABOR, INCLUDING PARTS AND ACCESSORIES, CONNECTIONS, SYSTEM START-UP AND TESTING AS REQUIRED TO ACHIEVE A COMPLETE FULLY FUNCTIONING INSTALLATION READY FOR OPERATION.
4. PRIOR TO FABRICATION, CONTRACTOR SHALL PREPARE FULLY COORDINATED DETAILED SHOP DRAWINGS (DRAWN TO SCALE) OF ALL PROJECT WORK AND SUBMIT TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. SHOP DRAWINGS SHALL INCLUDE DETAILED PLAN VIEW LAYOUTS (1/4" SCALE MINIMUM) SHOWING EQUIPMENT, DUCTWORK AND PIPING WITH DUCT AND PIPE SIZES AND ELEVATIONS ABOVE FINISHED FLOOR. COORDINATE WORK WITH OTHER TRADES AS REQUIRED TO ACHIEVE INTENDED ARCHITECTURAL ELEVATIONS.
5. AVOID ROUTING PIPING ABOVE ELECTRICAL EQUIPMENT AND CABLE TRAYS. WHERE INSTALLATION OF PIPING ABOVE ELECTRICAL EQUIPMENT OR CABLE TRAYS IS UNAVOIDABLE, INSTALL PIPING WITH A MINIMUM NUMBER OF JOINTS. JOINTS, FITTINGS, VALVES OR SIMILAR COMPONENTS SHALL BE LOCATED A MINIMUM OF 36 INCHES FROM EACH SIDE OF EQUIPMENT OR TRAY. PROVIDE DRIP PAN(S) WITH MOISTURE DETECTION ABOVE CRITICAL EQUIPMENT.
6. ALL WORK SHALL COMPLY WITH THE CALIFORNIA CODE OF REGULATIONS, TITLE 24 (2016 EDITION), INCLUDING THE CALIFORNIA BUILDING CODE (CBC), CALIFORNIA MECHANICAL CODE (CMC), CALIFORNIA PLUMBING CODE (CPC), CALIFORNIA FIRE CODE (CFC), CALIFORNIA GREEN BUILDING STANDARDS CODE, CALIFORNIA ENERGY CODE AND CALIFORNIA ELECTRICAL CODE.
7. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH THE GENERAL CONDITIONS OF THE PRIME CONTRACT.
8. CONSTRUCTION SHALL BE ORGANIZED IN SUCH A MANNER AS TO MINIMIZE DISRUPTION TO FACILITY OPERATIONS AND DISTURBANCE OF OCCUPANTS. NOTIFY OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS IN ADVANCE OF ANY REQUIRED SYSTEM SHUTDOWNS, DISTURBANCE OF OR ENCROACHMENT INTO OCCUPIED AREAS. PERFORM ACTIVITIES SUCH AS MASONRY DRILLING AND SAWCUTTING ONLY DURING DESIGNATED HOURS; DAMPEN NOISE AND VIBRATION TRANSMITTED TO OCCUPIED AREAS TO THE GREATEST EXTENT POSSIBLE. MAINTAIN EGRESS FROM OCCUPIED AREAS AT ALL TIMES. DO NOT OBSTRUCT OR OTHERWISE IMPEDE PEDESTRIAN OR VEHICULAR TRAFFICWAYS CRITICAL TO THE ONGOING OPERATION OF THE FACILITY.
9. CONTRACTOR SHALL COMPLY WITH THE FACILITY'S POLICIES AND PROCEDURES REGARDING CONTAINMENT /ISOLATION OF CONSTRUCTION AREAS AND ACTIVITIES THROUGHOUT CONSTRUCTION OF THE PROJECT. PROVIDE DUST PROTECTION, CONSTRUCTION BARRIERS, AND /OR FILTRATION ON HVAC SYSTEM INLETS AS REQUIRED TO PROTECT OCCUPIED AREAS AND AFFECTED HVAC SYSTEMS FROM CONTAMINATION BY AIRBORNE POLLUTANTS (INCLUDING DUST, SMOKE, FUMES AND ODORS) GENERATED BY CONSTRUCTION ACTIVITIES.
10. MEANS, METHODS AND TIMING OF WORK SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE INSOFAR AS THEY AFFECT FACILITY OPERATIONS. MEANS AND METHODS ARE STILL SUBJECT TO ACCEPTANCE BY THE AUTHORITY HAVING JURISDICTION AND MUST COMPLY WITH DESIGN AND CODE INTENT.
11. PRE-APPROVED PIPES, DUCTS, AND CONDUITS SEISMIC BRACING
    A. THE CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS OF THE SUPPORTS, ATTACHMENTS, AND BRACING SYSTEMS IN ACCORDANCE WITH THE PRE-APPROVAL (MASON OPM-0043-13) AND SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL (RDP) IN RESPONSIBLE CHARGE OF THE PROJECT FOR REVIEW TO VERIFY THAT THE DETAILS ARE IN CONFORMANCE WITH THE CODE REQUIREMENTS. THE LAYOUT DRAWINGS SHALL AS A MINIMUM SATISFY THE REQUIREMENTS OF ASCE 7 SECTION 13.6 AS MODIFIED BY THE CBC 2016 SECTION 1616A.
        a) THE STRUCTURAL ENGINEER OF RECORD (SEOR) SHALL VERIFY THAT THE SUPPORTING STRUCTURE IS ADEQUATE FOR THE FORCES IMPOSED ON IT BY THE SUPPORTS, ATTACHMENTS, AND BRACES INSTALLED IN ACCORDANCE WITH THE PRE-APPROVAL IN ADDITION TO ALL OTHER LOADS.
        b) THE SEOR SHALL FORWARD THE SUPPORTS, ATTACHMENTS, AND BRACING DRAWINGS (INCLUDING APPROVED AMENDED CONSTRUCTION DOCUMENTS FOR SUPPLEMENTARY FRAMING WHERE REQUIRED) TO THE DISCIPLINE IN RESPONSIBLE CHARGE WITH A NOTATION INDICATING THAT THE DRAWINGS HAVE BEEN REVIEWED AND ARE IN GENERAL CONFORMANCE WITH THE PRE-APPROVAL AND THE DESIGN OF THE PROJECT.
        c) A "SHOP DRAWING STAMP" MAY BE USED TO INDICATE COMPLIANCE WITH THIS REQUIREMENT.
        d) THE REGISTERED DESIGN PROFESSIONAL (RDP) OTHER THAN SEOR, MAY PROVIDE THE SHOP DRAWING STAMP FOR SMALL PROJECTS AT THE DISCRETION OF THE OSHPD DISTRICT STRUCTURAL ENGINEER.
    B. THE SEOR SHALL DESIGN ANY SUPPLEMENTARY FRAMING THAT IS NEEDED TO RESIST THE LOADS, MAINTAIN STABILITY AND/OR IS REQUIRED FOR INSTALLATION OF PRE-APPROVED SYSTEM.
        a) THE SUPPLEMENTARY FRAMING SHALL BE SUBMITTED TO OSHPD AS AN AMENDED CONSTRUCTION DOCUMENTS (ACD).
    C. THE LAYOUT DRAWINGS (WITH THE SHOP DRAWING STAMP) SHALL BE SUBMITTED TO THE OSHPD TO REVIEW:
        a) STRUCTURE SUPPORTING THE DISTRIBUTION SYSTEM HAS ADEQUATE CAPACITY;
        b) SEISMIC DESIGN FORCES (FP) ARE IN ACCORDANCE WITH THE CBC 2016; AND
        c) VERIFY THAT SUBMITTAL IS WITHIN THE SCOPE OF OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM);
12. REFER TO STRUCTURAL DRAWINGS FOR SEISMIC CRITERIA.
13. THE EQUIPMENT MANUFACTURERS AND MODELS SPECIFIED ON THE DRAWINGS SERVE AS THE BASIS OF DESIGN. NO SUBSTITUTIONS OF ANY EQUIPMENT ARE ALLOWED WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER'S REPRESENTATIVE. ANY PROPOSED SUBSTITUTIONS MUST BE FROM ONE OF THE ALTERNATE MANUFACTURERS LISTED IN THE SPECIFICATIONS; MUST MATCH THE PHYSICAL CONFIGURATION AND REQUIREMENTS OF THE SPECIFIED MODEL INCLUDING OVERALL DIMENSIONS, INLET AND OUTLET CONFIGURATION, REQUIRED CLEARANCES, ACCESS AND POWER REQUIREMENTS; AND MUST MEET SEISMIC CERTIFICATION REQUIREMENTS WHERE MANDATED BY THE AUTHORITY HAVING JURISDICTION. PERFORMANCE FEATURES AND CONSTRUCTION OF ANY PROPOSED SUBSTITUTION SHALL MEET OR EXCEED THOSE SPECIFIED ON THE DRAWINGS AND IN THE SPECIFICATIONS. STRUCTURAL ENGINEERING CALCULATIONS FOR EQUIPMENT SUPPORT AND ANCHORAGE SHALL BE SUBMITTED BY THE CONTRACTOR AT THE TIME OF SUBMITTAL OF ANY SUBSTITUTION FOR REVIEW BY THE ARCHITECT, MECHANICAL AND STRUCTURAL ENGINEERS OF RECORD, AND OSHPD FIELD PERSONNEL. SUBSTITUTIONS REQUIRING CHANGES TO THE CONTRACT DOCUMENTS BY MEANS OF A CHANGE ORDER ARE NOT ALLOWED.
14. WHERE EXISTING UTILITIES NOT SHOWN ON THE DRAWINGS ARE ENCOUNTERED, NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY. SUPPORT AND PROTECT UTILITIES UNTIL PROVISIONS CAN BE MADE FOR RELOCATION OR OTHER SOLUTION.
15. CUTTING AND DEMOLITION WORK SHALL NOT COMPROMISE STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION OR DAMAGE PORTIONS OF EXISTING WORK TO REMAIN.
16. OWNER RESERVES THE RIGHT TO RETAIN ALL MATERIALS AND EQUIPMENT REMOVED FROM THE PROJECT. ANY ITEMS OR MATERIALS NOT DESIRED BY THE OWNER SHALL BE REMOVED FROM THE OWNER'S PROPERTY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
17. COORDINATE METHOD, ROUTE AND TIMING OF MATERIAL AND DEBRIS REMOVAL WITH OWNER'S REPRESENTATIVE PRIOR TO ANY REMOVAL.
18. PATCH AND REPAIR ANY DAMAGE TO WALLS, FLOORS, CEILINGS, CABINETS, HARDWARE, WINDOWS, FIXTURES, ETC. RESULTING FROM PROJECT WORK. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR DRYWALL AND FINISH PATCHWORK AND REPAIR REQUIREMENTS. MATCH EXISTING FINISHES AS CLOSELY AS POSSIBLE UNLESS NOTED OTHERWISE. PATCHES AND REPAIRS SHALL RESTORE FINISH TO "LIKE NEW" CONDITION.
19. SEAL AND PROTECT ALL PIPE, DUCT AND CONDUIT PENETRATIONS OF FLOORS, WALLS, CEILINGS AND ROOF. METHODS AND MATERIALS USED FOR TREATMENT OF PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE U.L. AND FIRE MARSHAL APPROVED.
20. ALL LOCATIONS FOR CORING THROUGH CONCRETE SLAB FLOORS AND WALLS SHALL BE CONFIRMED BY A CALIFORNIA LICENSED STRUCTURAL ENGINEER. USE X-RAY IMAGING WHEN NECESSARY TO LOCATE STRUCTURAL SLAB REINFORCEMENT.
21. ALL ROOFING AND FLASHING ELEMENTS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ALL ROOFING AND FLASHING DETAILS.
22. CONTRACTOR MAY SUBSTITUTE NEW ROUND OR RECTANGULAR DUCT SHOWN ON PLANS WITH ROUND OR RECTANGULAR DUCT OF EQUIVALENT OR GREATER CROSS-SECTIONAL AREA. CONTRACTOR TO INDICATE ON SHOP DRAWING SUBMITTAL WHERE SUCH SUBSTITUTIONS OCCUR.
23. CONTRACTOR SHALL COORDINATE FINAL THERMOSTAT LOCATIONS WITH OTHER TRADES, INCLUDING ARCHITECTURAL, ELECTRICAL AND FIRE ALARM.
24. CONTRACTOR SHALL LABEL ALL VALVES SEQUENTIALLY USING THE EXISTING FACILITY TAG INVENTORY LIST. USE METAL TAGS. TAGS SHALL TO BE 2" DIAMETER AND FABRICATED OF BRASS OR STAINLESS STEEL. TAGS SHALL BE ATTACHED WITH JACK CHAIN MADE FROM THE SAME MATERIAL.

OSHPD INTENT NOTE

THE INTENT OF THE CONSTRUCTION DOCUMENTS IS TO RECONSTRUCT THE HOSPITAL BUILDING IN ACCORDANCE WITH THE 2016 CBSC. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED CONSTRUCTION DOCUMENTS, WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH THE 2016 CBSC, AMENDED CONSTRUCTION DOCUMENTS (ACDs) DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY OSHPD BEFORE PROCEEDING WITH THE WORK.



1 COUNTER TOP SINK DETAIL
SCALE: NONE

PLUMBING LEGEND

ABBREVIATIONS

AC	ABOVE CEILING
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
ARCH	ARCHITECT
AV	ACID VENT
AVTR	ACID VENT THRU ROOF
AW	ACID WASTE
BF	BELOW FLOOR
BG	BELOW GRADE
BFP	BACKFLOW PREVENTER
BOP	BOTTOM OF PIPE
BV	BALANCING VALVE
CA	COMPRESSED AIR
CAP	CAPACITY
CD	CONDENSATE DRAIN
CFH	CUBIC FEET PER HOUR
CKV	CHECK VALVE
CLG	CEILING
CO	CLEAN OUT
CSK	CLINIC SINK
CV	CONTROL VALVE
D	DRAIN
DCW	DOMESTIC COLD WATER
DET	DETAIL
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DI	DEIONIZED WATER
DN	DOWN
DTR	DOWN THROUGH ROOF
DWG	DRAWING
(E)	EXISTING
(ER)	EXISTING RELOCATED
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
FA	FROM ABOVE
FB	FROM BELOW
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FLR	FLOOR
FPM	FEET PER MINUTE
FSH	FIRE SPRINKLER HEAD
FSK	FLOOR SINK
FP	FIRE PROTECTION
FSP	FIRE SPRINKLER PIPE
FT	FEET
G	NATURAL GAS
GCO	GRADE CLEAN OUT
GLV	GLOBE VALVE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HB	HOSE BIBB
HPG	HIGH PRESSURE NATURAL GAS
ICW	INDUSTRIAL COLD WATER
ID	INSIDE DIAMETER
IW	INDIRECT WASTE
LA	LABORATORY AIR
LAV	LAVATORY
LBS	POUNDS
LG	LABORATORY GAS
LP	LOW PRESSURE
LV	LABORATORY VACUUM
MA	MEDICAL AIR
MAX	MAXIMUM
MFR	MANUFACTURER
MPG	MEDIUM PRESSURE NATURAL GAS
MIN	MINIMUM
MISC	MISCELLANEOUS
(N)	NEW
N2	NITROGEN
NO2	NITROUS OXIDE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
O2	OXYGEN
OC	ON CENTER
OFD	OVERFLOW DRAIN
OFL	OVERFLOW LEADER
PG	PRESSURE GAUGE
PLBG	PLUMBING
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECT
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RD	ROOF DRAIN
RM	ROOM
RO	REVERSE OSMOSIS WATER
RWL	RAINWATER LEADER
SCD	SECONDARY CONDENSATE DRAIN
SCH	SCHEDULE
SD	STORM DRAIN
SH	SHOWER
SHT	SHEET
SK	SINK
SM	SHEET METAL
SOV	SHUT OFF VALVE
SQ FT	SQUARE FOOT
SS	SANITARY SEWER
SST	STAINLESS STEEL
STD	STANDARD
TH	THERMOMETER
TYP	TYPICAL
UF	UNDER FLOOR
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UR	URINAL
US	UNDER SLAB
UTR	UP THROUGH ROOF
V	SANITARY VENT
VAC	MEDICAL VACUUM
VR	VENT RISER
VTR	VENT THRU ROOF
W/	WITH
W/O	WITHOUT
W	SANITARY WASTE
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WD	WASTE DROP
WH	WATER HEATER
WHA	WATER HAMMER ARRESTER
WSP	WET STANDPIPE

PLUMBING

PLUMBING

- NEW PIPE
- EXISTING PIPE
- PIPE TO BE DEMOLISHED
- DOMESTIC COLD WATER - DCW
- DOMESTIC HOT WATER - DHW
- DOMESTIC HOT WATER RETURN - DHWR
- VENT - V
- SANITARY WASTE - W
- FLOW DIRECTION
- DI — DEIONIZED WATER
- G — NATURAL GAS, LOW PRESSURE
- ICW — INDUSTRIAL COLD WATER
- MPG — NATURAL GAS, MEDIUM PRESSURE
- OFL — OVERFLOW LEADER
- RO — REVERSE OSMOSIS WATER
- RWL — RAINWATER LEADER
- SW — SOFT WATER
- CO — CLEANOUT
- FC — FLEX CONNECTOR
- FCO — FLOOR CLEANOUT
- FD-1 — FLOOR DRAIN
- FSK-1 — FLOOR SINK
- HB — HOSE BIBB
- OD — OVERFLOW DRAIN
- RD — ROOF DRAIN
- STR — STRAINER
- WCO — WALL CLEANOUT
- WHA — WATER HAMMER ARRESTER

PIPE FITTINGS

- PIPE RISE/ELBOW UP
- PIPE DROP/ELBOW DOWN
- PIPE RISE/DROP TOP CONNECTION
- PIPE RISE/DROP BOTTOM CONNECTION
- FLANGE CONNECTION
- UNION CONNECTION
- CAPPED PIPE
- REDUCER

VALVES

- ANGLE VALVE
- BACK FLOW PREVENTER
- BALANCE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CONTROL VALVE 2-WAY
- CONTROL VALVE 3-WAY
- CHECK VALVE, DIRECTION
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- SHUT-OFF VALVE
- SOLENOID VALVE
- STEAM TRAP

MEDICAL GAS

- LOX — LIQUID OXYGEN
- MA — MEDICAL AIR

MEDICAL GAS CONT.

- VAC — MEDICAL VACUUM
- N2 — NITROGEN
- NO — NITROUS OXIDE
- O2 — OXYGEN
- PS — PRESSURE SWITCH
- AA-1 — AREA ALARM PANEL
- ZVB-1 — ZONE VALVE BOX

MEDICAL GAS OUTLETS

- VAC-1 — VACUUM OUTLET
- MA-1 — MEDICAL AIR OUTLET
- O2-1 — OXYGEN OUTLET

GENERAL

- (1) NEW WORK SHEET NOTE
- [1] DEMOLITION SHEET NOTE
- (1) PHOTO SHEET NOTE
- 1 REVISION DELTA
- VAV / 1 EQUIPMENT TYPE EQUIPMENT NUMBER
- 1 / M1 DETAIL NUMBER SHEET NUMBER
- 1 / M1 SECTION NUMBER SHEET NUMBER
- N NORTH ARROW

PLUMBING FIXTURE SCHEDULE

TAG	MANUFACTURER	MODEL NO.	DESCRIPTION	BRANCH CONNECTION W	V	CW	HW	REMARKS
HWS-1 (1)(2)	CORIAN	Z-810	HAND WASHING SINK	2"	1 1/2"	1/2"	1/2"	CORIAN SINK INTEGRAL TO COUNTER, REFER TO AND COORDINATE WITH ARCHITECTURAL DRAWINGS FOR DIMENSIONS, LOCATION AND FINISHES. ELECTRONIC SENSOR FAUCET ZURN MODEL Z6920-XL-CWB AQUASENSE HARDWIRE POWERED FAUCET, WITH P6000-HW6 POWER SUPPLY AND BATTERY BACKUP. PROVIDE PERFORATED GRID DRAIN, "P" TRAP, TAIL PIECE, ANGLE STOPS AND OTHER REQUIRED APPURTENANCES. INSULATE WASTE DRAIN AND HOT WATER UNDER SINK PIPING. INSTALL IN COMPLIANCE WITH ADA REQUIREMENTS.

NOTES: (1) FIXTURES SHALL NOT BE EQUIPPED WITH AERATORS.
(2) FIXTURES TO COMPLY WITH CALIFORNIA HEALTH & SAFETY CODE 116875 (AB1953, LOW LEAD REQUIREMENT).

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PLUMBING LEGEND, GENERAL NOTES & SHEET INDEX

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NEW WORK SHEET NOTES

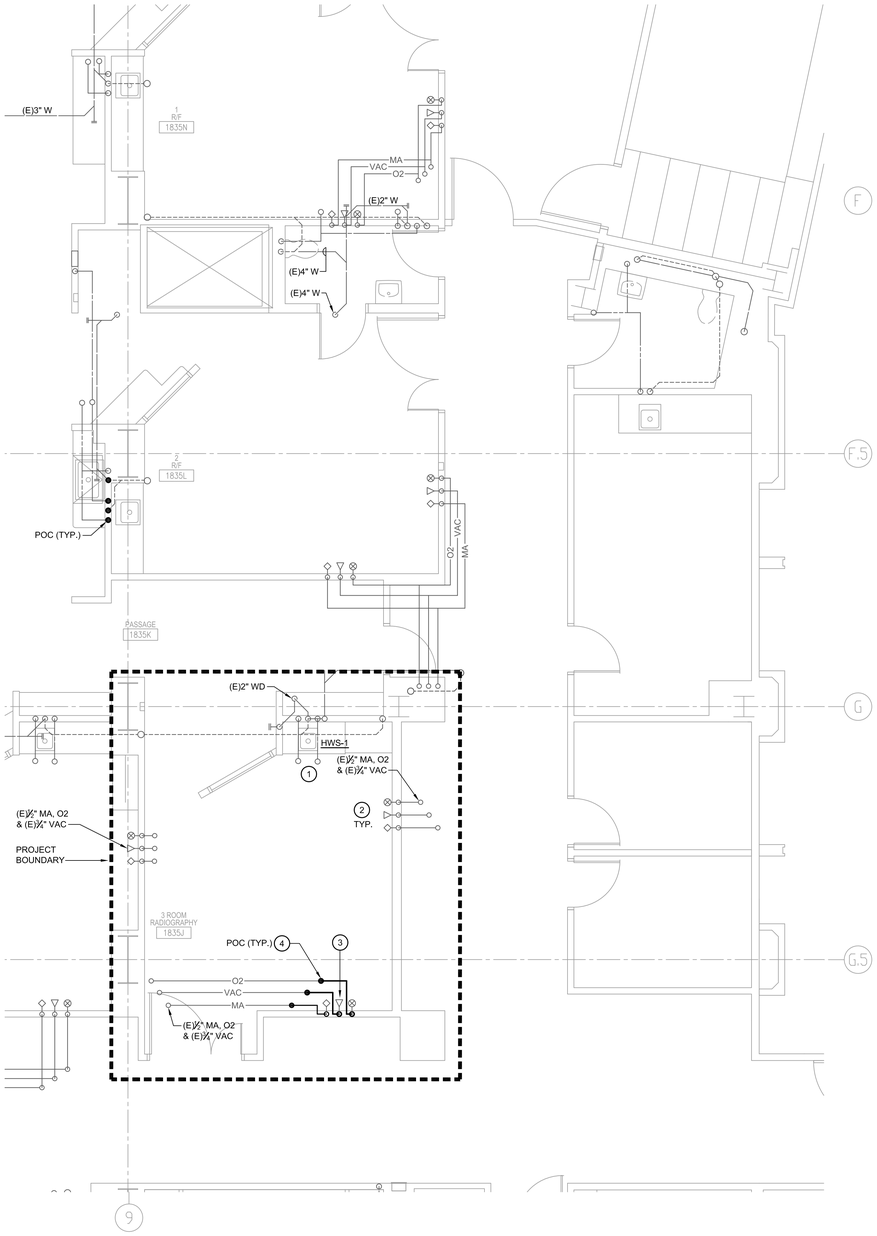
1. INSTALL INTEGRAL COUNTER MOUNTED HAND WASH SINK (HWS-1). SEE PLUMBING SCHEDULE FOR FIXTURE DESCRIPTION. EXTEND EXISTING UTILITIES DCW, DHW, W & V TO CONNECT. INSTALL PER ARCHITECTURAL PLANS. SEE ALSO DETAIL 1/P0.1.
2. MEDICAL AIR, MEDICAL VACUUM AND OXYGEN OUTLETS TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN OR NOTED.
3. EXISTING RELOCATED MEDICAL GAS OUTLETS. FINAL LOCATION OF OUTLETS SHALL BE FIELD COORDINATED WITH THE PROJECT ARCHITECT AND FACILITY PERSONNEL TO AVOID NEW WALL MOUNTED MEDICAL EQUIPMENT.
4. CONNECT AND EXTEND NEW MEDICAL GAS PIPING TO SERVE EXISTING RELOCATED MEDICAL GAS OUTLETS.

GENERAL NOTES

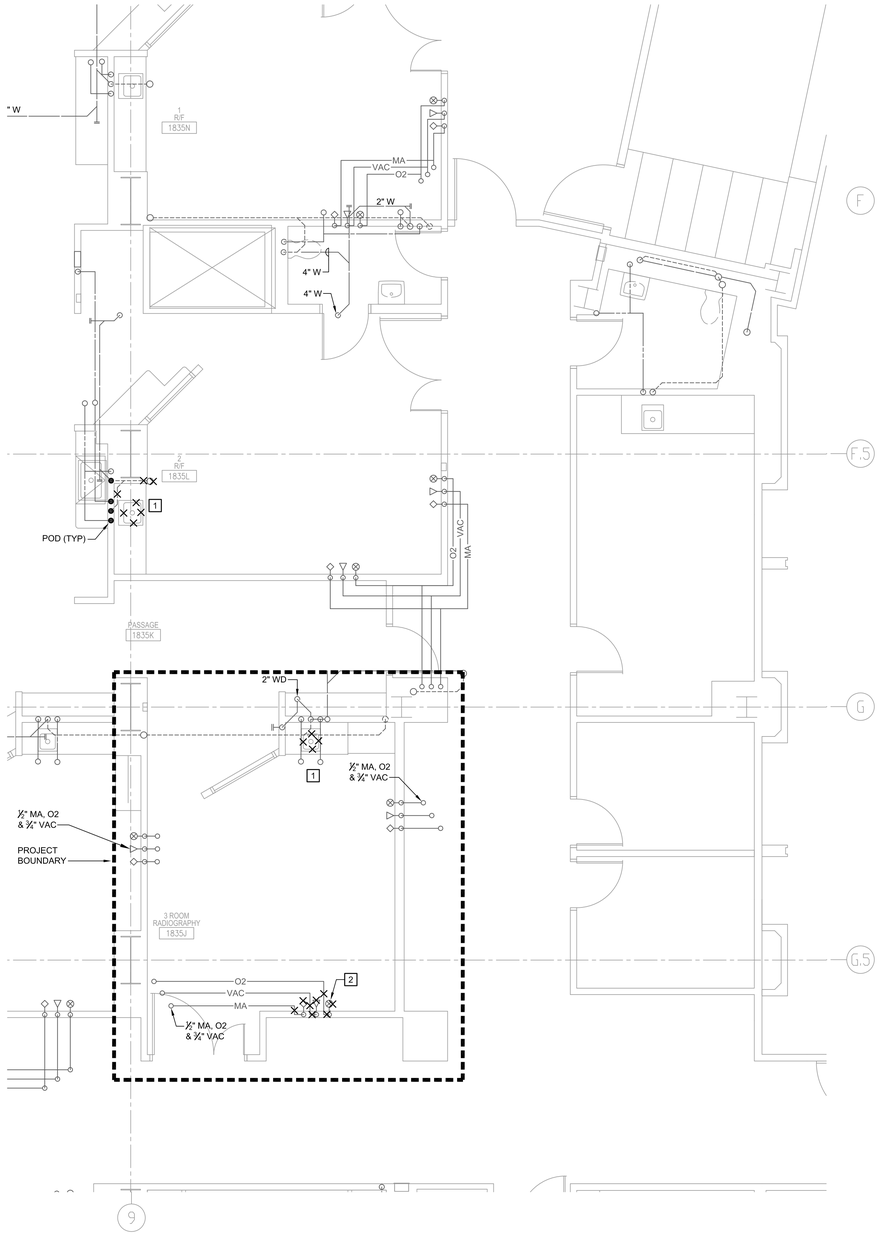
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING NEW WORK. CONTACT MECHANICAL ENGINEER IF MAJOR DISCREPANCIES OCCUR.
2. DOMESTIC WATER, WASTE AND VENT LINE SIZES NOT SHOWN ON PLANS ARE TO BE SIZED PER PLUMBING FIXTURE SCHEDULE CONNECTION SIZING.
3. FOR PIPE PENETRATIONS THROUGH RATED WALLS OR PIPE THROUGH FLOORS, SEE DETAIL.
4. WALL HUNG SINKS, LAVATORIES, COUNTER SINKS, WATER CLOSET AND OTHER FIXTURE INSTALLATION REQUIREMENTS ARE SHOWN ON DETAILS. FIXTURE'S EXACT LOCATIONS SHALL BE COORDINATED PER ARCHITECTURAL DRAWINGS.
5. CAP UNUSED DOMESTIC COLD AND HOT WATER PIPING WITHIN 3 PIPE DIAMETERS MINIMUM AND 6 PIPE DIAMETERS MAXIMUM OF NEAREST EXISTING ACTIVE PIPE.

DEMOLITION SHEET NOTES

1. REMOVE COUNTER TOP SINK, FAUCET AND FOOT PEDAL FAUCET CONTROLS. DISCONNECT AND TEMPORARILY CAP UTILITIES DCW, DHW, W & V FOR CONNECTION TO NEW WORK. REFER TO 2/P2.1 FOR NEW WORK.
2. REMOVE, RETAIN & RELOCATE MEDICAL GAS OUTLETS. SUPPLY PIPING SHALL BE CUT & PREPARED FOR RECONNECTION TO MEDICAL GAS OUTLETS IN NEW LOCATION. REFER TO NEW WORK PLAN.



2 FIRST FLOOR PLUMBING PLAN
SCALE: 1/4" = 1'-0"



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SCALE:	AS NOTED
DRAWN BY:	NIB
CHECKED BY:	RJT
SHEET:	P2.1

SYMBOLS LIST

SOME OF THESE SYMBOLS SHOWN MAY NOT BE USED ON THIS PROJECT

POWER DISTRIBUTION

- SWITCHBOARD, DISTRIBUTION BOARD, SUBSTATION OR MOTOR CONTROL CENTER, FLOOR MOUNTED.
- PANELBOARD, 277/480V, SURFACE MOUNTED ON WALL.
- PANELBOARD, 277/480V, FLUSH MOUNTED IN WALL.
- PANELBOARD, 120/208V, SURFACE MOUNTED ON WALL.
- PANELBOARD, 120/208V, FLUSH MOUNTED IN WALL.
- DRY-TYPE STEP-DOWN TRANSFORMER, FLOOR MOUNTED 3Ø,480-120/208V, UON.
- ELECTRIC MOTOR, NIEC. MAKE POWER CONNECTIONS ONLY AS NOTED ON PLANS.
- (F) INDOOR EXHAUST FAN MOTOR, SINGLE PHASE. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED MANUAL MOTOR STARTER AND DISCONNECT ADJACENT TO FAN WITH 2 #12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
- (V) INDOOR FAN POWERED VAV BOX MOTOR, SINGLE PHASE, MOUNTED FROM STRUCTURE ABOVE, NIEC. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED MANUAL MOTOR STARTER AND DISCONNECT ADJACENT TO VAV BOX WITH 2 #12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
- [P] PULLBOX OR HANDHOLE, SIZE AND TYPE AS NOTED ON PLANS.
- [A] [A] SAFETY DISCONNECT SWITCH, 3 POLE, UON. ADJACENT NUMBER INDICATES FUSE SIZE WHEN APPLICABLE. LABELING CONVENTION AS FOLLOWS:
  - A: 30A, NON-FUSED — AF: 30A, FUSED
  - B: 60A, NON-FUSED — BF: 60A, FUSED
  - C: 100A, NON-FUSED — CF: 100A, FUSED
  - D: 200A, NON-FUSED — DF: 200A, FUSED
  - E: 400A, NON-FUSED — EF: 400A, FUSED
  - F: 600A, NON-FUSED — FF: 600A, FUSED
  - G: 800A, NON-FUSED — GF: 800A, FUSED
- 1 MAGNETIC MOTOR STARTER. ADJACENT NUMBER INDICATES NEMA SIZE OF STARTER.
- 1 COMBINATION MAGNETIC MOTOR STARTER/SAFETY DISCONNECT SWITCH. ADJACENT NUMBER INDICATES NEMA SIZE OF STARTER.
- PACKAGE MOTOR CONTROLLER OR STARTER FURNISHED AND INSTALLED UNDER ANOTHER DIVISION WITH EQUIPMENT CONTROLLED. PROVIDE SINGLE-POINT POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- VFD VARIABLE FREQUENCY DRIVE FURNISHED AND INSTALLED UNDER ANOTHER DIVISION. PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- VFD VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT FURNISHED AND INSTALLED UNDER ANOTHER DIVISION. PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- DRIVEN GROUND ROD.
- DRIVEN GROUND ROD IN GROUND WELL WITH COVER.
- ELECTRICAL VEHICLE CHARGING STATION, WALL MOUNTED.
- ELECTRICAL VEHICLE CHARGING STATION, PEDESTAL MOUNTED.
- 1,4,6 BRANCH CIRCUIT POWER DISTRIBUTION BOX OF MANUFACTURED WIRING SYSTEM WITH MODULAR CONNECTORS FOR INTERFACE TO BRANCH CIRCUIT MODULAR CABLE SETS AND CABLE OR CONDUIT HOMERUN. BOX MOUNTED FROM STRUCTURE ABOVE IN ACCESSIBLE CEILING SPACE. ADJACENT NUMBERS INDICATE CIRCUITS AVAILABLE AT BOX.
- 2,4,6 DEVICE BRANCH CIRCUIT POWER DISTRIBUTION BOX FOR INTERFACE BETWEEN MULTI-CIRCUIT HOMERUN AND MC CABLE BRANCH CIRCUITING. MINIMUM BOX SIZE IS 10"X10"X4" DEEP. BOX MOUNTED FROM STRUCTURE ABOVE IN ACCESSIBLE CEILING SPACE. ADJACENT NUMBERS INDICATE CIRCUITS AVAILABLE AT BOX.
- INDICATES CABLE TERMINATION LUGS AT EQUIPMENT BUS.
- BOLTED PRESSURE OR HIGH PRESSURE CONTACT SWITCH.
- FUSED SWITCH.
- MEDIUM-VOLTAGE LOAD INTERRUPTER SWITCH.
- GROUP MOUNTED MOLDED CASE CIRCUIT BREAKER.
- INDIVIDUALLY FIXED MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
- INDIVIDUALLY DRAW-OUT MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
- 52 MEDIUM-VOLTAGE, INDIVIDUALLY DRAW-OUT MOUNTED VACUUM CIRCUIT BREAKER.
- G INDICATES INTEGRAL GROUND FAULT RELAY WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- C INDICATES COMMUNICATION NETWORK WIRING WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- (ER) INDICATES ELECTRICALLY OPERATED WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- (ST) INDICATES SHUNT TRIP WHEN ASSOCIATED WITH OVERCURRENT PROTECTION DEVICES.
- (K) INDICATES KIRK-KEY INTERLOCK WHEN ASSOCIATES WITH OVERCURRENT PROTECTION DEVICES. ADJACENT NUMBER CORRESPONDS WITH DEVICE INTERLOCK.
- GFR GROUND FAULT RELAY WITH SHUNT TRIP.
- GFA GROUND FAULT ALARM, NO SHUNT TRIP.
- M UTILITY METER.
- TRANSFORMER.
- CONNECTION TO GROUND.
- CURRENT TRANSFORMERS.
- POTENTIAL TRANSFORMERS.
- V AUTOMATIC OR MANUAL TRANSFER SWITCH.
- NORM. EM. AUTOMATIC TRANSFER/BY-PASS ISOLATION SWITCH.
- G EMERGENCY GENERATOR.
- BATTERIES.
- NEUTRAL SERVICE DISCONNECT LINK.
- SPD SURGE PROTECTION DEVICE, 'SPD'.
- C CONTROL CONTACTOR.
- NORMALLY OPEN CONTACT.
- NORMALLY CLOSED CONTACT.
- DMU DIGITAL METERING UNIT.
- WHM WATT HOUR METER.
- GND GROUND BUS.
- NEU NEUTRAL BUS.

WIRING DEVICES

- J JUNCTION BOX, WALL MOUNTED, +18" UON.
- JUNCTION BOX, MOUNTED IN FLUSH FLOOR BOX.
- J JUNCTION BOX, MOUNTED FLUSH IN CEILING.
- J JUNCTION BOX, SURFACE OR PENDANT MOUNTED TO STRUCTURE IN ACCESSIBLE CEILING SPACE.
- J JUNCTION BOX, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
- SINGLE-PLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- USB 'USB' DENOTES DUPLEX CONVENIENCE RECEPTACLE DWBICE WITH INTERGRAL USB POWER OUTLETS, WALL MOUNTED, +18" UON.
- IG 'IG' DENOTES ISOLATED GROUND. DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- DENOTES WALL MOUNTED OVER COUNTER, 6" ABOVE BACK SPLASH UON.
- G 'G' DENOTES GROUND FAULT CURRENT INTERRUPTER (GFCI), 'A' DENOTES ARC FAULT CURRENT INTERRUPTER (AFCI).
- WP DUPLEX RECEPTACLE, WEATHER RESISTANT WITH GROUND FAULT CURRENT INTERRUPTER 'GFCI', WITH WEATHERPROOF COVER, WALL MOUNTED, +18" UON.
- SHADING DENOTES SPLIT WIRED DEVICE.
- SHADING DENOTES DEVICE CONNECTED TO EMERGENCY POWER CIRCUIT.
- SHADING DENOTES CONTROLLED RECEPTACLE.
- SHADING DENOTES SPECIALTY DEVICE, TYPE AS NOTED ON PLANS.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLOOR MONUMENT.
- COMBINATION POWER/TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, CORD OR REEL HUNG FROM STRUCTURE ABOVE. TYPE AS NOTED ON PLANS.
- W ELECTRIFIED FURNITURE PARTITION POWER FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP. JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVER PLATE WITH KO TO ACCEPT FURNITURE WHIP.
- ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FLUSH FLOOR BOX WITH KO'S IN COVER TO ACCEPT FURNITURE WHIPS
- W ELECTRIFIED FURNITURE PARTITION POWER FEED, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING WITH KO IN COVER TO ACCEPT FURNITURE WHIP.
- POWER/TELECOMMUNICATION POLE, MOUNTED TO EXTEND FROM FLOOR TO CEILING. TYPE AS NOTED ON PLANS.
- S SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^3 THREE-WAY SWITCH, WALL MOUNTED, +42" UON.
- S^4 FOUR-WAY SWITCH, WALL MOUNTED, +42" UON.
- S^K KEY-OPERATED, SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^P PILOT LIGHT, SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^T MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD ELEMENT, MOUNTED ADJACENT TO MOTOR.
- S^M MANUAL MOTOR STARTER/DISCONNECT SWITCH, MOUNTED ADJACENT TO MOTOR.
- S^F SWITCH FURNISHED UNDER ANOTHER DIVISION, BUT INSTALLED AND WIRED UNDER THIS DIVISION, WALL MOUNTED, +42" UON.
- S^D WALL BOX DIMMER SWITCH, +42" UON. SIZED PER CONNECTED LOAD ON PLANS AND FURNISHED FOR LAMP SOURCE SERVED. PROVIDED FOR DE-RATING WHEN INSTALLED GANGED LOCATIONS.
- S^{TC} SINGLE-POLE, TIMER CONTROLLED SWITCH, WALL MOUNTED, +42" UON.
- S^{EP} SINGLE-POLE, SINGLE-THROW, EXPLOSION PROOF SWITCH, WALL MOUNTED, +42" UON.
- SH LINE-VOLTAGE MULTIPLE GANG SWITCHING STATION, WALL MOUNTED, 42" UON. REFER TO PLANS FOR DEVICE QUANTITIES AND TYPES.
- LH LOW-VOLTAGE LIGHTING CONTROL SWITCHING STATION, WALL MOUNTED, +42" UON. REFER TO SHEET E2.0 FOR DEVICE REQUIREMENTS AND DETAILS.
- MH LIGHTING CONTROL OCCUPANCY SENSOR WITH DUAL LEVEL SWITCHING, WALL MOUNTED, +42" UON.
- MH LIGHTING CONTROL OCCUPANCY SENSOR WITH SINGLE LEVEL SWITCHING, WALL MOUNTED, +42" UON.
- M LIGHTING CONTROL OCCUPANCY SENSOR, CEILING MOUNTED FOR AREA COVERAGE.
- DH PRESET SCENE CONTROL LIGHTING STATION WITH DIMMING CAPABILITIES, WALL MOUNTED, +42" UON. REFER TO PLANS AND SCHEDULES FOR CONTROL.
- DSH COMBINATION LIGHTING CONTROL DIMMER/MOTION SENSOR, WALL MOUNTED, +42", UON.
- ETD EGRESS LIGHTING TRANSFER DEVICE
- CONTROL STATION, WALL MOUNTED, +42" UON.
- PC PHOTOELECTRIC CELL
- DS DAYLIGHT SENSOR

AUDIO/VISUAL

- SH LOUDSPEAKER, WALL MOUNTED, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- S LOUDSPEAKER, CEILING MOUNTED IN FLUSH BACK BOX. ADJACENT 70V OR 100V INDICATES DISTRIBUTED SAME VOLTAGE SPEAKER
- S PROGRAM SPEAKER, CEILING OR STRUCTURE MOUNTED.
- IPH AUDIO AND VIDEO INTERFACE PLATE, WALL MOUNTED, +18" UON OR AS OTHERWISE NOTED.
- IP AUDIO AND VIDEO INTERFACE PLATE, MOUNTED IN FLUSH FLOOR BOX.
- AVH AUDIO AND VIDEO CABLE DISPLAY PLATE, WALL MOUNTED, 4 11/16" BOX WITH 1 1/4" CONDUIT TO ACCESSIBLE CEILING. HEIGHT AS NOTED
- AV AUDIO AND VIDEO CABLE AT PROJECTOR THROUGH SUPPORT, DIRECT CONNECT TO PROJECTOR
- TD FLAT PANEL DISPLAY, WALL MOUNTED AT 60" AFF OR AS NOTED
- SD SIGNAGE DISPLAY, WALL MOUNTED AT 84" AFF OR AS NOTED
- PR PROJECTOR WITH PROJECTOR MOUNT, 1.5"-2" NPT COLUMN AND CEILING SUPPORT HARDWARE
- CPH AUDIO AND VIDEO CONTROL PANEL, FLUSH WALL MOUNTED AT 42" UON IN BACK BOX
- CP AUDIO AND VIDEO CONTROL PANEL, MOUNTED ON CASEWORK IN SURFACE BOX OR WITH STAND
- AUDIO AND VIDEO CONTROL PANEL, RACK MOUNTED
- VCH VIDEO CONFERENCING CAMERA, WALL MOUNTED @ 84"UON
- VC VIDEO CONFERENCING CAMERA, CEILING MOUNTED IN CAMERA DOME
- PROJECTION SCREEN, SIZE AND TYPE AS NOTED
- PSH PROJECTION SCREEN 3 WAY POWER SWITCH, WALL MOUNTED, +42" UON.
- VH VOLUME CONTROLLER, WALL MOUNTED, +42" UON.
- MJH MICROPHONE JACK, WALL MOUNTED, +18" UON.
- MJ MICROPHONE JACK, MOUNTED IN FLUSH FLOOR BOX.
- T_M INTERCOM STATION, WALL MOUNTED, +42" UON. 'M' DENOTES MASTER STATION.
- T_M INTERCOM STATION, MOUNTED ON DESK. 'M' DENOTES MASTER STATION
- CH INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- COMBINATION LOUDSPEAKER/INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED IN COMBINATION BACK BOX, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- TELEVISION JACK, WALL MOUNTED +18" UON OR AS NOTED
- TELEVISION JACK, MOUNTED IN FLUSH FLOOR BOX.

LIGHTING

- LIGHT FIXTURE, RECESSED IN CEILING.
- LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LIGHT FIXTURE, WALL MOUNTED.
- STRIP LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- STRIP LIGHT FIXTURE, SURFACE MOUNTED IN ARCHITECTURAL CEILING COVE.
- STRIP LIGHT FIXTURE, SURFACE MOUNTED VERTICALLY ON WALL OR IN COVE.
- DOWNLIGHT FIXTURE, RECESSED IN CEILING.
- DOWNLIGHT/INDUSTRIAL FIXTURE, SURFACE OR PENDANT MOUNTED.
- SINGLE DIRECTIONAL, WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- DUAL DIRECTIONAL, WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- SINGLE DIRECTIONAL, WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- DUAL DIRECTIONAL, WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- ADJUSTABLE ACCENT LIGHT FIXTURE, RECESSED IN CEILING.
- ADJUSTABLE ACCENT LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LINEAR WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- LINEAR WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LINEAR, MULTI-HEAD, ADJUSTABLE ACCENT LIGHT FIXTURES, RECESSED IN CEILING.
- SCONCE LIGHT FIXTURE, WALL MOUNTED.
- DECORATIVE CHANDELIER OR BOWL TYPE FIXTURE, PENDANT MOUNTED.
- 3 LINEAR TRACK SYSTEM WITH PLUG-IN ADJUSTABLE LIGHT FIXTURE HEADS. TRACK SHALL BE EITHER RECESSED, SURFACE OR PENDANT MOUNTED TO CEILING AS NOTED IN FIXTURE SCHEDULE.
- EXIT SIGN LIGHT FIXTURE, CEILING OR WALL MOUNTED WITH DIRECTIONAL ARROWS AS NOTED ON PLANS. WORD 'EXIT' TO BE LOCATED IN SHADED FACE(S).
- COMBO EXIT SIGN AND EGRESS LIGHTING FIXTURE, CEILING OR WALL MOUNTED WITH ARROWS AS NOTED ON PLANS OR IN FIXTURE SCHEDULE.
- EMERGENCY SELF-POWERED BATTERY PACK WITH LIGHT FIXTURE HEADS AS NOTED ON PLANS OR IN FIXTURE SCHEDULE.
- HALF SHADING OF ANY FIXTURE INDICATES LIFE SAFETY/EGRESS LIGHTING.
- FULL SHADING OF ANY FIXTURE INDICATES STANDBY/CRITICAL LIGHTING.

EXTERIOR:

- SINGLE-HEAD AREA LIGHT FIXTURE WITH BRACKET ARM AND POLE, MOUNTED TO CONCRETE BASE.
- TWO-HEAD AREA LIGHT FIXTURES WITH BRACKET ARMS AND POLE, MOUNTED TO CONCRETE BASE.
- SINGLE-HEAD AREA POST-TOP LIGHT FIXTURE WITH POLE, MOUNTED TO CONCRETE BASE.
- AREA LIGHT FIXTURE, SURFACE OR RECESSED MOUNTED TO WALL.
- LIGHT FIXTURE BOLLARD, MOUNTED TO CONCRETE BASE.
- GROUND WELL MOUNTED FLUSH IN FINISHED GRADE.
- FLOODLIGHT FIXTURE, STANCHION MOUNTED ABOVE GRADE.
- LINEAR SIGN LIGHT FIXTURE, STANCHION MOUNTED ABOVE GRADE.
- STEPLIGHT FIXTURE, WALL MOUNTED.

RACEWAYS

- CONDUIT RUN EXPOSED ON WALL OR CEILING.
- CONDUIT RUN CONCEALED IN SLAB, UNDER SLAB OR UNDERGROUND.
- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
- CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET.
- FLEXIBLE METALLIC CONDUIT.
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN.
- CONDUIT CAPPED OR STUBBED WITH INSULATED BUSHINGS.
- CONDUIT SLEEVE, WITH INSULATING BUSHINGS.
- CROSSMARKS ON BRANCH CIRCUIT CONDUIT RUNS INDICATE THE QUANTITY OF CONDUCTORS AS FOLLOWS (GROUND CONDUCTORS ARE NOT NOTED, BUT SHOULD BE INCLUDED IN EVERY CONDUIT WITH POWER CONDUCTORS):
  1. NO CROSSMARKS INDICATES TWO #12 AWG CONDUCTORS, UON.
  2. THREE TO SIX CROSSMARKS INDICATES THE QUANTITY OF #12 AWG CONDUCTORS, UON.
  3. SEVEN OR MORE CROSSMARKS INDICATES THE QUANTITY OF #10 AWG CONDUCTORS, UON.
- MULTI-OUTLET TWO PIECE SURFACE RACEWAY; TYPE, DEVICE SPACING AND MOUNTING AS NOTED ON PLANS.
- TWO PIECE SURFACE METAL RACEWAY, MOUNTED AS NOTED IN PLANS.
- CABLE TRAY, CABLE RUNWAY OR LADDER RACK SUSPENDED FROM STRUCTURE ABOVE. REFER TO PLANS FOR SIZE AND MOUNTING.

CONVENTIONS

- 1 NUMBERED NOTE, APPLIES TO ALL DRAWINGS.
- 1 NUMBERED SHEET NOTE, APPLIES TO DRAWING CONTAINING NOTES ONLY.
- 1 OVERCURRENT PROTECTIVE DEVICE SPACE IDENTIFICATION TAG. REFERS TO LOCATION OF PROTECTIVE OR CONTROL DEVICE WITHIN SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC.
- NAME EQUIPMENT IDENTIFICATION TAG: ITEM FURNISHED AND INSTALLED UNDER ANOTHER SECTION AND WIRED UNDER THIS SECTION.
- P2 CABLE AND/OR RACEWAY TAG, FUNCTION AS NOTED BELOW:
  P = POWER T = TELEPHONE C = COMMUNICATION
- 2004 FEEDER SIZE. REFER TO FEEDER SCHEDULE.
- DETAIL REFERENCE: A / EXX.XX — SHEET NUMBER, DETAIL DESIGNATION
- 2-F3 FIXTURE IDENTIFICATION TAG: FIXTURE TYPE, QUANTITY

TELECOMMUNICATION

- W TELECOMMUNICATION DEVICE, WALL MOUNTED AT +42".
- TELECOMMUNICATION DEVICE, WALL MOUNTED, +18" UON.
- TELECOMMUNICATION DEVICE, WALL MOUNTED OVER COUNTER, 6" ABOVE BACK SPLASH, UON.
- TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX.
- TELECOMMUNICATION DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
- TELECOMMUNICATION DEVICE, MOUNTED IN FLOOR MONUMENT.
- TELECOMMUNICATION DEVICE, MOUNTED ABOVE ACCESSIBLE CEILING IN SURFACE MOUNT BOX.
- COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
- COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTINGS. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
- 5,6,7 ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP. JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVERPLATE WITH 1 1/4" KO AND GROMMET. WRAP EXPOSED CABLE WITH SPIRAL WRAP.
- ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FLUSH FLOOR BOX WITH KO'S IN COVERS TO ACCEPT FURNITURE WHIPS. TELECOMMUNICATIONS WHIP SHALL BE 1 1/4" MINIMUM.
- 5,6,7 ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEEDS, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING WITH 1 1/4" KO'S IN COVER TO ACCEPT FURNITURE WHIPS.
- WAP WIRELESS ACCESS POINT, WALL MOUNTED, 8" BFC UON.
- WAP WIRELESS ACCESS POINT, CEILING MOUNTED.
- #D/#V QUANTITY OF DATA AND/OR VOICE TELECOMMUNICATIONS DEVICES.

ABBREVIATIONS

A	AMPERES
AFC	ABOVE FINISHED CEILING
AFI	ARC FAULT CIRCUIT INTERRUPTER
AF	AMPERE OVERCURRENT FRAME SIZE (WHEN APPLIED TO CIRCUIT BREAKERS) OR AMPERE FUSE SIZE (WHEN APPLIED TO FUSES)
AFF	ABOVE FINISHED FLOOR
AIC	ASYMMETRIC INTERRUPTING CURRENT
AL	ALUMINUM
AT	AMPERE OVERCURRENT TRIP (WHEN APPLIED TO CIRCUIT BREAKERS)
ATS	AUTOMATIC TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BFC	BELOW FINISHED CEILING
BOC	BACK OF CURB
BPS	BOLTED PRESSURE CONTACT SWITCH
C	CONDUIT
CCTV	CLOSED CIRCUIT TELEVISION
CL	CURRENT LIMITING CIRCUIT BREAKER OR FUSE
CP	CIRCULATION PUMP
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DF	DRINKING FOUNTAIN
DW	DISH WASHER
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ETD	EMERGENCY TRANSFER DEVICE
EVSE	ELECTRIC VEHICLE SUPPLY EQUIPMENT
EVCS	ELECTRIC VEHICLE CHARGING STATION
EWH	ELECTRIC WATER HEATER
F	FUSED
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
FAJB	FIRE ALARM JUNCTION BOX
FFCP	FIREMAN'S FAN CONTROL PANEL
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FSD	FIRE/SMOKE DAMPER
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FRAP	FIREMAN'S REMOTE ANNUNCIATOR PANEL
G	GROUND
GB	GROUND BUS
GD	GARBAGE DISPOSAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL
GWH	GAS WATER HEATER
HPC	HIGH PRESSURE CONTACT SWITCH
HVAC	HEATING,VENTING AND AIR CONDITIONING
IMC	INTERMEDIATE METAL CONDUIT
IWH	INSTANTANEOUS OR POINT OF USE WATER HEATER
JB	JUNCTION BOX
LSCP	LIFE SAFETY CONTROL PANEL
LCP	LIGHTING CONTROL PANEL
MBGB	MAIN BUILDING GROUND BUS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUGS ONLY
MT	EMPTY
MTC	EMPTY CONDUIT
MTGB	MAIN TELECOM GROUND BUS
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
(N)	NEW
NC	NORMALLY CLOSED
NF	NON-FUSED
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PDU	POWER DISTRIBUTION UNIT
PIV	POST INDICATING VALVE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
(R)	EXISTING TO BE REMOVED
(RL)	RELOCATED
(RR)	REMOVE AND RELOCATE
RSC	RIGID STEEL CONDUIT
SAD	SEE ARCHITECTURAL DRAWINGS
SPD	SURGE PROTECTION DEVICE
TC	TIME CLOCK
TGB	TELECOMMUNICATIONS GROUND BUS
TP	TWISTED-PAIR
TX	TRANSFORMER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
URAP	UPS REMOTE ANNUNCIATOR PANEL
UR	UNDERCOUNTER REFRIGERATOR
V	VOLTS
VA	VOLTS-AMPS
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VM	VENDING MACHINE
W	WATTS
WAP	WIRELESS ACCESS POINT
WH	WATER HEATER
WP	WEATHERPROOF
2SP	TWO SPEED
1Ø	1 PHASE
3Ø	3 PHASE
1P	1 POLE
2P	2 POLE
3P	3 POLE
3W	3 WIRE
4W	4 WIRE

DRAWING INDEX

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E5.0	SYSTEM NETWORK INFORMATION

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REGISTERED PROFESSIONAL ENGINEER — ANDREW J. BELL — No. E18385 Exp. 06/30/20 — ELECTRICAL — STATE OF CALIFORNIA

REVISION:

MC+E

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SYMBOLS LIST & DRAWING INDEX

PROJECT #: M031560

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E0.0

LIGHTING FIXTURE SCHEDULE - UCDMC DT1 RAD 1835J

TYPE	MANUFACTURER & CATALOG NUMBER	WATTAGE	VOLTAGE	BALLAST QUANTITY/TYPE	DESCRIPTION	FIXTURE WEIGHT	DETAIL
F1	LITHONIA UCLD-24IN-35K-90CRI-SWR-WH OR APPROVED EQUAL	25W	120	ELEC. DRIVER	6"X4' ARCHITECTURAL HIGH EFFICIENCY SURFACE-MOUNTED UNDER CABINET LED FIXTURE. EACH FIXTURE IS TWO 24" SEGMENTS LINKED TOGETHER. FIXTURE SHALL HAVE nLIGHT CONTROLS OPTION.	-	-
F2	LITHONIA 2BZL4-40L-MVOLT-LP835-N80 OR APPROVED EQUAL	39W	277	ELEC. DRIVER	2'X4' ARCHITECTURAL HIGH EFFICIENCY RECESSED LED TROFFER STEEL HOUSING WITH WHITE POWDER COAT FINISH AND HIGHLY EFFICIENT SATIN WHITE LENS. FIXTURE SHALL HAVE nLIGHT CONTROLS OPTION.	-	-
F3	GOTHAM, EVO-35/45-6WRAMF-MD-X-MVOLT-EZB-NPS80 EZER OR APPROVED EQUAL	46.9W	120	ELEC. DRIVER	ARCHITECTURAL LED DOWNLIGHT. FIXTURE SHALL HAVE nLIGHT CONTROLS OPTION.	-	-

PROJECT: **UCDMC** EXISTING

LOCATION: **ELEC. RM.**

PANEL - C2HC1

SECTION 1

LOAD SERVED	Load(kVA) Ltg	Rec	Oth Tot	C. B. Amp	Pole		A	B	C		C. B. Amp	Pole	Load(kVA) Ltg	Rec	Oth Tot	LOAD SERVED
(E) LTG 1839N				20	1	1	*			2	20	1				(E) LTG 1865G
(E) LTG 1839L				20	1	3		*		4	20	1				(E) LTG 1751
(N) LTG 1835J	0.1			20	1	5			*	6	20	1				(E) LTG 1965H
(E) LTG 1839J				20	1	7	*			8	20	1				(E) LTG 1965I
(E) LTG 1839H				20	1	9		*		10	20	1				(E) LTG 1965J
(E) LTG 1839G				20	1	11			*	12	20	1				(E) LTG 1965K
(E) LTG 1839F				20	1	13	*			14	20	1				(E) LTG 1878
(E) LTG 1839G				20	1	15		*		16	20	1				(E) LTG 1752
(E) LTG RM 1839A				20	1	17			*	18	20	1				(E) LTG 1755
(E) LTG 1745D				20	1	19	*			20	20	1				(E) LTG PEDS RM 1189
(E) LTG 1745A				20	1	21		*		22	20	1				(E) LTG 2715, 3703, 5703
(E) LTG 1845I				20	1	23			*	24	20	1				(E) TELVHS RMS 2ND FL
(E) LTG 1865E				20	1	25	*			26	20	1				(E) LTG SOILED UTILITY
(E) LTG 1865D				20	1	27		*		28	20	1				(E) HOLDING
(E) LTG 1865C				20	1	29			*	30	20	1				(E) PEDS
(E) LTG 1865A				20	1	31	*			---	---	---				(E) NORMAL POWER
(E) LTG 1758				20	1	33		*		34	50	3				(E) TIE-BI
(E) LTG 1865F				20	1	35			*	---	---	---				(E) BREAKER
(E) LTG1865F				20	1	37	*			38	20	1				(E) SPARE
(E) LCP POWER				20	1	39		*		40	20	1				(E) LIGHT 1745A, 1745B, '
(E) LT-CT SCAN				20	1	41			*	42	20	1				(E) SPARE
TOTALS ——>	0.1															<—— TOTALS

VOLTAGE: **277/480V , 3Ø, 4W**

S.C.A.: **10K AIC RMS SYM**

MOUNTING: **SURFACE**

BUS SIZE: **100 AMP BUSING**

MAINS: **MAIN LUGS ONLY**

Connected Load (KVA)	Demand Factor	Demand Load	Load Description
0.1	125% OF LOAD CEC 220-14(l) CEC 220-56 CEC 620-14 CEC 517.73(A) 1.0 + 25% Largest CHARGING STATION 125%	0.1	<—— Lighting <—— Receptacles <—— Kitchen <—— Elevator <—— X-Ray <—— Mech <—— Electrical Vehicle <—— Other
0.1 KVA		0.1 KVA	0.2 Amps
		+25% Spare	0.2 Amps

PHASE BALANCE (SECT 1)

	A	B	C
KVA			0
%			100%
AMP			0

Feed: CONTRACTOR'S OPTION

ADDITIONAL FEATURES:

BREAKER NOTES

BREAKERS THAT SHARE NEUTRAL CONDUCTORS SHALL BE PROVIDED WITH HANDLE TIES.

DATE PRINTED: 09/05/17

ELECTRICAL LOAD CALCULATIONS

PROJECT: **UCDMC**
DAVIS TOWER RM 1835J

DATE ISSUED: 21-Sep-17

Equipment: C2HC1 Voltage: 277/ 480 V

	Connected Load (kW)	Code Allowed Demand	Demand Load (kW)	Est. pf (kW)	Demand Load (kVA)
Existing load [a]	7.09	1.00	7.09	1.00	7.09
Additional 25% [b]	1.77	1.00	1.77	1.00	1.77
Added loads [c]	-0.10	1.00	-0.10	1.00	-0.10

Total Demand Load (kVA) = 8.76 Transformer Size = 75 kVA

Amps = kVA / Volts x Sq. Rt 3 = 10.54 Feeder = 225A

Feeder = Amps x 1.25 = 13.17 Panel Size = 100A MLO

NOTES:

[a] Demand calculated per 3 day demand load (11/15/2016 - 11/18/2016)

[b] Demand calculated per CEC 220-87

[c] Load as denoted in panel schedule.

[d] _

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PROJECT: **UCDMC** EXISTING

LOCATION: **ELEC. RM.**

PANEL - N2LC3

SECTION 1

LOAD SERVED	Load(kVA) Ltg	Rec	Oth Tot	C. B. Amp	Pole		A	B	C		C. B. Amp	Pole	Load(kVA) Ltg	Rec	Oth Tot	LOAD SERVED
(E) LTG 1839N				15	1	1	*			2	20	1				(E) LTG 1839N
(E) LTG1839N				15	1	3		*		4	20	1				(E) LTG 1839N
(E) LTG 1853N				15	1	5			*	6	20	1				(E) LTG 1853N
(N) LTG 1835J	0.3			20	1	7	*			8	20	1				(E) LTG 1835L
(E) LTG 1839H				20	1	9		*		10	20	1				(E) LTG 1835L
(E) LTG 1839H				20	1	11			*	12	20	1				(E) LTG 1835L
(E) LTG 1839G				20	1	13	*			14	20	1				(E) LTG 1965E
(E) LTG 1839G				20	1	15		*		16	20	1				(E) LTG 1965E
(E) LTG 1839F				20	1	17			*	18	20	1				(E) LTG 1965D
(E) LTG 1835F				20	1	19	*			20	20	1				(E) LTG 1965D
(E) LTG 1835G				20	1	21		*		22	20	1				(E) LTG 1965C
(E) LTG 1835C				20	1	23			*	24	20	1				(E) LTG 1965C
(E) LTG 1835G				20	1	25	*			26	20	1				(E) HC LIGHTS 1835 A,C,F
(E) COVE LTG				20	1	27		*		28	20	1				(E) LTG 1835J
SPARE				20	1	29			*	30	20	1				(E) LTG 1835I
SPARE				20	1	31	*			32	20	1				(E) LCP POWER
(E) LTG 1865A				20	1	33		*		34	20	1				(E) PROJECTOR
(E) LTG 1865A				20	1	35			*	36	20	1				(E) DATA ENABLER
(E) LTG 1835I				20	1	37	*			38	20	1				(E) DATA ENABLER
(N) REC 1835J		0.5		20	1	39		*		40	20	1				(E) AC CONTROLUNIT
(N) REC 1835J		0.2		20	1	41			*	42	20	1				(E) SHUNT TRIP
TOTALS ——>	0.3	0.7														<—— TOTALS

VOLTAGE: **120/208V, 3Ø, 4W**

S.C.A.: **10K AIC RMS SYM**

MOUNTING: **SURFACE**

BUS SIZE: **225 AMP BUSING**

MAINS: **MAIN LUGS ONLY**

Connected Load (KVA)	Demand Factor	Demand Load	Load Description
0.3	125% OF LOAD CEC 220-14(l) CEC 220-56 CEC 620-14 CEC 517.73(A) 1.0 + 25% Largest CHARGING STATION 125%	0.3	<—— Lighting <—— Receptacles <—— Kitchen <—— Elevator <—— X-Ray <—— Mech <—— Electrical Vehicle <—— Other
0.7	CEC 220-14(l) CEC 220-56 CEC 620-14	0.7	
0.9 KVA		1.0 KVA	2.8 Amps
		+25% Spare	3.4 Amps

PHASE BALANCE (SECT 1)

	A	B	C
KVA	0	1	0
%	27%	54%	19%
AMP	2	4	2

Feed: CONTRACTOR'S OPTION

ADDITIONAL FEATURES:

BREAKER NOTES

BREAKERS THAT SHARE NEUTRAL CONDUCTORS SHALL BE PROVIDED WITH HANDLE TIES.

DATE PRINTED: 07/29/20

ELECTRICAL LOAD CALCULATIONS

PROJECT: **UCDMC**
DAVIS TOWER RM 1835J

DATE ISSUED: 29-Jul-20

Equipment: N2LC3 Voltage: 120/ 208 V

	Connected Load (kW)	Code Allowed Demand	Demand Load (kW)	Est. pf (kW)	Demand Load (kVA)
Existing load [a]	6.53	1.00	6.53	1.00	6.53
Additional 25% [b]	1.63	1.00	1.63	1.00	1.63
Added loads [c]	0.78	1.00	0.78	1.00	0.78

Total Demand Load (kVA) = 8.94 Transformer Size = 75 kVA

Amps = kVA / Volts x Sq. Rt. 3 = 24.82 Feeder = 225A

Feeder = Amps x 1.25 = 31.03 Panel Size = 225A MLO

NOTES:

[a] Demand calculated per 3 day demand load (11/15/2016 - 11/18/2016)

[b] Demand calculated per CEC 220-87.

[c] Load as denoted in panel schedule.

