THE MEDICAL CENTER OF AURORA

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

PROVIDE A FULL-SIZE SET OF LEGIBLE APPROVED CONSTRUCTION DOCUMENTS **PRINTED IN COLOR** FOR REVIEW BY INSPECTOR

PLAN CHANGES WILL **REQUIRE AN APPROVED REVISION** BEFORE INSPECTION CAN BE APPROVED

AT ALL TIMES DURING CONSTRUCTION, MAINTAIN REQUIRED EXITS, EXISTING STRUCTURAL ELEMENTS, FIRE PROTECTION AND SANITARY GUARDS PER **2015 IBC 3302.1**

ISSUE DATE: 02 DECEMBER 2022
PROJECT #: 21-048

ISSUE FOR CONSTRUCTION

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Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

Field Inspection consultation is available upon request. Call 303-739-7420 to request a consultation

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

Provide U.L. Class **2A10BC** minimum rating fire extinguishers at a maximum 75'-0" travel distance prior to the Certificate of Occupancy issuance 2015 IFC Table 906.3(1) and 2013 NFPA

Consultation for fire extinguisher placement is available upon request. Call 303-739-7420 prior to final Life Safety inspection to verify proposed locations.

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2-CHK	CHECK LIST	•

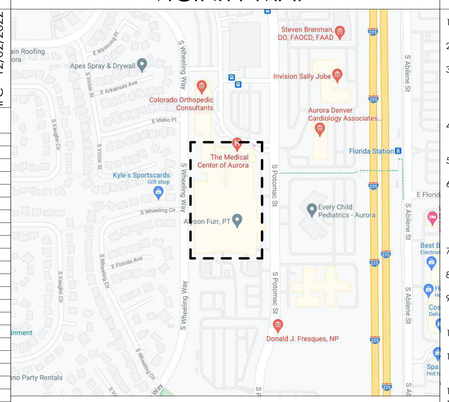
SEPARATE FIRE SPRINKLER PERMIT REQUIRED: Due to the proposed work the general contractor is required to obtain the services of a fire sprinkler contractor to determine if a separate sprinkler permit is required. If it is determined that the spacing of the fire sprinkler heads is not in compliance, then a separate fire sprinkler permit is required. Approval of the documents is required prior to system installation or any request for inspection. A certificate of occupancy or final approval cannot be issued by the Building Division without this fire protection system. **2015 IFC, Section 105.7.1.**

SEPARATE FIRE ALARM PERMIT REQUIRED: Due to the proposed work the general contractor is required to obtain the services of a fire alarm contractor to determine if a separate alarm permit is required. If it is determined that the spacing of the fire alarm devices is not in compliance, then a separate fire alarm permit is required. Approval of the documents is required prior to system installation or any request for inspection. A certificate of occupancy or final approval cannot be issued by the Building Division without this fire protection system. **2015 IFC, Section 105.7.6.**

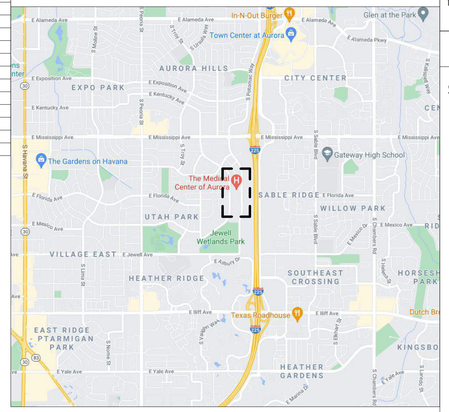
This plan was reviewed for adopted codes and NOT for compliance with **ADA** or **FHA** accessibility requirements. Contact 800-949-4232 (**ADA**) and 303-894-7822 x 325 (**FHA**) for federal accessibility requirements that apply to your project.

This plan is reviewed to **IBC** but the existing building is NOT converted to **IBC**. The construction type listed is **UBC.** Occupancy group is **IBC.**

VICINITY MAP



CITY MAP



City of Aurora Building Division
Project: *TMCA SOUTH CATTH 1 & 2 RENOV.*
Address: *1501 S POTOMAC ST*
Occupancy Group: *IBC I-2*
Construction Type: *UBC Type I-F.R.-SPK*
RSN: *1679034*
Permit: *22-2256682-LT*

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

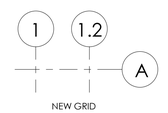
RSN: *1679034*
Permit #: *22-2256682-LT*

GENERAL PROJECT NOTES

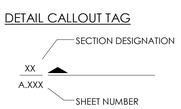
1. REFER TO COMPLETE SET OF ISSUED CONTRACT DOCUMENTS FOR APPLICABLE NOTES, ABBREVIATIONS, AND SYMBOLS.
2. DO NOT SCALE THE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE CONTINUING.
3. DIMENSIONS SHOWN ON THE FLOOR PLANS FOR NEW CONSTRUCTION ARE TO THE FACE OF FINISH OF INTERIOR WALLS, TO CENTERLINE OF COLUMNS, AND TO FACE OF CONCRETE OR MASONRY WALLS, UNLESS NOTED OTHERWISE. DIMENSIONS IN RENOVATED AREAS ARE FROM FINISH FACE OF EXISTING WALLS TO FINISH FACE OF NEW STUD WALLS, UNLESS NOTED OTHERWISE.
4. FIELD MEASURE AND CONFIRM DIMENSIONS FOR OWNER-PROVIDED EQUIPMENT AND FURNISHINGS. COORDINATE WITH THE OWNER ON DELIVERY AND INSTALLATION OF OFCI EQUIPMENT.
5. FINISH FLOOR ELEVATIONS ARE TO TOP OF FINISHED FLOORING PRODUCT, NOTED BY "AFF" (ABOVE FINISH FLOOR), UNLESS NOTED OTHERWISE.
6. WHERE NEW GYPSUM BOARD PARTITIONS ARE A CONTINUATION OF AN EXISTING PARTITION OR COLUMN ENCASEMENT, THE FACE OF THE NEW GYPSUM BOARD SHALL BE ALIGNED WITH THE FACE OF THE EXISTING SURFACE. WHERE A ONE-HOUR PARTITION IS SHOWN AS A CONTINUATION OF A TWO-HOUR PARTITION OR COLUMN ENCASEMENT, THE FACE OF THE GYPSUM BOARD SHALL BE OFFSET AS REQUIRED TO PROVIDE FACE ALIGNMENT OF GYPSUM BOARD ON BOTH SIDES.
7. LEVEL FLOORS SO THAT THEY DO NOT EXCEED VENDOR TOLERANCES AS INDICATED IN VENDOR DRAWINGS.
8. PARTITION TYPES AND FIRE RESISTIVE RATINGS INDICATED ON A WALL ARE TO BE CONTINUOUS FOR THE LENGTH AND HEIGHT OF A PARTITION.
9. OPENINGS IN RATED WALL, FLOOR, CEILING, AND ROOF ASSEMBLIES SHALL BE SEALED WITH A FIRE RESISTANT JOINT SYSTEM OR PROTECTED WITH A FIRE RATED CHASE AND LABELED WITH THE UL SYSTEM ACCORDINGLY.
10. EXIT SIGNS AND SMOKE DETECTORS LOCATED IN CEILINGS SHALL BE POSITIONED AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
11. WHERE MATERIALS ARE APPLIED TO, OR ARE IN DIRECT CONTACT WITH WORK INSTALLED BY ANOTHER SUBCONTRACTOR, COMMENCEMENT OF WORK IMPLIES ACCEPTANCE OF THE SUBSTRATE AS SUITABLE FOR THE APPLICATION INTENDED.
12. SEALANTS EXPOSED TO VIEW SHALL BE CUSTOM COLOR AS SELECTED BY THE ARCHITECT.
13. COORDINATE LOCATION OF SEALANT AND COMPATIBILITY OF SEALANTS WITH ADJACENT WORK, INCLUDING MATERIALS AND OTHER CONTIGUOUS SEALANTS.
14. CAULK AT JUNCTURE OF INTERIOR FACES OF DOOR FRAMES, VIEW WINDOW FRAMES, EXTERIOR WINDOW FRAMES, AND CABINET WORK WITH ADJACENT MATERIALS. MAINTAIN THE FIRE RATING OF CONSTRUCTION AROUND CABINETS, PANELS, AND BOXES RECESSED IN FIRE RATED WALL, FLOOR, AND CEILING ASSEMBLIES.

GENERAL SYMBOLS LEGEND

COLUMN GRID DESIGNATION



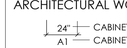
DETAIL CALLOUT TAG



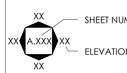
NOTE TAGS



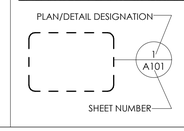
ARCHITECTURAL WOODWORK



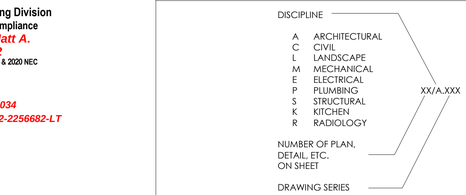
INTERIOR ELEVATION TAG



ENLARGED PLAN / CALLOUT TAG



DRAWING NUMBER KEY



PROJECT DESCRIPTION

RENOVATION OF THE EXISTING CATH LABS 1 AND 2. THESE LABS WERE CONSTRUCTED IN 2009 USING PHILIPS EQUIPMENT. THEY WERE DESIGNED AS CATH/EP LABS. THE EQUIPMENT IS APPROACHING END OF USEFUL LIFE. THE ROOMS WILL MAINTAIN THEIR PERIMETER BUT WILL UNDERGO AN EQUIPMENT REPLACEMENT. INCLUDED IN THE EQUIPMENT REPLACEMENT IS THE INCORPORATION OF NEW EP MAPPING SYSTEMS, NEW PATHWAYS FOR VENDOR EQUIPMENT, DEVELOPMENT OF A NEW COCKPIT OR MODIFICATION OF THE EXISTING ONE FOR TECH WORK. THE ROOM IS INTENDED TO STAY PHYSICALLY INTACT AT ITS BOUNDARIES WITH MODIFICATIONS INTERNAL AND NO CHANGE OF USE.

PROJECT DATA

- **CODES/ LAWS:**
  CITY OF AURORA:
  2015 INTERNATIONAL BUILDING CODE (IBC)
  2020 NATIONAL ELECTRICAL CODE (NEC)
  2015 INTERNATIONAL MECHANICAL CODE (IMC)
  2015 INTERNATIONAL PLUMBING CODE (IPC)
  2015 INTERNATIONAL FUEL GAS CODE (IFGC)
  2015 INTERNATIONAL FIRE CODE (IFC)
  2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
  2009 ICC / ANSI A117.1 ACCESSIBILITY CODE

  STATE OF COLORADO:
  2018 COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT - HOSPITAL LICENSING RULES
  2012 NFPA 101 - LIFE SAFETY CODE
  FEDERAL:
  2010 AMERICANS WITH DISABILITIES ACT GUIDELINES
- **OCCUPANCY CLASSIFICATION:**
  2015 IBC - GROUP I-2 (SECTION 308.4)
  2012 NFPA 101 - OCCUPANCY TYPE (CHAPTER 18)
- **PRINCIPAL OCCUPANCY TYPE:** HEALTHCARE GROUP I-2
- **CONSTRUCTION TYPE:**
  UBC Type I-F.R.
  EXISTING: SBC - ~~TYPE I-A~~ UNRESTRAINED FULLY SPRINKLERED
  UBC Type I-F.R.
  NEW: 2015 IBC - ~~TYPE I-A~~ FULLY SPRINKLERED
  2012 NFPA 220 - TYPE 1 (332)

ABBREVIATIONS LEGEND

ACC	ACCESSIBLE	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	NTS	NOT TO SCALE
APPROX	APPROXIMATE	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
ARCH	ARCHITECTURAL		
B.O.___	BOTTOM OF ____	OFOI	OWNER FURNISHED, OWNER INSTALLED
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	OPP	OPPOSITE
		PERP	PERPENDICULAR
CFOI	CONTRACTOR FURNISHED, OWNER INSTALLED	PLBG	PLUMBING
		PLYWD	PLYWOOD
CL	CENTER LINE	RE:	REFER TO ____
CLG	CEILING	REF	REFRIGERATOR
CLR	CLEAR	REINF	REINFORCE, REINFORCING
CMU	CONCRETE MASONRY UNIT	RO	ROUGH OPENING
		ROW	RIGHT OF WAY
COORD	COORDINATE	SCHED	SCHEDULE
CORR	CORRIDOR	SF	SQUARE FOOT(FEET)
DBL	DOUBLE	SIM	SIMILAR
DEMO	DEMOLISH, DEMOLITION	SPEC	SPECIFICATION
EA	EACH	STC	SOUND TRANSMISSION CLASS
ELEC	ELECTRIC(AL)		
ELEV	ELEVATOR	STD	STANDARD
EQ	EQUAL	STL	STEEL
(E), EXST	EXISTING	STRUCT	STRUCTURAL
FF	FINISH FACE	T	TREAD
FF EL	FINISHED FLOOR ELEVATION	T&G	TONGUE & GROOVE
		TEMP	TEMPORARY
FLR	FLOOR	T.O.	TOP OF ____
FO	FINISHED OPENING	TOPO	TOPOGRAPHY, TOPOGRAPHIC
FP	FIRE PROTECTION		
FV	FIELD VERIFY	TYP	TYPICAL
GALV	GALVANIZED	UL	UNDERWRITER'S LABORATORIES
GYP BD	GYPSUM BOARD		
GYP PLAS	GYPSUM PLASTER	UNFIN	UNFINISHED
INSUL	INSULATION	UNO	UNLESS NOTED OTHERWISE
LAV	LAVATORY	W/	WITH
LVR	LOUVER	W/O	WITHOUT
MAX	MAXIMUM	WC	WATER CLOSET
MECH	MECHANICAL	WD	WOOD
MFR	MANUFACTURER	X	BY
MIN	MINIMUM		
MISC	MISCELLANEOUS		

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No.	Description	Date

STATE OF COLORADO
JOHN MENNO NAP
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

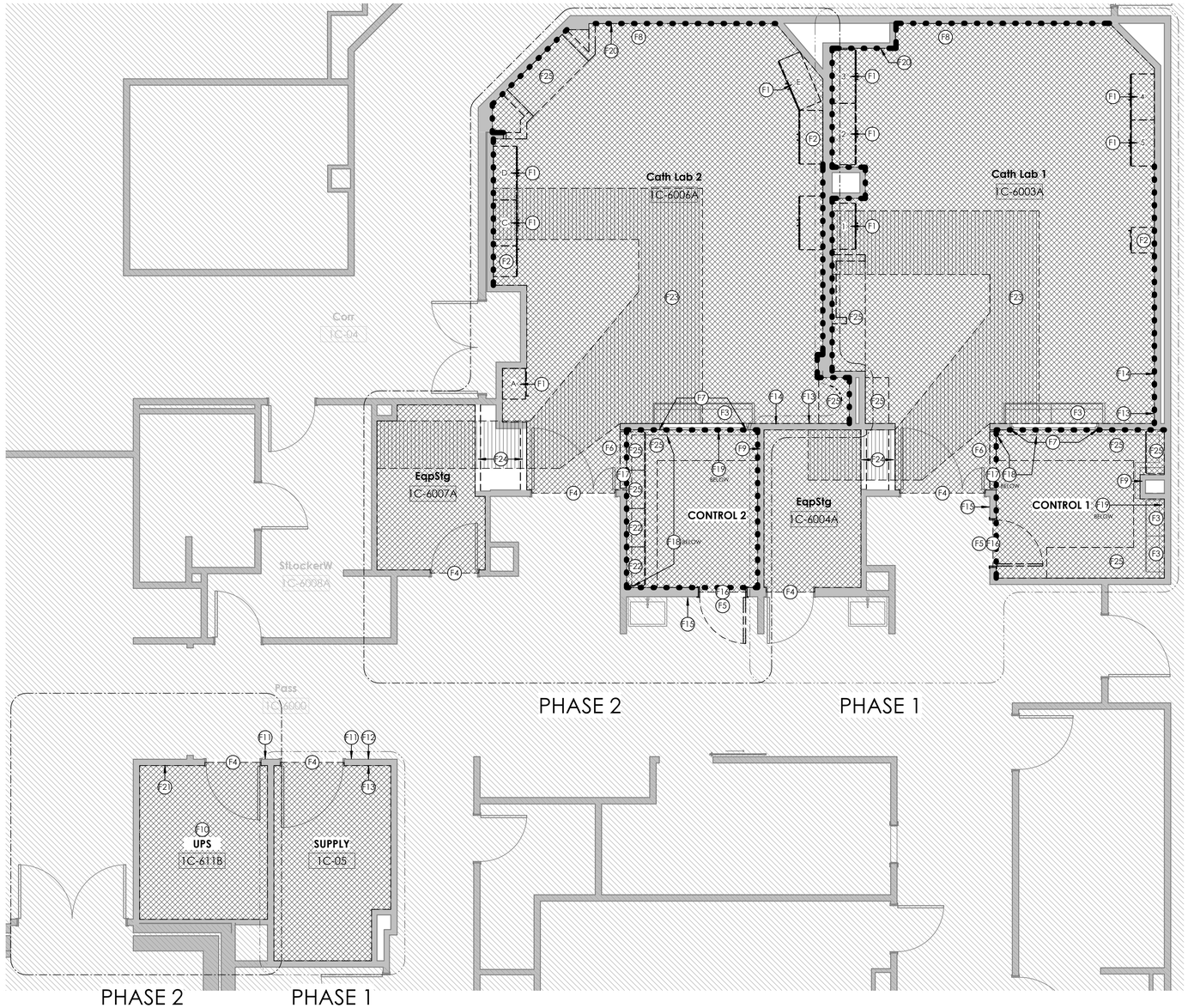
Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
COVER & DRAWING INDEX

Sheet Number
G.101

12/5/2022 5:18:09 PM

This sheet of drawings has not been reviewed for code compliance.



01 - LEVEL 01 - DEMOLITION FLOOR PLAN
1/4" = 1'-0"

DEMOLITION GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR INTERIM LIFE SAFETY MEASURES.
2. CONSTRUCT TEMPORARY PARTITIONS AS REQUIRED BY PHASING TO MINIMIZE THE SPREAD OF DUST AND NOISE.
3. THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DRAWINGS, WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF INCONSISTENCIES BEFORE PROCEEDING WITH CONSTRUCTION.
4. REMOVE EXISTING CONSTRUCTION AS INDICATED. TYPICAL WALL REMOVAL INCLUDES FINISHES AND MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS CONTAINED THEREIN. REMOVE DOORS, CASEWORK, WINDOWS, FRAMES, AND OTHER FIXTURES AS REQUIRED. AFTER REMOVAL OF PIPE CHASES, PATCH HOLES IN EXISTING FLOORS OR WALLS TO REMAIN TO MEET ORIGINAL FIRE PROTECTION AND STRUCTURAL REQUIREMENTS. PATCH ADJOINING WALLS.
5. WHERE NEW FINISHES ARE TO BE INSTALLED ON EXISTING SURFACES, REMOVE THE EXISTING FINISH AND PREPARE SURFACE TO RECEIVE THE NEW FINISH.
6. COORDINATE WITH THE OWNER ANY ITEMS TO BE STORED AND/OR RELOCATED.
7. SEE MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DEMOLITION OF UTILITIES.
8. COORDINATE ALL FLOOR CHANNELING AND CORING WITH NEW MECHANICAL, PLUMBING, AND ELECTRICAL DEMOLITION AND NEW CONSTRUCTION SCOPE. GENERAL SCOPE AREAS INDICATED ON THIS DRAWING.
9. DEMOLITION WORK SHALL BE EXECUTED IN CONFORMANCE WITH ALL CODES AND AS SET FORTH BY ALL GOVERNING AUTHORITIES.
10. BRACE ALL EXISTING STRUCTURES OR STRUCTURAL ELEMENTS AS NECESSARY DURING DEMOLITION.
11. DO NOT CUT ANY STRUCTURAL WORK WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER.
12. REPLACE OR REPAIR ANY EXISTING TO REMAIN FINISHES WHICH ARE DAMAGED DURING DEMOLITION, SUCH AS CEILING GRID, CEILING TILE, WALL COVERING, AND FLOOR COVERING.
13. NOTIFY THE DESIGN TEAM IMMEDIATELY IF THE REMOVAL OF MECHANICAL EXISTING TO REMAIN ELECTRICAL, PLUMBING SYSTEMS OR COMPONENTS WILL ADVERSELY AFFECT THE OPERATION OF MEP SYSTEM OUTSIDE THE LIMIT OF EXISTING TO BE REMOVED - RE: NOTE 5 OF DEMOLITION GENERAL NOTES.
14. SCHEDULE ALL DEMOLITION WITH THE OWNER.

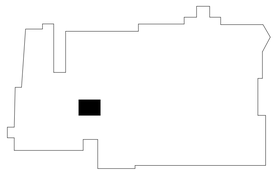
DEMOLITION LEGEND

- EXISTING PARTITION TO REMAIN
- EXISTING PARTITION TO BE REMOVED
- REMOVE GYP TO 6" ABOVE FINISHED CEILING FOR CONDUIT AND BLOCKING RE: MEP
- OUT OF SCOPE
- COORDINATE WITH VENDOR DRAWINGS FOR CABLE PATHWAY SAW CUTTING FOR UNDER SLAB TRENCHING AND CONDUIT RUNS.
- EXISTING FLOOR FINISHES AND RUBBER BASE, TO BE REMOVED WITHIN AREA INDICATED.
- PHASE 1
- PHASE 2

DEMOLITION KEYNOTES

- F1 SALVAGED AND PROTECT CASEWORK TO BE REUSED. SEE ASSOCIATED LETTER/NUMBER WITH A.201 FOR PLACEMENT.
- F2 REMOVE EXISTING MODULAR CASEWORK AND RETURN TO FACILITY OWNER STOCK.
- F3 REMOVE AND PROTECT EXISTING CASEWORK DURING CONSTRUCTION. PREPARE FOR REINSTALLATION.
- F4 REMOVE FLOORING TO CENTERLINE OF DOORWAY.
- F5 REMOVE DOOR AND DOOR FRAME, RETURN DOOR AND HARDWARE TO FACILITY, PREPARE FOR INFILL.
- F6 REMOVE EXISTING EPO, RE: ELECTRICAL.
- F7 PROTECT EXISTING LEAD GLASS WINDOW DURING CONSTRUCTION.
- F8 DEMOLITION OF ALL MED GAS FROM THIS LOCATION. SEE PLUMBING FOR RELOCATION.
- F9 SALVAGE AND PROTECT VERTICAL RACEWAY. RE: VENDOR ELECTRICAL SHEETS
- F10 REMOVE EXISTING EQUIPMENT AND ELECTRICAL RACEWAYS WITHIN THE ROOM, RE: ELECTRICAL.
- F11 SALVAGE AND PROTECT EXISTING SIGNAGE TO BE SWITCHED WITH EACH OTHER.
- F12 SALVAGE AND PROTECT CARD READER TO BE REINSTALLED. RE: ELECTRICAL.
- F13 SALVAGE AND PROTECT DUTY STATION TO BE REINSTALLED. RE: ELECTRICAL.
- F14 PROTECT EXISTING CODE BLUE DURING CONSTRUCTION, TO REMAIN.
- F15 REMOVE EXISTING CONTROL ROOM SIGNAGE.
- F16 REMOVE FLOORING ALL THE WAY THROUGH DOORWAY.
- F17 PREP FOR HOLLOW METAL FRAME OPENING V.I.F MAXIMUM OPENING.
- F18 DEMOLISH ELECTRICAL RACEWAY.
- F19 SALVAGE FOR REUSE OF EXISTING ELECTRICAL RACEWAY.
- F20 REMOVE THE EXISTING THERMOSTAT AND LOCK BOX. PREPARE FOR NEW THERMOSTAT. RE: MECHANICAL.
- F21 REMOVE THE EXISTING THERMOSTAT. PREPARE FOR WALL INFILL. RE: MECHANICAL.
- F22 SALVAGE AND PROTECT EXISTING UPPER CASEWORK TO BE REINSTALLED.
- F23 SALVAGE AND PROTECT EXISTING PEDESTAL TO BE MODIFIED AND RE INSTALLED.
- F24 DEMOLISH WALLS TO BE REPLACED TO ENABLE INSTALLATION OF PATHWAY.
- F25 DEMOLISH CASEWORK AT THIS LOCATION (NO SALVAGE)

KEY PLAN



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No.	Description	Date

STATE OF COLORADO
JOHN MENNO MAST
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

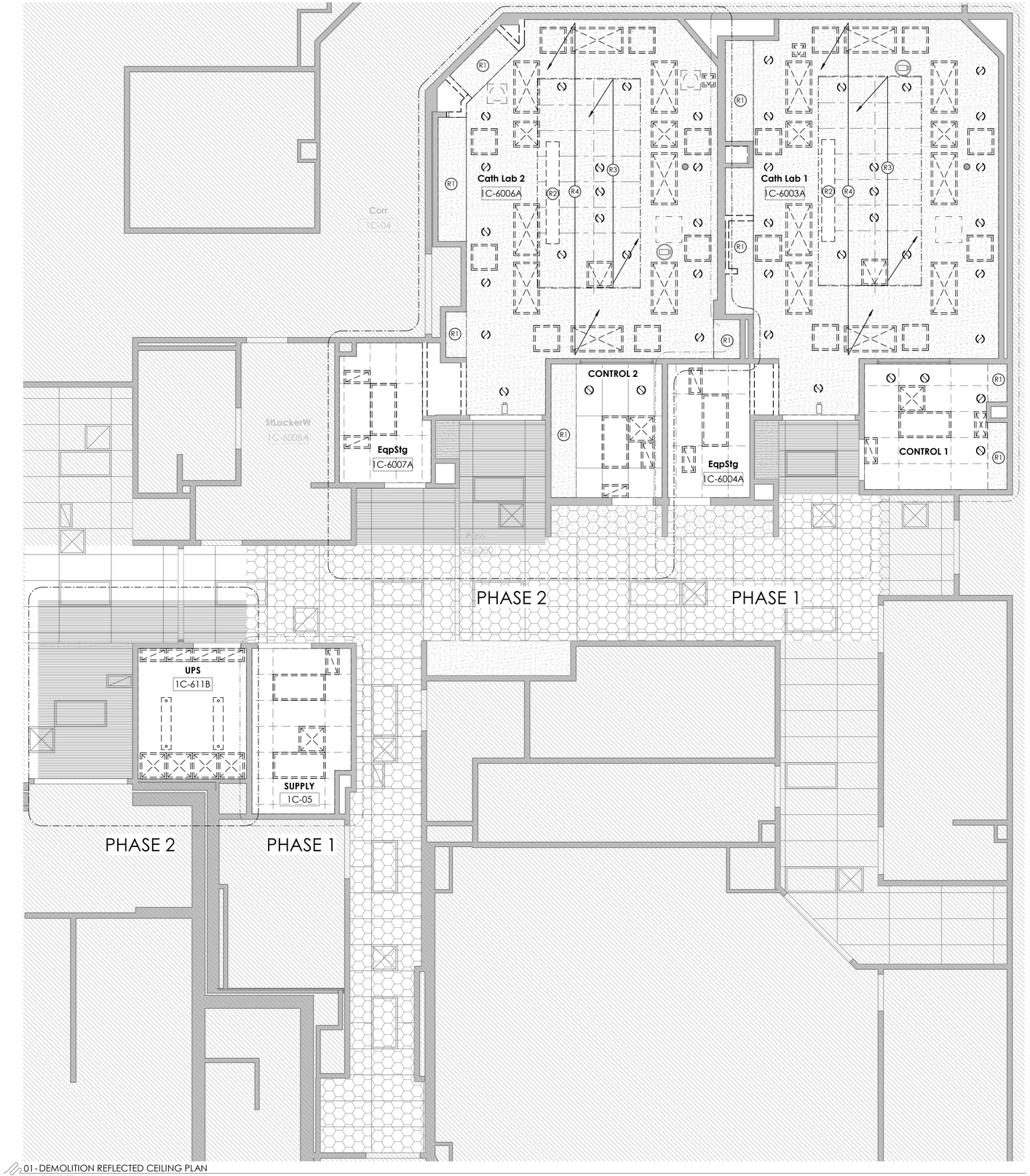
Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
DEMOLITION PLAN

Sheet Number
D.201

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01 - DEMOLITION REFLECTED CEILING PLAN
1/4" = 1'-0"

This sheet of drawings has not been reviewed for code compliance.

DEMOLITION REFLECTED CEILING PLAN NOTES

1. REFER TO SPECIFICATIONS FOR INTERIM LIFE SAFETY MEASURES.
2. THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DRAWINGS, WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF INCONSISTENCIES BEFORE PROCEEDING WITH CONSTRUCTION.
3. REPAIR ANY DAMAGED FIRE RATED ASSEMBLIES TO THEIR ORIGINAL SPECIFICATION.
4. REPLACE OR REPAIR ANY EXISTING TO REMAIN FINISHES WHICH ARE DAMAGED DURING DEMOLITION, SUCH AS CEILING GRID, CEILING TILE, WALL COVERING, AND FLOOR COVERING.
5. REMOVE EXISTING CONSTRUCTION AS INDICATED. TYPICAL CEILING INCLUDES FINISHES, MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS CONTAINED THEREIN. REMOVE CEILING TILES, GRID, AND OTHER FIXTURES AS REQUIRED. AFTER REMOVAL OF PIPE CHASES, PATCH HOLES IN EXISTING FLOORS, WALLS, AND CEILINGS TO REMAIN TO MEET ORIGINAL FIRE PROTECTION AND STRUCTURAL REQUIREMENTS.
6. WHERE NEW FINISHES ARE TO BE INSTALLED ON EXISTING CEILING SURFACES, REMOVE THE EXISTING FINISH AND PREPARE SURFACE TO RECEIVE THE NEW FINISH.
7. COORDINATE WITH THE OWNER ANY ITEMS TO BE STORED AND/OR RELOCATED.
8. SEE MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DEMOLITION OF APPLICABLE UTILITIES.
9. DEMOLITION WORK SHALL BE EXECUTED IN CONFORMANCE WITH ALL CODES AND AS SET FORTH BY ALL GOVERNING AUTHORITIES.
10. BRACE ALL EXISTING STRUCTURES OR STRUCTURAL ELEMENTS AS NECESSARY DURING DEMOLITION.
11. DO NOT CUT ANY STRUCTURAL WORK WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER.

DEMOLITION REFLECTED CEILING PLAN LEGEND

- EXISTING PARTITION TO REMAIN
- EXISTING PARTITION TO BE REMOVED
- OUT OF SCOPE
- EXISTING SUPPLY DIFFUSER TO BE REMOVED, RE: MECHANICAL
- EXISTING RETURN DIFFUSER TO BE REMOVED, RE: MECHANICAL
- EXISTING ACCESS DOOR TO BE REMOVED, RE: MECHANICAL
- EXISTING LIGHT FIXTURE TO BE REMOVED, RE: ELECTRICAL
- EXISTING LIGHT FIXTURE TO BE REMOVED, RE: ELECTRICAL
- SALVAGE AND PROTECT EXISTING CAMERA TO BE REUSED
- SALVAGE AND PROTECT PULL DOWN POWER, RE: ELECTRICAL
- EXISTING WALL MOUNTED SECURITY CAMERA TO BE REMOVED AND RETURN TO FACILITIES. PREP FOR NEW CAMERA OFCI, RE: ELECTRICAL
- CEILING TO BE REMOVED IN ENTIRETY TO BE BUILT BACK IN NEW RCP. REFER TO MECHANICAL FOR SCOPE ABOVE CEILING
- ALL WORK IN THIS AREA ABOVE CEILING TO BE PERFORMED IN ICRA CART OR COORDINATED CONTAINMENT. REMOVE AND REPLACE CEILING AS REQUIRED. REPLACE ALL DAMAGED TILES DURING WORK SCOPE.
- PHASE 1
- PHASE 2

DEMOLITION REFLECTED CEILING PLAN NOTES

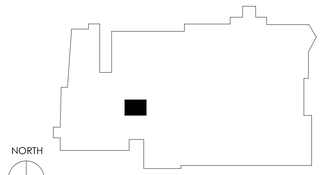
(R1) DEMOLISH SOFFIT ABOVE EXISTING CASEWORK.

(R2) EXISTING MAVIG RAIL AND LIGHT. SYSTEM TO BE REMOVED BY OWNER THROUGH SEPARATE CONTRACT AND RETAINED FOR REINSTALL AT END OF PROJECT.

(R3) **ALTERNATE:** SEE ALTERNATE SCHEDULE FOR RETENTION OF EXISTING UNISTRUT PROVIDED SITE ANALYSIS AND CALCULATIONS MEET NEW REQUIREMENTS.

(R4) REMOVE EXISTING GYP CEILING AND ALL MEDICAL SUPPORT SYSTEMS TO SUPERSTRUCTURE. REVIEW UNISTRUT LAYOUT AND CONNECTIONS FOR ACCEPTABLE USE PRIOR TO DEMOLITION. RE. STRUCTURAL

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Checked by	JMN

Sheet Title
DEMOLITION REFLECTED CEILING PLAN

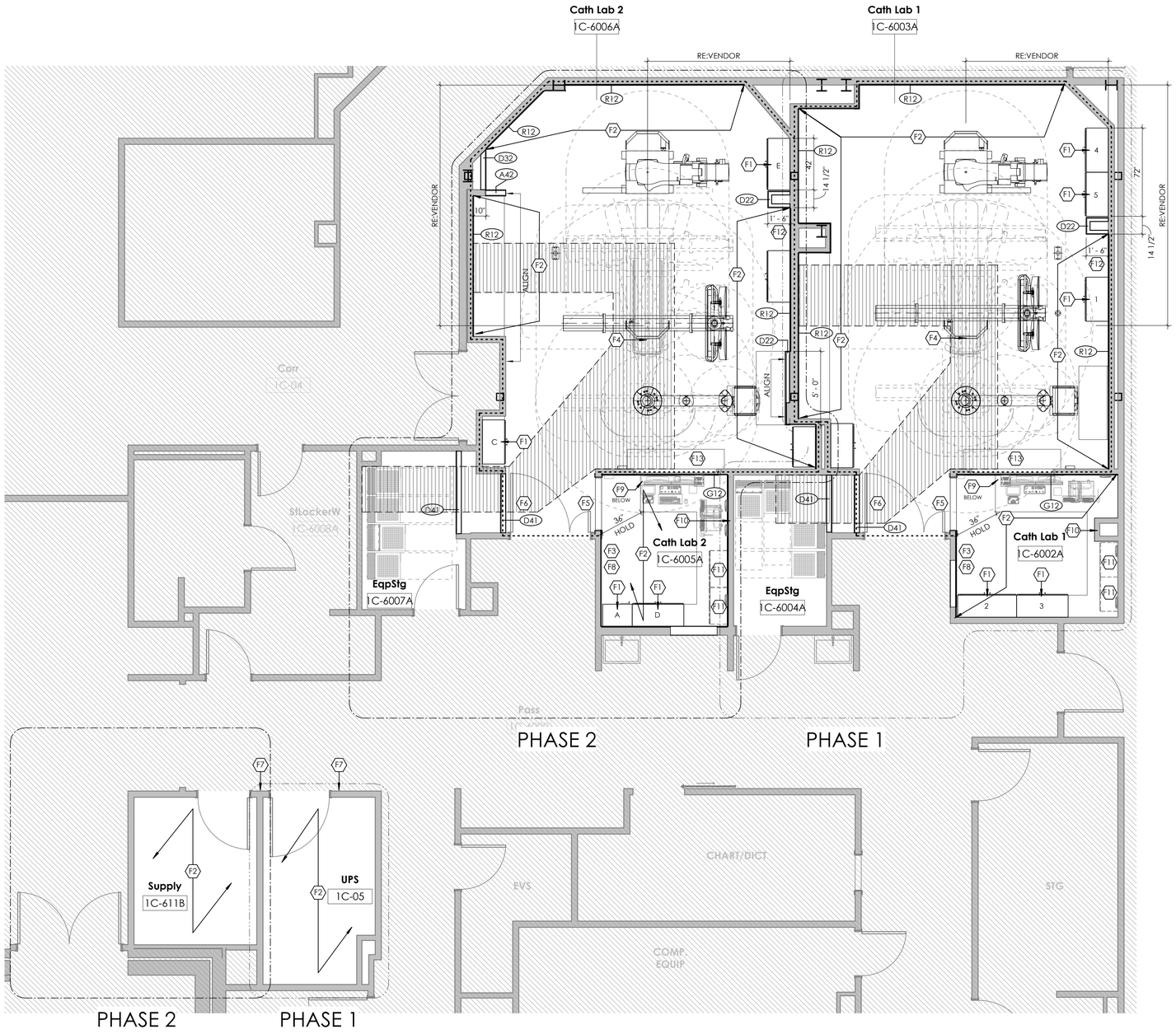
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City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC



01-CATH LAB 1 & 2 -FLOOR PLAN
1/4" = 1'-0"

FLOOR PLAN GENERAL NOTES

1. REFER TO A.500 SERIES FOR PARTITION TYPES AND FOR LOCATION OF SOUND ATTENUATION BLANKETS. REFER TO G.400 SERIES "CODE COMPLIANCE PLAN" FOR GRAPHIC EXTENT OF FIRE RATED PARTITIONS.
2. REFER TO SHEET G.101 FOR PROJECT GENERAL NOTES.
3. ALL PARTITIONS ARE TYPE "A41" UNLESS NOTED OTHERWISE.
4. DIMENSIONS SHOWN ON FLOOR PLANS FOR NEW CONSTRUCTION ARE TO THE FACE OF FINISH OF INTERIOR WALLS, TO CENTERLINE OF COLUMNS, AND TO THE FACE OF CONCRETE OR MANSONRY WALLS, UNLESS NOTED OTHERWISE. DIMENSIONS IN RENOVATED AREAS ARE FROM FINISH FACE OF EXISTING WALLS TO FINISH FACE OF NEW STUD WALLS, UNLESS NOTED OTHERWISE.
5. WHERE NEW GYPSUM BOARD PARTITIONS ARE A CONTINUATION OF AN EXISTING PARTITION OR COLUMN ENCASEMENT, THE FACE OF THE NEW GYPSUM BOARD SHALL BE ALIGNED WITH THE FACE OF THE EXISTING SURFACE. WHERE A ONE-HOUR PARTITION IS SHOWN AS A CONTINUATION OF A TWO-HOUR PARTITION OR COLUMN ENCASEMENT, THE FACE OF THE GYPSUM BOARD SHALL BE ALIGNED. STUDS SHALL BE OFFSET AND ADDITIONAL LAYERS OF GYPSUM BOARD SHALL BE PROVIDED AS REQUIRED FOR FACE ALIGNMENT OF GYPSUM BOARD.
6. SEE OWNER-FURNISHED VENDOR DRAWINGS FOR CRITICAL DIMENSIONS WITHIN THE PROJECT SCOPE. REFERENCE DRAWING INDEX FOR LOCATION OF VENDOR DRAWINGS IN DRAWING SET.
7. REFER TO I.201 SERIES, "EQUIPMENT PLANS" FOR WALL PROTECTION LOCATIONS.