[d] _

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PROJECT: **UCDMC** EXISTING

LOCATION: **ELEC. RM.**

PANEL - N2HC1

SECTION 1

LOAD SERVED	Load(kVA) Ltg	Rec	Oth Tot	C. B. Amp	Pole		A	B	C		C. B. Amp	Pole	Load(kVA) Ltg	Rec	Oth Tot	LOAD SERVED
LTG 2770E				20	1	1	*			2	20	1				SPARE
LTG 2770D				20	1	3		*		4	20	1				LTG 1865G
LTG 2770C				20	1	5			*	6	20	1				LTG 1865J
LTG 1745D				20	1	7	*			8	20	1				LTG 1865I
LTG 1745A				20	1	9		*		10	20	1				LTG 1965H
(N) N 1 LTG 1835J	0.1			20	1	11			*	12	20	1				LTG 1878
LTG 1835I				20	1	13	*			14	20	1				LTG 1965K
LTG 1839H				20	1	15		*		16	20	1				LTG 1910
LTG 1835G				20	1	17			*	18	20	1				LTG 1960 OFFICES
LTG 1839F				20	1	19	*			20	20	1				LTG CT SCAN
LTG 1835C				20	1	21		*		22	20	1				LCP POWER
LTG 1835A				20	1	23			*	24	20	1				SPARE
LTG 1835L				20	1	25	*			26	20	1				SPARE
LTG 1835H				20	1	27		*		28	20	1				SPARE
LTG 1865E				20	1	29			*	30	20	1				SPARE
LTG 1865D				20	1	31	*			32	20	1				SPARE
LTG 1865C				20	1	33		*		34	20	1				SPARE
LTG 1865A				20	1	35			*	36	20	1				SPARE
---				---			*			---	---	---				---
TXT-N2C1				100	3	39		*		40	50	3				CRITICAL TIE-IN BREAKER
---				---					*	---	---	---				---
TOTALS ——>	0.1															<—— TOTALS

VOLTAGE: **277/480V, 3Ø, 4W**

S.C.A.: **10K AIC RMS SYM**

MOUNTING: **SURFACE**

BUS SIZE: **225 AMP BUSING**

MAINS: **MAIN LUGS ONLY**

Connected Load (KVA)	Demand Factor	Demand Load	Load Description
0.1	125% OF LOAD CEC 220-14(l) CEC 220-56 CEC 620-14 CEC 517.73(A) 1.0 + 25% Largest CHARGING STATION 125%	0.1	<—— Lighting <—— Receptacles <—— Kitchen <—— Elevator <—— X-Ray <—— Mech <—— Electrical Vehicle <—— Other
0.1 KVA		0.1 KVA	0.2 Amps
		+25% Spare	0.2 Amps

PHASE BALANCE (SECT 1)

	A	B	C
KVA			0
%			100%
AMP			0

Feed: CONTRACTOR'S OPTION

ADDITIONAL FEATURES:

BREAKER NOTES
(1) REUSE (E) BREAKER, CIRCUIT

BREAKERS THAT SHARE NEUTRAL CONDUCTORS SHALL BE PROVIDED WITH HANDLE TIES.

DATE PRINTED: 09/25/17

ELECTRICAL LOAD CALCULATIONS

PROJECT: **UCDMC**
DAVIS TOWER RM 1835J

DATE ISSUED: 21-Sep-17

Equipment: N2HC1 Voltage: 277/ 480 V

	Connected Load (kW)	Code Allowed Demand	Demand Load (kW)	Est. pf (kW)	Demand Load (kVA)
Existing load [a]	21.45	1.00	21.45	1.00	21.45
Additional 25% [b]	5.36	1.00	5.36	1.00	5.36
Added loads [c]	-0.10	1.00	-0.10	1.00	-0.10

Total Demand Load (kVA) = 26.72 Transformer Size = 75 kVA

Amps = kVA / Volts x Sq. Rt 3 = 32.13 Feeder = 225A

Feeder = Amps x 1.25 = 40.17 Panel Size = 225A MLO

NOTES:

[a] Demand calculated per 3 day demand load (11/15/2016 - 11/18/2016)

[b] Demand calculated per CEC 220-87.

[c] Load as denoted in panel schedule.

[d] _

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ELECTRICAL LOAD CALCULATIONS

PROJECT: **UCDMC**
DAVIS TOWER RM 1835J

DATE ISSUED: 21-Sep-17

Equipment: N2HDC1 Voltage: 480 V

	Connected Load (kW)	Code Allowed Demand	Demand Load (kW)	Est. pf (kW)	Demand Load (kVA)
Existing load [a]	217.13	1.00	217.13	1.00	217.13
Additional 25% [b]	54.28	1.00	54.28	1.00	54.28
Added loads [c]	-26.50	1.00	-26.50	1.00	-26.50

Total Demand Load (kVA) = 244.91 Transformer Size = na

Amps = kVA / Volts x Sq. Rt 3 = 294.58 Feeder = 1000A

Feeder = Amps x 1.25 = 368.23 Panel Size = 1000A MLO

NOTES:

[a] Demand calculated per 3 day demand load (11/15/2016 - 11/18/2016)

[b] Demand calculated per CEC 220-87.

[c] Load as denoted in panel schedule.

[d] _

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PROJECT GENERAL NOTES

*EXISTING CONDITIONS

1. THE EXISTING CONDITIONS INDICATED IN THIS DRAWING SET WERE DEVELOPED FROM VARIOUS SOURCES WHICH WERE NOT ALL FIELD VERIFIED AND NOT ALL CONDITIONS ARE SHOWN. LOCATIONS, ROUTING, ELEVATIONS, SIZES, ETC. ARE SHOWN SCHEMATICALLY. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
2. DRAWINGS INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. FINAL LOCATIONS SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
3. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY ALL EXISTING CONDITIONS BEFORE CONSTRUCTION AND SHALL INCLUDE IN THE BID THE NECESSARY COSTS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE CODES.

*DEMO & GENERAL CONDITIONS

4. CONTRACTOR SHALL REMOVE ALL LEFT OVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM THEIR WORK.
5. CONTRACTOR SHALL DISCONNECT AND REMOVE ALL DEMOLISHED DEVICES AND FIXTURES AS SHOWN ON DEMOLITION PLAN. TURN OVER TO OWNER EXISTING DEVICES AND FIXTURES THAT ARE NOT REUSED. PROPERLY DISCARD IF THE OWNER DOES NOT WANT.
6. RECONNECT EXISTING DEVICES WHOSE CIRCUITS HAVE BEEN INTERRUPTED BY DEMOLITION BY PROVIDING NEW CONNECTIONS TO ANOTHER EXISTING DEVICE OR PANEL. VERIFY CIRCUIT LOADING ON EXISTING CIRCUIT.
7. WHEN A DEVICE IS REMOVED FROM AN EXISTING WALL WHICH WILL REMAIN, PATCH WALL TO MATCH EXISTING FINISH.
8. MOUNTING HEIGHTS SHOWN ARE FROM FINISHED FLOOR TO THE CENTERLINE OF DEVICES, COORDINATE WITH ARCHITECTURAL DRAWINGS.
9. CLEAN ALL EXISTING LIGHTING FIXTURES AND LAMPS PRIOR TO REINSTALLING.

*EQUIPMENT, CONDUIT, WIRE, BOXES & DEVICES

10. PROVIDE INDIVIDUAL GFCI RECEPTACLES AT EACH LOCATION SHOWN, DO NOT USE FEED-THRU GFCI TYPE RECEPTACLES. LOCATE RECEPTACLE AT END OF A BRANCH CIRCUIT WIRE.
11. CONDUIT SIZE SHALL BE 0.75" MINIMUM, U.O.N.
12. ALL CONDUCTORS ON THIS PROJECT SHALL BE COPPER.
13. FEEDER AND BRANCH CIRCUITING SHALL BE INSTALLED IN CONDUIT. MC TYPE CABLE SHALL NOT BE USED ON THIS PROJECT, UON.
14. INSTALL AND CONNECT A CODE SIZED INSULATED OR BARE COPPER GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS.
15. ALL DEVICES SHALL HAVE TYPE ON TAPE LABELS INDICATING THE PANELBOARD AND CIRCUIT SERVING EACH DEVICE, TYPICAL OF ALL DEVICES INCLUDED ON THIS PROJECT.
16. PROVIDE INSULATING BUSHINGS OR INSULATED THROAT ON THE ENDS OF ALL EMPTY CONDUIT SLEEVES AND INSTALL A POLYETHYLENE PULLING ROPE.
17. PROVIDE DEDICATED NEUTRALS FOR ALL BRANCH CIRCUITS ON THIS PROJECT.
18. PROVIDE DEDICATED CONDUIT/PATHWAYS FOR ALL 0-10v LIGHTING CONTROL SIGNALS SEPARATE FROM ALL LINE VOLTAGE RACEWAY.
19. PROVIDE TYPE WRITTEN PANEL SCHEDULES UPDATED TO INCLUDE ALL FIELD MODIFICATIONS AND SCOPE ITEMS ASSOCIATED WITH THIS PROJECT.
20. PROVIDE ENGRAVED NAMEPLATES FOR ELECTRICAL BOARDS, DISCONNECTS, AND SWITCHGEAR.
21. ALL NEW DEVICES SHALL BE HOSPITAL GRADE, TYPICAL.

*FIRE ALARM & FIRE RATED ITEMS

22. ALL CIRCUIT BREAKERS SERVING THE FIRE ALARM CONTROL PANEL AND FIRE ALARM SYSTEM COMPONENTS SHALL HAVE LOCKABLE HANDLES, AND PAINTED RED FOR EASY IDENTIFICATION.
23. ALL CONDUIT, OUTLET BOXES, AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS OR FLOOR ASSEMBLIES SHALL BE A UL LISTED ASSEMBLY THAT PROTECTS THE RATED ASSEMBLY. INCLUDE FIRE RATED DEVICE BOX ASSEMBLIES WHEN REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL RATED WALLS AND FLOORS AS APPLICABLE.

*CODE REQUIREMENTS & ELEC. CLEARANCES

24. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC).
25. REQUIRED ELECTRICAL EQUIPMENT WORKING SPACE DEPTH SHALL NOT BE LESS THAN THAT INDICATED IN CEC TABLE 110.26. THE WIDTH OF THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT SHALL BE THE WIDTH OF THE EQUIPMENT OR 30", WHICHEVER IS GREATER. THIS REQUIREMENT ALSO APPLIES TO DISCONNECT SWITCHES.
26. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES AND BEAR THEIR LABEL.
27. CONTRACTOR SHALL PROVIDE ARC FLASH LABELS FOR ALL ELECTRICAL EQUIPMENT WITHIN THE SCOPE OF THIS PROJECT. THESE LABELS SHALL BE GENERATED BY THE CONTRACTOR FROM THE POWER SYSTEM STUDY AND SUBMITTED WITH THE POWER SYSTEM STUDY SUBMITTAL FOR ENGINEER REVIEW AND APPROVAL.
28. WIRING SPACE IN PANELBOARDS, DISTRIBUTION PANES AND SWITCHBOARDS SHALL BE DEDICATED TO CONDUCTORS TERMINATED IN THAT ENCLOSURE. PANELBOARDS, DISTRIBUTION PANELS AND SWITCHBOARDS SHALL NOT BE USED AS PULL AND/OR SPLICE BOXES FOR CONDUCTORS THAT TERMINATE IN OTHER ENCLOSURES. DO NOT SPLICE CONDUCTORS IN EQUIPMENT.
29. NEW CIRCUIT BREAKERS INSTALLED IN EXISTING EQUIPMENT SHALL BE PROVIDED TO MATCH THE kAIC RATINGS AND THE MANUFACTURER OF THE EXISTING.
30. PROVIDE CLEAR SIGNAGE ON ALL ELECTRICAL EQUIPMENT PER CEC TO INDICATE THE ARC FLASH HAZARD WARNING, AND THE MAXIMUM AVAILABLE FAULT CURRENT. WHEN MODIFICATIONS OCCUR THAT AFFECT THE MAXIMUM FAULT CURRENT THE CONTRACTOR SHALL RECALCULATE AS NECESSARY AND REMARK THE EQUIPMENT.

*COORDINATION

31. PROVIDE A DISCONNECTING MEANS AT ALL MOTORS, WHETHER INDICATED ON THE PLANS OR NOT.
32. PROVIDE FUSES IN DISCONNECTS FOR MECHANICAL EQUIPMENT AS COORDINATED WITH THE UNITS NAMEPLATE AND MANUFACTURERS INSTALLATION INSTRUCTIONS. FUSES SHALL BE CURRENT LIMITING TYPE.
33. WORK PERFORMED FROM THESE DRAWINGS SHALL ALSO COMPLY WITH THE PROJECT SPECIFICATIONS. IN THE EVENT THAT THERE IS A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL TAKE PRECEDENT.
34. CONTRACTOR SHALL CONFIRM THAT ALL LIGHTING FIXTURES SPECIFIED, AND THE CEILING TYPES, FIXTURE TRIMS, AND FRAMES ARE ALL COMPATIBLE PRIOR TO THE CONTRACTOR LIGHTING FIXTURE SUBMITTAL.
35. BUILDING EXPANSION JOINTS ARE NOT INDICATED ON THE ELECTRICAL DRAWINGS (UON) AND SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS. INCLUDE FLEXIBLE EXPANSION WIRING METHODS AT EXPANSION JOINTS TO MEET THE DEFLECTION AND EXPANSION REQUIREMENTS OF THE BUILDING.

*MISC.

36. IN ADDITION TO THE WORK SHOWN ON THESE PLANS, THE CONTRACTOR SHALL PROVIDE ALL CONDUIT, BACK BOXES, AND RACEWAY REQUIRED FOR THE TELECOM SYSTEM ON THIS PROJECT. PLEASE REFER THE LOW VOLTAGE SYSTEM DRAWINGS AND SPECIFICATIONS FOR DEVICE LOCATIONS, ADDITIONAL INFORMATION, AND COMPLETE SCOPE OF WORK.
37. PROVIDE SPECIALTY COLOR DEVICES AND COVERPLATES FOR ALL EMERGENCY SYSTEM DEVICES. COORDINATE THE CORRECT COLORS WITH THE UCDMC SPECIFICATIONS.
38. PER CEC ARTICLE 517 PROVIDE SEPARATE ELECTRICAL RACEWAYS FOR EACH POWER SYSTEM.
39. CONTRACTOR SHALL PREPARE RED LINED AS-BUILT DOCUMENTS REPRESENTING THE ACTUAL FIELD ROUTINGS AND INSTALLATION LOCATIONS FOR ALL ITEMS ON THIS PROJECT.
40. IF HOT WORK IS REQUIRED, FOLLOW NFPA 70E REQUIREMENTS FOR HOT WORK.

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Exp. 06/30/20
ELECTRICAL
STATE OF CALIFORNIA

REVISION:

1	BACKCHECK #1	8-17-18

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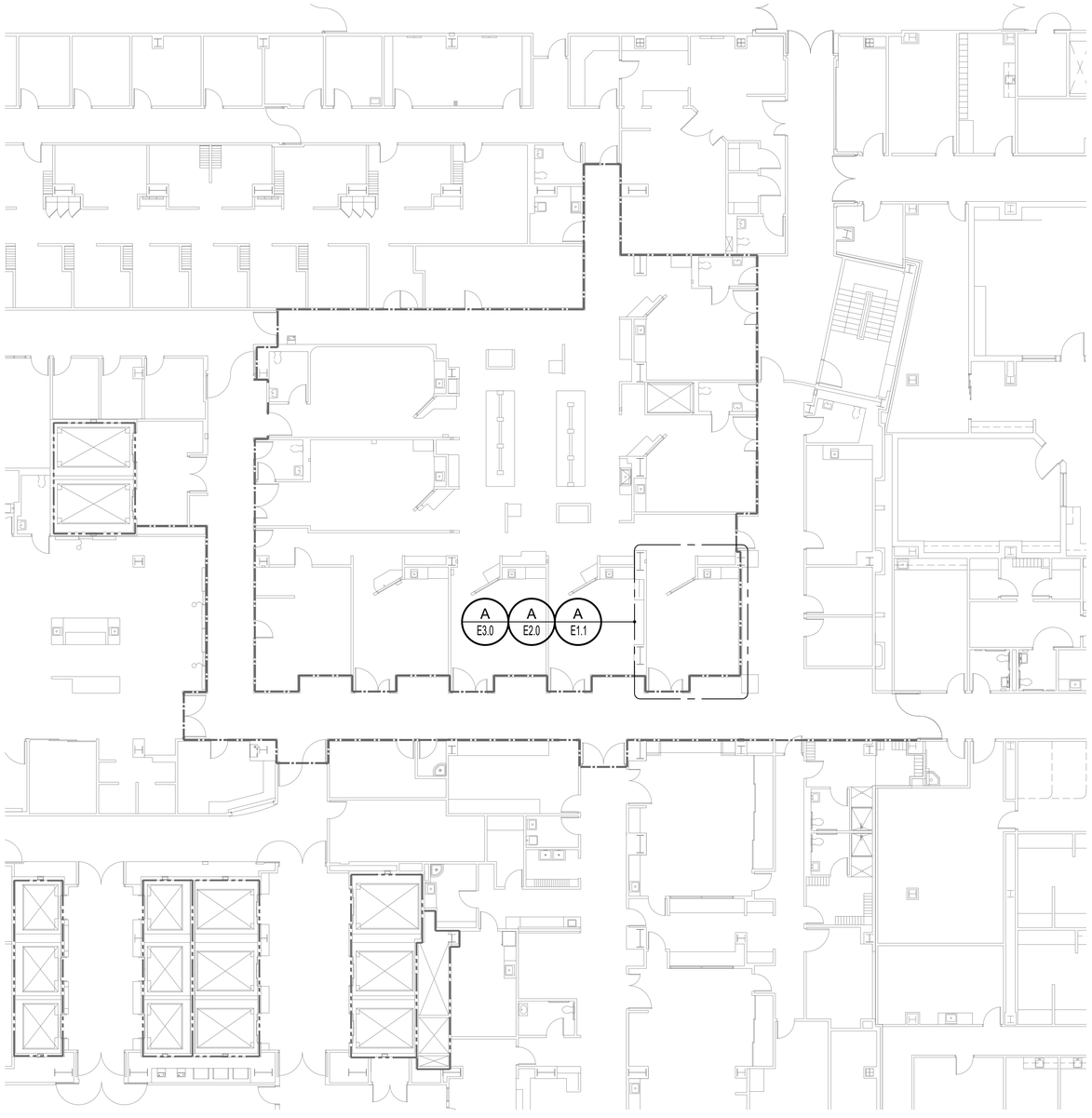
NOTES & SCHEDULES

PROJECT #: M031560

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E0.1



A E1.0 PARTIAL LEVEL 1 - DAVIS TOWER

SCALE:1" = 10'-0"

B E1.0 PARTIAL LEVEL 2 - DAVIS TOWER

SCALE:1" = 10'-0"

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(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER
ANDREW J. BELL
No. E18385
Exp. 06/30/20
ELECTRICAL
STATE OF CALIFORNIA

REVISION:

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OVERALL PLAN

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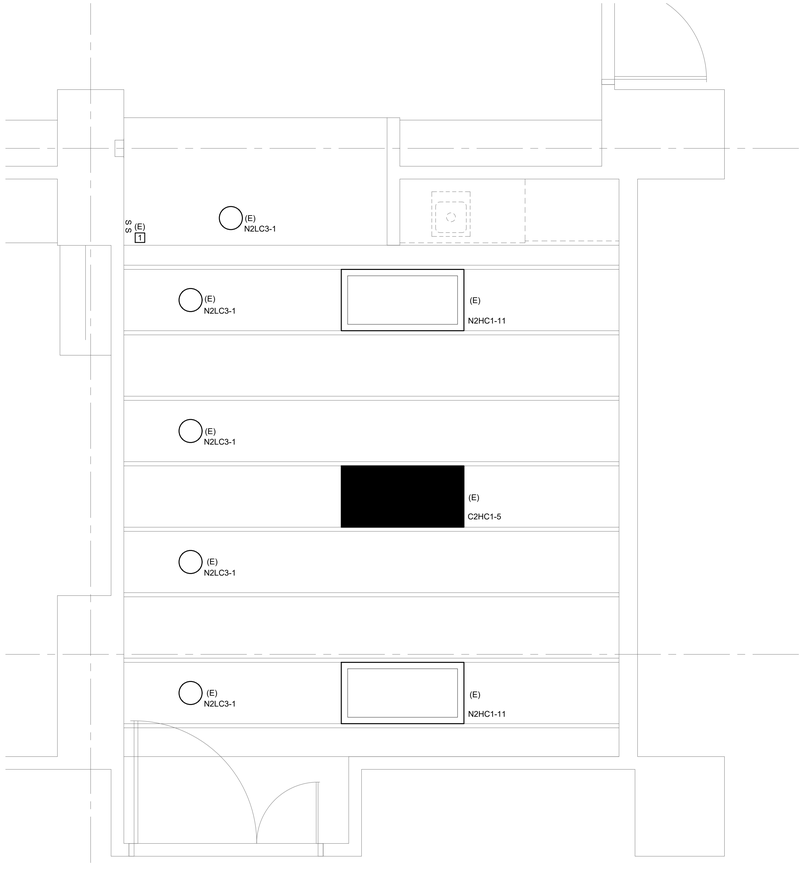
CHECKED BY:	AB
SHEET:	E1.0

GENERAL SHEET NOTES

(A) REMOVE ALL (E) FIXTURES AND LIGHTING CONTROLS SHOWN ON THIS SHEET. REUSE EXISTING LINE VOLTAGE CIRCUITS FOR NEW FIXTURES.

[#] NUMBERED SHEET NOTES

1. REMOVE ALL LIGHTING CONTROLS AND SWITCHES FOR EXISTING FIXTURES. REMOVE ALL WIRING.



A
E1.1 DEMOLITION CEILING PLAN

SCALE:1/2" = 1'-0"

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DEMOLITION CEILING PLAN

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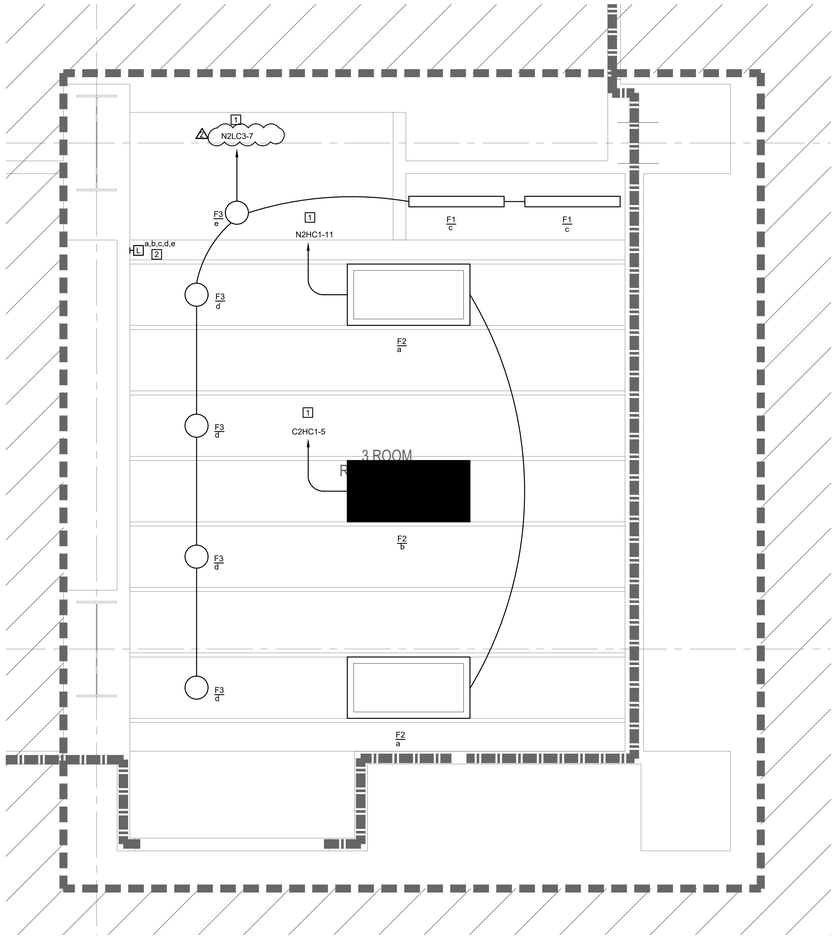
DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E1.1

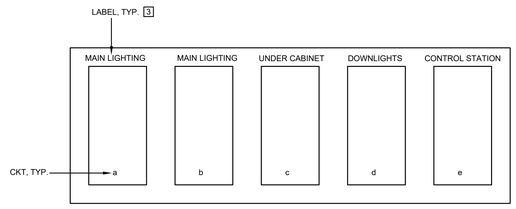
NUMBERED SHEET NOTES

1. EXISTING POWER CIRCUITS ARE ALREADY LOCATED IN THIS ROOM. EXTEND TO NEW FIXTURES.
2. PROVIDE (5) nLIGHT nPODM DX WALL-MOUNTED SWITCHES. ALIGN, LABEL, AND CIRCUIT AS SHOWN IN DETAIL B/E2.0. PROVIDE (N) CONTROL WIRING USING NON-BOOTED CAT-5e CABLES AND THE T568B WIRING CONVENTION.
3. PROVIDE TAPE-ON STICKERS FOR LABELING.



A E2.0 LIGHTING CEILING PLAN

SCALE:1/2" = 1'-0"



B E2.0 WALL-MOUNT LIGHTING CONTROLS ELEVATION

NTS

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BACKCHECK #2 01-18-19

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LIGHTING CEILING PLAN

PROJECT #: M031560

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STATE OF CALIFORNIA

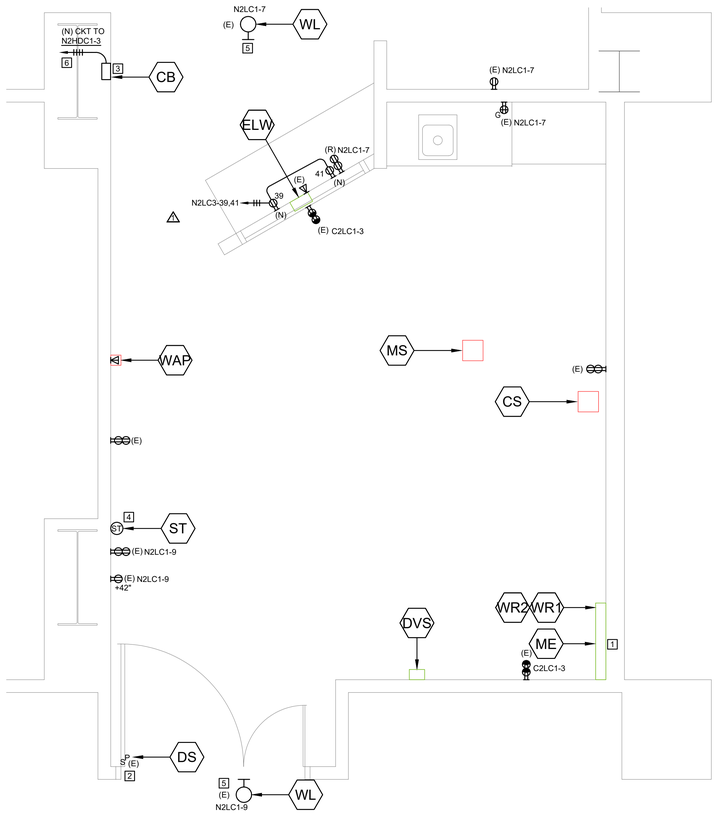
DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E2.0

GENERAL SHEET NOTES

(A) REFER TO POWER QUALITY REQUIREMENTS ON E3.2 FOR CONDUCTOR SIZING.

NUMBERED SHEET NOTES

1. PROVIDE 480V, 3Ø, POWER CONNECTION TO M-CABINET CXA FROM 70A BREAKER WITH SHUNT TRIP. PROVIDE NEW FEEDER. REFER TO FEEDER SIZE ON SHEET E4.0.
2. DISCONNECT DOOR SWITCH FROM EXISTING XRAY CONTROL CONSOLE. RECONNECT TO NEW TERMINAL BOX ME.
3. REPLACE EXISTING 125A SHUNT TRIP MOLDED-CASE CIRCUIT BREAKER WITH A NEW 70A, 480V, 3Ø, 4W SHUNT TRIP CIRCUIT BREAKER IN FLUSH-MOUNT WALL BOX. ADD REMOTE CONTROL STATION WITH LARGE, MUSHROOM-HEAD BUTTON TO OPERATE CB EPO.
4. REUSE EXISTING SHUNT TRIP BREAKER LOCATION.
5. EXISTING "XRAY IN USE" SIGNS. DISCONNECT FROM EXISTING XRAY CONTROL CONSOLE, RECONNECT TO NEW TERMINAL BOX ME. DO NOT DISCONNECT EXISTING POWER CIRCUITS.
6. REFER TO POWER ONE-LINE DIAGRAM ON SHEET E4.0 FOR NEW CONDUIT AND CONDUCTOR SIZING.



A E3.0 POWER & TELECOM FLOOR PLAN

SCALE:1/2" = 1'-0"

Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by contractor
C Installed by contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
B	CB	480V, 3 phase 70 AMP circuit breaker with shunt trip. Run power from breaker to ME, leaving an 8' (2440mm) tail. See Sheet E3.2 for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	E3.2
B	ST	Shunt Trip (emergency off) Large mushroom-head button on remote control station with contacts to operate feature of CB.	
B	WL	Warning Light - Reuse existing incandescent surface or flush mounted light fixture above door to indicate when X-Ray is on.	E3.2
B	DS	Door Switch - Reuse existing switch limited to open when door is open.	E3.2
D	ME	19 1/4" (490mm) W x 67" (1705mm) H x 4" (105mm) D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 75" (1905mm) A.F.F. to top of box. Conduits to terminate at conduit knock outs provided on top, bottom, or sides of terminal wall box. If raceway is used at top and / or bottom of terminal wall box, remove panel(s) of terminal box by drilling out pop rivets. Top and bottom panels will slide out without the need for cutting. Cutting of the box is prohibited as it will void the UL listing.	E3.2
B	DVS	6" (155mm) W x 6" (155mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 39" (990mm) A.F.F. to bottom of box.	
B	CS	8" (205mm) W x 8" (205mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate.	
B	MS	8" (205mm) W x 8" (205mm) L x 4" (105mm) D floor box, flush mounted with removable gasketted screw-type cover plate.	E3.2
B	ELW	8" (205mm) W x 8" (205mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 22" (560mm) A.F.F. to bottom of box. Location shown is recommended and may be changed - verify relocation with local Philips Service. For cables to ELW.	
B	WAP	4" (105mm) W x 4" (105mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 10" (255mm) below ceiling/top of wall to top of box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	WR1 WR2	4" (105mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at 4" (105mm) A.F.F. to bottom of raceway. "WR2" is at 75" (1905mm) A.F.F. to bottom of raceway. *	E3.2

*WR1 and / or WR2 are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper locations as required. As noted for "ME", the top and bottom panels can be removed by drilling out the pop-rivets and pulling the panel out. Raceway size and length can be changed as needed as long as the raceway is a minimum of 19 ¼" (490mm) in length to cover the entire opening of the removed top or bottom panel(s) and the terminal wall box remains at a mounting height of 75" (1905mm) A.F.F. Raceways cannot be deeper than the terminal wall box, they must fit securely behind the terminal wall box flanged-edge.

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REVISION:
BACKCHECK #1 8-17-18

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VENDOR DETAILS

PROJECT #: M031560

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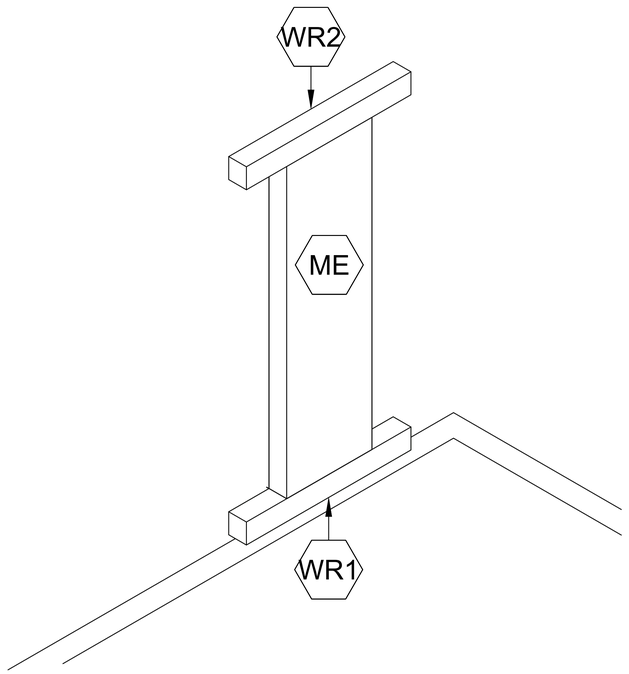
SACRAMENTO, CALIFORNIA 95817

DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E3.0

GENERAL SHEET NOTES

A. CONTRACTOR SHALL PROVIDE ALL DEVICES, WIRING, CONDUITS, BOXES, TRENCH COMPONENTS, AND ROUGH IN FOR ALL DEVICES REQUIRED FOR THIS PROJECT, TYPICAL.

B. THE DEVICES, TAGS, AND CALLOUTS INDICATED ON THIS SHEET ARE RELATED TO ALL OTHER DRAWINGS IN THE SET AND SHALL BE COORDINATED BY THE CONTRACTOR, UON. PROVIDE ALL REQUIRED WIRING, DEVICES, CONDUITS, AND BOXES TO COMPLETE THE INSTALLATION, UON.



A E3.1 RACEWAY DIAGRAM

SCALE:NTS

Conduit Required

General Notes
1. All conduit runs must take most direct route point to point.
2. All conduit runs must have a pull string.

A Conduit supplied and installed by contractor - Philips cables installed by Philips.
B Conduit supplied and installed by contractor - Philips cables installed by contractor
C Conduit and cables supplied and installed by contractor
D Conduit existing - cables supplied and installed by Philips
E Conduit existing - cables supplied by Philips, installed by contractor
F Conduit existing - cables supplied and installed by contractor

* Cable Type
F Fiber Optic
H High Tension Power Cables
P Power / Ground
S Signal Cables
V Video Cables

	Conduit			Conduit Quantity	Cable Type *	Minimum Conduit Size	Maximum Conduit Length	Special Requirements
	Run No.	From	To					
C	1	Power Panel	CB	1	P	EXISTING	EXISTING	REFER TO SHEET E4.0 FOR CB CONDUCTOR SIZES.
B	2	CB	ME	1	P	2"	50'	
C	3	CB	ST	1	P	3/4"	50'	
C	4	ME	WL	1	P	1/2"	50'	
C	5	ME	DS	1	P	1/2"	50'	
A	6	ME	ELW	1	P	1 1/2"	55'	
A	7	ME	ELW	1	S	2"	55'	
A	8	ME	MS	1	P	1 1/2"	22'	
A	9	ME	MS	1	S	2"	22'	
A	10	ME	DVS	1	P	1 1/2"	55'	
A	11	ME	DVS	1	S	2"	55'	
A	12	ME	CS	1	H / P	2 1/2"	32'	
A	13	ME	CS	1	S	2"	32'	
A	14	ELW	MS	1	F / S	1 1/2"	98'	
A	15	ELW	DVS	1	F / S	1 1/2"	78'	
A	16	WAP	ELW	1	P	1"	84'	Ethernet cable. Conduit if required by local code.

Refer to Electrical Layout and Legend - Sheet E3.0

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RACEWAY & CONDUIT DIAGRAMS

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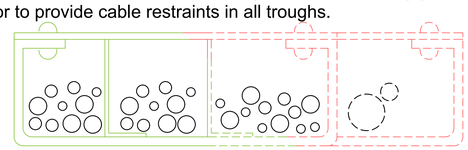
SHEET:	E3.1

Detail - Cable Trough Divisions

(Not to scale)

Troughs or ducts must be separated by metal barriers into three sections.

1. High voltage (H.T.) cables to be routed separately from all other cables.
2. Power cables and ground cables can be routed together.
3. Signal cables and data cables can be routed together but must be separated from power cables.
4. Video cables to be routed separately from all other cables.
5. It is important that all cables are placed in the appropriate trough and at no given point do any cables from one division cross with cables from another. Trough separation must be continuous from the beginning to the end of the run. Utilize crossover tunnels as appropriate.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.



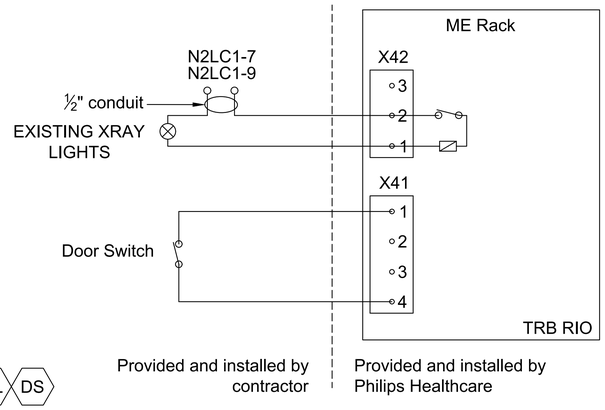
WR1 WR2

(16.0)

Detail - X-Ray On Light and Door Switch

(CXA Generator)

Not to Scale



WL DS

(13.0)

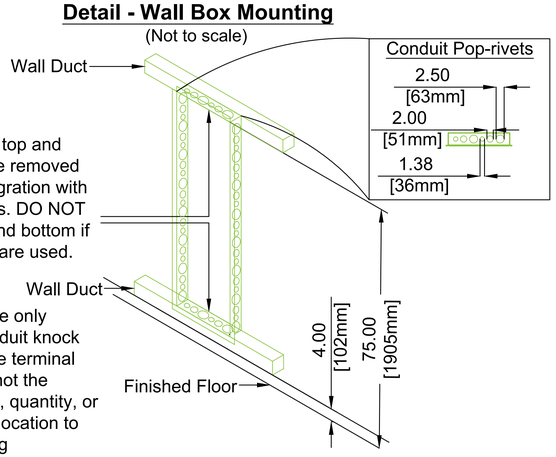
Power Quality Requirements

(M-Cabinet CXA 80)

Power Output:	80 kW
Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	480 VAC, 60 Hz
Line Voltage Variation:	± 8% steady-state
Line Voltage Balance:	2% maximum of nominal voltage between phases
Frequency Variation:	± 1% (± 0.6 Hz)
Voltage Surges:	To 110% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Voltage Sags:	To 90% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Line Impulses:	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-ground Voltage:	2.0 volts maximum RMS value
Neutral-ground Impulses:	No more than 1 per hour that exceeds 25 volts and 1 Mjoule
High Frequency Noise:	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour maximum
Ground and Neutral Conductor Impedance:	0.1 Ω @ 60Hz maximum

Detail - Wall Box Mounting

(Not to scale)

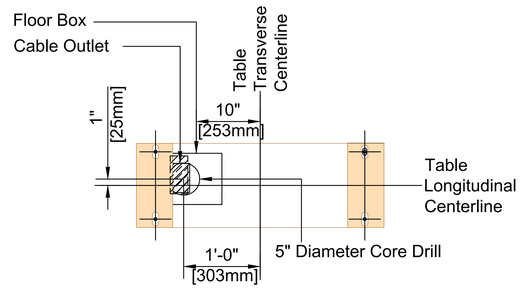


ME

(16.3)

Detail - Diagnost TH Table Base

Not to Scale



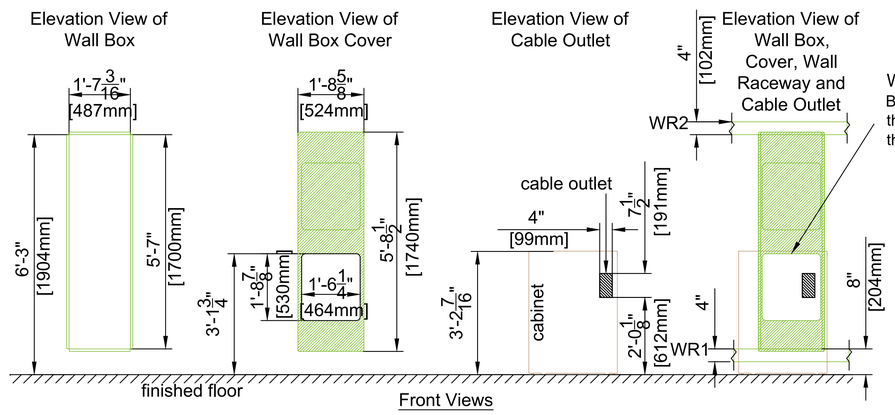
Provide a 5" diameter core drill if the floor cannot accommodate a standard 8"W x 8"L x 4"D floor box for "MS".

MS

(13.0)

Detail - M-Cabinet CXA Wall Box - Cable Outlet on Left Side

(Not to scale)



Wall Box Cover
Bottom cover punch out to be used. Top of the cover punch out should not be higher than height of the cabinet.

Wall Box
General contractor to pop out top/bottom of box as required. Provided by Philips (NA only).

MEX100 Terminal Block (not shown)
Must be located behind the Wall Box Cover (in the upper 990mm of the Wall Box)

ME

(16.2)

Branch Circuit and Wire Gauge Requirements

Branch Power:	112.5 kVA minimum
Circuit Breaker:	3 pole, 70 amperes (@ 480V)
Maximum Instantaneous Power:	105 kVA (800 mA @ 100 kV) (Short-term), < 5 amperes (Long-term)

Recommended conductor sizes for 1% impedence of branch conductors to circuit breaker (CB), based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#2 AWG	80 feet	96 feet	105 feet	115 feet
#1 AWG	101 feet	122 feet	134 feet	146 feet
1/0 AWG	128 feet	154 feet	168 feet	184 feet
2/0 AWG	161 feet	194 feet	212 feet	232 feet
3/0 AWG	203 feet	244 feet	267 feet	292 feet
4/0 AWG	258 feet	311 feet	340 feet	372 feet
250 MCM	303 feet	364 feet	399 feet	436 feet
300 MCM	363 feet	437 feet	478 feet	523 feet
Instantaneous Current	160 A	--	--	135 A
Maximum Phase-Phase Impedance	0.2 Ω	--	--	0.3 Ω
Maximum Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4%	9.5%	8.7%	7.9%

Minimum copper wire size, circuit breaker (CB) to equipment: #4 AWG, maximum 50' in length.

*The ground conductor for the power feeder shall be the same size as the phase conductor wires.

CB

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WIRING REQUIREMENTS & DETAILS

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DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E3.2

GENERAL SHEET NOTES

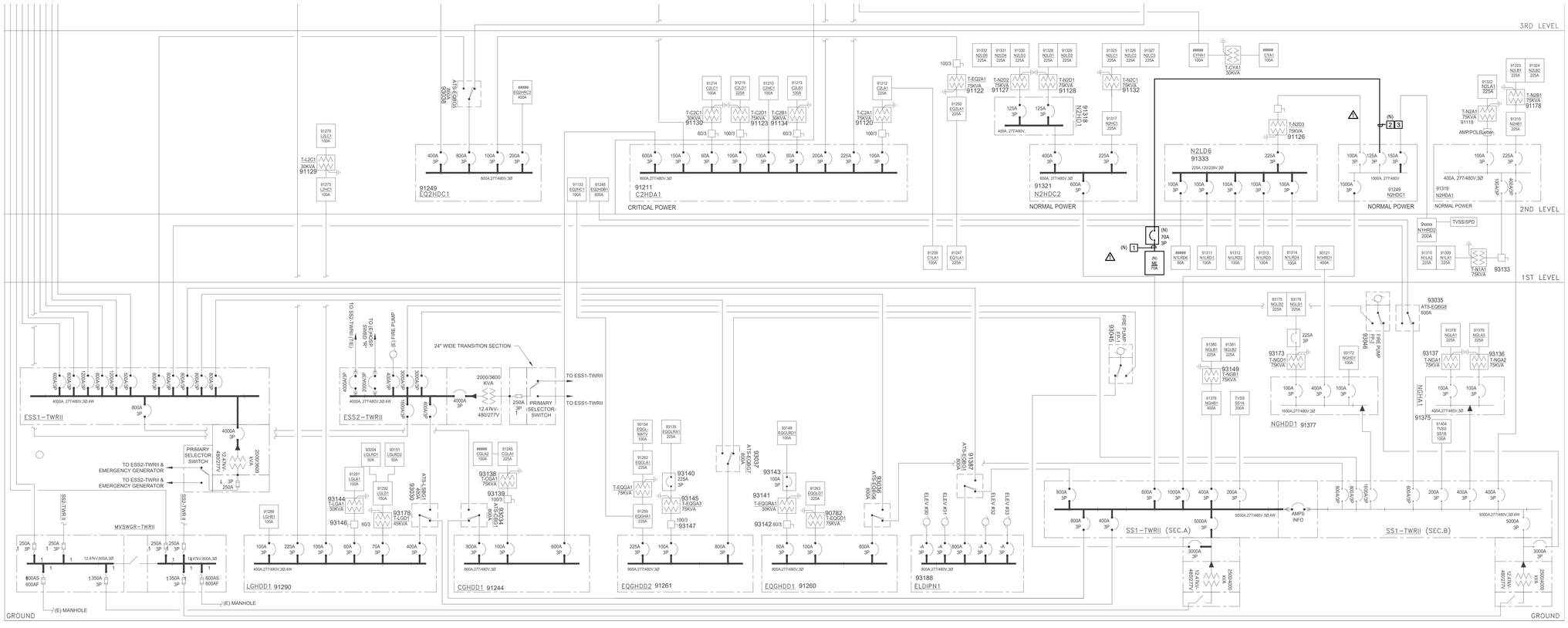
(A) ALL COMPONENTS ON POWER ONE-LINE DIAGRAM ARE EXISTING UON.

[#] NUMBERED SHEET NOTES

1. PROVIDE (4) NEW CONDUCTORS FROM (N) 70A BREAKER TO (N) PANEL ME AND (N) SHUNT TRIP BREAKER. CONDUCTORS SHALL BE SIZED AT 4#2 WITH A #2 GROUND. NEW CONDUIT SHALL BE SIZED PER SHEET E3.1.

2. REPLACE EXISTING CONDUCTORS WITH (4) 4#1 CONDUCTORS AND (1) #1 GROUND IN EXISTING 2.0" CONDUIT. IF CONDUIT LENGTH EXCEEDS 146', INCREASE ALL CONDUCTOR SIZES TO #1/0.

3. TO MEET GROUNDING REQUIREMENTS, IF (E) GROUND CONDUCTOR IS SIZE #1/0, THEN REUSE EXISTING #1/0 CONDUCTORS AND DISREGARD NOTE #2.



A E4.0 PARTIAL POWER ONE-LINE DIAGRAM

SCALE:NTS

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PARTIAL POWER ONE-LINE DIAGRAM

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SHEET:	E4.0

Philips Healthcare Remote Services Network (RSN)

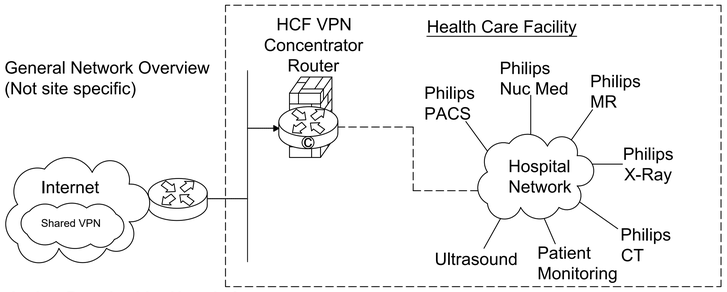
Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

Broadband Site-to-Site Connectivity (Preferred)

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

Connectivity Details:

- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode.
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



Action Required by Hospital:

- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.).
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips.

Broadband Router Installed at Health Care Facility

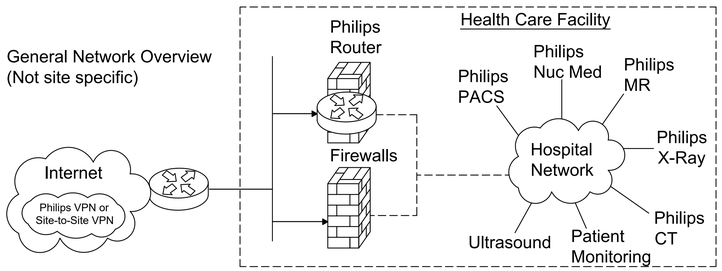
This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

Connectivity Details:

- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site.
- One to One NAT is used to limit access to Philips equipment only.
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7.
- Dedicated DSL connections are also supported.

Option 1: Parallel to HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.

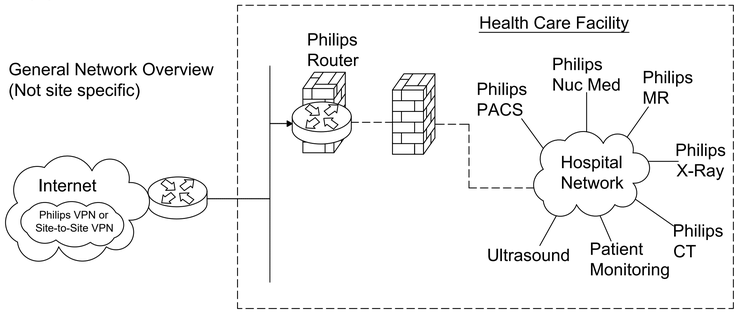


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

Option 2: Back End Connected to the HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.

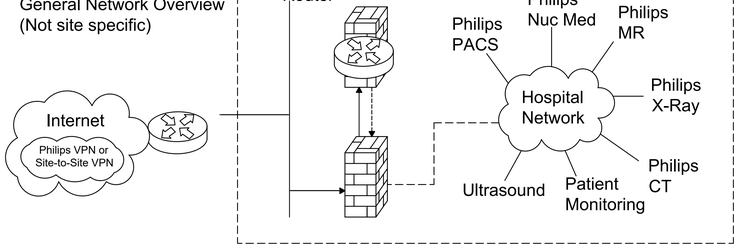


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Option 3: Router Installed Inside the HCF's DZM

This connectivity method is designed for customers who prefer the RSN Router installed inside an existing or new DMZ, allowing access to Philips equipment.



Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall. Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 500, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

System Network Information

IMPORTANT NOTE:

It is the customer's responsibility to coordinate with the local Philips Engineer to provide ALL required network information and install ALL required network cabling & drops according to Philips specifications PRIOR to the scheduled installation start date. Failure to do so may delay system installation and jeopardize the customer hand over date.

DigitalDiagnost (filled out by FSE)	
MAC Address:	
System SN:	
X-Ray Control SN:	

DigitalDiagnost Network Settings		
	TCP / IP settings	**DICOM settings (System)**
IP Address:		
Subnet Mask:		
Default Gateway:		
AE Title:		

PACS - DICOM Store (Export)		
	Primary	**Backup**
AE Title:		
Port Number:		
IP Address:		

RIS Node - DICOM		
	RIS	**MPPS** [ ]yes [ ]no
AE Title:		
Port Number:		
IP Address:		

MPPS	
AE Title:	
Port Number:	
IP Address:	

Timeserver	
IP Address:	

Audit Trail Server	
UDP/TCP Protocol	
IP Address:	
Port Number:	

Dose Report Printer (optional)	
Shared Printer Name:	
IP Address:	
Port Number:	
User Name (if restricted to domain):	
Password (if restricted to domain):	

The Engineering Enterprise
Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER
ANDREW J. BELT
No. E18385
Exp. 06/30/20
ELECTRICAL
STATE OF CALIFORNIA

REVISION:

MC+E

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SYSTEM NETWORK INFORMATION

PROJECT #: M031560

DT#1 1835-J RAD
REPLACE ANALOG X-RAY
WITH NEW DIGITAL
X-RAY EQUIPMENT

2315 STOCKTON BLVD.
SACRAMENTO, CALIFORNIA 95817

DATE:	08/17/2018
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	AB
SHEET:	E5.0

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RECORD DRAWINGS

PHILIPS

Healthcare

www.healthcare.philips.com

Final Site Preparation Support Document

The equipment components shown in this drawing package are based on the current proposed purchase and are subject to change if modifications are made to the configuration.

LICENSED ARCHITECT
RUSSELL L MEERS
C-10923
4.30.19
RENEWAL DATE
STATE OF CALIFORNIA

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By
A	4/4/2017	Created final site preparation support document per Order: 6600284239.010000. No equipment changes.	LC
B	4/24/2017	Changed wall stand to a tilting wall stand and carriage moved 1" from east wall. A1: Removed 7' high wall note.	LC

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Section C - Site Readiness

Checklist ---------- CHK

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
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Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

C1

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General Specifications

1. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

2. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, shall bear any expense in obtaining same or in complying with any ordinances and statutes.

3. Radiation Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

4. Asbestos and Other Toxic Substances
Philips assumes no hazardous waste (i.e., PCB's in existing transformers) exists at the site. If any hazardous material is found, it shall be the sole responsibility of the customer to properly remove and dispose of this material at its expense. Any delays caused in the project for this special handling shall result in Philips time period for completion being extended by like period of time. Philips assumes that no asbestos material is involved in this project in any ceilings, walls or floors. If any asbestos material is found anywhere on the site, it shall be the customer's sole responsibility to properly remove and/or make safe this condition, at the customer's sole expense.

5. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

6. Schedule
The general contractor should provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

7. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

(13.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A1 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(13.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 70 Amps (@ 480V)

(15.0)

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RECORD DRAWINGS

PHILIPS

Project
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DigitalDiagnost VS 4.1
UC Davis
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Room:1835J

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Drawn By: Lisa Chen

Project Details
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AN

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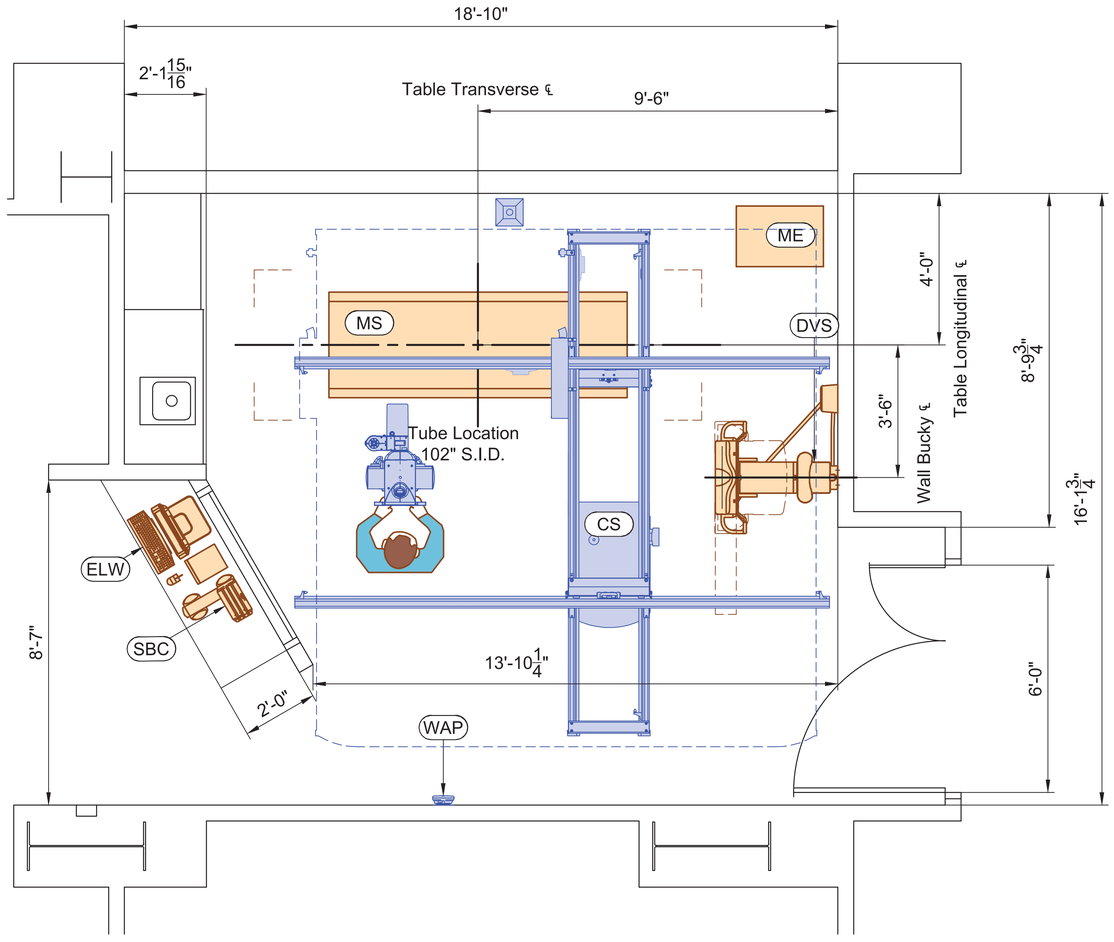


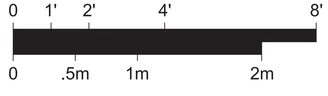
Equipment Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.



Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Weight (lbs)	Heat Load (btu/hr)	Detail Sheet
A	ME	Generator M-Cabinet CXA	259	342	AD2
A	CS	CSM Long	879	444	AD2
A	MS	DigitalDiagnost TH/TH2 (Wide Tabletop)	761	956	AD3
A	DVS	BuckyDiagnost VS Digital Tiltable (Right)	618	956	AD3
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	786	AD2
A	WAP	Wi-Fi Access Point	2	--	AD2
A	SBC	SkyPlate Battery Charger	2	--	AD2
A	MH	Mobile Holder	146	--	AD3

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.

Site Planning Issues and Considerations

* Access to sink may be difficult when tabletop is moved left.
* Exact equipment configuration to be verified with local Philips Sales. Tilted wall stand is not listed on order, but is shown due to Philips Project Manager request. Items listed as optional on quote are not shown.
* LImited stretcher access to Wall Bucky. Recommend to move tabletop for improved access.

Notes to Philips Field Personnel

* Tabletop to be installed before table base is bolted to the floor.

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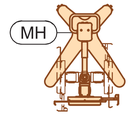

Exact location to be coordinated by customer and local Philips service.

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

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Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

A1

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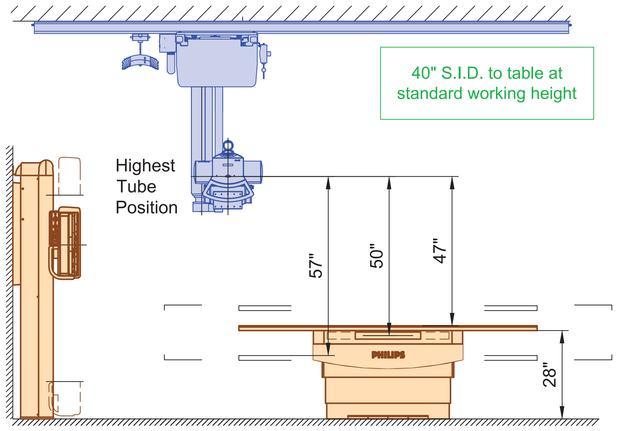
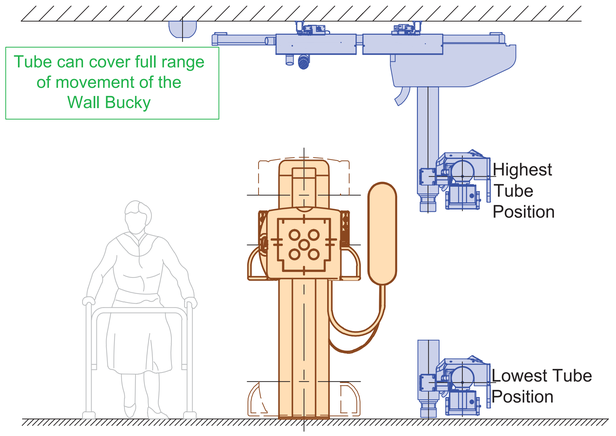
Ceiling Height Guide for High Performance VS and Value Room

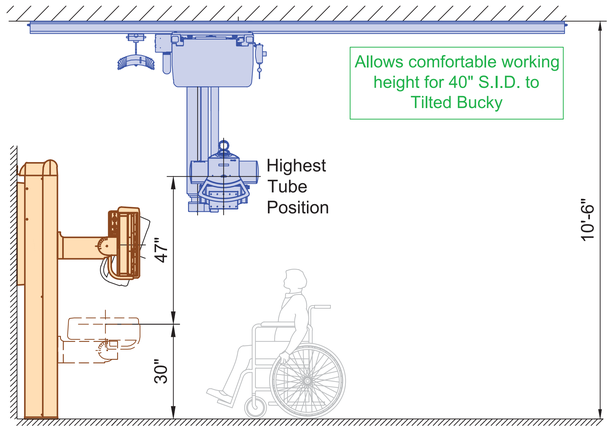
Not Site Specific

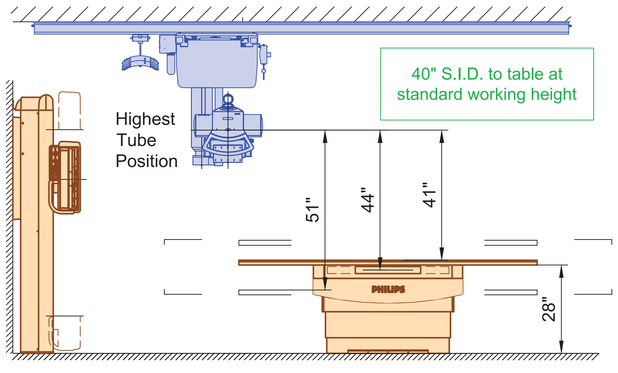
8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

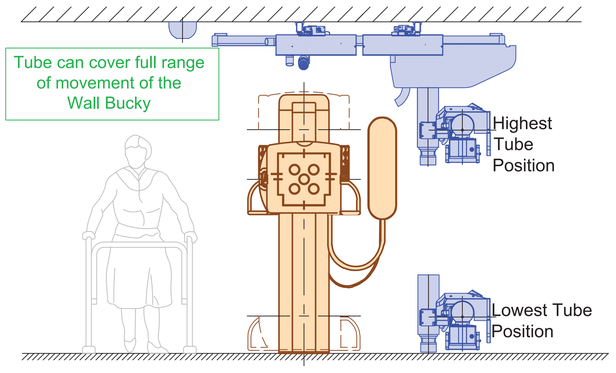
* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage

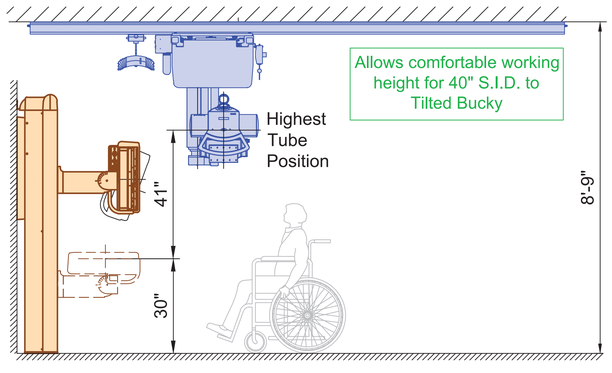


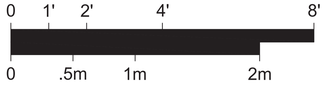












RECORD DRAWINGS

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4.30.19
RENEWAL DATE
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PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

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Project Details
Drawing Number
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Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

A2

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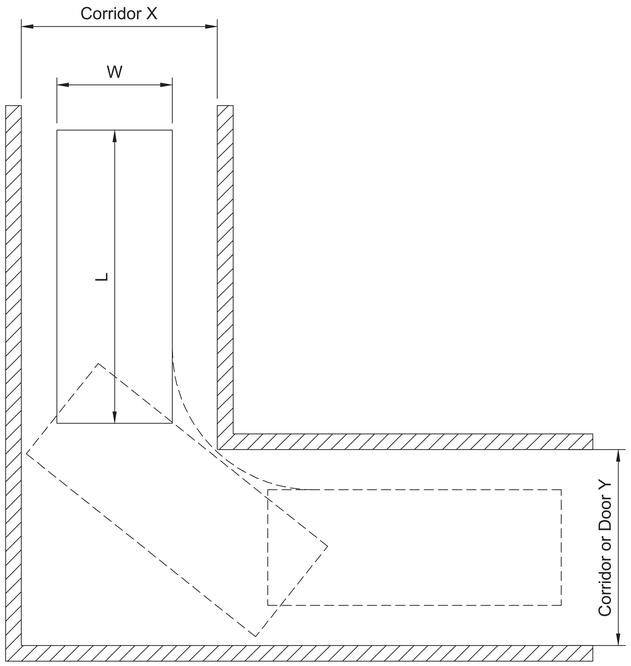
DigitalDiagnost 4.1 (Tube Crane, TH Table, Wall Bucky) Transport Information



	TH Table	Wall Bucky	CSM		
	Crate Packed	Crate Packed	Telescopic Carriage	Longitudinal Carriage Long	Longitudinal Carriage Short
Weight	697 lbs (3100N)	383 lbs (1700N)	326 lbs (1450N)	405 lbs (1800N)	212 lbs (940N)
Height	2'-9" (0.83m)	1'-10" (0.55m)	4'-7" (1.38m)	1'-4" (0.41m)	1'-4" (0.41m)
Length (L)	4'-6" (1.36m)	7'-4" (2.22m)	4'-0" (1.20m)	13'-9" (4.18m)	8'-0" (2.42m)
Width (W)	3'-2" (0.96m)	2'-6" (0.76m)	2'-7" (0.78m)	2'-7" (0.77m)	3'-1" (0.94m)
Width of Corridor "X"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"
3'-4" (1.0m)	5'-1" (1.54m)	6'-1" (1.85m)	3'-7" (1.07m)	12'-3" (3.72m)	7'-11" (2.4m)
3'-8" (1.1m)	4'-6" (1.36m)	5'-8" (1.72m)	3'-3" (.99m)	11'-9" (3.58m)	7'-2" (2.17m)
4'-0" (1.2m)	4'-1" (1.25m)	5'-3" (1.60m)	3'-1" (.93m)	11'-4" (3.45m)	6'-8" (2.02m)
4'-4" (1.3m)	3'-10" (1.17m)	4'-11" (1.50m)	2'-11" (.88m)	10'-11" (3.32m)	6'-3" (1.89m)
4'-8" (1.4m)	3'-9" (1.12m)	4'-7" (1.40m)	2'-11" (.88m)	10'-6" (3.20m)	5'-10" (1.77m)
5'-0" (1.5m)	3'-8" (1.08m)	4'-4" (1.30m)	2'-11" (.88m)	10'-2" (3.10m)	5'-6" (1.66m)
5'-3" (1.6m)	3'-6" (1.06m)	4'-0" (1.20m)	2'-11" (.88m)	9'-10" (2.98m)	5'-2" (1.56m)
5'-7" (1.7m)	3'-6" (1.06m)	3'-9" (1.13m)	2'-11" (.88m)	9'-5" (2.87m)	4'-10" (1.47m)
5'-11" (1.8m)	3'-6" (1.06m)	3'-6" (1.10m)	2'-11" (.88m)	9'-1" (2.76m)	4'-8" (1.40m)
6'-3" (1.9m)	3'-6" (1.06m)	3'-4" (1.00m)	2'-11" (.88m)	8'-9" (2.66m)	4'-4" (1.31m)
6'-7" (2.0m)	3'-6" (1.06m)	3'-2" (0.95m)	2'-11" (.88m)	8'-4" (2.55m)	4'-1" (1.24m)
6'-11" (2.1m)	3'-6" (1.06m)	3'-0" (0.91m)	2'-11" (.88m)	8'-1" (2.45m)	3'-11" (1.18m)

RECORD DRAWINGS

(13.0)

PHILIPS

Project
High Performance Maintenance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

AD1

LICENSED ARCHITECT
RUSSELL L MEEKS
C-10923
4.30.19
RENEWAL DATE
STATE OF CALIFORNIA

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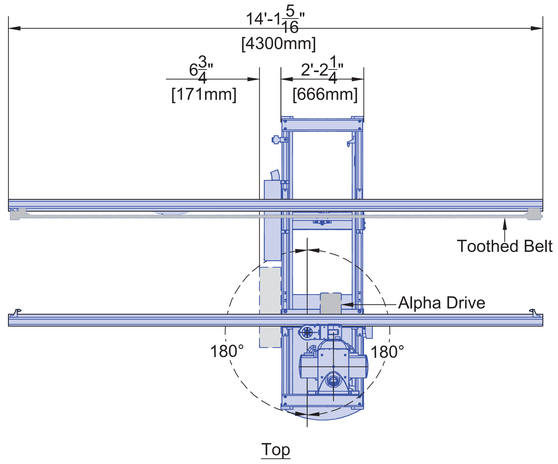
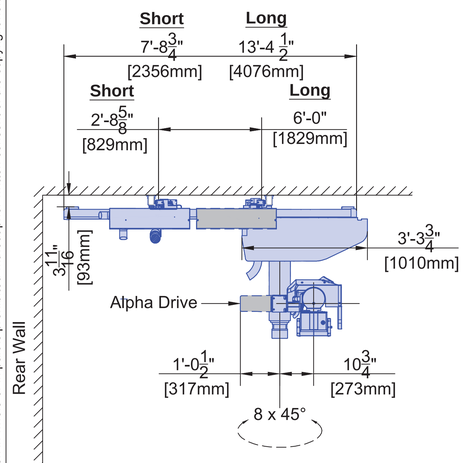
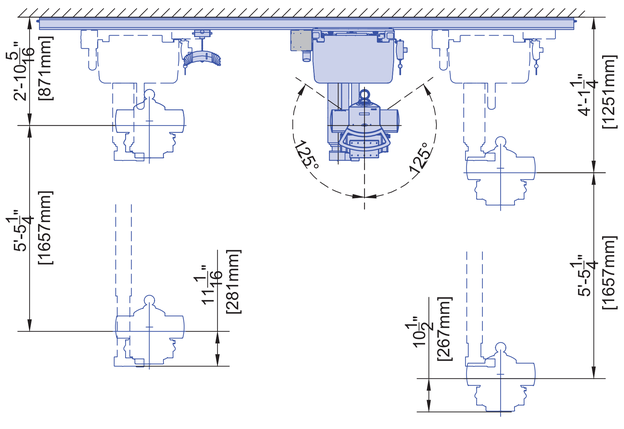
RECORD DRAWINGS







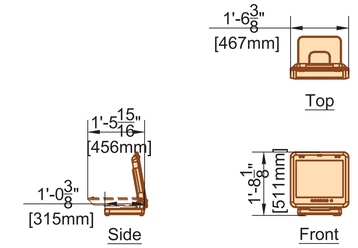
Tube Support Upper Position

Tube Support Lower Position

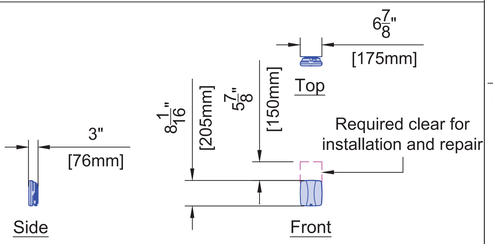
(15.0)

CS	BuckyDiagnost CSM	
	Weight	Heat Dissipation
	Short: 801 lbs (364 kg)*	444 Btu/hr (130 W)
	Long: 879 lbs (399 kg)*	

* Full length extension rails add 101 lbs (46 kg).

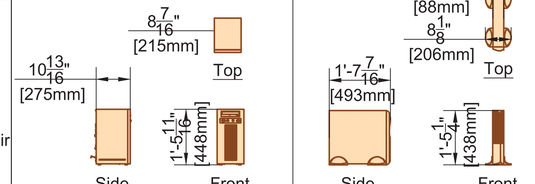


Eleva Examination Control
Weight: 38 lbs (18 kg)
Heat Dissipation: 342 Btu/hr (100W)



(14.0)

WAP	Wi-Fi Access Point	
	Weight	Heat Dissipation
	2.5 lbs (1.12 kg)	--

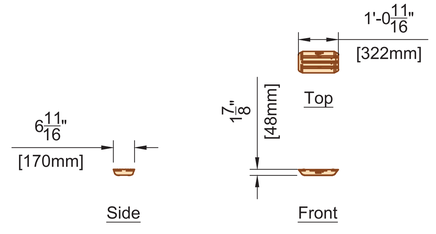


CPU Tower
Weight: 32 lbs (15 kg)
Heat Diss.: 444 Btu/hr (130W)

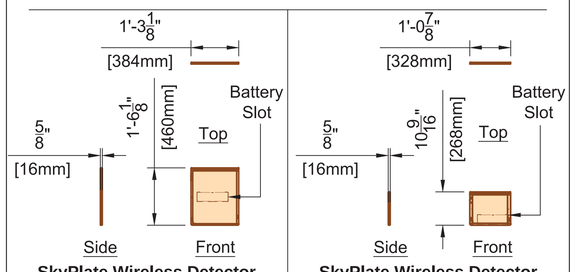
Uninterruptible Power Supply
Weight: 57 lbs (26 kg)

(14.0)

ELW	Eleva Workspot	
	Weight	Heat Dissipation
	127 lbs (99 kg)	786 Btu/hr (230 W)



Battery Charger
Weight: 2.20 lbs (1 kg)

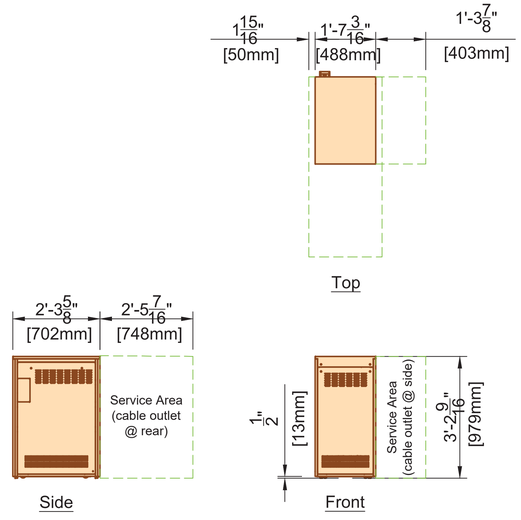


SkyPlate Wireless Detector (Large)
Weight: 5.7 lbs (2.6 kg)

SkyPlate Wireless Detector (Small)
Weight: 3.5 lbs (1.6 kg)

(14.0)

SBC	SkyPlate Detector and Battery Charger	
	Weight	Heat Dissipation
	2.20 lbs (1 kg)	--



Noise measured at 1 meter distance at 1 meter high over floor < 52 dB(A).

(13.0)

ME	Generator M-Cabinet CXA	
	Weight	Heat Dissipation
	259 lbs (118 kg)	342 Btu/hr (100 W)

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

AD2

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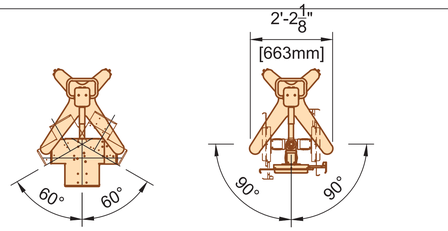
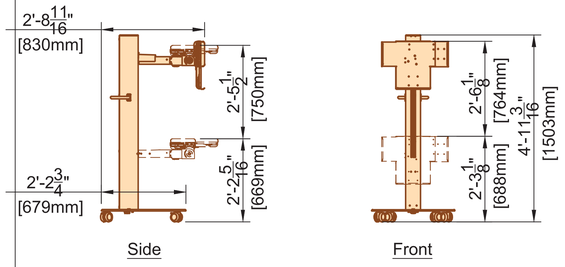
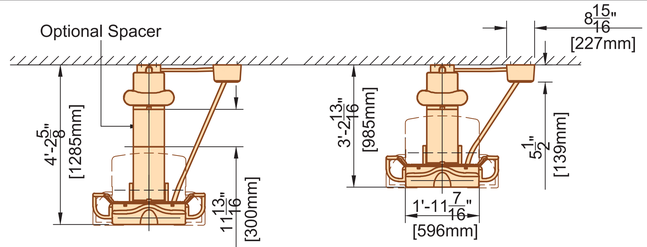
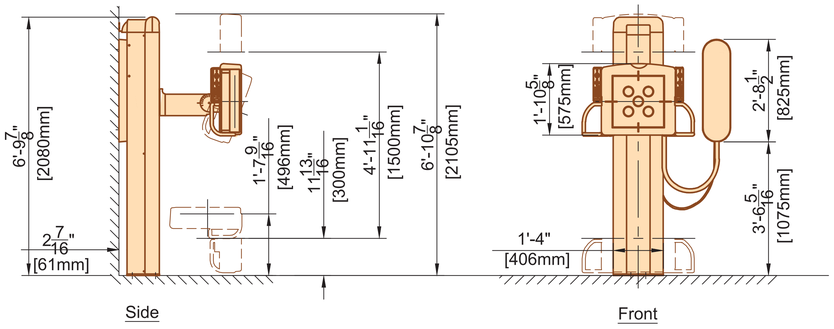




(13.0)

	Mobile Holder	
MH	Weight	Heat Dissipation
	146 lbs (67 kg)	0 Btu/hr (0 W)

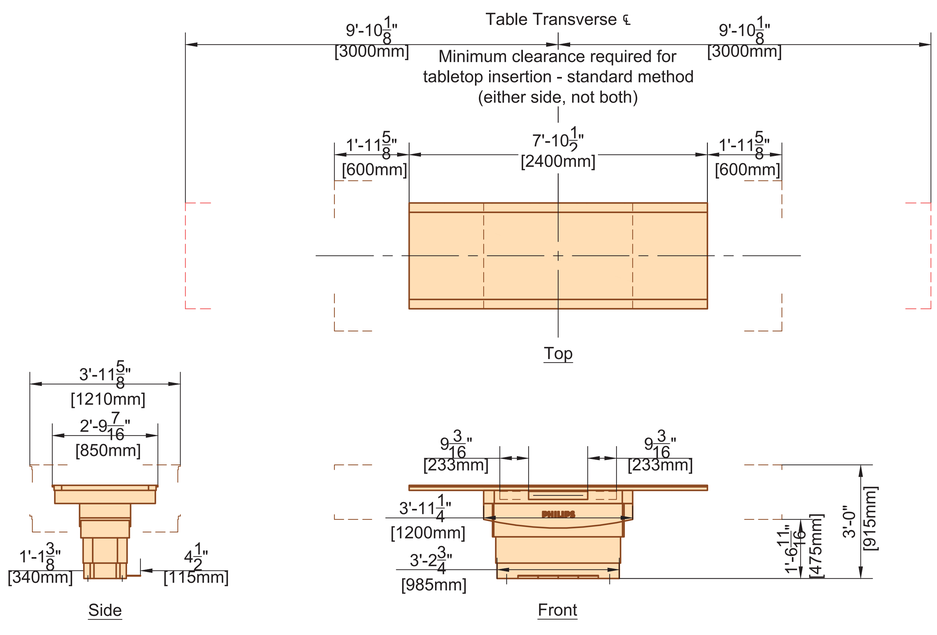




(13.0)

	BuckyDiagnost VS Digital Tiltable	
DVS	Weight	Heat Dissipation
	618 lbs (280 kg)	956 Btu/hr (280 W)

Weight of Wall Connection Box: 36 lbs (16 kg)



(13.0)

	DigitalDiagnost TH/TH2 (Wide Tabletop)	
MS	Weight	Heat Dissipation
	761 lbs (345 kg)	956 Btu/hr (280 W)

RECORD DRAWINGS

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
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Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

AD3

LICENSED ARCHITECT RUSSELL L MEYERS C-10923 4-30-19 RENEWAL DATE STATE OF CALIFORNIA

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Equipment Support Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required structural alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and building codes. The customer shall be solely responsible for obtaining all construction permits from jurisdictional authority.

2. Equipment Anchorage
Philips provides, with this plan and specifications, information relative to equipment size, weight, shape, anchoring hole locations and forces which may be exerted on anchoring fasteners. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of equipment anchoring to floors, wall and/or ceiling of the building. Any anchorage test required by local authority shall be the customer's responsibility. Stud type anchor bolts should not be specified as they hinder equipment removal for service. Consult with Philips service prior to specifying anchor methods.

3. Floor Loading and Surface
Philips provides, with this plan and specifications, information relative to size, weight and shape of floor mounted equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings confirmation of the structural adequacy of the floor upon which the equipment will be placed. Any load test required by local authority, shall be the customer's responsibility.

a. The floor surface upon which Philips equipment (except floor rails) is to be placed/anchored shall be flat and level to within plus or minus 1/16 inch (2mm) over a length of 39" (1m).
b. The floor surface upon which Philips floor rails are to be placed/anchored shall be flat and level to within plus or minus 1/4 inch (6mm) over the length of the floor rails.

4. Ceiling Support Apparatus

a. Philips provides, with this plan and specifications, information relative to size, weight and shape of ceiling supported equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of structural support apparatus, fasteners and anchorage to which Philips will attach equipment. Any anchorage and/or load test required by local authority shall be the customer's responsibility.
b. Contractor to clearly mark Philips equipment longitudinal centerline on bottom of each structural support.
c. The structural support apparatus surface to which Philips equipment is to be attached, shall have horizontal equipment attachment surfaces parallel, square and level to within plus or minus 1/16 inch (2mm).
d. Any drilling and/or tapping of holes required to attach Philips equipment to the structural support apparatus shall be the responsibility of the customer.
e. Fasteners, anchors (e.g. bolts, spring nuts, lock and flat washers), and strip closures shall be provided by the customer.

5. Lighting
Lighting fixtures shall be placed in such a position that they are not obscured by equipment or its movement, nor shall they interfere with Philips ceiling rails and equipment movement or otherwise adversely affect the equipment. Such lighting fixture locations shall be the sole responsibility of the customer.

6. Ceiling Obstructions
There shall be no obstructions that project below the finished ceiling in the area covered by ceiling suspended equipment travel.

7. Seismic Anchorage (For Seismic Regions Only)
All seismic anchorage hardware, including brackets, backing plates, bolts, etc., shall be supplied and installed by the customer/contractor unless otherwise specified within the support legend on sheet S1. Installation of electronic cabinets to meet seismic anchorage requirements must be accomplished using flush mounted expansion type anchor/bolt systems to facilitate the removal of a cabinet for maintenance. Do not use threaded rod/adhesive anchor systems. Consult with Philips regarding any anchor system issues.

8. Floor Obstructions/Floor Coverings
There shall be no obstructions on the floor (sliding door tracks, etc.) in front of the Philips electronic cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service. Contractor to verify the preferred floor covering installation method with Philips.

(13.0)

LICENSED ARCHITECT
RUSSELL L. MEEKS
C-10923
4-30-19
RENEWAL DATE
STATE OF CALIFORNIA

RECORD DRAWINGS

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

SN

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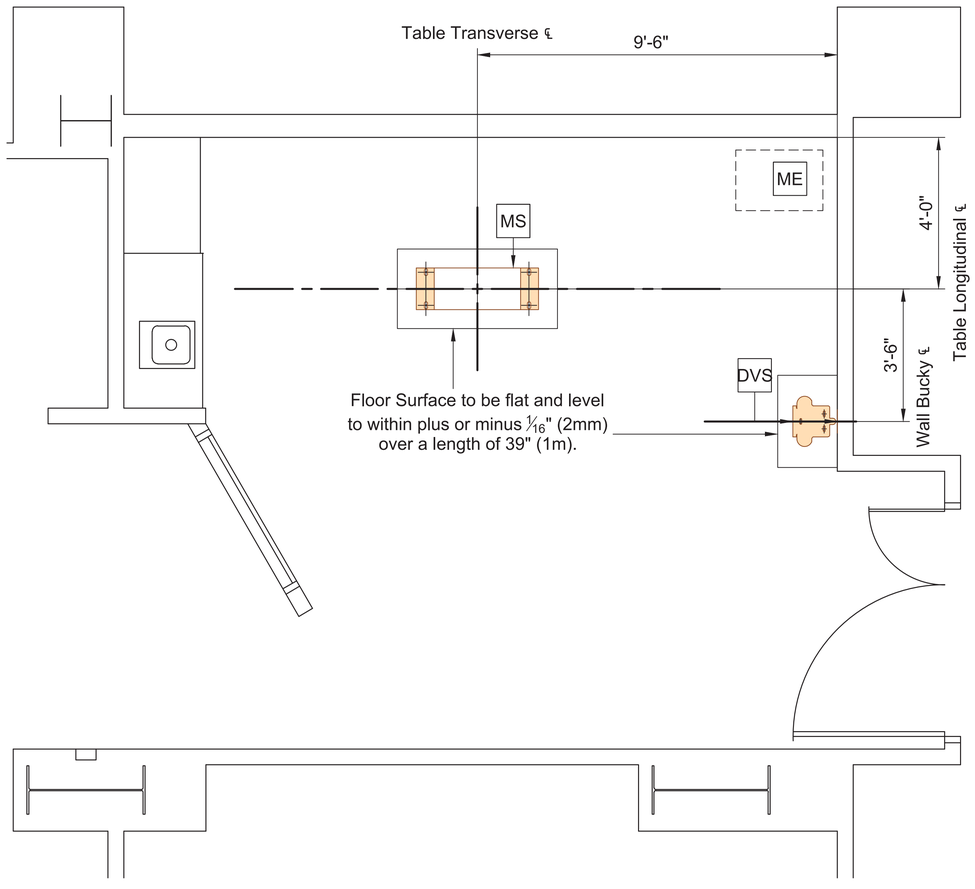


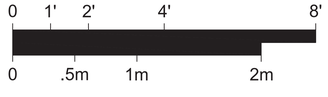
Floor Support Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.



Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (see exceptions - Note 2, below)
B Furnished by customer/contractor and installed/anchored by customer/contractor
C Installed/anchored by customer/contractor
D Furnished by Philips and installed/anchored by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
B	MS	Anchors in floor for Diagnost TH	SD5
B	DVS	Support in wall for BuckyDiagnost VS	SD4
A	DVS	Anchors in floor and wall for BuckyDiagnost VS	SD4
A	VSC	Anchors in wall for BuckyDiagnost VS Connection Box (not shown)	SD4
A	ELW	Eleva Examination Control - optional wall mounting (not shown, location to be determined by customer/contractor)	SD3
B	ME	Anchorage for Generator Cabinet (see seismic calculations for details)	--

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

Notes:
1. Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
2. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed in this document, the anchors shall be provided by customer/contractor and installed by Philips.
3. In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

LICENSED ARCHITECT
RUSSELL L. MEES
C-10923
4-30-19
RENEWAL DATE
STATE OF CALIFORNIA

RECORD DRAWINGS

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

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S1

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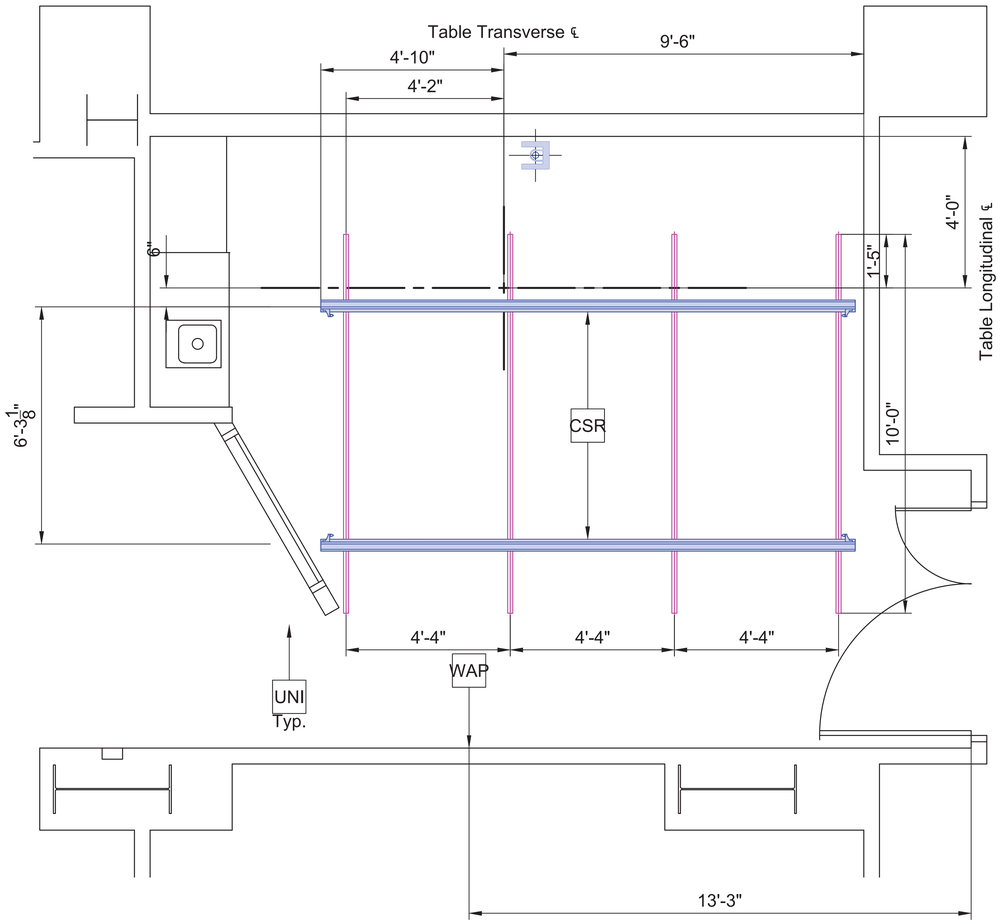

Ceiling Support Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

0 1' 2' 4' 8'
0 .5m 1m 2m

Ceiling Support Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
A	CSR	Philips Equipment Rails	SD3
B	UNI	Unistrut (P1001 or equal)	SD3
B	WAP	Wi-Fi Access Point - optional wall mounting	SD5

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

See Ceiling Clearance Detail (sheet SD2) for information on restricted areas for objects that project below the finished ceiling.

LICENSED ARCHITECT
RUSSELL L. MEEKS
C-10923
4-30-19
RENEWAL DATE
STATE OF CALIFORNIA

RECORD DRAWINGS

PHILIPS

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High Performance Room
DigitalDiagnost VS 4.1
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Philips Contacts
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Drawn By: Lisa Chen

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S2

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Pre-Evaluated and -Approved Anchor Reference List for **Philips Installers**

RECORD DRAWINGS

Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be provided by customer/contractor and installed by Philips.
In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

Equipment	Option	Anchor Style (provided by Philips)	Anchor Size (provided by Philips)	Qty.	Support Size & Material (provided & installed by customer/contractor)
Eleva Examination Control (Wall Mounted)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with min. ¾" plywood backing
	B	Toggler Snaptoggle with Round Head Screw and flat fender washers and nuts	#BA with #10-24 x 2 ½"L	4	Drywall (⅝"D min)
Digital VM Guide Rail with Wall Holders	A	A307 bolts (min. ASME Grade 5)	3/8", 3"L	6	Drywall with min. 16 Gauge Steel Backing Thru bolted with head of bolt behind backing and threads sticking out of wall for attachment to wall holders
	B	Lag Screw	3/8", 3"L	6	Drywall with min 4"x4" Douglas Fir # 2 Grade backing
	C	Hex Head Tek Screw	#14 x 3"L	6	Drywall with min. 10 Gauge Steel Backing
	D	Hilti KB-TZ	⅜" x 3"L	6	Concrete Wall (min. embedment = 2")
Digital VM Floor Rail	A	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	20	Concrete Floor
	B	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	20	Wood Frame Floor
Patient Support Floorplates	A	Simpson or Hilti Drop-in with Stainless Steel Phillips Oval Head Screw with dress washer	¼" x 1"L	4	Concrete Slab
	B	Hex Head Lag Bolt with flat washer	#14 x 1"L	4	Wood Frame Floor
Wireless Detector Docking Station	A	SPAX Multipurpose Flat Head Screw	#10 x 1½ "L	2	Drywall with minimum ¾" plywood backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½""	2	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	2	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	Toggler Alligator #A6 with SPAX #10 x 1½"L	2	Concrete Wall
BuckyDiagnost VS (Advanced and Digital) Wall Anchorage	A	Through Bolt	⅜" diameter	4	Minimum 10 gauge steel plate[1], or Minimum 4"x 4" Douglas Fir # 2 grade
	B	Self Drilling Tek Screw	# 14	4	Minimum 10 gauge steel plate[1]
	C	Lag Screw	7/16"	4	Minimum 4" x 4" Douglas Fir # 2 Grade
	D	Toggler Snaptoggle Anchor	⅜" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]
BuckyDiagnost VS Connection Box	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with Wood Backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½L"	4	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Round Phillips Head Self Drilling Screw	# 10-16 x 1½"L	4	Metal junction box or raceway
	E	Toggler Alligator with SPAX Multipurpose Flat Head Screws	Toggler Alligator #A6 with SPAX #10 x 1½"L	4	Concrete Wall or Hollow Concrete Block Wall
Parking Frame for Accessories (RAD)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	4	Drywall with min. ¾" plywood backing
	B	Phillips Round Head Self Drilling Screw	#10-16 x 1½"L	4	Minimum 16 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	4	Concrete Wall
Pediatric Support Parking Stand	A	Hilti KB-TZ with OD flat washer and hex nut	½ x 3¾"L	TBD	Concrete Slab
	B	Long Lag Bolt with ID and OD flat washer	½" x 2½"L	TBD	Wood Frame Floor
Stretch Grip Parking Bracket	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	3	Drywall with min. ¾" plywood backing
	B	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	3	Drywall
Tube Crane Box Cover	A	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

[1] Unistrut, angle, or c -channel material is preferred.

(15.0)

LICENSED ARCHITECT RUSSELL L. MEEKS C-10923 4.30.19 RENEWAL DATE STATE OF CALIFORNIA

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
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Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

SD1

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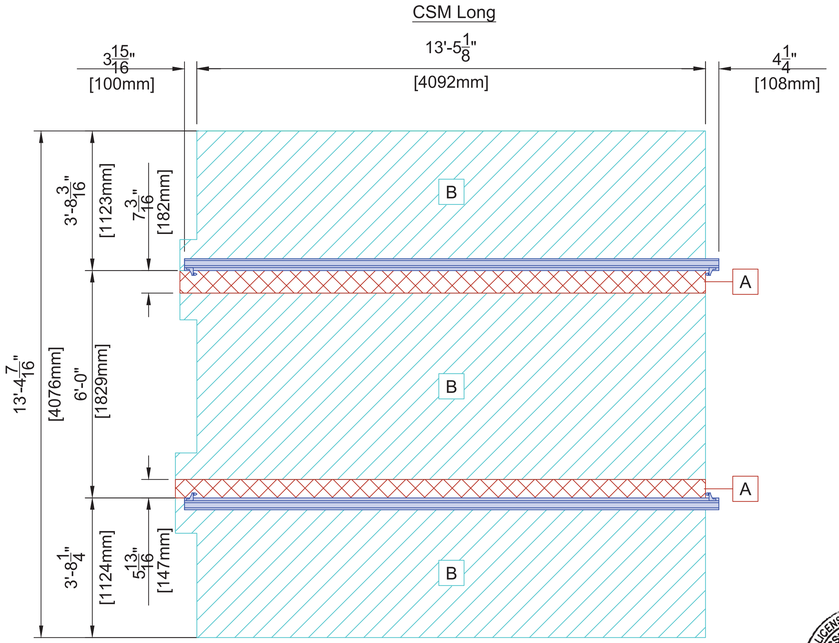
Ceiling Clearance Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)

A Objects that project below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, ceiling rails, etc).

B Objects that project more than 3.5" below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, etc).

CSM Long



14.1

RECORD DRAWINGS

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

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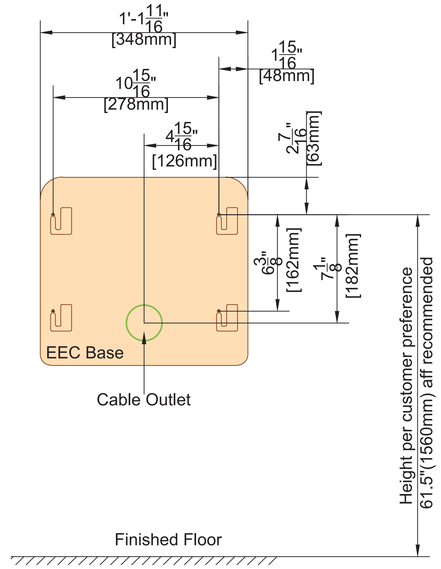
Detail - Eleva Examination Control - Wall Mounted

(Not to scale)

RECORD DRAWINGS

Elevation View of Bolt Locations and Cable Outlet



Front View

ELW

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with minimum ¾" plywood backing
B	Toggler Snaptoggle with Round Head Screw and flat fender washers and nuts	#BA with #10-24 x 2 ½"L	4	Drywall (⅝"D minimum)

Bolt Forces
Tmax (Tension) = 14 lbs/bolt
Vmax (Shear) = 19 lbs/bolt
(Seismic area forces - consult seismic calculation documents)

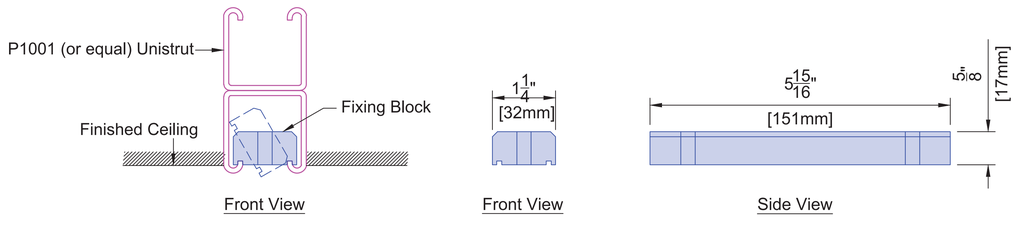
LICENSED ARCHITECT RUSSELL L. REED C-10923 4-30-19 RENEWAL DATE STATE OF CALIFORNIA

(13.0)

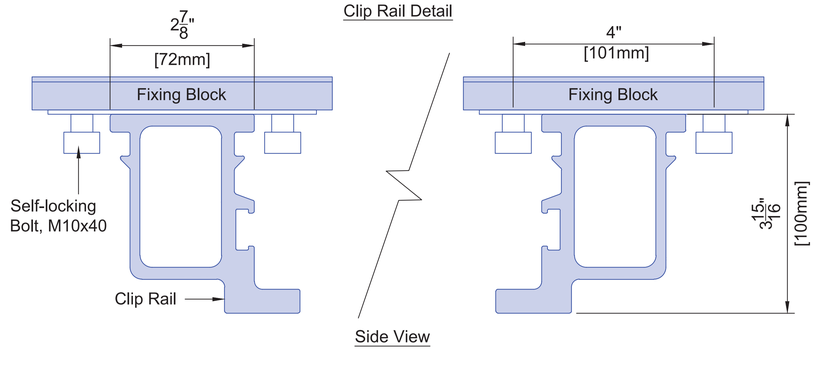
Detail - Ceiling Support

(Not to scale)

Fixing Block for Philips Ceiling Rails (Clip Rails) Detail



Clip Rail Detail



CSR UNI

- Philips does not specify the overhead equipment support structure. Unistrut (or equal) may or may not be used. If Unistrut are used, it is up to Unistrut and the structural engineer for the project to determine which of it's products are appropriate for each project.
- Finished ceiling must **NOT** be lower than the bottom of the Unistrut in order to prevent damage to the finished ceiling during the installation of clip rails.
- Finished ceiling height to be 1/4" above bottom of Unistrut.
- Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
- Fixing blocks for Philips ceiling rails (clip rails) are designed to be installed in P1001 Unistrut.
- The inside of the Unistrut must be clear of obstructions (including paint).
- Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, item #4 "Ceiling Support Apparatus".

Tube Crane Support Forces	Tension Forces	Compressive Forces
CS III	956 lbs/support	192 lbs/support

(Support = 2 screws into each Fixing Block)
(Seismic area forces - consult seismic calculation documents)

(13.0)

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

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Order: 6600284239.010000

SD3

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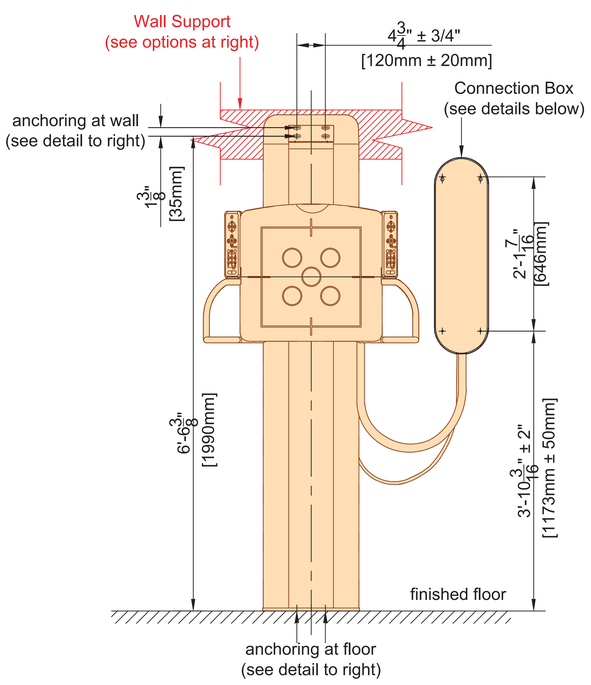
Detail - BuckyDiagnost VS Digital

(Not to scale)

RECORD DRAWINGS

PHILIPS

Elevation View of Bolt Locations



DVS

Wall Support Options

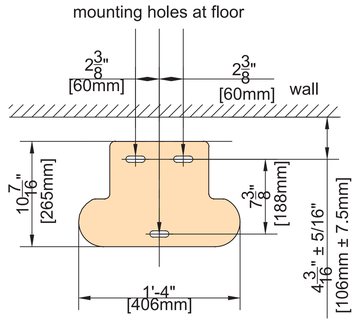
The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	Through Bolt	3/8" diameter	4	Minimum 10 Gauge Steel Plate[1], or Douglas Fir #2 Grade (minimum 4" x 4")
B	Self Drilling Tek Screw	#14	4	Minimum 10 Gauge Steel Plate[1]
C	Lag Screw	7/16"	4	Douglas Fir #2 Grade (minimum 4" x 4")
D	Toggler Snaptoggle Anchor	3/8" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]

[1] Unistrut, angle, or c-chanel material is preferred.

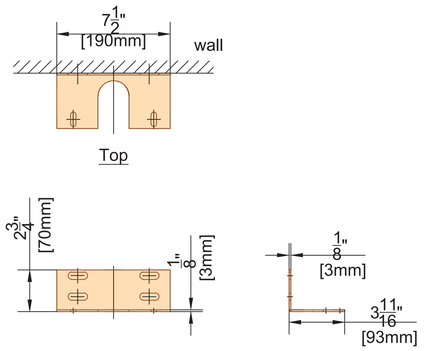
Bolt Forces
Wall mounting points must be suitable to tensile strength Fs ≥ 1500N (338 lbf) each anchor.
(Seismic area forces - consult seismic calculation documents)

Floor Anchoring Details



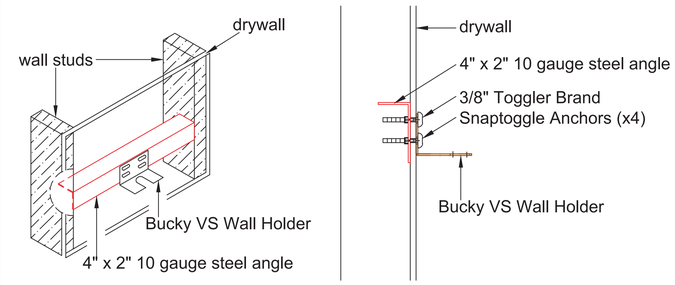
Top

Wall Holder / Bracket Details



Front Side

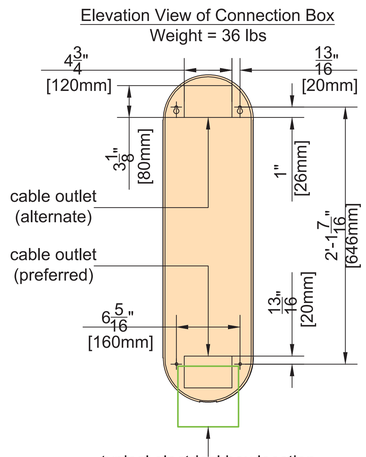
Wall Anchoring Example
Illustration of Wall Support with Steel Plate and Toggler Anchor



Isometric Side

(13.0)

Elevation View of Connection Box
Weight = 36 lbs



VSC

Detail - BuckyDiagnost VS Advanced Connection Box

(Not to scale)

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with wood backing
B	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Drywall with minimum 10 gauge steel backing
C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (5/8"D min.)
D	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

Bolt Forces
Tmax (Tension) = 39 lbs/bolt
Vmax (Shear) = 36 lbs/bolt
(Seismic area forces - consult seismic calculation documents)

(13.0)

LICENSED ARCHITECT RUSSELL L MEERS C-10923 4-30-19 RENEWAL DATE STATE OF CALIFORNIA

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
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Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

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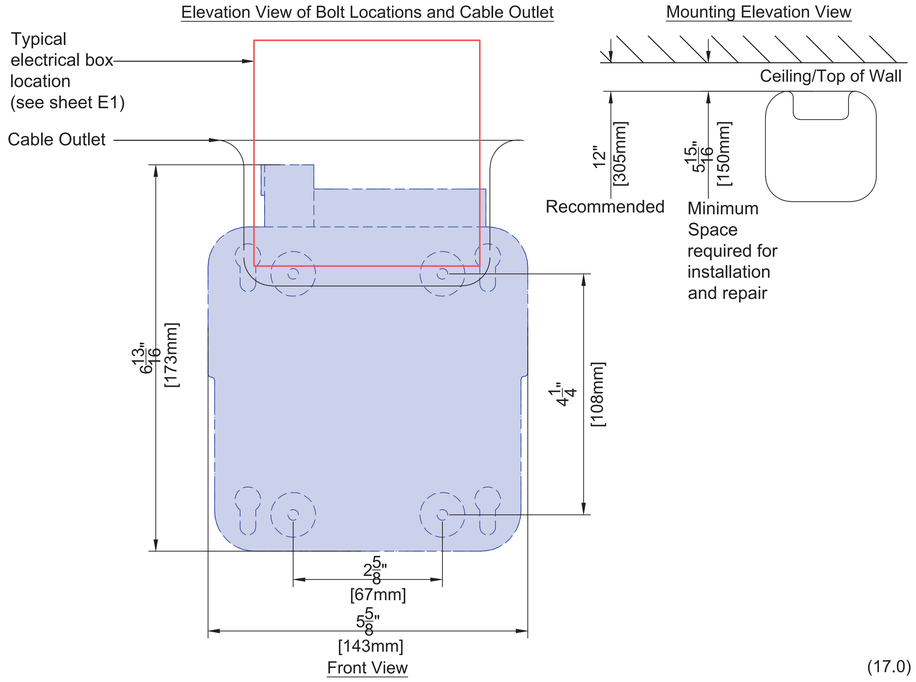
RECORD DRAWINGS

Detail - Wi-Fi Access Point - Wall Mounted)

(Not to scale)

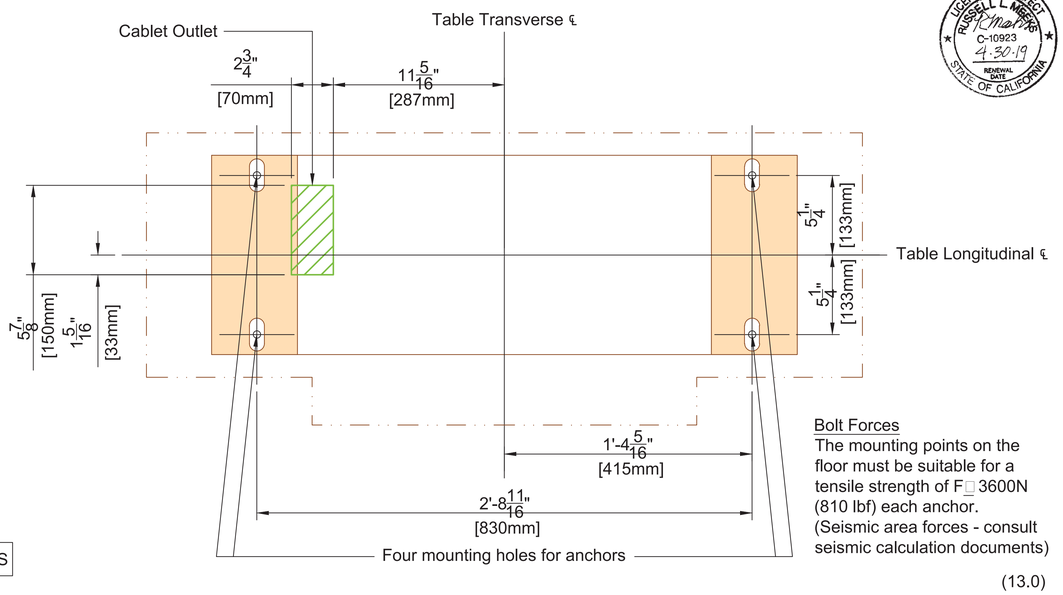


WAP

(17.0)

Detail - Diagnost TH/TF Table Base

(Not to scale)



Bolt Forces
The mounting points on the floor must be suitable for a tensile strength of F□ 3600N (810 lbf) each anchor.
(Seismic area forces - consult seismic calculation documents)

MS

(13.0)

LICENSED ARCHITECT RUSSELL L MEEKS C-10923 4-30-19 RENEWAL DATE STATE OF CALIFORNIA

PHILIPS

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High Performance Room
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General Electrical Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

2. Materials and Labor
The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc., as separately specified herein.

3. Electrical Ducts and Boxes
Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: power wiring and/or cables, Group B: signal and/or data and protective ground wiring and/or cables, Group C: x-ray high voltage cables. The use of 90 degree ells is not acceptable. On ceiling duct and wall duct use 45 degree bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.

4. Conduit
Conduit point-to-point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.

5. Conductors
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.

6. Disconnecting Means
A disconnecting means shall be provided as separately specified.

7. Warning Lights and Door Switches
"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

8. Dimmer Switches
X-ray room lights should be provided with dimmer switches.

(13.0)

Electrical Notes

1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.

2. The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.

3. All pre-terminated, cut-to-length cables will be supplied and installed by Philips. See Conduit List for information regarding all other cables (e.g. cables to breakers, etc.).

4. Provide and install 4 - 2"(50mm) diameter chase nipples between adjacent wall boxes (not required if raceway installed above and below wall boxes).

5. Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non - accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above-ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above-ceiling must be kept as near to finished ceiling as possible.

6. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever governs.

7. Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.

8. All sections of raceway and conduit shall be grounded with an independent #6AWG green wire that is to be attached using solderless lugs All ceiling mounted structural support members and ceiling plates shall also be grounded. All grounding connections, terminals, etc. shall be installed in a manner to provide accessibility for inspection, maintenance, repair, etc.

(13.0)

Electrical Requirements

Electrical power distribution at the facility shall comply with:

- Utilization voltages per ANSI C84.1 - 1982 range A.
- Voltage to be supplied is 3 phase, 3 wire power and ground (delta or wye) unless otherwise noted in equipment specifications.
- Phase conductors to be sized for instantaneous voltage drop per NEC 517-73 and Philips recommendations.
- Neutral and ground conductors to be sized equivalently to phase conductors, unless otherwise noted.
- Metal conduit shall not be used as the equipment ground conductor.
- Clamping type surge suppressors are highly recommended in addition to standing facility lighting arrestors. Equipment to be protected from ANSI/IEEE C62.41-1980 location category B impulses.
- ANSI/NFPA 70 - National Electrical Code (NEC)
  Article 250 - Grounding
  Article 517 - Health Care Facilities
- ANSI/NFPA 99 - Health Care Facilities Code
- NEMA standard XR 9 - Power Supply Guidelines for X-Ray Machines

(13.0)

Power Quality Guidelines

1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.

2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.

3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality: static UPS systems, series filters, power conditioners, voltage regulators.

   Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.

4. Line impedance is the combined resistance and inductance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

(13.0)

LICENSED ARCHITECT
RUSSELL L MEEKS
C-10923
4-30-19
RENEWAL DATE
STATE OF CALIFORNIA

RECORD DRAWINGS

PHILIPS

Project
High Performance Exam Room
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EN

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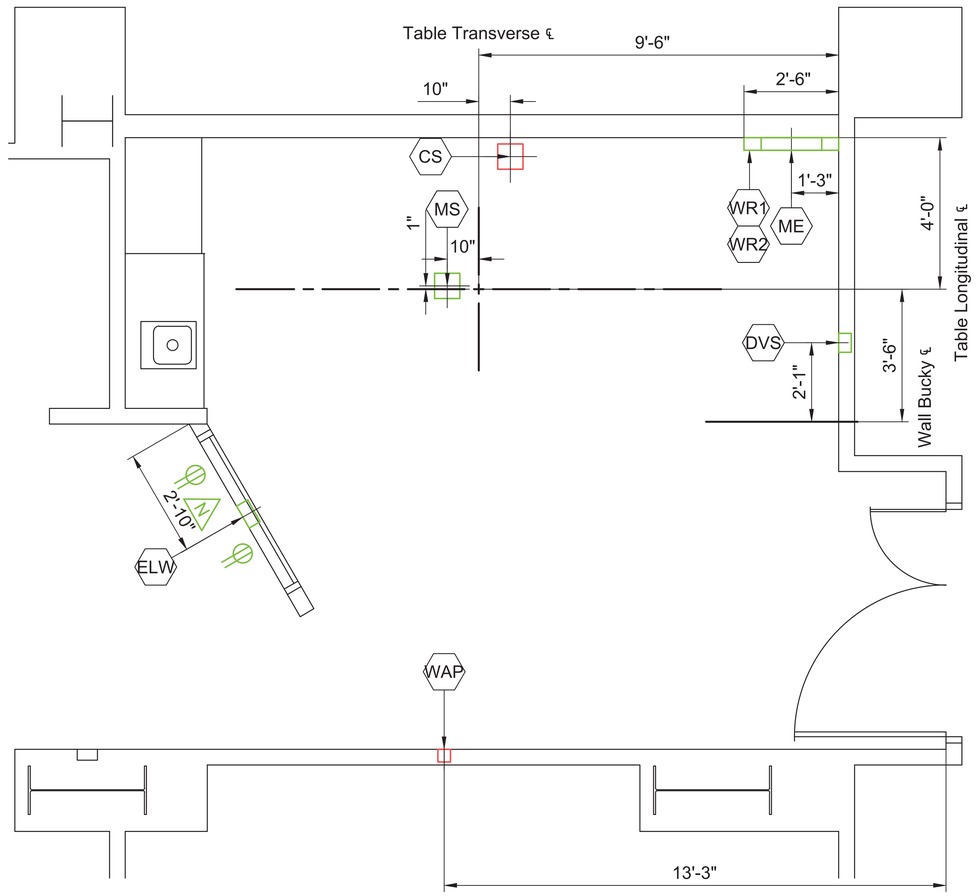

Electrical Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

0 1' 2' 4' 8'
0 .5m 1m 2m

Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
B	CB	480V, 3 phase 70 AMP circuit breaker with shunt trip. Run power from breaker to ME, leaving an 8' (2440mm) tail. See Sheet ED1 for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	ST	Shunt Trip (emergency off) Large mushroom-head button on remote control station with contacts to operate feature of CB. Location per local code or owner requirements (mandatory for VA and DOD installations). (Not shown on plan)	
B	WL	Warning Light - Provide an incandescent surface or flush mounted light fixture above door to indicate when X-Ray is on. (Not shown on plan)	ED1
B	DS	Door Switch - 120V, 5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1665 or equivalent), if required by local code or physicist of record. (Not shown on plan)	ED1
D	ME	19 1/4" (490mm) W x 67" (1705mm) H x 4" (105mm) D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 75" (1905mm) A.F.F. to top of box. Conduits to terminate at conduit knock outs provided on top, bottom, or sides of terminal wall box. If raceway is used at top and / or bottom of terminal wall box, remove panel(s) of terminal box by drilling out pop rivets. Top and bottom panels will slide out without the need for cutting. Cutting of the box is prohibited as it will void the UL listing.	ED1
B	DVS	6" (155mm) W x 6" (155mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 39" (990mm) A.F.F. to bottom of box.	
B	CS	8" (205mm) W x 8" (205mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate.	
B	MS	8" (205mm) W x 8" (205mm) L x 4" (105mm) D floor box, flush mounted with removable gasketted screw-type cover plate.	ED1
B	ELW	8" (205mm) W x 8" (205mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 22" (560mm) A.F.F. to bottom of box. Location shown is recommended and may be changed - verify relocation with local Philips Service. For cables to ELW.	
B	N	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access through customer's network to VPN device capable of connecting to the Philips Remote Service Network (RSN) Datacenter is needed. Refer to page N1 for RSN connectivity options. Locate within 10' (3050mm) of network card. Network Fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc, are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of the components.	N1
B		120V, 20A dedicated duplex outlet. Coordinate exact location with local Philips Service.	
B	WAP	4" (105mm) W x 4" (105mm) L x 4" (105mm) D wall box with removable screw-type cover plate, flush mounted 10" (255mm) below ceiling/top of wall to top of box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	WR1 WR2	4" (105mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at 4" (105mm) A.F.F. to bottom of raceway. "WR2" is at 75" (1905mm) A.F.F. to bottom of raceway. *	ED1

LICENSED ARCHITECT
RUSSELL L MEEKS
C-10923
4.30.19
RENEWAL DATE
STATE OF CALIFORNIA

*WR1 and / or WR2 are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper locations as required. As noted for "ME", the top and bottom panels can be removed by drilling out the pop-rivets and pulling the panel out. Raceway size and length can be changed as needed as long as the raceway is a minimum of 19 ¼" (490mm) in length to cover the entire opening of the removed top or bottom panel(s) and the terminal wall box remains at a mounting height of 75" (1905mm) A.F.F. Raceways cannot be deeper than the terminal wall box, they must fit securely behind the terminal wall box flanged-edge.

PHILIPS

Project
High Performance Maintenance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

E1

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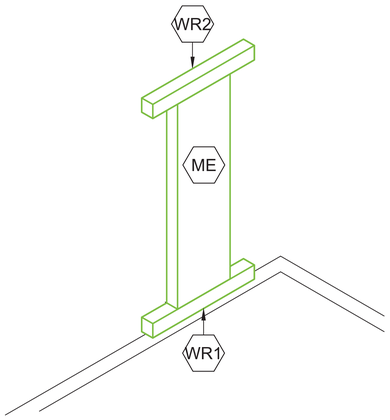
Isometric Layout
(Not to scale)



Raceway Diagram
(Not to scale)

Refer to Electrical Legend and Layout - Sheet E1

The use of 90 degree ells is not acceptable; use 45 degree bends at all raceway corners. The use of crossover tunnels at all applicable locations is required.

RECORD DRAWINGS

Conduit Required

General Notes
1. All conduit runs must take most direct route point to point.
2. All conduit runs must have a pull string.

A Conduit supplied and installed by contractor - Philips cables installed by Philips.
B Conduit supplied and installed by contractor - Philips cables installed by contractor
C Conduit and cables supplied and installed by contractor
D Conduit existing - cables supplied and installed by Philips
E Conduit existing - cables supplied by Philips, installed by contractor
F Conduit existing - cables supplied and installed by contractor

* Cable Type
F Fiber Optic
H High Tension Power Cables
P Power / Ground
S Signal Cables
V Video Cables

	Conduit			Conduit Quantity	Cable Type *	Minimum Conduit Size	Maximum Conduit Length	Special Requirements
	Run No.	From	To					
C	1	Power Panel	CB	1	P	Per N.E.C.	Per N.E.C.	
B	2	CB	ME	1	P	2"	50'	
C	3	CB	ST	1	P	3/4"	50'	
C	4	ME	WL	1	P	1/2"	50'	
C	5	ME	DS	1	P	1/2"	50'	
A	6	ME	ELW	1	P	1 1/2"	55'	
A	7	ME	ELW	1	S	2"	55'	
A	8	ME	MS	1	P	1 1/2"	22'	
A	9	ME	MS	1	S	2"	22'	
A	10	ME	DVS	1	P	1 1/2"	55'	
A	11	ME	DVS	1	S	2"	55'	
A	12	ME	CS	1	H / P	2 1/2"	32'	
A	13	ME	CS	1	S	2"	32'	
A	14	ELW	MS	1	F / S	1 1/2"	98'	
A	15	ELW	DVS	1	F / S	1 1/2"	78'	
A	16	WAP	ELW	1	P	1"	84'	Ethernet cable. Conduit if required by local code.

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Refer to Electrical Layout and Legend - Sheet E1

PHILIPS

Project
High Performance Maintenance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
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Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

E2

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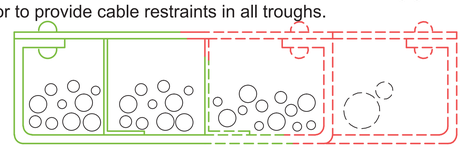
Detail - Cable Trough Divisions

(Not to scale)

Troughs or ducts must be separated by metal barriers into three sections.

1. High voltage (H.T.) cables to be routed separately from all other cables.
2. Power cables and ground cables can be routed together.
3. Signal cables and data cables can be routed together but must be separated from power cables.
4. Video cables to be routed separately from all other cables.
5. It is important that all cables are placed in the appropriate trough and at no given point do any cables from one division cross with cables from another. Trough separation must be continuous from the beginning to the end of the run. Utilize crossover tunnels as appropriate.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.

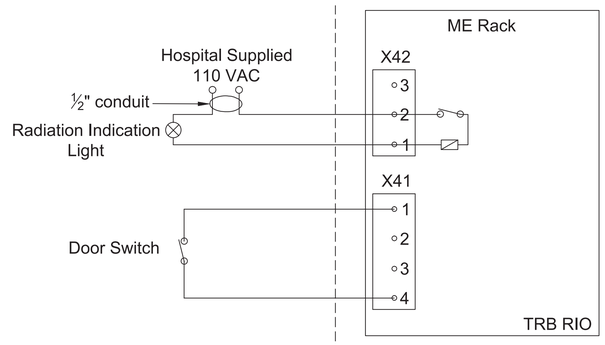


WR1 WR2

(16.0)

Detail - X-Ray On Light and Door Switch

(CXA Generator)
Not to Scale



WL DS

(13.0)

Power Quality Requirements

(M-Cabinet CXA 80)

Power Output:	80 kW
Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460, or 480 VAC, 60 Hz
Line Voltage Variation:	± 8% steady-state
Line Voltage Balance:	2% maximum of nominal voltage between phases
Frequency Variation:	± 1% (± 0.6 Hz)
Voltage Surges:	To 110% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Voltage Sags:	To 90% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Line Impulses:	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-ground Voltage:	2.0 volts maximum RMS value
Neutral-ground Impulses:	No more than 1 per hour that exceeds 25 volts and 1 Mjoule
High Frequency Noise:	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour maximum
Ground and Neutral Conductor Impedance:	0.1 Ω @ 60Hz maximum

Branch Circuit and Wire Gauge Requirements

Branch Power:	112.5 kVA minimum
Circuit Breaker:	3 pole, 70 amperes (@ 480V)
Maximum Instantaneous Power:	105 kVA (800 mA @ 100 kV) (Short-term), < 5 amperes (Long-term)

Recommended conductor sizes for 1% impedence of branch conductors to circuit breaker (CB), based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#2 AWG	80 feet	96 feet	105 feet	115 feet
#1 AWG	101 feet	122 feet	134 feet	146 feet
1/0 AWG	128 feet	154 feet	168 feet	184 feet
2/0 AWG	161 feet	194 feet	212 feet	232 feet
3/0 AWG	203 feet	244 feet	267 feet	292 feet
4/0 AWG	258 feet	311 feet	340 feet	372 feet
250 MCM	303 feet	364 feet	399 feet	436 feet
300 MCM	363 feet	437 feet	478 feet	523 feet
Instantaneous Current	160 A	--	--	135 A
Maximum Phase-Phase Impedance	0.2 Ω	--	--	0.3 Ω
Maximum Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4%	9.5%	8.7%	7.9%

Minimum copper wire size, circuit breaker (CB) to equipment: #4 AWG, maximum 50' in length.

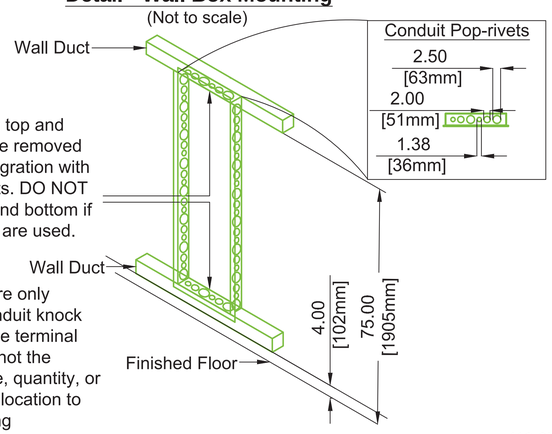
*The ground conductor for the power feeder shall be the same size as the phase conductor wires.

CB

(14.1)

Detail - Wall Box Mounting

(Not to scale)

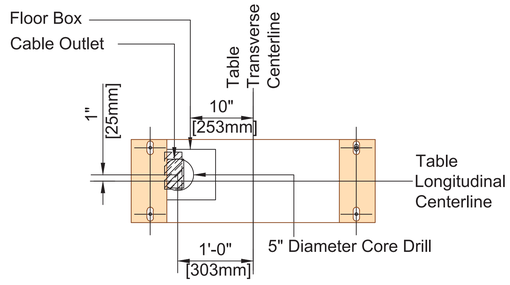


ME

(16.3)

Detail - Diagnost TH Table Base

Not to Scale



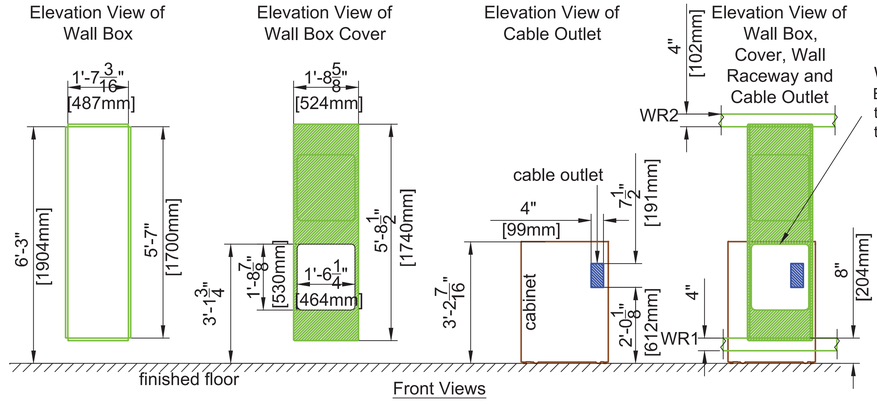
Provide a 5" diameter core drill if the floor cannot accommodate a standard 8"W x 8"L x 4"D floor box for "MS".

MS

(13.0)

Detail - M-Cabinet CXA Wall Box - Cable Outlet on Left Side

(Not to scale)



Wall Box Cover
Bottom cover punch out to be used. Top of the cover punch out should not be higher than height of the cabinet.

Wall Box
General contractor to pop out top/bottom of box as required. Provided by Philips (NA only).

MEX100 Terminal Block (not shown)
Must be located behind the Wall Box Cover (in the upper 990mm of the Wall Box)

ME

(16.2)

LICENSED ARCHITECT RUSSELL L MEEKS C-10923 4.30.19 RENEWAL DATE STATE OF CALIFORNIA

RECORD DRAWINGS

PHILIPS

Project
High Performance Room
DigitalDiagnost VS 4.1
UC Davis
Sacramento, CA
Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

Project Details
Drawing Number
N-WES170183 A
Date Drawn: 4/24/2017
Quote: 1-1HW8W8E Rev 5
Order: 6600284239.010000

ED1

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Philips Healthcare Remote Services Network (RSN)

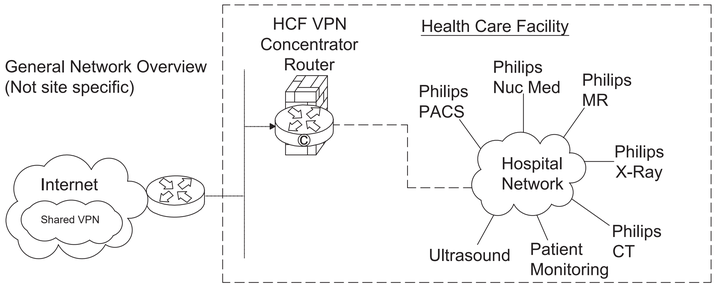
Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

Broadband Site-to-Site Connectivity (Preferred)

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

Connectivity Details:

- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode.
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



Action Required by Hospital:

- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.).
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips.

Broadband Router Installed at Health Care Facility

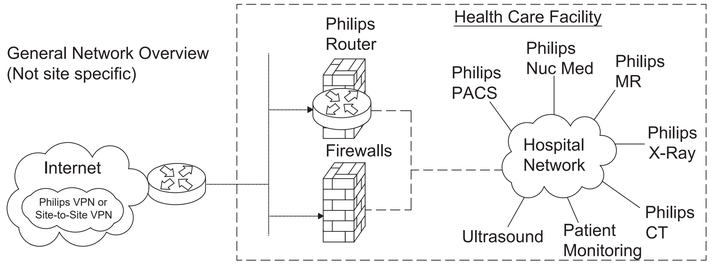
This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

Connectivity Details:

- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site.
- One to One NAT is used to limit access to Philips equipment only.
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7.
- Dedicated DSL connections are also supported.

Option 1: Parallel to HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.

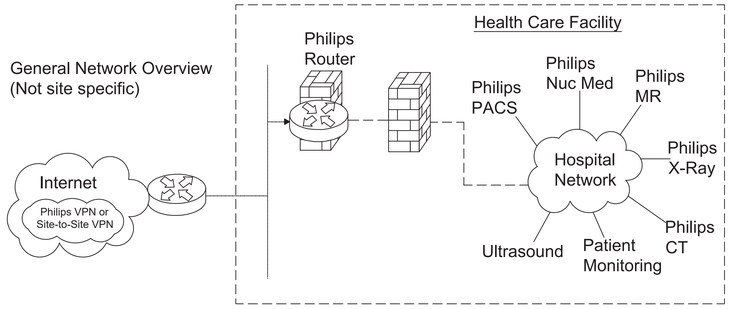


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

Option 2: Back End Connected to the HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.

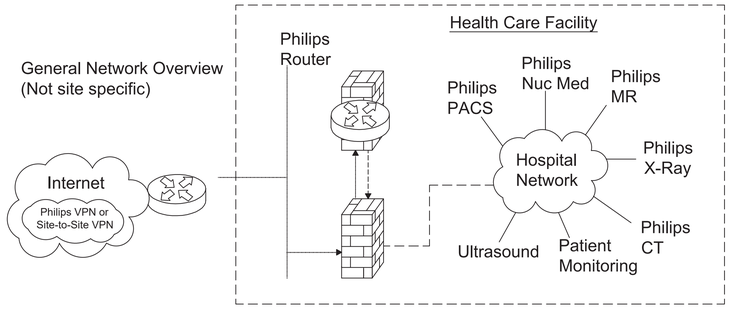


Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Option 3: Router Installed Inside the HCF's DZM

This connectivity method is designed for customers who prefer the RSN Router installed inside an existing or new DMZ, allowing access to Philips equipment.



Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 500, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

System Network Information

IMPORTANT NOTE:

It is the customer's responsibility to coordinate with the local Philips Engineer to provide ALL required network information and install ALL required network cabling & drops according to Philips specifications PRIOR to the scheduled installation start date. Failure to do so may delay system installation and jeopardize the customer hand over date.

DigitalDiagnost (filled out by FSE)	
MAC Address:	
System SN:	
X-Ray Control SN:	

DigitalDiagnost Network Settings		
	TCP / IP settings	**DICOM settings (System)**
IP Address:		
Subnet Mask:		
Default Gateway:		
AE Title:		

PACS - DICOM Store (Export)		
	Primary	**Backup**
AE Title:		
Port Number:		
IP Address:		

RIS Node - DICOM		
	RIS	**MPPS** [ ]yes [ ]no
AE Title:		
Port Number:		
IP Address:		

MPPS	
AE Title:	
Port Number:	
IP Address:	

Timeserver	
IP Address:	

Audit Trail Server	
UDP/TCP Protocol	
IP Address:	
Port Number:	

Dose Report Printer (optional)	
Shared Printer Name:	
IP Address:	
Port Number:	
User Name (if restricted to domain):	
Password (if restricted to domain):	

RECORD DRAWINGS

LICENSED ARCHITECT
RUSSELL L MEEKS
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PHILIPS

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N1

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Site Readiness Checklist

Instructions

This form is to be used by Project Manager, Contractor and Service Engineer.

Information is used to develop and determine site ready date.

Items listed are go/no go items for delivery unless noted as delay only items.

Items identified with *** as delayed items must be completed after hours or on weekend. These items cannot be accomplished while installation is in progress. Also, these items must be completed within two days of installation start or they may stop installation.