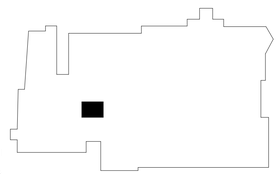
FLOOR PLAN LEGEND

- NEW CONSTRUCTION
- EXISTING TO REMAIN
- WALL REQUIRES LEAD SHIELDING RE: A.501 SERIES FOR DETAILS
- XXX — PARTITION TAG RE: A.XXX FOR TYPE CHARTS
- OUT OF SCOPE
- ESTIMATED EXTENT OF SLAB DEMOLITION FOR THE PURPOSE OF INSTALLING NEW RACEWAYS FOR PRIMARY AND SECONDARY VENDOR USES. REFER TO STRUCTURAL FOR DETAILING AT SLAB EDGES AND CONCRETE MIX DESIGN. PROVIDE VAPOR BARRIER TAPED IN TO EXISTING VAPOR BARRIER MEMBRANE BELOW SLAB.
- PHASE 1
- PHASE 2

FLOOR PLAN KEYNOTES

- F1 REINSTALL SALVAGED CASEWORK FROM ASSOCIATED LETTER/NUMBER ON D.201.
- F2 PATCH AND REPAIR WALL FROM DEMOLITION SCOPE.
- F3 REPAIR WALL FROM INSTALLATION OF NEW EPO RE: ELECTRICAL.
- F4 INSTALL TWO BRUSHING GARMENTS ON THE BACK. MODIFIED EXISTING PEDESTAL, TO BE INSTALLED ON THE CENTER OF TABLE ISOCENTER. DIMENSIONED LOCATION, RE: VENDOR.
- F5 HOLLOW METAL FRAME OPENING.
- F6 EXISTING WOOD LAMINATE DOORS ARE TO BE REPAIRED BY DOOR DOCTORS. INSTALL NEW KICKPLATE RE: I.201
- F7 REINSTALL EXISTING SIGNAGE TO APPROPRIATE ROOMS.
- F8 REINSTALL EXISTING DUTY STATION. RE: ELECTRICAL.
- F9 CAP OFF ELECTRICAL RACEWAY.
- F10 REINSTALL THE ELECTRICAL RACEWAY INTO THE EXISTING WALL. RE: ELECTRICAL.
- F11 REINSTALL EXISTING UPPER CASEWORK.
- F12 VERIFY IN THE FIELD TO ALIGN WITH THE FRONT OF THE CABINET.
- F13 EXISTING SALVAGED MILLWORK TO BE REINSTALLED IN ORIGINAL LOCATION AFTER CONCRETE WORK IS COMPLETE.

KEY PLAN



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JOHN MENNO MAP
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21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

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FLOOR PLAN

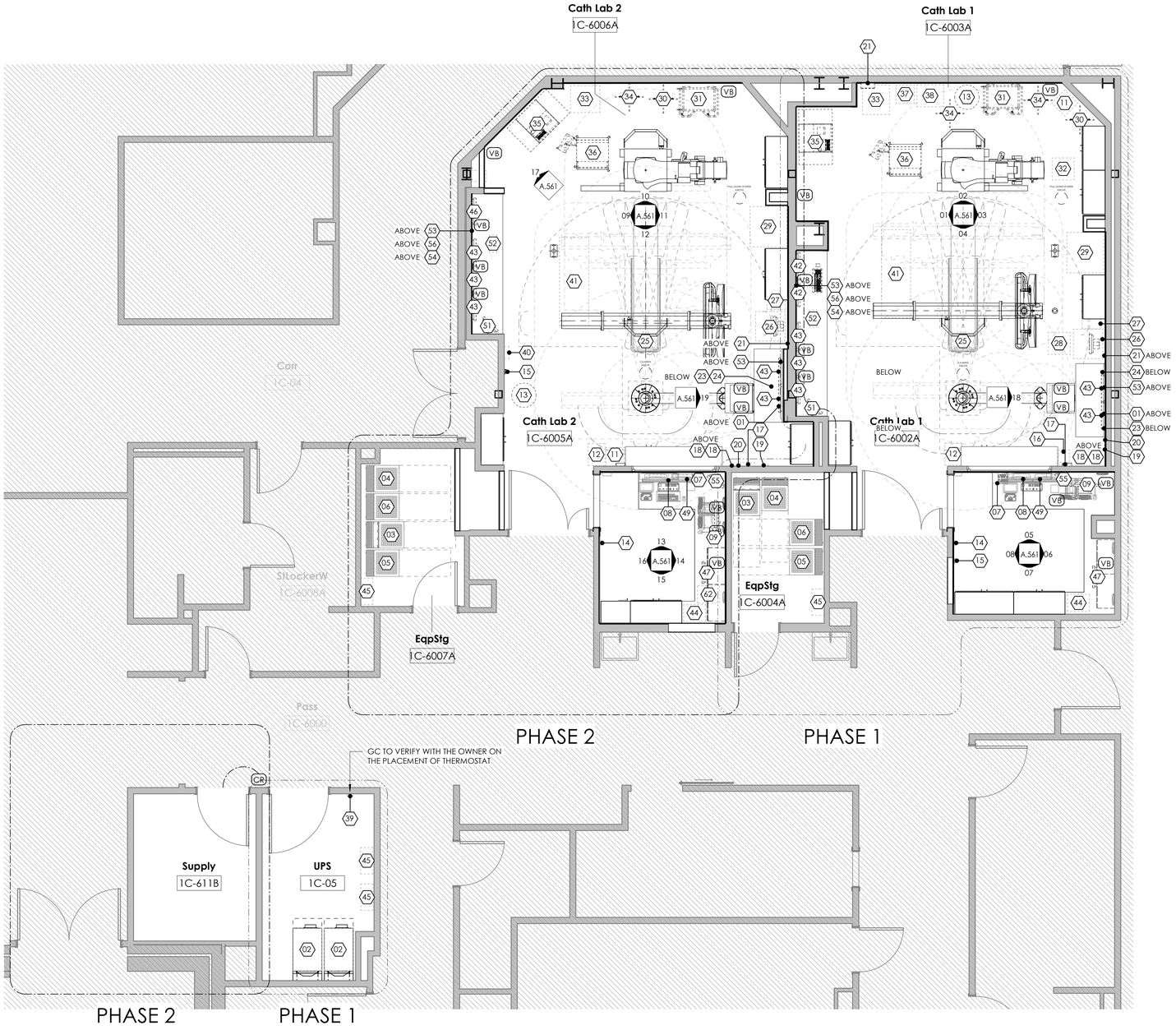
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City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC



01 - CATH LAB 1 & 2 - EQUIPMENT PLAN
1/4" = 1'-0"

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EQUIPMENT PLAN KEYNOTES

01	OPTIPLEX & MEDITECH WALL MOUNT	OFCI
02	UPS - PHILIPS	VFVI
03	MA - PHILIPS	VFVI
04	ME - PHILIPS	VFVI
05	MB - PHILIPS	VFVI
06	MR - PHILIPS	VFVI
07	FW - FIREWALL	VFVI
08	CY - CONTROL ROOM CONNECTION BOX	VFVI
09	INTRASIGHT/ SYNCVISION	VFVI
11	USED LINEN	EXIST
12	TRASH 14"X18"	EXIST
13	ROUND TRASH CAN	EXIST
14	EPO RE:ELECTRICAL	CFCI
15	WALL PHONE	OFCI
16	SMALL TRASH	EXIST
17	SINGLE GLOVE HOLDER	OFCI
18	WALL CHART HOLDER	OFCI
19	DUTY STATION	EXIST
20	CODE BLUE	EXIST
21	THREE GLOVE HOLDER	OFCI
23	BLUE TRASH	EXIST
24	RED TRASH	EXIST
25	PEDESTAL RE:08 / A.571	CFCI
26	REFRIGERATOR PYXIS	EXIST
27	SHARPS	OFCI
28	MERLIN PATIENT CARE	EXIST
29	ULTRASOUND	EXIST
30	INJECTOR	EXIST
31	CRASH CART	EXIST
32	COMP POLE	EXIST
33	ANESTHESIA WORKCART	EXIST
34	IV POLE	EXIST
35	ANESTHESIA PYXIS	EXIST
36	ANESTHESIA MACHINE	EXIST
37	STEP STOOL	EXIST
38	SS MOBILE TABLE	EXIST
39	THERMOSTAT RE: MECHANICAL	CFCI
40	RED SHARPS, WALL MOUNT	EXIST, OFCI
41	SS TABLE	EXIST
42	CARTO MAPPING, WALL MOUNT	OFOI, OFCI
43	MACLAB, WALL MOUNT	OFOI, OFCI
44	PRINTER	OFOI
45	DISCONNECT	VFCI
46	ABBOT MAPPING W/ WALL MOUNT	OFOI,OFCI
47	MEDITEC/PACS	OFOI
48	ANESTHESIA MONITOR	OFCI
49	PHILIPS LIVE/REF	VFVI
51	MICROPACE W/CPU	OFOI
52	REMOTE OBLATION	OFOI
53	LIVE XRAY, WALL BRACKET	OFOI, OFCI
54	ULTRASOUND, WALL BRACKET	OFOI, OFCI
55	SMALL MACLAB WALL MONITOR	OFCI
56	CCTV, CPU SLEEVE, WALL BRACKET	OFOI, OFOI, OFCI
58	CARTO CPU, WHEELED CADDIE	OFOI,OFCI
59	MACLAB CPU, WHEELED CADDIE	OFOI,OFCI
60	UPS, TROLLY	OFOI,OFOI
61	ABBOT CPU, WHEELED CADDIE	OFOI,OFCI
62	DEDICATED INKJET PRINTER	OFOI
63	CAMERA	OFCI

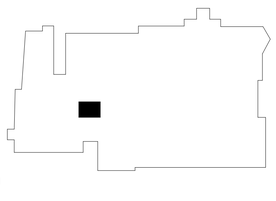
EQUIPMENT PLAN GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND COORDINATE CLEAR DIMENSIONS REQUIRED FOR OWNER FURNISHED EQUIPMENT THAT IS LOCATED WITHIN OR ADJACENT TO BUILT-IN CABINETS.
2. ALL GLOVE DISPENSERS ARE TO BE OWNER FURNISHED, CONTRACTOR INSTALLED.
3. CONTRACTOR SHALL PROVIDE BLOCKING/STRAPPING FOR ALL MOUNTING BRACKETS OF WALL HUNG EQUIPMENT. COORDINATE FURNISHED EQUIPMENT REQUIREMENTS AND VENDOR DRAWINGS.
4. ALL SINKS ARE TO RECEIVE "TA3" PAPER TOWEL DISPENSER AND "TA8" SOAP DISPENSER, UNLESS NOTED OTHERWISE.
5. ALL CEILING AND/OR WALL MOUNTED EQUIPMENT SHALL BE MOUNTED AT 80" CLEAR ABOVE FINISH FLOOR.
6. CONTRACTOR SHALL COORDINATE WITH THE OWNER ON THE DELIVERY AND INSTALLATION OF OWNER FURNISHED EQUIPMENT.

EQUIPMENT PLAN LEGEND

- OUT OF SCOPE
- EQUIPMENT RE: SCHEDULE
- 1 / A.100 / 1 — INTERIOR ELEVATION TAG
- VB — VIDEO BOXES COORDINATE EXACT LOCATIONS WITH VENDOR AND OWNER IN FIELD.
- CR — REINSTALL THE EXISTING CARD READER. RE: ELECTRICAL
- PHASE 1
- PHASE 2

KEY PLAN



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21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

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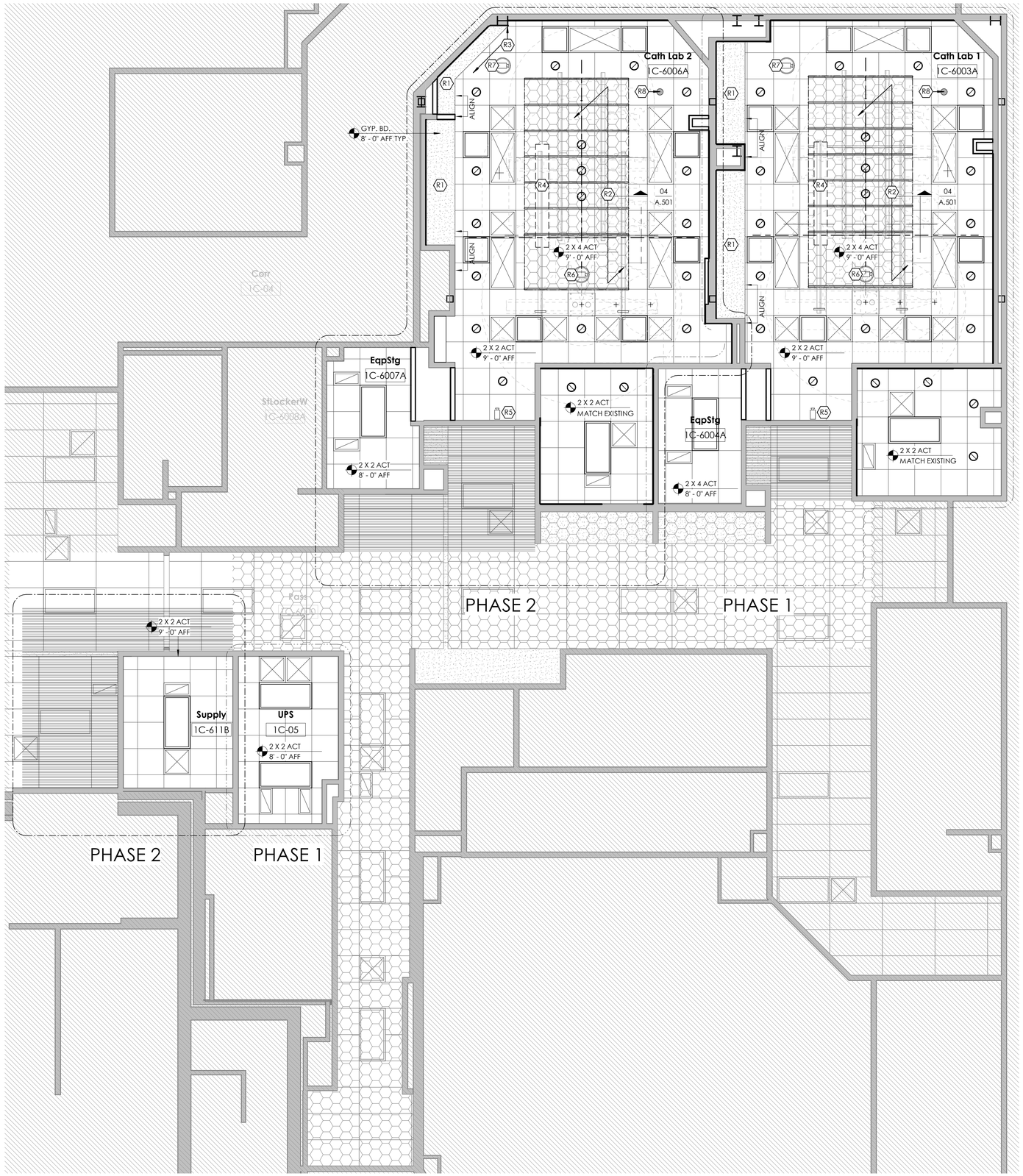
Sheet Title
EQUIPMENT PLAN

Sheet Number
A.211

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

Provide a sign stating "EXIT" in raised, visual characters and braille adjacent to each door in an area of refuge, an exterior area for assisted rescue, an exit stairway or ramp, an exit passageway and the exit discharge.
2015 IBC 1013.4

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC



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

REFLECTED CEILING PLAN GENERAL NOTES

1. THE CONTRACTOR SHALL COMPARE THIS REFLECTED CEILING PLAN WITH ELECTRICAL LIGHTING PLANS, MECHANICAL SUPPLY, RETURN, AND EXHAUST PLANS. THE CONTRACTOR SHALL REPORT ANY OMISSIONS OR INCONSISTENCIES TO THE ARCHITECT.
2. SEE ELECTRICAL DRAWINGS FOR THE LOCATIONS OF CEILING MOUNTED SMOKE DETECTORS, SPEAKERS, EXIT SIGNAGE, FIRE ALARM DEVICES, WALL MOUNTED EXIT LIGHTS, ETC.
3. SPRINKLER HEAD LOCATIONS ARE NOT SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS. COORDINATE PLACEMENT/RELOCATION WITH NFPA 13 REQUIREMENTS.
4. 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF EXTENDED SPRINKLER HEADS AND THE TOP OF ANY FILES, SHELVING, LOCKERS, ETC.
5. THE CONTRACTOR SHALL VERIFY THAT ACCESS PANELS OF TYPE SPECIFIED ARE INSTALLED IN NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS PANELS SHALL HAVE A FIRE RATING EQUAL TO THE RATING OF THE CEILING IN WHICH THEY OCCUR.
6. RELOCATE SUPPLY DRAIN AND VENT PIPES TO MAINTAIN SCHEDULED CEILING HEIGHTS. COORDINATE RELOCATIONS WITH MEP ENGINEERS.
7. WHERE EXISTING LAY-IN CEILINGS ARE TO REMAIN, THE CONTRACTOR SHALL REPLACE ANY DAMAGED TILES WITH MATERIALS THAT MATCH EXISTING COLOR, TEXTURE, PATTERN, ETC. IF UNIFORMITY CANNOT BE ACHIEVED, THE CONTRACTOR SHALL REPLACE THE ENTIRE CEILING WITHIN THE SPACE WITH NEW MATERIAL.
8. CONTRACTOR IS TO SURVEY FIRE PROOFING SCOPE FOLLOWING DEMOLITION AND RECONSTRUCTION OF ABOVE CEILING AREAS AND REPAIR AS REQUIRED TO MAINTAIN STRUCTURAL FIREPROOFING ON PRIMARY STEEL MEMBERS. NOTE: SECONDARY STRUCTURE SUPPORTING MEDICAL SUPPORT SYSTEM DOES NOT REQUIRE FIRE PROOFING.

REFLECTED CEILING PLAN LEGEND

- OUT OF SCOPE
- SUSPENDED 2' x 2' ACOUSTICAL CEILING SYSTEM
- SUSPENDED 2' x 4' ACOUSTICAL CEILING SYSTEM
- CEILING TYPE / 1' - 0" AFF — CEILING HEIGHT DESIGNATION
- NEW RECESSED LIGHT FIXTURE, RE: ELECTRICAL
- SUPPLY AIR GRILLE, RE: MECHANICAL
- RETURN AIR GRILLE, RE: MECHANICAL
- RECESSED CAN LIGHT FIXTURE, RE: ELECTRICAL
- RELOCATED PULL DOWN POWER, RE: ELECTRICAL
- WALL MOUNTED SECURITY CAMERA, RE: ELECTRICAL
- CEILING MOUNTED SECURITY CAMERA, RE: ELECTRICAL
- INSTALL NEW RCP AS REQUIRED. REFER TO MECHANICAL FOR SCOPE ABOVE CEILING
- ALL WORK IN THIS AREA ABOVECEILING TO BE PERFORMED IN ICRA CART OR COORDINATED CONTAINMENT. REPLACE CEILING AS REQUIRED. REPLACE ALL DAMAGED TILES DURING WORK SCOPE.
- PHASE 1
- PHASE 2

REFLECTED CEILING PLAN KEYNOTES

- R1 — CREATE NEW SOFFIT AT NEW HEIGHT. RE: 05 / A.501
- R2 — INSTALL 2X4' ACT AS SCHEDULED BETWEEN UNISTRUT. RUN ACT PERPENDICULAR TO UNISTRUT.ORIENT ACT IN LONG DIRECTION BETWEEN UNISTRUT RAILS. UTILIZE 24X48 ACT OF SAME TYPE IN THIS AREA
- R3 — ALIGN WITH THE CORNER OF THE EXISTING COLUMN. THE SOFFIT IS TO BE PARALLEL TO THE WALL.
- R4 — EXISTING MAVIG RAIL TO BE REINSTALLED THROUGH SEPARATE OWNER ARRANGEMENT.
- R5 — ROOM STATUS CAMERA - OFOI
- R6 — CCTV TO COCKPIT - OFCI
- R7 — MEDS SECURITY CAMERA - OFCI
- R8 — RELOCATED PULL DOWN POWER - OFCI

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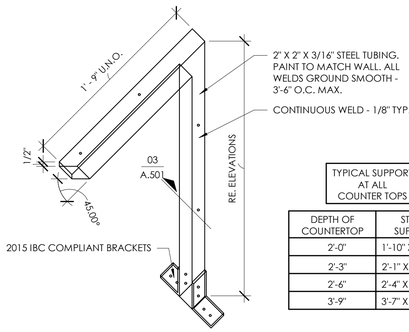
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Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

Structural plan review is limited to a general survey for code compliance. No review is implied nor was undertaken to verify structural adequacy.

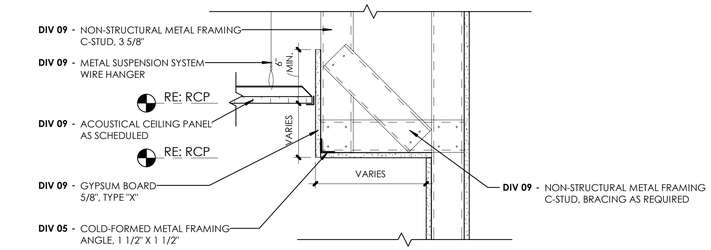
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC



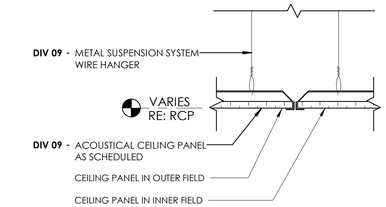
TYPICAL SUPPORT AT ALL COUNTER TOPS

DEPTH OF COUNTERTOP	STEEL TUBE SUPPORT SIZE
2'-0"	1'-10" X 2'-4 1/2"
2'-3"	2'-1" X 2'-4 1/2"
2'-6"	2'-4" X 2' - 4 1/2"
3'-9"	3'-7" X 2' - 4 1/2"

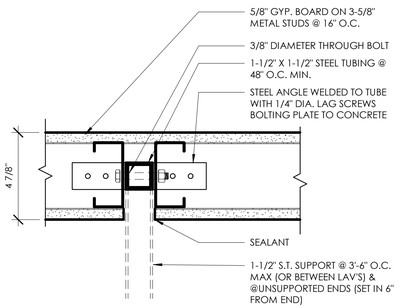
06- STEEL TUBE SUPPORT ISOMETRIC
1 1/2" = 1'-0"



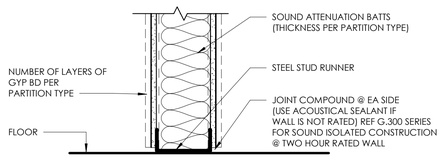
05- DETAIL @ FURR DOWN SOFFIT
1 1/2" = 1'-0"



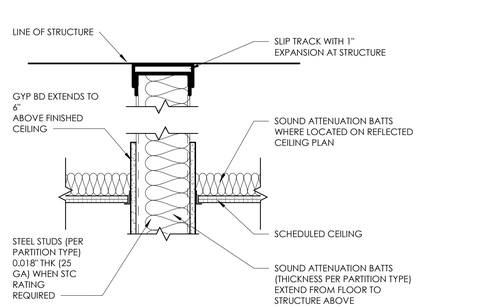
04- DETAIL@HEADER
1 1/2" = 1'-0"



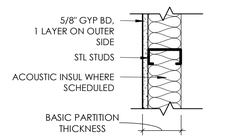
03- TYPICAL SECTION @ STEEL TUBE SUPPORT
3" = 1'-0"



02- PARTITION FLOOR SECTION
1 1/2" = 1'-0"
WHERE STUDS & GYPSUM BOARD STOP AT THE FLOOR



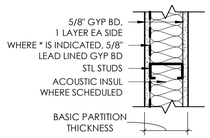
01- PARTITION HEAD SECTION
1 1/2" = 1'-0"
@ NON-RATED W/ GYP BD TO 6" ABOVE CEILING



D

NOTE:
1. STC'S ARE PREDICTED USING THE "INSUL" COMPUTER PROGRAM.
2. STC'S ARE BASED ON 0.018" THICK (25 GA) STUDS.
3. REFER TO A.500 SERIES FOR BRACING.

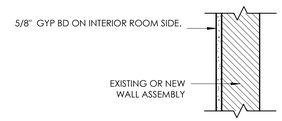
	D1_	STC	D2_	STC	D3_	STC	D4_	STC	D5_	STC	D6_	STC	D7_	STC	D8_	STC	D9_	STC
NON-RATED WITH GYP BD TO STRUCTURE ABOVE	D11	27	D21	29	D31	27	D41	30	D51	27	D61	30	D71	27	D81	31	D91	26
NON-RATED WITH GYP BD TO 6" ABOVE CEILING	D12		D22		D32		D42		D52		D62		D72		D82		D92	
NON-RATED WITH STUDS & GYP BD TO FINISHED CEILING	D13		D23		D33		D43		D53		D63		D73		D83		D93	
STUD SIZE	2 1/2"		2 1/2"		3 5/8"		3 5/8"		4"		4"		6"		6"		1 1/2"	
BASIC PARTITION THICKNESS	3 1/8"		3 1/8"		4 1/4"		4 1/4"		4 5/8"		4 5/8"		6 5/8"		6 5/8"		2 1/8"	
ACOUSTICAL INSULATION THICKNESS	-		2"		-		3"		-		3"		-		5 1/2"		1"	
ACOUSTICAL TEST NUMBER	NOTE 1		NOTE 1		NOTE 1		NOTE 1		NOTE 1		NOTE 1		NOTE 1		NOTE 1		NOTE 1	
FIRE TEST NUMBER (WHERE APPLICABLE)																		



A

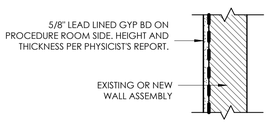
NOTE:
1. STC IS PREDICTED USING THE "INSUL" COMPUTER PROGRAM.
2. STC IS MODIFIED FROM THE REFERENCE.
3. STC IS BASED ON 0.018" THICK (25 GA) STUDS
4. WHERE AN * NEXT TO THE PARTITION TAG, A SINGLE LAYER OF LEAD LINED GYPSUM BOARD IN LIEU OF TYPE X GYPSUM BOARD ON THE PROCEDURE ROOM SIDE OF THE WALL. NOT TO BE USED FOR FIRE RATED WALLS.

	A1_	STC	A2_	STC	A3_	STC	A4_	STC	A5_	STC	A6_	STC	A7_	STC	A8_	STC
1-HR RATED WITH GYP BD TO STRUCTURE ABOVE			A20	46	A30	39	A40	47	A50	39	A60	47	A70	40	A80	48
NON-RATED WITH GYP BD TO STRUCTURE ABOVE (SMOKE RESIST)	A11	39	A21	46	A31 (*)	39	A41 (*)	47	A51 (*)	39	A61 (*)	47	A71 (*)	40	A81 (*)	48
NON-RATED WITH GYP BD TO 6" ABOVE CEILING	A12		A22		A32 (*)		A42 (*)		A52 (*)		A62 (*)		A72 (*)		A82 (*)	
NON-RATED WITH STUDS & GYP BD TO FINISHED CEILING	A13		A23		A33		A43		A53		A63		A73		A83	
PARTIAL HEIGHT PARTITION. SEE FLOOR PLANS FOR HEIGHTS.	A14		A24		A34		A44		A54		A64		A74		A84	
STUD SIZE	2 1/2"		2 1/2"		3 5/8"		3 5/8"		4"		4"		6"		6"	
BASIC PARTITION THICKNESS	3 3/4"		3 3/4"		4 7/8"		4 7/8"		5 1/4"		5 1/4"		7 1/4"		7 1/4"	
ACOUSTICAL INSULATION THICKNESS	-		2"		-		3"		-		3"		-		5 1/2"	
ACOUSTICAL TEST NUMBER	SIM USG 860808		SIM SA 831001		SIM USG 860808		SIM USG 870717		SIM USG 860808		SIM SA 870717		SIM USG 860808 NOTE 3		SIM USG 870717 NOTE 4	
FIRE TEST NUMBER (WHERE APPLICABLE)	-		UL DES U419		UL DES U465		UL DES U465		UL DES U465		UL DES U465		UL DES U465		UL DES U465	



G

GYP BD TO 6" MIN. ABOVE CEILING UNO	G12
STUD SIZE	VARIES
BASIC PARTITION THICKNESS	5/8" GYP



R

LEAD LINED GYP BD TO 7' MIN. UNO ABOVE CEILING	R12
STUD SIZE	VARIES
BASIC PARTITION THICKNESS	5/8" + LEAD

NOTE:
1. REFER TO PHYSICIST REPORT FOR REQUIRED SHIELDING LOCATIONS, HEIGHT, AND THICKNESS.

PARTITION TYPE GENERAL NOTES

1. REFER TO FLOOR PLAN SERIES A.200 FOR LOCATION OF PARTITION TYPES. ALL PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE. NOT ALL PARTITION TYPES SHOWN IN SCHEDULE ARE UTILIZED.
2. REFER TO THE I.200 SERIES FOR FINAL FINISHES ON PARTITIONS. PARTITION TYPES IN CHARTS REFER TO BASE WALL ONLY.
3. WHEN BLOCKING IS REQUIRED IN A PARTITION, USE A .033" (20 GA) STUD, MINIMUM.
4. AT WALLS WITHOUT TILE BEHIND SINKS AND LAVATORIES, PROVIDE ONE LAYER OF 5/8" GLASS MATT INTERIOR TYPE BOARD. AT WALLS WITHOUT TILE, GLASS MATT INTERIOR TYPE BOARD SHALL BE INSTALLED WITHIN 2'-0" OF ALL URINALS AND WATER CLOSETS, TO A HEIGHT OF 4'-0" AFF.
5. PROVIDE TILE BACKER GLASS MATT AT ALL WALLS IN TOILET ROOMS WITH SHOWER AND AT TILED WALLS OR WALL PANELS IN SHOWERS AND BATHTUBS.
6. PENETRATIONS IN LEAD-LINED PARTITIONS SHALL BE SEALED TO MEET LEAD SHIELDING REQUIREMENTS.
7. ALL LOAD BEARING WALLS SHALL BE CONSTRUCTED PER STRUCTURAL DRAWINGS AND SPECIFICATIONS.
8. PROVIDE FIRE TREATED WOOD BLOCKING, SHEET METAL OR STEEL BACKING IN PARTITIONS TO SUPPORT WALL MOUNTED ITEMS AND EQUIPMENT. FOR EXAMPLE, AT CABINETS, HANDRAILS, GUARDRAILS, TOILET PARTITIONS AND ACCESSORIES, WALL-MOUNTED EQUIPMENT, ETC.
9. "LINE OF STRUCTURE" AS SHOWN AT HEAD CONDITIONS OF PARTITION DETAILS DOES NOT INDICATE THE EXACT CONSTRUCTION CONDITION. REFER TO G.300 SERIES "CODE COMPLIANCE DETAILS" FOR ADDITIONAL INFORMATION ABOUT RATED PARTITIONS.
10. ISOLATE NON-LOAD BEARING FRAMING FROM STRUCTURAL ELEMENTS TO PREVENT THE TRANSFER OF LOAD TO PARTITION FRAMING. STOP STUD BELOW METAL RUNNER (TOP TRACK) TO ALLOW FOR VERTICAL EXPANSION. SET TOP TRACK 1" BELOW DEFLECTION TRACK. DO NOT ATTACH STUDS TO TOP TRACK. DO NOT ATTACH GYPSUM BOARD TO THE DEFLECTION TRACK. THIS MAY ALSO BE ACHIEVED, AT THE CONTRACTOR'S OPTION, BY UTILIZING THE PROPRIETARY SYSTEM DESCRIBED IN THE PROJECT MANUAL.
11. REFER TO DOOR AND WINDOW SCHEDULES FOR NOTES REGARDING STUDS AT OPENINGS.
12. REFER TO THE A.500 SERIES FOR HEAD OF WALL DETAILS FOR NON-RATED PARTITIONS.

ACOUSTICAL PARTITIONS

THE FOLLOWING NOTES APPLY TO ALL PARTITIONS DESIGNATED WITH A SOUND TRASMISSION CLASS (STC) RATING IN THE PARTITION SCHEDULE. REFER TO A.500 SERIES DETAILS FOR PARTITION TYPES WITH A DESIGNATED STC RATING.

1. ALL ACOUSTICALLY CLASSED PARTITIONS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE REFERENCED TEST.
2. STAGGER AND SEAL ALL JOINTS ON MULTIPLE GYPSUM BOARD LAYER PARTITIONS.
3. SEAL PARTITIONS TO BE AIR TIGHT AT FLOORS, SIDES, AND CEILINGS ON BOTH SIDES. SEAL WITH NON-HARDENING ACOUSTICAL SEALANT.
4. ALL BATTS AND BLANKETS IN RATED PARTITIONS MUST BEAR THE REQUIRED UL FIRE RESISTANCE CLASSIFICATION MARKING. REFER TO G.300 SERIES, "CODE COMPLIANCE DETAILS."
5. AT ACOUSTICALLY RATED PARTITIONS, DO NOT FILL THE STUD CAVITY DEPTH FULLY WITH SOUND BATTS. THE WIDTH OF THE SOUND BATTS SHOULD BE SLIGHTLY SMALLER THAN CAVITY TO AVOID BATT COMPRESSION; HOWEVER, THE ENTIRE LENGTH AND HEIGHT OF THE PARTITION SHOULD HAVE CONTINUOUS AND UNINTERRUPTED SOUND ATTENUATION BATTS.
6. SEAL ALL WALL INTERSECTIONS AND CONTROL JOINTS AT ACOUSTICALLY CLASSED PARTITIONS IN ACCORDANCE WITH DETAILS IN THE A.500 SERIES.
7. SEAL ALL CONDUIT, STRUCTURAL, DUCT, AND LARGE PIPE PENETRATIONS ACCORDING TO DETAILS IN THE A.500 SERIES TO MAINTAIN THE ACOUSTICAL RATING OF THE WALL. REFER TO SERIES G.300, "CODE COMPLIANCE DETAILS" IF THE PARTITION IS FIRE RATED.
8. OUTLETS ON OPPOSITE SIDES OF ACOUSTICALLY CLASSED PARTITIONS SHOULD BE SEPARATED BY A MINIMUM OF ONE STUD. SEAL OUTLETS IN ACCORDANCE WITH DETAILS IN THE A.500 SERIES TO MAINTAIN ACOUSTICAL RATING. REFER TO SERIES G.300, "CODE COMPLIANCE DETAILS" IF THE PARTITION IS FIRE RATED.
9. THE ARCHITECT SHALL OBSERVE THAT ALL BOXES REQUIRED TO BE ACOUSTICALLY SEALED ARE SEALED PRIOR TO CLOSING IN PARTITIONS AND INSTALLING DEVICES AND COVER PLATES.
10. "Z" FURRINGS OR RESILIENT CHANNELS ARE REQUIRED AT CMU WALLS TO MAINTAIN DESIGNATED STC.

FIRE RATED PARTITIONS

1. REFER TO G.300 SERIES "CODE COMPLIANCE DETAILS" FOR ADDITIONAL INFORMATION ON THRU PENETRATIONS AT RATED PARTITIONS, FIRE RESISTANT JOINT SYSTEMS, SLIP TRACKS AT NON-BEARING PARTITION CONNECTIONS TO STRUCTURE, AND WALL PRIORITY.
2. UL DESIGN REFERS TO FIRE RESISTANCE DIRECTORY'S MOST RECENT ISSUE.
3. CONSTRUCT RATED PARTITIONS BEFORE NON-RATED.
4. REFER TO G.300 SERIES FOR HEAD OF WALL DETAILS AT RATED PARTITIONS.

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No.	Description	Date

STATE OF COLORADO
JOHN MENNO MARTIN
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
INTERIOR PARTITION TYPE CHARTS

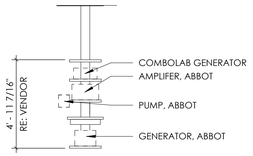
Sheet Number
A.501

12/8/2022 4:50:52 PM

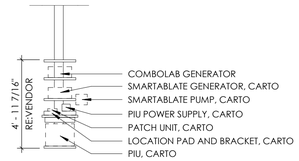
Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

SALES AND SERVICE COUNTERS AND WINDOWS SHALL COMPLY WITH SECTION **904.3, ICC/ANSI A117.1-2009** FOR ACCESSIBILITY REQUIREMENTS

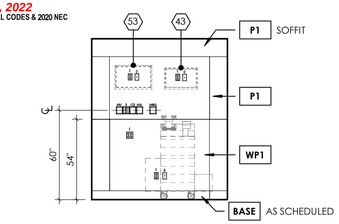
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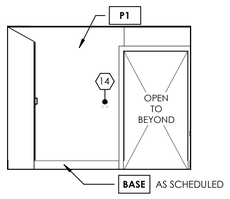
19-CATH LAB 2 - BOOM ABBOT
1/4" = 1'-0"

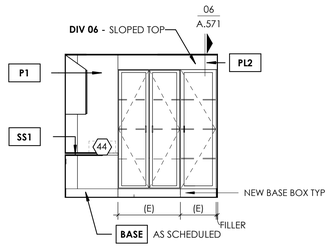


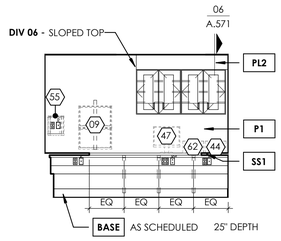
18-CATH LAB 1 - BOOM CARTO
1/4" = 1'-0"

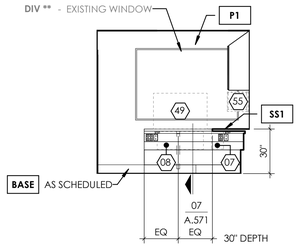


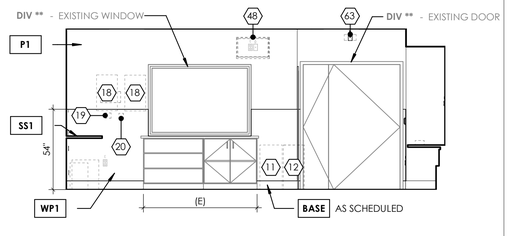
17-CATH LAB 2 - ANESTHESIA ELEVATION
1/4" = 1'-0"











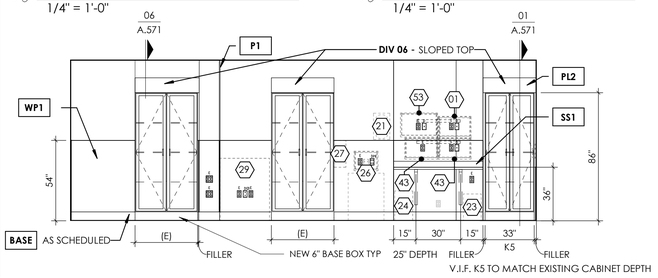
16-CONTROL ROOM 2 - NORTH ELEVATION
1/4" = 1'-0"

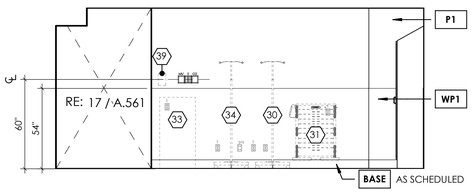
15-CONTROL ROOM 2 - WEST ELEVATION
1/4" = 1'-0"

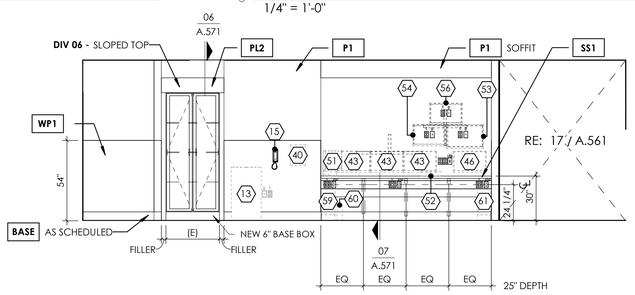
14-CONTROL ROOM 2 - SOUTH ELEVATION
1/4" = 1'-0"

13-CONTROL ROOM 2 - EAST ELEVATION
1/4" = 1'-0"

12-CATH LAB 2 - WEST ELEVATION
1/4" = 1'-0"



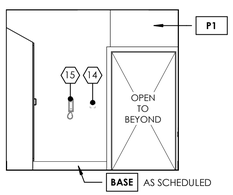


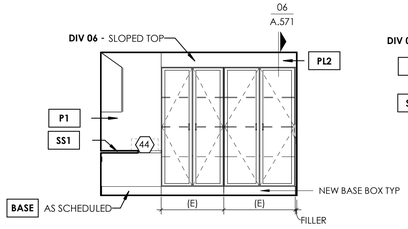


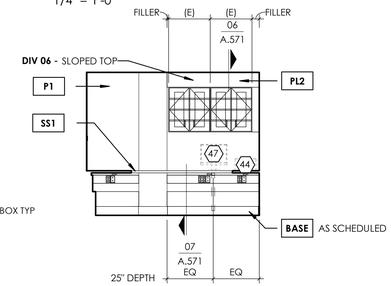
11-CATH LAB 2 - SOUTH ELEVATION
1/4" = 1'-0"

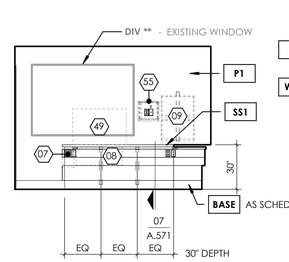
10-CATH LAB 2 - EAST ELEVATION
1/4" = 1'-0"

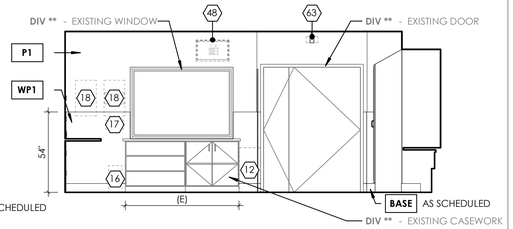
09-CATH LAB 2 - NORTH ELEVATION
1/4" = 1'-0"











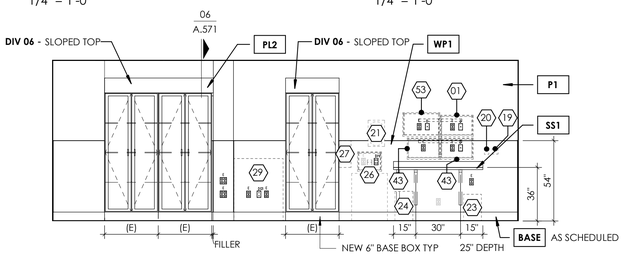
08-CONTROL ROOM 1 - NORTH ELEVATION
1/4" = 1'-0"

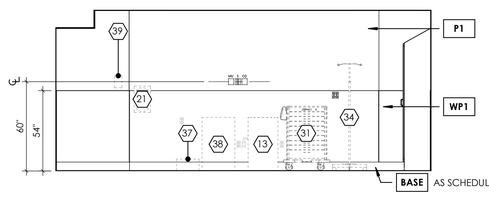
07-CONTROL ROOM 1 - WEST ELEVATION
1/4" = 1'-0"

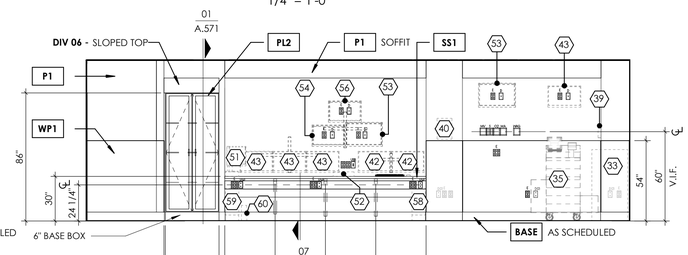
06-CONTROL ROOM 1 - SOUTH ELEVATION
1/4" = 1'-0"

05-CONTROL ROOM 1 - EAST ELEVATION
1/4" = 1'-0"

04-CATH LAB 1 - WEST ELEVATION
1/4" = 1'-0"







03-CATH LAB 1 - SOUTH ELEVATION
1/4" = 1'-0"

02-CATH LAB 1 - EAST ELEVATION
1/4" = 1'-0"

01-CATH LAB 1 - NORTH ELEVATION
1/4" = 1'-0"

ELEVATION GENERAL NOTES

1. REFER TO ELEVATIONS FOR MODULAR CASEWORK LAYOUTS, NON-STANDARD SIZES, MODIFICATIONS, DOOR, DRAWER AND SHELF CONFIGURATIONS. RE DETAIL ON A.570 SERIES
2. COORDINATE WITH OWNER, EQUIPMENT PLANS AND ELECTRICAL DOCUMENTS FOR LOCATION OF ALL REQUIRED 2-1/2" GROMMETS AT ALL COUNTER TOP LOCATIONS.
3. PROVIDE PLASTIC LAMINATE FINISHED END PANELS AT ALL EXPOSED ENDS OF BASE AND UPPER CABINETS.
4. CONTRACTOR SHALL PROVIDE SECURE WALL ATTACHMENT FOR ALL CASEWORK TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
5. FILLER STRIPS SHALL BE 1" MINIMUM. NOTIFY ARCHITECT CONCERNING AREAS SMALLER THAN 1".
6. ALL FILE CABINETS TO RECIEVE PENDIFLEX LETTER FILE INSERTS. REFER TO ELEVATIONS ON A.560 SERIES FOR NOTATION OF LOCKS.
7. CONTRACTOR TO PROVIDE LOCKS WHERE NOTED: NATIONAL #C8053-14A BRUSHED CHROME OR EQUAL SUBSTITUTE. KEY PER ELEVATION NOTES.
8. PROVIDE 4" RUBBER COVE BASE AT ALL CASEWORK KICKSPACES
9. PROVIDE BLANK PANEL IN LIEU OF DRAWERS AT SINK LOCATIONS
10. PROVIDE 2" RADIUS CURVED EDGES AT ALL EXPOSED EDGES. RE DETAILS ON A.570 SERIES
11. PROVIDE PAPER TOWEL HOLDER AND 4" BACKSPLASH AT ALL SINK LOCATIONS.
12. REFER TO I.100 SERIES FOR CASEWORK FINISHES
13. REFER TO A.511 SHEET FOR TYPICAL ACCESSIBLE TOILET ACCESSORIES AND MOUNTING HEIGHTS.
14. PROVIDE IN-WALL TUBE SUPPORT FOR COUNTERTOP SUPPORT WHEN NECESSARY AND AS NOTED IN ELEVATIONS IN A.560 SERIES.

EQUIPMENT PLAN KEYNOTES

01	OPTIPLEX & MEDITECH WALL MOUNT	OFCI
02	UPS - PHILIPS	VFVI
03	MA - PHILIPS	VFVI
04	ME - PHILIPS	VFVI
05	MB - PHILIPS	VFVI
06	MR - PHILIPS	VFVI
07	FW - FIREWALL	VFVI
08	CY - CONTROL ROOM CONNECTION BOX	VFVI
09	INTRASIGHT/ SYNCVISION	VFVI
11	USED LINEN	EXIST
12	TRASH 14"X18"	EXIST
13	ROUND TRASH CAN	EXIST
14	EPO RE:ELECTRICAL	CFCI
15	WALL PHONE	OFCI
16	SMALL TRASH	EXIST
17	SINGLE GLOVE HOLDER	OFCI
18	WALL CHART HOLDER	OFCI
19	DUTY STATION	EXIST
20	CODE BLUE	EXIST
21	THREE GLOVE HOLDER	OFCI
23	BLUE TRASH	EXIST
24	RED TRASH	EXIST
25	PEDESTAL RE: 08 / A.571	CFCI
26	REFRIGERATOR PYXIS	EXIST
27	SHARPS	OFCI
28	MERLIN PATIENT CARE	EXIST
29	ULTRASOUND	EXIST
30	INJECTOR	EXIST
31	CRASH CART	EXIST
32	COMP POLE	EXIST
33	ANESTHESIA WORKCART	EXIST
34	IV POLE	EXIST
35	ANESTHESIA PYXIS	EXIST
36	ANESTHESIA MACHINE	EXIST
37	STEP STOOL	EXIST
38	SS MOBILE TABLE	EXIST
39	THERMOSTAT RE: MECHANICAL	CFCI
40	RED SHARPS, WALL MOUNT	EXIST, OFCI
41	SS TABLE	EXIST
42	CARTO MAPPING, WALL MOUNT	OFOI, OFCI
43	MACLAB, WALL MOUNT	OFOI, OFCI
44	PRINTER	OFOI
45	DISCONNECT	VFCI
46	ABBOT MAPPING W/ WALL MOUNT	OFOI,OFCI
47	MEDITEC/PACS	OFOI
48	ANESTHESIA MONITOR	OFCI
49	PHILIPS LIVE/REF	VFVI
51	MICROPACE W/CPU	OFOI
52	REMOTE OBLATION	OFOI
53	LIVE XRAY, WALL BRACKET	OFOI, OFCI
54	ULTRASOUND, WALL BRACKET	OFOI, OFCI
55	SMALL MACLAB WALL MONITOR	OFCI
56	CCTV, CPU SLEEVE, WALL BRACKET	OFOI, OFOI, OFCI
58	CARTO CPU, WHEELED CADDIE	OFOI,OFCI
59	MACLAB CPU, WHEELED CADDIE	OFOI,OFCI
60	UPS, TROLLY	OFOI,OFOI
61	ABBOT CPU, WHEELED CADDIE	OFOI,OFCI
62	DEDICATED INKJET PRINTER	OFOI
63	CAMERA	OFCI

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No.	Description	Date

STATE OF COLORADO
JOHN MENNO MARTIN
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
INTERIOR ELEVATIONS

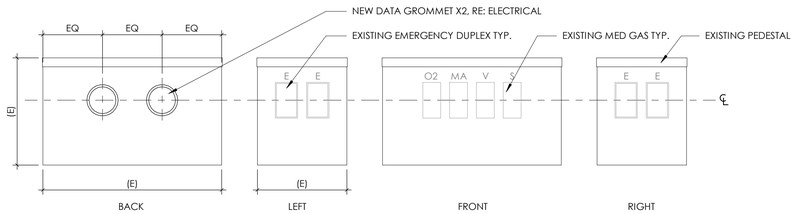
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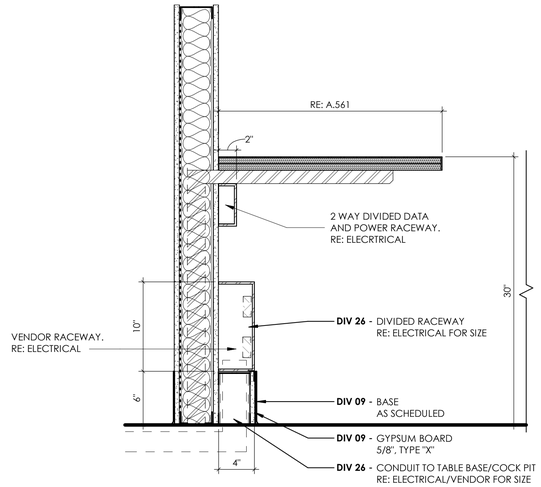
Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

SALES AND SERVICE COUNTERS AND WINDOWS SHALL COMPLY WITH SECTION **904.3, ICC/ANSI A117.1-2009** FOR ACCESSIBILITY REQUIREMENTS

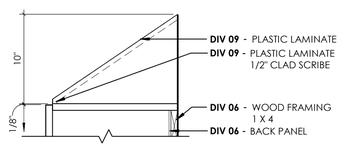
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC



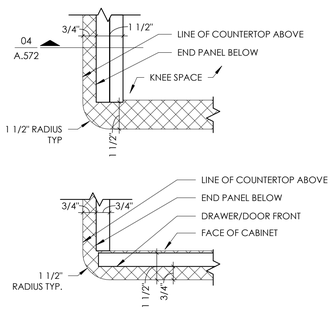
08- MED GAS PEDESTAL ELEVATIONS
1 1/2" = 1'-0"



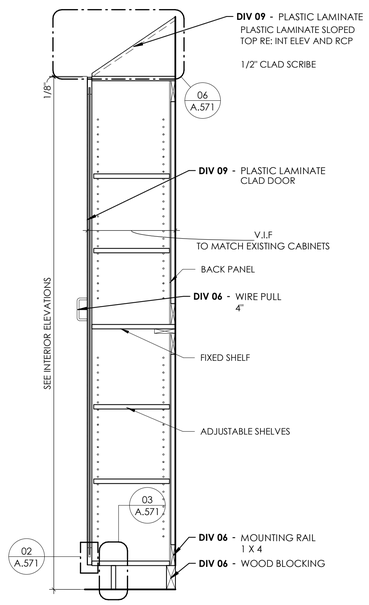
07- WALL/COUNTERTOP DETAIL @ COCKPIT/WORKSTATION
1 1/2" = 1'-0"



06- PLASTIC LAMINATE SLOPED TOP
1 1/2" = 1'-0"



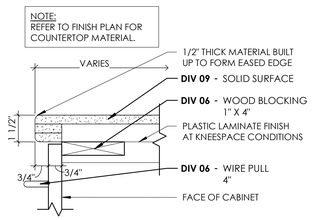
05- PLAN DETAIL COUNTER TOP CORNER
3" = 1'-0"



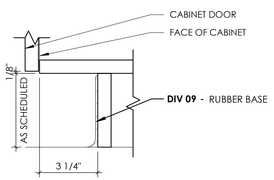
NOTES: REFER TO THIS TYPICAL DETAIL K1 FOR MATERIALS, DIMENSIONS AND DETAIL ENLARGEMENTS OF TYPE "K" FULL HEIGHT CABINETS.

IF CABINET HAS GLASS DOORS REFER TO DETAIL 07/A.572.

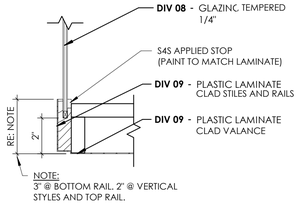
01- K5 - FULL HEIGHT CABINET
1" = 1'-0" WITH DOORS



04- SECTION DETAIL - SOLID SURFACE MAT.
3" = 1'-0"



03- SECTION DETAIL - TOEKICK
3" = 1'-0"



02- SECTION DETAIL - GLASS DOOR
3" = 1'-0"

ARCHITECTURAL CASEWORK GENERAL NOTES

ALL CASEWORK:

1. ALL SECTION DETAILS ON THIS SHEET MAY NOT APPLY TO THIS PROJECT.
2. REFER TO A.56X SERIES SHEETS FOR ARCHITECTURAL WOODWORK TYPES, WIDTHS, AND HEIGHTS.
3. FIELD VERIFY EXISTING DIMENSIONS PRIOR TO FABRICATION. NOTIFY ARCHITECT OF ANY CONFLICTS OR INCONSISTENCIES PRIOR TO FABRICATION.
4. VERIFY AND COORDINATE CLEAR DIMENSIONS REQUIRED FOR OWNER FURNISHED EQUIPMENT LOCATED WITHIN OR ADJACENT TO CABINETS.
5. REQUIRED SCRIBES AND FILLER PIECES SHALL BE INSTALLED TO ALLOW PROPER OPERATION OF DRAWERS/DOORS. THEY SHALL BE EVENLY DISTRIBUTED AND OF EQUAL WIDTH ALONG A SINGLE RUN OF CABINETS. THEY SHALL BE 3" WIDE, MAXIMUM, EXCEPT INSIDE CORNER FILLERS SHALL BE 2 1/2" WIDE, MINIMUM. REFER TO SERIES A.57X FOR TYPICAL CASEWORK DETAILS AND INSIDE CORNER DETAIL.
6. WHERE BASE CABINETS INTERSECT AT INSIDE CORNER CONDITION, PROVIDE WALL MOUNTED LEDGERS TO SUPPORT COUNTERTOP AT CORNERS. WHERE UPPER CABINETS INTERSECT AT INSIDE CORNER CONDITION, PROVIDE HORIZONTAL FILLER PANEL FLUSH WITH BOTTOM OF CABINETS.
7. PROVIDE PLASTIC SCREW COVERS TO CONCEAL SCREW HEADS AT ALL SEMI-EXPOSED CABINET SURFACES. ALL EXPOSED SCREWS SHALL BE COUNTERSUNK.
8. CORE MATERIAL FOR SHELVING GREATER THAN 30" WIDE SHALL BE 1" THICK.
9. ALL VERTICAL JOINTS BETWEEN CABINETS SHALL BE BUTT JOINTS. THEY SHALL LOOK "SEAMLESS" AND BE COVERED IN PLASTIC LAMINATE.
10. ALL EXPOSED SURFACES ON CABINETS WITHOUT DOORS SHALL BE CLAD IN PLASTIC LAMINATE, UNLESS NOTED OTHERWISE. NO EXPOSED MELAMINE, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS.

BASE CABINETS:

1. PROVIDE PLASTIC LAMINATE CLADDING ON ALL SURFACES OF BUILT-IN DESKS AT KNEE SPACES AND EXPOSED ENDS OF DESK, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS.
2. PROVIDE SCHEDULED BASE ALONG BOTTOM OF EXPOSED FRONTS, BACKS, SIDES, AND ENDS OF ALL FIXED CABINETS, PEDESTALS, VERTICAL SUPPORT PANELS, AND KNEE SPACES, ETC. UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS.
3. ALL HORIZONTAL AND VERTICAL REVEALS SHALL BE 1/8".
4. ALL TOEKICK SPACES SHALL BE 4 1/8" TALL X 3 1/4" DEEP, UNLESS NOTED OTHERWISE. REFER TO SERIES A.57X FOR TYPICAL CASEWORK DETAILS.

COUNTERTOPS:

1. ALL COUNTERTOPS ARE TO BE 24" DEEP, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS.
2. ALL OUTSIDE COUNTERTOP CORNERS TO BE 1 1/2" RADIUS (IN PLAN), UNLESS NOTED OTHERWISE. REFER TO SERIES A.57X FOR TYPICAL CASEWORK DETAILS AND COUNTERTOP CORNER DETAIL.
3. PROVIDE WALL MOUNTED BRACKETS, FIELD PAINTED, FOR SUPPORT OF COUNTERTOPS AT KNEE SPACES. COUNTERTOPS SHALL BE SUPPORTED 30" MINIMUM - 36" MAXIMUM O.C. COORDINATE LOCATION WITH KEYBOARD TRAYS AND CPU HOLDERS. REFER TO INTERIOR ELEVATIONS FOR LOCATIONS OF COUNTERTOP BRACKETS.
4. LOCATE GROMMETS AT BACK OF COUNTERTOPS EVERY 36" O.C. WITH A MINIMUM OF 1 PER KNEE SPACE, UNLESS NOTED OTHERWISE ON EQUIPMENT PLAN. COORDIANTE FINAL GROMMET LOCATIONS WITH OWNER. EXCEPTION: DO NOT PROVIDE GROMMETS AT ACCESSIBLE PORTION OF COUNTER, AS INDICATED ON EQUIPMENT PLAN.
5. REFER TO INTERIOR ELEVATIONS AND FINISH LEGEND FOR COUNTERTOP MATERIAL. ALL COUNTERTOPS AT SINKS TO BE SOLID SURFACE MATERIAL, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS. REFER TO SERIES A.57X FOR SOLID SURFACE MATERIAL COUNTERTOP EDGE DETAIL AND FOR PLASTIC LAMINATE COUNTERTOP EDGE DETAIL.
6. ALL BACK AND SIDE SPLASHES SHALL BE 4" TALL X 3/4" THICK IF PLASTIC LAMINATE, 1/2" THICK IF SOLID SURFACE MATERIAL, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS. ALL SPLASHES SHALL BE SCRIBED TO CONFORM TO THE SURFACE OF ABUTTING WALLS. ALL SPLASHES SHALL BE SEALED TO THE WALL WITH CLEAR SILICONE SEALANT. IF SOLID SURFACE, PROVIDE SPLASHES ON ALL REAR AND SIDE WALLS AT BASE CABINETS.

UPPER CABINETS:

1. TOP OF UPPER AND FULL HEIGHT CABINETS SHALL BE 7'-2" AFF, UNLESS NOTED OTHERWISE ON INTERIOR ELEVATIONS. REFER TO INTERIOR ELEVATIONS.
2. REFER TO SERIES A.220 AND A.560 FOR FURR DOWN LOCATIONS. WALL CABINETS WITHOUT A FURR DOWN ABOVE SHALL RECEIVE A CONTINUOUS 6" HIGH SLOPED PANEL, FINISHED TO MATCH CABINETS, UNLESS NOTED OTHERWISE.
3. WALL MOUNTED UPPER CABINETS SHALL INCLUDE ADJUSTABLE SHELVES, UNLESS NOTED OTHERWISE.

CABINET HEIGHT	NUMBER OF SHELVES
UP TO 24"	1
25" THROUGH 42"	2
43" THROUGH 48"	3

4. TOPS AND BOTTOMS OF WALL HUNG CABINETS SHALL BE 3/4" THICK WITH PLASTIC LAMINATE ON ALL EXPOSED SURFACES.
5. BACKS OF WALL HUNG CABINETS SHALL BE 1/4" THICK, UNLESS NOTED OTHERWISE. BACKS OF BASE CABINETS SHALL BE 1/4" THICK, UNLESS NOTED OTHERWISE.

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No.	Description	Date

STATE OF COLORADO
JOHN MENNO MAST
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

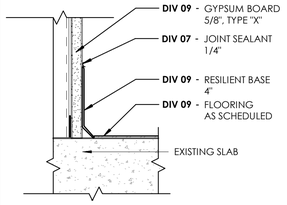
Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
TYPICAL CASEWORK SECTIONS & DETAILS

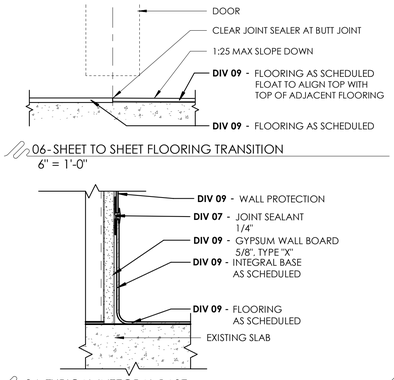
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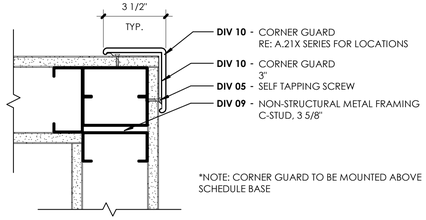


05- RB1 - TYPICAL RUBBER BASE
3" = 1'-0"

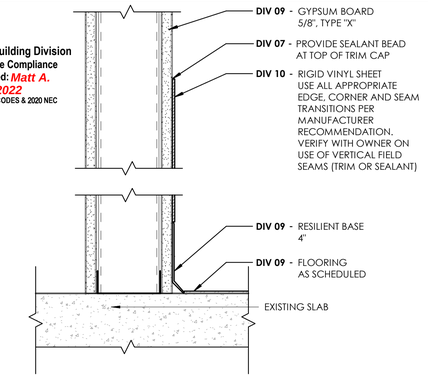


06- SHEET TO SHEET FLOORING TRANSITION
6" = 1'-0"

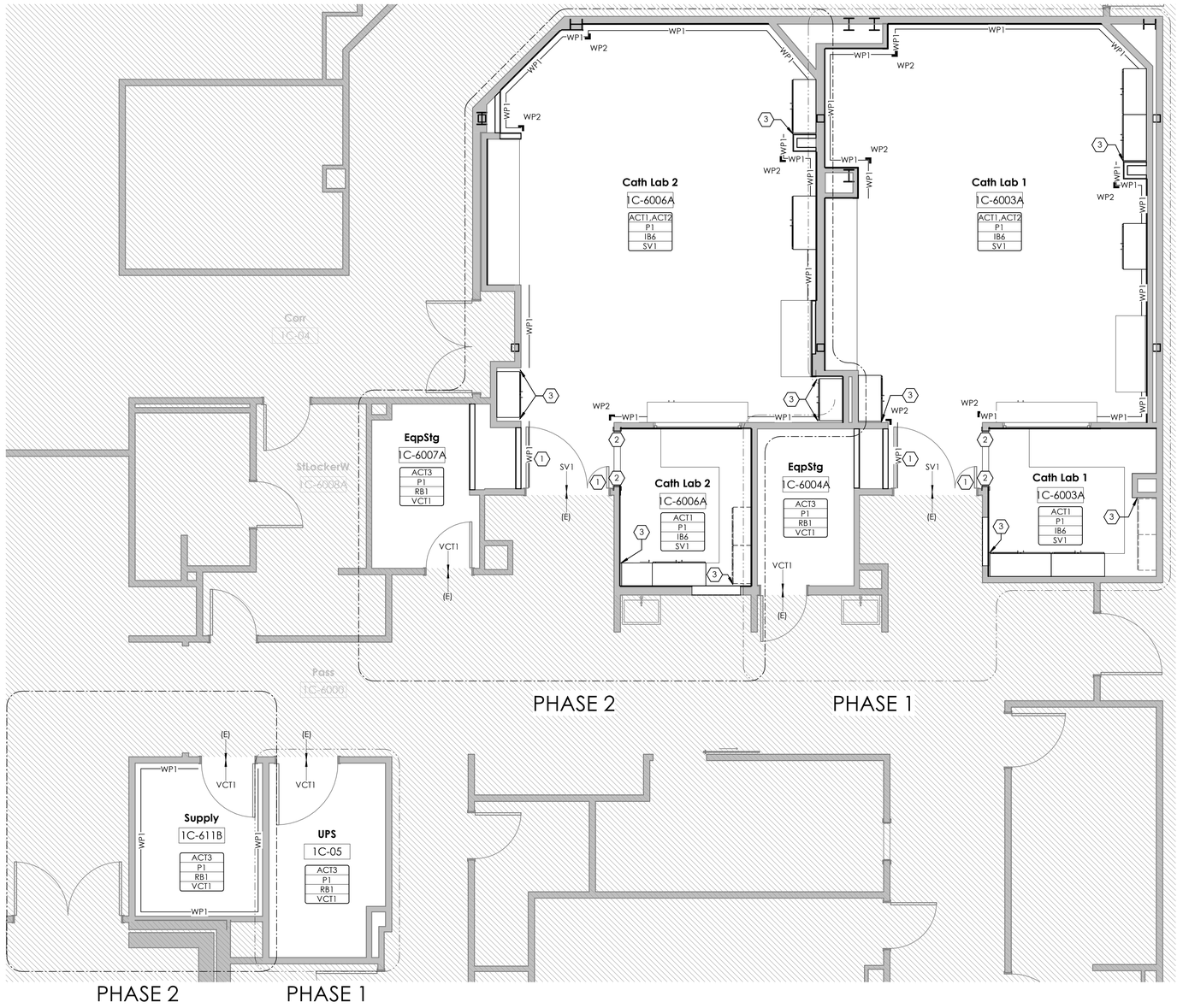
04- TYPICAL INTEGRAL BASE
3" = 1'-0"



03- CG1 SINGLE CORNER GUARD - DETAIL
3" = 1'-0"



02- WP4 - WALL PROTECTION DETAIL
3" = 1'-0"



01- FINISH PLAN
1/4" = 1'-0"

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Matt A.*
Date: *Dec 19, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

FINISH LEGEND

FLOORING

RESILIENT

SV1
MANUF: MANNINGTON
STYLE: ENTWINED LINO
COLOR: HULL ETW102

VCT1
MANUF: ARMSTRONG
STYLE: IMPERIAL TEXTURE
COLOR: TO BE CONFIRMED VIA SAMPLE SUBMITTAL

TRANSITIONS

TR1 RESILIENT TO SHEET

WALL BASE

IB6
6" H INTEGRAL BASE

RB1
MANUF: MANNINGTON
STYLE: OPTIMUM EDGE TP
COLOR: CLAY 527
NOTE: MITER INSIDE CORNERS. DO NOT USE PREMOLDED OUTSIDE CORNERS

WALLS

P1
MANUF: SHERWIN WILLIAMS
COLOR: DOVE WHITE SW 6385
FINISH: SEMI-GLOSS

WALL PROTECTION

WP1 SHEET
MANUF: CS ACROVYN
STYLE: RIGID SHEET
SIZE: 4' X 10' X 0.040" THICK
COLOR: SLATE 209
FINISH: PEBLETTE TEXTURE
*INCLUDE MANUFACTURER TRIM PIECES AS REQUIRED
*SEE A.561 FOR HEIGHT

WP2 SINGLE CORNER GUARD
MANUF: CS ACROVYN
STYLE: SM-20N
SIZE: (1) 3 X 3 X REFER TO DETAIL HEIGHT
COLOR: SLATE 209

CEILINGS

ACT1
MANUF: ARMSTRONG
TILE STYLE: CLEAN ROOM VL UNPERFORATED
TILE MODEL: #868
TILE SIZE: 24" X 24"
TILE COLOR: WHITE
GRID STYLE: 15/16" PRELUDE GASKETED
GRID COLOR: WHITE

ACT2
MANUF: ARMSTRONG
TILE STYLE: CLEAN ROOM VL UNPERFORATED
TILE MODEL: #870
TILE SIZE: 24" X 48"
TILE COLOR: WHITE
GRID STYLE: 15/16" PRELUDE GASKETED
GRID COLOR: WHITE

ACT3
MANUF: ARMSTRONG
TILE STYLE: ULTIMA HEALTH ZONE
TILE MODEL: #1935 SQUARE LAY-IN
TILE SIZE: 24" X 24"
TILE COLOR: WHITE
GRID STYLE: 15/16" PRELUDE
GRID COLOR: WHITE

GYP
P1
MANUF: SHERWIN WILLIAMS
COLOR: DOVE WHITE SW 6385
FINISH: SEMI-GLOSS

MILLWORK

PL1
MANUF: WILSONART
COLOR: BILTMORE CHERRY #7924K-07

PL2
MANF: WILSONART
COLOR: WHITE
**G.C. TO MATCH EXISTING WHITE PLASTIC LAMINATE

SS1
MANUF: CORIAN
COLOR: CLAM SHELL
SIZE: 1/2" THICK

DOORS AND FRAMES

P3 (FRAMES)
MANUF: SHERWIN WILLIAMS
COLOR: TONY TAUPE SW 7038
FINISH: SEMI-GLOSS

MISCELLANEOUS

(ME) MATCH EXISTING

(E) EXISTING TO REMAIN

FINISH PLAN GENERAL NOTES

1. REFER TO INTERIOR FINISH LEGEND I.101 FOR FINISH MANUFACTURER AND COLOR INFORMATION.
2. REFER TO I.10x SERIES FOR FLOOR TRANSITION DETAILS.
3. REFER TO A.22x SERIES REFLECTED CEILING PLANS FOR LOCATION OF CEILING FINISHES AND CEILING HEIGHTS.