General Checklist

- [ ] Customer site preparation verified in general against the Philips final planning drawings.
- [ ] Walls finished including painting.
- [ ] Doors installed.
- [ ] Floor leveled according to Philips drawings and specifications.
- [ ] Floors are tiled/covered finished. Flooring is covered with protective covering (scratch protection).
- [ ] Ceiling lights installed.
- [ ] Cable conduit and ductwork installed and clean. Position checked. Duct covers in place but not finally closed. Cable opening are clear, without sharp edges. Pull strings in conduit. Installation per Philips specifications.
- [ ] HVAC environmental equipment installed and working according to Philips specifications.
- [ ] Ceiling installation completed.
- [ ] Electrical preparation according to Philips specifications.
- [ ] All network cabling, drops installed according to Philips specifications (including hardcopy cameras).
- [ ] All network cabling, drops activated and tested by Philips Field Service Engineer with hospital IT information provided.
- [ ] All pre-cabling identified on Philips drawings has been installed.
- [ ] Pre-move survey completed - Delivery route identified.
- [ ] Lead glass installed. ***
- [ ] X-ray warning lights installed. ***
- [ ] Dedicated phone line for modem use. ***
- [ ] Room has been cleaned. ***
- [ ] Cabinets and casework installed. ***

LICENSED ARCHITECT RUSSELL L MEERS C-10923 4.30.19 RENEWAL DATE STATE OF CALIFORNIA

Modality Checklist

- [ ] Unistrut installed and level according to Philips specifications.
- [ ] Blocking support for wall stand.
- [ ] Conduit lengths measured according to Philips specifications. NOTE: Specifications are from source box to destination box (not just conduit run length).
- [ ] Wall support for wall stand.

Approved for Delivery

Project Manager Date

Service Engineer Date

RECORD DRAWINGS

PHILIPS

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High Performance Room
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Room:1835J

Philips Contacts
Project Manager: Don Reed
Contact Number: (916) 218-9329
Email: don.reed@philips.com
Drawn By: Lisa Chen

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5.7 MEETING MINUTES

MIN 01.01

ARCHITECTURAL NEXUS, Inc
archnexus.com

SALT LAKE CITY
2505 East Parleys Way
Salt Lake City, Utah 84109
T 801.924.5000

SACRAMENTO
930 R Street
Sacramento, California 95811
T 916.443.5911

DATE & TIME:	March 3, 2025 @ 2pm	**MEETING TYPE:**	Project Kick-off Meeting
PROJECT:	**DT 1835H 1835I X-ray Upgrades** 4301 X St Sacramento, CA 95817	**LOCATION:**	Zoom
		OWNER'S PROJECT #:	9558190
		ARCHITECT'S PROJECT #:	25011

LEGEND: ☑ In Attendance ☒ Attending Via Teleconference ☐ Not in Attendance

	Participant	Company	AKA	Telephone	Email
x	Kelly Schreihofer	Architectural Nexus	KS	916.213.9201	kschreihofer@archnexus.com
x	Michael Leighton	Architectural Nexus	ML	916.642.8505	mleighton@archnexus.com
	Sean Ryan	Architectural Nexus	SR	916.443.5911	sryan@archnexus.com
x	Zach Price	UCDH	ZP	916.919.6319	zprice@ucd.edu
x	Jeffrey Emasian	Diagnostic Imaging	JE	916-703-2272	jmelmasian@ucdavis.edu
x	Steven Juett	One Eq/HBS	SJ	214-908-4979	steven.juett@hbsinc.com
x	Jennifer Howlett	Phillips	JH	530-448-2932	Jennifer.howlett@philips.com
x	Daniel Livy	Phillips	DL	415-215-4874	Daniel.Livy@philips.com
x	Trina Laing	OneEq	TL	916-220-3895	trina.laing@hbsinc.com
x	Emily Brown	KPFF	EB	916.995.4425	Emily.Brown@kpff.com
x	Vanessa Millsaps-Diaz	KPFF	VM	916.772.7688	vanessa.millsaps-diaz@kpff.com
x	Curtis Costella	ECOM	CC	916.761.9925	ccostella@ecomeng.com
x	Nirav Shah	Turley	NS	916.716.7651	nshah@turleymech.com

MINUTES:

Issue #	Date	Description	Action By	Due Date
01.00	**03/06/25**	**Introductions**		
01.01	03/06/25	Introductions were made all around		
02.00	**03/06/25**	**Communication and chain of command**		
02.01	03/06/25	Zach and Kelly are primary contacts		
02.02	03/06/25	if Kelly, copy Mike L.		
02.03	03/06/25	if Zach, copy Jeff E or vendors as applicable		
02.04	03/06/25	if user questions, go around Zach but copy him		
02.05	03/06/25	Copy One Eq and Phillips with any equipment issues		
02.06	03/06/25	Everyone should receive invite to our BIM 360 hosting		
02.07	03/06/25	Everyone agreed to using Bluebeam for file sharing		
03.00	**03/06/25**	**Project Meetings**		
03.01	03/06/25	Per schedule unless separate project meetings are required		
04.00	**03/06/25**	**As-built Documents/Conditions**		
04.01	03/06/25	AN has the 2017 plans for the suite J upgrade.		
04.02	03/06/25	Kelly remembers AN having a master list of the drawing set for the tower. We can select and order from that set.	SR	3/13/2025
05.00	**03/06/25**	**Schedule**		
05.01	03/06/25	Adjust to reflect project start date.	ML	3/12/2024
05.02	03/06/25	Set dates for site walk	ML/ZP	3/12/2024
05.03	03/06/25	Coordinate w interiors department	MO	3/12/2024
06.00	**03/06/25**	**Existing Tests, Reports, Surveys**		
06.01	03/06/25	Zach to coordinate for all listed tests, etc.	ZP	3/12/2024
07.00	**03/06/25**	**UCDH Standards**		
07.01	03/06/25	The links we have for interiors and specification are still applicable		
08.00	**03/06/25**	**Equipment**		
08.01	03/06/25	AN needs complete product data for all Phillips equipment	ML/DL	3/12/2025

NEXT MEETING: NA

DATE & TIME: NA **LOCATION:** NA

Please review the Meeting Minutes below, and inform the Architect as soon as possible of any necessary corrections, comments, or additional information to be included. **Items in bold type are new from this meeting. Underlined items require action.**

5.8 PROJECT EQUIPMENT MANUAL

UC DAVIS HEALTH

Project Equipment Manual

Davis Tower 1835H and 1835I X-ray

9558190 Bridging Documents

July 7st, 2025

COVĀLUS
PLAN · BUILD · EQUIP

Introduction to the Project Equipment Manual

This is the Bridging Documents Package Project Equipment Manual (PEM) for the UC Davis Health Radiology Rooms (2835H/2835I) project. This manual contains detailed information on the medical equipment required for your project. The PEM is a work-in-progress and may be updated, replaced, or made obsolete by subsequent PEMs. This manual provides the owner, architect, contractor, and design team detailed specifications of equipment for the project.

The manual consists of the following information:

- **ROOM LEGEND BY DEPARTMENT**
  The Room Legend by Department report is a listing of all departments in the project and the respective room numbers and names identified in the drawings provided by the architect.

- **ROOM BY ROOM DETAIL**
  The Room by Room Detail report identifies architecturally significant medical equipment specified within each room of the project. The equipment, indexed by department and room, is identified by an equipment number assigned by Covalus. Each equipment item includes a description, manufacturer, model, and responsibility code.

- **EQUIPMENT LIST SUMMARY**
  The Equipment List report is an overall project summary of architecturally significant medical equipment. The list is sorted by item number with the following information included: quantity, status (new, existing, future, or lease), item description, manufacturer, model, and responsibility code.

- **PEM DETAIL & SPECIFICATIONS**
  Each PEM Detail report is specific to the item noted in the preceding reports and can be utilized as a cross-reference to room locations. All reports reflect specifications unique to each item followed by the manufacturer's detailed specifications. These reports provide useful information to the owner, architect, contractor, and design team to outfit the facility in preparation for the specified equipment.

  The details of an item may state "Refer to Manufacturer's Specifications" or "Vendor Site Specific Drawings". These items are technically complex, therefore, we do not summarize the information on one page. For all items in the PEM Detail report, one should refer to the manufacturer's literature whenever it is provided for a complete understanding of the specifications.

  Upon finalization of equipment selections by the owner, submittals and final drawings will be presented by the manufacturer. These documents will be included in all future updates to this manual.

Periodic addendums to this manual will be issued in one or more of the following methods:

- Updated hardcopy PEM
- Change Log to a 100% PEM
- Electronically via online subscription to EquipWare™

Please indicate any concerns or changes to this manual to:

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Room Legend by Department

Project Name: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190

Facility Name: UC Davis Health

Arch Room Num Room Num

Dept	Radiology/Imaging	
Arch Room	Alt Room	Room Name
1835H		General Radiology 4
1835I		General Radiology 5
TBD		Existing Shared Equipment

Criteria

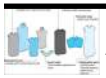
Project: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190
Departments: Radiology/Imaging

01 - Radiology/Imaging

Arch Room: TBD - Existing Shared Equipment (Phase: Phase 1) **Alt Room #:**

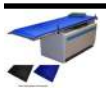
Image	Item #	Alt Item #	New	Exist	Future	Lease	Description	Manufacturer	Model	RESP	UM	Group	PEM	Prj Acc	Rm Acc
	CAR01646		0	1	0	0	Cart, Storage, Equipment, Transfer, Mattress, Mobile	HoverTech International	HoverMatt Universal Cart	OF | OI	EA	3	Yes	No	No
	IMM00002		0	1	0	0	Immobilization Device, Patient, Infant/Child, Radiographic	Piggostat	PIGG-O-STAT Pediatric Immobilizer	OF | OI	EA	3	Yes	No	No
	LFT00017		0	1	0	0	Lift, Standing Aid, Mobile, Patient, Hydraulic/Manual	Arjo Inc.	SARA Stedy	OF | OI	EA	3	Yes	No	No
	PMP00178		0	1	0	0	Pump, HoverMat, Air Supply	HoverTech International	HT-Air 1200	OF | OI	EA	2	Yes	No	No

Arch Room: 1835H - General Radiology 4 (Phase: Phase 1) **Alt Room #:**

Image	Item #	Alt Item #	New	Exist	Future	Lease	Description	Manufacturer	Model	RESP	UM	Group	PEM	Prj Acc	Rm Acc
	ALL00008		3	0	0	0	Allowance, Apron, Lead	Burlington Medical, LLC	Lead Aprons (Placeholder)	OF | OI	EA	3	No	No	No
	ALL00009		1	0	0	0	Allowance, Positioners	TBD - To Be Determined	Positioners (Placeholder)	OF | OI	EA	3	No	No	No
	BRD00067		1	0	0	0	Board, Transfer, Radiology	Techno-Aide	Standard Patient Transfer Board	OF | OI	EA	3	Yes	No	No
	BRK00169		1	0	0	0	Bracket, Transfer Board, Wall Mounted	Z & Z Medical	TBR-2P	OF | CI	EA	1	Yes	No	No
	CLK00031		1	0	0	0	Clock, Wall Mounted, Analog, Manual	Grainger	Battery Operated Analog Quartz Wall Clock	OF | CI	EA	3	Yes	No	No
	DIS00115		1	0	0	0	Disposal, Sharps, Wall Mounted, 5.8 Gal,	Daniels Health	S22 w/ Right Side Locking Bracket	OF | CI	EA	1	Yes	No	No
	DSP00123		1	0	0	0	Dispenser, Glovebox, Triple, Acrylic, Wall Mounted (SPECIFY COLOR)	MarketLab	Triple Side-Loading Acrylic Glove Dispenser	OF | CI	EA	3	Yes	No	No
	HMP00037		1	0	0	0	Hamper, Linen Mobile	Rubbermaid Commercial Products	Premium Linen Hamper w/ Bag	OF | OI	EA	3	Yes	No	No

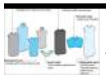
01 - Radiology/Imaging

Arch Room: 1835H - General Radiology 4 (Phase: Phase 1) **Alt Room #:**

Image	Item #	Alt Item #	New	Exist	Future	Lease	Description	Manufacturer	Model	RESP	UM	Group	PEM	Prj Acc	Rm Acc
	MAT00008		1	0	0	0	Mat, Pad, Table, X-Ray, Radiolucent	Techno-Aide	Standard Radiolucent Firm Foam Blue Vinyl X-Ray Table Pad	OF | OI	EA	3	Yes	No	No
	RAK00351		1	0	0	0	Rack, Apron, Wall Mounted, 5-Arm	AMD Technologies	Left Folding Five-Arm Apron Rack	OF | CI	EA	1	Yes	No	No
	RCP00099		1	0	0	0	Receptacle, Waste, Trash, Step-On, 24 Gal., (SPECIFY COLOR)	Rubbermaid Commercial Products	Streamline Step-On 90L/24G Resin Front Step Container	OF | OI	EA	3	Yes	No	No
	SHD00017		2	0	0	0	Shield, Apron, Lead, Full	Wolf X-ray Corporation	Easy Wrap Apron	OF | OI	EA	3	Yes	No	No
	SHD00095		1	0	0	0	Aprons, Demi (Half/Lap), Set of 4, (10x8.5(S), 12x12 (M), 14x16(L), 16x20(XL))	Bar-Ray Products	11068	OF | OI	Set	3	Yes	No	No
	SHD00116		3	0	0	0	Shield, Lead, Thyroid	Protech Medical	Standard Radiation Thyroid Collar (0.50mm LE)	OF | OI	EA	3	Yes	No	No
	SHD00137		1	0	0	0	Shield, Gonad	Wolf X-ray Corporation	Gonad Shield Set-of-3	OF | OI	Set	3	Yes	No	No
	STD00096		1	0	0	0	Stand, IV, Stainless, 5-leg, 4-hook	Pedigo Products	IV Stand 5-leg, 4-hook	OF | OI	EA	3	Yes	No	No
	STL00158		1	0	0	0	Stool, Foot w/Handrail	AliMed	Bariatric XL Safe Step Footstool	OF | OI	EA	3	Yes	No	No
	XRY00252		1	0	0	0	X-Ray, General Radiography, Digital	Philips Healthcare	Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System	OF | VI	EA	1	Yes	No	No

01 - Radiology/Imaging

Arch Room: 1835I - General Radiology 5 (Phase: Phase 1) **Alt Room #:**

Image	Item #	Alt Item #	New	Exist	Future	Lease	Description	Manufacturer	Model	RESP	UM	Group	PEM	Prj Acc	Rm Acc
	ALL00008		3	0	0	0	Allowance, Apron, Lead	Burlington Medical, LLC	Lead Aprons (Placeholder)	OF | OI	EA	3	No	No	No
	ALL00009		1	0	0	0	Allowance, Positioners	TBD - To Be Determined	Positioners (Placeholder)	OF | OI	EA	3	No	No	No
	BRD00067		1	0	0	0	Board, Transfer, Radiology	Techno-Aide	Standard Patient Transfer Board	OF | OI	EA	3	Yes	No	No
	BRK00169		1	0	0	0	Bracket, Transfer Board, Wall Mounted	Z & Z Medical	TBR-2P	OF | CI	EA	1	Yes	No	No
	CLK00031		1	0	0	0	Clock, Wall Mounted, Analog, Manual	Grainger	Battery Operated Analog Quartz Wall Clock	OF | CI	EA	3	Yes	No	No
	DIS00115		1	0	0	0	Disposal, Sharps, Wall Mounted, 5.8 Gal,	Daniels Health	S22 w/ Right Side Locking Bracket	OF | CI	EA	1	Yes	No	No
	DSP00123		1	0	0	0	Dispenser, Glovebox, Triple, Acrylic, Wall Mounted (SPECIFY COLOR)	MarketLab	Triple Side-Loading Acrylic Glove Dispenser	OF | CI	EA	3	Yes	No	No
	HMP00037		1	0	0	0	Hamper, Linen Mobile	Rubbermaid Commercial Products	Premium Linen Hamper w/ Bag	OF | OI	EA	3	Yes	No	No
	MAT00008		1	0	0	0	Mat, Pad, Table, X-Ray, Radiolucent	Techno-Aide	Standard Radiolucent Firm Foam Blue Vinyl X-Ray Table Pad	OF | OI	EA	3	Yes	No	No
	RAK00351		1	0	0	0	Rack, Apron, Wall Mounted, 5-Arm	AMD Technologies	Left Folding Five-Arm Apron Rack	OF | CI	EA	1	Yes	No	No
	RCP00099		1	0	0	0	Receptacle, Waste, Trash, Step-On, 24 Gal., (SPECIFY COLOR)	Rubbermaid Commercial Products	Streamline Step-On 90L/24G Resin Front Step Container	OF | OI	EA	3	Yes	No	No
	SHD00017		2	0	0	0	Shield, Apron, Lead, Full	Wolf X-ray Corporation	Easy Wrap Apron	OF | OI	EA	3	Yes	No	No

01 - Radiology/Imaging

Arch Room: 1835I - General Radiology 5 (Phase: Phase 1) **Alt Room #:**

Image	Item #	Alt Item #	New	Exist	Future	Lease	Description	Manufacturer	Model	RESP	UM	Group	PEM	Prj Acc	Rm Acc
	SHD00095		1	0	0	0	Aprons, Demi (Half/Lap), Set of 4, (10x8.5(S), 12x12 (M), 14x16(L), 16x20(XL))	Bar-Ray Products	11068	OF | OI	Set	3	Yes	No	No
	SHD00116		3	0	0	0	Shield, Lead, Thyroid	Protech Medical	Standard Radiation Thyroid Collar (0.50mm LE)	OF | OI	EA	3	Yes	No	No
	SHD00137		1	0	0	0	Shield, Gonad	Wolf X-ray Corporation	Gonad Shield Set-of-3	OF | OI	Set	3	Yes	No	No
	STD00096		1	0	0	0	Stand, IV, Stainless, 5-leg, 4-hook	Pedigo Products	IV Stand 5-leg, 4-hook	OF | OI	EA	3	Yes	No	No
	STL00158		1	0	0	0	Stool, Foot w/Handrail	AliMed	Bariatric XL Safe Step Footstool	OF | OI	EA	3	Yes	No	No
	XRY00252-1		1	0	0	0	X-Ray, General Radiography, Digital - NO TABLE	Philips Healthcare	Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System	OF | VI	EA	1	Yes	No	No
TOTALS DEPT: 01 - Radiology/Imaging			46	4	0	0									

Criteria

Project: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190

Equipment List Summary

Project Name: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190

Facility Name: UC Davis Health

Image	Item #	N	E	F	L	PEM	Description	Model #	Mfr #	RESP	Prj Acc
	Alt Item #						Manufacturer	Model		Group	Rm Acc
	BRD00067	2	0	0	0	Yes	Board, Transfer, Radiology	TBS-2372		OF | OI	No
							Techno-Aide	Standard Patient Transfer Board		3	No
	BRK00169	2	0	0	0	Yes	Bracket, Transfer Board, Wall Mounted	TBR-2P		OF | CI	No
							Z & Z Medical	TBR-2P		1	No
	CAR01646	0	1	0	0	Yes	Cart, Storage, Equipment, Transfer, Mattress, Mobile	HMC-U	136	OF | OI	No
							HoverTech International	HoverMatt Universal Cart		3	No
	CLK00031	2	0	0	0	Yes	Clock, Wall Mounted, Analog, Manual	6NN65	2357	OF | CI	No
							Grainger	Battery Operated Analog Quartz Wall Clock		3	No
	DIS00115	2	0	0	0	Yes	Disposal, Sharps, Wall Mounted, 5.8 Gal,	1001207500 / 4008607000		OF | CI	No
							Daniels Health	S22 w/ Right Side Locking Bracket		1	No
	DSP00123	2	0	0	0	Yes	Dispenser, Glovebox, Triple, Acrylic, Wall Mounted (SPECIFY COLOR)	ML3615	0000004343	OF | CI	No
							MarketLab	Triple Side-Loading Acrylic Glove Dispenser		3	No
	HMP00037	2	0	0	0	Yes	Hamper, Linen Mobile	FG630000BLA / FG635000BLA	755	OF | OI	No
							Rubbermaid Commercial Products	Premium Linen Hamper w/ Bag		3	No
	IMM00002	0	1	0	0	Yes	Immobilization Device, Patient, Infant/Child, Radiographic	206500		OF | OI	No
							Piggostat	PIGG-O-STAT Pediatric Immobilizer		3	No
	LFT00017	0	1	0	0	Yes	Lift, Standing Aid, Mobile, Patient, Hydraulic/Manual	NTB2000	0000004311	OF | OI	No
							Arjo Inc.	SARA Stedy		3	No
	MAT00008	2	0	0	0	Yes	Mat, Pad, Table, X-Ray, Radiolucent	PAD-ST2-BLU-NG		OF | OI	No
							Techno-Aide	Standard Radiolucent Firm Foam Blue Vinyl X-Ray Table Pad		3	No

Image	Item #	N	E	F	L	PEM	Description	Model #	Mfr #	RESP	Prj Acc
	Alt Item #						Manufacturer	Model		Group	Rm Acc
	PMP00178	0	1	0	0	Yes	Pump, HoverMat, Air Supply		136	OF | OI	No
							HoverTech International	HT-Air 1200		2	No
	RAK00351	2	0	0	0	Yes	Rack, Apron, Wall Mounted, 5-Arm	20833		OF | CI	No
							AMD Technologies	Left Folding Five-Arm Apron Rack		1	No
	RCP00099	2	0	0	0	Yes	Receptacle, Waste, Trash, Step-On, 24 Gal., (SPECIFY COLOR)	1883	755	OF | OI	No
							Rubbermaid Commercial Products	Streamline Step-On 90L/24G Resin Front Step Container		3	No
	SHD00017	4	0	0	0	Yes	Shield, Apron, Lead, Full	65023		OF | OI	No
							Wolf X-ray Corporation	Easy Wrap Apron		3	No
	SHD00095	2	0	0	0	Yes	Aprons, Demi (Half/Lap), Set of 4, (10x8.5(S), 12x12 (M), 14x16(L), 16x20(XL))	11068	7777	OF | OI	No
							Bar-Ray Products	11068		3	No
	SHD00116	6	0	0	0	Yes	Shield, Lead, Thyroid	AP-TCS		OF | OI	No
							Protech Medical	Standard Radiation Thyroid Collar (0.50mm LE)		3	No
	SHD00137	2	0	0	0	Yes	Shield, Gonad	75501-22		OF | OI	No
							Wolf X-ray Corporation	Gonad Shield Set-of-3		3	No
	STD00096	2	0	0	0	Yes	Stand, IV, Stainless, 5-leg, 4-hook	P-1576-4	262	OF | OI	No
							Pedigo Products	IV Stand 5-leg, 4-hook		3	No
	STL00158	2	0	0	0	Yes	Stool, Foot w/Handrail	2970008761		OF | OI	No
							AliMed	Bariatric XL Safe Step Footstool		3	No
	XRY00252	1	0	0	0	Yes	X-Ray, General Radiography, Digital	TYPICAL		OF | VI	No
							Philips Healthcare	Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System		1	No
	XRY00252-1	1	0	0	0	Yes	X-Ray, General Radiography, Digital - NO TABLE	TYPICAL		OF | VI	No
							Philips Healthcare	Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System		1	No

Equipment List Summary

Project Name: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190

Facility Name: UC Davis Health

Criteria

Project: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190
PEM: Yes

Item Information

Item #: BRD00067

Alt Item #:

Category: Board

Description: Board, Transfer, Radiology

Long Description:

Techno-Aide's standard sized patient transfer boards allow safe, secure and efficient transfer of patients for general imaging, MRI, and CT! The semi-rigid slick material makes positioning under the patient easy, smooth and comfortable.

Manufacturer / Manufacturer #: Techno-Aide / TBS-2372

Model / Model #: Standard Patient Transfer Board / TBS-2372

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Wall

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 23.00in(w), 0.19in(d), 72.00in(h), lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Radiology Transfer Board Imaging Standard

SKU: TBS-2372

Allows safe and efficient transfer of patients for general imaging, MRI, and CT. Semi rigid slick material makes positioning under the patient easy. Transfer boards are radiolucent and can be used in the imaging field. Conveniently located 1.5" x 4.5" handgrips allow optimal movement. Boards are made of durable high density polyethylene. Color: White. These boards ship at Oversize Rates.

MR Safe (no known hazards)

23" w x 72"l x 3/16" thick.

Item Information

Item #: BRK00169

Alt Item #:

Category: Bracket

Description: Bracket, Transfer Board, Wall Mounted

Long Description:

Manufacturer / Manufacturer #: Z & Z Medical /

Model / Model #: TBR-2P / TBR-2P

Vendor / Vendor #: /

Group: 1

Responsibility: OF | CI

Mounting:

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 12.00in(w), 7.00in(d), 8.00in(h), 4.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Transfer Board Hook

SKU: TBR-2P

Transfer Board Wall Rack. Two 6" pegs are 3 1/2" apart and are angled to keep the board from slipping. Mounting holes are on vertical centers. Steel with white enamel. 7.5" wide x 6" tall

NOT MRI SAFE! MRI transfer boards must be hung outside the MRI environment if using this wall rack.

Item Information

Item #: CAR01646

Alt Item #:

Category: Cart

Description: Cart, Storage, Equipment, Transfer, Mattress, Mobile

Long Description:

The HoverMatt Universal Cart is practical and sturdy for easy accessibility and storage. It's designed to accommodate one Hover Tech Air Supply and up to ten HoverMatts/HoverSlings for single patient use or multiple reusable HoverMatts. The robust construction makes it easy to handle while also ensuring its durability. Easy to clean for optimized infection control.

Manufacturer / Manufacturer #: HoverTech International / HMC-U

Model / Model #: HoverMatt Universal Cart / HMC-U

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Mobile (casters/wheels)

Total Qty: 1

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 19.50in(w), 19.50in(d), 38.00in(h), 20.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
0	1	0	0	TBD		Existing Shared Equipment	01	Radiology/Imaging

HOVERTECH ACCESSORIES

HoverMatt® Universal Cart

The HoverMatt® Universal Cart is designed to hold all HoverTech Air Supply models and one box of Single-Patient Use HoverMatts or several reusable HoverMatts.

Model Number

HMC-U (Each)

19.50" x 19.50" x 38" (WxDxH)
Weight 20lbs

HoverJack® Battery Transport Cart

The HoverJack® Battery Transport Cart houses a rechargeable battery and onboard outlet to power an Air Supply (for use with Air200G and Air400G HoverTech Air Supplies only).

Model Number

HJBSC-200 (Each)

Disposable Sheet

The Disposable Sheet can be placed on top of the HoverMatt, as well as our other patient handling products, to protect it from becoming soiled. It features an absorbent top and impervious underside material. It is electronically weakened down the center to allow for easy removal.

Model Numbers

HMDS3-5 pack (5 per package)
HMDS3-case (100 per case)

Item Information

Item #: CLK00031

Alt Item #:

Category: Clock

Description: Clock, Wall Mounted, Analog, Manual

Long Description:

Wall Clock: Manual, Arabic, Round, 15 in Overall Dia., 13 in Face Dia., Battery, Analog.

Manufacturer / Manufacturer #: Grainger / 6NN65

Model / Model #: Battery Operated Analog Quartz Wall Clock / 6NN65

Vendor / Vendor #: /

Group: 3

Responsibility: OF | CI

Mounting: Wall

Total Qty: 2

Certifications

Electrical (1): (V), (BTU), (Hz), (A), (P)

Electrical Description (1): Requires 1 AA battery (available separately).

Dimensions (1): 15.00in(w), 1.50in(d), 15.00in(h), 2.60 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Requires 1 AA battery (available separately).

Mechanical (Gas)

Electrical Battery Powered

Plumbing (Water)

Technology

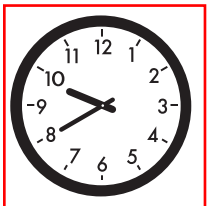
Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

No. 6NN64

No. 2CHZ4


No. 6NN65

No. 6NN67

No. 6NN69

No. 6H356

GA GRAINGER APPROVED

Battery-Operated Analog Quartz Wall Clocks

Arabic display clocks require manual adjustment for time changes. Operate on (1) AA battery, not included.

Case Color	Overall Dia.	Face Dia.	Case Material	Lens Material	Item No.
Black	7 in	6 in	Plastic	Plastic	**6NN64**
Black	14 in	12 1/8 in	Plastic	Glass	**2CHZ4**
Black	15 in	13 in	Plastic	Glass	**6NN65**
Black	24 in	19 1/4 in	Plastic	Glass	**6NN67**
Burgundy	14 in	10 in	Wood	Glass	**6NN69**
Silver	18 in	15 1/4 in	Plastic	Glass	**6H356**

GA GRAINGER APPROVED

24/12-Hr. Format Battery-Operated Analog Quartz Wall Clock

Arabic display clock requires manual adjustment for time changes. Operates on (1) AA battery, not included.

Case Color	Overall Dia.	Face Dia.	Case Material	Lens Material	Item No.
Black	12 in	11 3/8 in	Plastic	Glass	**2CHZ8**

GA GRAINGER APPROVED

Radio Controlled/Atomic Battery-Operated Analog Quartz Wall Clock

Arabic display clock automatically adjusts for accurate readings and time changes. Operates on (1) AA battery, not included.

Case Color	Overall Dia.	Face Dia.	Case Material	Lens Material	Item No.
Black	12 1/8 in	9 3/4 in	Plastic	Glass	**2CJA3**

CONTROL COMPANY
Digital, Traceable®, and Unique Products

Digital Rectangle LCD Wall Clock

Displays giant-sized digits to view time, weather temperature, and humidity. Features alarm settings and automatically adjusts for daylight saving. Operates on (2) AA batteries, not included.

Case Color	H	W	Case Material	Lens Material	Item No.
Black	10 1/2 in	16 1/2 in	ABS Plastic	Glass	**8YPG2**

GA GRAINGER APPROVED

Round Arabic Wall Clock

Indoor or outdoor clock is engineered with highly-accurate quartz movement to ensure reliable time keeping. Designed with bold numbers to help you clearly tell time from a distance. Durable, weather-resistant clock is ideal for most job sites, factories, workshops, classroom, or offices. Operates on (1) AA battery, not included.

Case Color	Overall Dia.	Face Dia.	Case Material	Lens Material	Item No.
White	12 1/2 in	12 1/2 in	ABS Plastic	Polycarbonate	**3LYK5**

Item Information

Item #: DIS00115

Alt Item #:

Category: Disposal

Description: Disposal, Sharps, Wall Mounted, 5.8 Gal,

Long Description:

This 5.8 Gallon reusable sharps container is best suited to moderate sharps volume areas and drug trolleys, perfect size for side-mounting to the side of an Accessmart trolley. Counterweighted safety tray allows easy and safe disposal of sharps, overfill protection prevents misuse, and interchangeable mounting groove enables the Sharpsmart container to be easily mounted on a wall, benchtop or trolley.

Wastestream : Sharps

Fill Capacity : 15.2 Quarts | 3.8 Gallons

Total capacity : 23.2 Quarts | 5.8 Gallons

Manufacturer / Manufacturer #: Daniels Health / 1001207500 / 4008607000

Model / Model #: S22 w/ Right Side Locking Bracket / 1001207500 / 4008607000

Vendor / Vendor #: /

Group: 1

Responsibility: OF | CI

Mounting: Bracket | Wall

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 15.70in(w), 8.30in(d), 17.60in(h), 10.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Sharpsmart Models

Born out of 5 years of research, the engineered precision of Sharpsmart's safety-led design sets it apart as the world's first sharps collector qualified and proven to be an engineered safety device. Navigating the complexity of sharps disposal safety risks and very serious threat of blood-borne pathogens being acquired via sharps injuries, Sharpsmart is designed with thirteen unique safety features, each minimizing the disposal risk of sharp items used in human and animal medical applications.

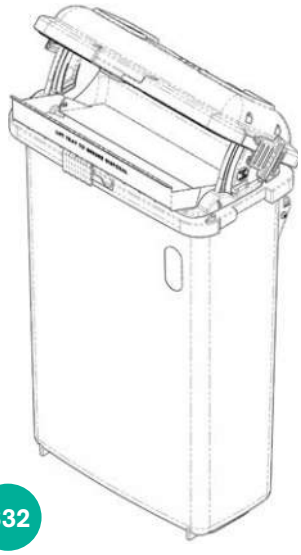
SIZES

S14

HEIGHT: 11.2"
WIDTH: 15.7"
DEPTH: 8.3"
FILL CAPACITY: 1.7 gal
TOTAL CAPACITY: 3.7 gal

S22

HEIGHT: 17.6"
WIDTH: 15.7"
DEPTH: 8.3"
FILL CAPACITY: 3.8 gal
TOTAL CAPACITY: 5.8 gal



S32

HEIGHT: 24.3"
WIDTH: 15.7"
DEPTH: 8.3"
FILL CAPACITY: 6.2 gal
TOTAL CAPACITY: 8.5 gal

S64

HEIGHT: 28.6"
WIDTH: 15.7"
DEPTH: 13.9"
FILL CAPACITY: 12.4 gal
TOTAL CAPACITY: 16.9 gal

OPENING TYPES

REGULAR

The regular Sharpsmart collector is fitted with an engineered maximum sensitivity safety tray. The safety-tilt mechanism is activated by the weight of the waste in a single swing action, and releases away from the user to ensure safe disposal.

ACCESS PLUS

Designed for secure areas where unrestricted deposit of sharps is required, the Access Plus collector features a full opening lid without a tray to provide full access to the collector.

Sharpsmart Mounting Options

The Daniels suite of bracketing and transportation accessories have been engineered to achieve maximum versatility, optimize space, and overcome logistical challenges within clinical environments. Designed with a small footprint to fit into space-restrictive areas, the Daniels trolleys and floorstands are fitted with a standard mounting bracket which gives optimum flexibility for point-of-use disposal and efficient movement of collectors.

ORDER CODE

1028000000 — **STANDARD CRADLE**
Easy to install design simply hooks over rail on trolley to allow Sharpsmart collectors to face inwards or outwards. Rugged, non-rust stainless steel construction.
Compatibility: S14, S22 Regular and Access Plus sizes

1027000000 — **MOUNTED CRADLE**
Identical concept and design as Standard Cradle, but with additional mounting plate to attach cradle to a wide variety of trolley designs.
Compatibility: S14, S22 Regular and Access Plus sizes

4005007000 — **STANDARD WALL BRACKET**
Universal bracket enabling wall mounting of Sharpsmart range. Bracket kit comes with screws and hole-plugs. For wall mounting of Access Plus Sharpsmarts, see Access Plus bracket.
Compatibility: S14, S22 and S32 Regular sizes

4000207000 — **WALL BRACKET - ACCESS PLUS**
Designed for wall mounting of the Sharpsmart Access Plus range to allow 90-degree lid opening.
Compatibility: S14, S22, S32 Acess Plus sizes

4008507000 Left Side Lock
4008607000 Right Side Lock
SHARPSMART LOCKING WALL BRACKET
For use in areas where secure, key lock mounting of Sharpsmart collectors is required.
Compatibility: S14, S22 and S32 Regular sizes

4000100000 — **LOCKING MOUNTSMART**
Designed for versatile inward or outward mounting of Sharpsmart collectors to allow 90-degree lid opening.
Compatibility: S14, S22, S32 Regular and Access Plus sizes

4010000000 — **BENCH BRACKET FOR SHARPSMART S14**
Provides secure stabilization of S14 collectors on a benchtop.
Compatibility: S14 Sharpsmart Regular and Access Plus sizes

4010100000 — **BENCH BRACKET FOR SHARPSMART S22**
Provides secure stabilization of S22 collectors on a benchtop.
Compatibility: S22 Sharpsmart Regular and Access Plus sizes

5806000000 — **S-SERIES FLOOR STAND**
Designed for stable floor mounting. Stainless steel and plastic construction is tough and easy to clean.
Compatibility: S14, S22 and S32 Regular and Access Plus sizes

6424007000 — **64 SERIES FLOOR STAND**
Designed for stable floor mounting. Stainless steel and plastic construction is tough and easy to clean.
Compatibility: 64 Series Access Plus only

Item Information

Item #: DSP00123

Alt Item #:

Category: Dispenser

Description: Dispenser, Glovebox, Triple, Acrylic, Wall Mounted (SPECIFY COLOR)

Long Description:

Side-loading acrylic glove dispenser, triple. 10.125"W x 4.125"D x 16"H, clear. MRI safe.

Manufacturer / Manufacturer #: MarketLab / ML3615

Model / Model #: Triple Side-Loading Acrylic Glove Dispenser / ML3615

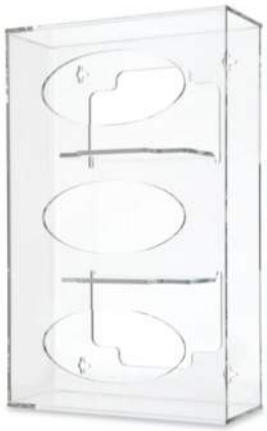
Vendor / Vendor #: /

Group: 3

Responsibility: OF | CI

Mounting: Wall

Total Qty: 2



Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 10.13in(w), 4.13in(d), 16.00in(h), 2.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Certifications

Special Instructions:

Mounting hardware not included.

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Marketlab

Side-Loading Acrylic Glove Dispensers

Side-Loading Acrylic Glove Dispenser, Triple • 10.125"W x 4.125"D x 16"H

Part # ML3615

Color: Clear (CL) or White (WH)

Capacity: Triple

Description

Disposable Glove Boxes Slide Easily and Independently from the Side

- Rugged acrylic

- Two-year warranty

These glove box holders are the best option for stocking a variety of glove sizes or the maximum amount of one size of gloves. Perfect for high traffic departments like urgent care clinics and emergency rooms. With vertical placement, easy box exchanges are performed from the side of the unit's separate compartments.

Specifications

Customizable: Yes

Material: Acrylic

Mounting Hardware: Not Included

MR Status: MR Safe

Outer Dimension Depth: 4.125"

Outer Dimension Height: 16"

Outer Dimension Width: 10.125"

Compliance & Warnings

- **California Prop 65 Warning:** This product contains chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm.
- **Latex Free:** Not made with natural rubber latex.

Item Information

Item #: HMP00037

Alt Item #:

Category: Hamper

Description: Hamper, Linen Mobile

Long Description:

Premium Linen Hamper, uses 30 gallon can liner, hands free, heavy-duty pedal, slow-close integrated lid, stainless steel, (2) swivel casters, (2) fixed with lock, FM & CSFM, approved, OSHA, black. Includes 30 gallon hamper bag

Manufacturer / Manufacturer #: Rubbermaid Commercial Products / FG630000BLA / FG635000BLA

Model / Model #: Premium Linen Hamper w/ Bag / FG630000BLA / FG635000BLA

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Mobile (casters/wheels)

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 20.38in(w), 22.25in(d), 37.88in(h), 14.25 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Rubbermaid Commercial Products

Waste > Indoor Utility

6300 Premium Linen Hamper (uses 30 Gallon Can Liner)

Ideal for areas where medical waste originates, including patient rooms, lab procedure rooms, and emergency rooms.

- Quiet, heavy-duty pedal for hands-free sanitary use.
- Assists in complying with OSHA regulation; 29 CFR 1910.1030 "Occupational Exposure to Bloodborne Pathogens."
- Features slow-close integrated lid damper to help keep odors and bacteria from escaping.
- Includes two swivel and two fixed lockable Quiet Casters for reduced operational noise.

AVAILABLE COLORS

Order #	Color	Product UPC/ UCC Code
FG630000 BLA	BLA	086876188301 / 00086876188301

Black
BLA

SPECIFICATIONS

	U.S.	Metric
Length:	22 1/4 in	56.5 cm
Width:	20 3/8 in	51.8 cm
Height:	37 7/8 in	96.2 cm
Volume Capacity [Nom]:		
Volume Capacity [Max]:		
Volume Capacity [Min]:		
Carton Length:	23 5/8 in	60.0 cm
Carton Width:	20 1/8 in	51.1 cm
Carton Height:	37 15/16 in	96.4 cm
Certification [Premium Step-On Linen Hamper]	OSHA, Hands-free	
Carton Cube:	10.44 ft3	0.30 m3
Ship Weight/Carton:	14 3/4 lb	6.69 kg
Pack Quantity:		1
Cartons Per Pallet:		4

HMP00037

Material: PP, Aluminum
Process: High Pressure Injection Molding, Aluminum Bending

ADDITIONAL INFORMATION:

Product Sell Sheets: RCP_SM704R_StepOn.pdf
Chemical Resistance Guide: chem.pdf
Frequently Asked Questions

Products in Premium Step-On Linen Hamper

Item #	Description	Length	Width	Height	Volume Capacity
6300	Premium Linen Hamper (uses 30 Gallon Can Liner)	22 1/4 in	20 3/8 in	37 7/8 in	
6350	Premium Linen Hamper Bag	19 7/8 in	13 3/8 in	29 1/4 in	30 gal

Accessories for 6300:

No.	Description	Length	Height	Volume Capacity	Width
6350	Premium Linen Hamper Bag	19 7/8 in	29 1/4 in	30 gal	13 3/8 in

Work Smarter.

Rubbermaid Commercial Products, LLC
3124 Valley Avenue, Winchester, VA 22601
www.rcpworksmarter.com

Item Information

Item #: IMM00002

Alt Item #:

Category: Immobilization Device, Patient

Description: Immobilization Device, Patient, Infant/Child, Radiographic

Long Description:

PIGG-O-STAT digital pediatric immobilizer complete system (DR Only). Typically used in DR imaging and other scenarios where an existing cassette/plate holder is used in conjunction with the immobilizer. Seat platform turns on bearings and can be rotated horizontally to any degree and position. Adjustable seat in center of table top with openings for patients legs. Form-fitting body, head and arm supports of transparent plexiglass are provided. Lead shield has adjustable conventional markers and adjusts up and down for various examinations. Table top and shelf are made of high density polyethylene in child-pleasing primary colors which requires no maintenance and is virtually indestructible/Other moving parts are heavy plexiglass .Weight Capacity: approximately 35 lbs. Adjustable for patients from infants to 3-1/2 years of normal size for age.

Manufacturer / Manufacturer #: Piggostat / 206500

Model / Model #: PIGG-O-STAT Pediatric Immobilizer / 206500

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Mobile (casters/wheels)

Total Qty: 1

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 20.00in(w), 22.00in(d), 35.00in(h), 48.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

4" casters, 2 locking.

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
0	1	0	0	TBD		Existing Shared Equipment	01	Radiology/Imaging

PIGG-O-STAT FOR DIGITAL X-RAY

A fast, sure, and simple method for immobilizing and positioning children from infants to about 3 years of age. Adjustable seat platform can be rotated horizontally to any degree and position to facilitate oblique and lateral views.
The unit includes form-fitting body and arm supports (one pair each ☐ large & small) of transparent Plexiglas and an adjustable lead shield and marker combination.

A lead shield with R, L and arrow markers can be raised and lowered to protect the patient's reproductive organs and provide proper position identification on the radiograph.

The whole unit is easily cleaned. The 20 x 22 in. table top is made of 3/4 inch birch plywood and stands 35 in. high. The unit is mounted on four 3 inch casters (two with brakes). Adjustable for patients from infant to 3-1/2 years of normal size. Replacement parts are available ☐ inquire.

Specifications:
Dimensions: 20 x 22 x 35 in. (510 x 560 x 890 mm) (W x L x H).

Shipping weight: 48 lb.

PATENT NUMBERS
U.S. Patent #5,600,702
U.S. Patent #6,969,193
CONTACT US
PO Box 660
104 Johnson St.
Clifton, TN 38425
Tel: 931.676.5274
Fax: 931.676.3860
Toll Free: 866.MWI.PIGG
(866.694.7444)

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Item Information

Item #: LFT00017

Alt Item #:

Category: Lift

Description: Lift, Standing Aid, Mobile, Patient, Hydraulic/Manual

Long Description:

Sara Stedy and Sara Stedy Compact enable a single caregiver to assist patients or residents perform sit to stand transfers throughout the day.

Manufacturer / Manufacturer #: Arjo Inc. / NTB2000

Model / Model #: SARA Stedy / NTB2000

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Mobile (casters/wheels)

Total Qty: 1

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 24.25in(w), 36.00in(d), 41.50in(h), 37.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
0	1	0	0	TBD		Existing Shared Equipment	01	Radiology/Imaging

ARJOHUNTLEIGH
GETINGE GROUP

SARA STEDY
ENHANCED STANDING AID

A VERSATILE STAND AND TRANSFER AID

Sara Stedy®, a stand aid that provides mobility-promoting support and encourages more mobile patients and residents to stand up independently.

With an increased inner width, a new seat shape and a safe working load raised to 182 kg, *Sara Stedy* also meets the standing assistance needs of larger patients. Enhanced features including a pivoting divided seat and pedal-operated chassis legs ensure improved comfort and support, and make working routines easier for carers.

…with people in mind

www.ArjoHuntleigh.com

KEY FEATURES

1 New seat design

The innovative pivoting seat improves transfer efficiency and patient stability.

2 Easy-to-open chassis

Pedal-operated chassis legs adjust easily for optimum access during transfers.

3 Built-in seat handgrips

Handgrips integrated in the seat allow the carer to easily turn the support aid.

4 Better knee support

Provides extra stability or firm support when a patient cannot fully control leg movements.

5 Total-lock castors

New total-lock castors provide complete stability when the aid is stationary.

6 Lower chassis

Smaller castors and redesigned legs mean a lower chassis for better access.

Product Information	
Weight	29.4 kg (64.82 lbs)
Max. safe working	182 kg (400 lbs)
Total length	905 mm (32 ¾”)
Total height	1051 mm (41 ½”)
Height of chassis	100 mm (4”)

Internal width legs open	729 mm (28 ¾”)
Low friction castors, the rear two with brakes	
Lifter – Protection class IPX4	
Approvals	
The product are in compliance with current legislation and applicable product standards	

ArjoHuntleigh is a branch of Arjo Ltd Med. AB.

Only ArjoHuntleigh designed parts, which are designed specifically for the purpose, should be used on the equipment and products supplied by ArjoHuntleigh. As our policy is one of continuous development we reserve the right to modify designs and specifications without prior notice.

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E-mail: international@arjohuntleigh.com • **www.ArjoHuntleigh.com**

Item Information

Item #: MAT00008

Alt Item #:

Category: Mat

Description: Mat, Pad, Table, X-Ray, Radiolucent

Long Description:

Techno-Aide's standard table pads feature an upgraded, reinforced vinyl over a premium foam interior. With increased comfort and durability versus our economy pads, standard table pads are a must-have imaging accessory at a great price! Our most popular table pad style can be used on imaging tables or stretchers to provide added comfort and stability for patients. Standard table pads feature tapered ends with two brass grommets (eyelets) at each end for hanging storage. Table pads are radiolucent* and offer easy cleaning between patients with any mild cleaner or germicide.

Manufacturer / Manufacturer #: Techno-Aide / PAD-ST2-BLU-NG

Model / Model #: Standard Radiolucent Firm Foam Blue Vinyl X-Ray Table Pad / PAD-ST2-BLU-NG

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Special

Total Qty: 2

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 23.25in(w), 72.00in(d), 2.00in(h), 13.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Certifications

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Standard Radiolucent X-Ray Table Pads

SKU: PAD-ST2-BLU-NG

Table Pad Without Grommets

Techno-Aide's standard table pads feature an upgraded, reinforced vinyl over a premium foam interior. With increased comfort and durability versus our economy pads, standard table pads are a must-have imaging accessory at a great price! Our most popular table pad style can be used on imaging tables or stretchers to provide added comfort and stability for patients.

Standard table pads feature tapered ends with two brass grommets (eyelets) at each end for hanging storage. Table pads are radiolucent* and offer easy cleaning between patients with any mild cleaner or germicide.

Techno-Aide is proud to offer the largest selection of economy, standard and premium table pads on the market. Our table pads are available in specific sizes designed to fit virtually any x-ray table and meet nearly any imaging need!

- Comfortable and durable vinyl over a premium foam interior
- Perfect for x-ray tables and stretchers
- Increases patient comfort and stability
- Available in standard sizes designed for virtually any application
- Feature tapered ends with brass grommets for hanging storage
- Radiolucent* and cleanable surface!
- **Shipping Information:** Box 1: 31" x 20" x 10" (13 lbs.)

Product Options

Standard Table Pad Style:

Standard: 72" x 23.25" x 2" - Firm Foam

Table Pad Fabric:

Blue Vinyl

Table Pad Grommets:

No grommets

Additional Info:

PID: 6520

**Table pad seams will show during imaging on all table pads.*

***Please note, table pads may be received with "wrinkles", "creases", and/or "fabric grooves" due to shipping requirements. Economy Table Pad Vinyl is the most susceptible vinyl fabric to permanent or long-term "wrinkles", "creases", and/or "fabric grooves" that may show up during imaging due to shipping. Techno-Aide recommends all table pads be laid flat upon initial receipt and be allowed time to reform any "wrinkles", "creases", and/or "fabric grooves." Techno-Aide typically recommends allowing table pads to be laid flat and sit undisturbed for 48-72 hours before use in any imaging environment. Please note any pad over 1 1/4" thick is not recommended for use in x-ray, as seams, wrinkles, and/or fabric grooves will show.*

Item Information

Item #: PMP00178

Alt Item #:

Category: Pump

Description: Pump, HoverMat, Air Supply

Long Description:

Air supply regulator with 6 airflow options.

Manufacturer / Manufacturer #: HoverTech International / HTAIR1200

Model / Model #: HT-Air 1200 /

Vendor / Vendor #: /

Group: 2

Responsibility: OF | OI

Mounting: Portable

Total Qty: 1

Certifications

Electrical (1): 120.00 (V), (BTU), 60.00 (Hz), 10.00 (A), 1.00 (P)

Electrical Description (1):

Dimensions (1): 7.00in(w), 7.00in(d), 12.50in(h), 11.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical Receptacle (Standard)

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
0	1	0	0	TBD		Existing Shared Equipment	01	Radiology/Imaging

HOVERMATT®

Product Specifications/Required Accessories

- Classification:
  Not for use in the presence of flammable anesthetics or in a hyperbaric chamber or oxygen tent.

  Type of Protection against electric shock: CLASS I EQUIPMENT

  Degree of protection against electric shock: TYPE BF APPLIED PART

  Protection against ingress of water: Ordinary (not protected).

  Mode of operation: CONTINUOUS OPERATION

  To remove supply mains, unplug equipment from wall.

- Patient Weight Limit: 1,200lbs / 544kg
- Use Temperature: 50° to 104° F (10° to 40° C)
- Use Humidity: 10% to 70% Non-Condensing
- Storage/Shipping Temperature: -40° to 176° F (-40° to 80° C)
- Storage/Shipping Humidity: 10% to 70% Non-Condensing
- Power Input: 120 V~, 60 Hz, 10 A (North American version)
  230 V~, 50 Hz, 6 A (European Version)
- Air Supply Dimensions: 12.5 x 7 x 7 inches (31.75 x 17.8 x 17.8 cm)
- Air Supply Weight: 11 lbs. (5 kg)
- Air Supply Material: Fire Retardant ABS/Stainless Steel
- Power Cord Length: 15 feet (457 cm)

HOVERMATT®

Product Specifications/Required Accessories

	RE-USABLE HOVERMATT® AIR TRANSFER SYSTEM	SINGLE-PATIENT USE HOVERMATT® AIR TRANSFER SYSTEM
Material:	Nylon Twill	Nylon Twill & Non-Woven
Construction:	RF-Welded	Sewn
Width:	28" (71 cm), 34" (86 cm), 39" (99 cm) or 50" (127 cm)	34" (86 cm), 39" (99 cm) or 50" (127 cm)
Length:	78" (198 cm)	78" (198 cm)

Required Accessory:

HoverTech International Air Supply
Part# HTAIR1200 (North American Version)
Part# HTAIR2300 (European Version)

All HoverTech International Products are Latex-Free.

For a full product listing go to www.HoverMatt.com.

HOVERTECH International

Rev C

Item Information

Item #: RAK00351

Alt Item #:

Category: Rack

Description: Rack, Apron, Wall Mounted, 5-Arm

Long Description:

For large clinics, this five-arm rack solves your large storage needs within a small space. It can be ordered right or left folding.

Manufacturer / Manufacturer #: AMD Technologies / 20833

Model / Model #: Left Folding Five-Arm Apron Rack / 20833

Vendor / Vendor #: /

Group: 1

Responsibility: OF | CI

Mounting: Wall

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 28.00in(w), 4.00in(d), 13.50in(h), 14.00 lbs(weight)

Dimensions Description (1): NOTE: When extended, a 27” clearance is required.

Clearance (1): in(top), in(bot), in(l), in(r), 27.00in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Wall backing is recommended.

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

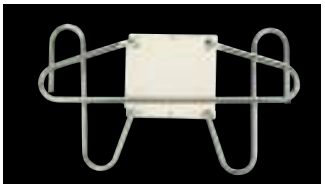
Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

STORAGE RACK

To ensure years of safe use, AMD offers everything from single garment hanging devices to high capacity models..

Glove and Apron Rack
Protect your gloves and aprons from unnecessary damage. Our popular combination rack allows you to store gloves, aprons and glasses
20835 - 28”w x 16”h x 6”d (71.1 x 40.6 x 15.2 cm)
ASW = 10 lbs. (4.5 kgs.)



Model 20835

Model 20835
With garments

Five-Arm Apron Rack
For large clinics, this five-arm rack solves your large storage needs within a small space. It can be ordered right or left folding.
20831 - Right folding
20833 - Left folding
28”w x 13.5”h x 4”d (71.1 x 34.3 x 10.2 cm). When extended, a 27” clearance is required.
ASW = 14 lbs. (6.4 kgs.)

Model 20831

Apron Peg Rack System
6" pegs are angled to keep garments from slipping. Mounting holes are on both 16" and 24" centers. Made of all steel Almond enamel finish.
20834-1 - Will accommodate 1 apron. ASW = 5 lbs. (2.0 kgs.)
20834-3 - Will accommodate 3 aprons. ASW = 10 lbs. (3.9 kgs)
20834-4 - Will accommodate 4 aprons. ASW = 12 lbs. (4.7 kgs)

Apron Hanger
This attractive, chrome-plated 1/4” steel hanger will hold up to 50 pounds of aprons.
Model No. **10830**
ASW = 1.0 lbs. (0.4 kg)

Model 20830

Model 20834-1

Model 20834-3

Model 20834-4

Open Base Mobile Apron Rack
This model features steel construction with beige powder coating and 10 individual chrome shoulder shape swing arms for easy apron access and hanging. Large locking casters for easy movement. Holds 10 aprons.
20837 - 28”w x 16”h x 6”d (71.1 x 40.6 x 15.2 cm)
ASW = 10 lbs. (4.5 kgs.)

Solid Base Mbile Apron Rack
This is our ten (10) swing-arm mobile garment stand. Durable all-steel construction with neutral almond baked enamel finish. Weighted anti-tip base for stability.
20838 - 19″ x 22″ steel base X 56″ tall.
ASW = 110 lbs. (50.0 kgs.)

Solid Base Mobile Apron Rack with Glove Holders
Same as Model 20838 with the addition of a Glove Rack that hold up to 6 gloves. Weighted anti-tip base for stability. 19″ x 22″ steel base X 56″ tall.
20839 - 19″ x 22″ steel base X 56″ tall.
ASW = 115 lbs. (52.0 kgs.)

Model 20837

Model 20838

Model 20839

Item Information

Item #: RCP00099

Alt Item #:

Category: Receptacle

Description: Receptacle, Waste, Trash, Step-On, 24 Gal., (SPECIFY COLOR)

Long Description:

Slim Jim Step-On containers constructed with premium-quality plastic meet the needs of any environment with efficiency, safety, and durability. Slim profile and small footprint maximize space to fit in tightest spaces Quiet and controlled lid-closure minimizes noise to enhance guest and patient satisfaction Internal hinge design prevents wall damage. Factory mutual certified ensures fire safety for regulatory compliance. Meets OSHA and OBRA standards for worker and environmental safety Increased foot pedal clearance for easier access and operation. Liner retainer band easily and securely holds polyliners. Smooth surfaces and contoured edges are easy to clean. Optional dual stream rigid liner simplifies sorting, making recycling quick and easy. Built-in wheels for easier mobility.

Certifications

Manufacturer / Manufacturer #: Rubbermaid Commercial Products / 1883

Model / Model #: Streamline Step-On 90L/24G Resin Front Step Container / 1883

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Freestanding

Total Qty: 2

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 13.97in(w), 23.38in(d), 32.70in(h), 13.40 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

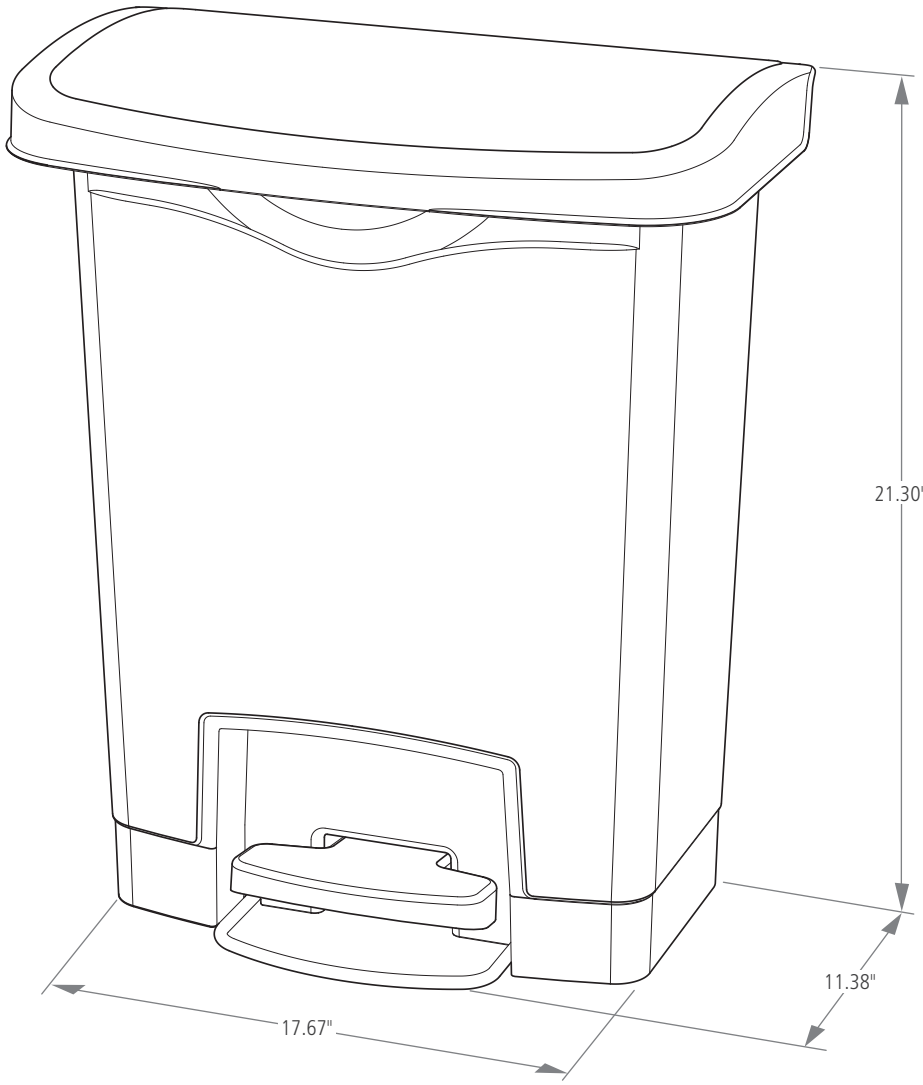
STREAMLINE™ STEP-ON CONTAINERS

Streamline™ Step-On containers, constructed with the highest quality materials, meet the needs of any environment with efficiency, safety, and durability.

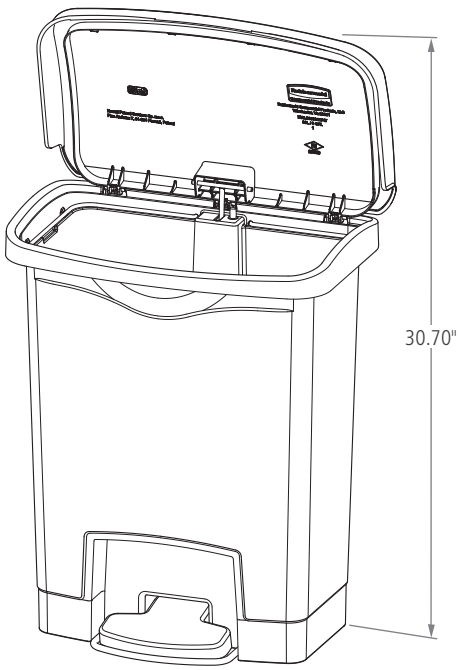
Features and Benefits:

- Available in Front Step in 5 different sizes and 7 different colors.
- Internal hinge design prevents the back of the lid from hitting the wall and causing damage.
- Quiet and controlled lid closure minimizes noise to enhance guest satisfaction.
- Liner retainer band and cinch easily and securely holds polyliners in place.
- Increased foot pedal clearance for easier access and operation.

FM APPROVED OSHA OBRA



30L/8-Gallon Resin Front Step



STREAMLINE™ STEP-ON CONTAINERS

SKU #	DESCRIPTION	COLOR	CAPACITY L / GAL	LENGTH IN	WIDTH IN	HEIGHT IN	HEIGHT WITH LID OPEN IN	WEIGHT LB	PACK SIZE UNIT
1883455	RESIN FRONT STEP	BEIGE	15L/4G	14.83	9.07	15.70	22.90	4.70	1
1883554	RESIN FRONT STEP	WHITE	15L/4G	14.83	9.07	15.70	22.90	4.70	1
1883563	RESIN FRONT STEP	RED	15L/4G	14.83	9.07	15.70	22.90	4.70	1
1883608	RESIN FRONT STEP	BLACK	15L/4G	14.83	9.07	15.70	22.90	4.70	1
1883456	RESIN FRONT STEP	BEIGE	30L/8G	17.67	11.38	21.30	30.70	6.00	1
1883555	RESIN FRONT STEP	WHITE	30L/8G	17.67	11.38	21.30	30.70	6.00	1
1883564	RESIN FRONT STEP	RED	30L/8G	17.67	11.38	21.30	30.70	6.00	1
1883600	RESIN FRONT STEP	GRAY	30L/8G	17.67	11.38	21.30	30.70	6.00	1
1883609	RESIN FRONT STEP	BLACK	30L/8G	17.67	11.38	21.30	30.70	6.00	1
1883458	RESIN FRONT STEP	BEIGE	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883557	RESIN FRONT STEP	WHITE	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883566	RESIN FRONT STEP	RED	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883575	RESIN FRONT STEP	YELLOW	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883593	RESIN FRONT STEP	BLUE	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883602	RESIN FRONT STEP	GRAY	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883611	RESIN FRONT STEP	BLACK	50L/13G	18.91	12.11	28.50	38.70	8.50	1
1883460	RESIN FRONT STEP	BEIGE	68L/18G	20.58	13.05	31.80	42.70	11.50	1
1883559	RESIN FRONT STEP	WHITE	68L/18G	20.58	13.05	31.80	42.70	11.50	1
1883568	RESIN FRONT STEP	RED	68L/18G	20.58	13.05	31.80	42.70	11.50	1
1883604	RESIN FRONT STEP	GRAY	68L/18G	20.58	13.05	31.80	42.70	11.50	1
1883613	RESIN FRONT STEP	BLACK	68L/18G	20.58	13.05	31.80	42.70	11.50	1
1883552	RESIN FRONT STEP	BEIGE	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883561	RESIN FRONT STEP	WHITE	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883570	RESIN FRONT STEP	RED	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883579	RESIN FRONT STEP	YELLOW	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883597	RESIN FRONT STEP	BLUE	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883606	RESIN FRONT STEP	GRAY	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883615	RESIN FRONT STEP	BLACK	90L/24G	23.38	13.97	32.70	44.70	13.50	1
1883617	RIGID LINER FOR RESIN FRONT STEP	BLACK	15L/4G	12.81	7.44	12.75	–	1.60	1
1883618	RIGID LINER FOR RESIN FRONT STEP	BLACK	30L/8G	14.81	9.06	18.13	–	2.80	1
1883619	RIGID LINER FOR RESIN FRONT STEP	BLACK	50L/13G	15.81	9.81	25.44	–	4.40	1
1883620	RIGID LINER FOR RESIN FRONT STEP	BLACK	68L/18G	17.75	10.19	28.25	–	5.40	1
1883621	RIGID LINER FOR RESIN FRONT STEP	BLACK	90L/24G	20.31	11.81	29.25	–	6.20	1
1883629	DUAL LINER SET FOR RESIN FRONT STEP	BLACK/BLUE	90L/24G	20.31	11.81	29.50	–	7.80	1

NOTE: SPECIFY COLOR WHEN ORDERING

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8900 Northpointe Executive Park Drive, Huntersville, NC 28078

Item Information

Item #: SHD00017

Alt Item #:

Category: Shield

Description: Shield, Apron, Lead, Full

Long Description:

Our Easy Wrap Apron is the professional standard. Two side closures of hook-n-loop material allow you to custom-fit the shoulder weight distribution. A handy pocket is sewn on the breast. The Easy Wrap provides 0. 5mm Lead Equivalency Protection.

Manufacturer / Manufacturer #: Wolf X-ray Corporation / 65023

Model / Model #: Easy Wrap Apron / 65023

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Portable

Total Qty: 4

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 42.00in(w), 24.00in(d), 42.00in(h), 11.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
2	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
2	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

SHD00017

Easy Wrap Apron

All Aprons come standard in 0.5mm frontal LEP All Vest & Skirts, Special Procedure Aprons come with 0.25mm LEP BACK protection

Lead-Free: Don't let the name fool you. This material has all the protective qualities of lead. The lightest option you can buy! Made from materials that are safe for the environment!

Light Weight Lead: Yes it's lead, but it's 20% lighter than traditional lead. And it also has the same protective qualities as traditional lead.

Lead: The industry standard for over 100 years. Economically priced.

Easy Wrap Apron Standard Sizes

	Small	Medium	Large	Extra Large	Extra Extra Large
SKU	65025	65021	65023	65026	65027
Size (Inches)	22 X 37	24 X 40	24 X 42	25 X 40	26 X 42
Chest Width	22	24	24	25	26
Total Length	37	40	42	40	42
Neck Opening	9	9	9	9.5	9.5
Shoulder Opening	5	5	5	5	4
Arm Opening	10	12	12	13	14

Item Information

Item #: SHD00095

Alt Item #:

Category: Shield

Description: Aprons, Demi (Half/Lap), Set of 4, (10x8.5(S), 12x12(M), 14x16(L), 16x20(XL))

Long Description:

Rack purchased separately.