FINISH LEGEND NOTES

WALL FINISH:
1. WALL TEXTURE SHALL MATCH FACILITY STANDARD, UNLESS NOTED OTHERWISE.
2. PAINT ALL WALLS LATEX EGGSHELL, UNLESS NOTED OTHERWISE. SEE FINISH LEGEND FOR DEFINITION.
3. PAINT ALL ELECTRICAL AND ACCESS WALL PANELS TO MATCH ADJACENT WALL FINISH.
4. ALL WET TILE WALLS (BATH AND SHOWER ENCLOSURES) SHALL BE COMPLETELY WRAPPED IN KERDI BY SCHLUTER.

WALL BASE:
1. ALL RUBBER BASE SHALL BE SEALED TIGHT TO FINISHED FLOOR.

FLOOR FINISH:
1. ALL FLOOR TRANSITIONS ARE TO OCCUR AT THE CENTERLINE OF DOOR WHEN DOOR IS IN CLOSED POSITION.
2. REFER TO I.101 SERIES FOR TRANSITION AND THRESHOLD DETAILS.
3. REFER TO INTERIOR FLOOR FINISH PLANS FOR ALL FLOOR PATTERNS.
4. INSTALL ALL LUXURY VINYL TILE IN ONE DIRECTION ONLY, TO MATCH THROUGHOUT, UNLESS NOTED OTHERWISE.

DOORS/WINDOWS:
1. INTERIOR HOLLOW METAL DOOR & FRAME, AND INTERIOR SURFACE OF EXTERIOR HOLLOW METAL DOOR & FRAME TO BE PAINTED TO MATCH FACILITY STANDARD, UNLESS NOTED OTHERWISE.

CEILING FINISH:
1. FURR-DOWN FINISH: VERTICAL AND HORIZONTAL SURFACES OF FURR-DOWN TO MATCH ADJACENT WALLS, UNLESS NOTED OTHERWISE.
2. REFER TO REFLECTED CEILING PLAN FOR ALL CEILING HEIGHTS.
3. PAINT ALL GYP. BD. CEILINGS LATEX EGGSHELL, UNLESS NOTED OTHERWISE. SEE FINISH LEGEND FOR DEFINITION.
4. PAINT ALL ACCESS PANELS IN CEILING TO MATCH ADJACENT CEILING FINISH.
5. PAINT ALL SIDES OF SOFFIT FOR GYP. CEILING ABOVE COLOR LISTED ON REFLECTED CEILING PLAN.
6. ALL CEILING GRID WALL ANGLES TO BE SEALED AT WALL WHERE PAINT OCCURS.

ACCESSORIES:
1. REFER TO EQUIPMENT PLAN AND DETAILS FOR WALL PROTECTION (WP) LOCATIONS. REFER TO INTERIOR FINISH LEGEND FOR SPECIFIC PROFILES AND COLORS.
2. PROVIDE CLEAR SILICONE JOINT SEALANT BETWEEN SHEET WALL PROTECTION TRIM AND FINISHED GYPSUM BOARD AS WELL AS SHEET WALL PROTECTION AND FLOORING BASE UNLESS NOTED OTHERWISE.
3. INSTALL ADA COMPLIANT SIGNAGE PROVIDED BY FACILITY AT ALL ROOMS WITHIN SCOPE UNLESS OTHERWISE INDICATED BY FACILITY.

FINISH PLAN LEGEND

ROOM FINISH TAG (REFERENCE I.101 SHEET)

ACT	CEILING FINISH
P	WALL FINISH
RB	WALL BASE FINISH
SV	FLOOR FINISH

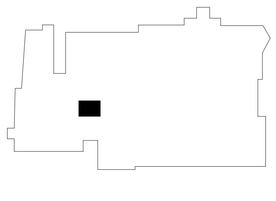
* DENOTES MULTIPLE FINISHES. PLEASE REFER TO ENLARGED PLANS, DETAILS AND/OR ELEVATIONS FOR MORE INFORMATION.

- (1) KEYNOTE
- OUT OF SCOPE
- WP1 — SHEET/RAIL WALL PROTECTION RE: DETAILS ON SHEET I.101
- WP2 — WALL PROTECTION CORNER GUARD RE: DETAILS ON SHEET I.101
- FLOORING TRANSITION
- PHASE 1
- PHASE 2

FINISH PLAN KEYNOTES

(1) INSTALL KICKPLATE 34" x 1" LDW – IVES 8400 US32D B-CS
(2) TERMINATE IB INTO SIDE OF HM FRAME
(3) PROVIDE WHITE FILLER STRIP TO MATCH EXISTING CABINET

KEY PLAN



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No.	Description	Date

STATE OF COLORADO
JOHN MENNO MAP
401729
LICENSED ARCHITECT
12/02/2022

21-048 TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	21-048
Drawn by	NVS
Checked by	JMN

Sheet Title
FINISH PLAN, DETAILS AND LEGEND

Sheet Number
I.201

12/8/2022 4:51:03 PM

MECHANICAL ABBREVIATIONS

AAV	AUTOMATIC AIR VENT (VALVE)
AB	AIR BLENDER
AC	AIR CONDITIONING UNIT OR AIR COMPRESSOR
ACH	AIR CHANGES PER HOUR
AD	ACCESS DOOR
AF	AIR FILTER
AFC	AUTOMATIC FLOW CONTROL DEVICE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AMP	AMPERE
AMS	AIR FLOW MEASURING STATION
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT/ARCHITECTURAL
AS	AIR SEPARATOR
AUTO	AUTOMATIC
AVG	AVERAGE
BAS	BUILDING AUTOMATION SYSTEM
BD	BALANCING DAMPER
BDD	BACK-DRAFT DAMPER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNIT PER HOUR
CAP	CAPACITY
CC	COOLING COIL
CCW	COUNTER CLOCKWISE
CD	CONDENSATE DRAIN
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CL	CENTER LINE
CO	CLEAN OUT OR CARBON MONOXIDE
CONT	CONTINUOUS, CONTINUATION
CP	COIL PUMP
CT	COOLING TOWER
CU	CONDENSING/ER UNIT
CU FT	CUBIC FEET
CV	CONSTANT AIR VOLUME
CW	COLD WATER OR CLOCKWISE
D	DRAIN
DB	DECIBEL OR DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DE	DRYER EXHAUST
DER	DRYER EXHAUST RISER
DEG.F	DEGREE FARENHEIT
DG	DOOR GRILLE
DIA	DIAMETER
DIFF	DIFFUSER
DISCH	DISCHARGE
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
DX	DIRECT EXPANSION
(E)	EXISTING
E	EXHAUST
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL CONTRACTOR
ECH	ELECTRIC CABINET HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL-WATER SOLUTION (% GLYCOL BY VOLUME)
EHC	ELECTRIC HEATING COIL
ELEC	ELECTRIC/ELECTRICAL
EL/ELEV	ELEVATION
ENT	ENTERING
EQUIP OR EQT	EQUIPMENT
E/RF	EXHAUST/RETURN FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST	EXISTING
F	FILTER
°F	DEGREE FARENHEIT
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT

FPB	FAN POWERED TERMINAL UNIT
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FREEZE STAT
F/SD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET OR FLASH TANK
FTR	FIN TUBE RADIATION (HOT WATER)
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLON
GC	GENERAL CONTRACTOR
GD	GRAVITY DAMPER
GEN	GENERAL
GE	GENERAL EXHAUST
GER	GENERAL EXHAUST RISER
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HUMIDISTAT
HC	HEATING COIL
HORIZ	HORIZONTAL
HP	HORSEPOWER OR HEAT PUMP
HR	HOUR
HTG	HEATING
HUM	HUMIDIFIER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IN OR "	INCH
INSUL.	INSULATION
IN W.C.	INCHES WATER COLUMN
IN W.G.	INCHES WATER GAUGE
KE	KITCHEN EXHAUST
KER	KTICHEN EXHAUST RISER
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LL	LOW LIMIT OR LANDLORD
LP	LOW PRESSURE GAS
LRA	LOCKED ROTOR AMPERES
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MB	MIXING BOX
MBH	THOUSAND BTU PER HOUR
MIN	MINIMUM OR MINUTE(S)
MD	MOTORIZED DAMPER
MP	MEDIUM PRESSURE GAS
NC	NORMALLY CLOSE OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NK	NECK
NO	NORMALLY OPEN
NO OR #	NUMBER
NR	NOT REQUIRED
NTS	NOT TO SCALE
NV	NATURAL VENTILATION
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OV	OUTLET VELOCITY OR OVAL
P	PRESSURE SENSOR (ALARMED)
CTP	COOLING TOWER PUMP
CWP	CONDENSER WATER PUMP
PC	PLUMBING CONTRACTOR
PCD	PUMPED CONDENSATE DISCAHRGE
PG	PROPYLENE GLYCOL-WATER SOLUTION (%GLYCOL BY VOLUME)
PLBG	PLUMBING
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
R	RETURN OR RISER
RA	RETURN AIR
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RO	RELIEF OPENING
RP	RADIANT PANEL
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VALVE (VENT) OR ROOF VENTILATOR
S	SUPPLY
SA	SOUND ATTENUATOR

SF	SUPPLY FAN OR SQUARE FEET
SHT	SHEET
SL	SENSIBLE LOAD
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SQ.FT.	SQUARE FEET
SS	STAINLESS STEEL
STD	STANDARD
STRUC	STRUCTURE/STRUCTURAL
T	THERMOSTAT/TEMPERATURE SENSOR
TD	TEMPERATURE DIFFERENCE OR TRANSFER DUCT
TEF	TOILET EXHAUST FAN
TER	TOILET EXHAUST RISER
TEMP	TEMPERATURE
TO	TRANSFER OPENING
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDER-CUT (DOOR)
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VSD	VARIABLE SPEED DRIVE
W	WATT
W/	WITH
WC	WATER COLUMN
WFD	WATER PRESSURE DROP
WMS	WIRE MESH SCREEN
WT	WEIGHT
XA	VARIABLE LENGTH ACCESS

SOUND ATTENUATOR

UC OR DG — DG: DOOR GRILLE; UC: DOOR UNDERCUT

T — THERMOSTAT

T — THERMOSTAT MOUNTED TO THERMOISOLATING PAD IF ON EXTERIOR COLUMN

T — DUCT MOUNTED THERMOSTAT

H — HUMIDISTAT

SD — SMOKE DETECTOR

CD — CARBON MONOXIDE DETECTOR

CO2 — CARBON DIOXIDE DETECTOR

N.I.C. - FUTURE TENANT BUILDOUT

REQUIRED MAINTENANCE CLEARANCE

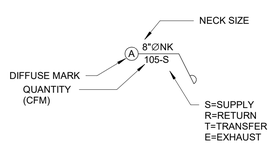
IDENTIFICATION SYMBOLS

X — KEYED NOTE TAG

X / X — EQUIPMENT TAG; EQUIPMENT TAG NO.

X / M-X — SECTION NUMBER; DRAWING ON WHICH SECTION IS SHOWN

AIR DEVICES DATA TAG



DUCTWORK SYMBOLS

DOUBLE LINE

(E)12X12 — EXISTING DUCT

EXISTING DUCT OR ITEM TO BE REMOVED

EXISTING DUCT OR ITEM TO REMAIN

BRANCH TAKE-OFF

RADIUS ELBOW

SQUARE TAP COLLAR

RADIUS TEE

BELLMOUTH CONNECTION TO RECT. DUCT

CONICAL TEE

WYE OR TEE

EXHAUST/RETURN AIR DEVICE

24X12 — RECT. DUCT DIMENSIONS (SIZE IN INCHES. FIRST DIM. IS SHOWN)

24Ø — ROUND DUCT DIMENSIONS DIAMETERS

24/12 — FLAT OVAL (SIZE IN INCHES) (FIRST DIM. IS SHOWN)

DUCT TRANSITION

ELBOW TURNED DOWN

ROUND DUCT DN

SUPPLY AIR DUCT

EXHAUST AND RETURN DUCT

OUTSIDE AIR INTAKE

FLEX. DUCT CONNECTION

FIRE DAMPER — FD

CLEAN OUT

MANUAL DAMPER

MOTORIZED (AUTOMATIC) DAMPER — MD

LOW LEAKAGE MOTORIZED DAMPER — LLMD

ACCESS DOOR — AD

CAP

DUCT OFF-SET DN (IN DIRECTION OF FLOW) — DN

DUCT OFF-SET UP (IN DIRECTION OF FLOW) — UP

FLEXIBLE DUCT

AIR TERMINAL UNIT

AIR TERMINAL UNIT W/REHEAT

PIPING SYMBOLS

(E)SERVICE — EXISTING PIPE

EXISTING PIPE OR ITEM TO BE REMOVED

EXISTING PIPE OR ITEM TO REMAIN

CD — CONDENSATE DRAIN

CWR — CONDENSER WATER RETURN

CWS — CONDENSER WATER SUPPLY

CHWR — CHILLED WATER RETURN

CHWS — CHILLED WATER SUPPLY

D — DRAIN

G — NATURAL GAS

HWR — HOT WATER HEATING RETURN

HWS — HOT WATER HEATING SUPPLY

V — V — VENT

AIR SEPARATOR

DIRECTION OF FLOW ARROW

CONCENTRIC REDUCER

ECCENTRIC REDUCER

TEE

TEE TURNED DOWN

TEE TURNED UP

ELBOW 45°

ELBOW TURNED UP

ELBOW TURNED DOWN

PRESSURE GAUGE

FLANGE

CAPPED END CONNECTION

EXPANSION JOINT

FLEXIBLE CONNECTION

FM — FLOW METER

EXPANSION COMPENSATOR

BALL VALVE

PRESSURE INDEPENDANT FLOW CONTROL AND SHUT-OFF VALVE

BUTTERFLY VALVE

CHECK VALVE

HOSE END DRAIN VALVE

TRIPLE DUTY CHECK VALVE

GATE VALVE

GLOBE VALVE

MANUAL AIR VENT

M M — MOTORIZED 2-WAY OR 3-WAY CONTROL VALVE

SOLENOID VALVE

PRESSURE REDUCING VALVE

PRESSURE RELIEF VALVE

GAS COCK

PIPE UNION

STRAINER

SAFETY VALVE

VACUUM BREAKER

IN-LINE PUMP

PRESSURE GAUGE WITH COCK

THERMOMETER

FLOW SWITCH

PIPE ANCHOR

PIPE GUIDE

UNION

Y-TYPE STRAINER

Y-TYPE STRAINER WITH HOSE ENDED DRAIN VALVE

BASKET STRAINER

FILTER/DRYER

M — MOTOR ACTUATOR

T — CONDENSATE TRAP

PRESSURE-TEMPERATURE PORT

MECHANICAL SHEET LIST

M.000 - MECHANICAL SYMBOLS, ABBREVIATIONS, AND NOTES
M.001 - MECHANICAL SPECIFICATIONS
M.002 - MECHANICAL SCHEDULES
M.003 - MECHANICAL DUCTWORK DETAILS
M.004 - MECHANICAL PIPING DETAILS
MD.101 - MECHANICAL DEMOLITION PLAN
MP.101 - MECHANICAL PIPING PLAN
MV.101 - MECHANICAL VENTILATION PLAN

GENERAL SCOPE OF WORK

THE MEDICAL CENTER OF AURORA IS RENOVATING THEIR EXISTING CATH LABS 1 AND 2 THAT WERE CONSTRUCTED IN 2009. THE MECHANICAL RENOVATION INCLUDES REPLACEMENT VARIABLE AIR VOLUME TERMINAL AIR BOXES, COMPUTER ROOM AIR CONDITIONER, AND AIR DISTRIBUTION DEVICES. REFER TO ARCHITECTURAL FOR ADDITIONAL DETAILS.

PROJECT PHASING NOTES

THE PROJECT IS TO BE CONSTRUCTED IN TWO PHASES. REFER TO THE ARCHITECTURAL DRAWINGS FOR FURTHER DETAILS. BELOW IS A BRIEF DESCRIPTION:

A. PHASE 1: RENOVATE CATH LAB 1 1C-6002A AND EQP STG 1C-6004A. CONVERT EXISTING SUPPLY 1C-05 TO NEW UPS 1C-05.
B. PHASE 2: RENOVATE CATH LAB 2 1C-6005A AND EQP STG 1C-6007A. CONVERT EXISTING UPS 1C-611B TO NEW SUPPLY 1C-611B. DEMOLISH EXISTING CRAC-1-1 LAST.

DESIGN CONDITIONS

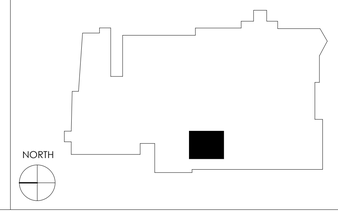
1. PROJECT ELEVATION: 5400 FT
2. SUMMER DRY BULB TEMPERATURE: 93.5°F
3. SUMMER WET BULB TEMPERATURE: 64.6°F
4. WINTER DRY BULB TEMPERATURE: -10°F

CODES AND STANDARDS

DESIGNED UNDER THE FOLLOWING CODES AND STANDARDS:
2015 INTERNATIONAL MECHANICAL CODE (IMC)
2015 INTERNATIONAL BUILDING CODE (IBC)
2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2015 INTERNATIONAL FIRE CODE (IFC)
2015 INTERNATIONAL PLUMBING CODE (IPC)
2020 NATIONAL ELECTRICAL CODE (NEC)

This sheet of drawings has not been reviewed for code compliance.

KEY PLAN



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No.	Description	Date

COLORADO LICENSED — MICHAEL P. THOMPSON — 50150 — PROFESSIONAL ENGINEER
12.02.2022

TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

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Date	02 DECEMBER 2022
Project Number	2022-00565-00
Drawn by	MAV
Checked by	Checker

Sheet Title
MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES

Sheet Number
M.000

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12/2/2022 2:09:43 PM

MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS

1. WORK UNDER THIS SECTION IS SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, INCLUDING THE DRAWINGS, GENERAL AND SUPPLEMENTARY CONDITIONS OF THE ARCHITECTURAL SPECIFICATIONS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL GOVERNING CODES, LAWS, AND REGULATIONS. NOTHING IN THESE SPECIFICATIONS IS TO BE CONSTRUED AS INTENDING TO SUPERSEDE SUCH REQUIREMENTS.
3. THE DRAWINGS AND SPECIFICATIONS SHALL BE UNDERSTOOD TO COVER SYSTEMS OF HEATING, VENTILATION AND AIR CONDITIONING, INSULATION, BUILDING AUTOMATION SYSTEMS AND TEMPERATURE CONTROL, AND TESTING AND BALANCING. THE DRAWINGS AND SPECIFICATIONS ARE TO BE TAKEN TOGETHER AND NOT SHOWN, OR WORK SHOWN AND NOT SPECIFIED, SHALL BE AS BINDING AS THOUGH REQUIRED BY BOTH, THE DRAWINGS AND SPECIFICATIONS.
4. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERABLE AS NECESSARY TO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED FOR SUCH SYSTEMS, WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR THE DRAWINGS.
5. THE CONTRACTOR SHALL GUARANTEE ALL WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR IN ACCORDANCE WITH THE GENERAL CONDITIONS, UNLESS A LONGER PERIOD IS STIPULATED UNDER SPECIFIED HEADINGS. HE SHALL REPAIR OR REPLACE, AT NO ADDITIONAL COST TO THE OWNER, ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS. REPAIRS OR REPLACEMENTS SHALL BEAR AN ADDITIONAL TWELVE (12) MONTHS GUARANTEE FROM TIME REPAIR OR REPLACEMENT IS COMPLETE. THIS REQUIREMENT SHALL BE BINDING, EVEN THOUGH IT WILL EXCEED PRODUCT GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.
6. THE CONTRACTOR SHALL SUBMIT HIS OWN AND EACH MANUFACTURERS' WRITTEN CERTIFICATES AND WARRANTIES WHICH INDICATE THAT EACH ITEM OF EQUIPMENT FURNISHED, COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. GUARANTEES AND WARRANTIES SHALL COMMENCE FROM THE DATE OF THE SIGNED ACCEPTANCE BY THE OWNER OF A PARTICULAR ITEM OF EQUIPMENT OR A PARTICULAR DEFINED PORTION OF THE WORK.
7. ALL WORKMANSHIP SHALL BE FIRST CLASS IN EVERY RESPECT AND SHALL BE PREFORMED ONLY BY SKILLED MECHANICS, RECOGNIZED AS SUCH IN THEIR RESPECTIVE TRADES.
8. ALL WORK SHALL BE INSTALLED IN CONFORMITY WITH ALL GOVERNMENTAL JURISDICTIONAL AUTHORITIES REGULATIONS, LAWS, RULES, OR ORDINANCES IN EFFECT AND GOVERNING SAME; SUCH RULES AND REGULATIONS AND LOCAL ORDINANCES TO BE CONSIDERED PART OF SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL BE HELD STRICTLY RESPONSIBLE FOR ANY VIOLATION OF SAME AND SHALL CHANGE HIS WORK TO CONFORM WITHOUT ADDITIONAL COST TO OWNER.
9. ALL WORK SHALL ALSO CONFORM TO THE PUBLISHED STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, AND ELECTRICAL WORK AND EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF THE CURRENT ISSUE OF THE NATIONAL ELECTRICAL CODE. ALL MATERIALS, IN GENERAL, SHALL BE UNDERWRITERS' LABORATORIES LISTED AND SHALL BEAR UL LABEL WHERE LABELING SERVICE IS AVAILABLE.
10. INCLUDE IN BID ALL LABOR, MATERIAL, & MISCELLANEOUS COSTS REQUIRED TO CONSTRUCT NEW SYSTEMS AND REMODEL EXISTING SYSTEMS TO CREATE COMPLETE & PROPERLY FUNCTIONING SYSTEMS. INCLUDE ALL ITEMS REASONABLY INFERABLE AS NECESSARY FOR THE PROPER OPERATION OF THE SYSTEMS, WHETHER EXPLICITLY SHOWN ON THE DRAWINGS OR NOT.
11. IF THE MECHANICAL CONTRACTOR PROPOSES TO USE THE PRODUCT OF A MANUFACTURER OTHER THAN THE ONE NAMED IN THE DOCUMENTS HE SHALL BE RESPONSIBLE FOR THAT ITEM OF EQUIPMENT FITTING IN PLACE WITH ADEQUATE CLEARANCES. FURTHER, IF DIFFERENT CONNECTIONS OR PROVISIONS ARE REQUIRED TO BE FURNISHED BY OTHER TRADES FROM THE PRODUCT NAMED IN THE DOCUMENTS. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OTHER TRADES OF ANY CHANGES AND IF ADDITIONAL COSTS ARE REQUIRED BY THE OTHER TRADES HE SHALL PAY SUCH COSTS.
12. IF ALTERNATE MANUFACTURERS OTHER THAN THOSE NAMED IN THE EQUIPMENT SCHEDULES ARE PROPOSED TO BE USED, THE BIDDER SHALL LIST SUCH OTHER ALTERNATE MANUFACTURERS ALONG WITH ANY COST ADDITIONS OR DEDUCTIONS FROM THE BASE BID PROPOSAL. IF THE OWNER ACCEPTS THE ALTERNATE MANUFACTURER THE CONTRACT WILL SO STATE. IF THE CONTRACT DOES NOT CONTAIN THE NAMES OF ALTERNATE MANUFACTURERS THE CONTRACTOR SHALL SUBMIT ONLY MANUFACTURERS NAMED IN THE DOCUMENTS.
13. THE ENGINEER HAS NO CONTRACTUAL RESPONSIBILITY IN CONNECTION WITH JOB SITE SAFETY MEASURES OR PRECAUTIONS AS RELATED TO MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES IN THAT REGARD, THE MECHANICAL CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE ARCHITECT/ENGINEER'S OBSERVATIONS OF THE MECHANICAL CONTRACTOR'S PERFORMANCE ARE NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE MECHANICAL CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE. IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", VOLUME 36, NO.75, PART II OF THE FEDERAL REGISTER BY THE U.S. DEPARTMENT OF LABOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SAFETY MEASURES AND SHALL CONSULT WITH THE STATE OR FEDERAL SAFETY INSPECTOR FOR INTERPRETATION WHENEVER IN DOUBT AS TO WHETHER SAFE CONDITIONS DO OR DO NOT EXIST; OR WHETHER HE IS OR IS NOT IN COMPLIANCE WITH STATE OR FEDERAL REGULATIONS.
14. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXACT LOCATIONS & FINAL COORDINATION AND SHALL PROVIDE NECESSARY OFFSETS AND ELBOWS FOR PLACEMENT OF WORK AT NO ADDITIONAL CHARGE. CONTRACTOR RESPONSIBLE FOR COORDINATING DIFFUSER LOCATION WITH ARCHITECTURAL REFLECTED CEILING PLANS. DIFFUSER LOCATIONS ON SHOP DRAWINGS ARE SUBJECT TO APPROVAL BY ARCHITECT/ENGINEER.
15. VISIT JOB SITE TO DETERMINE EXISTING CONDITIONS. FIELD VERIFY EXACT LOCATION AND SIZE OF ALL DUCTWORK, PIPING, EQUIPMENT, ETC., BEFORE BEGINNING WORK. NO EXTRA WILL BE ALLOWED FOR WORK FORESEEABLE BY JOB SITE VISIT.
16. PRIOR TO RELOCATION OF EXISTING EQUIPMENT, VERIFY THE OPERATION AND WORKING CONDITION.
17. FURNISH NECESSARY SCAFFOLDING, STAGING OR CRIBBING REQUIRED FOR THE COMPLETION OF THE WORK. SUCH SCAFFOLDING, ETC., SHALL BE REMOVED FROM THE PREMISES WHEN ITS USE IS NO LONGER REQUIRED ON THE JOB.
18. ALL SUBMITTALS FOR NEW EQUIPMENT SHALL BE APPROVED BY THE ENGINEER, PROVIDE SUBMITTALS FOR REVIEW PRIOR TO ORDERING.
19. ALL DETAILS OF CONSTRUCTION FOR DUCT LAYOUTS AND EQUIPMENT AND ASSOCIATED WIRING DIAGRAMS TO BE FURNISHED. USE BUILDING STANDARDS WHERE APPLICABLE. REVIEW BUILDING STANDARDS WITH BUILDING ENGINEER.
20. SUBMIT COORDINATED SHOP DRAWINGS BY THE ENGINEER PRIOR TO FABRICATION AND INSTALLATION. THE SHOP DRAWINGS SHALL INDICATE EQUIPMENT, PIPING, DUCT, TERMINAL UNITS, ACCESS, DIFFUSERS, VALVES, ACTUATORS, ETC. AND THERMOSTAT LOCATIONS. REVIEW OF THE SHOP DRAWINGS IS RENDERED AS A SERVICE ONLY AND SHALL NOT BE CONSIDERED AS A GUARANTEE OF MEASUREMENTS OR OF BUILDING CONDITIONS; NOR SHALL IT BE CONSTRUED AS RELIEVING THE MECHANICAL CONTRACTOR OF BASIC RESPONSIBILITIES UNDER HIS CONTRACT.
21. BEFORE MAKING ANY INSTALLATION, THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS WHOSE WORK MAY AFFECT THE WORK UNDER THEIR SECTIONS AND MAKE THE NECESSARY CHANGES TO AVOID INTERFERENCES OR IMPROPER EFFECT ON WORK TO BE PERFORMED BY ALL OTHER TRADES, IN THE EVENT THAT INTERFERENCES DEVELOP, THE ARCHITECT'S DECISION WILL BE FINAL AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR MOVING OF MISPLACED PIPING, DUCTS, CONDUIT AND/OR EQUIPMENT.
22. ADJUST BELTS, SHEAVES, AND VFD'S AS REQUIRED TO MEETS SPECIFIED AIR VOLUMES FOR SYSTEMS SERVING SPACES WITHIN CONSTRUCTION LIMIT LINE.
23. PERFORM ALL CONTROL WORK. COORDINATE WITH ELECTRICAL CONTRACTOR & BASE BUILDING CONTROLS VENDOR.
24. ALL MATERIALS AND/OR EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS. INSPECT AND TEST ALL WORK BEFORE PLACING INTO OPERATION.
25. MATERIALS SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS; BE MANUFACTURED BY REPUTABLE MANUFACTURERS WHO HAVE BEEN PRODUCING THIS TYPE OF MATERIAL TO BE SOLD IN MAJOR CITIES IN THE UNITED STATES FOR A PERIOD OF AT LEAST FIVE (5) YEARS, UNLESS OTHERWISE NOTED HEREIN.
26. EACH MAJOR COMPONENT OF THE EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER AND RATING ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT IS NOT ACCEPTABLE. ASME CODE RATINGS, OR OTHER DATA WHICH IS DIE-STAMPED INTO THE SURFACE OF THE EQUIPMENT SHALL BE IN A VISIBLE LOCATION.
27. THE INSTALLATION OF ANY ACCESS PANEL IS STRICTLY LIMITED TO ONLY COORDINATED LOCATIONS AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
28. DUCTWORK BEHIND THE GRILLES, REGISTERS, DIFFUSERS, ETC. WHICH IS EXPOSED TO VIEW THROUGH THE UNITS, SHALL BE GIVE ONE (1) COAT OF PRIMER AND A FINISH COAT OF FLAT BLACK PAINT
29. WHERE WORK REQUIRED IS OUTSIDE THE NORMAL AREA OF EXPERTISE OF THE CONTRACTOR INVOLVED, HE SHALL HIRE QUALIFIED SUBCONTRACTORS TO PERFORM THAT WORK UNDER HIS DIRECT SUPERVISION AND RESPONSIBILITY.
30. NEW OR MODIFIED DUCTWORK, DUCT AND PIPE INSULATION, COVERINGS, LININGS, ADHESIVES, ETC. SHALL HAVE A SMOKE DEVELOPED RATING NO MORE THAN 50 AND A FLAME SPREAD RATING NO MORE THAN 25, WHEN TESTED IN ACCORDANCE WITH ASTM E 84 AND ASTM C 411 AS REQUIRED BY AUTHORITY HAVING JURISDICTION.
31. CONTRACTOR SHALL PROVIDE FIRE STOPPING AT ALL DUCT AND PIPE PENETRATIONS THRU RATED ENCLOSURES IN FLOOR AND FIRE RATED WALL/PARTITION PENETRATIONS. (UL LISTED FS SYSTEM) ANNULAR SPACE BETWEEN SLEEVE AND DUCT OR PIPE SHOULD BE PACKED WITH APPROVED INSULATION AND SEALED ON BOTH SIDES WITH FS SEALANT AND SHALL BE SMOKE TIGHT. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED DIRECTIONS AND PER FIRE TESTED DESIGNS THAT HAVE BEEN ACCEPTED BY THE APPROPRIATE CODE AUTHORITY HAVING JURISDICTION.
32. PENINGS MADE IN FIRE RATED WALL, CEILING OR FLOOR SHALL BE EFFECTIVELY CLOSED AND REPAIRED SO THE FIRE RATED IS MAINTAINED.
33. PROVIDE FIRE DAMPERS WHERE SHOWN ON THE DRAWING AND WHERE REQUIRED TO MAINTAIN FIRE RATING OF WALLS. CONTRACTOR SHALL TEST AND CLEAN ALL EXISTING FIRE DAMPERS WITHIN CONSTRUCTION LIMIT LINE.
34. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED BY HIS WORK.
35. REPLACE FILTERS, OUTLET FITTINGS AND DEVICES, INSPECT FINISH, REMOVE BURRS, DIRT AND CONSTRUCTION DEBRIS. FLUSH PIPING WITH CLEAN WATER, REMOVE, CLEAN AND REPLACE FILTER SCREENS. PIPING SHALL BE FLUSHED AND CLEANED BY BASE BUILDING CHEMICAL TREATMENT CONTRACTOR PRIOR TO RELEASING WATER INTO TENANT SPACE. CLEAN COOLING COILS, AND INSPECT FAN SHAFT BEARINGS FOR ALL SYSTEMS SERVING SPACES WITHIN THE CONSTRUCTION LIMIT LINE. REPLACE FILTERS AS REQUIRED DURING CONSTRUCTION PERIOD AND PROVIDE NEW SETS OF FILTERS AFTER COMPLETION OF WORK. KEEP DUCT OPENINGS COVERED DURING CONSTRUCTION TO PROTECT FROM DUST
36. UNDER NO CIRCUMSTANCES SHALL ANY EQUIPMENT BE OPERATED FOR TEMPORARY HEAT OR VENTILATION WITHOUT FILTERS IN PLACE. IF THE EQUIPMENT IS USED BEFORE CONSTRUCTION IS COMPLETED, THE FILTERS SHALL BE REPLACED BEFORE THE SPACE IS ACCEPTED BY THE OWNER. THIS SET OF FILTERS SHALL NOT BE CONSIDERED AS THE SPARE SET OF FILTERS HEREINAFTER SPECIFIED.
37. AT COMPLETION OF THE PROJECT, ALL CHANGES AND DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE RECORDED BY THE MECHANICAL CONTRACTOR ON AS-BUILT DRAWINGS.
38. FURNISH COMPLETE PACKAGES TO THE OWNER'S REPRESENTATIVE, CONTAINING AS-BUILT SHOP DRAWINGS, TEST AND BALANCE REPORTS, OPERATING INSTRUCTIONS, WARRANTIES, PARTS LISTS, WIRING DIAGRAMS, ETC., ON ALL EQUIPMENT FURNISHED UNDER THIS CONTRACTOR.
39. THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER'S OPERATING PERSONNEL AS TO THE PROPER OPERATION, SERVICING, ETC., OF ALL NEW INSTALLED EQUIPMENT, SYSTEMS AND CONTROLS. INSTRUCTION TO BE A MINIMUM OF 4 HOURS AND RECORDED

HVAC SYSTEM:

1. THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS ARE TO COVER THE FURNISHINGS OF ALL LABOR, MATERIALS, EQUIPMENT, APPARATUS, SERVICE PERMANENT AND TEMPORARY FACILITIES AS NECESSARY TO FURNISH AND INSTALL AND AIR CONDITIONING WORK INVOLVED IN THE FURNISHINGS, INSTALLING, TESTING, ADJUSTING, RETESTING, READJUSTMENT AS REQUIRED AND DIRECTED AND PLACING INTO APPROVED SATISFACTORY OPERATION THE COMPLETE RESPECTIVE SYSTEMS AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATION, AND AS REQUIRED BY THE JOB CONDITIONS.
2. FURNISH AND INSTALL A COMPLETE AND OPERABLE SYSTEM FOR VENTILATING, HEATING AND AIR CONDITIONING CONSISTING OF, BUT NOT LIMITED TO:
   A. COMPUTER ROOM AIR CONDITIONING
   B. TERMINAL UNITS
   C. SUPPLY, RETURN, AND EXHAUST DUCT SYSTEMS
   D. HYDRONIC PIPING
   E. GRILLES, REGISTERS, AND DIFFUSERS, FLEXIBLE DUCTS
   F. MANUAL DAMPERS
   G. TEMPERATURE CONTROLS SYSTEM
   H. TESTING AND BALANCING
3. FURNISH AND INSTALL ALL INSULATION HEREINAFTER SPECIFIED.
4. FURNISH CUTTING AND CORING FOR INSTALLATION OF DUCTS AND EQUIPMENT.
5. THE WORK UNDER THIS SECTION SHALL COMPLY WITH THE LATEST EDITION OF THE APPLICABLE STANDARDS AND CODES OF THE FOLLOWING:
   A. CITY OF AURORA BUILDING CODES
   B. ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS
   C. ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING AND
   D. AIR CONDITIONING ENGINEERS
   E. ARI - AIR CONDITIONING AND REFRIGERATION INSTITUTE
   F. ASTM - AMERICAN SOCIETY FOR TESTING MATERIALS
   G. AABC - ASSOCIATED AIR BALANCE COUNCIL
   H. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
   I. SMACNA - SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
6. EXERCISE CARE IN TRANSPORTING AND HANDLING TO AVOID DAMAGE TO FIXTURES, EQUIPMENT AND MATERIALS
7. STORE MATERIALS ON THE SITE SO AS TO PREVENT DAMAGE.
8. KEEP EQUIPMENT AND MATERIALS CLEAN, DRY AND FREE FROM DELETERIOUS CONDITIONS
9. FOR ALL OPERABLE DEVICES IN WALLS OR ABOVE INACCESSIBLE SUSUPENDED CEILING, PROVIDE 18"X18" MILCOR ACCESS DOORS WITH SAME KEYED LOCKS AND CONCEALED HINGES. LAY IN CEILINGS ARE CONSIDERED ACCESSIBLE.
   A. STYLE DW IN DRYWALL NO. 16 GA. FRAME NO. 14 GA. PANEL
   B. STYLE AP IN PLASTER NO. 16 GA. FRAME NO. 14 GA. PANEL
   C. STYLE M IN MASONRY NO. 16 GA. FRAME NO. 14 GA. PANEL
10. PROVIDE AN ADJUSTABLE BUTTERFLY OR OPPOSED MULTI BLADE VOLUME DAMPER IN DUCTWORK AT EVER DUCT JUNCTION ON ALL SUPPLY, RETURN AND EXHAUST AIR DUCTWORK. DAMPERS SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL 2 GAGES HEAVIER THAN DUCT IN WHICH THE DAMPER IS INSTALLED. EACH DAMPER SHALL BE PROVIDED WITH DAMPER ROD HELD IN PLACE WITH A CLAMPING DEVICE. VISIBLE END OF THE DAMPER RODS SHALL BE FILE MARKED WITH MARKS PARALLEL TO THE BLADES.
11. FIRE DAMPERS SHALL BE COMPLETE WITH WALL FRAME, SLEEVES, ANGLE IRON STOPS, LATCHES, SPRINGS AND FUSIBLE LINK, ETC. AND SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND ELSEWHERE AS REQUIRED IN ACCORDANCE WITH NATIONAL BUREAU OF FIRE UNDERWRITER REGULATION BULLETIN 90-A. THE FIRE DAMPERS SHALL BEAR UL LABEL. FIRE DAMPERS SHALL BE 98% FREE AREA, AND BE OF THE LOW RESISTANCE TYPE WITH 1-1/2 HOURS OR 3 HOUR RATING AS MANUFACTURED BY PHILLIPS-AIRE, AMERICAN BALANCE, INC. OR RUSKIN MANUFACTURING.
12. ALL SUPPLY AND RETURN AIR OUTLETS SHALL BE MOUNTED TIGHTLY WITH RUBBER GASKETS TO PREVENT AIR LEAKAGE.
13. OUTLETS SHALL BE SELECTED AND GUARANTEED BY THE MANUFACTURER TO HANDLE THE AIR QUANTITIES AS SHOWN ON THE DRAWINGS WITH MAXIMUM PRESSURE DROP THROUGH THE OULET NOT EXCEEDING 0.10 IN OF WATER
14. UNLESS OTHERWISE NOTED, DIFFUSERS, REGISTERS OR GRILLES SHALL BE FABRICATED FROM PRIME STEEL AND SHALL BE PROVIDED WITH A FINISH COST OF WHITE BAKED ENAMEL PAINT, UNLESS NOTED OTHERWISE. DIFFUSERS, REGISTERS AND GRILLES SHALL BE MANUFACTURED BY TITUS, OR APPROVED EQUAL.
15. DRILLED-IN THREADED INSERTS: PHILLIPS "REDHEAD" DRILLED-IN THREADED INSERTS SHALL BE PROVIDED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
16. PROVIDE ANCHOR BOLTS, NUTS, SLEEVES FOR ANCHORING FANS, MOTORS AND ANY OTHER POWER-OPERATED EQUIPMENT.

DEMOLITION:

1. REMOVE ALL EXISTING MECHANICAL WORK AS REQUIRED FOR INSTALLATION OF NEW WORK.
2. COORDINATE DEMOLITION WORK WITH THE WORK OF ALL TRADES AND WITH OWNER REQUIREMENTS.
3. WHEREVER REMOVING ITEMS, CAP REMAINING PIPING, DUCTWORK, ETC., SO AS TO RENDER REMAINING WORK HARMLESS AND WITHOUT NUISANCE.
4. TAKE REMOVED ITEMS FROM THE PROPERTY AND DISPOSE OF IN AN APPROVED MANNER OR TURN OVER TO OWNER OR TENANT, AS REQUESTED.

DUCTWORK

1. DUCTWORK SHALL BE G500 GALVANIZED STEEL CONSTRUCTED & INSTALLED IN ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION HVAC DUCT CONSTRUCTION STANDARDS, LATEST EDITION
2. SEAL ALL JOINTS OF NEW DUCTWORK. INSPECT EXISTING DUCTWORK FOR LEAKS AND REPORT RESULTS BEFORE CONNECTING NEW DUCTWORK. ADDITIONALLY, SEAL SEAMS OF NEW DUCTWORK UPSTREAM OF BOXES. INSPECT EXISTING DUCTWORK FOR LEAKS AND REPORT RESULTS BEFORE CONNECTING NEW DUCTWORK. ALL DUCTWORK WITHIN THE CONSTRUCTION LIMIT LINE IS SUBJECT TO LEAK TESTS, AS REQUIRED. DUCT SEALANT SHALL BE WATER-BASED. PRESSURE SENSITIVE TAPE IS UNACCEPTABLE. GASKETED FLANGES SHALL BE SEALED WITH A MASTIC.
   A. MEDIUM PRESSURE SUPPLY DUCT >2IN.
      a. (UPSTREAM OF TERMINAL UNITS) SEAL CLASS A.
   B. LOW PRESSURE SUPPLY DUCT (<2 IN)
      a. (DOWNSTREAM OF TERMINAL UNITS): SEAL CLASS A.
3. DUCTWORK THICKNESS SHALL BE 22 GAUGE MINIMUM EXCEPT FOR THE FOLLOWING:
   A. WHERE ANY WELDING OTHER THAN LONGITUDINAL SEAM IS PERFORMED, THE THICKNESS SHALL BE 18 GAUGE MINIMUM.
4. PROVIDE THE DUCTWORK SHAPE ACCORDING TO THE FOLLOWING SCHEDULE AND THE FLOOR PLANS:
   A. EXPOSED-ROUND OR FLAT OVAL
   B. CONCEALED ABOVE CEILING-ROUND OR RECTANGULAR
5. ROUND AND FLAT OVAL:
   A. ROUND DUCTWORK SHALL BE SPIRAL SELF SEALING W/EPDM GASKET. SNAPLOCK SEAMS ARE NOT PERMITTED.
   B. PROVIDE FLAT OVAL DUCTWORK PER ONE OF THE FOLLOWING TWO OPTIONS:
      a. SINGLE WALL SPIRAL WITH PREFABRICATED CONNECTION SYSTEMS CONSISTING OF TWO FLANGES AND ONE SYNTHETIC RUBBER GASKET. SNAPLOCK SEAMS ARE NOT PERMITTED.
      b. DOUBLE WALL SPIRAL WITH 1" ANNULAR SPACE AND PREFABRICATED CONNECTION SYSTEMS CONSISTING OF TWO FLANGES AND ONE SYNTHETIC RUBBER GASKET. SNAPLOCK SEAMS ARE NOT PERMITTED.
   C. CRIMP JOINTS ARE NOT PERMITTED.
   D. PLEATED ELBOWS ARE NOT PERMITTED.
   E. ADJUSTABLE ELBOWS ARE NOT PERMITTED.
   F. MITERED ELBOWS WITH TURNING VANES ARE NOT PERMITTED. USE RADIUS ELBOWS WITH CENTERLINE RADIUS AT LEAST AS GREAT AS THE DUCT WIDTH.
6. RECTANGULAR:
   A. BUTTON PUNCH SNAPLOCK SEAMS ARE NOT PERMITTED.
   B. TRANSVERSE (GIRTH) JOINTS T-4, 9, 17, 18, 20, AND 23 ARE NOT PERMITTED.
   C. MITERED ELBOWS WITH TURNING VANES ARE NOT PERMITTED UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS. USE RADIUS ELBOWS WITH CENTERLINE RADIUS AT LEAST AS GREAT AS THE DUCT WIDTH.
7. EXPOSED DUCTWORK AND DUCTWORK CONNECTION ACCESSORIES THAT ARE NOT EXTERNALLY INSULATED TO BE PAINTABLE. COORDINATE WITH ARCHITECT FOR FINISH.
8. COORDINATE WITH ARCHITECT FOR AREAS WITH NO CEILING.
9. FOR FINAL CONNECTIONS TO DIFFUSERS AND VAV BOXES, FLEXIBLE DUCTS EQUAL TO WIREMOLD TYPE WG MAY BE USED FOR A MAXIMUM OF 6'-0" FEET. FLEXIBLE DUCTS SHALL BE U.L. LISTED, WITH 1" THICK FIBERGLASS INSULATION W/ VAPOR BARRIER. INSTALL FULLY EXTENDED W/ MINIMUM CHANGES OF DIRECTION. IN LENGTHS NO GREATER THAN NECESSARY. USE GENEROUS RADIUS TURNS AND SUPPORT AS REQUIRED TO PREVENT EXCESSIVE SAGGING. FLEXIBLE ELBOWS AT THE DIFFUSER INLET IS NOT PERMITTED.
10. SIZES OF NEW DUCT SHOWN ON DRAWINGS ARE FREE AIRWAYS SIZES, NOT OUTSIDE DIMENSIONS.
11. PROVIDE ADJUSTABLE OPPOSED BLADE OR BUTTERFLY DAMPERS FOR ALL NEW LOW PRESSURE SUPPLY & RETURN BRANCHES. EXTRACTORS AND SPLITTER DAMPERS ARE NOT PERMITTED.
12. PROVIDE DOUBLE THICKNESS TURNING VANES AT 90° ELBOWS. RADIUSED ELBOWS SHALL HAVE CENTERLINE RADIUS AT LEAST AS GREAT AS THE DUCT WIDTH.
13. DUCT CONNECTIONS TO MEDIUM PRESSURE MAINS SHALL BE PROVIDED WITH BELLMOUTH CONICAL FITTINGS.
14. PROTECT NEW & EXISTING DUCT OPENINGS FROM DUST & DIRT. CLEAN INSIDE & OUTSIDE OF NEW & EXISTING DUCTWORK IN AREA OF NEW WORK. REPLACE FILTERS AS REQUIRED DURING CONSTRUCTION PERIOD AND PROVIDE NEW SETS OF FILTERS AFTER COMPLETION OF WORK.

PIPING

1. ALL PIPING RELATED ITEMS ARE TO BE PURCHASED THROUGH FERGUSON ENTERPRISE (ALTON LASSITER - 615-316-1848, ALTON.LASSITER@FERGUSON.COM).
2. PIPING APPLICATIONS
   A. OVERFLOW AND DRAIN PIPING SHALL BE TYPE L DRAWN TEMPER COPPER TUBING WITH SOLDERED JOINTS.
   B. CHILLED WATER AND HEATING HOT WATER MAY BE ALL STANDARD WEIGHT BLACK STEEL OR A MIXTURE OF TYPE L HARD COPPER FOR PIPING 1" AND LESS, STEEL OR COPPER PIPE FROM 1-1/4" TO 2", AND STEEL FOR PIPING 2-1/2" AND LARGER.
3. BLACK STEEL PIPE: ASTM A53, BLACK STEEL, SCHEDULE 40, TYPE E OR S, GRADE B.
   A. MALLEABLE IRON THREADED FITTINGS: ASTM B16.3,, CLASS 150, STANDARD PATTERN
   B. WROUGHT-STEEL WELDING FITTINGS: ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING
   C. UNIONS: ASME B16.39, CLASS 150, MALLEABLE IRON WITH BRASS TO IRON SEAT, GROUND JOINT, AND THREADED ENDS
   D. FORGED-STEEL FLANGES AND FLANGED FITTINGS: ASME B16.5, MINIMUM CLASS 150 INCLUDING BOLTS, NUTS, AND GASKETS OF THE FOLLOWING MATERIAL GROUP, END CONNECTIONS, AND FACINGS:
      a. MATERIAL GROUP: 1.1
      b. END CONNECTIONS: THREADED OR BUTT WELDING TO MATCH PIPE
      c. LAPPED FACE: NOT PERMITTED UNDERGROUND
      d. BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL ABOVEGROUND AND STAINLESS STEEL UNDERGROUND
      e. GASKET MATERIALS: ASME B16.20, METALLIC, FLAT, ASBESTOS FREE ALUMINUM O-RINGS, AND SPIRAL-WOUND METAL GASKETS
4. COPPER TUBING: ASTM B88, TYPE K, L
   A. FITTINGS: ASME B16.22, WROUGHT COPPER.
   B. JOINTS: SOLDER, LEAD FREE. ASTM B32, 95-5 TIN-ANTIMONY, OR TIN AND SILVER.
   C. PRESS FITTINGS OF ANY KIND ARE UNACCEPTABLE.
5. BUTTERFLY VALVES
   A. FERROUS-ALLOY, MSS SP-67, TYPE I, FOR TIGHT SHUTOFF, WITH DISC AND LINING SUITABLE FOR POTABLE WATER UNLESS OTHERWISE INDICATED
6. STRAINERS
   A. Y-PATTERN, CAST-IRON BODY, ASTM A278, CLASS 30, GRADE 18-8 STAINLESS STEEL SCREEN, 20 MESH FOR 2" AND SMALLER AND MANUFACTURER RECOMMENDED PERFORATIONS FOR 2-1/2" AND LARGER, TAPPED BLOW-OFF PLUG.
7. BALL VALVES
   A. VALVES SHALL HAVE CAST BRONZE BODIES, FULLY PORTED, REPLACEABLE TEFLON SEATS, FULL PORT, BLOWOUT-PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED BALL AND THREADED ENDS. TO BE PROVIDED WITH BRASS UNION ON DISCHARGE SIDE OF VALVE.
8. CIRCUIT SETTERS
   A. BELL & GOSSETT CIRCUIT SETTER PLUS CALIBRATED BALANCING VALVES, BALL TYPE TRIPLE PURPOSE BALANCING INSTRUMENT, VARIABLE ORIFICE FLOW METER AND POSITIVE SHUT OFF VALVE WITH CALIBRATED NAMEPLATE AND MEMORY INDICATOR.
9. PRESSURE GAUGES
   A. PRESSURE GAUGE SHALL BE BOURDON TUBE SPRING TYPE WITH DIALS NOT SMALLER THAN 6" DIAMETER AND RECALIBRATING ADJUSTMENT IN DIAL FACE. GAUGES SHALL BE PRESSURE COMPOUND OR VACUUM TYPE AS REQUIRED WITH PROPER RANGE FOR SERVICE. PROVIDE A SHUT-OFF VALVE OR COCK FOR EACH GAUGE.
10. THERMOMETERS
   A. THERMOSTATS SHALL BE WEISS SOLAR DIGITAL THERMOSTAT.
11. PRESSURE TESTING OF PIPING (150 PSI FOR 24 HR) PRIOR TO OPENING VALVES AND RELEASING WATER INTO TENANT SYSTEM. COORDINATE DATE/TIME WITH ENGINEER AND PROVIDE RESULTS
12. PIPING SHALL BE FLUSHED AND CLEANED BY BASE BUILDING CHEMICAL TREATMENT CONTRACTOR PRIOR TO RELEASING WATER INTO TENANT SPACE
13. PIPING AND VALVES SHALL BE RATED FOR 150 PSI WORKING PRESSURE, GATE VALES 125 PSI.
14. PROVIDE DIELECTRIC UNIONS WHEN CONNECTING STEEL TO COPPER PIPE.
15. FOR EXISTING BUILDINGS, BUILDING ENGINEER ONLY SHALL OPEN VALVES TO CONNECT NEW PIPING TO SYSTEM.
16. PROVIDE VENTS WITH BALL VALVES ON HIGH POINTS & DRAINS WITH BALL VALVES ON LOW POINTS.
17. PIPE REDUC

COMPUTER ROOM AIR CONDITIONING UNIT SCHEDULE (CRAC)

TAG	LOCATION	NOMINAL TONS	ARRANGEMENT	CAPACITY		ENTERING AIR CONDITIONS			FAN SECTION				COOLING COIL (CHILLED WATER)						FILTER		ELECTRICAL DATA				MANUFACTURER	MODEL	REMARKS
				TOTAL MBH	SENS. MBH	DB °F	WB °F	RH %	CFM	ESP (IN.)	FAN QUANTITY	HP (TOTAL)	EWT (DEG.F)	LWT (DEG.F)	GPM	FACE AREA SQ. FT.	VELOCITY FPM	ROWS	NO.	SIZE LxWxD	EFF. %	VOLTS	PH	HZ	FLA	MOCP			
CRAC-1-1	UPS 1C-05	3.0	HORIZONTAL	33.5	25.7	75	58.5	40	1250	0.3	1	0.5	45	55	7.1	3.05	410	3	1	20x20x4	MERV 8	460	3	60	13.2	20	LIEBERT	MMD40C2AJED40ABW	ALL

REMARKS:

1. PROVIDE WITH NON-LOCKING TYPE UNIT DISCONNECT SWITCH.
2. PROVIDE WITH SINGLE-POINT POWER CONNECTION.
3. PROVIDE WITH DIRTY FILTER SWITCH.
4. PROVIDE WITH TWO-WAY CHILLED WATER SLOW CLOSE SOLENOID CONTROL VALVE.
5. PROVIDE WITH CONDENSATE FLOAT SWITCH.
6. PROVIDE DUCT SMOKE DETECTOR.
7. PROVIDE WITH IS-UTILITY-DP BMS MONITORING SOLUTION WITH WALL MOUNT KIT. SEPARATE 120V POWER SUPPLY REQUIRED.
8. PROVIDE WITH SHIP LOOSE FILTER BOX, CONDENSATE PUMP, AND REMOTE TEMPERATURE SENSOR FOR INSTALLATION BY MECHANICAL CONTRACTOR.
9. MECHANICAL CONTRACTOR TO PROVIDE AUXILIARY DRAIN PAN UNDER UNIT AND PIPING WITH LEAK DETECTION SENSOR TIED INTO THE BAS.
10. ACCEPTABLE MANUFACTUERS: LIEBERT, STULTZ, OR ENGINEER APPROVED EQUAL.

VARIABLE AIR VOLUME BOX WITH HOT WATER REHEAT SCHEDULE (VAV)

TAG	LOCATION	INLET	CFM	MIN CFM	HEATING CFM	HEATING COIL DATA							UNIT TOTAL AIR PD (IN.)	MANUFACTURER	MODEL	REMARKS
						MBH	ROWS	EAT DB (DEG.F)	LAT DB (DEG.F)	EWT (DEG.F)	LWT (DEG.F)	GPM	MAX PD (FT.)			
VAV-1-1	CATH LAB 2 1C-6006A	16	2420	2420	2420	72.8	2	55	88.0	140	121.3	7.9	2.8	0.27	JOHNSON CONTROLS, INC.	TSS	ALL
VAV-1-2	EQP STG 1C-6007A	10	1000	0	335	11.6	2	55	93.0	140	111.2	0.8	0.3	0.26	JOHNSON CONTROLS, INC.	TSS	ALL
VAV-1-12	CATH LAB 1 1C-6003A	16	2490	2490	2490	74.4	2	55	87.8	140	121.7	8.3	3.0	0.28	JOHNSON CONTROLS, INC.	TSS	ALL
VAV-1-13	EQP STG 1C-6004A	10	1000	0	335	11.6	2	55	93.0	140	111.2	0.8	0.3	0.26	JOHNSON CONTROLS, INC.	TSS	ALL

REMARKS:

1. REFER TO CONTROLS FOR ADDITIONAL DETAILS.
2. PROVIDE PRESSURE INDEPENDENT CONTROL.
3. PROVIDE ACCESS DOOR ON BOTTOM OF UNIT AND AT HEATING COIL.
4. PROVIDE DUST TIGHT CONSTRUCTION.
5. TEMPERATURE CONTROL CONTRACTOR TO PROVIDE FACTORY MOUNTED CONTROLLER.
6. PROVIDE FIBER FREE LINER.
7 PROVIDE VAV READY UNIT WITH FACTORY DDC AND PIPING PACKAGE.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

TAG	SERVICE	TYPE	INLET SIZE (IN.)	FACE SIZE (IN.)	INSULATED PLENUM BOOT	NO. OF SLOTS	SLOT WIDTH (IN.)	DAMPER	MATERIAL / FINISH	MANUFACTURER	MODEL	REMARKS
S-1	SUPPLY	LAMINAR FLOW	SEE PLANS	48X24	NOTE 9	-	-	NOTE 2	ALUMINUM / NOTE 1	TITUS	TLF	1,2,9
S-2	SUPPLY	LAMINAR FLOW	SEE PLANS	24X24	NOTE 9	-	-	NOTE 2	ALUMINUM / NOTE 1	TITUS	TLF	1,2,9
S-3	SUPPLY	PLAQUE	SEE PLANS	24X24	NOTE 9	-	-	NOTE 2	ALUMINUM / NOTE 1	TITUS	OMNI	1,2,9
R-1	RETURN	GRILLE	SEE PLANS	SEE PLANS	-	-	-	NOTE 2	NOTE 7	TITUS	350RL-SS	2,7
R-2	RETURN	GRILLE	10X22	12X24	NOTE 9	-	-	NOTE 2	ALUMINUM / NOTE 1	TITUS	350-RL	1,2,9

REMARKS:

1. COORDINATE FINISH WITH ARCHITECT.
2. PROVIDE REMOTE OPERATED DAMPER FOR BALANCING WHERE INSTALLED IN ACCESSIBLE CEILINGS.
3. PROVIDE BLANK-OFFS FOR UNUSED SECTIONS.
4. PROVIDE LIGHT SHIELD.
5. PROVIDE ACCESSORIES FOR HARD CEILING MOUNTING.
6. PROVIDE OPPOSED BLADE DAMPER.
7. PROVIDE STAINLESS STEEL CONSTRUCTION.
8. PROVIDE HEPA FILTER WITH ALUMINUM FRAME, DIFFUSION BASKET, EXTERNAL INSULATION, AND STAINLESS STEEL FASTENERS AND HARDWARE.
9. EXTERNALLY INSULATE PLENUM BOOT.

MECHANICAL VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	ROOM FUNCTION	FLOOR AREA (SQ. FT.)	CEILING HEIGHT (FT.)	SPACE VOLUME (CU. FT.)	FGI-2018 (ANSI/ASHRAE/ASHE STD. 170-2017)					PROVIDED AIRFLOWS			REMARKS
						PRESSURE	MIN. OUTDOOR ACH	MIN. TOTAL ACH	MIN. OA CFM	MIN. TOTAL CFM	SUPPLY AIR CFM	OUTOOR AIR CFM	RETURN AIR CFM	
1C-6003A	CATH LAB 1	CATHETERIZATION	656.44	9	5907.96	POSITIVE	3	15	295	1477	2490	498	2340	
1C-6004A	EQP STG	EQUIPMENT STORAGE	64.94	8	519.52	NEUTRAL	0	0	0	0	1000	200	1000	
1C-6006A	CATH LAB 2	CATHETERIZATION	642.46	9	5782.14	POSITIVE	3	15	289	1446	2420	484	2270	
1C-6007A	EQP STG	EQUIPMENT STORAGE	70.49	8	563.92	NEUTRAL	0	0	0	0	1000	200	1000	
1C-05	UPS	UPS	92.69	12	1112.28	NEUTRAL	0	0	0	0	1260	0	1260	

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *jlocke*
Date: *Dec 15, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

CONTROLS

CRAC-1-1

JCI BAS SHALL INTERFACE VIA NETWORK CONNECTION TO INTEGRAL CRAC UNIT CONTROLLER.

THE FOLLOWING POINTS SHALL BE MAPPED AND TRENDED FROM THE OPERATORS WORKSTATION. A CRAC UNIT SUMMARY SHALL BE PROGRAMMED TO ALLOW THE OPERATOR TO VIEW THE FOLLOWING POINTS IN TABULAR FORM:

- SPACE TEMPERATURE SETPOINT
- CURRENT SPACE TEMPERATURE
- VALVE POSITION
- RUN STATUS
- GENERAL ALARM

VAV BOX WITH HOT WATER REHEAT

THE UNIT SHALL RUN ACCORDING TO A USER DEFINEABLE TIME SCHEDULE IN THE FOLLOWING MODES:
OCCUPIED MODE:
- 75 DEG.F (ADJ.) COOLING SETPOINT
- 70 DEG.F (ADJ.) HEATING SETPOINT

UNOCCUPIED MODE:
- 80 DEG.F (ADJ.) COOLING SETPOINT
- 65 DEG.F (ADJ.) HEATING SETPOINT

THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

VAV 1-2 & VAV-1-13:
THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:
OCCUPIED MODE:
- WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.
- WHEN ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND HEATING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION (ADJ.).
- WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT ITS HEATING SETPOINT. THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND MAXIMUM HEATING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

UNOCCUPIED MODE:
- WHEN ZONE IS UNOCCUPIED THE ZONE DAMPER SHALL CONTROL TO ITS MINIMUM OCCUPIED AIRFLOW (ADJ.).
- WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.
- WHEN ZONE TEMPERATURE IS LESS THAN ITS UNOCCUPIED HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT THE SETPOINT. THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM HEATING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

VAV-1-1 & VAV-1-12
THE UNIT SHALL MAINTAIN CONSTANT VOLUME AIRFLOW THROUGH ONE OF THE FOLLOWING:
OCCUPIED MODE:
- THE ZONE DAMPER SHALL MODULATE TO MAINTAIN A CONSTANT OCCUPIED AIRFLOW (ADJ.) DISTRIBUTED INTO THE ZONE.
- WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT ITS OCCUPIED HEATING SETPOINT.

UNOCCUPIED MODE:
- THE ZONE DAMPER SHALL MODULE TO MAINTAIN A CONSTANT UNOCCUPIED AIRFLOW (ADJ.) DISTRIBUTED INTO THE ZONE.
- WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT IS UNOCCUPIED HEATING SETPOINT.

THE DEADBAND BETWEEN HEATING AND COOLING MUST BE A MINIMUM OF 5 DEG.F PER IECC.

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE REHEATING COIL VALVE OPEN ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT. THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THE 20 DEG.F OVER THE SPACE TEMPERATURE.

THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE AND GENERATE AN ALARM AS FOLLOWS:
- HIGH DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120 DEG.F (ADJ.).
- LOW DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40 DEG.F (ADJ.).

THE CONTROLLER SHALL MONITOR THE ZONE HUMIDITY AND GENERATE AN ALARM AS FOLLOWS:
- HIGH ZONE HUMIDITY: IF THE ZONE HUMIDITY IS GREATER THAN 70% (ADJ.) RELATIVE HUMIDITY.
- LOW ZONE HUMIDITY: IF THE ZONE HUMIDITY IS LESS THAN 30% (ADJ.) RELATIVE HUMIDITY.

ANALOG OUTPUTS (AO): DAMPER POSITION, VALVE POSITION
ANALOG INPUTS (AI): AIRFLOW, DISCHARGE AIR TEMPERATURE, ZONE TEMPERATURE, ZONE SETPOINT ADJUSTMENT, ZONE HUMIDITY
BINARY INPUTS (BI): ZONE OVERRIDE

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12.02.2022

TMCA SOUTH CATH 1 & 2 RENOVATION

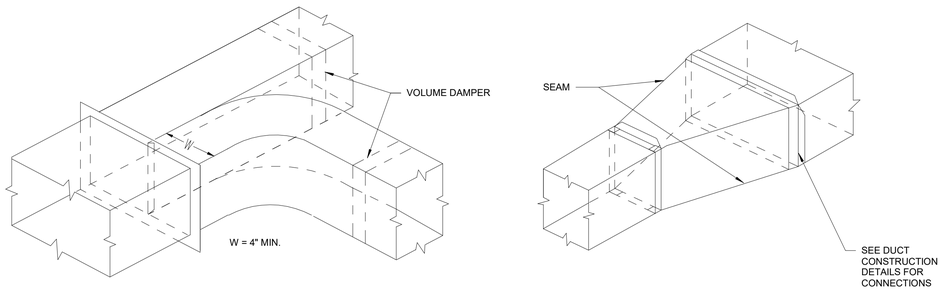
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Date	02 DECEMBER 2022
Project Number	2022-00565-00
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Sheet Title
MECHANICAL SCHEDULES

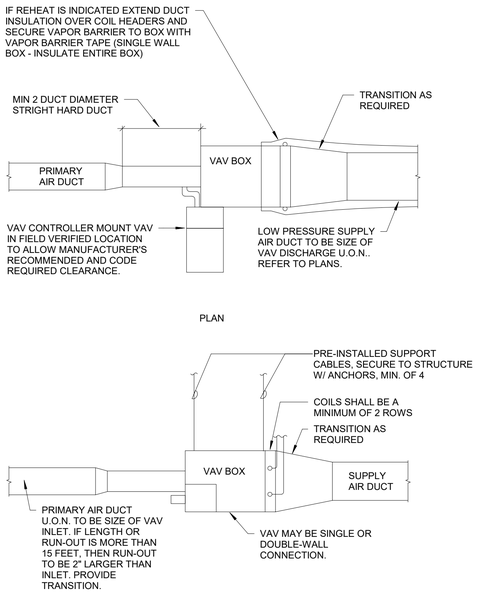
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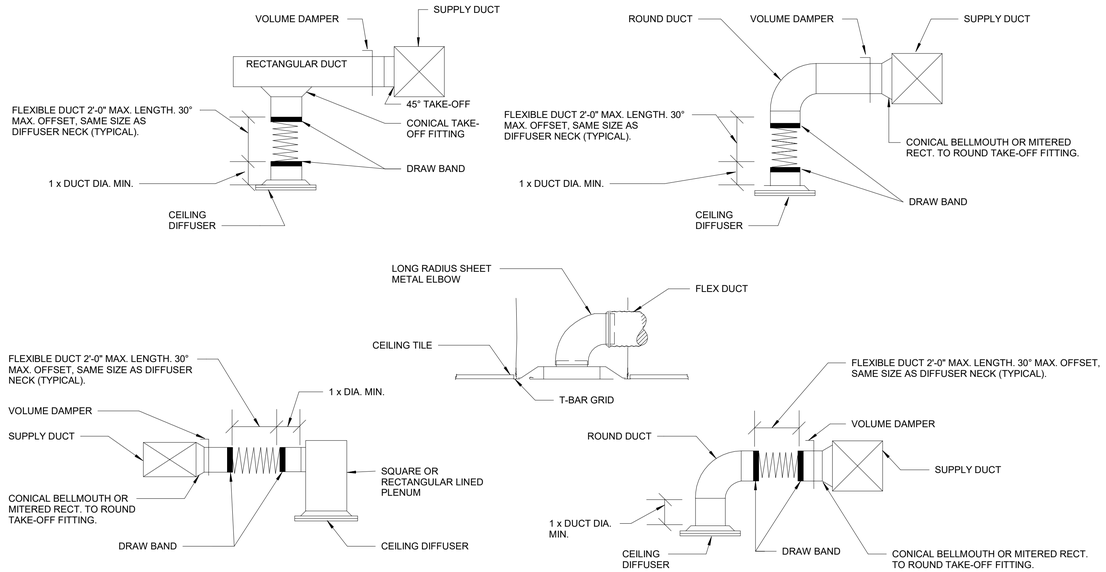
1 DUCT CONSTRUCTION

NOT TO SCALE



3 VAV BOX INSTALLATION

NOT TO SCALE



2 TYPICAL DIFFUSER INSTALLATION DETAIL

NOT TO SCALE

NOTES:

1. SPIN COLLARS SHALL NOT BE PERMITED.
2. SPECIAL CONDITIONS THAT CAN NOT MEET ONE OF THESE STANDARDS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION ON A CASE BY CASE BASIS.
3. DETAILS ILLUSTRATE INSTALLATION WITH ROUND NECK DIFFUSERS AND DUCTS. SQUARE OR RECTANGULAR NECK DIFFUSERS AND DUCTS SHALL BE SIMILAR.