Manufacturer / Manufacturer #: Bar-Ray Products /

Model / Model #: 11068 / 11068

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: N/A

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (0): in(w), in(d), in(h), lbs(weight)

Dimensions Description (0):

Clearance (0): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Small: 10" L x 8.5" W Medium: 12" L x 12" W Large: 14" L x 16" W X-Large: 16" L x 20" W

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Demi Apron (Set of 4)

Set of 4 without rack: 11068
Small 10" L x 8.5" W
Medium 12" L x 12" W
Large 14" L x 16" W
X-Large 16" L x 20" W

They may be Demi Aprons, but this isn't half-sized protection. As shields for the loin/gonad region, these aprons attach to the body with your choice of a strong, flexible vinyl-covered belt, or a web belt with either a buckle or hook-and-loop closure.

Sizes range from small to extra-large, with lengths from 10"-16", to fit patients of any age or size. Available individually or as a set of four, these can be ordered with or without the rack.

Offers .50mm protection with your choice of color or pattern.

Item Information

Item #: SHD00116

Alt Item #:

Category: Shield

Description: Shield, Lead, Thyroid

Long Description:

The standard radiation thyroid collar is designed to fit higher along the neck while providing complete coverage of the thyroid against x-ray radiation.

Manufacturer / Manufacturer #: Protech Medical / AP-TCS

Model / Model #: Standard Radiation Thyroid Collar (0.50mm LE) / AP-TCS

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Special

Total Qty: 6

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 0.00in(w), 0.00in(d), 0.00in(h), 2.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Available sizes: Small, Medium and Large.

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
3	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
3	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

STANDARD THYROID COLLAR

The standard radiation thyroid collar is designed to fit higher along the neck while providing complete coverage of the thyroid against x-ray radiation.

SKU: AP-TCS

CLOSURES:

- Velcro
- Buckle
- Magnetic

ATTACHMENT:

- Loose
- Clip
- Key Ring

SIZING:

- Small, Medium, Large and X-Large

SELECT FABRIC COLORS

Select both exterior and interior fabric colors.

FEATURES

- Sits higher on the neck, providing excellent thyroid coverage
- Velcro, Magnetic or Buckle closures allow for adjustability
- Custom Sizing also available, contact us for info

Standard Thyroid Collar Characteristics

- **Core Material Options:** Lead, Ultralite, Prolite or Premier
- **Thickness:** 0.50mm LE
- **Attachment Options:** Loose, Clip or Keyring
- **Closure Options:** Velcro, Magnets or Buckle
- **CE Certified:** Yes
- **Customizations:** Embroidery
- **Fabric Options:** All fabric types
- **Sizing:** * Small (12-14″); Medium (15-16″); Large (17″+)
  *Neck Circumference

Thyroid Collar Attenuation

CORE MATERIAL	LEAD EQUIVALENCE	70kVp
Standard Lead	0.50mm	98.8%
Ultralight Lead	0.50mm	99%
Prolite	0.50mm	99%
Premier	0.50mm	98.5%

Compliance Standards

Intended Use: Lead Garments are worn by healthcare professionals to protect them from the harmful effects of x-ray radiation during medical & other procedures requiring the use of x-ray/fluoroscopy. Lead garments are usually worn in combination with other products to provide complete protection from x-ray. You must ensure that your lead garment fits correctly and is properly worn for effective protection.

EN 61331-1:2014: (EU) Protective devices against diagnostic Medical X-ray radiation. (Determination of attenuation properties of material)

EN 61331-3:2014: (EU) Protective devices against diagnostic medical X-radiation Part 3: Protective clothing, Eyewear and Protective Patient shields.

ASTM 2547-18: (USA) Standard test method for determining the attenuation properties in a primary x-ray beam of materials used against radiation.

Item Information

Item #: SHD00137

Alt Item #:

Category: Shield

Description: Shield, Gonad

Long Description:

The new set of three (3) gonad shields are 0.5mm protection. They measure small 3" x 5", medium 5" x 7", and large 7" x 9".

Manufacturer / Manufacturer #: Wolf X-ray Corporation / 75501-22

Model / Model #: Gonad Shield Set-of-3 / 75501-22

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Portable

Total Qty: 2

Certifications

Electrical (1): (V), (BTU), (Hz), (A), 1.00 (P)

Electrical Description (1):

Dimensions (1): 3.00in(w), 0.02in(d), 5.00in(h), 1.00 lbs(weight)

Dimensions Description (1): Small.

Dimensions (2): 5.00in(w), 0.02in(d), 7.00in(h), 1.25 lbs(weight)

Dimensions Description (2): Medium.

Dimensions (3): 7.00in(w), 0.02in(d), 9.00in(h), 1.67 lbs(weight)

Dimensions Description (3): Large.

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Gonad Shield Set

Our new set of three shields provide 0.5mm protection.

Small	3″ x 5″
Medium	5″ x 7″
Large	7″ x 9″

Navy only 75501-22

Gonad Shield

0.5 mm LEP, has a belt.
Beige only 75500-23

Wolf's Apron Caddy

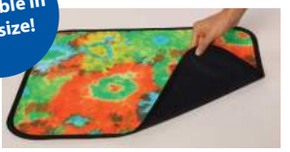
The perfect accessory for the technician on the go!

Wolf's Apron Caddy is designed to help transport and protect your apron. By rolling your apron and inserting it in the Caddy's protective tube, you avoid creasing the apron's internal x-ray protective lining, thus increasing its usable life. Includes shoulder strap, carry handle and a handy outside pocket. Holds one adult apron. Available in Navy Blue.

Order your Caddy today!

Measures 28 x 7in
61100

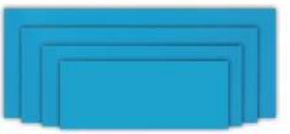
Available in any size!



Pro-Tek-To Pad

To spot-protect any area of the patient's body. Measures 18″ x 24″. Available in any color or pattern. Simply add the color number after the stock number when ordering. Please notate color choice from the chart on page 11.

0.5mm LEP 75057
+ Color Number



Lead Blockers

Designed for making more than one exposure on the same film, they are made of 1/8″ thickness of lead rubber

Measured lengthwise:

4″ x 10″ to fit 8″ x 10″	23308
5″ x 12″ to fit 10″ x 12″	23310
5-1/2″ x 14″ to fit 11″ x 14″	23312
7″ x 17″ to fit 14″ x 17″	23315

Measured crosswise:

5″ x 8″ to fit 8″ x 10″	23309
6″ x 10″ to fit 10″ x 12″	23311
7-1/2″ x 11″ to fit 11″ x 14″	23313
8-1/2″ x 14″ to fit 11″ x 17″	23314

"WOW" Lumbar Support Belt

The perfect accessory for any Wolf Apron, The WOW Belt fits like a glove and provides hours of comfortable support. Simply wrap the belt around your waist with the hook-n-loop closure. Now for the "WOW" part... pull the tab on the left side and feel the cables in the back of the belt custom "hug" your lumbar region. When you've reached your individual comfort level, secure the tab to the belt.

Small	61005	Medium	61006
Large	61007	X Large	61008

OptiClear™ Lead Glass

All OptiClear™ Lead Acrylic Window barriers are also available in Radiation Shielding OptiClear™ Lead Glass. This glass is 9mm thick with 2.0 lead protection. All sizes are sprayed for added protection. Glass is secured by a 1-piece lead stop on all four sides.

8″ x 10″	14307
12″ x 16″	14315
16″ x 24″	14316

Item Information

Item #: STD00096

Alt Item #:

Category: Stand

Description: Stand, IV, Stainless, 5-leg, 4-hook

Long Description:

All stands built to Steril-Gard specifications

Easy to clean surfaces

Fully-welded construction

2" swivel casters for easy mobility

Tip-resistant base design

Certifications

Manufacturer / Manufacturer #: Pedigo Products / P-1576-4

Model / Model #: IV Stand 5-leg, 4-hook / P-1576-4

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Mobile (casters/wheels)

Total Qty: 2

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 21.25in(w), 21.25in(d), 68.50in(h), 15.00 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

PEDIGO®
manufacturing lifetime value

iv stands

features

- Heavy, tip-resistant, all welded design
- 2" swivel dual-wheel casters for easy mobility
- 21¼" diameter base on all stands
- Tube: O.D. = 1"
- Easy to clean surfaces

clearview technology™

For the easy reading of all IV bag labels from the front of the stand.

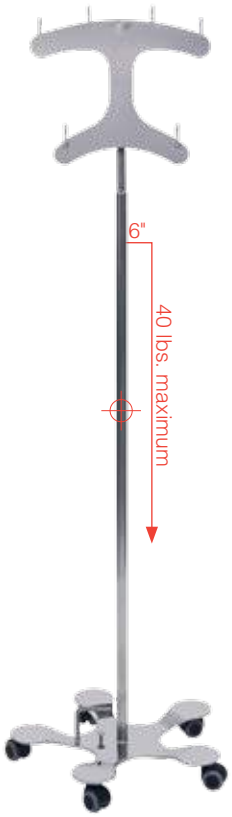
Hooks are ideal for IV piggybacking of primary and secondary bags.

P-1572-4 four hook

- Stainless steel
- Hand operated, friction lock height adjustment
- Height adjustable from 68½" to 117½"
- Five leg base
- 70 lbs. overall weight capacity
- 10 lbs. per hook (recommended 30 lbs. max. evenly distributed on top hooks for stability)

P-1572-CV six hook

- Stainless steel
- Hand operated, friction lock height adjustment
- Height adjustable from 69½" to 119"
- Five leg base
- 70 lbs. overall weight capacity
- 7 lbs. per hook (recommended 30 lbs. max. evenly distributed on top hooks for stability)



clearview technology™

P-1576-4 four hook

- Stainless steel
- Quick and easy one-hand foot pedal height adjustment
- Height adjustable from 68½" to 117½"
- 70 lbs. overall weight capacity
- 10 lbs. per hook (recommended 30 lbs. max. evenly distributed on top hooks for stability)

P-1576-CV six hook

- Stainless steel
- Quick and easy one-hand foot pedal height adjustment
- Height adjustable from 69½" to 119"
- 70 lbs. overall weight capacity
- 7 lbs. per hook (recommended 30 lbs. max. evenly distributed on top hooks for stability)
- Accodates up to two infusion pumps (see safe load capacity)

Safe Load Capacity

For stability, a safe load on this series I.V. pole should not exceed 40 lbs. to one side and needs to be within 6"S of base tube center line.

Printed using 100% Clean Wind Power

Item Information

Item #: STL00158

Alt Item #:

Category: Stool

Description: Stool, Foot w/Handrail

Long Description:

Stool Step Silver Tone Finish Non-Tip Non-Slip Tread Aluminum 19x15x8" Bariatric XL 1000lb Capacity with Handrail.

Manufacturer / Manufacturer #: AliMed / 2970008761

Model / Model #: Bariatric XL Safe Step Footstool / 2970008761

Vendor / Vendor #: /

Group: 3

Responsibility: OF | OI

Mounting: Freestanding

Total Qty: 2

Certifications

Electrical (0): (V), (BTU), (Hz), (A), (P)

Electrical Description (0):

Dimensions (1): 20.00in(w), 25.00in(d), 44.00in(h), 10.50 lbs(weight)

Dimensions Description (1):

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

No / No

Special Instructions:

Mechanical (Gas)

Electrical

Plumbing (Water)

Technology

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

Step Stools

STL00158

Economical and durable

Extra-Strong Footstools Chrome-plated frame with rubber tips. Nonslip, textured matting. Steel foot plate.

11¼"W x 14¼"L x 9"H • 8 lbs. • 350-lb. capacity

#2970018259	FOOTSTOOL	EACH
#2970018258	FOOTSTOOL	2/CASE
#2970012936	REPLACEMENT TIPS	4/PACK

65 *California residents, see below.*

Brewer more possibilities

■ *Up to 600-lb. capacity*

Footstools feature a black powder-coated steel handrail for stability. Installs easily on stool. **Bariatric** model (available **with** or **without Handrail**) is made with stronger steel and crossbar, offering 600-lb. capacity.

*11¼"W x 14¼"L • **Standard:** Base, 9"H • Handrail: 35¼" from top of rail to floor • 300-lb. capacity • **Bariatric:** Base, 9¼"H • Handrail: 34" from top of rail to floor • 600-lb. capacity*

#2970011600	STANDARD w/HANDRAIL	EACH
#2970013006	BARIATRIC w/o HANDRAIL	EACH
#2970013007	BARIATRIC w/HANDRAIL	EACH
#2970012936	REPLACEMENT TIPS	4/PACK

65 *California residents, see below.*

HAUSMANN

■ *Anti-tip wide base*

Bariatric XL Safe Step Footstools All-aluminum welded construction with powder-coat silver-tone finish and handrail for stability. Anti-tip wide base with angled rubber leg tips. Anti-slip extra-large platform.

Platform: 15"W x 19"L x 8"H • Base: 20"W x 25"L • Handrail: 36"H • 10.5 lbs. • 1,000-lb. capacity

#2970008761	FOOTSTOOL w/HANDRAIL	EACH

65 *California residents, see below.*

Reduce muscle aches with Anti-Fatigue Stool Mats

p. 600

■ *Stainless steel strength*

Stainless Steel Step Stools with anti-tip, offset, round legs. Rubber mat cemented to foot platform helps prevent slipping.

All-welded steel

ITEM #	STEPS	W	L	H	QTY
#2970013177	ONE	10"	14"	8"	EACH
#2970013178	ONE	12"	18"	8"	EACH
#2970013179	ONE	12"	30"	8"	EACH
#2970013180	TWO	18"	25"	16"	EACH

65 *California residents, see below.*

■ *Cushioned step prevents fatigue*

Soft Steps help prevent fatigue and leg strain common with standing on ordinary step stools. ⅝"-thick high-density, closed-cell foam stool top offers relief from foot, leg, and back disorders aggravated by standing on hard surfaces. Nonskid vinyl surface is water-resistant and offers superior shock absorption.

11¼"W x 14¼"L x 9⅝"H • Nonskid rubber feet • 350-lb. capacity • Chrome-plated

#2970013289	SOFT STEP	EACH
#2970012936	REPLACEMENT TIPS	4/PACK

65 *California residents, see below.*

Scan to shop our full line of Clinical Furnishings!

AliMed.com/clinic-furnishings

California Proposition 65 Statement

65 ⚠ *WARNING: This product can expose you to chemicals including Di(2-Ethylhexyl) Phthalate (DEHP), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to https://www.p65warnings.ca.gov.*

Item Information

Item #: XRY00252

Alt Item #:

Category: X-ray

Description: X-Ray, General Radiography, Digital

Long Description:

The Radiography 7300 C Pro bundle is a classic radiography designed for high demands in patient throughput and maximum clinical confidence. It is characterized by a height-adjustable vertical stand with integrated fixed detector and AI-enabled Smart Workflow features. It offers all the benefits of the intuitive Eleva platform and next-generation UNIQUE 2 image processing. State-of-the-art high-performance radiography room with Eleva Tube Head (including 3D camera) enabling Smart Collimation Thorax, and height-adjustable table.

Key Benefits:
• No compromise on robustness, quality and work efficiency based on proven design of height-adjustable vertical stand with integrated 43x43 cm (17”x17”) fixed detector
• Fully streamlined AI-enabled Smart Workflow with 3D camera for upright chest exams using
Smart Collimation Thorax, plus AEC Visualization and On Screen Collimation via overlays for fast selection
• Easy-to-use touchscreen Eleva interface simplifies the exam process through patient-related automatic parameter setting controls – a feature harmonized across all Philips DXR systems
• Reduced noise and more homogeneous black backgrounds for all anatomical areas enabled by UNIQUE 2 image processing software
• High patient throughput enabled by the use of up to 3 detectors with the system

Manufacturer / Manufacturer #: Philips Healthcare / TYPICAL

Model / Model #: Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System / TYPICAL

Vendor / Vendor #: /

Group: 1

Responsibility: OF | VI

Mounting: Floor | Ceiling

Total Qty: 1

Certifications

Electrical (1): 480.00 (V), (BTU), 60.00 (Hz), 50.00 (A), 3.00 (P)

Electrical Description (1):

Dimensions (1): 25.75in(w), 39.44in(d), 34.31in(h), 862.00 lbs(weight)

Dimensions Description (1): Digital Diagnost CSM3 with Drag Chain. Height reflects Tube Support Upper Position.

Dimensions (2): 94.50in(w), 33.46in(d), 36.02in(h), 593.00 lbs(weight)

Dimensions Description (2): DigitalDiagnost TH/TH2 (Wide Tabletop). Adjustable height range: 18.7 - 36.02 inches.

Dimensions (3): 23.46in(w), 21.34in(d), 82.87in(h), 485.00 lbs(weight)

Dimensions Description (3): Digital Vertical Stand VS2.

Dimensions (4): 19.21in(w), 27.64in(d), 38.54in(h), 221.00 lbs(weight)

Dimensions Description (4): Generator M-Cabinet CXA. NOTE: Service Area if cable outlet is in rear: 29.45 inches.

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

Yes / Yes

Special Instructions:

System consists of multiple components. See cutsheet for all electrical and space requirements.

Mechanical (Gas)

Electrical Hardwired, Dedicated Circuit Recommended

Plumbing (Water)

Technology Network (Special), Network (Wireless), Network (DICOM | PACS)

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835H		General Radiology 4	01	Radiology/Imaging

PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By

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PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

C1

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

AN

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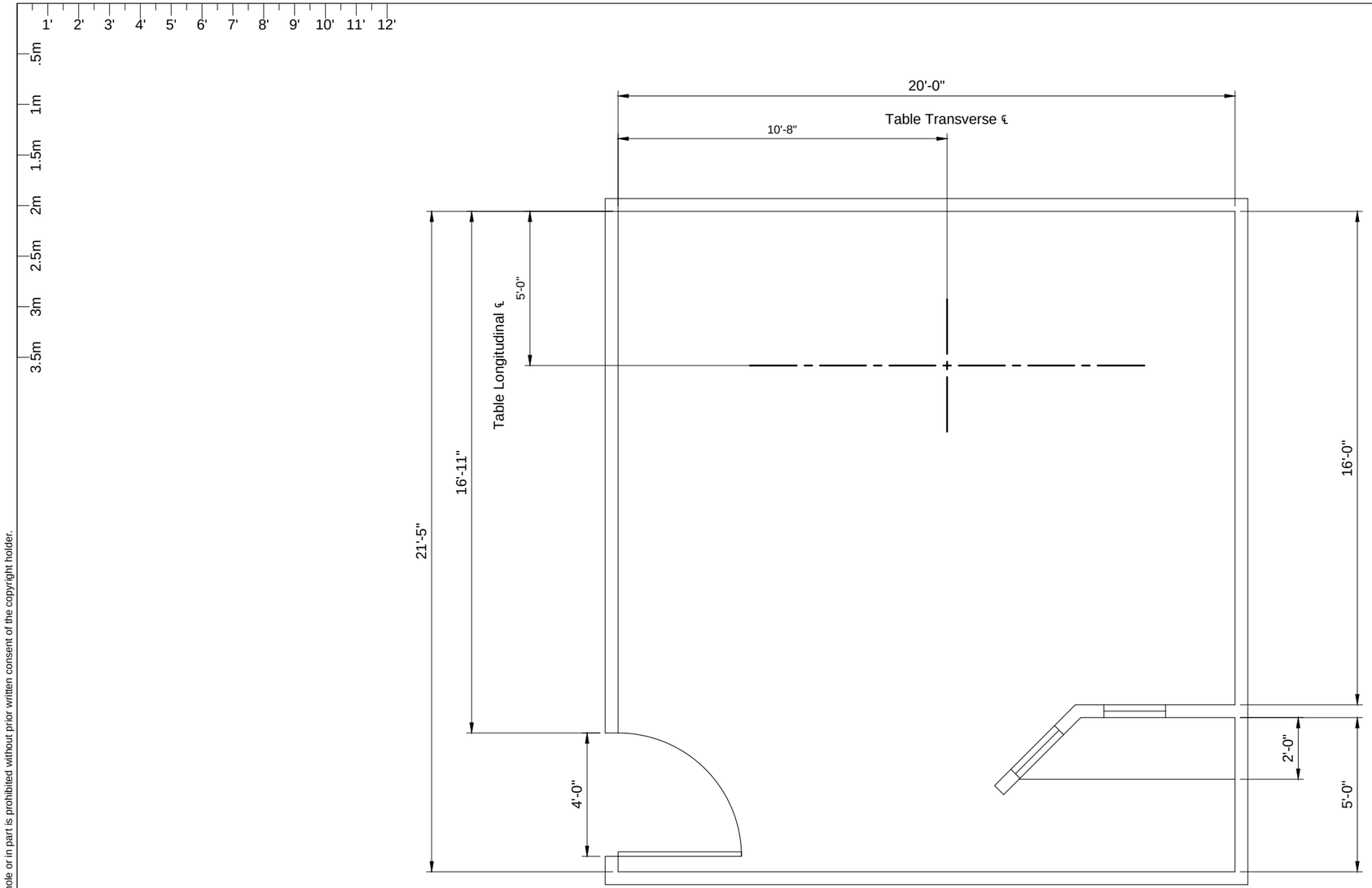

Legend

- Walls
- Soffit
- Existing (to be removed)
- Beams or other building construction elements

Site Layout

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

General Notes

* Counters and cabinetry shown to be supplied and installed by contractor.
* Field to verify all room dimensions.
* Refer to A.D.A. Guidelines for doors and clearances. Verify all other applicable code(s) with the architect of record.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

A1

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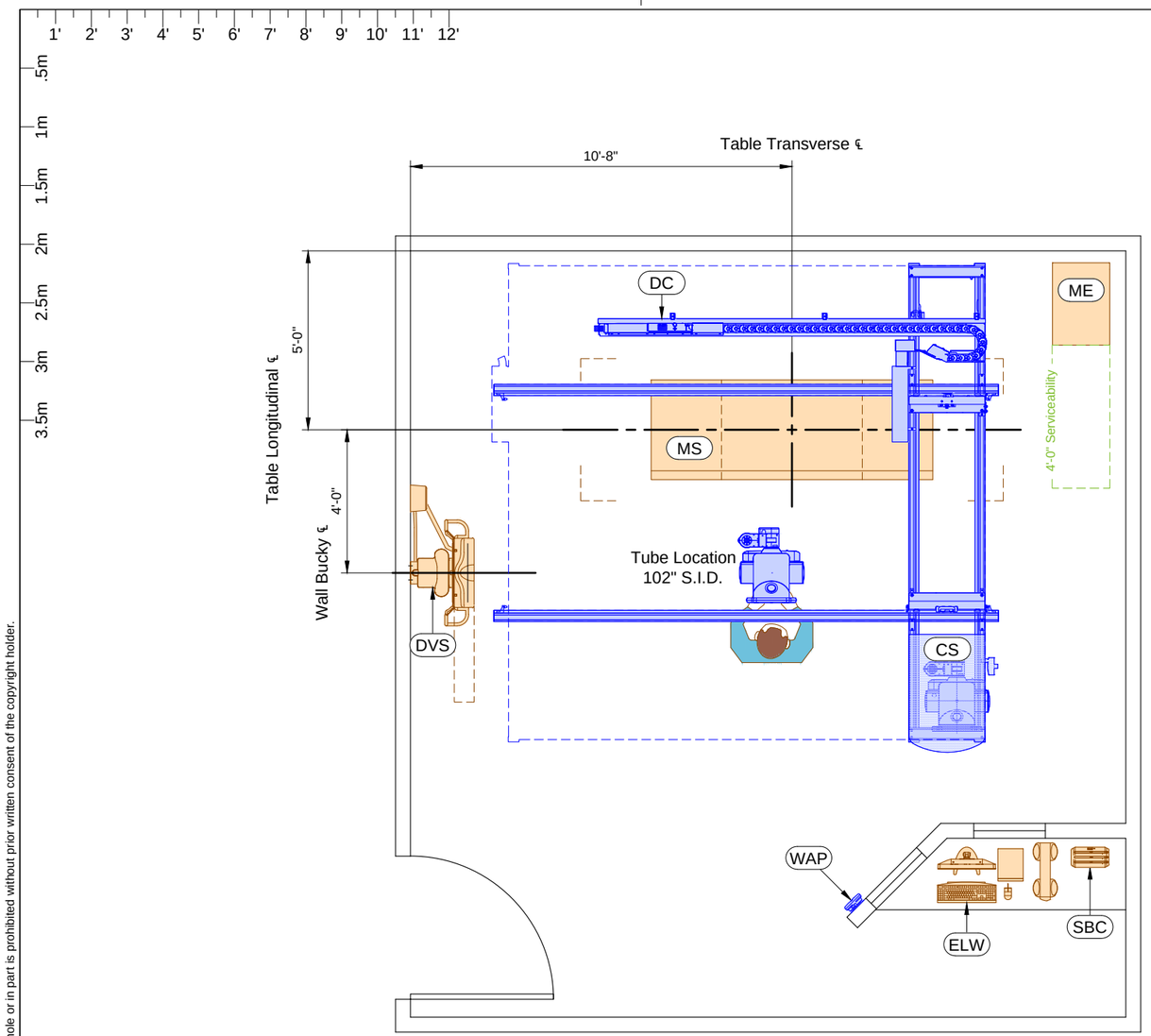

Equipment Layout

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Weight (lbs)	Heat Load (btu/hr)	Detail Sheet
A	ME	Generator M-Cabinet CXA	221	342	AD2
A	MS	DigitalDiagnost TH/TH2 (Wide Tabletop)	593	614	AD3
A	CS	Ceiling Suspension CSM3 Comfort Move Long	862	1365	AD2
A	DC	Drag Chain	66	--	AD2
A	DVS	Digital Vertical Stand (VS2) (Left)	485	614	AD3
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536	AD2
A	WAP	Wi-Fi Access Point	2	--	AD2
A	SBC	SkyPlate Battery Charger	2	--	AD2
		Items not on Philips Quote/Order			

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

* Optional stitching shots at 102" S.I.D. will be available. See layout.

Notes to Philips Field Personnel

* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

A2

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1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12'

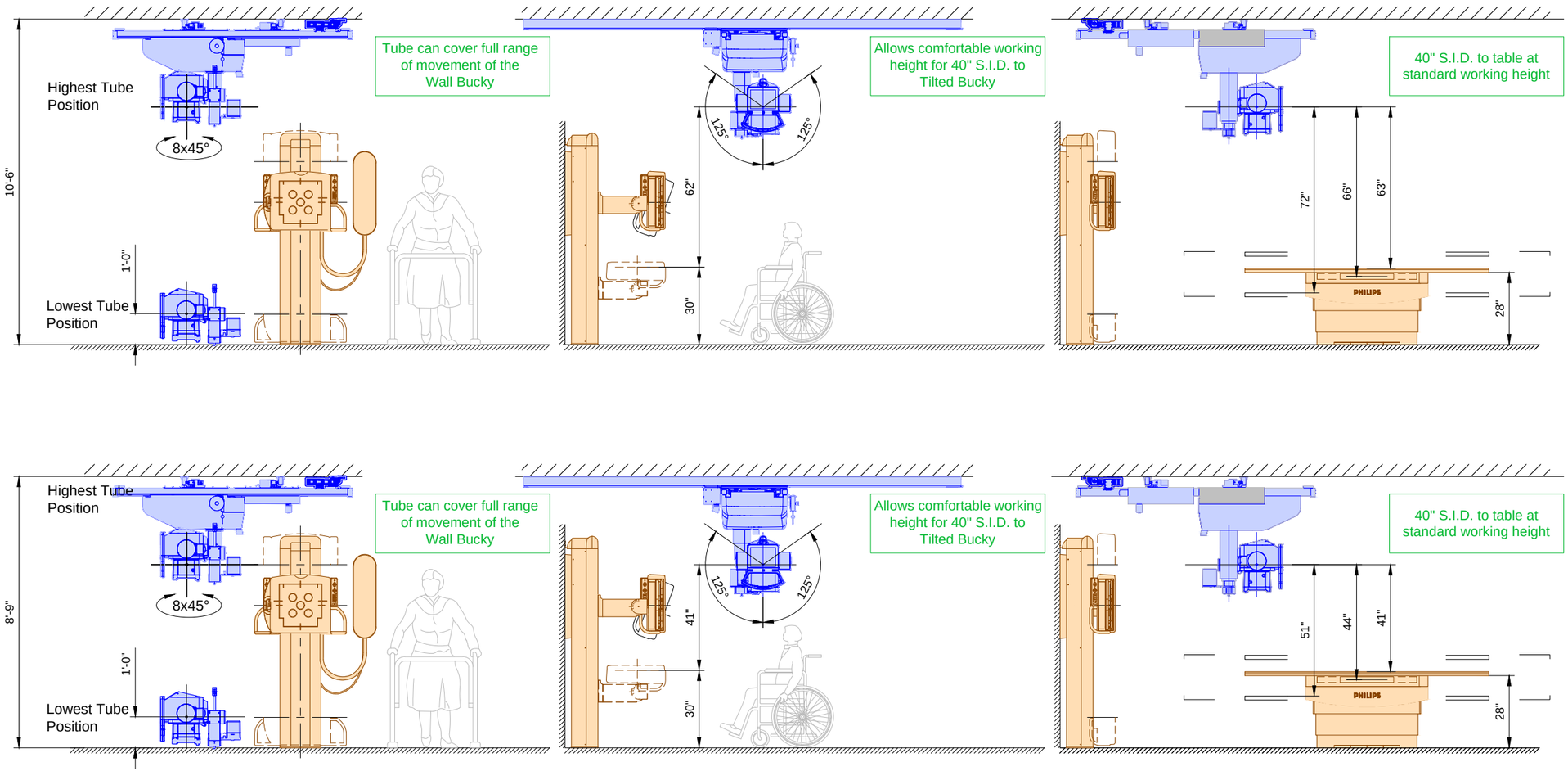
.5m 1m 1.5m 2m 2.5m 3m 3.5m

Ceiling Height Guide for High Performance VS and Value Room

Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

A3

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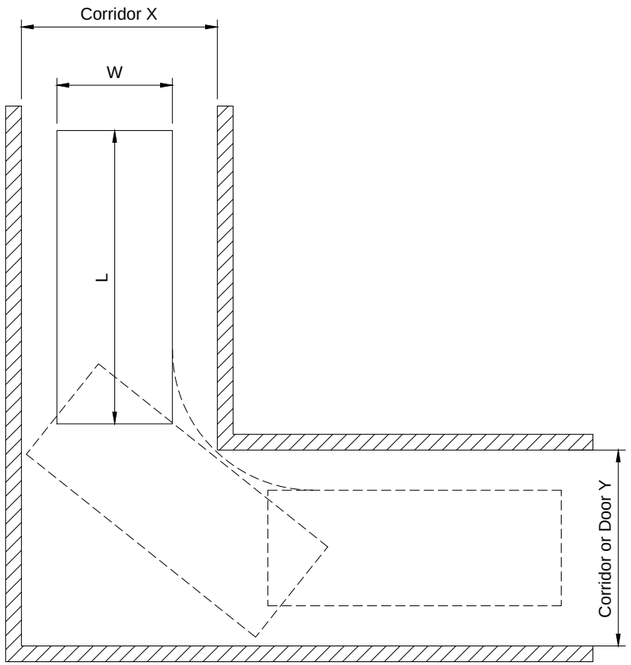
7.22.2024

Radiography 7300C (Tube Crane, TH Table, Wall Bucky) Transport Information



	TH Table	Wall Bucky	CSM3		
	Crate Packed	Crate Packed	Telescopic Carriage	Longitudinal Carriage Long	Longitudinal Carriage Short
Weight	684 lbs (310kg)	375 lbs (170kg)	661 lbs (300kg)	397 lbs (180kg)	207 lbs (94kg)
Height	2'-9" (0.83m)	1'-10" (0.55m)	N/A	1'-4" (0.41m)	1'-4" (0.41m)
Length (L)	4'-6" (1.36m)	7'-4" (2.22m)	4'-0" (1.20m)	13'-9" (4.18m)	8'-0" (2.42m)
Width (W)	3'-2" (0.96m)	2'-6" (0.76m)	2'-7" (0.78m)	2'-7" (0.77m)	3'-1" (0.94m)
Width of Corridor "X"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"
3'-4" (1.0m)	5'-1" (1.54m)	6'-1" (1.85m)	3'-7" (1.07m)	12'-3" (3.72m)	7'-11" (2.4m)
3'-8" (1.1m)	4'-6" (1.36m)	5'-8" (1.72m)	3'-3" (.99m)	11'-9" (3.58m)	7'-2" (2.17m)
4'-0" (1.2m)	4'-1" (1.25m)	5'-3" (1.60m)	3'-1" (.93m)	11'-4" (3.45m)	6'-8" (2.02m)
4'-4" (1.3m)	3'-10" (1.17m)	4'-11" (1.50m)	2'-11" (.88m)	10'-11" (3.32m)	6'-3" (1.89m)
4'-8" (1.4m)	3'-9" (1.12m)	4'-7" (1.40m)	2'-11" (.88m)	10'-6" (3.20m)	5'-10" (1.77m)
5'-0" (1.5m)	3'-8" (1.08m)	4'-4" (1.30m)	2'-11" (.88m)	10'-2" (3.10m)	5'-6" (1.66m)
5'-3" (1.6m)	3'-6" (1.06m)	4'-0" (1.20m)	2'-11" (.88m)	9'-10" (2.98m)	5'-2" (1.56m)
5'-7" (1.7m)	3'-6" (1.06m)	3'-9" (1.13m)	2'-11" (.88m)	9'-5" (2.87m)	4'-10" (1.47m)
5'-11" (1.8m)	3'-6" (1.06m)	3'-6" (1.10m)	2'-11" (.88m)	9'-1" (2.76m)	4'-8" (1.40m)
6'-3" (1.9m)	3'-6" (1.06m)	3'-4" (1.00m)	2'-11" (.88m)	8'-9" (2.66m)	4'-4" (1.31m)
6'-7" (2.0m)	3'-6" (1.06m)	3'-2" (0.95m)	2'-11" (.88m)	8'-4" (2.55m)	4'-1" (1.24m)
6'-11" (2.1m)	3'-6" (1.06m)	3'-0" (0.91m)	2'-11" (.88m)	8'-1" (2.45m)	3'-11" (1.18m)

(13.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

AD1

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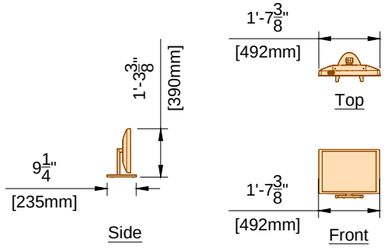
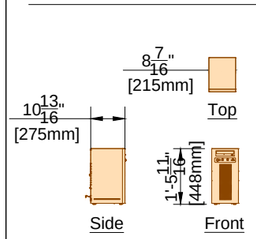
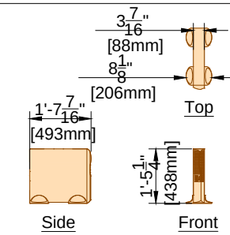


Eleva Examination Control
Weight: 38 lbs (18 kg)
Heat Dissipation: 342 Btu/hr (100W)



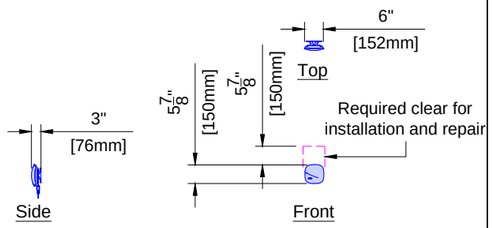
CPU Tower
Weight: 32 lbs (15 kg)
Heat Diss.: 293 Btu/hr (86W)



Uninterruptible Power Supply
Weight: 57 lbs (26 kg)

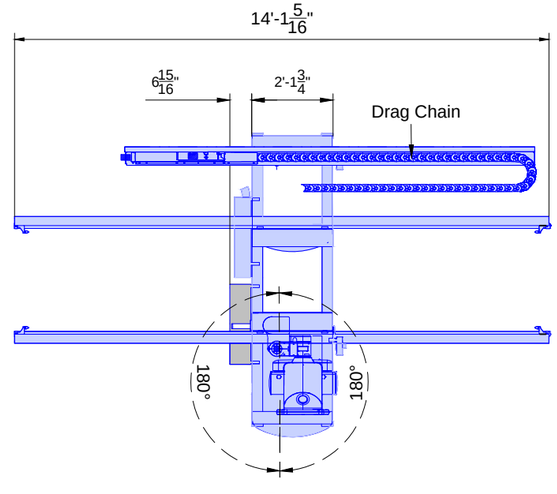
(24.0)

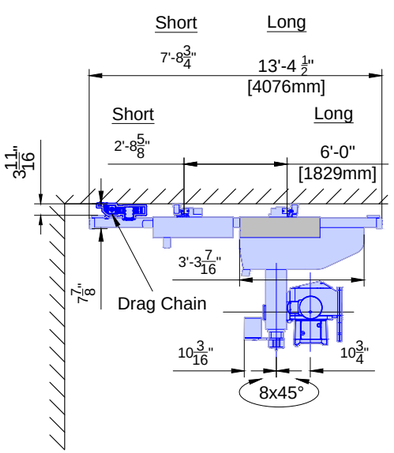
	Eleva Workspot	
ELW	Weight	Heat Dissipation
	127 lbs (58 kg)	536 Btu/hr (157 W)

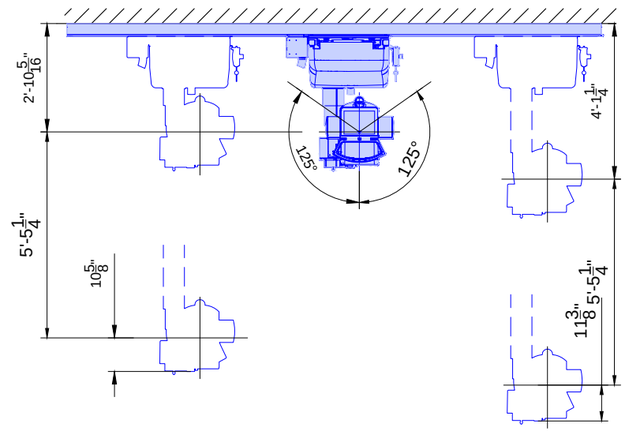


(24.0)

	Wi-Fi Access Point	
WAP	Weight	Heat Dissipation
	2.5 lbs (1.12 kg)	--







Tube Support Upper Position

Tube Support Lower Position

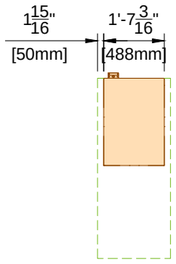
Side

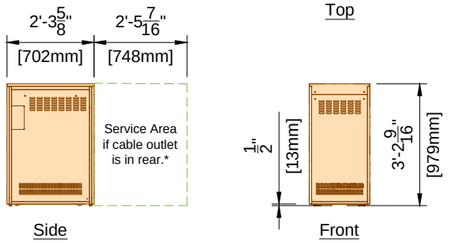
Front

(24.0)

	Digital Diagnost CSM3 with Drag Chain	
CS/DC	Weight	Heat Dissipation
	Short: 785 lbs (356 kg)*	1365 Btu/hr (444 W)
	Long: 862 lbs (390 kg)*	

* Full length extension rails add 101 lbs (46 kg).
* Drag Chain is 66 lbs(30kg/110lbs (50kg) with extension)



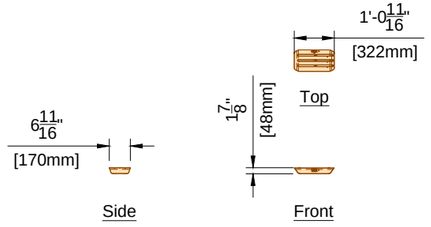


*Cable outlet is not shown. For detailed view, please see ED1 page.

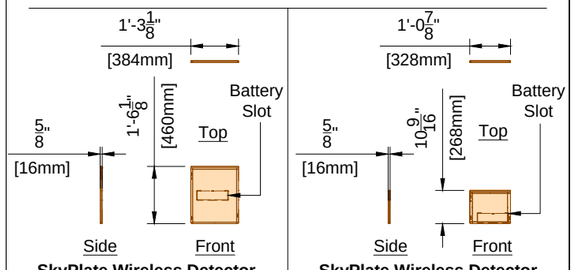
Noise measured at 1 meter distance at 1 meter high over floor < 52 dB(A).

(21.0)

	Generator M-Cabinet CXA	
ME	Weight	Heat Dissipation
	221 lbs (100 kg)	342 Btu/hr (100 W)



Battery Charger
Weight: 2.20 lbs (1 kg)



SkyPlate Wireless Detector (Large)
Weight: 5.7 lbs (2.6 kg)

SkyPlate Wireless Detector (Small)
Weight: 3.5 lbs (1.6 kg)

(14.0)

	SkyPlate Detector and Battery Charger	
SBC	Weight	Heat Dissipation
	2.20 lbs (1 kg)	--

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Project
Radiography 7300 C
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Not Site Specific
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Philips Contacts
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Email:
Drawn By:

Project Details
Drawing Number
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Date Drawn: 9/17/2024
Quote: None
Order: None

AD2

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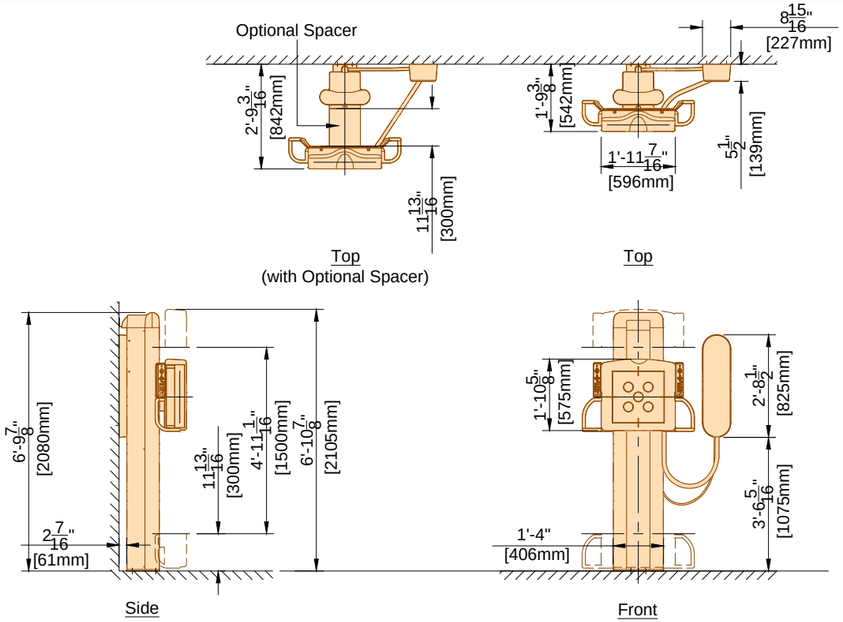
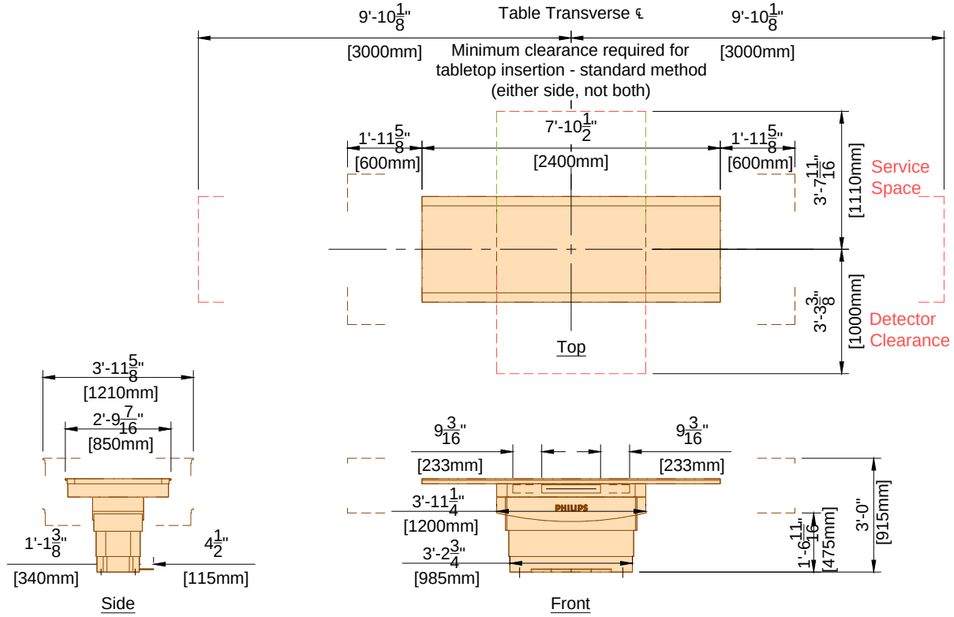


(24.0)

	Digital Vertical Stand VS2	
DVS	Weight	Heat Dissipation
	485 lbs (220 kg)	614 Btu/hr (180 W)

Weight of Wall Connection Box: 36 lbs (16 kg)



(24.0)

	DigitalDiagnost TH/TH2 (Wide Tabletop)	
MS	Weight	Heat Dissipation
	593 lbs (269 kg)	614 Btu/hr (180 W)

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Project
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Philips Contacts
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Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

AD3

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Equipment Support Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required structural alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and building codes. The customer shall be solely responsible for obtaining all construction permits from jurisdictional authority.

2. Equipment Anchorage
Philips provides, with this plan and specifications, information relative to equipment size, weight, shape, anchoring hole locations and forces which may be exerted on anchoring fasteners. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of equipment anchoring to floors, wall and/or ceiling of the building. Any anchorage test required by local authority shall be the customer's responsibility. Stud type anchor bolts should not be specified as they hinder equipment removal for service. Consult with Philips service prior to specifying anchor methods.

3. Floor Loading and Surface
Philips provides, with this plan and specifications, information relative to size, weight and shape of floor mounted equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings confirmation of the structural adequacy of the floor upon which the equipment will be placed. Any load test required by local authority, shall be the customer's responsibility.

a. The floor surface upon which Philips equipment (except floor rails) is to be placed/anchored shall be flat and level to within plus or minus 1/16 inch (2mm) over a length of 39" (1m).
b. The floor surface upon which Philips floor rails are to be placed/anchored shall be flat and level to within plus or minus 1/4 inch (6mm) over the length of the floor rails.

4. Ceiling Support Apparatus

a. Philips provides, with this plan and specifications, information relative to size, weight and shape of ceiling supported equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of structural support apparatus, fasteners and anchorage to which Philips will attach equipment. Any anchorage and/or load test required by local authority shall be the customer's responsibility.
b. Contractor to clearly mark Philips equipment longitudinal centerline on bottom of each structural support.
c. The structural support apparatus surface to which Philips equipment is to be attached, shall have horizontal equipment attachment surfaces parallel, square and level to within plus or minus 1/16 inch (2mm).
d. Any drilling and/or tapping of holes required to attach Philips equipment to the structural support apparatus shall be the responsibility of the customer.
e. Fasteners, anchors (e.g. bolts, spring nuts, lock and flat washers), and strip closures shall be provided by the customer.

5. Lighting
Lighting fixtures shall be placed in such a position that they are not obscured by equipment or its movement, nor shall they interfere with Philips ceiling rails and equipment movement or otherwise adversely affect the equipment. Such lighting fixture locations shall be the sole responsibility of the customer.

6. Ceiling Obstructions
There shall be no obstructions that project below the finished ceiling in the area covered by ceiling suspended equipment travel.

7. Seismic Anchorage (For Seismic Regions Only)
All seismic anchorage hardware, including brackets, backing plates, bolts, etc., shall be supplied and installed by the customer/contractor unless otherwise specified within the support legend on sheet S1. Installation of electronic cabinets to meet seismic anchorage requirements must be accomplished using flush mounted expansion type anchor/bolt systems to facilitate the removal of a cabinet for maintenance. Do not use threaded rod/adhesive anchor systems. Consult with Philips regarding any anchor system issues.

8. Floor Obstructions/Floor Coverings
There shall be no obstructions on the floor (sliding door tracks, etc.) in front of the Philips electronic cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service. Contractor to verify the preferred floor covering installation method with Philips.

(13.0)

PHILIPS

Project
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Philips Contacts
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Order: None

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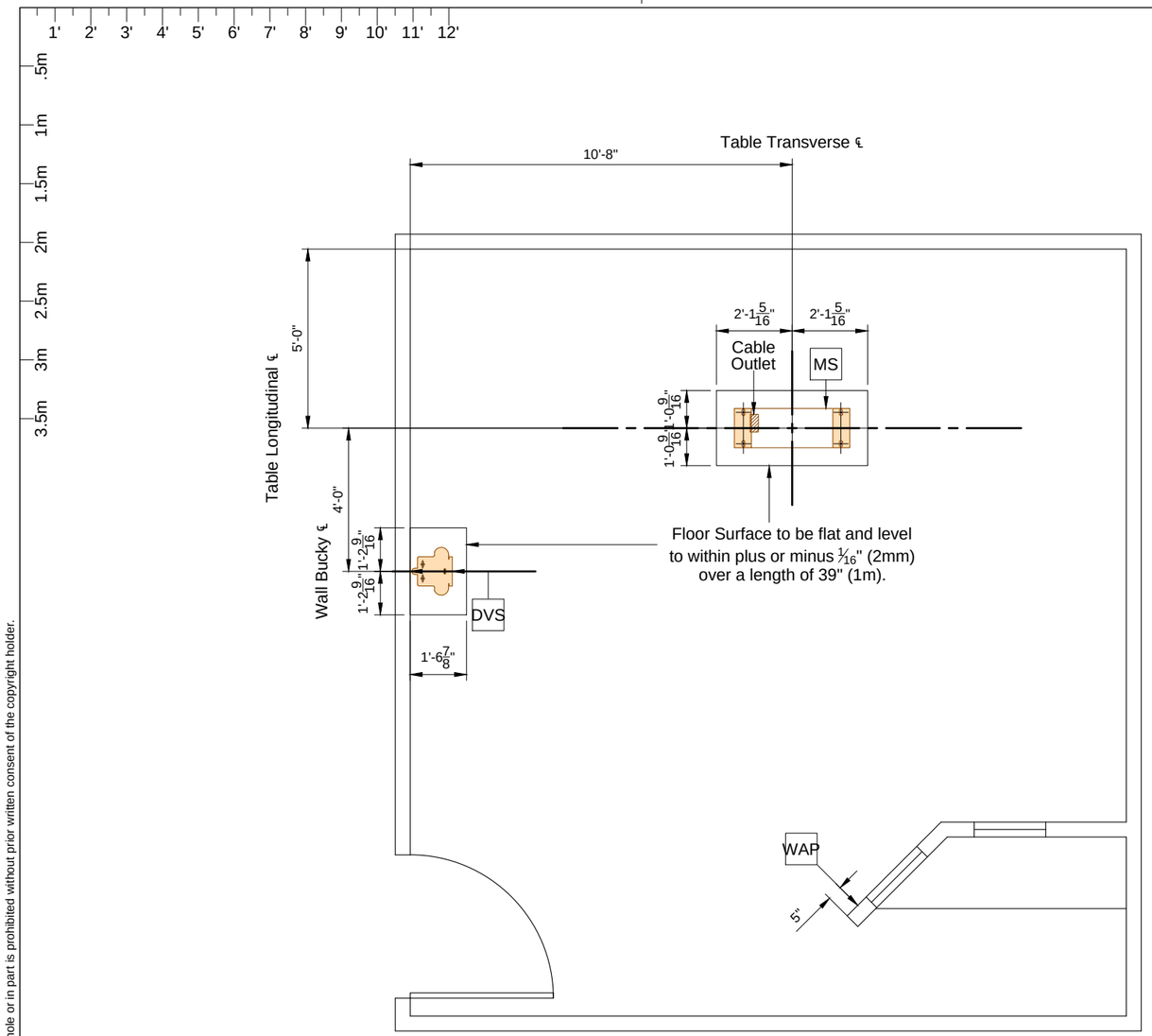

Floor & Walls Support Layout

1/4" = 1'-0"

Reported Ceiling Height: N/A

Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (see exceptions - Note 2, below)
B Furnished by customer/contractor and installed/anchored by customer/contractor
C Installed/anchored by customer/contractor
D Furnished by Philips and installed/anchored by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
B	MS	Anchors in floor for Diagnost TH	SD5
B	DVS	Support in wall for BuckyDiagnost VS	SD4
B	DVS	Anchors in floor for BuckyDiagnost VS	SD4
A	DVS	Anchors in wall for BuckyDiagnost VS	SD4
A	VSC	Anchors in wall for BuckyDiagnost VS Connection Box (not shown)	SD4
A	WAP	Wi-Fi Access Point - optional wall mounting	SD5

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

Notes:
1. Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
2. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed in this document, the anchors shall be provided by customer/contractor and installed by Philips.
3. In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

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Project
Radiography 7300 C
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S1

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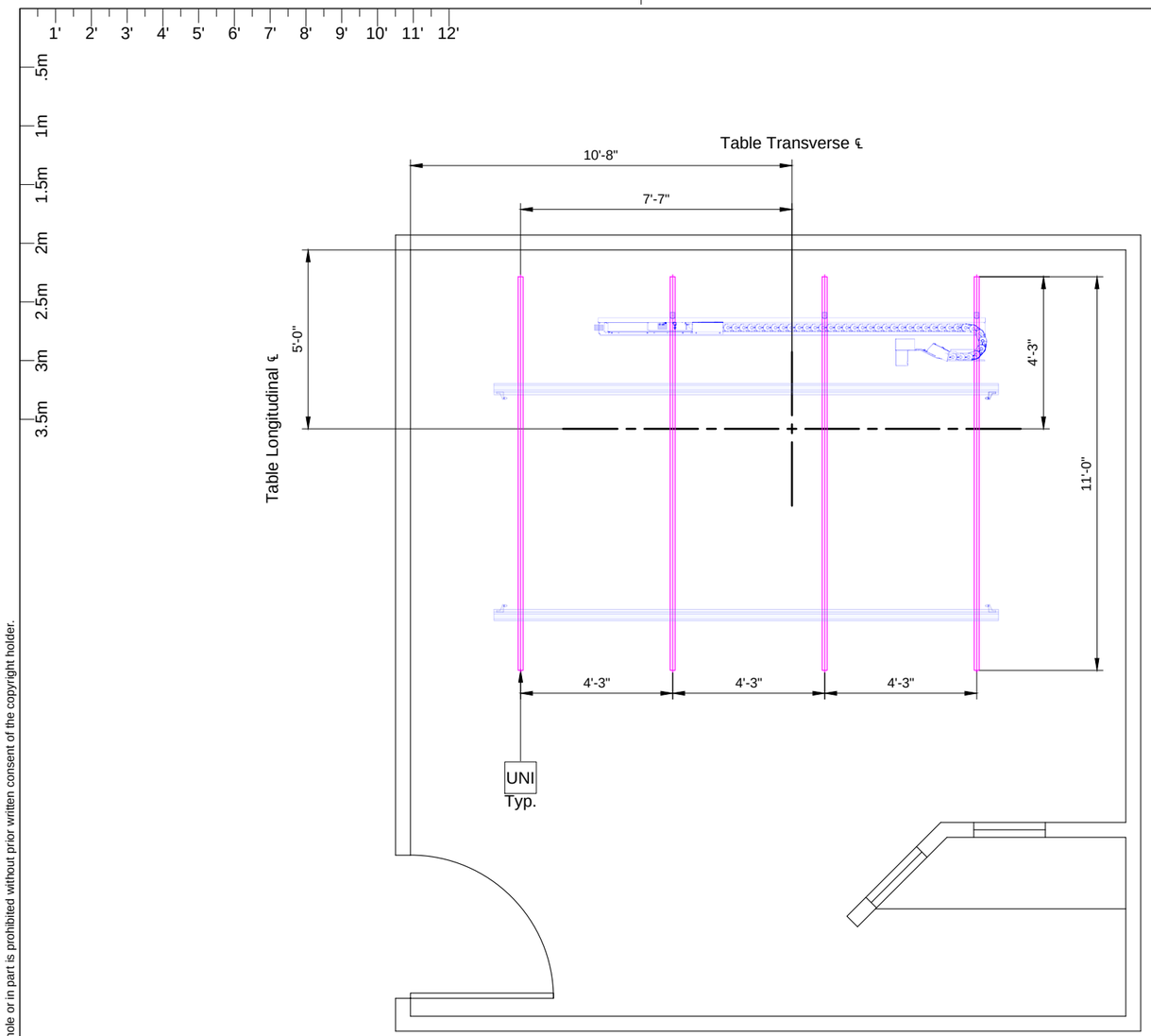

Ceiling Support Layout - Unistrut

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Ceiling Support Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
B	UNI	Unistrut (P1001 or equal)	SD3

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

See Ceiling Clearance Detail (sheet SD2) for information on restricted areas for objects that project below the finished ceiling.

PHILIPS

Project
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Project Details
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S2

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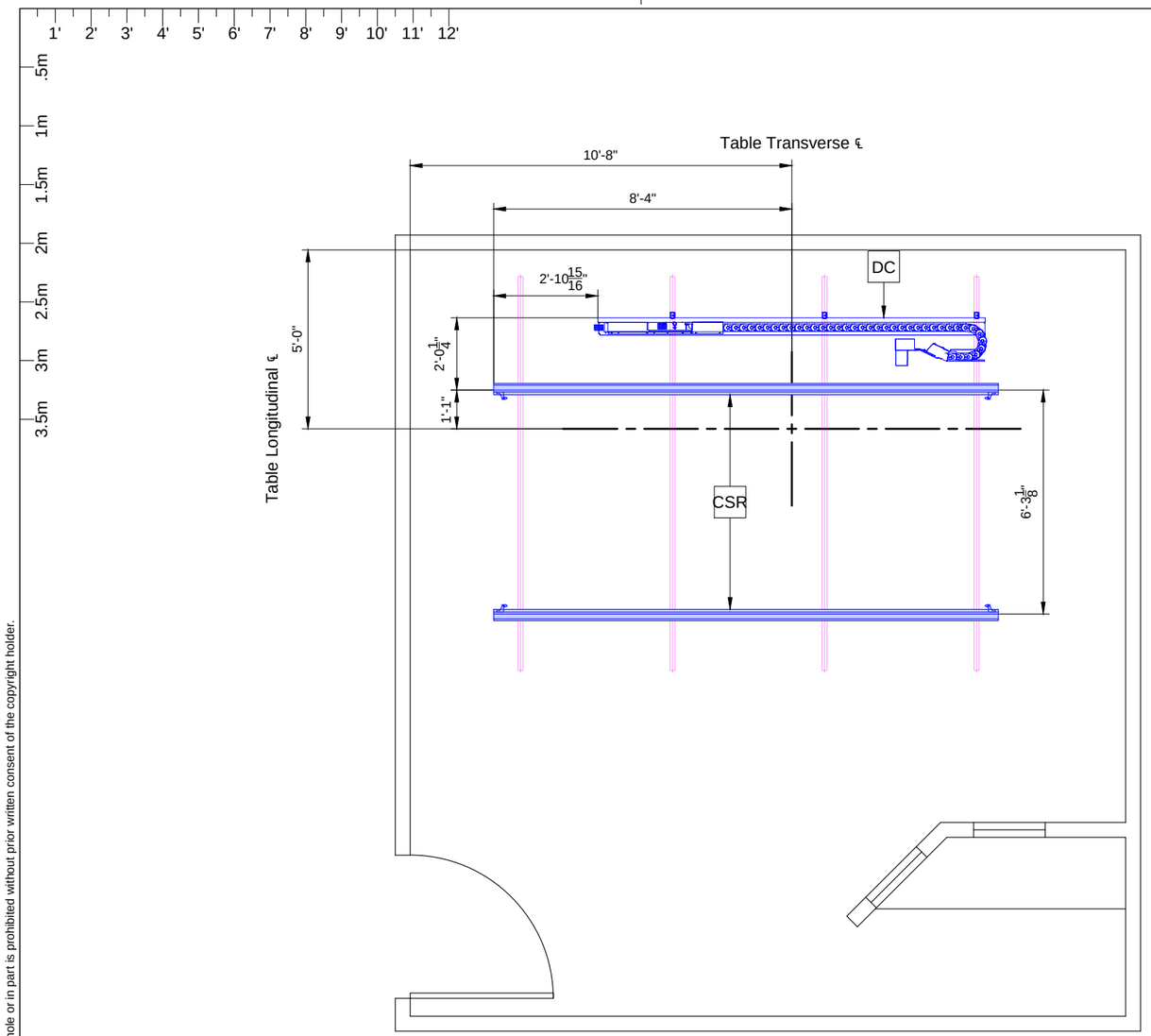

Ceiling Support Layout - Equipment

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Ceiling Support Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
A	DC	Drag Chain	SD2
A	CSR	Philips Equipment Rails	SD3

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

See Ceiling Clearance Detail (sheet SD2) for information on restricted areas for objects that project below the finished ceiling.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

S3

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Pre-Evaluated and -Approved Anchor Reference List for **Philips Installers**

Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be provided by customer/contractor and installed by Philips.
In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

Equipment	Option	Anchor Style (provided by Philips)	Anchor Size (provided by Philips)	Qty.	Support Size & Material (provided & installed by customer/contractor)
Eleva Examination Control (Wall Mounted)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with min. ¾" plywood backing
	B	Toggler Snaptoggle with Round Head Screw and flat fender washers and nuts	#BA with #10-24 x 2 ½"L	4	Drywall (⅝"D min)
Digital VM Guide Rail with Wall Holders	A	A307 bolts (min. ASME Grade 5)	3/8", 3"L	6	Drywall with min. 16 Gauge Steel Backing Thru bolted with head of bolt behind backing and threads sticking out of wall for attachment to wall holders
	B	Lag Screw	3/8", 3"L	6	Drywall with min 4"x4" Douglas Fir # 2 Grade backing
	C	Hex Head Tek Screw	#14 x 3"L	6	Drywall with min. 10 Gauge Steel Backing
	D	Hilti KB-TZ	⅜" x 3"L	6	Concrete Wall (min. embedment = 2")
Digital VM Floor Rail	A	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	20	Concrete Floor
	B	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	20	Wood Frame Floor
Patient Support Floorplates	A	Simpson or Hilti Drop-in with Stainless Steel Phillips Oval Head Screw with dress washer	¼" x 1"L	4	Concrete Slab
	B	Hex Head Lag Bolt with flat washer	#14 x 1"L	4	Wood Frame Floor
Wireless Detector Docking Station	A	SPAX Multipurpose Flat Head Screw	#10 x 1½ "L	2	Drywall with minimum ¾" plywood backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½""	2	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	2	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	Toggler Alligator #A6 with SPAX #10 x 1½"L	2	Concrete Wall
BuckyDiagnost VS (Advanced and Digital) Wall Anchorage	A	Through Bolt	⅜" diameter	4	Minimum 10 gauge steel plate[1], or Minimum 4"x 4" Douglas Fir # 2 grade
	B	Self Drilling Tek Screw	# 14	4	Minimum 10 gauge steel plate[1]
	C	Lag Screw	7/16"	4	Minimum 4" x 4" Douglas Fir # 2 Grade
	D	Toggler Snaptoggle Anchor	⅜" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]
BuckyDiagnost VS Connection Box	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with Wood Backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½L"	4	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Round Phillips Head Self Drilling Screw	# 10-16 x 1½"L	4	Metal junction box or raceway
	E	Toggler Alligator with SPAX Multipurpose Flat Head Screws	Toggler Alligator #A6 with SPAX #10 x 1½"L	4	Concrete Wall or Hollow Concrete Block Wall
Parking Frame for Accessories (RAD)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	4	Drywall with min. ¾" plywood backing
	B	Phillips Round Head Self Drilling Screw	#10-16 x 1½"L	4	Minimum 16 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	4	Concrete Wall
Pediatric Support Parking Stand	A	Hilti KB-TZ with OD flat washer and hex nut	½ x 3¾"L	TBD	Concrete Slab
	B	Long Lag Bolt with ID and OD flat washer	½" x 2½"L	TBD	Wood Frame Floor
Stretch Grip Parking Bracket	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	3	Drywall with min. ¾" plywood backing
	B	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	3	Drywall
Tube Crane Box Cover	A	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

[1] Unistrut, angle, or c -channel material is preferred.

(15.0)

PHILIPS

Project
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SD1

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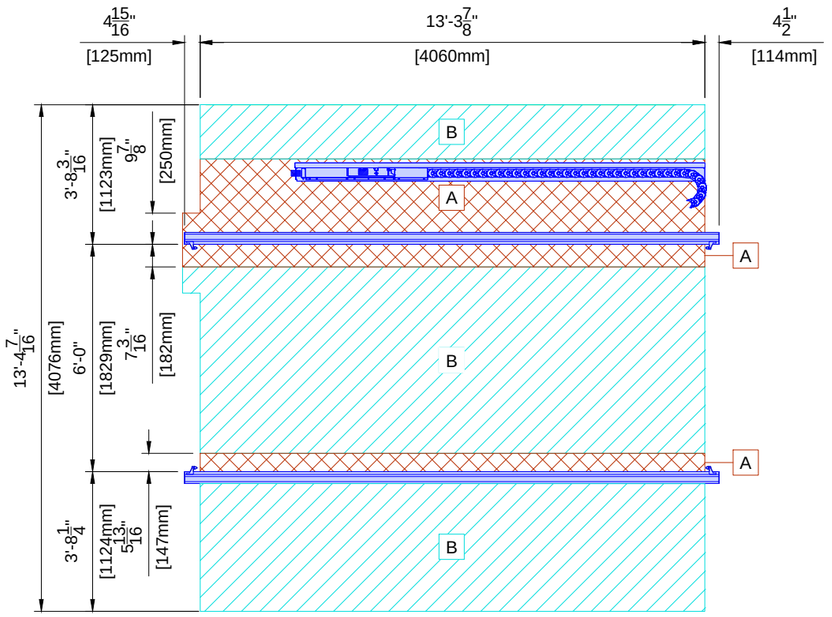
Ceiling Clearance Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)

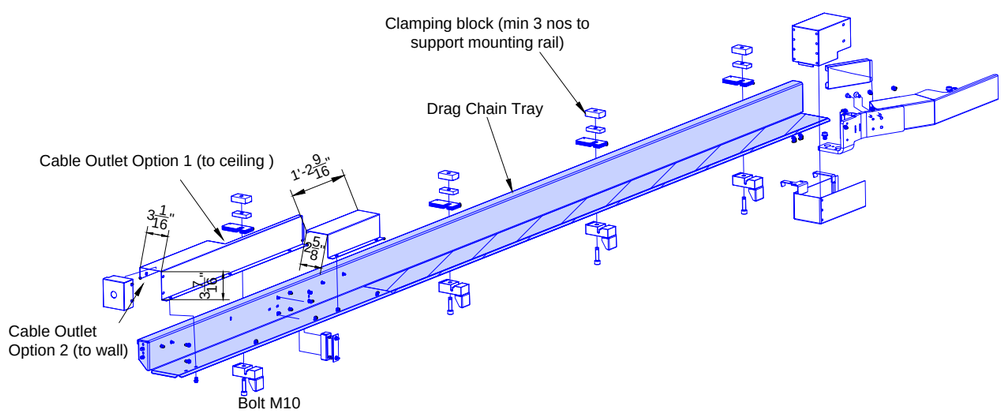
CSM3 Long - Comfort Track/Move



A — Objects that project below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, ceiling rails, A/C vents, etc).