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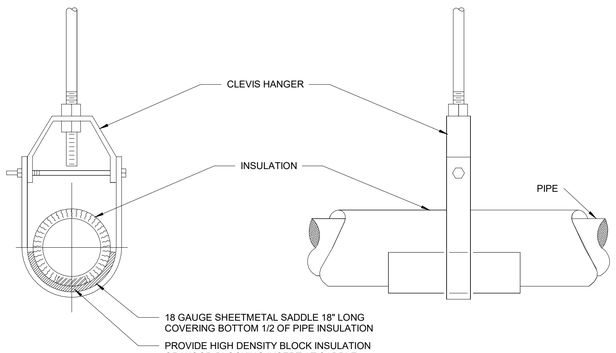
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MECHANICAL DUCTWORK DETAILS

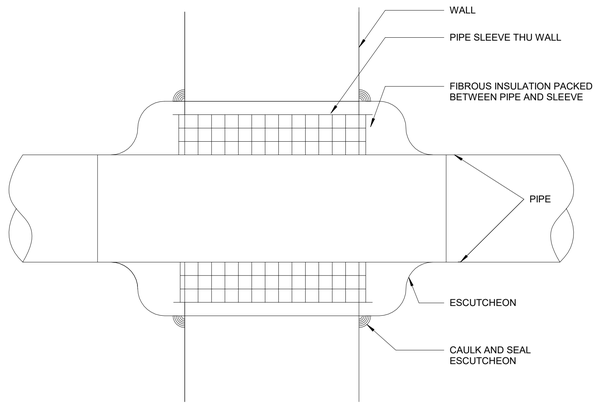
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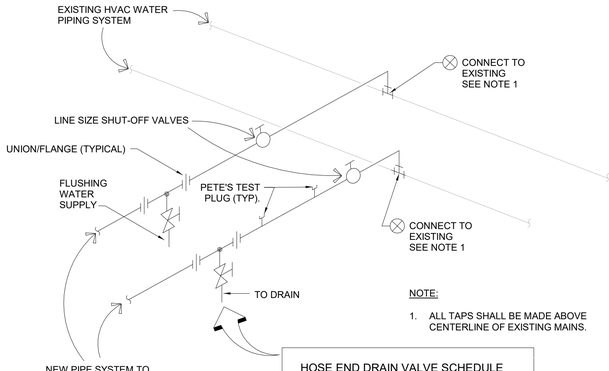


1 CLEVIS HANGER PIPE SUPPORT
NOT TO SCALE



PIPE SHALL BE SUPORTED ON EITHER SIDE OF WALL. PIPE SUPPORT SHALL BE COMPLETELY INDEPENDENT OF WALL

2 PIPE THRU WALL
NOT TO SCALE



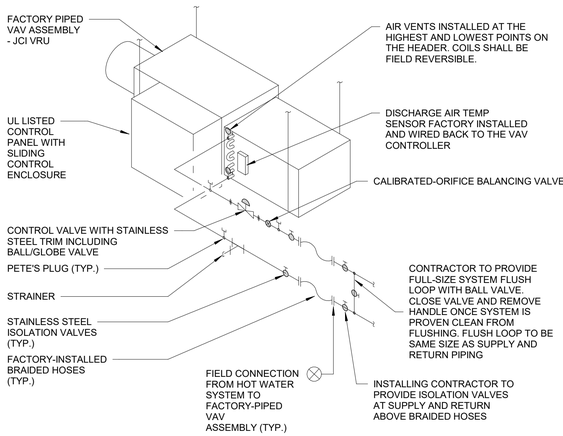
NOTE:

1. ALL TAPS SHALL BE MADE ABOVE CENTERLINE OF EXISTING MAINS.

HOSE END DRAIN VALVE SCHEDULE

PIPE SIZE	DRAIN VALVE SIZE
UP TO 2"	¾"
2½" TO 4"	1¼"
5" TO 8"	2"
OVER 8"	2½"

3 PIPING CONNECTION DETAIL
NOT TO SCALE



NOTES:

1. MAINTAIN HOT WATER RETURN PIPING ELEVATION BELOW ELEVATION OF AIR VENT.

4 PIPING AT TERMINAL REHEAT
NOT TO SCALE

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TMCA SOUTH CATH 1 & 2 RENOVATION

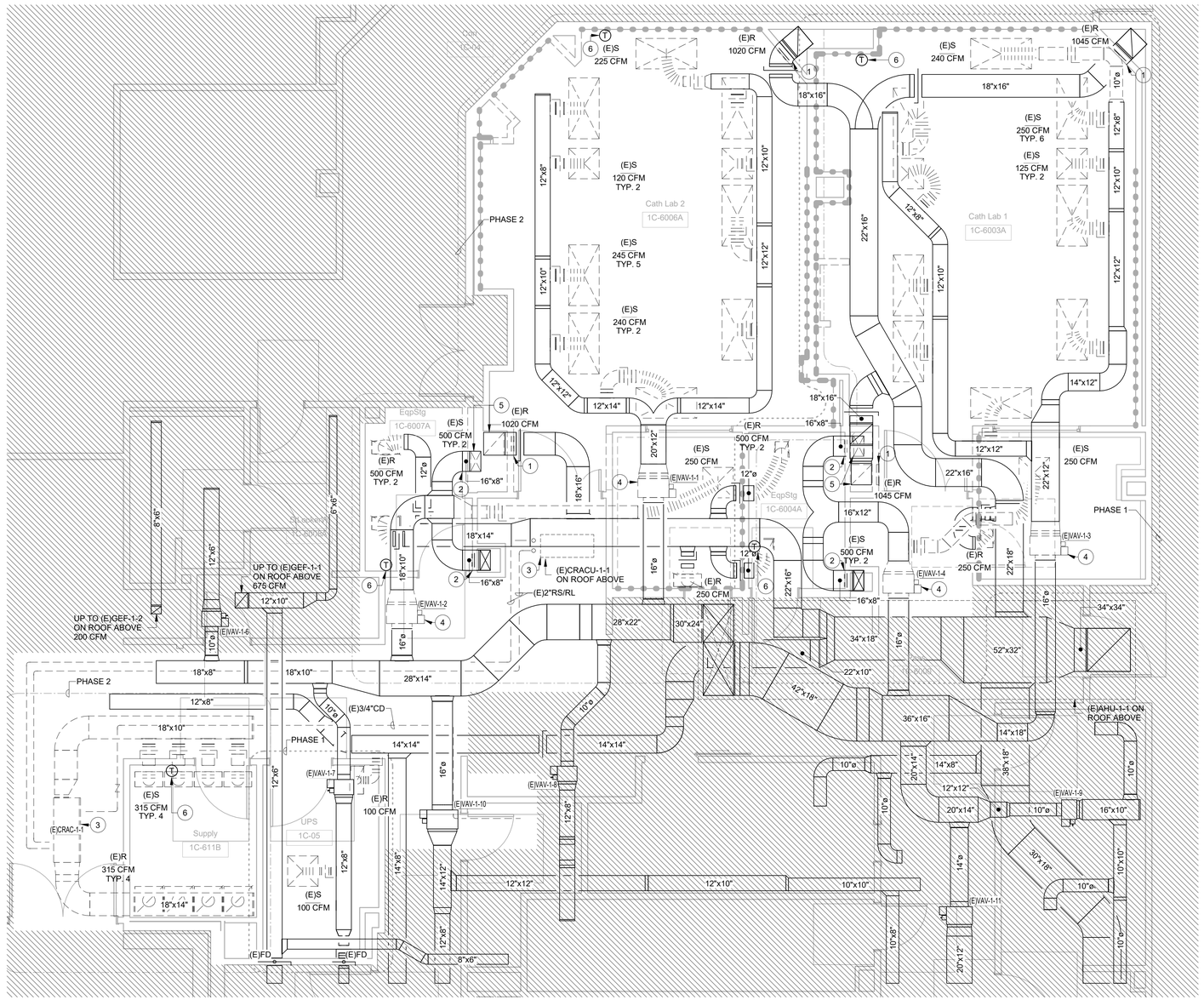
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Date	02 DECEMBER 2022
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Drawn by	MAV
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Sheet Title
MECHANICAL PIPING DETAILS

Sheet Number
M.004

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1 CATH LAB 1 & 2 - MECHANICAL DEMOLITION PLAN

1/4" = 1'-0"

KEYED DEMOLITION NOTES:

1. DEMOLISH EXISTING LOW RETURN GRILLE. VERIFY EXISTING DIMENSIONS TO MATCH NEW RETURN GRILLE.
2. DEMOLISH EXISTING LOW SUPPLY GRILLE. VERIFY EXISTING DIMENSIONS TO MATCH NEW SUPPLY GRILLE.
3. DEMOLISH EXISTING CRAC UNIT AFTER INSTALLATION OF NEW CRAC UNIT AND RENOVATION OF CATH LAB 1 AND 2. DEMOLISH ASSOCIATED DUCTWORK, AIR DISTRIBUTION DEVICES, CONDENSATE PIPING, REFRIGERANT PIPING, AND ROOF MOUNTED CONDENSING UNIT. PATCH AND SEAL ROOF PENETRATIONS.
4. DEMOLISH EXISTING VARIABLE AIR VOLUME TERMINAL AIR BOX. DISCONNECT AND DEMOLISH HEATING HOT WATER PIPING TO ISOLATION VALVES TO FACILITATE CONNECTION TO REPLACEMENT TERMINAL UNIT.
5. DEMOLISH VERTICAL RISERS TO ACCOMODATE ACCESS FOR SAWCUTTING AND CONSTRUCTION OF NEW CONDUITS IN FLOOR SLAB.
6. DEMOLISH EXISTING THERMOSTAT.

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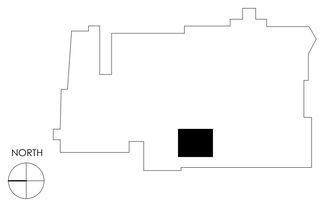
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MECHANICAL DEMOLITION PLAN

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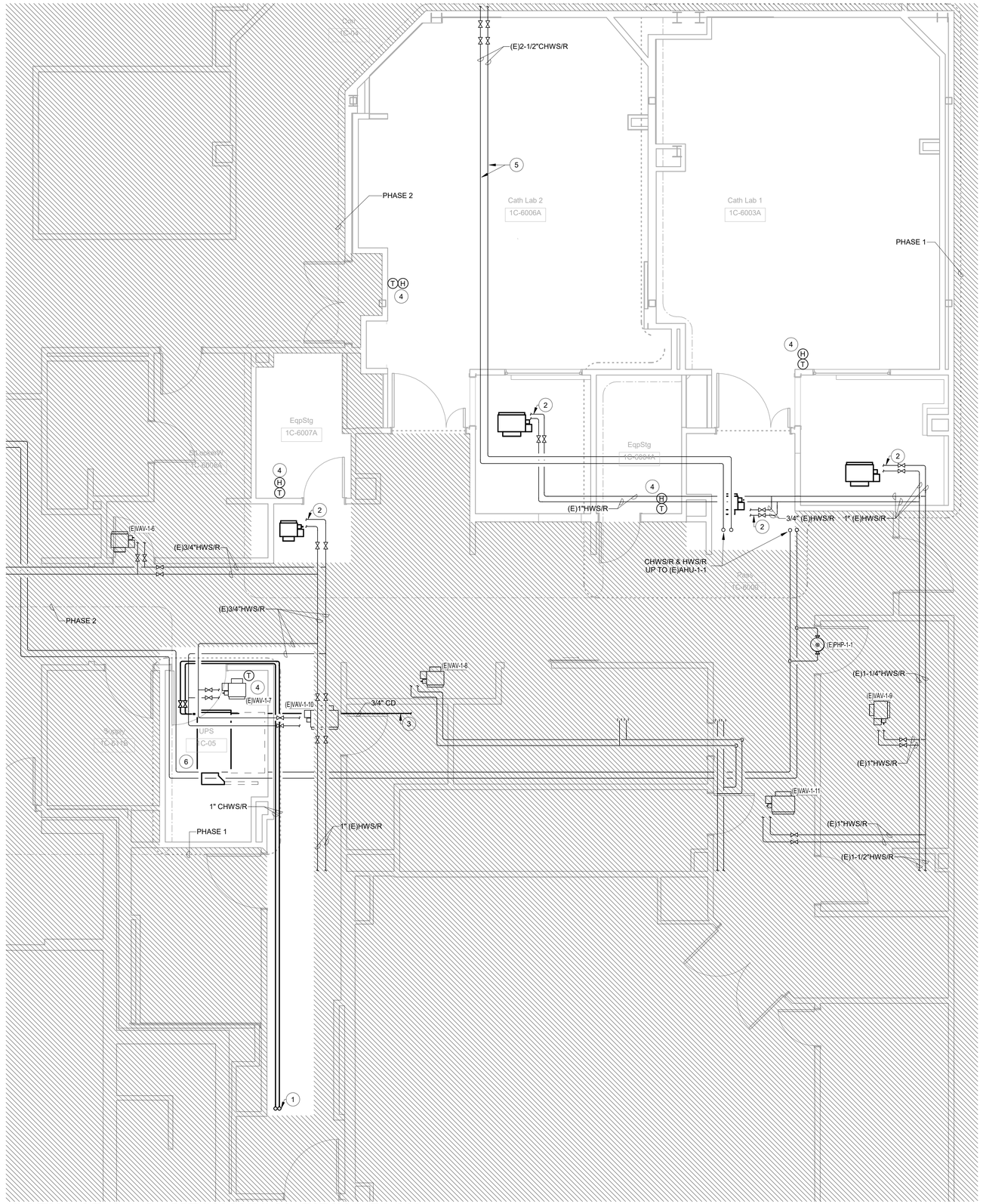
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KEY PLAN



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1 CATH LAB 1 & 2 - MECHANICAL PIPING PLAN

1/4" = 1'-0"

KEYED PIPING NOTES:

1. ROUTE CHILLED WATER SUPPLY AND RETURN PIPING UP INTO MECHANICAL ROOM ABOVE FOR FINAL CONNECTION TO EXISTING 3" CHILLED WATER MAINS. FINAL LOCATION OF RISER TO BE FIELD VERIFIED BY CONTRACTOR.
2. CONNECT EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING TO REPLACEMENT TERMINAL UNIT COIL PIPING PACKAGE.
3. ROUTE NEW CONDENSATE DRAIN TO LOCATION OF EXISTING COMPUTER ROOM AIR CONDITIONER CONDENSATE DRAIN TERMINATION.
4. PROVIDE NEW THERMOSTAT. PROVIDE HUMIDITY SENSOR IN CATH LABS AND EQUIPMENT STORAGE ROOMS. COORDINATE FINAL LOCATION WITH ACHITECT AND OWNER.
5. PROTECT (E)2-1/2"CHWS/R PIPING ABOVE CEILING DURING DEMOLITION OF CEILING AND UNISTRUT.
6. PROVIDE AUXILIARY DRAIN PAN UNDER CRAC-1-1 AND PIPING WITHIN UPS 1C-05 WITH LEAK DETECTION SENOSR TIED TO BAS.

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TMCA SOUTH CATH 1 & 2 RENOVATION

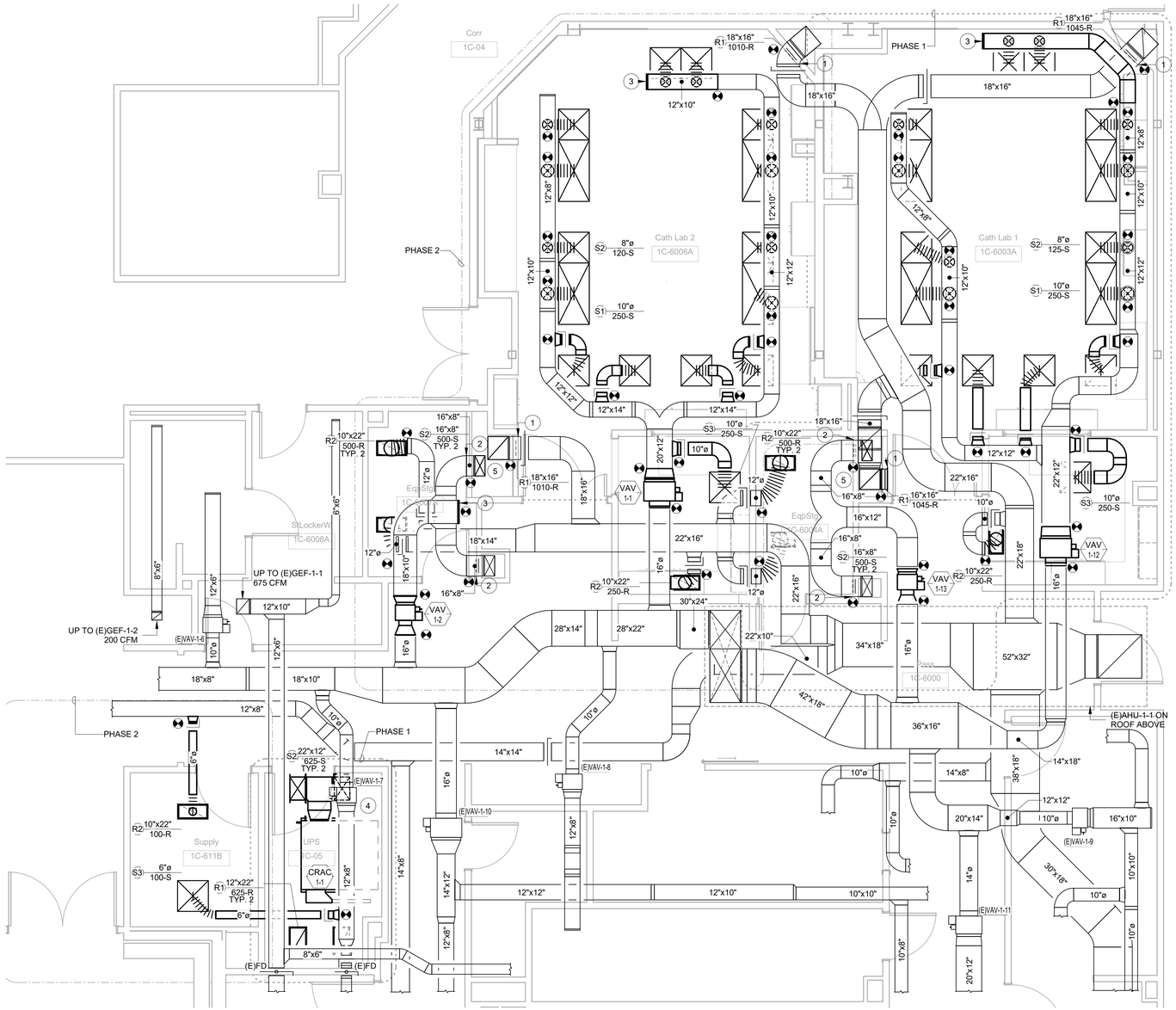
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MECHANICAL PIPING PLAN

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MP.101

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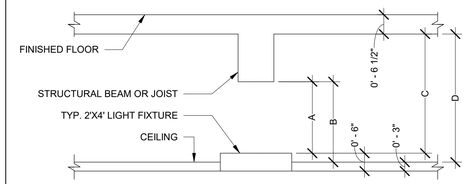
1 CATH LAB 1 & 2 - MECHANICAL VENTLATION PLAN

1/4" = 1'-0"

KEYED VENTILATION NOTES:

1. CONNECT NEW RETURN GRILLE TO EXISTING DUCTWORK. NEW RETURN GRILLE TO MATCH EXISTING DUCTWORK CONNECTION SIZE.
2. CONNECT NEW SUPPLY GRILLE TO EXISTING DUCTWORK. NEW SUPPLY GRILLE TO MATCH EXISTING DUCTWORK CONNECTION SIZE.
3. CAP AND SEAL DUCT OPENING.
4. PROVIDE ALLOWANCE TO RELOCATE (E)VAV-1-7 AND REROUTE DUCTWORK, IF NECESSARY, TO ACCOMODATE INSTALLATION OF CRAC-1-1.
5. INSTALL NEW RISERS TO MATCH EXISTING RISERS THAT WERE DEMOLISHED.

CLEARANCE SCHEDULE (FIRST FLOOR)



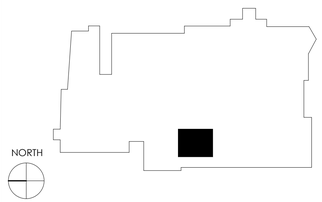
NOTES:

1. 14'-0" FROM FINISHED FLOOR TO FINISHED FLOOR.
2. REFER TO STRUCTURAL FOR CORRECT BEAM SIZES AND CLEARANCES.
3. REFER TO ARCHITECTURAL FOR CORRECT CEILING HEIGHT.
4. DEDUCT 6" FROM COLUMNS A & C WHEN CAN LIGHTS OCCUR.

CEILING HEIGHT	18" BEAM		16" BEAM		14" BEAM		12" BEAM		10" BEAM		NO BEAM	
	A	B	A	B	A	B	A	B	A	B	C	D
8'-0"	41.5"	44.5"	43.5"	46.5"	45.5"	48.5"	47.5"	50.5"	49.5"	52.5"	59.5"	62.5"
8'-6"	35.5"	38.5"	37.5"	40.5"	39.5"	42.5"	41.5"	44.5"	43.5"	46.5"	53.5"	56.5"
9'-0"	29.5"	32.5"	31.5"	34.5"	33.5"	36.5"	35.5"	38.5"	37.5"	40.5"	47.5"	50.5"
10'-0"	17.5"	20.5"	19.5"	22.5"	21.5"	24.5"	23.5"	26.5"	25.5"	28.5"	35.5"	38.5"
10'-6"	11.5"	14.5"	13.5"	16.5"	15.5"	18.5"	17.5"	20.5"	19.5"	22.5"	29.5"	32.5"

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MECHANICAL VENTLATION PLAN

Sheet Number
MV.101

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MEDICAL GAS NOTES

PART 1 – BASIC REQUIREMENTS

1.01 RELATED REQUIREMENTS

A. THIS SPECIFICATION SHALL CONTROL ALL LABOR, SERVICES, MATERIALS AND EQUIPMENT AND PERFORMANCE OF ALL WORK REQUIRED FOR THE INSTALLATION OF ALL PLUMBING AND MEDICAL GAS WORK AS SPECIFIED IN THE FOLLOWING.

B. DEFINITIONS:

1. "PIPING" INCLUDES, IN ADDITION TO PIPE, ALL FITTINGS, VALVES, PIPE COVERING, HANGERS, AND OTHER SUPPORTS AND ACCESSORIES RELATED TO SUCH PIPING.
2. CONCEALED MEANS HIDDEN FROM SIGHT IN CHASES, FURRED SPACES, SHAFTS, HUNG CEILINGS, EMBEDDED IN CONSTRUCTION, IN CRAWL SPACES OR BURIED.
3. "EXPOSED" MEANS NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
4. "PROVIDE" MEANS TO FURNISH AND INSTALL COMPLETE.

1.02 GENERAL REQUIREMENTS

A. MEDICAL GAS WORK TO COMPLY WITH 2012 EDITION OF NFPA #99 STANDARDS.

B. CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO VERIFY SCOPE OF WORK.

C. PRODUCTS AND EXECUTION SHALL BE PROVIDED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM THROUGHOUT THE EXTENT OF THE PROJECT.

D. ALL PRODUCTS AND EQUIPMENT SHALL BE UL LISTED AND APPROVED BY THE FACILITY.

E. ALL NEW DEVICES AND TRIM SHALL COMPLY WITH RECOGNIZED NFPA STANDARDS.

F. EACH MAJOR COMPONENT OR PIECE OF EQUIPMENT TO HAVE THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER AND RATING ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE.

G. CODE RATINGS, LABELS OR OTHER DATA WHICH ARE DIE–STAMPED OR OTHERWISE AFFIXED TO THE SURFACE OF THE EQUIPMENT SHALL BE IN VISIBLE LOCATION.

H. CONTRACTOR SHALL COORDINATE PROPOSED WORK WITH EXISTING FIELD CONDITIONS INCLUDING ARCHITECTURAL BUILDING ELEMENTS, STRUCTURAL CONDITIONS, AND EXISTING MECHANICAL AND ELECTRICAL CONDITIONS.

I. CONTRACTOR SHALL ADHERE TO ALL BUILDING AND CURRENT FACILITY STANDARDS AND REQUIREMENTS. SHUT–DOWN OF EXISTING BUILDING SYSTEMS FOR NEW PLUMBING CONNECTIONS SHALL BE AUTHORIZED, SCHEDULED AND PERFORMED IN ACCORDANCE TO BUILDING MANAGEMENT REQUIREMENTS. BUILDING SHALL BE NOTIFIED NO LESS THAN 72 HOURS PRIOR TO ANY SHUT–DOWNS. ACCESS TO AREAS OUTSIDE WORKS SPACES, SUCH AS ADJOINING SPACES AND SPACES IMMEDIATELY BELOW, SHALL BE PERFORMED IN ACCORDANCE TO BUILDING MANAGEMENT REQUIREMENTS.

1.03 WORK INCLUDED

A. INCLUDE ALL COSTS RELATED TO PROVIDE ALL PERMITS, LICENSES, INSPECTIONS, APPROVALS AND OTHER ARRANGEMENTS FOR WORK.

B. PROVIDE DEMOLITION OF EXISTING SYSTEMS INCLUDING REMOVAL OF ALL DEBRIS. COORDINATE WITH BUILDING MANAGEMENT EXISTING EQUIPMENT, FIXTURES OR DEVICES THAT SHALL BE RETAINED, CAREFULLY REMOVE AND TURN OVER TO OWNER. REMOVE ALL PIPING BACK TO ACTIVE SOURCE AND CAP LEAVING NO DEAD ENDS.

C. PRIOR TO DEMOLITION OF EQUIPMENT, FIXTURES OR TRIM, COORDINATE WITH OWNER ANY ITEMS TO BE RETAINED. CAREFULLY REMOVE SUCH ITEMS AND TURN OVER TO OWNER.

D. PROVIDE FIXTURES AS INDICATED ON PLUMBING AND ARCHITECTURAL DRAWINGS. FOR EXACT LOCATION OF FIXTURES, REFER TO ALL ARCHITECTURAL AND CONSULTANT PLANS AND ELEVATIONS.

E. MAKE NEW CONNECTIONS TO EXISTING BRANCH PIPING AS INDICATED ON PLANS AND RISER DIAGRAMS, AND AS NECESSARY TO COMPLETE THE WORK.

F. INSTALL PIPING WITH ADEQUATE PROVISIONS TO CONTROL EXPANSION AND CONTRACTION.

G. PROVIDE AND SET SLEEVES FOR ALL PIPING SYSTEMS PASSING THROUGH WALLS, FLOORS, PARTITIONS, ETC. SLEEVES SHALL BE SIZED AT LEAST TWO PIPE DIAMETERS LARGER THAN PIPING, OR OUTSIDE DIAMETER OF INSULATED PIPING.

H. ARRANGE FOR POWER TO SUPPORT ALL ELECTRICAL RELATED EQUIPMENT AND DEVICES.

I. PROVIDE ROUGH–IN AND FINAL CONNECTIONS TO ALL APPLIANCES AND EQUIPMENTS FURNISHED BY OTHERS, INCLUDING ALL REQUIRED DEVICES.

J. PROVIDE ALL CUTTING AND PATCHING OF BUILDING ELEMENTS AS REQUIRED FOR INSTALLATION OF WORK HERE IN SPECIFIED. ALL WORK SHALL BE COORDINATED AND APPROVED BY BUILDING AND ARCHITECTURAL FIELD REPRESENTATIVE PRIOR TO ANY WORK BEING PERFORMED.

K. PROVIDE FIRE–STOP AT ALL FLOOR AND WALL PENETRATIONS AS REQUIRED BY PROJECT PARAMETERS AND LOCAL CODE AUTHORITY.

L. PROVIDE ALL ACCESS PANELS. CONTRACTOR TO GIVE ALL LOCATIONS AND DIMENSIONS OF ALL REQUIRED ACCESS PANELS TO GENERAL CONTRACTOR. GENERAL CONTRACTOR WILL SUBMIT TO ARCHITECT FOR APPROVAL AND FINISH REQUIREMENTS PRIOR TO INSTALLATION.

M. COORDINATE PROPOSED WORK WITH ADDITIONAL TRADES AND OTHERS INVOLVED PRIOR TO ANY INSTALLATION WORK.

N. PROVIDE PIPING IDENTIFICATION MARKERS FOR ALL PIPING SYSTEMS WITH ANSI/ASME STANDARD COLORS AND LABELS. MARKERS SHALL BE INSTALLED 20 FEET ON CENTER MINIMUM AND MARKERS INSTALLED IN EACH ROOM.

O. PROVIDE VALVE TAGS OF BRASS OR STAINLESS STEEL HAVING A MINIMUM OF 1–1/2 INCH DIAMETER. PROVIDE COMPLETED VALVE CHART INDICATING VALVE SERVICE AND LOCATION.

P. PROVIDE NEW LABELING OF ZONE VALVES, ALARMS, OUTLETS, ETC. IN ACCORDANCE WITH CURRENT FACILITY STANDARDS.

Q. PROVIDE AS–BUILT DRAWINGS IN AUTOCAD 2017 FORMAT AT COMPLETION OF PROJECT.

R. PROVIDE TWO COPIES OF OWNER'S OPERATION AND MAINTENANCE MANUALS WITH ALL PLUMBING AND MEDICAL GAS EQUIPMENT, FIXTURES, TRIM AND DEVICES, MANUFACTURER'S MAINTENANCE INSTRUCTIONS AND MANUALS.

1.04 CLEANING

A. COORDINATE GENERAL CLEANUP WITH FACILITIES AND BUILDING MANAGEMENT.

B. CLEAN ALL PIPING SYSTEMS IN ACCORDANCE TO NFPA STANDARDS.

1.05 FIELD TESTING

A. TESTING SHALL BE IN STRICT COMPLIANCE TO NFPA 99 STANDARDS AND THE PLUMBING CODE.

B. NO WORK SHALL BE ENCLOSED, CONCEALED, COVERED UP OR USED UNTIL THE SYSTEMS HAVE BEEN INSPECTED AND APPROVED BY THE CODE OFFICIALS AND ARCHITECTURAL FIELD REPRESENTATIVE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALL NECESSARY ARRANGEMENTS FOR INSPECTIONS.

PART 2 – BASIC MATERIALS

2.01 PIPES AND FITTINGS

A. MEDICAL GAS: HARD DRAWN SEAMLESS TYPE "K" MEDICAL GAS TUBE; ASTM B819 AND MARKED ACCORDINGLY FOR SERVICE TYPE PER NFPA 99 STANDARDS. FITTINGS SHALL CLEANED AND LISTED FOR OXYGEN SERVICE. JOINTS SHALL BE BRAZED IN ACCORDANCE TO NFPA 99 AND MSS SP–73 BRAZING STANDARDS.

2.02 VALVES

A. PROVIDE VALVES FOR ALL PIPING SYSTEMS FOR PROPER CONTROL AND ISOLATION OF EQUIPMENT AND DEVICES. PROVIDE VALVES FOR PROPER OPERATION OF EQUIPMENT.

B. MEDICAL GAS VALVES SHALL BE 3–PIECE DESIGN CLEANED AND LISTED FOR OXYGEN SERVICE.

C. ALL VALVES SHALL MEET THE 2021 HCA STANDARDS.

2.03 SUPPORTS AND HANGERS

A. PROVIDE ALL NECESSARY HANGERS, SUPPORTS, BUILDING ATTACHMENTS, SUPPLEMENTAL STEEL, ANCHORS, INSERTS, ETC., AS REQUIRED TO INSTALL THE PIPING WORK. HANGERS AND SUPPORTS SHALL BE CAPABLE OF SUPPORTING PIPE LOADS AND FULL CONTENTS WITH ALL RELATED DEVICES, PUMPS, ETC.

B. HANGERS, SUPPORTS AND RELATED ITEMS SHALL HAVE FACTORY COATED FINISHES THAT WILL NOT PROMOTE GALVANIC OR CORROSION ACTION. RODS, NUTS AND MISCELLANEOUS FASTENERS SHALL BE GALVANIZED.

2.04 FIRE STOPPING

A. PROVIDE UL LISTED FIRE PENETRATION SYSTEMS AND ASSEMBLIES FOR ALL RATED FLOOR, WALL AND PARTITION PENETRATIONS.

B. COORDINATE ALL RATED ASSEMBLIES WITH CURRENT ARCHITECTURAL PLANS.

C. FIRE STOP SYSTEMS SHALL BE AS MANUFACTURED BY 3M, HILTI OR METACAULK.

PART 3 – BASIC EXECUTION

3.01 MEDICAL GAS

A. MEDICAL GAS SYSTEM DEMOLITION AND INSTALLATION SHALL COMPLY WITH 2012 EDITION OF NFPA 99.

B. SYSTEM TEST & CERTIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH NFPA STANDARDS. TEST & CERTIFICATION SHALL CONSIST OF ALL PIPELINES WITHIN AFFECTED AREA OF SCOPE AND PIPELINE IMMEDIATELY UPSTREAM OF AREA AS PRESCRIBED IN NFPA 99. FINAL CROSS CONNECTION, CERTIFICATION AND PURITY TESTS SHALL BE CONDUCTED BY A THIRD PARTY AS DIRECTED BY THE HOSPITAL.

C. PROVIDE ALL REQUIRED CUTTING AND PATCHING FOR THE NEW MEDICAL GAS SYSTEMS.

D. PROVIDE A NOTORIZED DOCUMENT INDICATING ALL TEST RESULTS FOR SUBMISSION TO ALL NECESSARY CODE AUTHORITIES AND FOR FACILITY RECORDS.

PART 4 – EQUIPMENT, FIXTURES AND DEVICES

4.01 GENERAL

A. INSTALL ALL ITEMS IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL REQUIRED FACTORY AUTHORIZED START–UP SERVICES WHERE REQUIRED.

B. ITEMS SHALL BE SET, LEVELED, FASTENED AND CONNECTED COMPLETE WITH ALL REQUIRED TRIM, SUPPORTS, ETC. ALL DEVICES SHALL BE PERFECT IN FINISH AND COLOR, SHALL BE SQUARE WITH RELATION TO FINISHED INTERIOR AND LOCATED AS INDICATED ON THE DRAWINGS.

C. ALL ITEMS SHALL BE PROVIDED WITH PROPER SUPPORT. PROVIDE AND ARRANGE FOR ALL NECESSARY WALL FRAMING AND BLOCKING.

D. AFTER WORK HAS BEEN COMPLETED, ALL ITEMS AND TRIM SHALL BE THOROUGHLY CLEANED.

E. PROVIDE ALL MEDICAL GAS EQUIPMENT AND DEVICES AS SPECIFIED. EQUIPMENT DEVICES, VALVES AND RELATED COMPONENTS SHALL BE FROM AMICO PURITAN BENNETT AND IN ACCORDANCE TO CURRENT NFPA 99 STANDARDS.

CODE REFERENCES

CITY OF AURORA, CO LOCAL AMENDMENTS
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2008 ASHRAE STANDARDS 170
2012 NFPA 99 STANDARDS
2018 FGI GUIDELINES FOR HOSPITALS

MATERIAL LIST

SERVICE DESCRIPTION	MATERIAL
MEDICAL GAS	TYPE 'K' HARD DRAWN SEAMLESS COPPER AND WROT FITTINGS CLEANED & CAPPED FOR OXYGEN SERVICE. JOINTS SHALL BE BRAZED IN ACCORDANCE TO NFPA 99 STANDARDS.

MEDICAL GAS SYMBOL LIST

SYMBOL	DESCRIPTION
O2	OXYGEN PIPING
MA	MEDICAL COMPRESSED AIR PIPING
VAC	MEDICAL VACUUM PIPING
N2	NITROGEN PIPING
WAGD	WASTE ANESTHETIC GAS DISPOSAL PIPING
CO2	CARBON DIOXIDE PIPING
NO	NITROUS OXIDE PIPING
	NEW PIPE
	EXISTING PIPE
	ZONE VALVE BOX
	SHUT–OFF VALVE
QUANTITY / TYPE: 1 MA, 1 O2, 1 VAC, 1 N2	QUANTITY AND TYPE OF MEDICAL GAS OUTLETS REQUIRED
	EXISTING FIXTURE/EQUIPMENT/PIPING TO BE REMOVED
	NEW CONNECTION

ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
MA	MEDICAL COMPRESSED AIR
O2	OXYGEN
VAC	MEDICAL VACUUM
N2	NITROGEN
WAGD	WASTE ANESTHETIC GAS DISPOSAL
CO2	CARBON DIOXIDE
NO	NITROUS OXIDE
VS	VACUUM SLIDE
ZVB	ZONE VALVE BOX
TYP.	TYPICAL
(N)	NEW PIPING
(E)	EXISTING PIPING

DRAWING LIST

P.000	PLUMBING AND MEDICAL GAS SYMBOLS, ABBREVIATIONS AND CODE INFO	NO SCALE
PD.101	PLUMBING AND MEDICAL GAS DEMOLITION FLOOR PLAN	1/4"=1'–0"
P.101	PLUMBING AND MEDICAL GAS FLOOR PLAN	1/4"=1'–0"

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No.	Description	Date

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56150
PROFESSIONAL ENGINEER
12.02.2022

TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	02 DECEMBER 2022
Project Number	2022-00565-00
Drawn by	TL
Checked by	BM

Sheet Title
PLUMBING AND MED. GAS SYMBOLS, ABBREVIATIONS, AND CODE INFO

Sheet Number
P.000

DEMOLITION KEY NOTES:

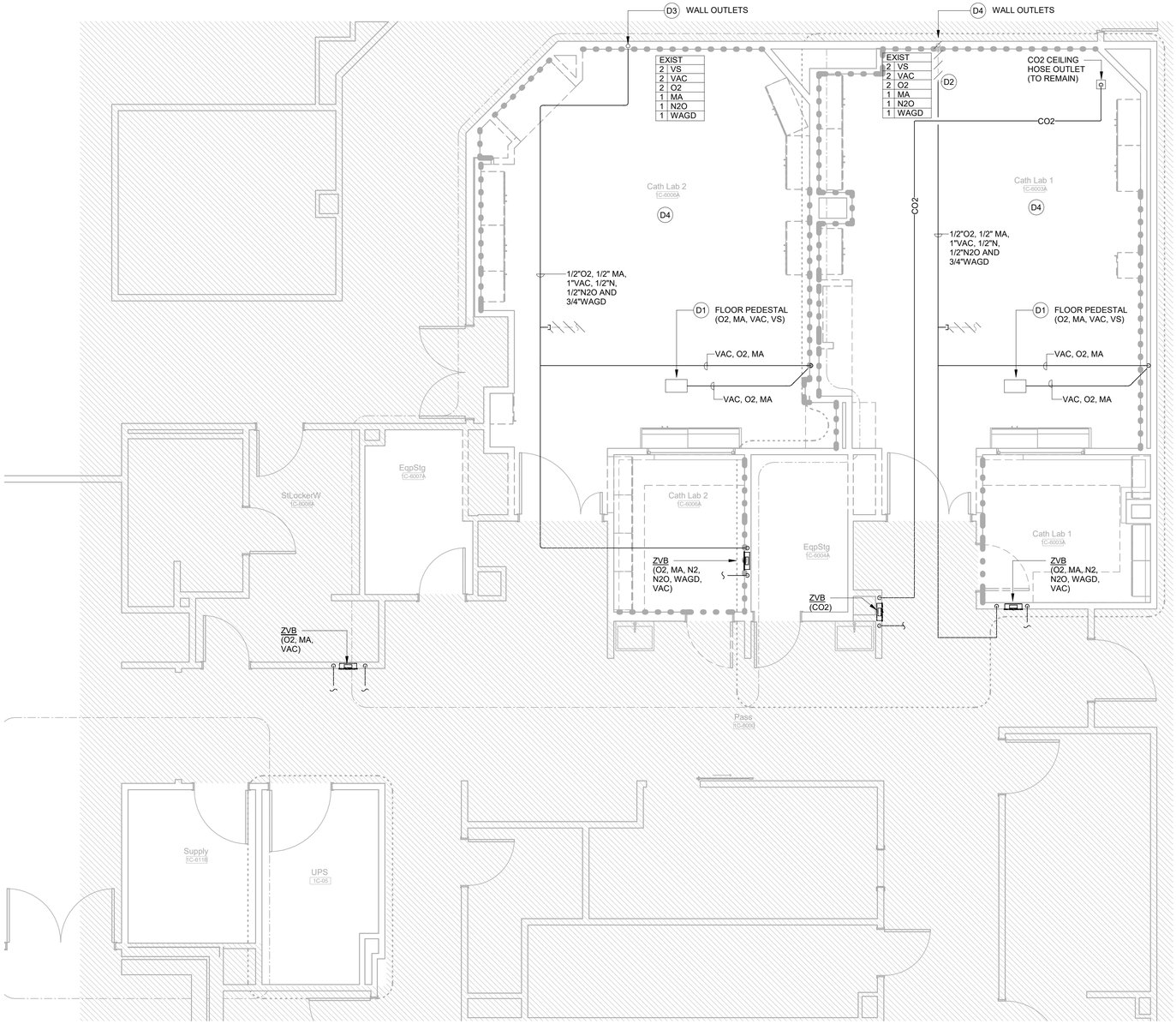
D1 CAREFULLY REMOVE EXISTING FLOOR PEDESTAL FOR RELOCATION. DISCONNECT ALL EXISTING MEDICAL GAS PIPING FROM FLOOR PEDESTAL BEFORE RELOCATING. PREPARE EXISTING UNDER FLOOR GAS PIPING TO CONNECT WITH NEW.