B — Objects that project more than 3.5" below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, A/C vents, etc).

Detail - Drag Chain



Note: Additional 1m cable at cable outlet for future service

Drag Chain measurements scale(1:10)

DC

(24.0)

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SD2

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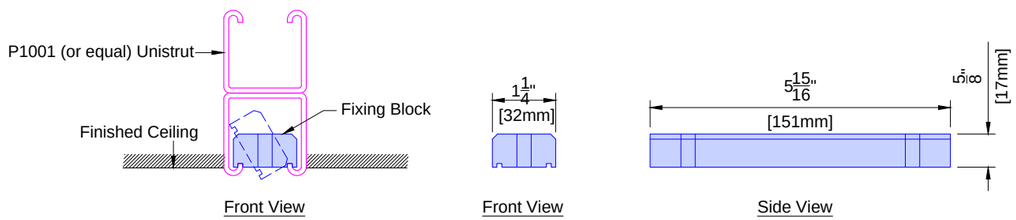
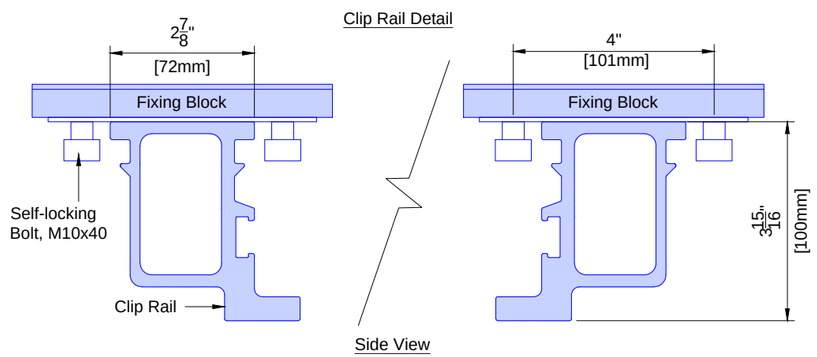
Detail - Ceiling Support

(Not to scale)

Fixing Block for Philips Ceiling Rails (Clip Rails) Detail



Clip Rail Detail



CSR UNI

- Philips does not specify the overhead equipment support structure. Unistrut (or equal) may or may not be used. If Unistrut are used, it is up to Unistrut and the structural engineer for the project to determine which of it's products are appropriate for each project.
- Finished ceiling must **NOT** be lower than the bottom of the Unistrut in order to prevent damage to the finished ceiling during the installation of clip rails.
- Finished ceiling height to be 1/4" above bottom of Unistrut.
- Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
- Fixing blocks for Philips ceiling rails (clip rails) are designed to be installed in P1001 Unistrut.
- The inside of the Unistrut must be clear of obstructions (including paint).
- Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, item #4 "Ceiling Support Apparatus".

Tube Crane Support Forces	Tension Forces	Compressive Forces
CS III	956 lbs/support	192 lbs/support

(Support = 2 screws into each Fixing Block)

(Seismic area forces - consult seismic calculation documents)

(13.0)

PHILIPS

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SD3

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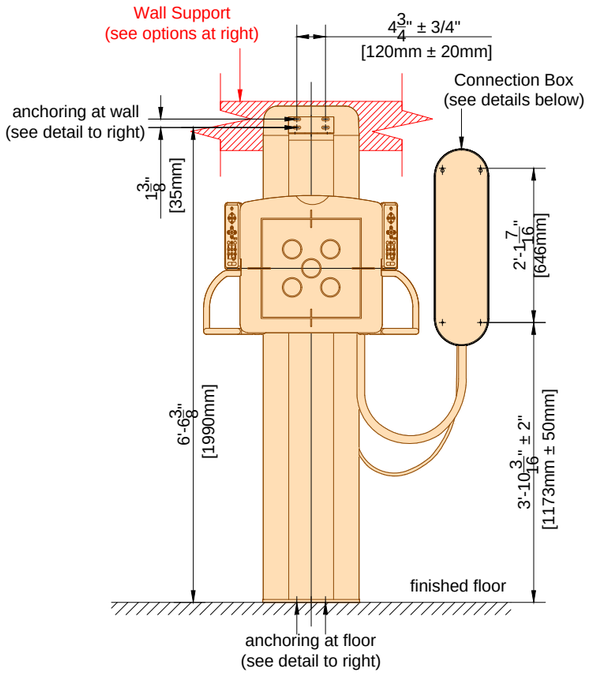
Detail - BuckyDiagnost VS Digital

(Not to scale)

Elevation View of Bolt Locations



DVS

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	Through Bolt	3/8" diameter	4	Minimum 10 Gauge Steel Plate[1], or Douglas Fir #2 Grade (minimum 4" x 4")
B	Self Drilling Tek Screw	#14	4	Minimum 10 Gauge Steel Plate[1]
C	Lag Screw	7/16"	4	Douglas Fir #2 Grade (minimum 4" x 4")
D	Toggler Snaptoggle Anchor	3/8" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]

[1] Unistrut, angle, or c-chanel material is preferred.

Bolt Forces (Standard DVS)
Tmax (Tension)(Wall) = 303 lbs/bolt (max)
Vmax (Shear)(Wall) = 72 lbs/bolt (max)
Vmax (Shear)(Floor) = 227 lbs/bolt (max)

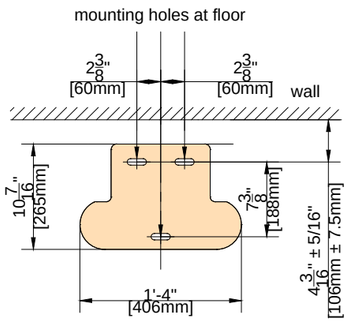
Bolt Forces (Tilting DVS)
Tmax (Tension)(Wall) = 604 lbs/bolt (max)
Vmax (Shear)(Wall) = 89 lbs/bolt (max)
Vmax (Shear)(Floor) = 283 lbs/bolt (max)

Wall mounting points must be suitable to tensile strength Fs ≥ 1500N (338 lbf) each anchor.

Floor mounting points must be suitable for tensile strength Fs ≥ 500N (113 lbf) for each screw.

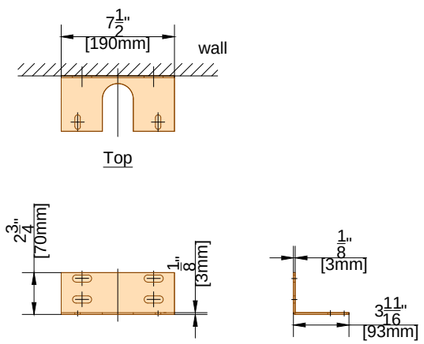
(Seismic area forces - consult seismic calculation documents)

Floor Anchoring Details



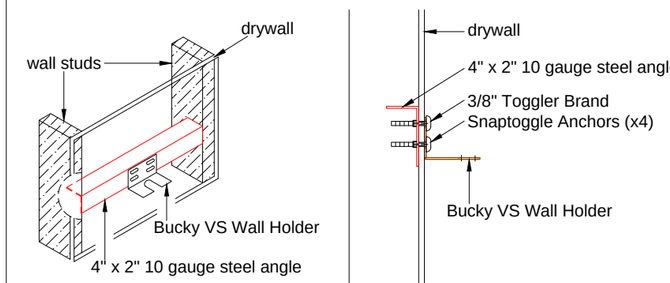
Top

Wall Holder / Bracket Details



Front Side

Wall Anchoring Example
Illustration of Wall Support with Steel Plate and Toggler Anchor



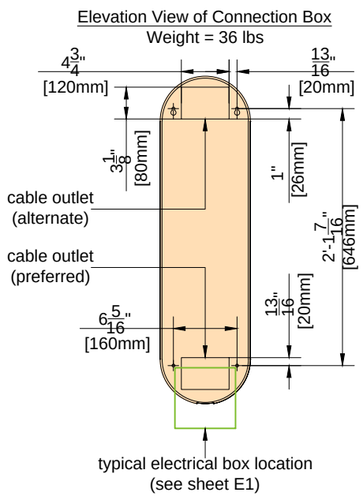
Isometric Side

(24.0)

Detail - BuckyDiagnost VS Advanced Connection Box

(Not to scale)

Elevation View of Connection Box
Weight = 36 lbs



VSC

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with wood backing
B	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Drywall with minimum 10 gauge steel backing
C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (5/8"D min.)
D	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

Bolt Forces
Tmax (Tension) = 39 lbs/bolt
Vmax (Shear) = 36 lbs/bolt
(Seismic area forces - consult seismic calculation documents)

(13.0)

Project
Radiography 7300 C
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SD4

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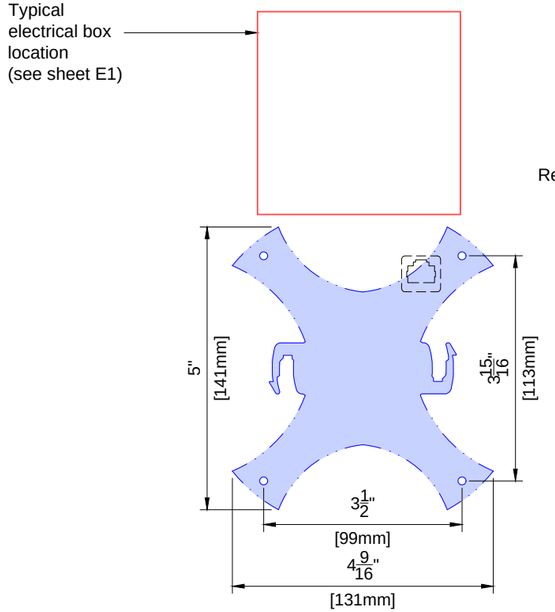
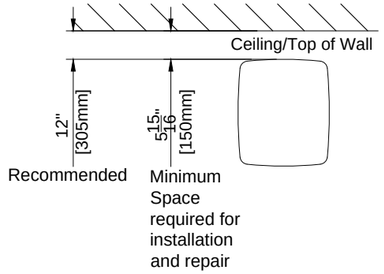
Detail - Wi-Fi Access Point - Wall Mounted)

(Not to scale)

Elevation View of Bolt Locations and Cable Outlet



Mounting Elevation View



WAP

Front View

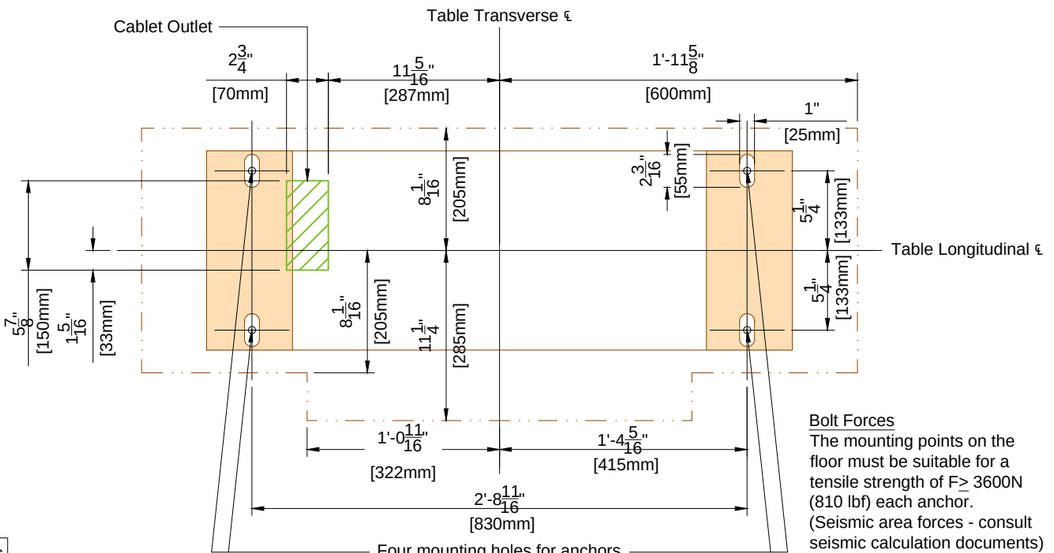
(17.0)

Detail - Diagnost TH/TF Table Base

(Not to scale)

Plan View of Bolt Locations and Cable Outlet

The Diagnost TH/TF base mounted directly to the floor. A floor plate is not used.



Bolt Forces

The mounting points on the floor must be suitable for a tensile strength of F≥ 3600N (810 lbf) each anchor.
(Seismic area forces - consult seismic calculation documents)

MS

(24.0)

Project Radiography 7300 C
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N-SRD240005
Date Drawn: 9/17/2024
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SD5

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General Electrical Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

2. Materials and Labor
The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc., as separately specified herein.

3. Electrical Ducts and Boxes
Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: power wiring and/or cables, Group B: signal and/or data and protective ground wiring and/or cables, Group C: x-ray high voltage cables. The use of 90 degree ells is not acceptable. On ceiling duct and wall duct use 45 degree bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.

4. Conduit
Conduit point-to-point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.

5. Conductors
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.

6. Disconnecting Means
A disconnecting means shall be provided as separately specified.

7. Warning Lights and Door Switches
"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

8. Dimmer Switches
X-ray room lights should be provided with dimmer switches.

(13.0)

Electrical Notes

1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
2. The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.
3. All pre-terminated, cut-to-length cables will be supplied and installed by Philips. See Conduit List for information regarding all other cables (e.g. cables to breakers, etc.).
4. Provide and install 4 - 2"(50mm) diameter chase nipples between adjacent wall boxes (not required if raceway installed above and below wall boxes).
5. Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non - accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above-ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above-ceiling must be kept as near to finished ceiling as possible.
6. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever governs.
7. Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.
8. All sections of raceway and conduit shall be grounded with an independent #6AWG green wire that is to be attached using solderless lugs All ceiling mounted structural support members and ceiling plates shall also be grounded. All grounding connections, terminals, etc. shall be installed in a manner to provide accessibility for inspection, maintenance, repair, etc.
9. The contractor is to ensure system cables that run from the system cabinet to the table are not run under the slab in ground floor installations. They need to be run in a trough or a raceway in the floor per NEC section 390 Underfloor Raceway. Conduits may not be allowed in a basement slab. The cables from the cabinets to the table are not certified in a wet environment/area.

(20.0)

Electrical Requirements

Electrical power distribution at the facility shall comply with:

- Utilization voltages per ANSI C84.1 - 1982 range A.
- Voltage to be supplied is 3 phase, 3 wire power and ground (delta or wye) unless otherwise noted in equipment specifications.
- Phase conductors to be sized for instantaneous voltage drop per NEC 517-73 and Philips recommendations.
- Neutral and ground conductors to be sized equivalently to phase conductors, unless otherwise noted.
- Metal conduit shall not be used as the equipment ground conductor.
- Clamping type surge suppressors are highly recommended in addition to standing facility lighting arrestors. Equipment to be protected from ANSI/IEEE C62.41-1980 location category B impulses.
- ANSI/NFPA 70 - National Electrical Code (NEC)
  Article 250 - Grounding
  Article 517 - Health Care Facilities
- ANSI/NFPA 99 - Health Care Facilities Code
- NEMA standard XR 9 - Power Supply Guidelines for X-Ray Machines

(13.0)

Power Quality Guidelines

1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.
2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality: static UPS systems, series filters, power conditioners, voltage regulators.

   Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

(13.0)

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EN

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Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
		Floor	
B	MS	8" (203mm) W x 8" (203mm) L x 4" (102mm) D floor box, flush mounted with removable gasketed screw-type cover plate.	ED1
		Ceiling	
B	CS	8" (203mm) W x 8" (203mm) L x 6" (152mm) D ceiling box, flush mounted with removable screw-type cover plate.	
		Duplexes	
B		120V, 20A dedicated duplex outlet. Coordinate exact location with local Philips Service.	
		Network Connectors	
B	N	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access through customer's network to VPN device capable of connecting to the Philips Remote Service Network (RSN) Datacenter is needed. Refer to page N1 for RSN connectivity options. Locate within 10' (3048mm) of network card. Network Fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc, are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of the components.	N1

Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
		Wall	
B	CB	480V, 3 phase 50 AMP circuit breaker with shunt trip. Run power from breaker to ME, leaving an 8' (2438mm) tail. See Sheet ED1 for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	ST	Shunt Trip (emergency off) Large mushroom-head button on remote control station with contacts to operate feature of CB. Location per local code or owner requirements (mandatory for VA and DOD installations). (Not shown on plan)	
B	WL	Warning Light - Provide an surface or flush mounted light fixture above door to indicate when X-Ray is on. (Not shown on plan)	ED1
B	DS	Door Switch - 120V, 5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1665 or equivalent), if required by local code or physicist of record. (Not shown on plan)	ED1
B	S1	Single pole general purpose ON/OFF switch with red cover. Safety switch is required between scanner unit and "WL" for Philips Service, if a warning light is used. Locate near system disconnect if possible or near "ME" wall box. (Not shown on plan)	ED1
B	ME	19 1/4" (489mm) W x 67" (1702mm) H x 4" (102mm) D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 75" (1905mm) A.F.F. to top of box. Conduits to terminate at conduit knock outs provided on top, bottom, or sides of terminal wall box. If raceway is used at top and / or bottom of terminal wall box, remove panel(s) of terminal box by drilling out pop rivets. Top and bottom panels will slide out without the need for cutting. Cutting of the box is prohibited as it will void the UL listing. Weight is approximately 125lbs per box. See ED1 sheet for wall box ordering instructions.	ED1
B	TB	Three Terminal Blocks (one "A" Block, one "E" Block, and one "D" Block) with each Block assembled on a customer/contractor provided DIN rail. All Blocks to be mounted inside "ME" Back Box. Customer/contractor to supply and install cables to and from the Terminal Blocks. (See Sheet ED1 and ED2 for details)	ED1/ ED2
B	DVS	6" (152mm) W x 6" (152mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 39" (991mm) A.F.F. to bottom of box.	
B	WAP	4" (102mm) W x 4" (102mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 10" (254mm) below ceiling/top of wall to top of box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	WR1	4" (102mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 4" (102mm) A.F.F. to bottom of raceway. *	ED1
B	WR2	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 75" (1905mm) A.F.F. to bottom of raceway. *	ED1
B	ELW	Grommet opening on WR3. Exact size to be determined by local Philips Service. Location shown is recommended and may be changed - verify relocation with local Philips Service. For cables to ELW.	
B	WR3	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted 6" (152mm) above finished floor with removable screw-type cover plate.	ED1

*WR1 and / or WR2 are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper locations as required. As noted for "ME", the top and bottom panels can be removed by drilling out the pop-rivets and pulling the panel out. Raceway size and length can be changed as needed as long as the raceway is a minimum of 19 ¼" (489mm) in length to cover the entire opening of the removed top or bottom panel(s) and the terminal wall box remains at a mounting height of 75" (1905mm) A.F.F. Raceways cannot be deeper than the terminal wall box, they must fit securely behind the terminal wall box flanged-edge.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

EL

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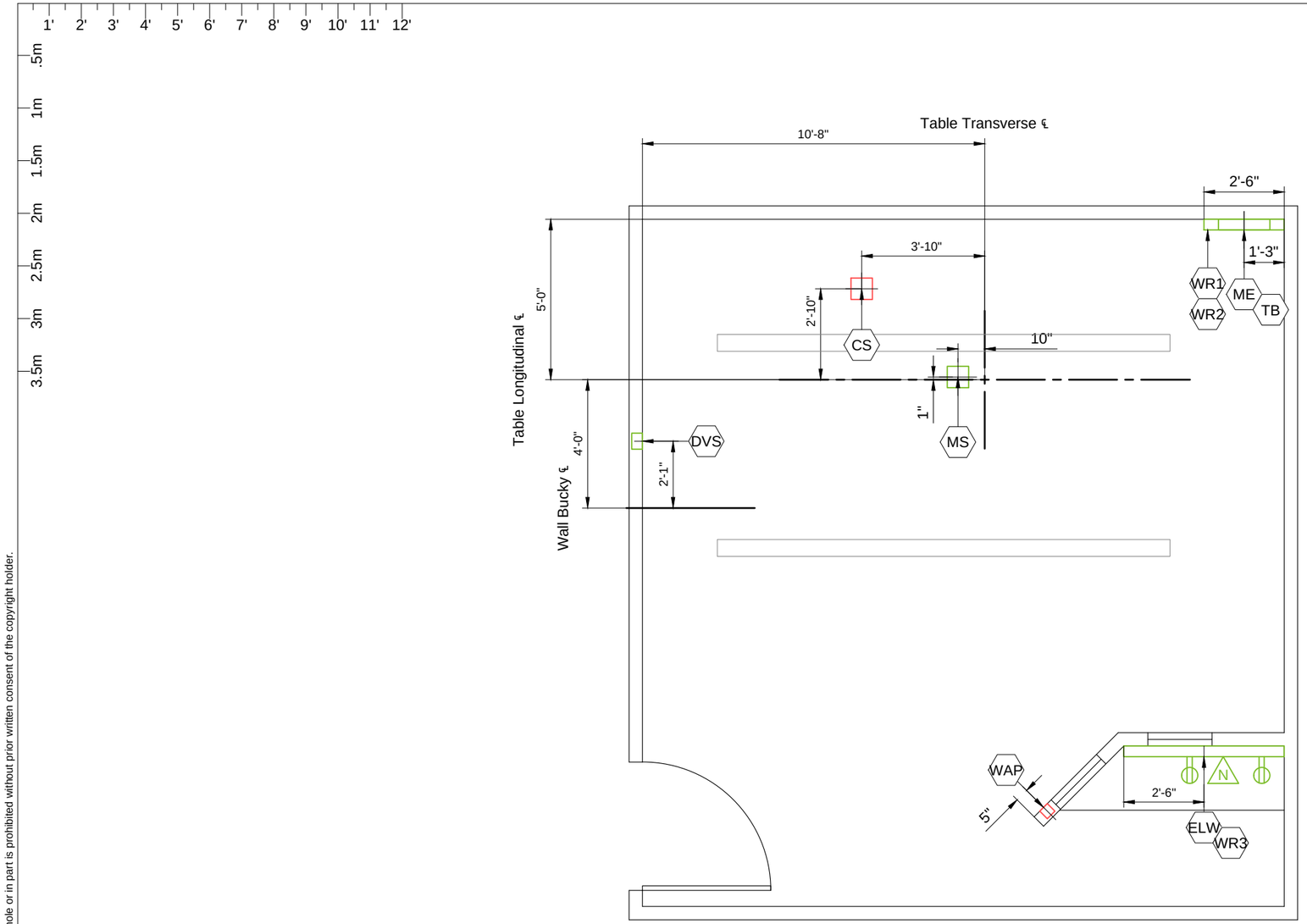

Electrical Layout

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

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Project Details
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Order: None

E1

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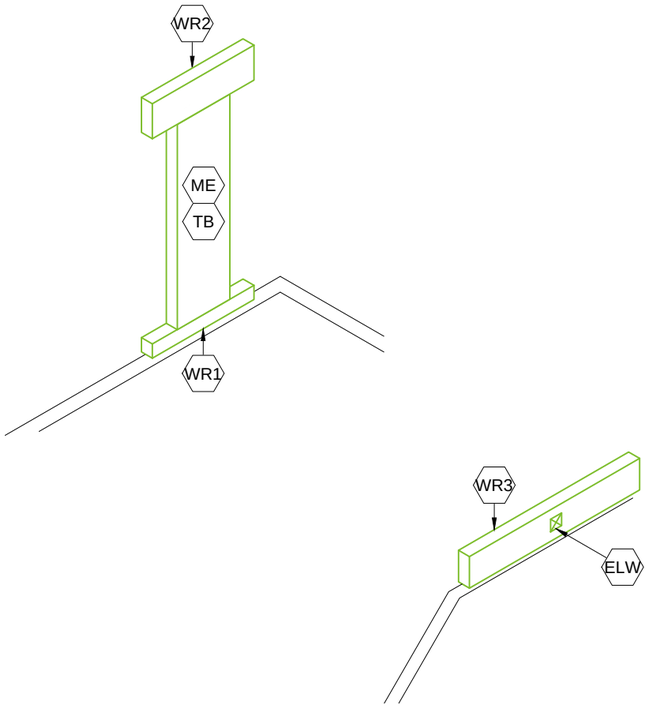
Isometric Layout
(Not to scale)



Raceway Diagram
(Not to scale)

Refer to Electrical Legend and Layout - Sheet E1

The use of 90 degree ells is not acceptable; use 45 degree bends at all raceway corners. The use of crossover tunnels at all applicable locations is required.

Conduit Required

General Notes
1. All conduit runs must take most direct route point to point.
2. All conduit runs must have a pull string.

A Conduit supplied and installed by contractor - Philips cables installed by Philips.
B Conduit supplied and installed by contractor - Philips cables installed by contractor
C Conduit and cables supplied and installed by contractor
D Conduit existing - cables supplied and installed by Philips
E Conduit existing - cables supplied by Philips, installed by contractor
F Conduit existing - cables supplied and installed by contractor
G Conduit optional - for future upgrade. Verify with Philips Sales/Service.

* Cable Type
F Fiber Optic
H High Tension Power Cables
P Power / Ground
S Signal Cables
V Video Cables

	Conduit Run No.	Conduit From	Conduit To	Conduit Quantity	Cable Type *	Minimum Conduit Size	Maximum Conduit Length	Special Requirements
C	1	Power Panel	CB	1	P	Per N.E.C.	Per N.E.C.	
C	2	CB	ME	1	P	2"	50'	8' of the 50' cable to be left as a tail. Contractor to supply and install cables from "CB" to "TB" inside "ME".
C	3	CB	ST	1	P	3/4"	50'	
C	4	ME	S1	1	P	1/2"	--	Contractor to supply and install cables to and from "TB" inside "ME". Max combined cable length = 50'
C	5	S1	WL	1	P	1/2"	--	
C	6	ME	DS	1	P	1/2"	50'	Contractor to supply and install cables to and from "TB" inside "ME".
A	7	ME	ELW	1	P	2"	88'	
A	8	ME	ELW	1	S	3"	88'	
A	9	ME	MS	1	P	2"	55'	
A	10	ME	MS	1	S	2"	55'	
A	11	ME	DVS	1	P	2"	55'	
A	12	ME	DVS	1	F / S	2"	55'	
A	13	ME	CS	1	H / P	3"	45'	If WR2 is used, conduit must terminate directly above ME wall box for routing
A	14	ME	CS	1	S	3"	45'	
A	15	ELW	MS	1	F / S	2"	98'	
A	16	ELW	DVS	1	S	1"	78'	
A	17	WAP	ELW	1	S	1"	98'	Ethernet cable. Conduit if required by local code.

Note: Optional conduit intended for future upgrade to fixed detector. Conduit is **not** required for Table or Wall Stand with SkyPlate option. Verify with Philips Sales/Service.

Refer to Electrical Layout and Legend - Sheet E1

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
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Order: None

E2

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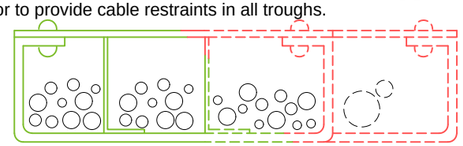
Detail - Cable Trough Divisions

(Not to scale)

Troughs or ducts must be separated by metal barriers into three sections.

1. High voltage (H.T.) cables to be routed separately from all other cables.
2. Power cables and ground cables can be routed together.
3. Signal cables and data cables can be routed together but must be separated from power cables.
4. Video cables to be routed separately from all other cables.
5. It is important that all cables are placed in the appropriate trough and at no given point do any cables from one division cross with cables from another. Trough separation must be continuous from the beginning to the end of the run. Utilize crossover tunnels as appropriate.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.



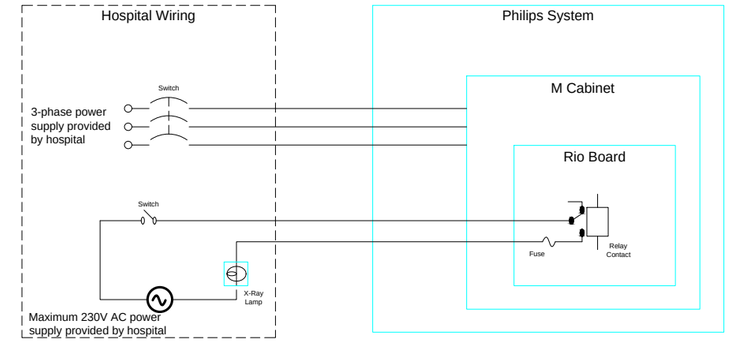
WR1 / WR2 WR3

(21.0)

Detail - X-Ray On Light and Door Switch

(CXA Generator)

Not to Scale



S1 / WL DS

(24.0)

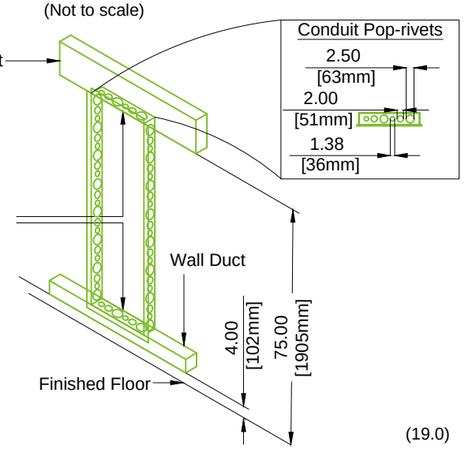
Power Quality Requirements

(M-Cabinet CXA 80)

Power Output:	80 kW
Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460, or 480 VAC, 60 Hz
Line Voltage Variation:	± 8% steady-state
Line Voltage Balance:	2% maximum of nominal voltage between phases
Frequency Variation:	± 1% (± 0.6 Hz)
Voltage Surges:	To 110% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Voltage Sags:	To 90% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Line Impulses:	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-ground Voltage:	2.0 volts maximum RMS value
Neutral-ground Impulses:	No more than 1 per hour that exceeds 25 volts and 1 Mjoule
High Frequency Noise:	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour maximum
Ground and Neutral Conductor Impedance:	0.1 Ω @ 60Hz maximum

Detail - Wall Box Mounting

(Not to scale)



Pop-rivets on top and bottom can be removed for direct integration with raceway ducts. DO NOT remove top and bottom if conduit hubs are used.

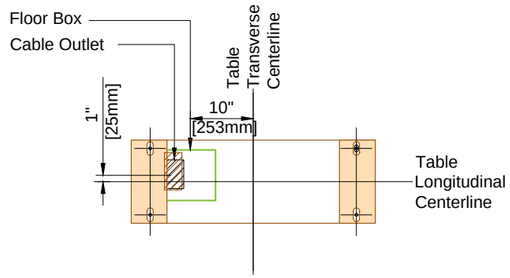
Wall Ducts are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper location to meet the siting requirements.

ME / TB

(19.0)

Detail - Diagnost TH Table Base - Flush Floor Box

Not to Scale



Floor box cannot exceed 10" dimension due to anchor support for the table base.

MS

(13.1)

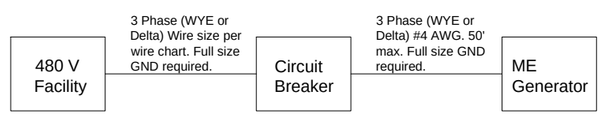
Power Quality Requirements

Branch Circuit and Wire Gauge Requirements

Branch Power:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 amperes (@ 480V) (Slow Blow)
Maximum Instantaneous Power:	105 kVA (800 mA @ 100 kV) (Short-term), < 5 amperes (Long-term)

Recommended conductor sizes for 1% impedence of branch conductors to circuit breaker (CB), based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#2 AWG	80 feet	96 feet	105 feet	115 feet
#1 AWG	101 feet	122 feet	134 feet	146 feet
1/0 AWG	128 feet	154 feet	168 feet	184 feet
2/0 AWG	161 feet	194 feet	212 feet	232 feet
3/0 AWG	203 feet	244 feet	267 feet	292 feet
4/0 AWG	258 feet	311 feet	340 feet	372 feet
250 MCM	303 feet	364 feet	399 feet	436 feet
300 MCM	363 feet	437 feet	478 feet	523 feet
Instantaneous Current	160 A	--	--	135 A
Maximum Phase-Phase Impedance	0.2 Ω	--	--	0.3 Ω
Maximum Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4%	9.5%	8.7%	7.9%



Minimum copper wire size, circuit breaker (CB) to equipment: #4 AWG, maximum 50' in length, (Customer/contractor provided).

*The ground conductor for the power feeder shall be the same size as the phase conductor wires.

**Residual current device to be installed depending on local regulations.

CB

(20.0)

Wall Box Ordering Details

Distinctive Manufacturing Group Method of Business
Transactions for Philips Customers

Part# 989801220367 Philips Xray Back Box

1) Three ordering methods:
-Email: backbox@thedmgusa.com
-Phone: 260-495-1818
-Fax: 260-495-1822

2) Payment Terms - Credit Card Only
-MasterCard
-Visa
-Discover
-American Express

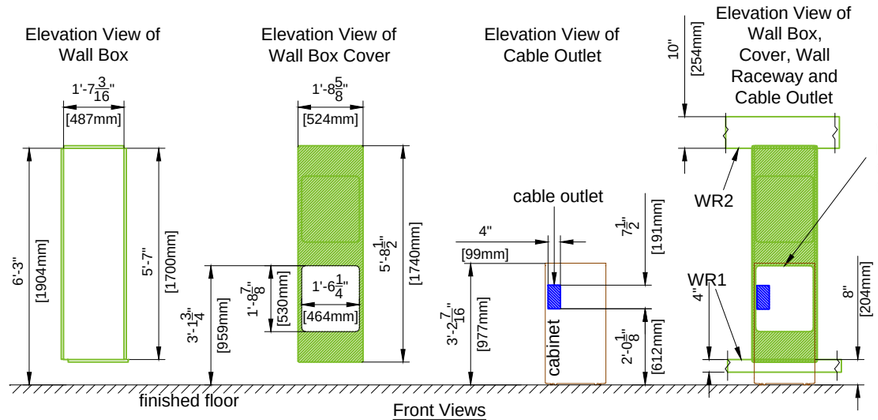
3) Lead Time
-3 Week Lead time

4) Freight
-All shipments will be shipped on skid
-Freight will be Pre-paid and added (PP+) to the invoice at time of shipment

ME

Detail - M-Cabinet CXA Wall Box - Cable Outlet on Rear

(Not to scale)



Important Notes:
- New replacement backboxes must be installed at the standard height.
- Existing backboxes cannot be relocated or modified; doing so will void the UL rating.
- Existing backboxes that meet standard height requirements can be re-used.

Wall Box Cover
Bottom cover punch out to be used. Top of the cover punch out should not be higher than height of the cabinet.

Wall Box
General contractor to pop out top/bottom of box as required. Provided by customer/contractor (NA only).

(24.0)

Project Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

ED1

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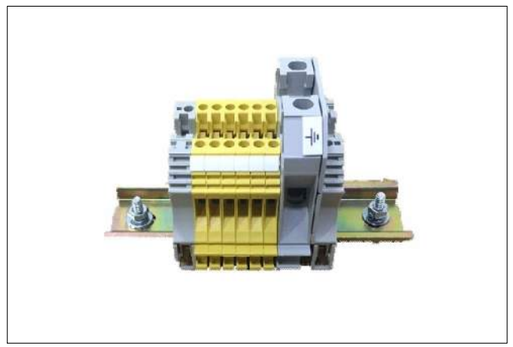
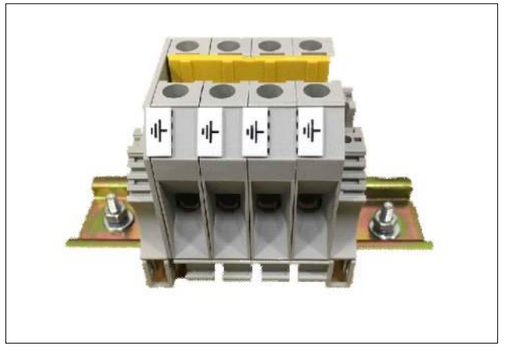
Detail - Screw Connection Terminal Blocks

(Not to Scale)

A Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J50 Yellow	4	#10 - 1/0 AWG, Yellow
1492-J50 Gray	2	#10 - 1/0 AWG, Gray
1492-J16 Gray	4	#18 - 4 AWG, Gray



D Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J3 Yellow	6	#28 - 12 AWG, Yellow
1492-J16 Gray	1	#18 - 4 AWG, Gray



E Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J16 Gray	4	#18 - 4 AWG, Gray

TB

(24.0)

Pre-Assembled Blocks are available through Anixter:

Possible Supplier: Anixter, Inc. www.Anixter.com

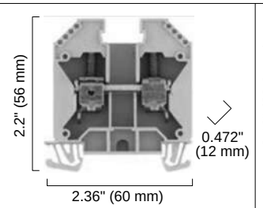
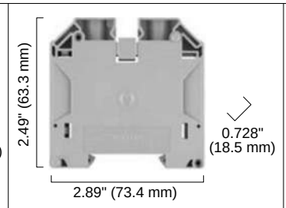
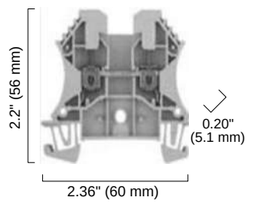
- Anixter Phone Number: 860-282-5300
- Primary Sales Contact: Joe Digiovanni 860-282-5347 joe.digiovanni@anixter.com
- Secondary Sales Contact: Lori Perras 860-205-4095 Lori.perras@anixter.com

- Part# 800170 for “A” Block (Quantity: 1)
- Part# 800173 for “D” Block (Quantity: 1)
- Part# 800174 for “E” Block (Quantity: 1)

* Customer/Contractor to provide the four blocks (one A, two D, and one E). Contractor to show the Philips Service the four blocks are available at least one week prior to system delivery and installed inside the "ME" wall box prior to system delivery date. Each block must have its parts assembled on a customer/contractor supplied DIN rail as shown in pictures above.

Screw Connection Terminal Blocks

Standard Feed-Through Blocks

	1492-J16			1492-J50				1492-J3			
Dimensions are not intended to be used for manufacturing purposes. **Note**: Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*			*Feed-through terminal block*				*Feed-through terminal block*			
Certifications		CSA IEC ATEX			CSA IEC ATEX				CSA IEC ATEX		
Voltage Rating	600V AC/DC	1000V AC/DC	690V AC/DC	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	85 A	76 A	66 A	150 A		150 A	126 A	25 A	20 A	24 A	21 A
Wire Range (Rated Cross Section)	#18…4 AWG	16 mm2	16 mm2 (#16…6 AWG)	#10… 1/0 AWG	#8… 1/0 AWG	50 mm2	#10… 1/0 AWG 50 mm2	#22…12 AWG	#26…12 AWG	2.5 mm2	2.5 mm2 (#20…14 AWG)
Wire Strip Length	0.63 in. (16 mm)			0.94 in. (24 mm)				0.39 in. (10 mm)			
Recommended Tightening Torque	35.0 lb•in (4.0 N•m)			31.5 lb•in (3.6 N•m)				4.5…7.1 lb•in (0.5…0.8 N•m)			
Density	25 pcs/ft (83 pcs/m)			16 pcs/ft (54 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
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Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

ED2

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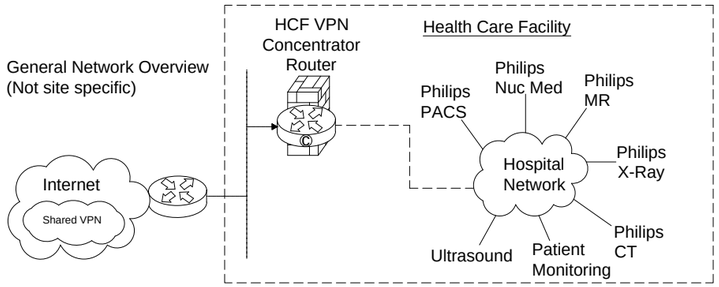
Philips Healthcare Remote Services Network (RSN)

Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

Broadband Site-to-Site Connectivity (Preferred)

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

Connectivity Details:
- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode.
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



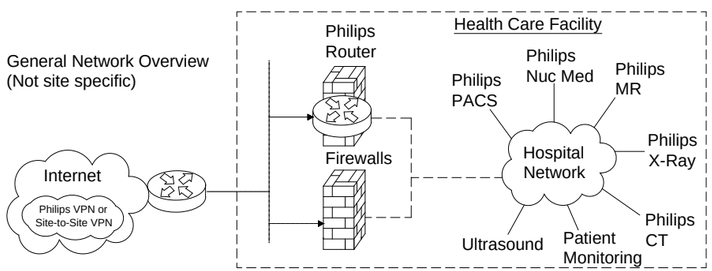
Action Required by Hospital:
- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.).
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips.

Broadband Router Installed at Health Care Facility

This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

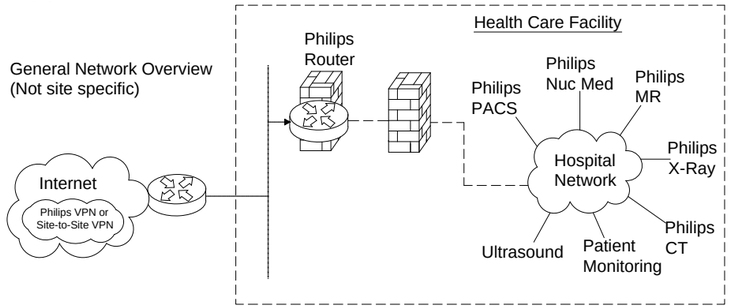
Connectivity Details:
- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site.
- One to One NAT is used to limit access to Philips equipment only.
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7.
- Dedicated DSL connections are also supported.

Option 1: Parallel to HCF Firewall Connectivity Method
This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.



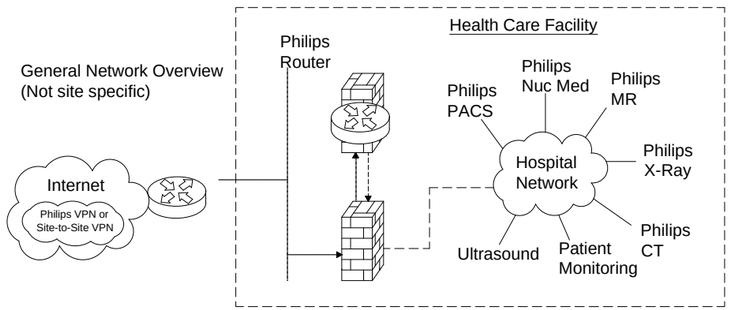
Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

Option 2: Back End Connected to the HCF Firewall Connectivity Method
This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.



Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Option 3: Router Installed Inside the HCF's DZM
This connectivity method is designed for customers who prefer the RSN Router installed inside an existing or new DMZ, allowing access to Philips equipment.



Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 500, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Network Questionnaire and Customer Network Information Sheet

This information must be available at the moment of system configuration.
Please fill in the appropriate boxes in advance before the system will be delivered.
If a section has a check in brackets, your facility has this licensed option or hardware option and information will be needed.

Header colors indicate the following:
Blue = must be filled in completely
Yellow = Licensed options
White = redundancy or special DICOM option

Highlighted fields have to be filled in by hospital IT

Customer Information	
Hospital name	
IT contact & phone #	
Email address	
X-Ray manager & phone #	
Email address	
Other contact name & phone #	
Email address	

Philips Information (filled in by FSE)	
Project manager & phone #	
Email address	
Service engineer & phone #	
Email address	

Philips X-ray Equipment (filled in by FSE)	
System type	
Site ID or site number	
Eleva software version	
MAC address	
MAC address (WiFi)*	
System SN	
Generator (X-ray control) SN	
Install date	
Room number	
Wall port number	
Sales order #	
FDA 2579 form # **	

* Only in case of MobileDiagnost wDR
** Only for FDA controlled countries

Wired Network Settings		
TCP/IP settings		
Host name (System)		
Use DHCP*	☐ yes	☐ no
IP address		
Subnet mask (only if not DHCP)		
Default gateway (only if not DHCP)		

Network Settings (Wireless Portable Detector & WiFi Access Point)	
Access point information	
Wireless Standard	☐ IEEE 802.11a (5 Ghz) preferred ☐ IEEE 802.11b/g (2.4 Ghz) ☐ IEEE 802.11n ☐ 2.4 GHz ☐ 5GHz ☐ 2.4 GHz/5GHz
Channel	
Ask the local wireless-network-IT administrator (responsible person) to assign a channel according to local wireless network needs. Each access point needs its own exclusive channel. Make sure that two access points, which operate in the same wireless range, use different channels (for example two systems, which operate in neighboring rooms).	

* If DHCP is used, no IP Address, Subnet mask and default gateway is needed

DICOM Settings (System)		
Name		
AE title		
Port number		
Allow incoming queries	☐ yes	☐ no

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

N1

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Wireless Network Settings (MobileDiagnost wDR Only)	
Access point information	
SSID (access point hospital)	
Security standard	☐ WEP ☐ WPA WPA2
Encryption type	☐ TKIP (RC4) ☐ CCMP (AES) ☐ no encryption
Supported Authentication	☐ PSK ☐ IEEE 802.1x
PSK settings	
Pre Shared Key (WPA/WPA2: min. 8 and max. 63 printable ASCII characters)	(don't type a password here but provide it at the time of installation)
802.1x settings	
Method EAP Protocol	☐ PEAP ☐ EAP-TLS
Client certificate	Provide client certificate (including private key) with entire certificate path at the time of installation. Supported file formats:*.cer *.pfx
Server certificate validation	☐ yes ☐ no
TCP/IP settings	
Use DHCP*	☐ yes ☐ no
IP address	
Subnet mask	
Default gateway	

PACS - DICOM Store (Export)	
Name	
AE title	
Port number	
IP host name	
IP address	
IS archive	☐ yes ☐ no

PACS - DICOM Store (Backup)	
Name	
AE title	
Port number	
IP host name	
IP address	
IS archive	☐ yes ☐ no

PACS - Query Retrieve	
Name	
AE title	
Port number	
IP host name	
IP address	

RIS Node - DICOM (BWLM)	
Name	
AE title	
Port number	
IP host name	
IP address	

MPPS RIS - DICOM ☐	
Name	
AE title	
Port number	
IP host name	
IP address	

DICOM Default (For All DICOM Nodes)	
Default AE title (must be one of the already defined AE titles)	

Audit Trail Server ☐	
UDP/TCP protocol	
IP host name	
IP address	
Port number	
Format of audit trail	☐ ATNA ☐ Basic security

NTP Time Server ☐	
IP host name	
IP address	
Port number	

Printer I - DICOM Print ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Printer II - DICOM Print (Backup) ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Printer III - DICOM Print (Backup) ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Service Tool: FSF.net (Increment 34+36)

Philips Service Agent (PSA)	
Philips environment	☐ iSSL Enabled ☐ iSSL Enabled with Log Upload ☐ VPN Enabled ☐ VPN Enabled with Log Upload (port 443 outbound shall be open)
Proxy server address	**Port:**
Proxy user name	
Proxy password	(don't type a password here but provide it at the time of installation)

Remote Service Gateway	
Network	
Subnet mask	
Gateway	

Service Tool: PSC (Increment 37 and higher)

Remote Connection Tool (RCT)	
Connection type	☐ Internet ☐ VPN (port 443 outbound shall be open)
PRS server	☐ Production
Poll interval	☐ Small – 100 seconds ☐ Medium – 200 seconds ☐ Large – 300 seconds
Configure NAT	
PRS Server NAT Address	
Tunnel Server NAT Address	
PRS Server NAT Port	
Tunnel Server NAT Port	
Remote Service Gateway	
Network	
Subnet mask	
Gateway	

Philips Remote Service Details for M2M Infrastructure: ISSL Connectivity Mode:

Philips Server Name	Address
PRS Server	212.159.204.247 & https://ws-m2m.prs.healthcare.philips.com
Tunnel Server	212.159.204.252 & https://ws-m2m.prs.healthcare.philips.com
Registration Server	212.159.204.254 & https://ws-m2m.prs.healthcare.philips.com

VPN Connectivity Mode:

Philips Server Name	Address
PRS Server	https://192.68.49.50:443
Tunnel Server	https://192.68.49.49:443

Service Tool: PSC (Increment 42)

WAN - Communication from HS EDGE to Health Suite Cloud Outbound Only				
Source	**Destination**	**Port**	**Protocol**	**Direction**
HS Edge	193.25.48.0 /20	4500	UDP	Outbound
HS Edge	193.25.48.0 /20	443	TCP	Outbound
HS Edge	*.hsdp.io *.philips-healthsuite.com	443	TCP	Outbound

LAN - Medical Device communication to HS EDGE				
Source	**Destination**	**Port**	**Protocol**	**Direction**
System	HS Edge	8443	HTTPS	Outbound
System	HS Edge	3922	SSH	Outbound
Note: None of the above should be accessible from the WAN				

Device Registration	
Remote Service Gateway IP/FQDN (IP Addressof LAN Interface of EDGE Device i.e. RSG on Premise)	

Remote Service Gateway (Persistent route to PRS sever - Optional)	
Network	
Subnet mask	
Gateway	

PHILIPS

Project Radiography 7300 C Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

N2

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Instructions

This form is to be used by Project Manager, Contractor, and Service Engineer. Information is used to develop and determine site ready date.

Be sure to contact the Zone Installation Specialist (ZIS), Field Service Engineer (FSE), or National Support Specialist (NSS) if you have questions concerning any of these checklist items.

Site Readiness Checklist

Required Prior to Delivery

- ☐ **Cable Trough/Raceway/Conduit:** Installed, cleaned and locations checked per Philips Final Drawings. Duct covers in place. Cable openings are clear, without sharp edges. ***Greenlee*** pull strings/measuring tape, (Part # 435, or equivalent), are in place.
- ☐ **Ceiling (Hard):** Installed and painted.
- ☐ **Ceiling (Drop-In):** Installed.
- ☐ **Customer Site Preparation:** Verified per Philips Final Drawings.
- ☐ **Delivery Path and Truck Parking:** Has been checked with the customer and lead FSE including verifying floor loading, delivery route, elevator capacity, height, width and depth clearances, and a plan for bad weather.
- ☐ **Doors:** Installed.
- ☐ **Drawings (Final):** Shows all room obstacles to include millwork, lighting overlay, structure overlay, med gases and plumbing.
- ☐ **Flooring:** Installed and covered with protective covering (i.e. scratch protection).
- ☐ **Glass:** Installed.
- ☐ **HVAC (Climate Equipment):** Installed and operational. Humidity and temperature requirements per Philips Final Drawings.
- ☐ **Installation Team:** Has received the room drawings and necessary contact phone numbers.
- ☐ **Millwork:** Completely installed in all rooms.
- ☐ **Parking:** Parking area identified for installers.
- ☐ **Permits and Inspections:** Completed by applicable governing authorities. Method statement available and safety meetings attended (OSHPD, AHCA).
- ☐ **Philips Project Space:** Is clean, free of dust, all construction-related debris and tools have been removed.
- ☐ **Restroom Facilities**: Toilet facilities, including area to wash up, are available.
- ☐ **Room Lighting:** Installed and operational.
- ☐ **Room Security:** Room is secure, with keys and alarm codes provided.
- ☐ **Site Access:** Is available for after hours. Storage for tools, parts, covers and packing material has been arranged.
- ☐ **Site Is Safe To Work:** PPE requirements identified (Construction and Hospital). No open Mains, slippery floors, sharp edges, or hazardous goods on site.
- ☐ **Sprinklers:** Installed.
- ☐ **Transport & Handling Tools:** Crane, forklift, wheels and trolleys have been specified with the LMP/rigging company. NOTE: If rigging provided by Philips, verify the vendor is on the Philips' Approved Suppliers List.
- ☐ **Walls:** Installed and final finished, (i.e. final coat painted and/or tiled).
- ☐ **Existing Equipment:** Is dismantled and removed from the site.
- ☐ **Floor Levelness:** Checked with Laser Level and is level per Philips Final Drawings.
- ☐ **System Orientation:** Verified per Philips Final Drawings.
- ☐ **Table Isocenter:** Verified per Philips Final Drawings.

- ☐ **Mains Power Supply:** Installed per Philips Final Drawings. (Including impedance, isolated grounds, wire size verified, and distribution unit has been installed).
- ☐ **UPS:** Fully installed per Philips Final Drawings, and startup has been scheduled with vendor.
- ☐ **Back Boxes:** Installed with required covers and grommet material per Philips Final Drawings, (i.e. spacing between boxes and height off finished floor).
- ☐ **Ceiling Height:** Verified per Philips Final Drawings
- ☐ **Ceiling Obstructions:** Verify there are no obstructions where Philips rails will be installed
- ☐ **Ceiling Rails:** Pre-delivered and installed (if applicable).
- ☐ **Clearances:** Verified to the closest obstacles, (i.e. walls, cabinets, etc.) in order to lift of the CS, monitor support, etc.
- ☐ **Fixing Blocks:** Provided by Philips, verify the block properly seats in the Unistrut channel with no obstructions, as designed.
- ☐ **Floor Plates (If applicable):** Patient Support and Stand, are installed, isolated, and leveld, at the correct positions per Philips Final Drawings.
- ☐ **Pre-Term Wire Kit:** Philips pre-cabling has been delivered and installed.
- ☐ **Unistrut (P1001 or equal):** Installed and leveled per Philips Final Drawings.
- ☐ **Wall Backing:** Verify it is in place per Philips Final Drawings..

Required Prior to Philips System Power Up

- ☐ **Wall Outlets:** Installed and functional.
- ☐ **Door Interlock Switch:** If required, is installed per Philips Final Drawings.
- ☐ **X-Ray in Use or Warning Light:** If required, is installed per Philips Final Drawings.
- ☐ **Physicist:** If required, verify the Physicist has been scheduled.
- ☐ **Network Connections:** Hardware is installed and active per Philips Final Drawings. All network information provided by facility IT, i.e. IP addresses (static IPs only), AE Titles, SNM, GTWY and DNS server are available.
- ☐ **UPS:** Commissioned and certified by UPS vendor.

Approved for Delivery

Project Manager	Date
Service Engineer	Date

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

CHK

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PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By
00	4/23/2025	Created preliminary site preparation support document per quote: Q-00478301. Referenced project N-WES080576 for room background.	AC
A	5/19/2025	Rotated drawing orientation 90 degrees per PM request. Updated equipment configuration per quote: Q-00478107; added comfort position. Relocated ME to control room, shifted DVS and table 6 $\frac{1}{2}$" plan east, shifted table 1" plan north. Updated planning notes on A2.	AC

Table of Contents

Section A - Equipment Plan

General Notes ---------- AN
Site Layout ---------- A1
Equipment Layout ---------- A2
Ceiling Height Guide ---------- A3

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

C1

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

AN

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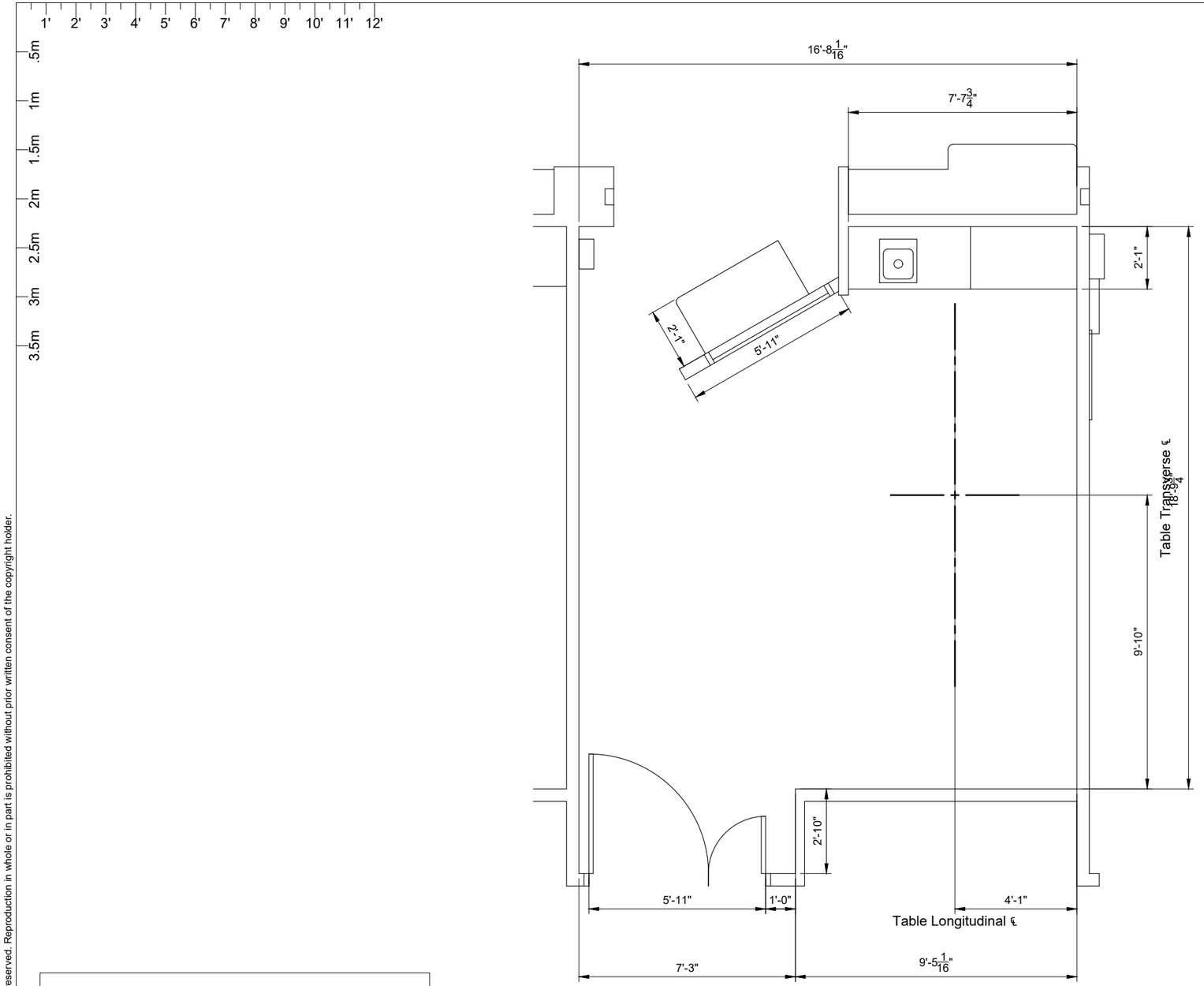

Site Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Legend

- Walls
- Soffit
- Existing (to be removed)
- Beams or other building construction elements

General Notes

* Counters and cabinetry shown to be supplied and installed by contractor.
* Field to verify all room dimensions.
* Refer to A.D.A. Guidelines for doors and clearances. Verify all other applicable code(s) with the architect of record.
* Room background was gathered from past drawing #: "N-WES080576" dated 9/18/2008 as reference. Existing conditions such as room dimensions, isocenter, Unistrut, soffit, built-ins etc. to be verified by the customer/contractor before proceeding to Final.

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
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Order: None

A1

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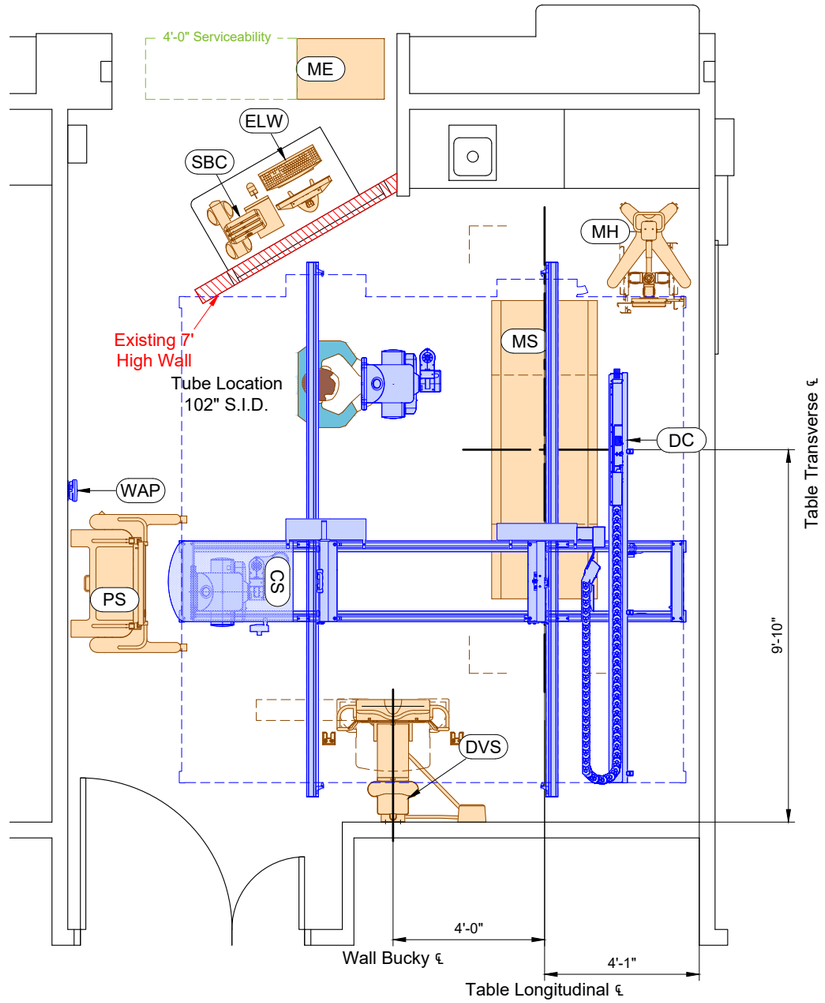

Equipment Layout

1/4" = 1'-0"
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Ceiling Height measured from finished floor to bottom of Unistrut.

Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Detail Sheet: Weight (lbs)	Detail Sheet: Heat Load (btu/hr)
A	ME	Generator M-Cabinet CXA	221	342
A	MS	DigitalDiagnost TH/TH2 (Wide Tabletop)	593	614
A	CS	Ceiling Suspension CSM3 Comfort Position Long	862	1365
A	DC	Drag Chain	66	--
A	DVS	Digital Vertical Stand (VS2) Tiltable (Right)	562	614
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536
A	WAP	Wi-Fi Access Point	2	--
A	SBC	SkyPlate Battery Charger	2	--
A	PS	Patient Support	154	--
A	MH	Mobile Holder	146	--

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

* Cross-table shots for angled views will not be available behind the table. Patient will need to be flipped on table in order to obtain angled bilateral cross table views.
* Optional stitching shots at 102" S.I.D. will be available. See layout.
* Limited stretcher access to Wall Bucky. Recommend to move tabletop for improved access.
* Staff flow access to casework may be difficult when patient table (MS) is floated plan north.
* Due to non-standard location of generator cabinet (ME), please note:
  1) Average heat dissipation = 342 btu/hr.
  2) Noise measured @ 1 meter distance in 1 meter height over floor < 52 dB(A).

Notes to Philips Field Personnel

* Tabletop to be installed before table base is bolted to the floor.
* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]
* All room dimensions to be verified in field.
* Verify exact location and configuration of existing Unistrut and electricals with local Philips service for re-use.
* Ceiling rails must connect to all Unistrut. Additional clips may need to be ordered. Maximum Unistrut spacing is 1346mm (53").
* One (1) Additional Unistrut will need to be installed.
* Field to verify existing conduit lengths, sizes, quantities, and origination and termination points.
* New electrical boxes for ME/DVS/CS will be required to be installed.

PHILIPS

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Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
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Email: daniel.livy@philips.com
Drawn By: Amber Cruz

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Drawing Number
N-WES250202 A
Date Drawn: 5/19/2025
Quote: Q-00478107
Order: None

A2

7.22.2024

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1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12'

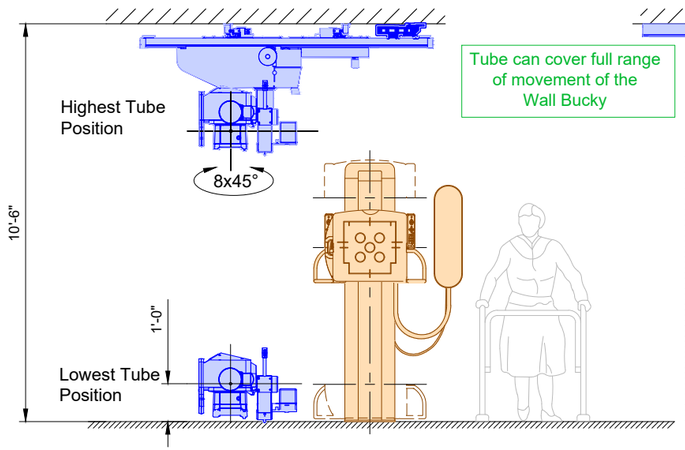
.5m 1m 1.5m 2m 2.5m 3m 3.5m

Ceiling Height Guide for High Performance VS and Value Room

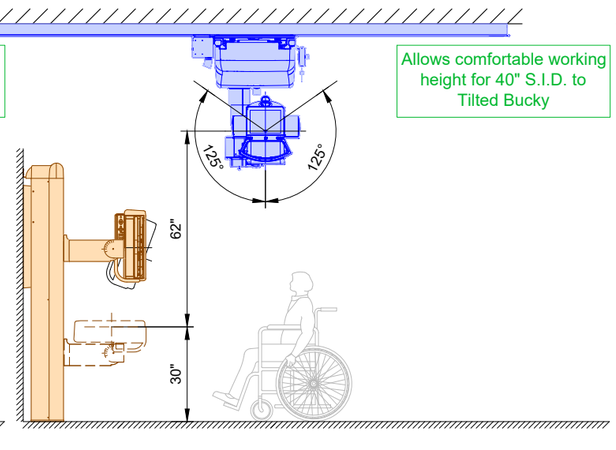
Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

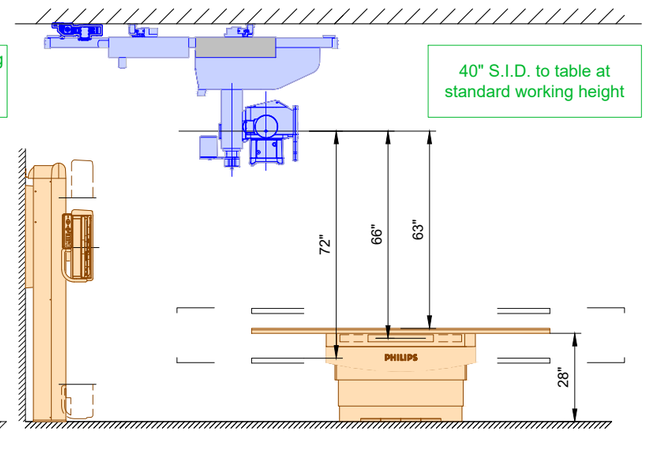
* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



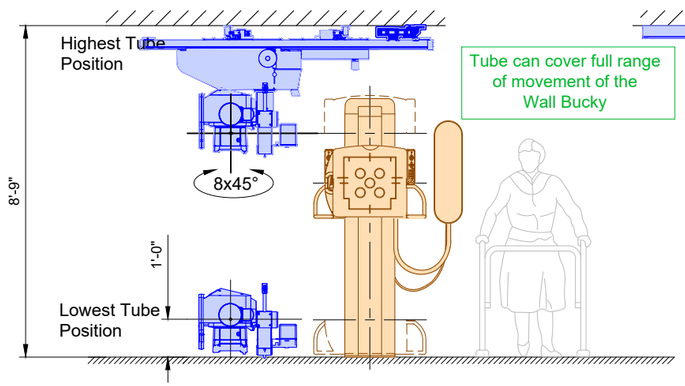
Tube can cover full range of movement of the Wall Bucky



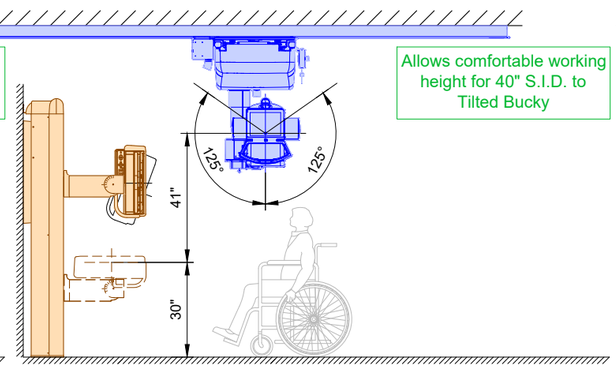
Allows comfortable working height for 40" S.I.D. to Tilted Bucky



40" S.I.D. to table at standard working height



Tube can cover full range of movement of the Wall Bucky



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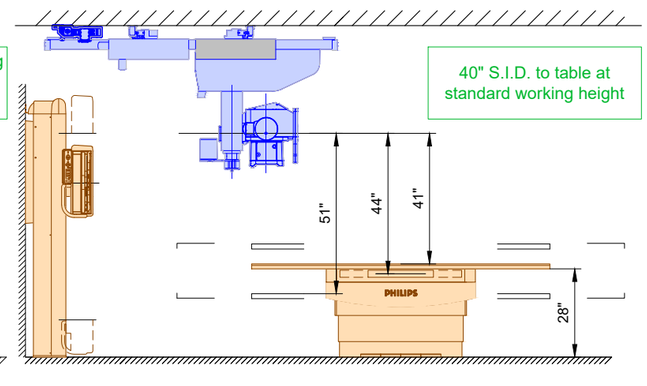

40" S.I.D. to table at standard working height

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835H

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
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Quote: Q-00478107
Order: None

A3

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7.22.2024

Item Information

Item #: XRY00252-1

Alt Item #:

Category: X-ray

Description: X-Ray, General Radiography, Digital - NO TABLE

Long Description:

The Radiography 7300 C Pro bundle is a classic radiography designed for high demands in patient throughput and maximum clinical confidence. It is characterized by a height-adjustable vertical stand with integrated fixed detector and AI-enabled Smart Workflow features. It offers all the benefits of the intuitive Eleva platform and next-generation UNIQUE 2 image processing. State-of-the-art high-performance radiography room with Eleva Tube Head (including 3D camera) enabling Smart Collimation Thorax, and height-adjustable table.

Key Benefits:
• No compromise on robustness, quality and work efficiency based on proven design of height-adjustable vertical stand with integrated 43x43 cm (17”x17”) fixed detector
• Fully streamlined AI-enabled Smart Workflow with 3D camera for upright chest exams using
Smart Collimation Thorax, plus AEC Visualization and On Screen Collimation via overlays for fast selection
• Easy-to-use touchscreen Eleva interface simplifies the exam process through patient-related automatic parameter setting controls – a feature harmonized across all Philips DXR systems
• Reduced noise and more homogeneous black backgrounds for all anatomical areas enabled by UNIQUE 2 image processing software
• High patient throughput enabled by the use of up to 3 detectors with the system

Manufacturer / Manufacturer #: Philips Healthcare / TYPICAL

Model / Model #: Radiography 7300 C Pro Bundle Ceiling-Mounted Digital Radiography System / TYPICAL

Vendor / Vendor #: /

Group: 1

Responsibility: OF | VI

Mounting: Floor | Ceiling

Total Qty: 1

Certifications

Electrical (1): 480.00 (V), (BTU), 60.00 (Hz), 50.00 (A), 3.00 (P)

Electrical Description (1):

Dimensions (1): 25.75in(w), 39.44in(d), 34.31in(h), 862.00 lbs(weight)

Dimensions Description (1): Digital Diagnost CSM3 with Drag Chain. Height reflects Tube Support Upper Position.

Dimensions (2): 94.50in(w), 33.46in(d), 36.02in(h), 593.00 lbs(weight)

Dimensions Description (2): DigitalDiagnost TH/TH2 (Wide Tabletop). Adjustable height range: 18.7 - 36.02 inches.

Dimensions (3): 23.46in(w), 21.34in(d), 82.87in(h), 485.00 lbs(weight)

Dimensions Description (3): Digital Vertical Stand VS2.

Dimensions (4): 19.21in(w), 27.64in(d), 38.54in(h), 221.00 lbs(weight)

Dimensions Description (4): Generator M-Cabinet CXA. NOTE: Service Area if cable outlet is in rear: 29.45 inches.

Clearance (1): in(top), in(bot), in(l), in(r), in(f), in(bk),

Site Drawing Required / Preinstall:

Yes / Yes

Special Instructions:

System consists of multiple components. See cutsheet for all electrical and space requirements.

Mechanical (Gas)

Electrical Hardwired, Dedicated Circuit Recommended

Plumbing (Water)

Technology Network (Special), Network (Wireless), Network (DICOM | PACS)

Accessories/Options

Project Location

N	E	F	L	Arch Room #	Alt Room #	Room Name	Dept #	Dept Name
1	0	0	0	1835I		General Radiology 5	01	Radiology/Imaging

PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By

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Section C - Site Readiness

Checklist ---------- CHK

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

C1

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

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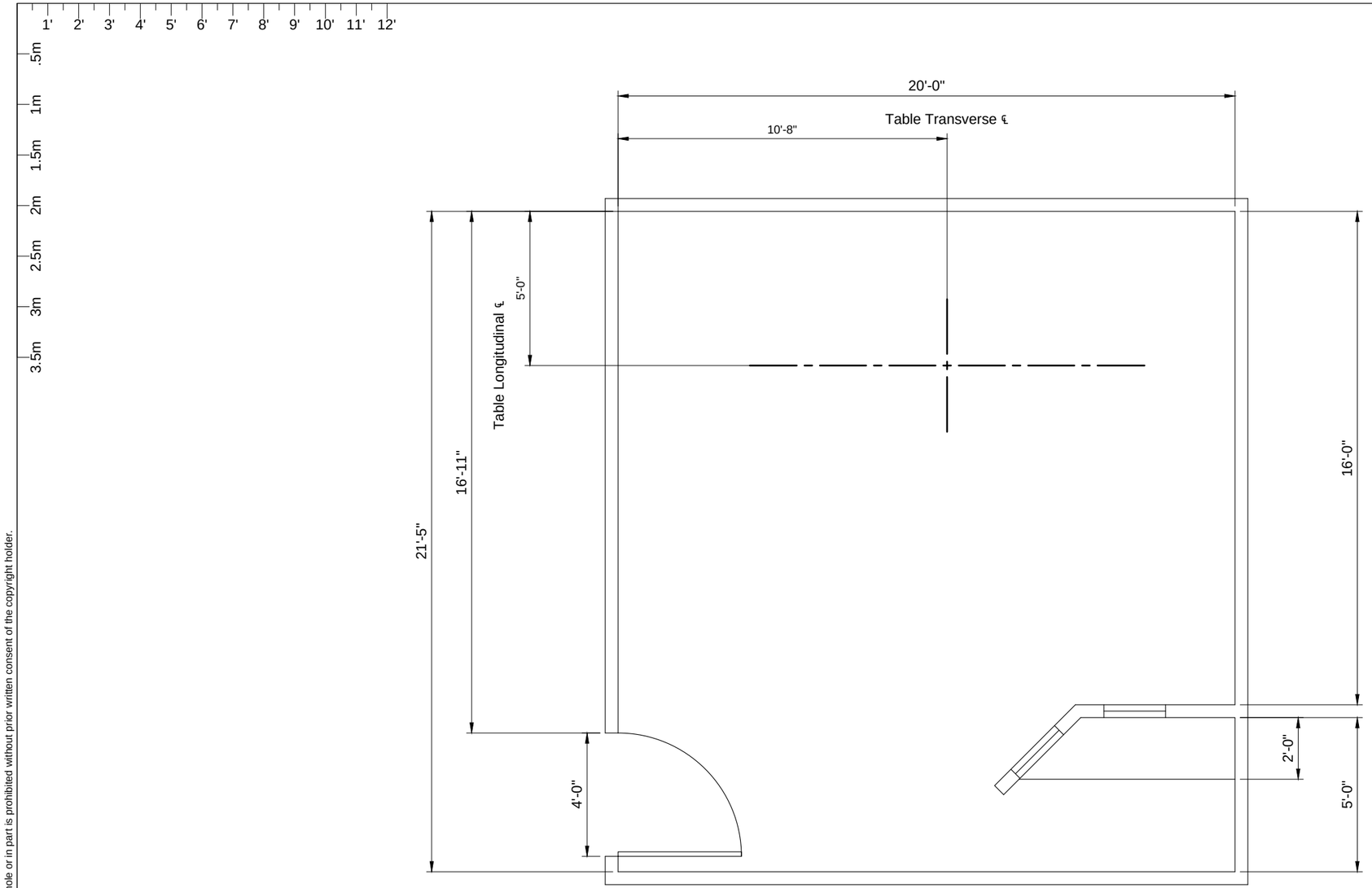

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* Field to verify all room dimensions.
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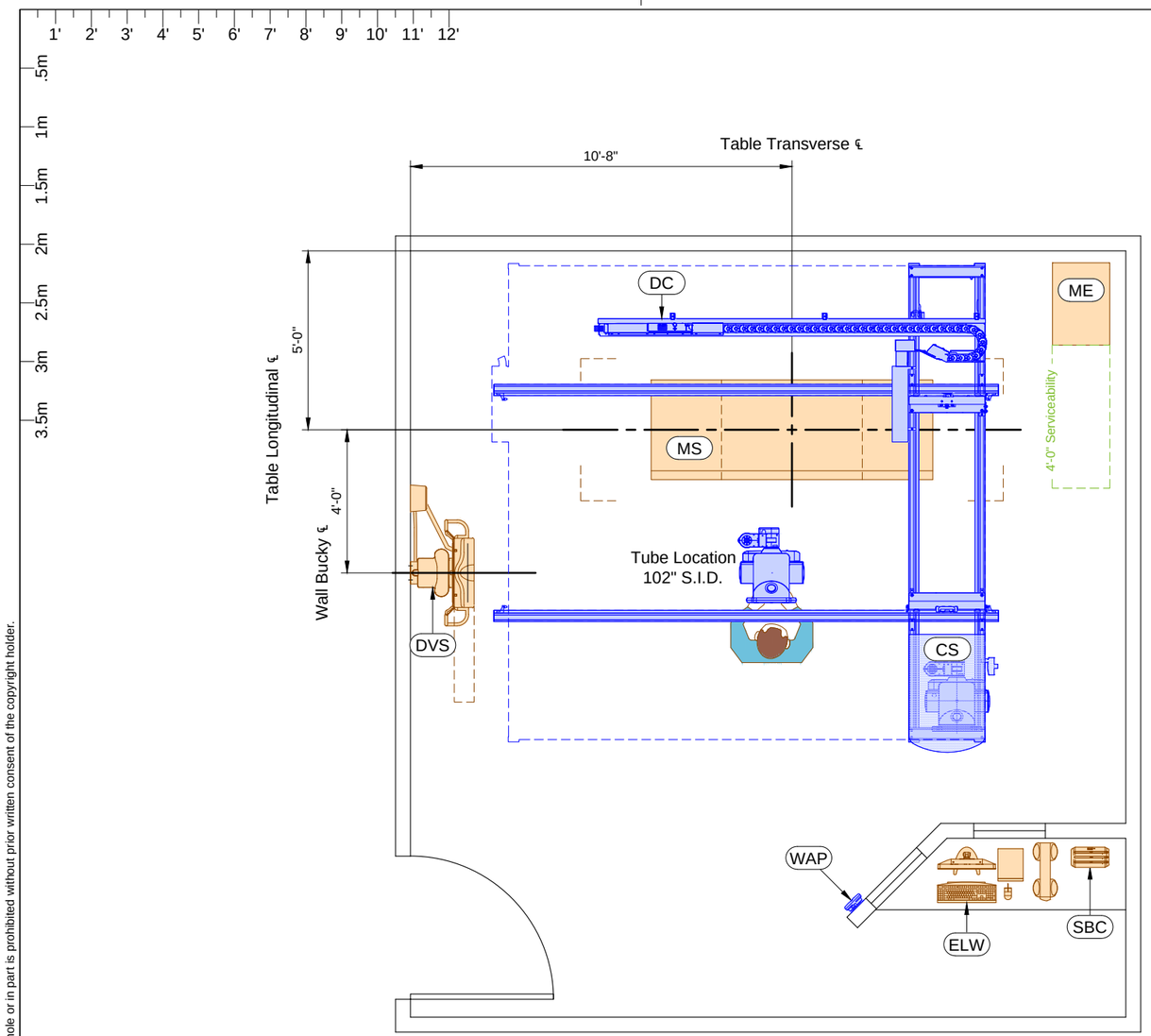

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A	CS	Ceiling Suspension CSM3 Comfort Move Long	862	1365	AD2
A	DC	Drag Chain	66	--	AD2
A	DVS	Digital Vertical Stand (VS2) (Left)	485	614	AD3
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536	AD2
A	WAP	Wi-Fi Access Point	2	--	AD2
A	SBC	SkyPlate Battery Charger	2	--	AD2
		Items not on Philips Quote/Order			

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

* Optional stitching shots at 102" S.I.D. will be available. See layout.

Notes to Philips Field Personnel

* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

A2

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1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12'

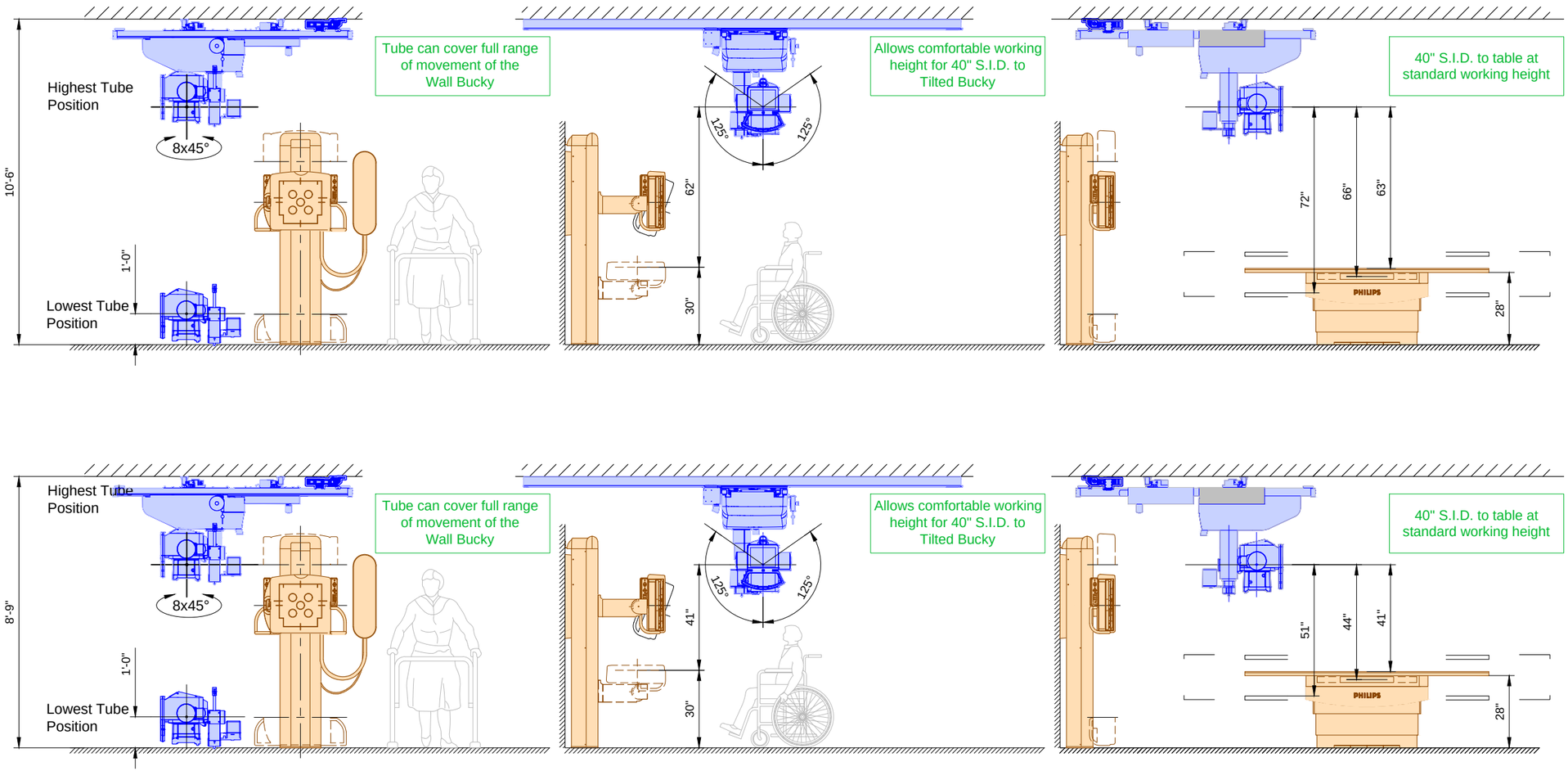
.5m 1m 1.5m 2m 2.5m 3m 3.5m

Ceiling Height Guide for High Performance VS and Value Room

Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
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Contact Number:
Email:
Drawn By:

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Quote: None
Order: None

A3

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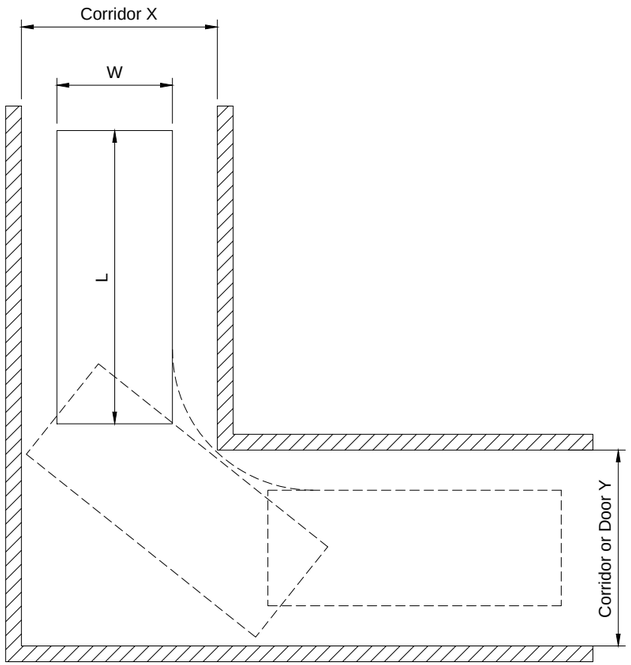
7.22.2024

Radiography 7300C (Tube Crane, TH Table, Wall Bucky) Transport Information



	TH Table	Wall Bucky	CSM3		
	Crate Packed	Crate Packed	Telescopic Carriage	Longitudinal Carriage Long	Longitudinal Carriage Short
Weight	684 lbs (310kg)	375 lbs (170kg)	661 lbs (300kg)	397 lbs (180kg)	207 lbs (94kg)
Height	2'-9" (0.83m)	1'-10" (0.55m)	N/A	1'-4" (0.41m)	1'-4" (0.41m)
Length (L)	4'-6" (1.36m)	7'-4" (2.22m)	4'-0" (1.20m)	13'-9" (4.18m)	8'-0" (2.42m)
Width (W)	3'-2" (0.96m)	2'-6" (0.76m)	2'-7" (0.78m)	2'-7" (0.77m)	3'-1" (0.94m)
Width of Corridor "X"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"	Minimum Width of Corridor/Door "Y"
3'-4" (1.0m)	5'-1" (1.54m)	6'-1" (1.85m)	3'-7" (1.07m)	12'-3" (3.72m)	7'-11" (2.4m)
3'-8" (1.1m)	4'-6" (1.36m)	5'-8" (1.72m)	3'-3" (.99m)	11'-9" (3.58m)	7'-2" (2.17m)
4'-0" (1.2m)	4'-1" (1.25m)	5'-3" (1.60m)	3'-1" (.93m)	11'-4" (3.45m)	6'-8" (2.02m)
4'-4" (1.3m)	3'-10" (1.17m)	4'-11" (1.50m)	2'-11" (.88m)	10'-11" (3.32m)	6'-3" (1.89m)
4'-8" (1.4m)	3'-9" (1.12m)	4'-7" (1.40m)	2'-11" (.88m)	10'-6" (3.20m)	5'-10" (1.77m)
5'-0" (1.5m)	3'-8" (1.08m)	4'-4" (1.30m)	2'-11" (.88m)	10'-2" (3.10m)	5'-6" (1.66m)
5'-3" (1.6m)	3'-6" (1.06m)	4'-0" (1.20m)	2'-11" (.88m)	9'-10" (2.98m)	5'-2" (1.56m)
5'-7" (1.7m)	3'-6" (1.06m)	3'-9" (1.13m)	2'-11" (.88m)	9'-5" (2.87m)	4'-10" (1.47m)
5'-11" (1.8m)	3'-6" (1.06m)	3'-6" (1.10m)	2'-11" (.88m)	9'-1" (2.76m)	4'-8" (1.40m)
6'-3" (1.9m)	3'-6" (1.06m)	3'-4" (1.00m)	2'-11" (.88m)	8'-9" (2.66m)	4'-4" (1.31m)
6'-7" (2.0m)	3'-6" (1.06m)	3'-2" (0.95m)	2'-11" (.88m)	8'-4" (2.55m)	4'-1" (1.24m)
6'-11" (2.1m)	3'-6" (1.06m)	3'-0" (0.91m)	2'-11" (.88m)	8'-1" (2.45m)	3'-11" (1.18m)

(13.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

AD1

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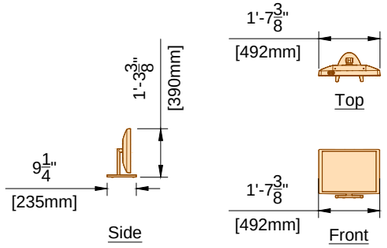
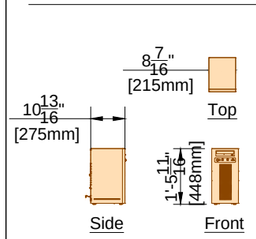
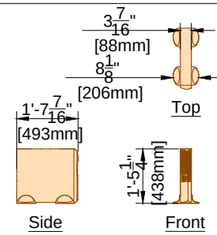


Eleva Examination Control
Weight: 38 lbs (18 kg)
Heat Dissipation: 342 Btu/hr (100W)



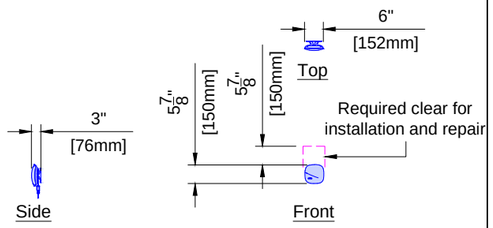
CPU Tower
Weight: 32 lbs (15 kg)
Heat Diss.: 293 Btu/hr (86W)



Uninterruptible Power Supply
Weight: 57 lbs (26 kg)

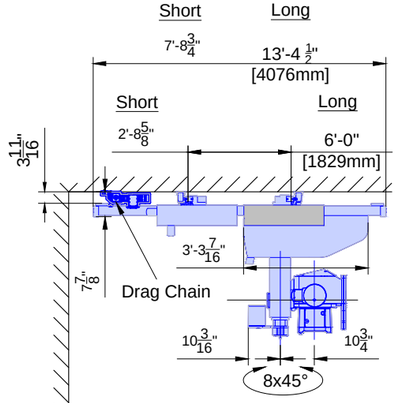
(24.0)

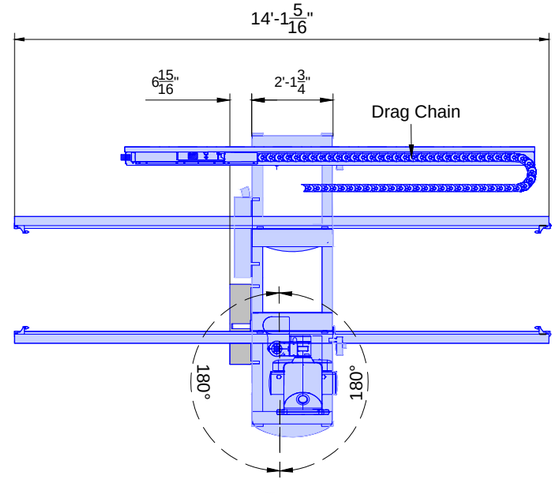
ELW	Eleva Workspot	
	Weight	Heat Dissipation
	127 lbs (58 kg)	536 Btu/hr (157 W)

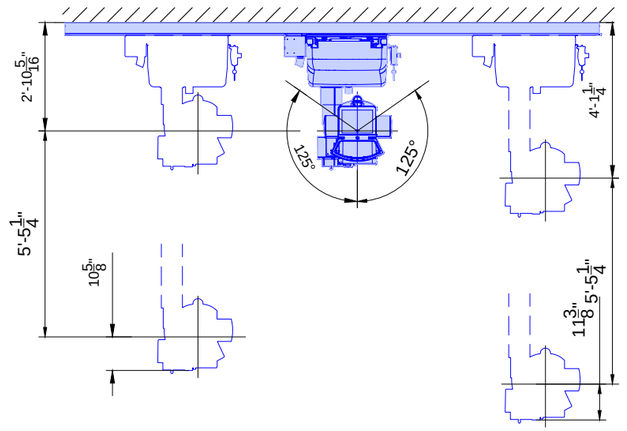


(24.0)

WAP	Wi-Fi Access Point	
	Weight	Heat Dissipation
	2.5 lbs (1.12 kg)	--







Tube Support Upper Position

Tube Support Lower Position

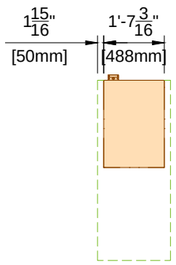
Side

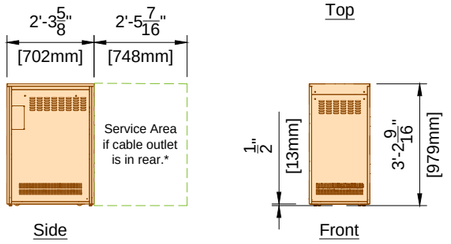
Front

(24.0)

CS/DC	Digital Diagnost CSM3 with Drag Chain	
	Weight	Heat Dissipation
	Short: 785 lbs (356 kg)*	1365 Btu/hr (444 W)
	Long: 862 lbs (390 kg)*	

* Full length extension rails add 101 lbs (46 kg).
* Drag Chain is 66 lbs(30kg/110lbs (50kg) with extension)



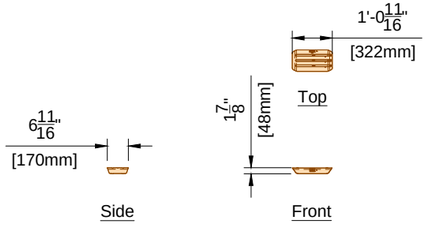


*Cable outlet is not shown. For detailed view, please see ED1 page.

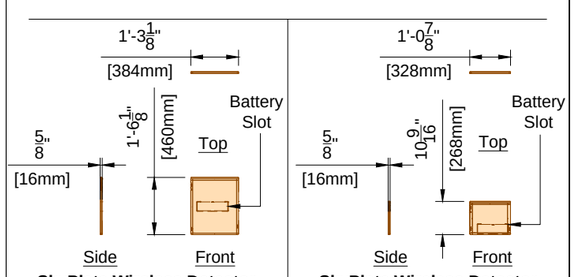
Noise measured at 1 meter distance at 1 meter high over floor < 52 dB(A).

(21.0)

ME	Generator M-Cabinet CXA	
	Weight	Heat Dissipation
	221 lbs (100 kg)	342 Btu/hr (100 W)



Battery Charger
Weight: 2.20 lbs (1 kg)



SkyPlate Wireless Detector (Large)
Weight: 5.7 lbs (2.6 kg)

SkyPlate Wireless Detector (Small)
Weight: 3.5 lbs (1.6 kg)

(14.0)

SBC	SkyPlate Detector and Battery Charger	
	Weight	Heat Dissipation
	2.20 lbs (1 kg)	--

Project Radiography 7300 C
Value/Pro/Essentials VS

Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

AD2

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7.22.2024

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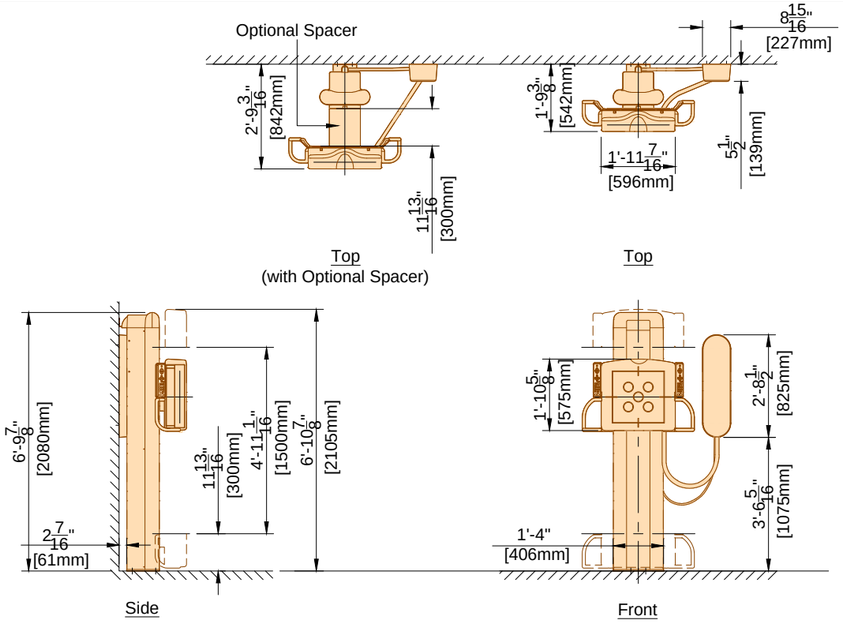
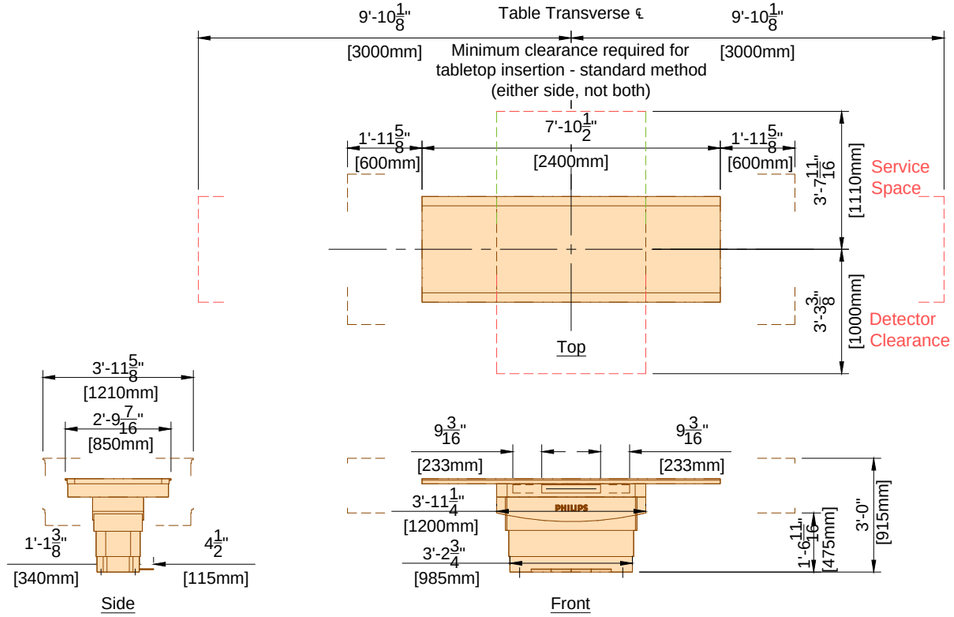
XRY00252



(24.0)

	Digital Vertical Stand VS2	
DVS	Weight	Heat Dissipation
	485 lbs (220 kg)	614 Btu/hr (180 W)

Weight of Wall Connection Box: 36 lbs (16 kg)



(24.0)

	DigitalDiagnost TH/TH2 (Wide Tabletop)	
MS	Weight	Heat Dissipation
	593 lbs (269 kg)	614 Btu/hr (180 W)

PHILIPS

Project
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Date Drawn: 9/17/2024
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Order: None

AD3

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Equipment Support Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required structural alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and building codes. The customer shall be solely responsible for obtaining all construction permits from jurisdictional authority.

2. Equipment Anchorage
Philips provides, with this plan and specifications, information relative to equipment size, weight, shape, anchoring hole locations and forces which may be exerted on anchoring fasteners. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of equipment anchoring to floors, wall and/or ceiling of the building. Any anchorage test required by local authority shall be the customer's responsibility. Stud type anchor bolts should not be specified as they hinder equipment removal for service. Consult with Philips service prior to specifying anchor methods.

3. Floor Loading and Surface
Philips provides, with this plan and specifications, information relative to size, weight and shape of floor mounted equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings confirmation of the structural adequacy of the floor upon which the equipment will be placed. Any load test required by local authority, shall be the customer's responsibility.

a. The floor surface upon which Philips equipment (except floor rails) is to be placed/anchored shall be flat and level to within plus or minus 1/16 inch (2mm) over a length of 39" (1m).
b. The floor surface upon which Philips floor rails are to be placed/anchored shall be flat and level to within plus or minus 1/4 inch (6mm) over the length of the floor rails.

4. Ceiling Support Apparatus

a. Philips provides, with this plan and specifications, information relative to size, weight and shape of ceiling supported equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of structural support apparatus, fasteners and anchorage to which Philips will attach equipment. Any anchorage and/or load test required by local authority shall be the customer's responsibility.
b. Contractor to clearly mark Philips equipment longitudinal centerline on bottom of each structural support.
c. The structural support apparatus surface to which Philips equipment is to be attached, shall have horizontal equipment attachment surfaces parallel, square and level to within plus or minus 1/16 inch (2mm).
d. Any drilling and/or tapping of holes required to attach Philips equipment to the structural support apparatus shall be the responsibility of the customer.
e. Fasteners, anchors (e.g. bolts, spring nuts, lock and flat washers), and strip closures shall be provided by the customer.

5. Lighting
Lighting fixtures shall be placed in such a position that they are not obscured by equipment or its movement, nor shall they interfere with Philips ceiling rails and equipment movement or otherwise adversely affect the equipment. Such lighting fixture locations shall be the sole responsibility of the customer.

6. Ceiling Obstructions
There shall be no obstructions that project below the finished ceiling in the area covered by ceiling suspended equipment travel.

7. Seismic Anchorage (For Seismic Regions Only)
All seismic anchorage hardware, including brackets, backing plates, bolts, etc., shall be supplied and installed by the customer/contractor unless otherwise specified within the support legend on sheet S1. Installation of electronic cabinets to meet seismic anchorage requirements must be accomplished using flush mounted expansion type anchor/bolt systems to facilitate the removal of a cabinet for maintenance. Do not use threaded rod/adhesive anchor systems. Consult with Philips regarding any anchor system issues.

8. Floor Obstructions/Floor Coverings
There shall be no obstructions on the floor (sliding door tracks, etc.) in front of the Philips electronic cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service. Contractor to verify the preferred floor covering installation method with Philips.

(13.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
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Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

SN

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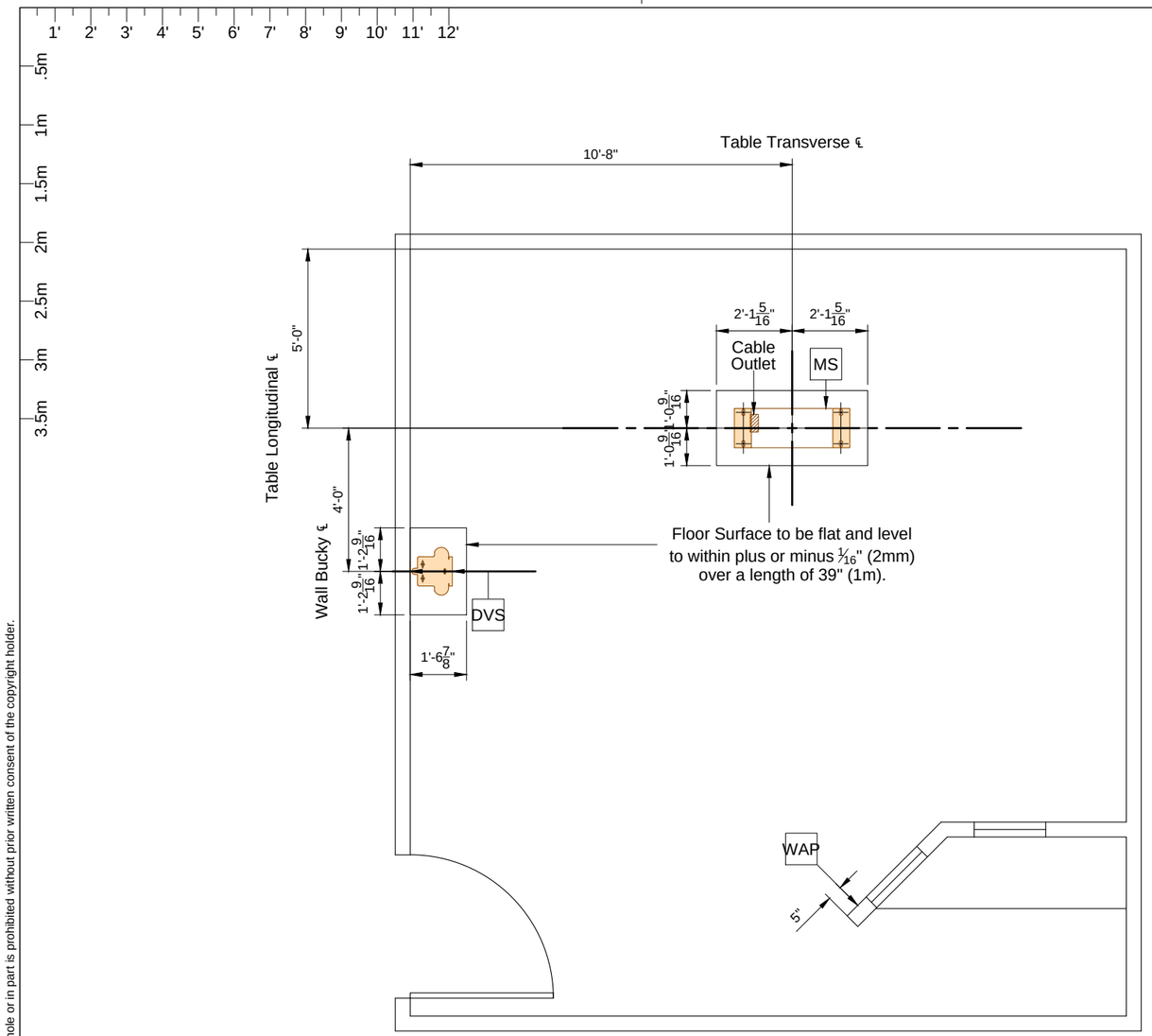

Floor & Walls Support Layout

1/4" = 1'-0"

Reported Ceiling Height: N/A

Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (see exceptions - Note 2, below)
B Furnished by customer/contractor and installed/anchored by customer/contractor
C Installed/anchored by customer/contractor
D Furnished by Philips and installed/anchored by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
B	MS	Anchors in floor for Diagnost TH	SD5
B	DVS	Support in wall for BuckyDiagnost VS	SD4
B	DVS	Anchors in floor for BuckyDiagnost VS	SD4
A	DVS	Anchors in wall for BuckyDiagnost VS	SD4
A	VSC	Anchors in wall for BuckyDiagnost VS Connection Box (not shown)	SD4
A	WAP	Wi-Fi Access Point - optional wall mounting	SD5

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

Notes:
1. Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
2. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed in this document, the anchors shall be provided by customer/contractor and installed by Philips.
3. In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
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Contact Number:
Email:
Drawn By:

Project Details
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N-SRD240005
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Quote: None
Order: None

S1

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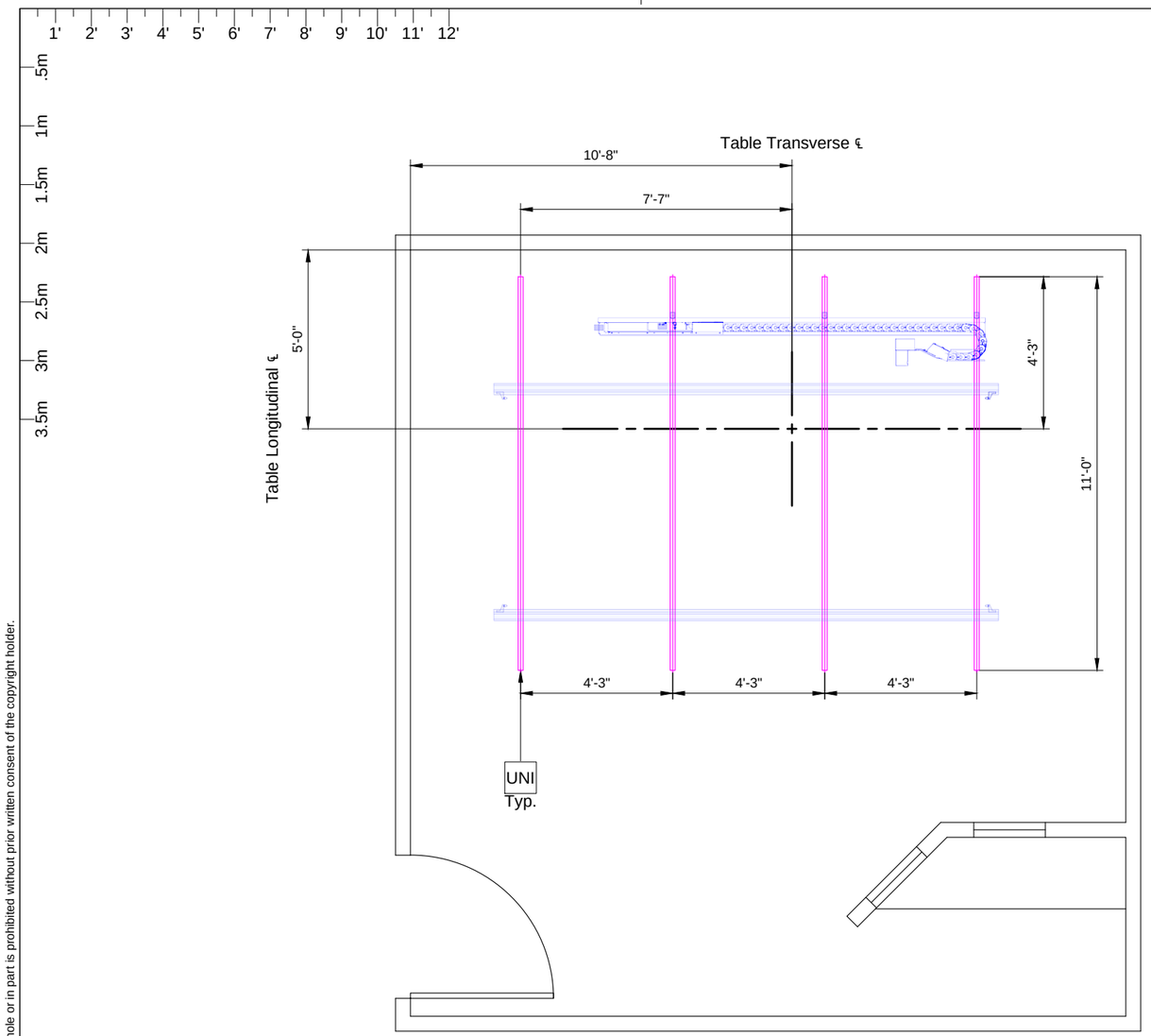

Ceiling Support Layout - Unistrut

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Ceiling Support Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
B	UNI	Unistrut (P1001 or equal)	SD3

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

See Ceiling Clearance Detail (sheet SD2) for information on restricted areas for objects that project below the finished ceiling.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
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Quote: None
Order: None

S2

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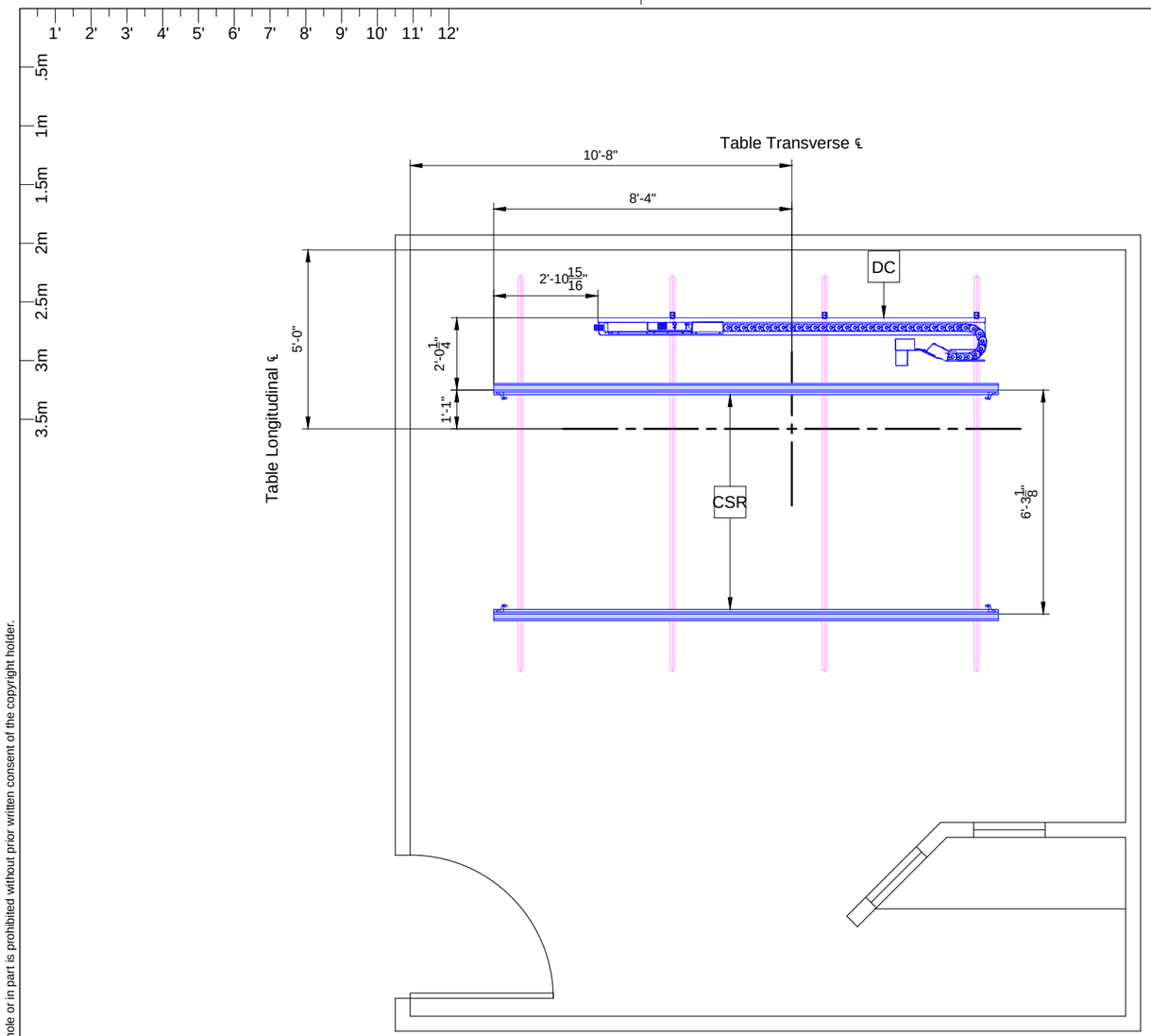

Ceiling Support Layout - Equipment

1/4" = 1'-0"
Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

Ceiling Support Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Item Number	Description	Detail Sheet
A	DC	Drag Chain	SD2
A	CSR	Philips Equipment Rails	SD3

All dimensions must be off of the finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off of the finished furred wall.

See Ceiling Clearance Detail (sheet SD2) for information on restricted areas for objects that project below the finished ceiling.

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

S3

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Pre-Evaluated and -Approved Anchor Reference List for **Philips Installers**

Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor.
Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be provided by customer/contractor and installed by Philips.
In all instances, the wall and/or floor support are the sole responsibility of the customer/contractor. The customer's architect/engineer of record shall specify wall and/or floor support sufficient for the bolt forces shown on the details.

Equipment	Option	Anchor Style (provided by Philips)	Anchor Size (provided by Philips)	Qty.	Support Size & Material (provided & installed by customer/contractor)
Eleva Examination Control (Wall Mounted)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with min. ¾" plywood backing
	B	Toggler Snaptoggle with Round Head Screw and flat fender washers and nuts	#BA with #10-24 x 2 ½"L	4	Drywall (⅝"D min)
Digital VM Guide Rail with Wall Holders	A	A307 bolts (min. ASME Grade 5)	3/8", 3"L	6	Drywall with min. 16 Gauge Steel Backing Thru bolted with head of bolt behind backing and threads sticking out of wall for attachment to wall holders
	B	Lag Screw	3/8", 3"L	6	Drywall with min 4"x4" Douglas Fir # 2 Grade backing
	C	Hex Head Tek Screw	#14 x 3"L	6	Drywall with min. 10 Gauge Steel Backing
	D	Hilti KB-TZ	⅜" x 3"L	6	Concrete Wall (min. embedment = 2")
Digital VM Floor Rail	A	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	20	Concrete Floor
	B	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	20	Wood Frame Floor
Patient Support Floorplates	A	Simpson or Hilti Drop-in with Stainless Steel Phillips Oval Head Screw with dress washer	¼" x 1"L	4	Concrete Slab
	B	Hex Head Lag Bolt with flat washer	#14 x 1"L	4	Wood Frame Floor
Wireless Detector Docking Station	A	SPAX Multipurpose Flat Head Screw	#10 x 1½ "L	2	Drywall with minimum ¾" plywood backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½""	2	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	2	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	Toggler Alligator #A6 with SPAX #10 x 1½"L	2	Concrete Wall
BuckyDiagnost VS (Advanced and Digital) Wall Anchorage	A	Through Bolt	⅜" diameter	4	Minimum 10 gauge steel plate[1], or Minimum 4"x 4" Douglas Fir # 2 grade
	B	Self Drilling Tek Screw	# 14	4	Minimum 10 gauge steel plate[1]
	C	Lag Screw	7/16"	4	Minimum 4" x 4" Douglas Fir # 2 Grade
	D	Toggler Snaptoggle Anchor	⅜" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]
BuckyDiagnost VS Connection Box	A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with Wood Backing
	B	Round Phillips Head Self Drilling Screw	#10-16 x 1½L"	4	Drywall with min. 10 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Round Phillips Head Self Drilling Screw	# 10-16 x 1½"L	4	Metal junction box or raceway
	E	Toggler Alligator with SPAX Multipurpose Flat Head Screws	Toggler Alligator #A6 with SPAX #10 x 1½"L	4	Concrete Wall or Hollow Concrete Block Wall
Parking Frame for Accessories (RAD)	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	4	Drywall with min. ¾" plywood backing
	B	Phillips Round Head Self Drilling Screw	#10-16 x 1½"L	4	Minimum 16 Gauge Steel Backing
	C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (⅝"D min)
	D	Toggler Alligator with SPAX Multipurpose Flat Head Screw	#A6 with SPAX #10 x 1½"L	4	Concrete Wall
Pediatric Support Parking Stand	A	Hilti KB-TZ with OD flat washer and hex nut	½ x 3¾"L	TBD	Concrete Slab
	B	Long Lag Bolt with ID and OD flat washer	½" x 2½"L	TBD	Wood Frame Floor
Stretch Grip Parking Bracket	A	SPAX Multipurpose Flat Head Screw	#10 x 1½" L	3	Drywall with min. ¾" plywood backing
	B	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	3	Drywall
Tube Crane Box Cover	A	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

[1] Unistrut, angle, or c -channel material is preferred.

(15.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

SD1

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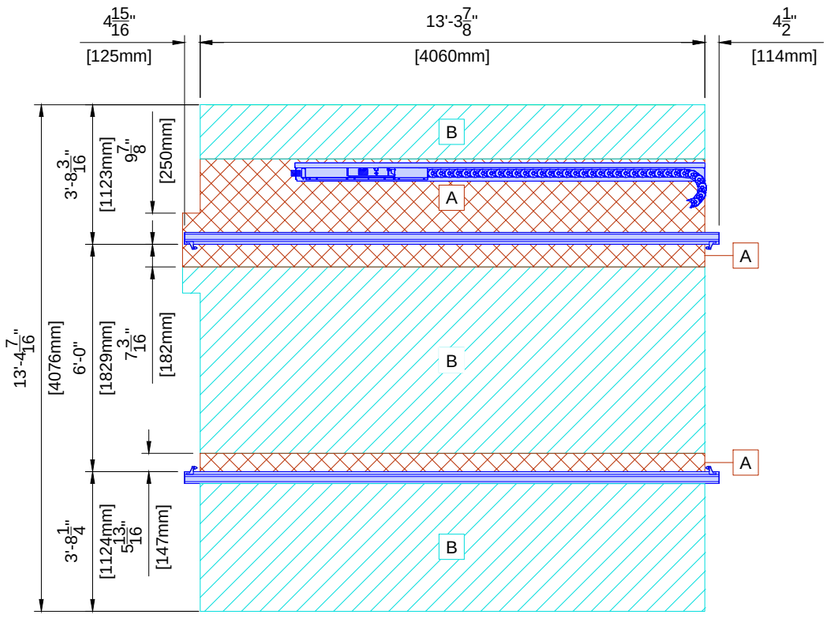
Ceiling Clearance Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)

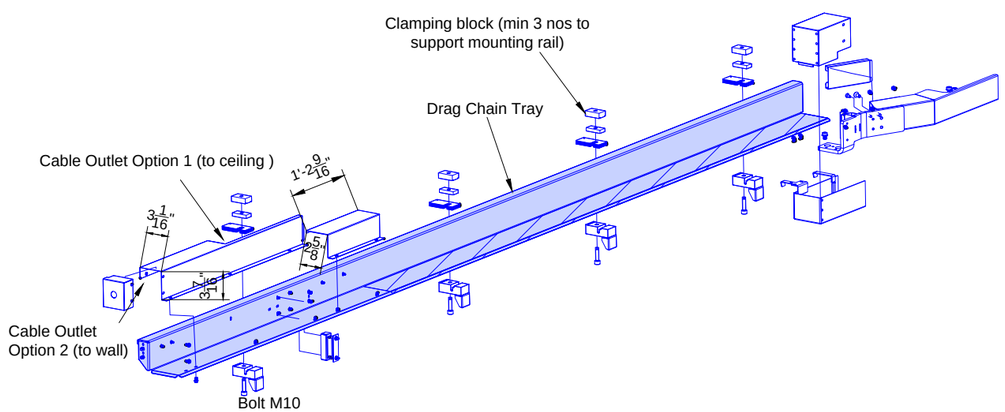
CSM3 Long - Comfort Track/Move



A Objects that project below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, ceiling rails, A/C vents, etc).

B Objects that project more than 3.5" below finished ceiling are NOT allowed in this area (e.g. lights, smoke detectors, sprinkler heads, soffits, A/C vents, etc).

Detail - Drag Chain



Note: Additional 1m cable at cable outlet for future service

Drag Chain measurements scale(1:10)

DC

(24.0)

Project Radiography 7300 C Value/Pro/Plus/Essentials VS Standard Reference Drawing Not Site Specific Room:

Philips Contacts Project Manager: Contact Number: Email: Drawn By:

Project Details Drawing Number **N-SRD240005** **Date Drawn: 9/17/2024** Quote: None Order: None

SD2

PHILIPS

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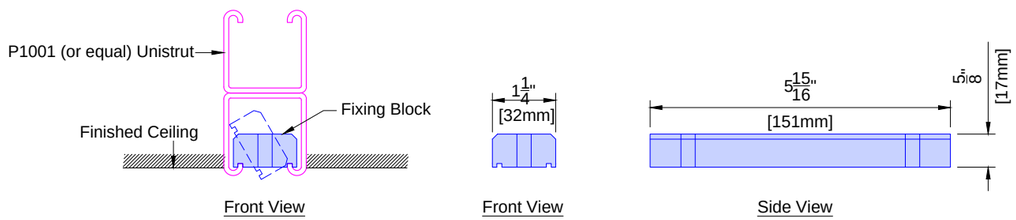
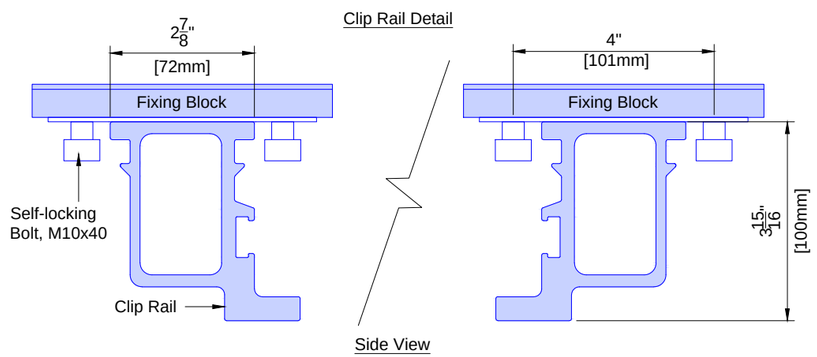
Detail - Ceiling Support

(Not to scale)

Fixing Block for Philips Ceiling Rails (Clip Rails) Detail



Clip Rail Detail



CSR | UNI

- Philips does not specify the overhead equipment support structure. Unistrut (or equal) may or may not be used. If Unistrut are used, it is up to Unistrut and the structural engineer for the project to determine which of it's products are appropriate for each project.
- Finished ceiling must **NOT** be lower than the bottom of the Unistrut in order to prevent damage to the finished ceiling during the installation of clip rails.
- Finished ceiling height to be 1/4" above bottom of Unistrut.
- Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
- Fixing blocks for Philips ceiling rails (clip rails) are designed to be installed in P1001 Unistrut.
- The inside of the Unistrut must be clear of obstructions (including paint).
- Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, item #4 "Ceiling Support Apparatus".

Tube Crane Support Forces	Tension Forces	Compressive Forces
CS III	956 lbs/support	192 lbs/support

(Support = 2 screws into each Fixing Block)

(Seismic area forces - consult seismic calculation documents)

(13.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

SD3

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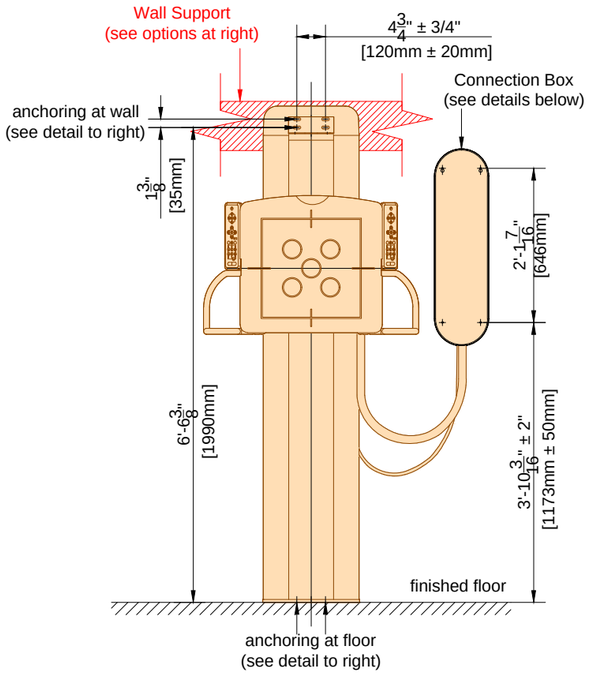
Detail - BuckyDiagnost VS Digital

(Not to scale)

Elevation View of Bolt Locations



DVS

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	Through Bolt	3/8" diameter	4	Minimum 10 Gauge Steel Plate[1], or Douglas Fir #2 Grade (minimum 4" x 4")
B	Self Drilling Tek Screw	#14	4	Minimum 10 Gauge Steel Plate[1]
C	Lag Screw	7/16"	4	Douglas Fir #2 Grade (minimum 4" x 4")
D	Toggler Snaptoggle Anchor	3/8" diameter expansion screw	4	Minimum 10 Gauge Steel Plate[1]

[1] Unistrut, angle, or c-chanel material is preferred.

Bolt Forces (Standard DVS)
Tmax (Tension)(Wall) = 303 lbs/bolt (max)
Vmax (Shear)(Wall) = 72 lbs/bolt (max)
Vmax (Shear)(Floor) = 227 lbs/bolt (max)

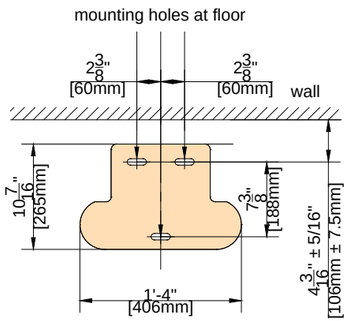
Bolt Forces (Tilting DVS)
Tmax (Tension)(Wall) = 604 lbs/bolt (max)
Vmax (Shear)(Wall) = 89 lbs/bolt (max)
Vmax (Shear)(Floor) = 283 lbs/bolt (max)

Wall mounting points must be suitable to tensile strength Fs ≥ 1500N (338 lbf) each anchor.

Floor mounting points must be suitable for tensile strength Fs ≥ 500N (113 lbf) for each screw.

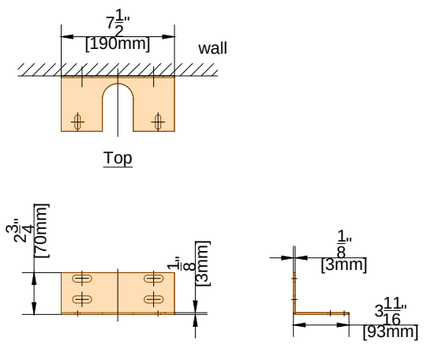
(Seismic area forces - consult seismic calculation documents)

Floor Anchoring Details

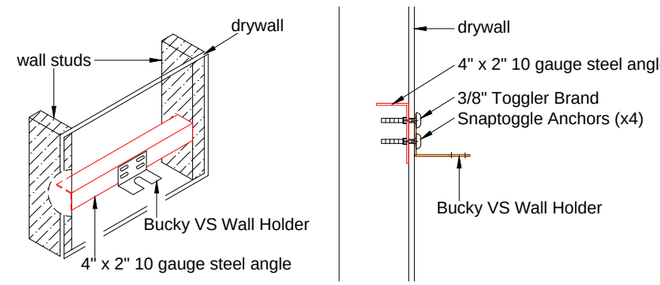


Top

Wall Holder / Bracket Details



Wall Anchoring Example
Illustration of Wall Support with Steel Plate and Toggler Anchor

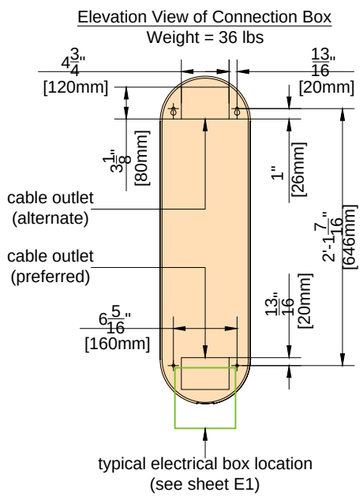


(24.0)

Detail - BuckyDiagnost VS Advanced Connection Box

(Not to scale)

Elevation View of Connection Box
Weight = 36 lbs



VSC

Wall Support Options

The customer's architect/engineer of record shall specify a wall support sufficient for the bolt forces specified. Anchors will be provided by Philips, and the wall support is the sole responsibility of the customer/contractor. Below are Philips' pre-evaluated and approved methods of providing support:

Option	Anchor Style (Provided by Philips)	Anchor Size	Anchor Quantity	Wall Support Size & Material (Provided & installed by customer/contractor)
A	SPAX Multipurpose Flat Head Screw	#10 x 1½"L	4	Drywall with wood backing
B	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Drywall with minimum 10 gauge steel backing
C	Toggler SnapToggle with Round Head Screw	#BA with #10-24 x 2½"L	4	Drywall (5/8"D min.)
D	Round Phillips Head Self Drilling Screw	#10-16 x 1½"L	4	Metal junction box or raceway

Bolt Forces
Tmax (Tension) = 39 lbs/bolt
Vmax (Shear) = 36 lbs/bolt
(Seismic area forces - consult seismic calculation documents)

(13.0)

Project Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

SD4

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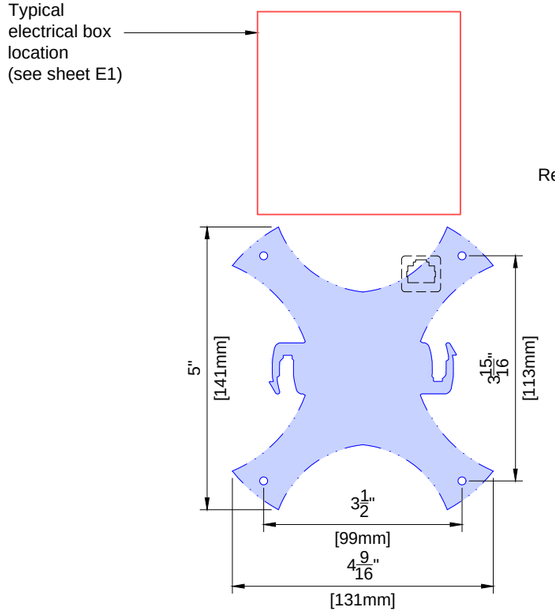
Detail - Wi-Fi Access Point - Wall Mounted)

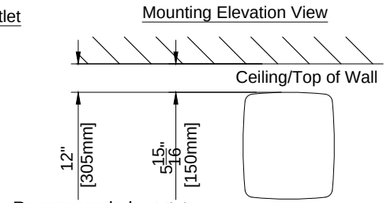
(Not to scale)

Elevation View of Bolt Locations and Cable Outlet



Front View

Mounting Elevation View



WAP

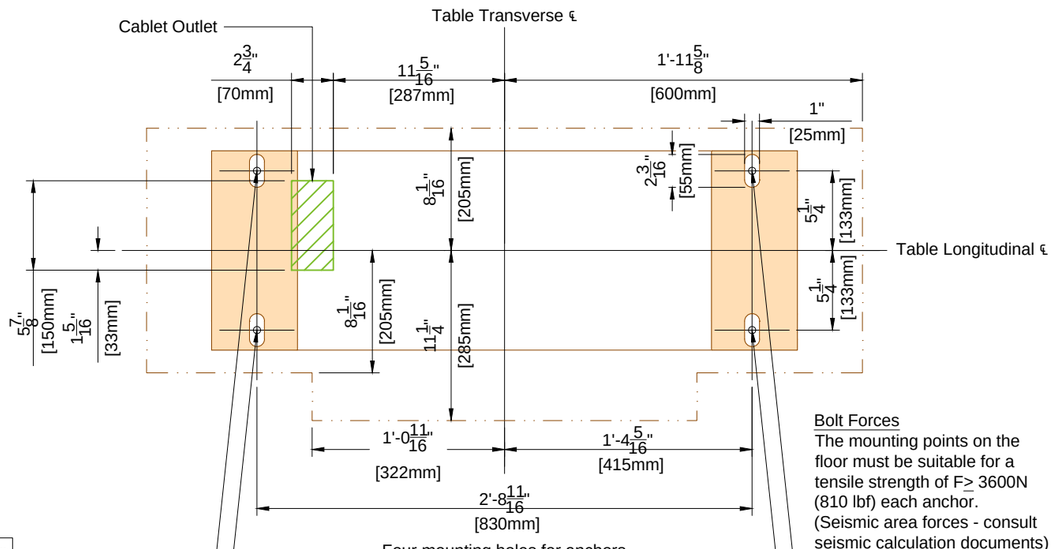
(17.0)

Detail - Diagnost TH/TF Table Base

(Not to scale)

Plan View of Bolt Locations and Cable Outlet

The Diagnost TH/TF base mounted directly to the floor. A floor plate is not used.



Bolt Forces

The mounting points on the floor must be suitable for a tensile strength of F≥ 3600N (810 lbf) each anchor. (Seismic area forces - consult seismic calculation documents)

MS

(24.0)

Project Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

SD5

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General Electrical Information

1. General
The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

2. Materials and Labor
The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc., as separately specified herein.

3. Electrical Ducts and Boxes
Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: power wiring and/or cables, Group B: signal and/or data and protective ground wiring and/or cables, Group C: x-ray high voltage cables. The use of 90 degree ells is not acceptable. On ceiling duct and wall duct use 45 degree bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.

4. Conduit
Conduit point-to-point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.

5. Conductors
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.

6. Disconnecting Means
A disconnecting means shall be provided as separately specified.

7. Warning Lights and Door Switches
"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

8. Dimmer Switches
X-ray room lights should be provided with dimmer switches.

(13.0)

Electrical Notes

1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
2. The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.
3. All pre-terminated, cut-to-length cables will be supplied and installed by Philips. See Conduit List for information regarding all other cables (e.g. cables to breakers, etc.).
4. Provide and install 4 - 2"(50mm) diameter chase nipples between adjacent wall boxes (not required if raceway installed above and below wall boxes).
5. Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non - accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above-ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above-ceiling must be kept as near to finished ceiling as possible.
6. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever governs.
7. Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.
8. All sections of raceway and conduit shall be grounded with an independent #6AWG green wire that is to be attached using solderless lugs All ceiling mounted structural support members and ceiling plates shall also be grounded. All grounding connections, terminals, etc. shall be installed in a manner to provide accessibility for inspection, maintenance, repair, etc.
9. The contractor is to ensure system cables that run from the system cabinet to the table are not run under the slab in ground floor installations. They need to be run in a trough or a raceway in the floor per NEC section 390 Underfloor Raceway. Conduits may not be allowed in a basement slab. The cables from the cabinets to the table are not certified in a wet environment/area.

(20.0)

Electrical Requirements

Electrical power distribution at the facility shall comply with:

- Utilization voltages per ANSI C84.1 - 1982 range A.
- Voltage to be supplied is 3 phase, 3 wire power and ground (delta or wye) unless otherwise noted in equipment specifications.
- Phase conductors to be sized for instantaneous voltage drop per NEC 517-73 and Philips recommendations.
- Neutral and ground conductors to be sized equivalently to phase conductors, unless otherwise noted.
- Metal conduit shall not be used as the equipment ground conductor.
- Clamping type surge suppressors are highly recommended in addition to standing facility lighting arrestors. Equipment to be protected from ANSI/IEEE C62.41-1980 location category B impulses.
- ANSI/NFPA 70 - National Electrical Code (NEC)
  Article 250 - Grounding
  Article 517 - Health Care Facilities
- ANSI/NFPA 99 - Health Care Facilities Code
- NEMA standard XR 9 - Power Supply Guidelines for X-Ray Machines

(13.0)

Power Quality Guidelines

1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.
2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality: static UPS systems, series filters, power conditioners, voltage regulators.

   Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

(13.0)

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

EN

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Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
		Floor	
B	MS	8" (203mm) W x 8" (203mm) L x 4" (102mm) D floor box, flush mounted with removable gasketed screw-type cover plate.	ED1
		Ceiling	
B	CS	8" (203mm) W x 8" (203mm) L x 6" (152mm) D ceiling box, flush mounted with removable screw-type cover plate.	
		Duplexes	
B		120V, 20A dedicated duplex outlet. Coordinate exact location with local Philips Service.	
		Network Connectors	
B	N	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access through customer's network to VPN device capable of connecting to the Philips Remote Service Network (RSN) Datacenter is needed. Refer to page N1 for RSN connectivity options. Locate within 10' (3048mm) of network card. Network Fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc, are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of the components.	N1

Electrical Legend

A Furnished and installed by Philips
B Furnished and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing - Field to verify suitability for reuse
F Future
G Optional

	Item Number	Description	Detail Sheet
		Wall	
B	CB	480V, 3 phase 50 AMP circuit breaker with shunt trip. Run power from breaker to ME, leaving an 8' (2438mm) tail. See Sheet ED1 for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	ST	Shunt Trip (emergency off) Large mushroom-head button on remote control station with contacts to operate feature of CB. Location per local code or owner requirements (mandatory for VA and DOD installations). (Not shown on plan)	
B	WL	Warning Light - Provide an surface or flush mounted light fixture above door to indicate when X-Ray is on. (Not shown on plan)	ED1
B	DS	Door Switch - 120V, 5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1665 or equivalent), if required by local code or physicist of record. (Not shown on plan)	ED1
B	S1	Single pole general purpose ON/OFF switch with red cover. Safety switch is required between scanner unit and "WL" for Philips Service, if a warning light is used. Locate near system disconnect if possible or near "ME" wall box. (Not shown on plan)	ED1
B	ME	19 1/4" (489mm) W x 67" (1702mm) H x 4" (102mm) D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 75" (1905mm) A.F.F. to top of box. Conduits to terminate at conduit knock outs provided on top, bottom, or sides of terminal wall box. If raceway is used at top and / or bottom of terminal wall box, remove panel(s) of terminal box by drilling out pop rivets. Top and bottom panels will slide out without the need for cutting. Cutting of the box is prohibited as it will void the UL listing. Weight is approximately 125lbs per box. See ED1 sheet for wall box ordering instructions.	ED1
B	TB	Three Terminal Blocks (one "A" Block, one "E" Block, and one "D" Block) with each Block assembled on a customer/contractor provided DIN rail. All Blocks to be mounted inside "ME" Back Box. Customer/contractor to supply and install cables to and from the Terminal Blocks. (See Sheet ED1 and ED2 for details)	ED1/ ED2
B	DVS	6" (152mm) W x 6" (152mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 39" (991mm) A.F.F. to bottom of box.	
B	WAP	4" (102mm) W x 4" (102mm) L x 4" (102mm) D wall box with removable screw-type cover plate, flush mounted 10" (254mm) below ceiling/top of wall to top of box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	WR1	4" (102mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 4" (102mm) A.F.F. to bottom of raceway. *	ED1
B	WR2	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted with removable screw-type cover plate, at 75" (1905mm) A.F.F. to bottom of raceway. *	ED1
B	ELW	Grommet opening on WR3. Exact size to be determined by local Philips Service. Location shown is recommended and may be changed - verify relocation with local Philips Service. For cables to ELW.	
B	WR3	10" (254mm) W x 4" (102mm) D wall raceway, surface mounted 6" (152mm) above finished floor with removable screw-type cover plate.	ED1

*WR1 and / or WR2 are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper locations as required. As noted for "ME", the top and bottom panels can be removed by drilling out the pop-rivets and pulling the panel out. Raceway size and length can be changed as needed as long as the raceway is a minimum of 19 ¼" (489mm) in length to cover the entire opening of the removed top or bottom panel(s) and the terminal wall box remains at a mounting height of 75" (1905mm) A.F.F. Raceways cannot be deeper than the terminal wall box, they must fit securely behind the terminal wall box flanged-edge.

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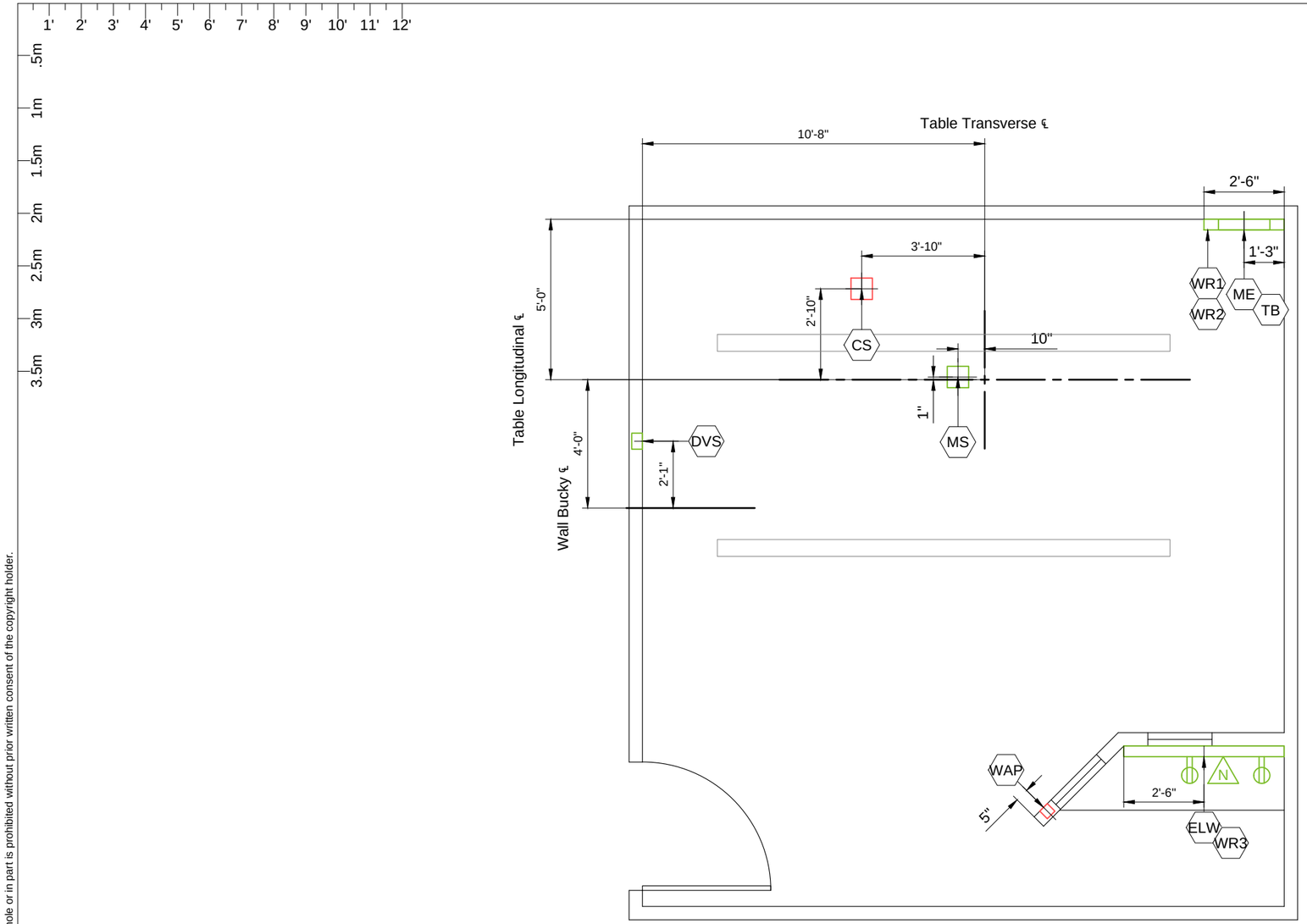
XRY00252



Electrical Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)

Recommended Maximum Ceiling Height: 10'-6" (3200mm)

Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

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E1

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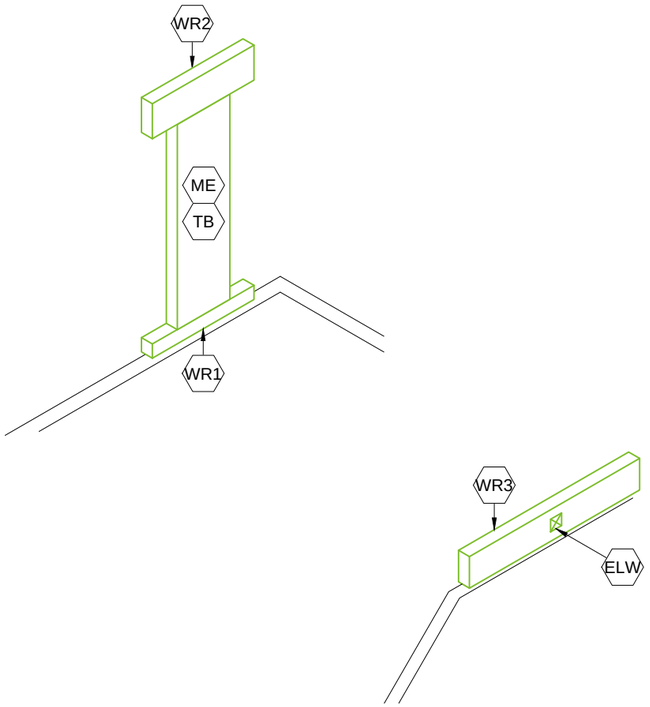
Isometric Layout
(Not to scale)



Raceway Diagram
(Not to scale)

Refer to Electrical Legend and Layout - Sheet E1

The use of 90 degree ells is not acceptable; use 45 degree bends at all raceway corners. The use of crossover tunnels at all applicable locations is required.

Conduit Required

General Notes
1. All conduit runs must take most direct route point to point.
2. All conduit runs must have a pull string.

A Conduit supplied and installed by contractor - Philips cables installed by Philips.
B Conduit supplied and installed by contractor - Philips cables installed by contractor
C Conduit and cables supplied and installed by contractor
D Conduit existing - cables supplied and installed by Philips
E Conduit existing - cables supplied by Philips, installed by contractor
F Conduit existing - cables supplied and installed by contractor
G Conduit optional - for future upgrade. Verify with Philips Sales/Service.

* Cable Type
F Fiber Optic
H High Tension Power Cables
P Power / Ground
S Signal Cables
V Video Cables

	Conduit			Conduit Quantity	Cable Type *	Minimum Conduit Size	Maximum Conduit Length	Special Requirements
	Run No.	From	To					
C	1	Power Panel	CB	1	P	Per N.E.C.	Per N.E.C.	
C	2	CB	ME	1	P	2"	50'	8' of the 50' cable to be left as a tail. Contractor to supply and install cables from "CB" to "TB" inside "ME".
C	3	CB	ST	1	P	3/4"	50'	
C	4	ME	S1	1	P	1/2"	--	Contractor to supply and install cables to and from "TB" inside "ME". Max combined cable length = 50'
C	5	S1	WL	1	P	1/2"	--	
C	6	ME	DS	1	P	1/2"	50'	Contractor to supply and install cables to and from "TB" inside "ME".
A	7	ME	ELW	1	P	2"	88'	
A	8	ME	ELW	1	S	3"	88'	
A	9	ME	MS	1	P	2"	55'	
A	10	ME	MS	1	S	2"	55'	
A	11	ME	DVS	1	P	2"	55'	
A	12	ME	DVS	1	F / S	2"	55'	
A	13	ME	CS	1	H / P	3"	45'	If WR2 is used, conduit must terminate directly above ME wall box for routing
A	14	ME	CS	1	S	3"	45'	
A	15	ELW	MS	1	F / S	2"	98'	
A	16	ELW	DVS	1	S	1"	78'	
A	17	WAP	ELW	1	S	1"	98'	Ethernet cable. Conduit if required by local code.

Note: Optional conduit intended for future upgrade to fixed detector. Conduit is **not** required for Table or Wall Stand with SkyPlate option. Verify with Philips Sales/Service.

Refer to Electrical Layout and Legend - Sheet E1

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E2

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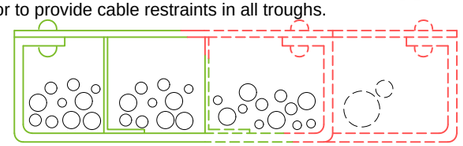
Detail - Cable Trough Divisions

(Not to scale)

Troughs or ducts must be separated by metal barriers into three sections.

1. High voltage (H.T.) cables to be routed separately from all other cables.
2. Power cables and ground cables can be routed together.
3. Signal cables and data cables can be routed together but must be separated from power cables.
4. Video cables to be routed separately from all other cables.
5. It is important that all cables are placed in the appropriate trough and at no given point do any cables from one division cross with cables from another. Trough separation must be continuous from the beginning to the end of the run. Utilize crossover tunnels as appropriate.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.



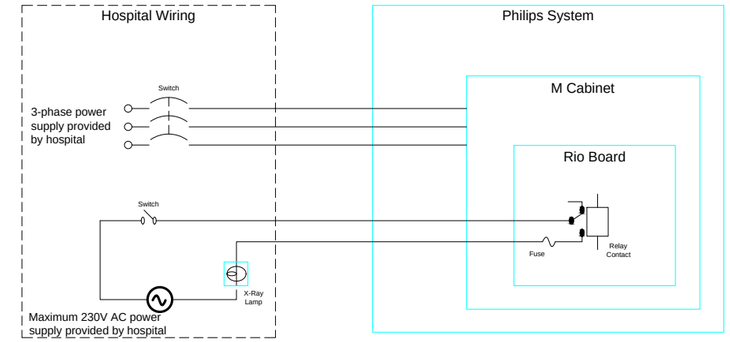
WR1 / WR2 WR3

(21.0)

Detail - X-Ray On Light and Door Switch

(CXA Generator)

Not to Scale



S1 / WL DS

(24.0)

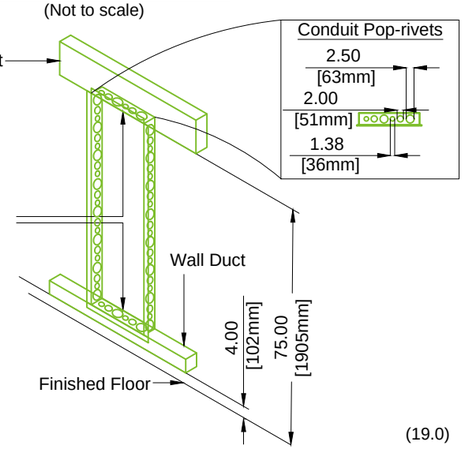
Power Quality Requirements

(M-Cabinet CXA 80)

Power Output:	80 kW
Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460, or 480 VAC, 60 Hz
Line Voltage Variation:	± 8% steady-state
Line Voltage Balance:	2% maximum of nominal voltage between phases
Frequency Variation:	± 1% (± 0.6 Hz)
Voltage Surges:	To 110% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Voltage Sags:	To 90% of steady-state voltage 100 msecs. maximum duration, 6 per hour maximum
Line Impulses:	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-ground Voltage:	2.0 volts maximum RMS value
Neutral-ground Impulses:	No more than 1 per hour that exceeds 25 volts and 1 Mjoule
High Frequency Noise:	3.0 volts steady-state maximum. Over 3.0 volts permitted for 100 msec. maximum, 1 per hour maximum
Ground and Neutral Conductor Impedance:	0.1 Ω @ 60Hz maximum

Detail - Wall Box Mounting

(Not to scale)



Pop-rivets on top and bottom can be removed for direct integration with raceway ducts. DO NOT remove top and bottom if conduit hubs are used.

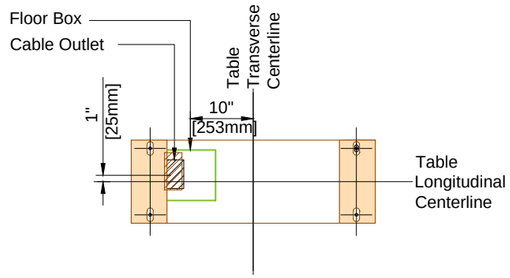
Wall Ducts are only needed if conduit knock outs within the terminal wall box are not the sufficient size, quantity, or in the proper location to meet the siting requirements.

ME TB

(19.0)

Detail - Diagnost TH Table Base - Flush Floor Box

Not to Scale



Floor box cannot exceed 10" dimension due to anchor support for the table base.

MS

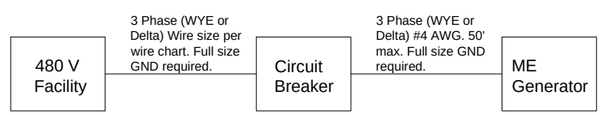
(13.1)

Branch Circuit and Wire Gauge Requirements

Branch Power:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 amperes (@ 480V) (Slow Blow)
Maximum Instantaneous Power:	105 kVA (800 mA @ 100 kV) (Short-term), < 5 amperes (Long-term)

Recommended conductor sizes for 1% impedence of branch conductors to circuit breaker (CB), based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#2 AWG	80 feet	96 feet	105 feet	115 feet
#1 AWG	101 feet	122 feet	134 feet	146 feet
1/0 AWG	128 feet	154 feet	168 feet	184 feet
2/0 AWG	161 feet	194 feet	212 feet	232 feet
3/0 AWG	203 feet	244 feet	267 feet	292 feet
4/0 AWG	258 feet	311 feet	340 feet	372 feet
250 MCM	303 feet	364 feet	399 feet	436 feet
300 MCM	363 feet	437 feet	478 feet	523 feet
Instantaneous Current	160 A	--	--	135 A
Maximum Phase-Phase Impedance	0.2 Ω	--	--	0.3 Ω
Maximum Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4%	9.5%	8.7%	7.9%



Minimum copper wire size, circuit breaker (CB) to equipment: #4 AWG, maximum 50' in length, (Customer/contractor provided).

*The ground conductor for the power feeder shall be the same size as the phase conductor wires.

**Residual current device to be installed depending on local regulations.

CB

(20.0)

Wall Box Ordering Details

Distinctive Manufacturing Group Method of Business
Transactions for Philips Customers

Part# 989801220367 Philips Xray Back Box

1) Three ordering methods:
-Email: backbox@thedmgusa.com
-Phone: 260-495-1818
-Fax: 260-495-1822

2) Payment Terms - Credit Card Only
-MasterCard
-Visa
-Discover
-American Express

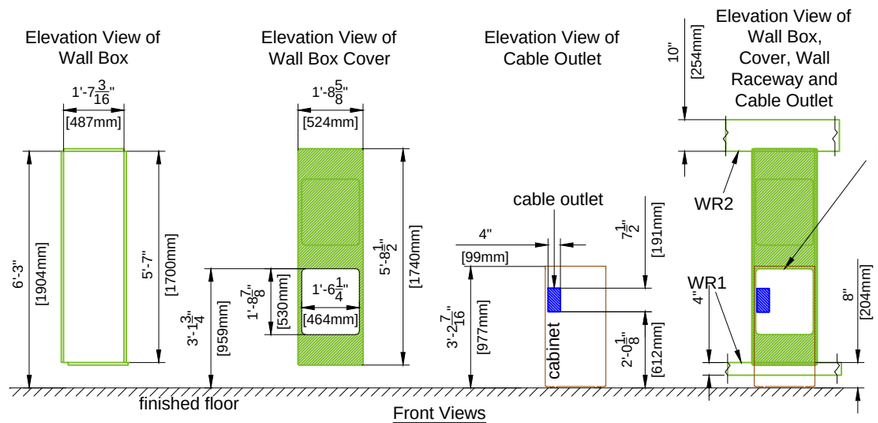
3) Lead Time
-3 Week Lead time

4) Freight
-All shipments will be shipped on skid
-Freight will be Pre-paid and added (PP+) to the invoice at time of shipment

ME

Detail - M-Cabinet CXA Wall Box - Cable Outlet on Rear

(Not to scale)



Front Views

Important Notes:
- New replacement backboxes must be installed at the standard height.
- Existing backboxes cannot be relocated or modified; doing so will void the UL rating.
- Existing backboxes that meet standard height requirements can be re-used.

Wall Box Cover
Bottom cover punch out to be used. Top of the cover punch out should not be higher than height of the cabinet.

Wall Box
General contractor to pop out top/bottom of box as required. Provided by customer/contractor (NA only).

(24.0)

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ED1

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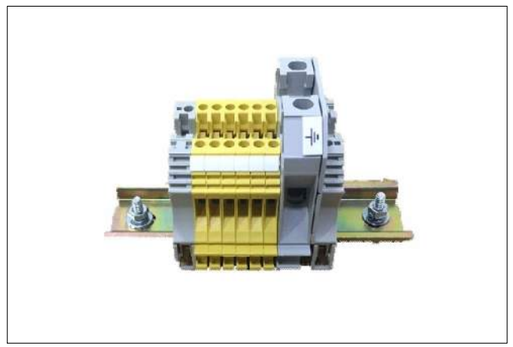
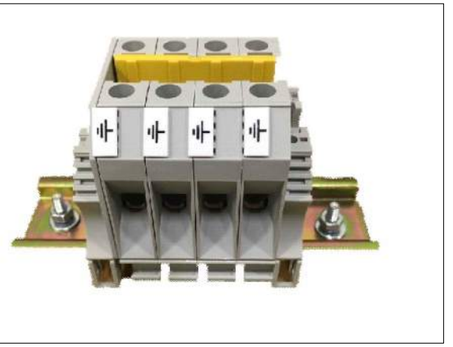
Detail - Screw Connection Terminal Blocks

(Not to Scale)

A Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J50 Yellow	4	#10 - 1/0 AWG, Yellow
1492-J50 Gray	2	#10 - 1/0 AWG, Gray
1492-J16 Gray	4	#18 - 4 AWG, Gray



D Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J3 Yellow	6	#28 - 12 AWG, Yellow
1492-J16 Gray	1	#18 - 4 AWG, Gray



E Block (Quantity = 1)		
Parts	Quantity	Wire Range
1492-J16 Gray	4	#18 - 4 AWG, Gray

TB

(24.0)

Pre-Assembled Blocks are available through Anixter:

Possible Supplier: Anixter, Inc. www.Anixter.com

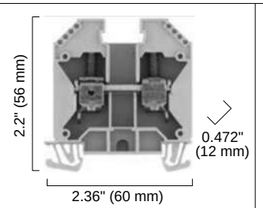
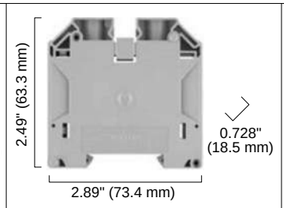
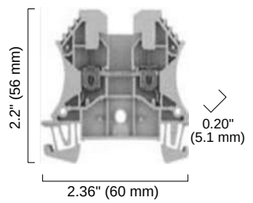
- Anixter Phone Number: 860-282-5300
- Primary Sales Contact: Joe Digiovanni 860-282-5347 joe.digiovanni@anixter.com
- Secondary Sales Contact: Lori Perras 860-205-4095 Lori.perras@anixter.com

- Part# 800170 for “A” Block (Quantity: 1)
- Part# 800173 for “D” Block (Quantity: 1)
- Part# 800174 for “E” Block (Quantity: 1)

* Customer/Contractor to provide the four blocks (one A, two D, and one E). Contractor to show the Philips Service the four blocks are available at least one week prior to system delivery and installed inside the "ME" wall box prior to system delivery date. Each block must have its parts assembled on a customer/contractor supplied DIN rail as shown in pictures above.

Screw Connection Terminal Blocks

Standard Feed-Through Blocks

	1492-J16			1492-J50				1492-J3			
Dimensions are not intended to be used for manufacturing purposes. **Note**: Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*			*Feed-through terminal block*				*Feed-through terminal block*			
Certifications	cULus	CSA IEC ATEX		cULus	CSA IEC ATEX			cULus	CSA IEC ATEX		
Voltage Rating	600V AC/DC	1000V AC/DC	690V AC/DC	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	85 A	76 A	66 A	150 A		150 A	126 A	25 A	20 A	24 A	21 A
Wire Range (Rated Cross Section)	#18…4 AWG	16 mm2	16 mm2 (#16…6 AWG)	#10… 1/0 AWG	#8… 1/0 AWG	50 mm2	#10… 1/0 AWG 50 mm2	#22…12 AWG	#26…12 AWG	2.5 mm2	2.5 mm2 (#20…14 AWG)
Wire Strip Length	0.63 in. (16 mm)			0.94 in. (24 mm)				0.39 in. (10 mm)			
Recommended Tightening Torque	35.0 lb•in (4.0 N•m)			31.5 lb•in (3.6 N•m)				4.5…7.1 lb•in (0.5…0.8 N•m)			
Density	25 pcs/ft (83 pcs/m)			16 pcs/ft (54 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

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Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

ED2

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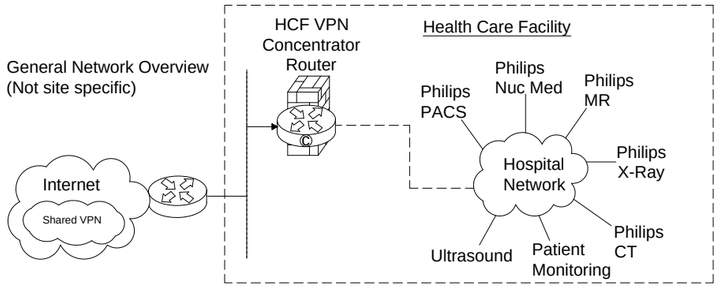
Philips Healthcare Remote Services Network (RSN)

Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

Broadband Site-to-Site Connectivity (Preferred)

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

Connectivity Details:
- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode.
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



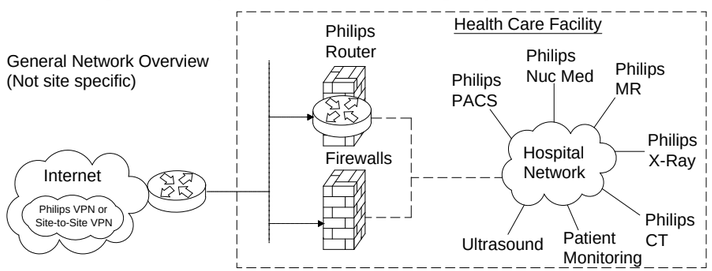
Action Required by Hospital:
- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.).
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips.

Broadband Router Installed at Health Care Facility

This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

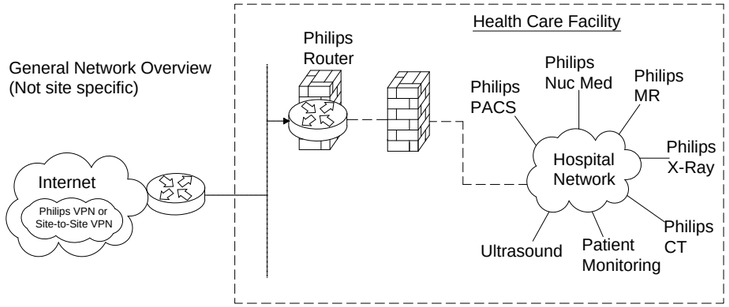
Connectivity Details:
- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site.
- One to One NAT is used to limit access to Philips equipment only.
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7.
- Dedicated DSL connections are also supported.

Option 1: Parallel to HCF Firewall Connectivity Method
This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.



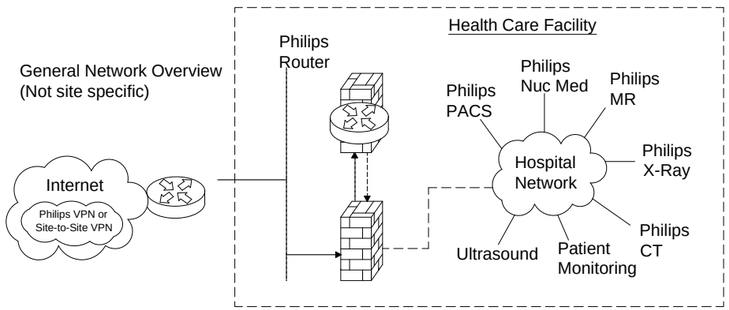
Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

Option 2: Back End Connected to the HCF Firewall Connectivity Method
This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.



Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Option 3: Router Installed Inside the HCF's DZM
This connectivity method is designed for customers who prefer the RSN Router installed inside an existing or new DMZ, allowing access to Philips equipment.



Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 500, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

Network Questionnaire and Customer Network Information Sheet

This information must be available at the moment of system configuration.
Please fill in the appropriate boxes in advance before the system will be delivered.
If a section has a check in brackets, your facility has this licensed option or hardware option and information will be needed.

Header colors indicate the following:
Blue = must be filled in completely
Yellow = Licensed options
White = redundancy or special DICOM option

Highlighted fields have to be filled in by hospital IT

Customer Information	
Hospital name	
IT contact & phone #	
Email address	
X-Ray manager & phone #	
Email address	
Other contact name & phone #	
Email address	

Philips Information (filled in by FSE)	
Project manager & phone #	
Email address	
Service engineer & phone #	
Email address	

Philips X-ray Equipment (filled in by FSE)	
System type	
Site ID or site number	
Eleva software version	
MAC address	
MAC address (WiFi)*	
System SN	
Generator (X-ray control) SN	
Install date	
Room number	
Wall port number	
Sales order #	
FDA 2579 form # **	

* Only in case of MobileDiagnost wDR
** Only for FDA controlled countries

Wired Network Settings		
TCP/IP settings		
Host name (System)		
Use DHCP*	☐ yes	☐ no
IP address		
Subnet mask (only if not DHCP)		
Default gateway (only if not DHCP)		

Network Settings (Wireless Portable Detector & WiFi Access Point)	
Access point information	
Wireless Standard	☐ IEEE 802.11a (5 Ghz) preferred ☐ IEEE 802.11b/g (2.4 Ghz) ☐ IEEE 802.11n ☐ 2.4 GHz ☐ 5GHz ☐ 2.4 GHz/5GHz
Channel	
Ask the local wireless-network-IT administrator (responsible person) to assign a channel according to local wireless network needs. Each access point needs its own exclusive channel. Make sure that two access points, which operate in the same wireless range, use different channels (for example two systems, which operate in neighboring rooms).	

* If DHCP is used, no IP Address, Subnet mask and default gateway is needed

DICOM Settings (System)		
Name		
AE title		
Port number		
Allow incoming queries	☐ yes	☐ no

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

N1

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Wireless Network Settings (MobileDiagnost wDR Only)	
Access point information	
SSID (access point hospital)	
Security standard	☐ WEP ☐ WPA WPA2
Encryption type	☐ TKIP (RC4) ☐ CCMP (AES) ☐ no encryption
Supported Authentication	☐ PSK ☐ IEEE 802.1x
PSK settings	
Pre Shared Key (WPA/WPA2: min. 8 and max. 63 printable ASCII characters)	(don't type a password here but provide it at the time of installation)
802.1x settings	
Method EAP Protocol	☐ PEAP ☐ EAP-TLS
Client certificate	Provide client certificate (including private key) with entire certificate path at the time of installation. Supported file formats:*.cer *.pfx
Server certificate validation	☐ yes ☐ no
TCP/IP settings	
Use DHCP*	☐ yes ☐ no
IP address	
Subnet mask	
Default gateway	

PACS - DICOM Store (Export)	
Name	
AE title	
Port number	
IP host name	
IP address	
IS archive	☐ yes ☐ no

PACS - DICOM Store (Backup)	
Name	
AE title	
Port number	
IP host name	
IP address	
IS archive	☐ yes ☐ no

PACS - Query Retrieve	
Name	
AE title	
Port number	
IP host name	
IP address	

RIS Node - DICOM (BWLM)	
Name	
AE title	
Port number	
IP host name	
IP address	

MPPS RIS - DICOM ☐	
Name	
AE title	
Port number	
IP host name	
IP address	

DICOM Default (For All DICOM Nodes)	
Default AE title (must be one of the already defined AE titles)	

Audit Trail Server ☐	
UDP/TCP protocol	
IP host name	
IP address	
Port number	
Format of audit trail	☐ ATNA ☐ Basic security

NTP Time Server ☐	
IP host name	
IP address	
Port number	

Printer I - DICOM Print ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Printer II - DICOM Print (Backup) ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Printer III - DICOM Print (Backup) ☐	
Manufacturer name & type	
Used template	
Printer location	
Name	
AE title	
Port number	
IP host name	
IP address	

Printer Medium: Film Type, Size, Bits		

Service Tool: FSF.net (Increment 34+36)

Philips Service Agent (PSA)	
Philips environment	☐ iSSL Enabled ☐ iSSL Enabled with Log Upload ☐ VPN Enabled ☐ VPN Enabled with Log Upload (port 443 outbound shall be open)
Proxy server address	**Port:**
Proxy user name	
Proxy password	(don't type a password here but provide it at the time of installation)

Remote Service Gateway	
Network	
Subnet mask	
Gateway	

Service Tool: PSC (Increment 37 and higher)

Remote Connection Tool (RCT)	
Connection type	☐ Internet ☐ VPN (port 443 outbound shall be open)
PRS server	☐ Production
Poll interval	☐ Small – 100 seconds ☐ Medium – 200 seconds ☐ Large – 300 seconds
Configure NAT	
PRS Server NAT Address	
Tunnel Server NAT Address	
PRS Server NAT Port	
Tunnel Server NAT Port	
Remote Service Gateway	
Network	
Subnet mask	
Gateway	

Philips Remote Service Details for M2M Infrastructure: ISSL Connectivity Mode:

Philips Server Name	Address
PRS Server	212.159.204.247 & https://ws-m2m.prs.healthcare.philips.com
Tunnel Server	212.159.204.252 & https://ws-m2m.prs.healthcare.philips.com
Registration Server	212.159.204.254 & https://ws-m2m.prs.healthcare.philips.com

VPN Connectivity Mode:

Philips Server Name	Address
PRS Server	https://192.68.49.50:443
Tunnel Server	https://192.68.49.49:443

Service Tool: PSC (Increment 42)

WAN - Communication from HS EDGE to Health Suite Cloud Outbound Only				
Source	**Destination**	**Port**	**Protocol**	**Direction**
HS Edge	193.25.48.0 /20	4500	UDP	Outbound
HS Edge	193.25.48.0 /20	443	TCP	Outbound
HS Edge	*.hsdp.io *.philips-healthsuite.com	443	TCP	Outbound

LAN - Medical Device communication to HS EDGE				
Source	**Destination**	**Port**	**Protocol**	**Direction**
System	HS Edge	8443	HTTPS	Outbound
System	HS Edge	3922	SSH	Outbound

Note: None of the above should be accessible from the WAN

Device Registration	
Remote Service Gateway IP/FQDN (IP Addressof LAN Interface of EDGE Device i.e. RSG on Premise)	

Remote Service Gateway (Persistent route to PRS sever - Optional)	
Network	
Subnet mask	
Gateway	

PHILIPS

Project Radiography 7300 C Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

N2

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Instructions

This form is to be used by Project Manager, Contractor, and Service Engineer. Information is used to develop and determine site ready date.

Be sure to contact the Zone Installation Specialist (ZIS), Field Service Engineer (FSE), or National Support Specialist (NSS) if you have questions concerning any of these checklist items.

Site Readiness Checklist

Required Prior to Delivery

- ☐ **Cable Trough/Raceway/Conduit:** Installed, cleaned and locations checked per Philips Final Drawings. Duct covers in place. Cable openings are clear, without sharp edges. ***Greenlee*** pull strings/measuring tape, (Part # 435, or equivalent), are in place.
- ☐ **Ceiling (Hard):** Installed and painted.
- ☐ **Ceiling (Drop-In):** Installed.
- ☐ **Customer Site Preparation:** Verified per Philips Final Drawings.
- ☐ **Delivery Path and Truck Parking:** Has been checked with the customer and lead FSE including verifying floor loading, delivery route, elevator capacity, height, width and depth clearances, and a plan for bad weather.
- ☐ **Doors:** Installed.
- ☐ **Drawings (Final):** Shows all room obstacles to include millwork, lighting overlay, structure overlay, med gases and plumbing.
- ☐ **Flooring:** Installed and covered with protective covering (i.e. scratch protection).
- ☐ **Glass:** Installed.
- ☐ **HVAC (Climate Equipment):** Installed and operational. Humidity and temperature requirements per Philips Final Drawings.
- ☐ **Installation Team:** Has received the room drawings and necessary contact phone numbers.
- ☐ **Millwork:** Completely installed in all rooms.
- ☐ **Parking:** Parking area identified for installers.
- ☐ **Permits and Inspections:** Completed by applicable governing authorities. Method statement available and safety meetings attended (OSHPD, AHCA).
- ☐ **Philips Project Space:** Is clean, free of dust, all construction-related debris and tools have been removed.
- ☐ **Restroom Facilities**: Toilet facilities, including area to wash up, are available.
- ☐ **Room Lighting:** Installed and operational.
- ☐ **Room Security:** Room is secure, with keys and alarm codes provided.
- ☐ **Site Access:** Is available for after hours. Storage for tools, parts, covers and packing material has been arranged.
- ☐ **Site Is Safe To Work:** PPE requirements identified (Construction and Hospital). No open Mains, slippery floors, sharp edges, or hazardous goods on site.
- ☐ **Sprinklers:** Installed.
- ☐ **Transport & Handling Tools:** Crane, forklift, wheels and trolleys have been specified with the LMP/rigging company. NOTE: If rigging provided by Philips, verify the vendor is on the Philips' Approved Suppliers List.
- ☐ **Walls:** Installed and final finished, (i.e. final coat painted and/or tiled).
- ☐ **Existing Equipment:** Is dismantled and removed from the site.
- ☐ **Floor Levelness:** Checked with Laser Level and is level per Philips Final Drawings.
- ☐ **System Orientation:** Verified per Philips Final Drawings.
- ☐ **Table Isocenter:** Verified per Philips Final Drawings.
- ☐ **Mains Power Supply:** Installed per Philips Final Drawings. (Including impedance, isolated grounds, wire size verified, and distribution unit has been installed).
- ☐ **UPS:** Fully installed per Philips Final Drawings, and startup has been scheduled with vendor.
- ☐ **Back Boxes:** Installed with required covers and grommet material per Philips Final Drawings, (i.e. spacing between boxes and height off finished floor).
- ☐ **Ceiling Height:** Verified per Philips Final Drawings
- ☐ **Ceiling Obstructions:** Verify there are no obstructions where Philips rails will be installed
- ☐ **Ceiling Rails:** Pre-delivered and installed (if applicable).
- ☐ **Clearances:** Verified to the closest obstacles, (i.e. walls, cabinets, etc.) in order to lift of the CS, monitor support, etc.
- ☐ **Fixing Blocks:** Provided by Philips, verify the block properly seats in the Unistrut channel with no obstructions, as designed.
- ☐ **Floor Plates (If applicable):** Patient Support and Stand, are installed, isolated, and leveld, at the correct positions per Philips Final Drawings.
- ☐ **Pre-Term Wire Kit:** Philips pre-cabling has been delivered and installed.
- ☐ **Unistrut (P1001 or equal):** Installed and leveled per Philips Final Drawings.
- ☐ **Wall Backing:** Verify it is in place per Philips Final Drawings..

Required Prior to Philips System Power Up

- ☐ **Wall Outlets:** Installed and functional.
- ☐ **Door Interlock Switch:** If required, is installed per Philips Final Drawings.
- ☐ **X-Ray in Use or Warning Light:** If required, is installed per Philips Final Drawings.
- ☐ **Physicist:** If required, verify the Physicist has been scheduled.
- ☐ **Network Connections:** Hardware is installed and active per Philips Final Drawings. All network information provided by facility IT, i.e. IP addresses (static IPs only), AE Titles, SNM, GTWY and DNS server are available.
- ☐ **UPS:** Commissioned and certified by UPS vendor.

Approved for Delivery

Project Manager	Date
Service Engineer	Date

PHILIPS

Project
Radiography 7300 C
Value/Pro/Plus/Essentials VS
Standard Reference Drawing
Not Site Specific
Room:

Philips Contacts
Project Manager:
Contact Number:
Email:
Drawn By:

Project Details
Drawing Number
N-SRD240005
Date Drawn: 9/17/2024
Quote: None
Order: None

CHK

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PHILIPS

www.healthcare.philips.com

*Photo shown is not site specific.

Revision History

Note for Architects and/or Contractors: If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your project

Rev.	Date	Revision Descriptions	By
00	4/23/2025	Created preliminary site preparation support document per quote: Q-00478301. Referenced project N-WES070739 for background.	AC
A	5/19/2025	Removed patient table (MS) and shifted DVS 4" plan north per PM request.	AC

Table of Contents

Section A - Equipment Plan

General Notes ---------- AN
Site Layout ---------- A1
Equipment Layout ---------- A2
Ceiling Height Guide ---------- A3

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835 I

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com

Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250201 A
Date Drawn: 5/19/2025
Quote: Q-00478301
Order: None

C1

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General Specifications

1. Planning, Design, and Implementation Process
The multidisciplinary project team should be assembled as early as possible in the design process. The multidisciplinary team should include administrators, clinicians, infection preventionists, architects and other design professionals, facility managers, safety officers, security managers, users of equipment, and support staff relevant to the areas affected by the project as well as those with knowledge of the organization's functional goal for the project. Inclusion of patient advocates/consumers, A/E consultants, and construction specialists should be considered. FGI 2018 APPENDIX A1.2-1.2

2. Responsibility
The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety electrical and building codes relevant to the equipment and its installation is the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

3. Permits
Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and related rules, regulations, and shall bear any expense in obtaining same or in complying with any ordinances and statutes.

4. Protection
The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. (X-Ray Tube output 150 KVp max.)

5. Asbestos and Other Toxic Substances
Philips assumes that there is no hazardous material contained in project site. The customer is responsible for the removal of any materials, including but not limited to asbestos, deemed hazardous by local authorities, the EPA, OSHA, or any other authority having jurisdiction over the work. If such materials are discovered at any time that the work is proceeding, the work will immediately cease, the owner will be notified, and the work will again proceed after the owner has removed all of the hazardous material from the job site.

6. Labor
In the event local labor conditions make it impossible or undersirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

7. Schedule
The general contractor shall provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

8. Extended Installation or Turnkey Work by Philips
Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation work required by the equipment represented on these drawings, some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

9. Electromagnetic Interference and Image Quality
The Philips digital X-Ray detectors are highly sensitive receivers. Therefore, when determining where in the facility to install the x-ray system, care must be taken to avoid electromagnetic interference (EMI) to ensure optimal image quality. Possible EMI sources can be high power generators, power transformers, high power mains lines or other electromagnetic sources, which are located in the examination room directly or in the environment around the examination room. These EMI sources may emit excessive magnetic noise that could cause artifacts in the digital detector.

10. Avoid Adjacent EMI Sources
Do not locate the digital detector in a room adjacent to such an EMI source (next to, above or below). EMI sources can be located also in the wall, floor or ceiling.

(21.0)

General Conditions (continued)

11. Detector Location and Additional Sheiding
If a location next to an EMI source is unavoidable, ensure the table and/or wallstand and proposed locations for portable detector exposures are away from these sources. The magnetic noise interference is reduced dramatically by locating as far away as possible from the EMI sources. It might be necessary to implement additional means to prevent an interference with the x-ray detector (e.g. additional shielding).

(21.0)

Minimum Site Preparation Requirements

A smooth efficient installation is vital to Philips and their customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

1. Walls shall be painted or covered, baseboards installed, floors shall be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed and operational.
2. Doors and windows, especially radiation protection barriers, installed and finished with lock sets operational.
3. All electrical convenience, conduit, raceway, knockouts, cable openings, chase nipples, and junction boxes installed and operational.
4. Incoming mains power operational and connected to room x-ray breaker.
5. 115v convenience outlets operational.
6. All support structure correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
7. All contractor-supplied cables pulled and terminated.
8. A dust-free environment in and around the procedure room.
9. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications. BTUs shown on sheet A2 are average heat capacity.
10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioner failure.
11. All plumbing installed and finished.
12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
13. Refer to Transport Information page for clear door openings and corridor widths.

Note
Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

Remote Service Diagnostics
Medical imaging equipment to be installed by Philips Healthcare is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a RJ45 type ethernet 10/100/1000 Mbit network connector must be installed as shown on plan. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity. All cost with this feature is the responsibility of the customer.

(24.0)

HVAC Requirement for General Equipment Locations

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11°Fahrenheit (24° +/- 6°Celsius) and non-condensing relative humidity at 52.5%, +/- 22.5%.

(13.0)

Electrical Requirements

M-Cabinet CXA 80

Supply Configuration:	3 phase, 3 wire power, neutral and ground. Wye. or 3 phase, 3 wire power, ground. Delta.
Nominal Line Voltage:	400, 440, 460 or 480 VAC, 60 Hz
Branch Power Requirement:	112.5 kVA minimum
Circuit Breaker:	3 pole, 50 Amps (@ 480V) (Slow Blow) Residual Current Device to be installed depending on local regulations.

(19.0)

PHILIPS

Project
Radiography 7300 C
Pro VS
UCDMC Clinical Engineering
Sacramento, CA
Room: 1835 I

Philips Contacts
Project Manager: Daniel Livy
Contact Number: (415) 215-4874
Email: daniel.livy@philips.com
Drawn By: Amber Cruz

Project Details
Drawing Number
N-WES250201 A
Date Drawn: 5/19/2025
Quote: Q-00478301
Order: None

AN

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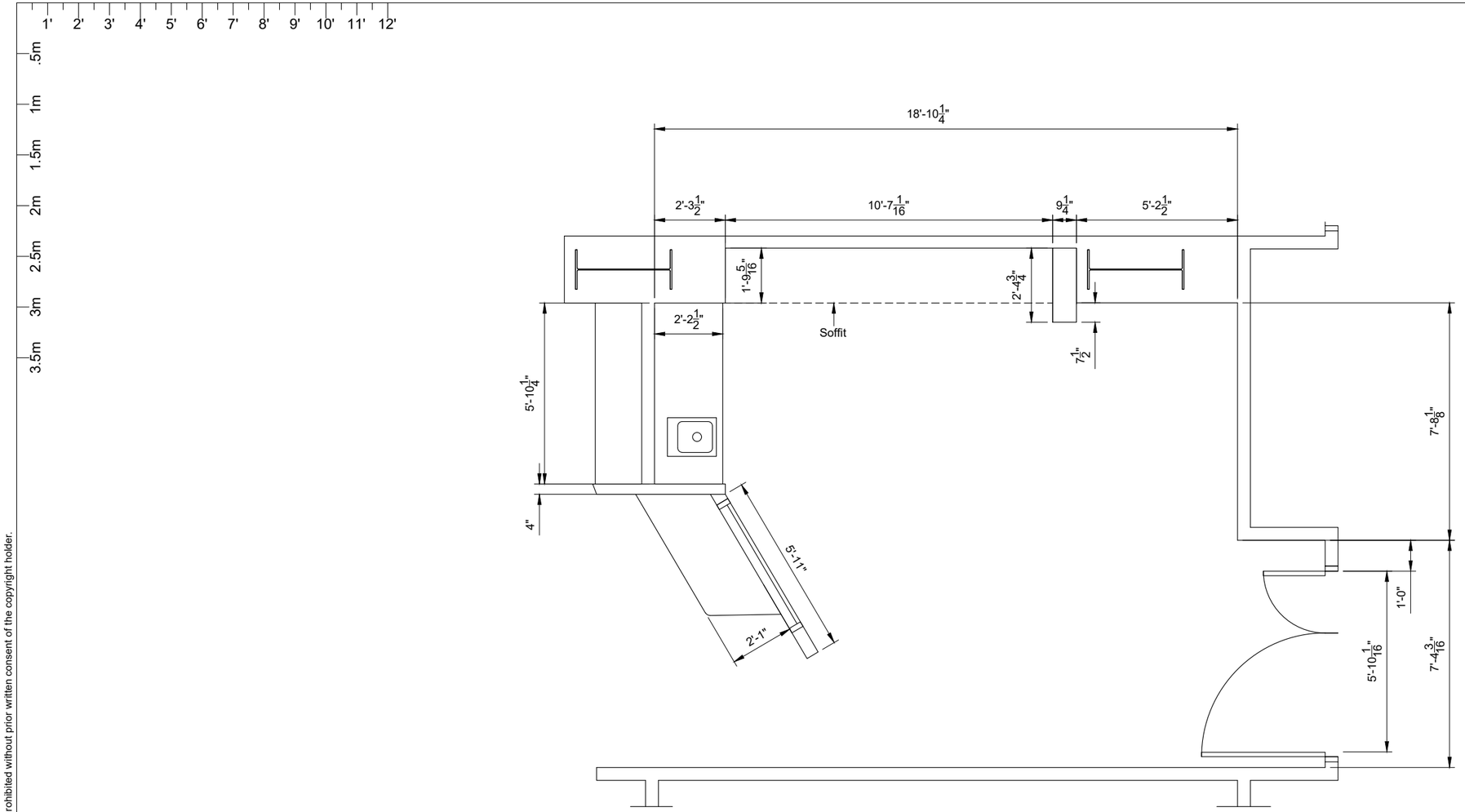

Legend

- Walls
- Soffit
- Existing (to be removed)
- Beams or other building construction elements

Site Layout

1/4" = 1'-0"

Recommended Minimum Ceiling Height: 8'-9" (2667mm)
Recommended Maximum Ceiling Height: 10'-6" (3200mm)
Reported Ceiling Height: N/A

Ceiling Heights other than recommended may impact equipment functionality - see Ceiling Height Guide and consult with Philips.

Ceiling Height measured from finished floor to bottom of Unistrut.

General Notes

* Counters and cabinetry shown to be supplied and installed by contractor.
* Field to verify all room dimensions.
* Refer to A.D.A. Guidelines for doors and clearances. Verify all other applicable code(s) with the architect of record.
* Room background was gathered from past drawing #: "N-WES070739" dated 9/26/2008 as reference. Existing conditions such as room dimensions, isocenter, Unistrut, soffit, built-ins etc. to be verified by the customer/contractor before proceeding to Final.

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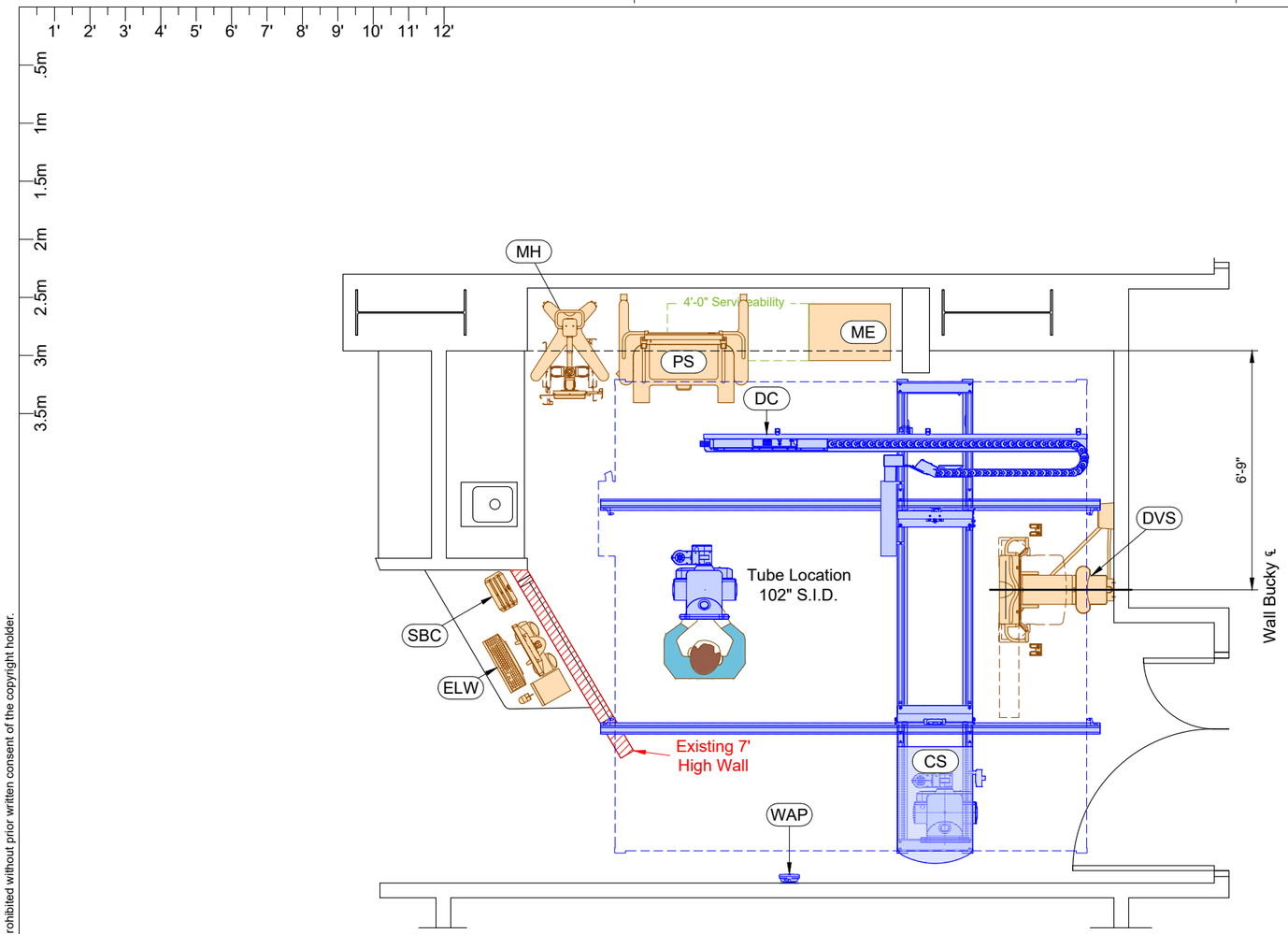

Equipment Layout

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Recommended Minimum Ceiling Height: 8'-9" (2667mm)
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Ceiling Height measured from finished floor to bottom of Unistrut.

Equipment Legend

A Furnished and installed by Philips
B Furnished by customer/contractor and installed by customer/contractor
C Installed by customer/contractor
D Furnished by Philips and installed by contractor
E Existing
F Future
G Optional item furnished by Philips

	Equipment Designation	Description	Detail Sheet: Weight (lbs)	Detail Sheet: Heat Load (btu/hr)
A	ME	Generator M-Cabinet CXA	221	342
A	CS	Ceiling Suspension CSM3 Comfort Move Long	862	1365
A	DC	Drag Chain	66	--
A	DVS	Digital Vertical Stand (VS2) Tiltable (Right)	562	614
A	ELW	Eleva Workspot - Eleva Examination Control - Acquisition Workspot (on shelf under counter) - Uninterruptible Power Supply (on shelf under counter) - Keyboard and Mouse - mShield (optional, not shown)	127	536
A	WAP	Wi-Fi Access Point	2	--
A	SBC	SkyPlate Battery Charger	2	--
A	PS	Patient Support	154	--
A	MH	Mobile Holder	146	--

General Notes

* Any counters, keyboard trays and cabinetry shown to be supplied and installed by contractor. Shelf under control counter for UPS and CPU is required.
* Field to verify all existing Philps and/or third party equipment will not affect the functionality of the system and its components.

Site Planning Issues and Considerations

⚠1 Exact equipment configuration to be verified with local Philips Sales. MS table is listed on quote, but not shown due to Philips Project Manager request.

* Optional stitching shots at 102" S.I.D. will be available. See layout.
* Potential trip hazard due to patient support anchor plates.

Notes to Philips Field Personnel

* Longer cables will need to be ordered for cable runs from:
  - "ME" to "MS" [55' (17m)]
  - "ME" to "ELW" [88' (27m)]
* All room dimensions to be verified in field.
* Verify exact location and configuration of existing Unistrut and electricals with local Philips service for re-use.
* Ceiling rails must connect to all Unistrut. Additional clips may need to be ordered. Maximum Unistrut spacing is 1346mm (53").
* Field to verify existing conduit lengths, sizes, quantities, and origination and termination points.
* New electrical boxes for ME/DVS/CS will be required to be installed.

PHILIPS

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Order: None

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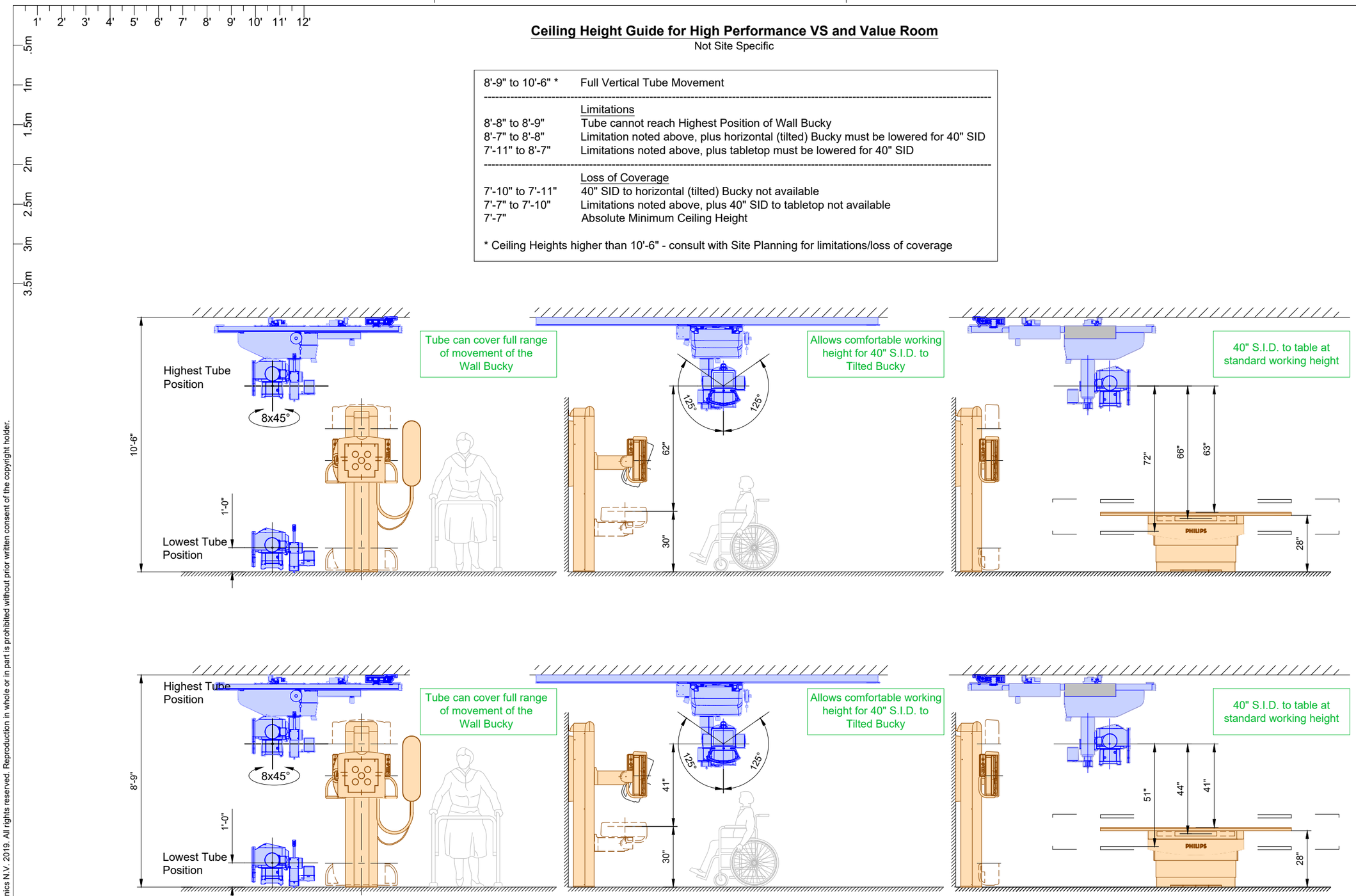
Ceiling Height Guide for High Performance VS and Value Room

Not Site Specific

8'-9" to 10'-6" *	Full Vertical Tube Movement
	Limitations
8'-8" to 8'-9"	Tube cannot reach Highest Position of Wall Bucky
8'-7" to 8'-8"	Limitation noted above, plus horizontal (tilted) Bucky must be lowered for 40" SID
7'-11" to 8'-7"	Limitations noted above, plus tabletop must be lowered for 40" SID
	Loss of Coverage
7'-10" to 7'-11"	40" SID to horizontal (tilted) Bucky not available
7'-7" to 7'-10"	Limitations noted above, plus 40" SID to tabletop not available
7'-7"	Absolute Minimum Ceiling Height

* Ceiling Heights higher than 10'-6" - consult with Site Planning for limitations/loss of coverage



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7.22.2024

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Criteria

Project: UC Davis Health Davis Tower Radiology Rooms 1835H/1835I Upgrades #9558190
PEM: Yes

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