D2 DEMO EXISTING PIPING TO THE POINT AND PREPARE TO CONNECT WITH NEW.

D3 DEMO THE FOLLOWING QUANTITIES OF EXISTING WALL OUTLETS: (1) VAC, (1) VACUUM SLIDE, (1) OXYGEN, (1) N2O. CAP AT ACTIVE SOURCE LEAVING NO DEAD ENDS.

D4 PROVIDE RELOCATION OF SPRINKLERS AND ASSOCIATED SPRINKLER BRANCH PIPING TO SUPPORT PROPOSED WORK, INCLUDING ABOVE CEILING EQUIPMENT STRUCTURE.

By separate permit. Not approved on this plan set.



1 CATH LAB 1 & 2 - PLUMBING AND MEDICAL GAS DEMOLITION PLAN

1/4" = 1'-0"

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: jlocke
Date: Dec 15, 2022
2015 INTERNATIONAL CODES & 2020 NEC

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COLORADO LICENSED MICHAEL P THOMPSON 53150 PROFESSIONAL ENGINEER
12.02.2022

TMCA SOUTH CATH 1 & 2 RENOVATION

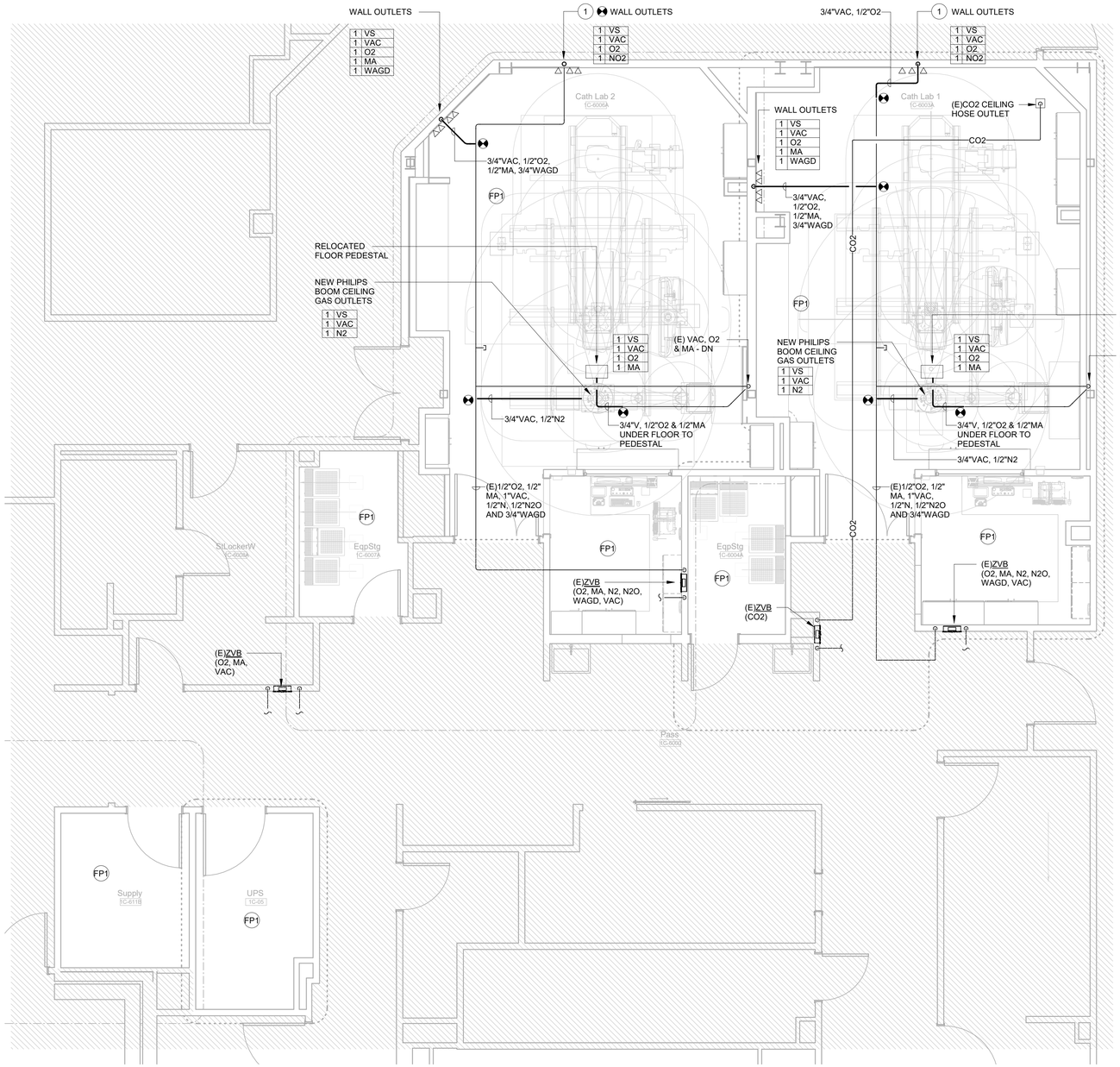
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Sheet Title
PLUMBING AND MEDICAL GAS DEMOLITION PLAN

Sheet Number
PD.101

12/2/2022 11:54:09 AM



1 CATH LAB 1 & 2 - PLUMBING AND MEDICAL GAS PLAN

1/4" = 1'-0"

MEDICAL GAS NEW WORK KEY NOTES:

1 NEW WALL OUTLETS TO MATCH EXISTING OUTLETS BASED ON AMICO PURITAN-BENNETT GAS SPECIFIC QUICK-CONNECT TYPES. VERIFY EXACT TYPES IN FIELD WITH EXISTING.
LOCATE WALL OUTLETS AS SHOWN ON THE ARCHITECTURAL ELEVATIONS. MODIFY EXISTING MEDICAL GAS PIPING AS NEEDED TO ACCOMMODATE NEW LOCATIONS.

FIRE PROTECTION KEY NOTES:

FP1 PROVIDE RELOCATION OF SPRINKLERS AND ASSOCIATED SPRINKLER BRANCH PIPING TO SUPPORT PROPOSED WORK. NEW WORK AND SPRINKLER SPACING SHALL BE IN COMPLIANCE WITH NFPA STANDARDS AND APPLICABLE CODES. NEW SPRINKLER LOCATIONS TO BE COORDINATED WITH OTHER CEILING ELEMENTS AND DEVICES, AND BE CENTERED WITHIN CEILING TILES. SPRINKLER RELOCATIONS TO TAKE INTO ACCOUNT ABOVE CEILING WORK INCLUDING NEW EQUIPMENT STRUCTURAL ELEMENTS AND MODIFICATIONS FOR OTHER MEP SYSTEMS AS RELATED TO PROJECT SCOPE. COORDINATE FINAL PLACEMENT WITH ARCHITECT.

By separate permit. Not approved on this plan set.

All Med Gas work shall comply with 2015 IPC 1202 and NFPA 99

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: jlocke
Date: Dec 15, 2022
2015 INTERNATIONAL CODES & 2020 NEC

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12.02.2022

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PLUMBING AND MEDICAL GAS PLAN

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P.101

12/2/2022 11:54:49 AM

GENERAL ELECTRICAL SYMBOLS

	CONDUIT RUN CONCEALED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN OR BELOW FLOOR
	CONDUIT RUN EXPOSED ON CEILING OR WALL

ARROWHEAD DENOTES HOMERUN TO PANELBOARD. SLASH LINES INDICATE QUANTITY OF WIRE; NEUTRAL WIRE SHOWN AS A LONG LINE, PHASE WIRES AND SWITCH LEGS SHOWN AS SHORT LINES, AND GROUND WIRE SHOWN AS A LONG LINE WITH A DOT.

— X —	CONDUIT, WHERE "X" IS THE TYPE OR FUNCTION OF CONDUIT.

"C" INDICATES CLOCK
"CO" INDICATES CONDUIT ONLY
"CTV" INDICATES CCTV
"D" INDICATES DATA
"FA" INDICATES FIRE ALARM
"I" INDICATES INTERCOM
"LV" INDICATES LOW VOLTAGE
"NC" INDICATES NURSE CALL
"S" INDICATES SOUND
"T" INDICATES TELEPHONE
"TVA" INDICATES TELEVISION ANTENNA
"TVC" INDICATES CABLE TELEVISION

	CONDUIT STUBBED UP
	CONDUIT STUBBED DOWN
	FLEXIBLE CONDUIT
XX	CONDUIT TERMINATION:

"CS" INDICATES CAP AND STAKE
"GB" INDICATES GROUNDING BUSHING
"IB" INDICATES INSULATING BUSHING
"TB" INDICATES TERMINAL BUSHING

	CONDUIT SEAL
	MULTI-OUTLET ASSEMBLY
W W	WIREWAY
CT CT	CABLE TRAY
B B	BUSWAY (BUSDUCT)
	UNDERFLOOR DUCT SYSTEM:

—— INDICATES POWER DUCT
– – – INDICATES TELEPHONE DUCT
- - - - INDICATES SYSTEM DUCT

	VARIOUS SYMBOLS IDENTIFY LOCATION OF DIFFERENT TYPES OF OUTLETS OR CONNECTIONS TO UNDERFLOOR DUCT SYSTEM.
PB	PULL BOX
	JUNCTION BOX- EXPOSED OR IN CEILING
	JUNCTION BOX - WALL MOUNTED
HD	JUNCTION BOX FOR HAND DRYER CONNECTION - WALL MOUNTED
	JUNCTION BOX WITH FLEXIBLE CONDUIT AND FINAL CONNECTION TO EQUIPMENT.
PDQ 13	EQUIPMENT IDENTIFICATION TAG

FIRE ALARM SYMBOLS

S	FIRE ALARM MANUAL PULL STATION
SD	SMOKE DETECTOR
D	HEAT DETECTOR
S	VOICE SPEAKER
SV	VOICE SPEAKER WITH VISUAL ALARM
V	VISUAL STROBE
AV	AUDIBLE GENERAL ALARM WITH VISUAL STROBE
RA	REMOTE INDICATOR LIGHT FOR SMOKE DETECTOR
A	AUDIBLE GENERAL ALARM
DGP	FIRE ALARM TRANSPONDER PANEL
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
MD	MAGNETIC DOOR HOLDER

POWER DEVICE SYMBOLS

WALL	FLOOR BOX	POKE-THROUGH	
			DUPLEX RECEPTACLE
			DOUBLE DUPLEX RECEPTACLE
			DUPLEX RECEPTACLE - SPLIT WIRED
			SINGLE RECEPTACLE
			COMBINATION DUPLEX RECEPTACLE TELEPHONE/ DATA SYSTEMS OUTLET
			COMBINATION DOUBLE DUPLEX RECEPTACLE TELEPHONE/ DATA SYSTEMS OUTLET
	P	P	P — JUNCTION BOX WITH FLEXIBLE CONDUIT AND FINAL EQUIPMENT OR FURNITURE SYSTEM POWER CONNECTION

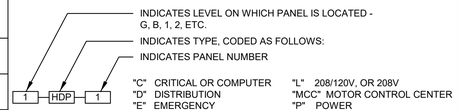
WP XX	ADJACENT LETTERS IN THE SYMBOLS ABOVE INDICATE THE FOLLOWING:

"CR" INDICATES CHILD RESISTANT (SAFETY TYPE)
"E" INDICATES RECEPTACLE FED BY EMERGENCY CIRCUIT
"EP" INDICATES RECEPTACLE IS EXPLOSION PROOF
"GFI" INDICATES RECEPTACLE HAS GROUND FAULT CIRCUIT INTERRUPTER
"IG" INDICATES RECEPTACLE HAS ISOLATED GROUND
"TVS" INDICATES RECEPTACLE HAS TRANSIENT VOLTAGE SURGE SUPPRESSION
"WP" INDICATES RECEPTACLE HAS WATERPROOF COVER
"XX" INDICATES RECEPTACLE CIRCUIT NUMBER

	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TOP
	CLOCK OUTLET RECEPTACLE
	CLOCK OUTLET AND CLOCK FOR INTEGRATED CLOCK SYSTEM.
USB	DUPLEX RECEPTACLE WITH (2) USB PORTS
USB	OUTLET WITH (4) USB PORTS
TC	TIME CLOCK
PC	PHOTOCELL
XX XX	CEILING OR WALL MOUNTED OCCUPANCY SENSOR
XX	WALL MOUNTED DIMMABLE SWITCH

POWER EQUIPMENT SYMBOLS

	SURFACE MOUNTED DISTRIBUTION PANELBOARD
	SURFACE MOUNTED BRANCH CIRCUIT PANELBOARD
	RECESSED MOUNTED BRANCH CIRCUIT PANELBOARD
1-HDP-1	SWITCHBOARDS, DISTRIBUTION PANELBOARDS, MOTOR CONTROL CENTERS, PANELBOARDS, CABINETS, AND RELATED EQUIPMENT



"C" CRITICAL OR COMPUTER
"D" DISTRIBUTION
"E" EMERGENCY
"H" 480/277V, OR 480V
"ISP" ISOLATION
"K" KITCHEN
"L" LIGHTING
"L" 208/120V, OR 208V
"MCC" MOTOR CONTROL CENTER
"P" POWER
"Q" EQUIPMENT
"R" RECEPTACLE
"S" STANDBY
"SWBD" SWITCHBOARD
"XR" X-RAY

AS	NON-FUSED DISCONNECT SWITCH, "AS" INDICATES AMPERE RATING OF SWITCH
AS/AF	FUSED DISCONNECT SWITCH, "AS" INDICATES AMPERE RATING OF SWITCH AND "AF" INDICATES AMPERE RATING OF FUSE
	MAGNETIC MOTOR STARTER - NEMA SIZE AS INDICATED
AS	COMBINATION MOTOR STARTER AND NON-FUSED DISCONNECT, "AS" INDICATES AMPERE RATING OF SWITCH
M	UTILITY METER
T	TRANSFORMER
BGB	BUILDING GROUND BOX
ST	SHUNT TRIP
SPD	SURGE PROTECTION DEVICE
CM	CUSTOMER METER
EPO	EMERGENCY POWER OFF MUSHROOM PUSHBUTTON CONTROL STATION

SECURITY SYMBOLS

	PUSH-BUTTON STATION "DB" DOORBELL "DR" DOOR RELEASE
	BUZZER
	BELL
CH	CHIME
T TH	LOW VOLTAGE TRANSFORMER WITHIN PLENUM BOX
CCTV	CLOSED CIRCUIT TELEVISION CAMERA
CR	CARD READER
ES	ELECTRIC STRIKE
DC	DOOR CONTACT
MS	MOTION SENSOR

COMMUNICATIONS SYMBOLS

TTC	TELEPHONE TERMINAL CABINET

WALL	FLOOR BOX	POKE-THROUGH	
			SUBSCRIPT INDICATES THE FOLLOWING FOR BELOW WALL MOUNTED OUTLETS, (U.N.O.):

"H" HANDICAP MOUNTED AT 48" A.F.F.
"P" PAY PHONE MOUNTED AT 54" A.F.F.
"W" WALL MOUNTED AT 54" A.F.F.

			TELEPHONE OUTLET
			DUPLEX TELEPHONE OUTLET
			DATA SYSTEMS OUTLET
			DUPLEX DATA SYSTEMS OUTLET
			COMBINATION TELEPHONE/ DATA SYSTEMS OUTLET
	T	T/D D	JUNCTION BOX WITH FLEXIBLE CONDUIT AND FINAL EQUIPMENT OR FURNITURE SYSTEM CONNECTION. SUBSCRIPTS INDICATE THE FOLLOWING:

"T" - TELEPHONE
"D" - DATA SYSTEMS
"T/D" - COMBINATION TELEPHONE/ DATA SYSTEMS

I	INTERCOM, WALL OR CEILING MOUNTED
S	SPEAKER, WALL OR CEILING MOUNTED

HEALTHCARE CALL SYMBOLS

1	SINGLE CALL STATION
3	TOILET BATH OR SHOWER CALL STATION
4	SINGLE CORRIDOR DOME ZONE LIGHT
7	MULTIPLE CORRIDOR DOME ZONE LIGHT
8	DUTY STATION
9	STAFF STATION
23	CODE BLUE STATION
24	2-BUTTON STAFF ASSIST/CODE BLUE STATION
25	NURSE CALL MASTER PANEL

LIGHTING SYMBOLS

F1 1a	2' X 4' LIGHTING FIXTURE.
F1 1a	2' X 2' LIGHTING FIXTURE.
F1 1a	1' X 4' LIGHTING FIXTURE.
F1 1a	LINEAR LIGHTING FIXTURE- LENGTH AS INDICATED.
F1 1a	WALL MOUNTED LINEAR LIGHTING FIXTURE- LENGTH AS INDICATED.
F1 F1 1a 1a	INCANDESCENT, HID, OR LED LIGHTING FIXTURE.
F1 F1 1a 1a	WALL MOUNTED INCANDESCENT, HID, OR LED LIGHTING FIXTURE
F1 E1	2' X 4' LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.
F1 E1	LINEAR LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.
F1 F1 E1	INCANDESCENT, HID, OR LED LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.

LIGHTING FIXTURES: "F1" INDICATES LIGHTING FIXTURE TYPE. REFER TO LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND MOUNTING. "1" INDICATES CIRCUIT NUMBER "a" INDICATES SWITCH CONTROL. SHADING OF LIGHTING FIXTURE OR "E" INDICATES LIGHTING FIXTURE CONNECTED TO EMERGENCY CIRCUIT.

F1 E2	BATTERY PACK, EMERGENCY LIGHTING UNIT
	REMOTE HEAD CONNECTED TO BATTERY PACK.
	TRACK LIGHTING

NEW #3 E3	"#X" INDICATES INSCRIPTION, ARROWS, AND SINGLE OR DOUBLE FACED, AS SHOWN BELOW. SHADED QUADRANTS INDICATES DIRECTION OF LIGHTED FACES.
NEW #21 E5	
NEW #3N E3	
NEW #21N E5	
EXISTING #3E E3	
EXISTING #21E E5	

"#1" FIRE ESCAPE
"#2A" STAIRS
"#3" EXIT
"#4" FIRE ESCAPE
"#5A" STAIRS
"#6" EXIT
"#7" FIRE ESCAPE
"#8A" STAIRS
"#9" EXIT
"#10" FIRE ESCAPE
"#11A" STAIRS
"#12" EXIT
"#13" EXIT - RECESSED
"#14" TRIANGLE
"#15" ELEVATOR
"#16" FIRE ESCAPE
"#17A" STAIRS
"#18" EXIT
"#19" FIRE ESCAPE
"#20A" STAIRS
"#21" EXIT
"#22" FIRE ESCAPE
"#23A" STAIRS
"#24" EXIT

3W XXa	LIGHT SWITCH, SINGLE POLE UNLESS NOTED OTHERWISE:

"a" INDICATES LIGHTS CONTROLLED
"D" INDICATES DIMMER SWITCH
"K" INDICATES KEY OPERATED
"LV" INDICATES LOW VOLTAGE
"MC" INDICATES MOMENTARY CONTACT
"P" INDICATES PILOT LIGHT
"TH" INDICATES THERMAL OVERLOAD PROTECTION
"XX" INDICATES CIRCUIT NUMBER
"WP" INDICATES WEATHERPROOF
"2P" INDICATES 2 POLE
"3P" INDICATES THREE POLE
"3W" INDICATES THREE-WAY
"4W" INDICATES FOUR-WAY

BRANCH CIRCUIT WIRING SCHEDULE -NOTE 8

OCPD AMPS	1P–2W+G,2P–2W+G	2P–3W+G & 3P–3W+G	3P–4W+G	COMMENTS
15	2#12, 1#12G, 3/4"C	3#12, 1#12G, 3/4"C	4#12, 1#12G, 3/4"C	
20	2#12, 1#12G, 3/4"C	3#12, 1#12G, 3/4"C	4#12, 1#12G, 3/4"C	
25	2#10, 1#10G, 3/4"C	3#10, 1#10G, 3/4"C	4#10, 1#10G, 3/4"C	
30	2#10, 1#10G, 3/4"C	3#10, 1#10G, 3/4"C	4#10, 1#10G, 3/4"C	
35	2#8, 1#10G, 3/4"C	3#8, 1#10G, 3/4"C	4#8, 1#10G, 3/4"C	
40	2#8, 1#10G, 3/4"C	3#8, 1#10G, 3/4"C	4#8, 1#10G, 3/4"C	
45	2#6, 1#10G, 3/4"C	3#6, 1#10G, 3/4"C	4#6, 1#10G, 1"C	
50	2#6, 1#10G, 3/4"C	3#6, 1#10G, 3/4"C	4#6, 1#10G, 1"C	
60	2#4, 1#10G, 3/4"C	3#4, 1#10G, 1"C	4#4, 1#10G, 1 1/4"C	
70	2#4, 1#8G, 3/4"C	3#4, 1#8G, 1"C	4#4, 1#8G, 1 1/4"C	
80	2#3, 1#8G, 1"C	3#3, 1#8G, 1"C	4#3, 1#8G, 1 1/4"C	
90	2#2, 1#8G, 1"C	3#2, 1#8G, 1 1/4"C	4#2, 1#8G, 1 1/4"C	
100	2#1, 1#8G, 1 1/4"C	3#1, 1#8G, 1 1/4"C	4#1, 1#8G, 1 1/2"C	

GENERAL NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF LIGHTING AND CONTROLS, RECEPTACLES, COMMUNICATIONS DEVICES, FIRE ALARM DEVICES, AND LIFE SAFETY DEVICES.

2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF HVAC, PLUMBING, AND FIRE PROTECTION EQUIPMENT.

3. REFER TO PANEL DIVISION LINES FOR BRANCH CIRCUIT HOMERUN PANELBOARD DEMARCATION LINES, UNLESS NOTED OTHERWISE.

4. BRANCH CIRCUIT WIRING FOR 120 VOLT 20 AMP CIRCUITS WIRED TO 208Y/120V SYSTEMS SHALL BE AS FOLLOWS: A. GENERAL RECEPTACLES AND LIGHTING LOADS: UP TO 100 FEET IN LENGTH: 3#12, 1#12N, 1#12G -3/4"C. OVER 100 FEET IN LENGTH: 3#10, 1#10N, 1#10G -3/4"C.

5. BRANCH CIRCUIT WIRING FOR 277 VOLT 20 AMP CIRCUITS WIRED TO 480Y/277V SYSTEMS SHALL BE AS FOLLOWS: A. LIGHTING LOADS: UP TO 150 FEET IN LENGTH: 3#12, 1#10N, 1#12G -3/4"C. OVER 150 FEET IN LENGTH: 3#10, 1#8N, 1#10G -3/4"C.

6. DISTANCES FOR BRANCH CIRCUIT WIRING, AS INDICATED IN NOTES 4 & 5 ABOVE, SHALL BE MEASURED FROM THE FINAL OCPD TO THE CENTER OF THE BRANCH CIRCUIT LOAD. SIZES ARE A MINIMUM AND CONTRACTOR MAY BE REQUIRED TO UP-SIZE TO ACCOUNT FOR VOLTAGE DROP.

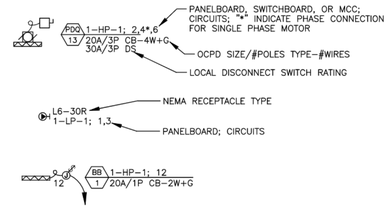
7. COMPUTER EQUIPMENT OUTLETS, OUTLETS WITHIN WORKSTATIONS, OFFICES, FURNITURE SYSTEMS, AND THE LIKE SHALL BE CONSIDERED NON-LINEAR LOADS.

8. BRANCH CIRCUIT CONDUCTORS SIZED AS INDICATED IN NOTES 4 & 5 ABOVE AND/OR ON PLAN SHALL BE ROUTED TO EACH ELECTRIC DEVICE CONNECTED TO THE INDICATED BRANCH CIRCUIT. PROVIDE WIRENUTS AND PIGTAILS SIZED TO MATCH THE CORRESPONDING OCPD LISTED IN THE BRANCH CIRCUIT WIRING SCHEDULE FOR ELECTRICAL DEVICE TERMINATIONS WHERE THE ELECTRICAL DEVICE LUGS CANNOT ACCOMMODATE THE INCREASED CONDUCTOR SIZE INDICATED ABOVE, U.N.O.

9. REFER TO THE BRANCH CIRCUIT WIRING SCHEDULE FOR MINIMUM INSTALLATION CRITERIA. BRANCH CIRCUIT WIRING SPECIFIED IN NOTES AND/OR ON PLAN OR OTHER SCHEDULES SHALL TAKE PRECEDENCE OVER THE INFORMATION PROVIDED IN THE SCHEDULE.

10. PROVIDE AN EQUIPMENT GROUNDING SCREW WITHIN THE RECEPTACLE OUTLET BOX FOR RECEPTACLES WITHOUT A SIDE-MOUNTED GROUNDING SCREW FOR TERMINATION OF THE BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.

11. ELECTRICAL DEVICE BRANCH CIRCUIT WIRING LEGEND:



12. MOUNTING HEIGHTS OF ELECTRICAL ITEMS SHALL BE AS LISTED BELOW ABOVE FINISHED FLOOR TO CENTERLINE, UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS OR AS REQUIRED BY CODE:

A. GENERAL RECEPTACLES	18"
B. PATIENT RECEPTACLES	18"
C. GENERAL TELE AND DATA OUTLETS	18"
D. PATIENT TELE AND DATA OUTLETS	18"
E. GENERAL TOGGLE SWITCHES	48"
F. FIRE ALARM PULL STATIONS	48"
G. SECURITY CALL STATIONS	48"
H. CLOCK AND PAGING SPEAKER OUTLETS	84"
I. FIRE ALARM AUDIO VISUAL DEVICES	80"
J. GENERAL WALL MOUNTED LIGHTS	90"
K. CORRIDOR WALL SCONCES (>4" DEEP)	66"
L. EXIT SIGNS	90"
M. INDIVIDUAL DISCONNECTS AND STARTERS	60"
N. GROUPED DISCONNECTS AND STARTERS	> 12" < 72"
O. PANELBOARD OVERCURRENT DEVICES	> 12" < 72"

13. PROVIDE NEW FIRE ALARM DEVICES AS INDICATED IN THE DOCUMENTS OR AS OTHERWISE REQUIRED BY LOCAL CODES. NEW DEVICES SHALL BE PRODUCTS OF THE EXISTING FIRE ALARM MANUFACTURER, JCI/SIMPLEX.

14. PROVIDE MODIFICATIONS TO THE OVERHEAD AND INTERDEPARTMENTAL PAGING SYSTEM UTILIZING THE HOSPITAL PAGING SYSTEM MAINTENANCE CONTRACTOR.

15. PROVIDE NEW NURSE CALL DEVICES AS INDICATED IN THE DOCUMENTS. NEW DEVICES SHALL BE PRODUCTS OF THE EXISTING NURSE CALL SYSTEM MANUFACTURER. MODIFICATIONS TO THE NURSE CALL SYSTEM SHALL BE PERFORMED BY THE HOSPITAL PAGING SYSTEM MAINTENANCE CONTRACTOR. PROVIDE EMPTY RACEWAY FOR COMMUNICATIONS SYSTEMS. COMMUNICATIONS

16. CABLING AND OUTLETS SHALL BE FURNISHED AND INSTALLED BY THE OWNER'S COMMUNICATIONS CONTRACTOR UNDER SEPARATE CONTRACT. COORDINATE RACEWAY REQUIREMENTS WITH COMMUNICATIONS CONTRACTOR. PROVIDE EMPTY RACEWAY FOR PATIENT MONITORING SYSTEM. PATIENT MONITORING

17. CABLING AND OUTLETS SHALL BE FURNISHED AND INSTALLED BY THE OWNER'S PATIENT MONITORING VENDOR UNDER SEPARATE CONTRACT. COORDINATE RACEWAY REQUIREMENTS WITH PATIENT MONITORING VENDOR.

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

CODES AND STANDARDS

DESIGNED UNDER THE FOLLOWING CODES AND STANDARDS:
2020 NATIONAL ELECTRICAL CODE
2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2015 INTERNATIONAL FIRE CODE
2009 ANSI A117.1, ACCESSIBILITY REQUIREMENTS
ANSI/ASME A17.1, SAFETY CODE FOR ELEVATORS
NFPA 72 NATIONAL FIRE ALARM CODE

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: R. Lowman
Date: Dec 15, 2022
2015 INTERNATIONAL CODES & 2020 NEC

RSN: 1679034
Permit #: 22-2256682-LT

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No.	Description	Date

COLORADO LICENSED PROFESSIONAL ENGINEER MICHAEL P THOMPSON 50150
12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

Sheet Title
ELECTRICAL SYMBOLS , ABBREVIATIONS & NOTES

Sheet Number
E.000

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ABBREVIATIONS

NOTE: ABBREVIATIONS ARE ALPHABETICALLY LISTED BY DESCRIPTION.

ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	KVA	KILOVOLT-AMPERE
ACL	ACROSS THE LINE	KO	KNOCKOUT
ALM	ALARM	LTG	LIGHTING
AC	ALTERNATING CURRENT	LS	LOUD SPEAKER
A	AMPERE	LV	LOW VOLTAGE
AMP	AMPERE	MH	MANHOLE
AIC	AMPERES INTERRUPTING CAPACITY	MFR	MANUFACTURER
AL	ALUMINUM	MV	MULTI VAPOR
ANN	ANNUNCIATOR	MERC.	MERCURY VAPOR
ATS	AUTOMATIC TRANSFER SWITCH	MTR	MOTOR
BAL	BALLAST	MCC	MOTOR CONTROL CENTER
BR	BRANCH	MTD	MOUNTED
BRKR	BREAKER	NEC	NATIONAL ELECTRICAL CODE
BGB	BUILDING GROUND BOX	NEUT	NEUTRAL
CAB	CABINET	NC	NORMALLY CLOSED
CATV	CABLE TELEVISION	NO	NORMALLY OPENED
C.B.	CIRCUIT BREAKER	NIC	NOT IN CONTRACT
CCT	CIRCUIT	NTS	NOT TO SCALE
CCTV	CLOSED CIRCUIT TELEVISION	PNL	PANEL
CLO	CLOSET	PH	PHASE
COAX	COAXIAL	PT	POTENTIAL TRANSFORMER
C.U.	COEFFICIENT OF UTILIZATION	PWR	POWER
COMED	COMMONWEALTH EDISON COMPANY	PRI	PRIMARY
C	CONDUIT	PROT.	PROTECTION OR PROTECTIVE
CONN	CONNECTION	PA	PUBLIC ADDRESS
CONV	CONVENIENCE	PB	PULL BOX
CU	COPPER	RT	RAINTIGHT
CUH	CABINET UNIT HEATER	RECP	RECEPTACLE
CT	CURRENT TRANSFORMER	RC	REMOTE CONTROL
HZ	HERTZ (CYCLES/SECOND)	R	RESISTANCE
DC	DIRECT CURRENT	REL	RELOCATE
DS	DISCONNECT SWITCH	SEC	SECONDARY
DPDT	DOUBLE POLE DOUBLE THROW	SC	SHORT CIRCUIT
DPST	DOUBLE POLE SINGLE THROW	SP	SINGLE POLE
DO	DRAWOUT	SPST	SINGLE POLE SINGLE THROW
DT	DUSTTIGHT	SPDT	SINGLE POLE DOUBLE THROW
ELEC	ELECTRIC	SPKR	SPEAKER
EWC	ELECTRIC WATER COOLER	SPEC	SPECIFICATION
EWH	ELECTRIC WATER HEATER	SS	STAINLESS STEEL
EM	EMERGENCY	STA	STATION
EMT	ELECTRIC METALLIC TUBING (THIN WALL CONDUIT)	S	SWITCH
		SWBD	SWITCHBOARD
EQ	EQUIPMENT	SWGR	SWITCHGEAR
EUH	ELECTRIC UNIT HEATER	SYM	SYMMETRICAL
EX	EXISTING	SYS	SYSTEM
EP	EXPLOSION PROOF	TC	TERMINAL CABINET
FPB	FAN POWERED BOX	TEL	TELEPHONE
FA	FIRE ALARM	TEL.CL.	TELEPHONE CLOSET
FDC	FIRE DEPARTMENT CONNECTION	TTC	TELEPHONE TERMINAL CABINET
FB	FLOORBOX	TV	TELEVISION
FLUOR	FLUORESCENT	TERM.	TERMINAL
FMC	FLEXIBLE METALLIC CONDUIT	TX	TRANSFORMER
F	FUSE	T	TRIP
F.S.	FUSED SWITCH	TL	TWIST LOCK
GEN	GENERATOR	UL	UNDERWRITER'S LABORATORIES
GRD	GROUND	UNG	UNGROUNDED
GFI	GROUND FAULT INTERRUPTER	UH	UNIT HEATER
GHW	GALVANIZED HEAVYWALL STEEL CONDUIT	UNO	UNLESS NOTED OTHERWISE
		VP	VAPORPROOF
HV	HIGH VOLTAGE	VT	VAPORTIGHT
HP	HORSE POWER	V	VOLT
INC	INCANDESCENT	VA	VOLT-AMPERE
IC	INTERRUPTING CAPACITY	WT	WATERTIGHT
IMC	INTERMEDIATE GRADE CONDUIT	W	WATT
JB	JUNCTION BOX	WP	WEATHERPROOF
KW	KILOWATT	XR	EXISTING TO BE REMOVED
KWH	KILOWATT-HOUR	XRL	EXISTING TO BE RELOCATED
		XRW	EXISTING TO BE REWIRED

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City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
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RSN: *1679034*
Permit #: *22-2256682-LT*

12/5/2022 1:19:24 AM

DIVISION 260000 - ELECTRICAL

1. GENERAL

A. REQUIREMENTS:

1) PRODUCTS AND EXECUTION SHALL BE PROVIDED FOR A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM THROUGHOUT THE EXTENT OF THE PROJECT, IN CONFORMANCE WITH APPLICABLE CODES, LAWS, ORDINANCES AND AGENCY STANDARDS OF GOVERNING BODIES HAVING JURISDICTION, AND IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND BUILDING STANDARDS.

2) PRODUCTS, INCLUDING EQUIPMENT, DEVICES, FIXTURES, AND MATERIALS SHALL BE NEW UNLESS NOTED OTHERWISE, UL LISTED, AND BEAR APPROPRIATE LABEL.

3) EXECUTION, INCLUDING PREPARATION, INSTALLATION, STARTING, AND TESTING SHALL BE PERFORMED BY SKILLED TRADES PERSONNEL, IN COMPLIANCE WITH THE ASSOCIATED MANUFACTURERS RECOMMENDATIONS, AND COORDINATED WITH THE OTHER CONSTRUCTION TRADES.

B. APPLICABLE LAWS AND AGENCY STANDARDS:

1) AMERICAN NATIONAL STANDARDS INSTITUTE ANSI
2) AMERICAN SOCIETY FOR TESTING AND MATERIALS ASTM
3) AMERICANS WITH DISABILITIES ACT ADA
4) ASSOCIATION OF EDISON ILLUMINATING COMPANIES AEIC
5) CERTIFIED BALLAST MANUFACTURERS CBM
6) ELECTRICAL TESTING LABORATORIES ETL
7) ELECTRONIC/TELECOMMUNICATIONS INDUSTRIES ASSOCIATION EIA/TIA
8) ENERGY POLICY ACT OF 1992 EPACT
9) FEDERAL AVIATION ADMINISTRATION FAA
10) ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA IESNA
11) INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS IEEE
12) INSULATED CABLE ENGINEERS ASSOCIATION ICEA
13) NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION NEMA
14) NATIONAL FIRE PROTECTION ASSOCIATION NFPA
15) UNDERWRITERS' LABORATORIES UL

C. SUBMITTALS:

1) PRODUCT DATA SHALL BE PREPARED AND SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION FOR THE FOLLOWING PRODUCTS: CABINETS, ACCESS PANELS, SUPPORTS, RACEWAY COMPONENTS, FLOOR BOXES, FIRE PROOF FITTINGS, WIRE, FUSES, CIRCUIT BREAKERS, RECEPTACLES, TOGGLE SWITCHES, SLIDE DIMMERS, DISCONNECT SWITCHES, MOTOR STARTERS, CONTACTORS, LIGHTING FIXTURES, BALLASTS, LAMPS, CONTROLS, FIRE ALARM DEVICES, LIFE SAFETY DEVICES, AND ELECTRIC HEATING EQUIPMENT.

2) SHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION FOR THE FOLLOWING PRODUCTS: METERING EQUIPMENT, DISTRIBUTION PANELBOARDS, BRANCH PANELBOARDS, TRANSFORMERS, CABLE TRAY, DIMMING EQUIPMENT, FIRE ALARM EQUIPMENT, AND LIFE SAFETY EQUIPMENT.

3) TEST RESULTS SHALL BE PREPARED AND SUBMITTED PRIOR TO PROJECT COMPLETION FOR CABLE INSULATION, GROUNDING SYSTEM, EMERGENCY SYSTEM, FIRE ALARM SYSTEM, AND LIFE SAFETY SYSTEMS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION, AND APPLICABLE CODES AND AGENCY STANDARDS.

4) MANUFACTURERS INSTRUCTIONS SHALL BE PREPARED AND SUBMITTED PRIOR TO CONSTRUCTION INCLUDING INSTALLATION MANUALS WITH APPLICATION CONDITIONS AND LIMITATIONS FOR ELECTRICAL APPARATUS USE, STORAGE, HANDLING, PROTECTION, EXAMINATION, PREPARATION, INSTALLATION, AND STARTING.

5) PROJECT RECORD DOCUMENTS SHALL BE PREPARED USING AUTOCAD OR EQUIVALENT CAD PACKAGE. PROJECT RECORD DOCUMENTS SHALL BE SUBMITTED ON REPRODUCIBLE MEDIA PRIOR TO PROJECT COMPLETION FOR ELECTRICAL SYSTEMS. RECORD ACTUAL LOCATION OF EQUIPMENT, DEVICES, FIXTURES, ETC. RECORD ACTUAL ROUTING OF OVERHEAD FEEDERS. RECORD ACTUAL ROUTING OF FEEDERS BELOW SLAB AND BRANCH CIRCUITS WITHIN OR BELOW SLAB.

6) MAINTENANCE DATA SHALL BE PREPARED AND SUBMITTED PRIOR TO PROJECT COMPLETION FOR ELECTRICAL APPARATUS INCLUDING OPERATION MANUALS AND MAINTENANCE MANUALS.

D. COORDINATION:

1) ELECTRICAL ENGINEER: NOTIFY THE ENGINEER OF ANY CONFLICTING DESIGN INFORMATION OR ANY DESIGN INTENTIONS WHICH ARE NOT READILY INTERPRETED FROM THE CONTRACT DOCUMENTS PRIOR TO ANY PRODUCT SELECTION OR EXECUTION OF WORK. NOTIFY THE ENGINEER OF ANY PRODUCTS WHICH ARE DAMAGED, UNSUITABLE, INCOMPATIBLE, OR NON-COMPLIANT WITH ANY APPLICABLE CODES OR ORDINANCES OF ANY GOVERNING BODIES HAVING LAWFUL JURISDICTION.

2) CONSTRUCTION TRADES: COORDINATE WORK WITH OTHER CONSTRUCTION TRADES.

3) BUILDING MANAGEMENT: MEET ON SITE WITH THE BUILDING ENGINEER TO BECOME FAMILIAR WITH BUILDING STANDARDS. NORMAL BUILDING WORKING HOURS SHALL BE RECOGNIZED. AFTER-HOURS WORK OR TEMPORARY SERVICES SHALL BE WITH PRIOR WRITTEN APPROVAL FROM BUILDING MANAGEMENT. ENCLOSE CONSTRUCTION AREA FROM OTHER AREAS TO PREVENT TRANSMISSION OF DUST, DIRT AND NOISE INTO OTHER EXISTING TENANT AREAS. PRODUCT AND WASTE TRANSFER SHALL BE COORDINATED WITH BUILDING MANAGEMENT FOR SCHEDULING OF THE ELEVATORS, DELIVERIES, AND WASTE REMOVAL.

4) EXISTING BUILDING SYSTEMS: REVIEW BUILDING STANDARDS WITH THE BUILDING ENGINEER. PERFORM A SITE VISIT TO VERIFY THE EXISTING SITE CONDITIONS. COSTS ASSOCIATED WITH UNFORESEEN CONDITIONS AS RESULT OF NOT PERFORMING A SITE VISIT SHALL NOT BE AN ENTITLEMENT FOR AN INCREASE TO THE CONTRACT. CONSTRUCTION SHALL BE PERFORMED WITHOUT INTERRUPTION TO THE BUILDING POWER, COMMUNICATIONS, SECURITY, FIRE ALARM AND LIFE SAFETY SYSTEMS, OR INTERFERENCE TO COMMON AREAS, CORRIDORS, EXITS OR EXISTING TENANTS. WHERE ANY CONSTRUCTION WOULD INTERFERE WITH THE DAILY OPERATIONS OF THE BUILDING OR OTHER TENANTS, AFTER-HOURS WORK OR TEMPORARY SERVICES SHALL BE PROVIDED AT NO INCREASE TO THE CONTRACT.

E. WARRANTEE AND GUARANTEE

1) PROVIDE WARRANTEE AND MANUFACTURERS CERTIFICATE FOR EACH PRODUCT, MINIMUM OF ONE YEAR OR LONGER AS SPECIFIED, FROM THE DATE OF OCCUPANCY. REPAIR AND/OR REPLACE ANY EQUIPMENT, DEVICES, FIXTURES, MATERIALS, ETC. WITH DEFECT AS REQUIRED AT NO INCREASE TO THE CONTRACT.

2) PROVIDE GUARANTEE OF INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF OCCUPANCY. REPAIR AND/OR REINSTALL ANY WORK WITH DEFECT AS REQUIRED AT NO INCREASE TO THE CONTRACT. PROVIDE GUARANTEE OF REWORK FOR A PERIOD OF ONE YEAR FROM THE COMPLETION OF REPAIR OR REINSTALLATION.

3) DAMAGE CAUSED TO FINISHES, SURFACES, CEILING TILES, EQUIPMENT, ETC. SHALL BE REPAIRED AND/OR REPLACED TO MATCH THE PRE-EXISTING CONDITION AT NO INCREASE TO THE CONTRACT.

F. PAY FEES AND OTHER CHARGES INCIDENTAL TO THE ELECTRICAL WORK AND OBTAIN AND PAY FOR REQUIRED LIABILITY AND CASUALTY INSURANCE, PERMITS, LICENSES, INSPECTIONS, TAXES, ETC.

G. CONSTRUCTION SHALL BE DONE DURING NIGHTS, WEEKENDS AND OTHER OWNER DEFINED TIMES, UNLESS OTHERWISE SPECIFIED.

H. ALLOW FOR 6 MAN-HOURS OF TRAINING TO THE OWNERS STAFF FOR THE OPERATION OF THE ELECTRICAL SYSTEMS.

I. SUBSTITUTIONS ARE NOT ACCEPTABLE.

2. PRODUCTS

A. CABINETS, ENCLOSURES AND ACCESS PANELS SHALL BE CODE GAGE STEEL WITH BAKED ENAMEL FINISH AND FLANGELESS HINGES AND FASTENERS. EQUIPMENT BASES SHALL BE 3 INCH HIGH CONCRETE, STEEL BRACED AND REINFORCED WITH 1/4 INCH CHAMFER, AND SHALL EXTEND A MINIMUM OF 2 INCHES AROUND BASE OF EQUIPMENT. VIBRATION ISOLATION SHALL BE SPRING ELEMENTS IN SUSPENDED RODS AND ISOLATION PADS BELOW EQUIPMENT, ELECTRICAL CONNECTIONS SHALL BE FLEXIBLE CONDUIT.

B. CONDUITS SHALL BE HOT-DIPPED GALVANIZED OR ELECTRO-GALVANIZED STEEL, MINIMUM SIZE SHALL BE 3/4 INCH, EXCEPT POWER BRANCH CIRCUITS MAY BE 1/2 INCH (UNLESS NOTED OTHERWISE) AND FLEXIBLE CONNECTIONS TO RECESSED LIGHTING FIXTURES WHICH MAY BE 3/8 INCH. FLEXIBLE STEEL CONDUIT SHALL BE GALVANIZED STEEL, WITH UL LISTED LIQUID TIGHT JACKET AS REQUIRED, FOR FINAL CONNECTIONS TO MOTORS, RECESSED LIGHTING FIXTURES, AND LIFE SAFETY DEVICES. SUPPORTS, INCLUDING CHANNELS, ANGLES, RODS, AND FASTENERS SHALL BE HOT-DIPPED GALVANIZED STEEL. MANUFACTURER SHALL BE ALLIED, LTV/REPUBLIC, STEELDUCT, OR WHEATLAND.

C. CONDUIT FITTINGS SHALL BE STEEL, DIE CAST FITTINGS OF POT METAL ARE NOT ACCEPTABLE. ELECTRICAL METALLIC TUBING (EMT) FITTINGS SHALL BE COMPRESSION TYPE WITH INSULATED THROATS, SET SCREW FITTINGS ARE NOT ACCEPTABLE. INTERMEDIATE METAL CONDUIT (IMC) AND HEAVY WALL CONDUIT (HWG) FITTINGS SHALL BE OF THREADED JOINTS; SET SCREW AND COMPRESSION FITTINGS ARE NOT ACCEPTABLE. MANUFACTURER SHALL BE APPLETON, CROUSE HINDS/MIDWEST, OZ/GGEDNEY, RACO, STEEL CITY, OR T&B.

D. OUTLET BOXES FOR ALL TOGGLE SWITCHES, RECEPTACLES, COMMUNICATIONS DEVICES, FIRE ALARM DEVICES, AND LIFE SAFETY DEVICES SHALL INCLUDE PLASTER RINGS, DEVICE PLATES, AND COVER PLATES WHERE REQUIRED. PROVIDE BOXES SUITABLE FOR PLENUM, WET, OR HAZARDOUS LOCATIONS AS REQUIRED. DEVICE COVER PLATES SHALL BE STAINLESS STEEL PAINTED TO MATCH FINISH. MULTI-GANG OUTLET BOXES SHALL INCLUDE SUITABLE ONE-PIECE DEVICE COVER PLATE. OUTLETS LOCATED ON OPPOSITE SIDES OF A PARTITION SHALL BE STAGGERED BY 12 INCHES, MINIMUM. MANUFACTURER SHALL BE APPLETON, RACO, OR STEEL CITY.

E. CABLE MANAGEMENT RACEWAY SYSTEMS INCLUDING SURFACE MOUNTED, SUSPENDED, OR FLUSH IN-FLOOR OR IN-WALL DUCTS, ADJUSTABLE SUPPORTS, ELVOWS, FITTINGS, AND ALL REQUIRED ACCESSORIES SHALL BE OF UL STANDARD GALVANIZED STEEL, AND SHALL BE SIZED IN ACCORDANCE WITH CODE TO ADEQUATELY FACILITATE PULLING AND CONNECTING THE QUANTITY AND SIZE OF WIRES AND CABLES CONTAINED. MANUFACTURER SHALL BE WIREMOLD OR STEEL CITY.

F. WIRE SHALL BE 600 VOLT INSULATED COPPER, MINIMUM SIZE SHALL BE NO.12 AWG, WIRE SIZES NO.8 AWG AND LARGER SHALL BE STRANDED. MANUFACTURER SHALL BE AMERICAN INSULATED WIRE CORP., CERRO, COLLYER, CAPITOL WIRE AND CABLE, OKONITE, SENETOR, SOUTH WIRE, OR TRIANGLE.

G. HCF-MC CABLE IS ACCEPTABLE FOR BRANCH CIRCUIT WIRING TO FEED NEW DEVICES IN EXISTING WALLS. MC CABLE SHALL BE TERMINATED IN A JUNCTION BOX IN AN ACCESSIBLE CEILING CAVITY WITHIN 24" OF LEAVING THE WALL CAVITY. MC CABLE IS NOT ACCEPTABLE WHERE NOT PERMITTED BY CODE, FOR FEEDERS, OR TO FEED MECHANICAL EQUIPMENT.

H. CABLE SUPPORTS SHALL BE APPROPRIATE FOR THE SIZE OF CONDUIT AND TYPE OF WIRE AND CABLES. CABLE LUBRICANT SHALL BE LESS THAN SIX PERCENT SOLID RESIDUE AFTER DRYING AND SHALL NOT CONTAIN ANY WAXES, GREASES, SILICONES, OR GLYCOL OILS.

I. BRANCH PANELBOARDS SHALL BE FULLY RATED WITH ALUMINUM PHASE, NEUTRAL, AND GROUND BUS, BRACED AT 14,000 AIC FOR 480Y/277 VOLT SYSTEMS AND 10,000 AIC FOR 208Y/120V SYSTEMS, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. MANUFACTURER SHALL BE EATON OR SQUARE D.

J. LOCAL DISCONNECT SWITCHES FOR ELECTRICALLY OPERATED EQUIPMENT SHALL BE HEAVY DUTY WITHIN ENCLSOURE SUITABLE FOR THE LOCATION. FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES 600 AMPS AND SMALLER SHALL BE QUICK-MAKE, QUICK-BREAK TYPE. MANUFACTURER SHALL BE EATON OR SQUARE D.

K. OVERCURRENT AND SHORT CIRCUIT PROTECTION WITHIN FUSIBLE SWITCHES SHALL BE CLASS RK-1 CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 600 AMPS AND SMALLER. MANUFACTURER SHALL BE BUSSMANN.

L. TRANSFORMERS SHALL BE ALUMINUM WOUND, DRY TYPE VENTILATED, 115°C RISE WITH NEMA STANDARD VOLTAGE TAPS AND SOUND RATINGS. TRANSFORMERS SERVING NON-LINEAR LOADS SHALL BE K-13 RATED OR BETTER FOR THE ORDER AND MAGNITUDE OF HARMONIC CONTENT. TRANSFORMERS SERVING ISOLATED GROUND DISTRIBUTION SYSTEMS SHALL BE SHIELDED ISOLATION TYPE. MANUFACTURER SHALL BE MAGNETEK/JEFFERSON, SOLA/HEAVY DUTY, SQUARE D/SORGEL.

M. GROUNDING SYSTEM, INCLUDING SERVICE AND EQUIPMENT GROUNDING AND BONDING, SHALL BE IN ACCORDANCE WITH CODE AND SHALL CONNECT ALL ELECTRICALLY OPERATED EQUIPMENT. PROVIDE A SEPARATE GREEN GROUND WIRE FOR EACH BRANCH CIRCUIT AND FEEDER.

N. RECEPTACLES SHALL BE DUPLEX NEMA 5-20R, BACK AND SIDE WIRED, HOSPITAL SPECIFICATION GRADE, UNLESS NOTED OTHERWISE. SPECIAL RECEPTACLE CONFIGURATIONS SHALL BE AS REQUIRED OR AS INDICATED ON THE CONTRACT DOCUMENTS. GENERAL RECEPTACLE COLOR SHALL BE IVORY FOR NORMAL POWERED RECEPTACLES AND RED FOR CRITICAL POWERED RECEPTACLES UNLESS SPECIFIED OTHERWISE, VERIFY COLOR WITH ARCHITECT. MANUFACTURER SHALL BE BRYANT, HUBBELL, LEVITON, OR PASS & SEYMOUR.

O. NEW FIRE ALARM DEVICES PROVIDED WITHIN EXISTING SYSTEMS SHALL MATCH EXISTING DEVICE MANUFACTURER AND TYPE. STROBES SHALL MEET ADA GUIDELINES FOR THE APPLICATION AND SHALL BE RATED 75CD. STROBES RATED 15/75CD WITH 75CD ON AXIS ARE NOTE ACCEPTABLE. EXISTING FIRE ALARM DEVICES SHALL BE EXTENDED AS REQUIRED EXISTING FIRE ALARM EQUIPMENT SHALL BE EXPANDED AS REQUIRED WITH ANY ADDITIONAL COMPONENTS FOR PROPER OPERATION OF NEW DEVICES ON EXISTING EQUIPMENT.

3. EXECUTION

A. PENETRATIONS AND CHANNELS IN FLOORS AND WALLS SHALL BE VIA CUTTING AND CORING AS REQUIRED FOR THE SIZE OF PRODUCT, ONLY IN ACCORDANCE WITH THE ARCHITECT AND ENGINEER RECOMMENDATIONS, AND AS SCHEDULED WITH THE BUILDING MANAGEMENT. PATCH AND FILL SLEEVES, INSERTS, PENETRATIONS, AND CHANNELS WITH APPROPRIATE CODE APPROVED FIRE SAFING OR FILLING TO MATCH OR RESTORE THE ORIGINAL FIRE RATING OF THE CONSTRUCTION.

B. INSTALL 3 INCH CONCRETE PAD BELOW FLOOR MOUNTED EQUIPMENT INCLUDING DISTRIBUTION PANELBOARDS, TRANSFORMERS, ETC.

C. MAKE FINAL CONNECTIONS TO VIBRATING EQUIPMENT, FIXTURES, AND EVICES WITH FLEXIBLE METAL CONDUIT OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT AS REQUIERD. EXTEND GROUND WIRE THROUGH FLEXIBLE CONNECTIONS.

D. INSTALL CONDUIT, FITTINGS, SUPPORTS, ETC. IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURERS RECOMMENDATIONS. THE VOLTAGES IDENTIFIED IN THE FOLLOWING SCHEDULES ARE LINE-TO-LINE OR LINE-TO-NEUTRAL. INTERIOR CONCEALED LOCATIONS ARE THOSE LOCATIONS WHICH ARE ABOVE CEILINGS, WITHIN WALLS, WITHIN FLOOR SLABS, AND WITHIN DEDICATED ELECTRICAL ROOMS. CONDUIT INSTALLATION SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE.

VOLTAGE LOCATION	0V THRU 50V	ABOVE 50V THRU 250V	ABOVE 250V THRU 600V	ABOVE 600V
INTERIOR CONCEALED	EMT	EMT	≤ 2"EMT ≥ 2 1/2"IMC	HWG
INTERIOR EXPOSED	EMT	≤ 2"EMT ≥ 2 1/2"IMC	IMC	HWG
EXTERIOR AND HAZARDOUS LOCATIONS	EMT	IMC	HWG	HWG

E. INSTALL PULL BOXES, JUNCTION BOXES, AND OUTLET BOXES IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURERS RECOMMENDATIONS. BOXES SHALL INCLUDE ACCESSIBLE COVERS, SHALL BE FABRICATED OF HEAVY GAGE GALVANIZED STEEL, AND SHALL BE SIZED WITH CODE TO ADEQUATELY FACILITATE PULLING AND CONNECTING THE QUANTITY OF WIRES, CABLES, AND FEEDERS CONTAINED. CONDUIT TERMINATIONS SHALL BE MADE WITH BUSHINGS AND LOCKNUTS. SUPPORTS FOR CONDUITS AND BOXES SHALL BE SUSPENDED DIRECTLY TO THE BUILDING STRUCTURAL COMPONENTS AND IN NO CASE SHALL THEY BE ATTACHED TO SUSPENDED CEILING GRID, DUCTWORK, OR PIPING COMPONENTS.

F. INSTALL FEEDERS AND BRANCH CIRCUIT WIRING IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURERS RECOMMENDATIONS. COORDINATE INSTALLATION WITH PANEL MANUFACTURERS LUG PROVISIONS. INSTALL NORMAL POWER AND ESSENTIAL SYSTEMS WIRING WITHIN CONTINUOUS METAL RACEWAYS. INSTALL CONCEALED SECURITY AND COMMUNICATIONS WIRING WITHIN CONTINUOUS METAL RACEWAYS. SEPARATE EACH SYSTEM INTO INDEPENDENT RACEWAYS. PROVIDE CABLE SUPPORTS AS REQUIRED. TERMINATE CABLES PER CODE AND MANUFACTURERS RECOMMENDATIONS. PROVIDE (2) HOLE LUGS FOR CABLES 250 KCMIL AND LARGER. POWER WIRING INSULATION SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

WIRE LOCATION	300 KCMIL AND SMALLER	350 KCMIL AND LARGER	ENVIRONMENTAL CONDITIONS
INTERIOR LOCATIONS	THHN/THWN	XHHW	DRY

G. INSTALL ELECTRICAL DISTRIBUTION EQUIPMENT AND DEVICES IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURERS RECOMMENDATIONS.

H. INSTALL GROUNDING SYSTEMS IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURERS RECOMMENDATIONS.

I. INSTALL LIGHTING AND ASSOCIATED CONTROLS, INCLUDING FIXTURES, DRIVERS, TOGGLE SWITCHES, SLIDE DIMMERS, DIMMING EQUIPMENT, LIGHTING CONTACTORS, ETC. IN ACCORDANCE WITH CODEE, STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS.

J. INSTALL SINGLE AND MULTIPLE DEVICE COVER PLATES AS REQUIRED. EXTEND EXISTING DEVICES TO FINISHED SURFACE AS REQUIRED.

K. INSTALL FIRE ALARM AND OTHER LIFE SAFETY SYSTEMS IN ACCORDANCE WITH CODES, STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS.

L. INSTALL INSCRIPTION PLATES AND IDENTIFICATION MARKINGS FOR PRODUCTS AND WIRING INCLUDING THE SAME INSCRIPTIONS WHERE INDICATED ON THE CONTRACT DOCUMENTS. INSTALL PLASTIC LAMINATE NAMEPLATES ON ENCLOSURES FOR EACH DEVICE WITHIN METERING EQUIPMENT, DISTRIBUTION PANELBOARDS, BRANCH PANELBOARDS, MOTOR STARTERS, DISCONNECT SWITCHES, TRANSFORMERS, AND CONTACTORS. NAMEPLATES SHALL BE WHITE WITH BLACK CORE, 1-1/4 INCHES BY 3 INCHES MINIMUM, WITH 3/16 INCH LETTERING, SECURED TO EQUIPMENT WITH TWO MACHINE SCREWS. PREPARE AND INSTALL TYPE-WRITTEN PANEL DIRECTORY WITHIN EACH BRANCH PANEL. DEVICE PLATES SHALL BE ENGRAVED FOR TOGGLE SWITCHES AND OTHER DEVICES WHOSE FUNCTION IS NOT READILY APPARENT. MARKERS SHALL BE SELF-STICKING FOR EACH WIRE AND CABLE AT TERMINATIONS AND AT EACH ACCESSIBLE POINT IN EQUIPMENT AND RACEWAY.
M. CLEAN ELECTRICAL APPARATUS PRIOR TO COMPLETION OF CONSTRUCTION. KEEP WORK AREAS CLEAN AT ALL TIMES.

N. ALTERATIONS AND DEMOLITION OF EXISTING SYSTEMS SHALL BE AS FOLLOWS:

1) PROVIDE ALL ALTERATIONS AND DEMOLITION OF THE EXISTING ELECTRICAL INSTALLATION AS REQUIRED, INCLUDING ANY INCIDENTAL MATERIALS TO EXECUTE ALL REMOVAL, REROUTING, RELOCATION, AND ANY OTHER MODIFICATIONS FOR PROPER ACCOMMODATION OF ALL NEW CONSTRUCTION AS INDICATED ON THE CONTRACT DOCUMENTS. ALL ALTERATIONS AND DEMOLITION SHALL BE AS INDICATED ON THE CONTRACT DOCUMENTS OR AS REQUIRED, INCLUDING ANY MODIFICATIONS NOT SPECIFICALLY IDENTIFIED ON ANY CONTRACT DOCUMENTS BUT REQUIRED TO COMPLETE ALL NEW CONSTRUCTION.

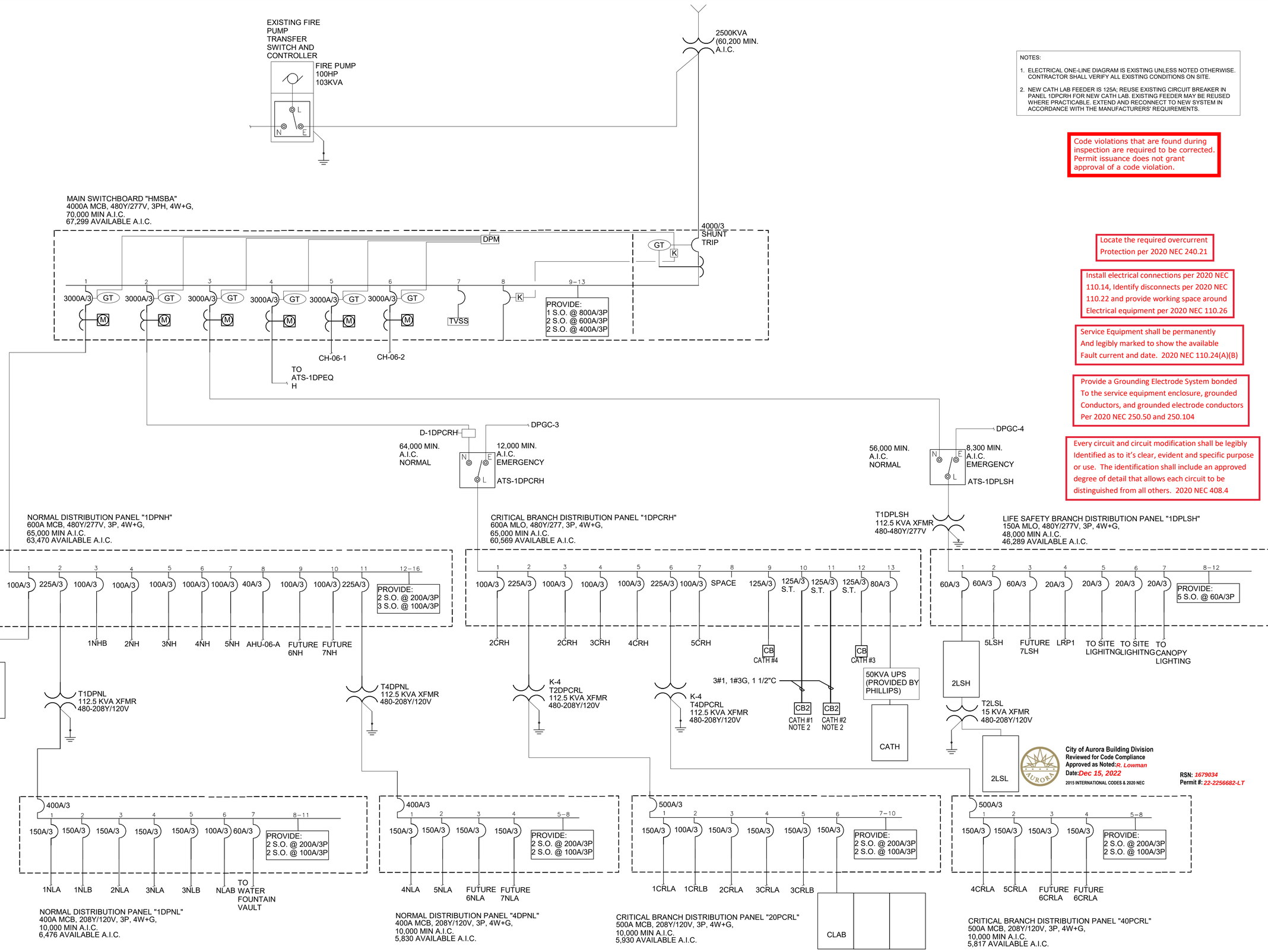
2) PROVIDE ALL MODIFICATIONS TO EXISTING EQUIPMENT AS REQUIRED OR AS INDICATED ON THE CONTRACT DOCUMENTS IN STRICT ACCORDANCE WITH THE EXISTING PRODUCT MANUFACTURERS RECOMMENDATIONS.

3) EXISTING RACEWAY, WIRE AND CABLE EXTENDING THROUGH THE CONSTRUCTION AREA BUT SERVING AREAS OUTSIDE THE CONTRACT SHALL BE REROUTED AND RECONNECTED AS REQUIRED. ALL MODIFICATIONS SHALL BE WITHOUT ANY INTERRUPTION TO THE BUILDING POWER, COMMUNICATIONS, SECURITY, FIRE ALARM AND LIFE SAFETY SYSTEMS, OR INTERFERENCE TO OTHER AREAS OR TENANTS. WHERE ANY MODIFICATIONS WOULD INTERFERE WITH THE DAILY OPERATIONS OF THE BUILDING OR OTHER TENANTS, AFTER-HOURS WORK OR TEMPORARY SERVICES SHALL BE PROVIDED WITH PRIOR WRITTEN APPROVAL FROM THE BUILDING.

4) EXISTING CONDUIT, WIRE, CABLE, SUPPORTS, HANGERS, AND OTHER ELECTRICAL INSTALLATION WHICH IS REMOVED, SHALL BE COMPLETELY REMOVED, BACK TO THE FIRST DEVICE OR THAT EQUIPMENT WHICH IS UNAFFECTED BY THE MODIFICATIONS. CONDUIT WHICH IS BURIED IN CONCRETE OR OTHERWISE INACCESSIBLE MAY BE ABANDONED AND CAPPED AT EACH END. ALL WIRE AND CABLE SHALL BE REMOVED FROM ANY ABANDONED CONDUIT.

5) EXISTING ELECTRICAL MATERIALS AND EQUIPMENT, INCLUDING LIGHTING FIXTURES, SWITCHES, RECEPTACLES, SPEAKERS, CONDUIT, OUTLET BOXES, FITTINGS, WIRE, CABLE, AND OTHER EQUIPMENT AND DEVICES WHICH ARE REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STORED OR DISCARDED AS DIRECTED.

6) REUSE EXISTING ELECTRICAL PRODUCTS AS INDICATED ON THE CONTRACT DOCUMENTS ONLY AS IS FOUND PRACTICAL. EXAMINE THE CONDITION OF ALL SUCH PRODUCTS, DETERMINE SUITABILITY FOR RE-USE, AND PERIODICALLY NOTIFY THE ARCHITECT/ENGINEER OF FINDINGS FOR FINAL ACCEPTANCE OF RE-USE. WIRE AND CABLE FOR NEW CONSTRUCTION OR EXTENSION OF AN EXISTING INSTALLATION SHALL BE NEW, IN NO CASE SHALL EXISTING WIRE AND CABLE BE REUSED.
7) REFER TO ARCHITECTURAL DEMOLITION DRAWINGS FOR FULL EXTENT AND SCOPE OF PARTITION AND CEILING MODIFICATIONS.
a. EXISTING CEILINGS TO REMAIN SHALL NOT BE ALTERED EXCEPT WHERE REMOVAL AND REPLACEMENT OF SURFACES IS REQUIRED TO MODIFY SYSTEMS WITHIN CEILING SPACE.
b. EXISTING CEILINGS TO BE REMOVED SHALL INCLUDE DEMOLITION OF ALL FIXTURES, EQUIPMENT, SPEAKERS, RACEWAY, AND WIRE, INCLUDING ANY OBSOLETE OR PREVIOUSLY ABANDONED PRODUCTS. REMAINING AREAS SHALL ONLY BE ALTERED AS REQUIRED AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
c. EXISTING PARTITIONS TO REMAIN SHALL NOT BE ALTERED EXCEPT WHERE REMOVAL AND REPLACEMENT OF SURFACES IS REQUIRED TO MODIFY SYSTEMS WITHIN PARTITIONS.
d. EXISTING PARTITIONS TO BE REMOVED SHALL INCLUDE DEMOLITION OF ALL DEVICES, RACEWAY AND WIRE INCLUDING ANY OBSOLETE OR PREVIOUSLY ABANDONED PRODUCTS. RACEWAY AND WIRING SYSTEMS SERVING OTHER REMAINING AREAS SHALL ONLY BE ALTERED AS REQUIRED AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
e. EXISTING FLOOR MOUNTED DEVICES SHALL BE DEMOLISHED. PROVIDE ABANDONING PLATES AND FIRE PROOFING AS REQUIRED.
8) REFER TO MECHANICAL AND PLUMBING DEMOLITION DRAWINGS FOR FULL EXTENT AND SCOPE OF ELECTRICALLY OPERATED EQUIPMENT MODIFICATIONS.
a. DEMOLITION OF EXISTING MECHANICAL EQUIPMENT SHALL INCLUDE ASSOCIATED DISCONNECTS, RACEWAY, WIRE AND CONTROLS.



NOTES:

1. ELECTRICAL ONE-LINE DIAGRAM IS EXISTING UNLESS NOTED OTHERWISE. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS ON SITE.
2. NEW CATH LAB FEEDER IS 125A; REUSE EXISTING CIRCUIT BREAKER IN PANEL 1DPCRH FOR NEW CATH LAB. EXISTING FEEDER MAY BE REUSED WHERE PRACTICABLE. EXTEND AND RECONNECT TO NEW SYSTEM IN ACCORDANCE WITH THE MANUFACTURERS' REQUIREMENTS.

Code violations that are found during inspection are required to be corrected. Permit issuance does not grant approval of a code violation.

Locate the required overcurrent Protection per 2020 NEC 240.21

Install electrical connections per 2020 NEC 110.14, Identify disconnects per 2020 NEC 110.22 and provide working space around Electrical equipment per 2020 NEC 110.26

Service Equipment shall be permanently And legibly marked to show the available Fault current and date. 2020 NEC 110.24(A)(B)

Provide a Grounding Electrode System bonded To the service equipment enclosure, grounded Conductors, and grounded electrode conductors Per 2020 NEC 250.50 and 250.104

Every circuit and circuit modification shall be legibly Identified as to it's clear, evident and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others. 2020 NEC 408.4

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

RSN: *1679034*
Permit #: *22-2256682-LT*

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ph: 303.225.6320

No.	Description	Date

COLORADO LICENSED MICHAEL P. THOMPSON 55150 PROFESSIONAL ENGINEER

12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

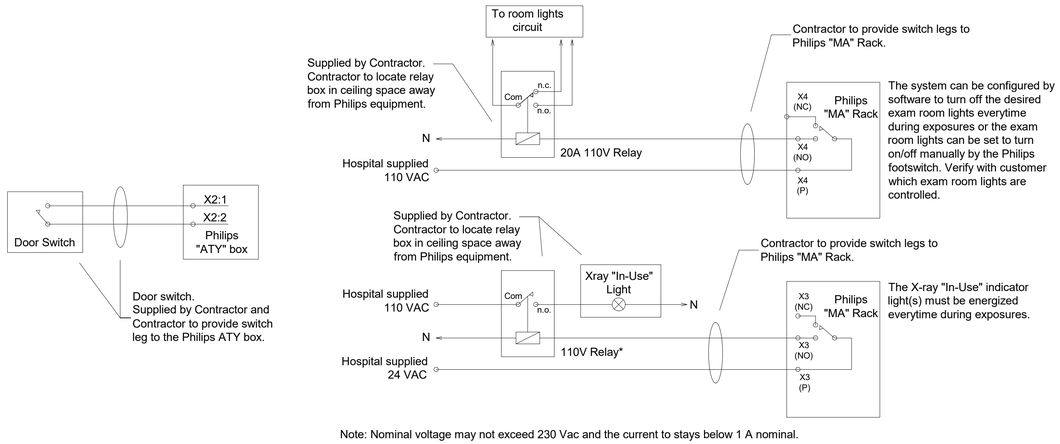
Sheet Title

ELECTRICAL ONE-LINE

Sheet Number

E.002

12/5/2022 7:19:33 AM

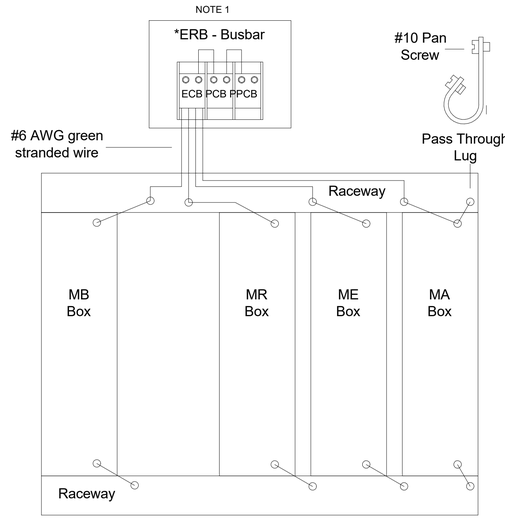


Note: Nominal voltage may not exceed 230 Vac and the current to stays below 1 A nominal.

1 X-RAY "IN-USE" WIRING DIAGRAM

NOT TO SCALE

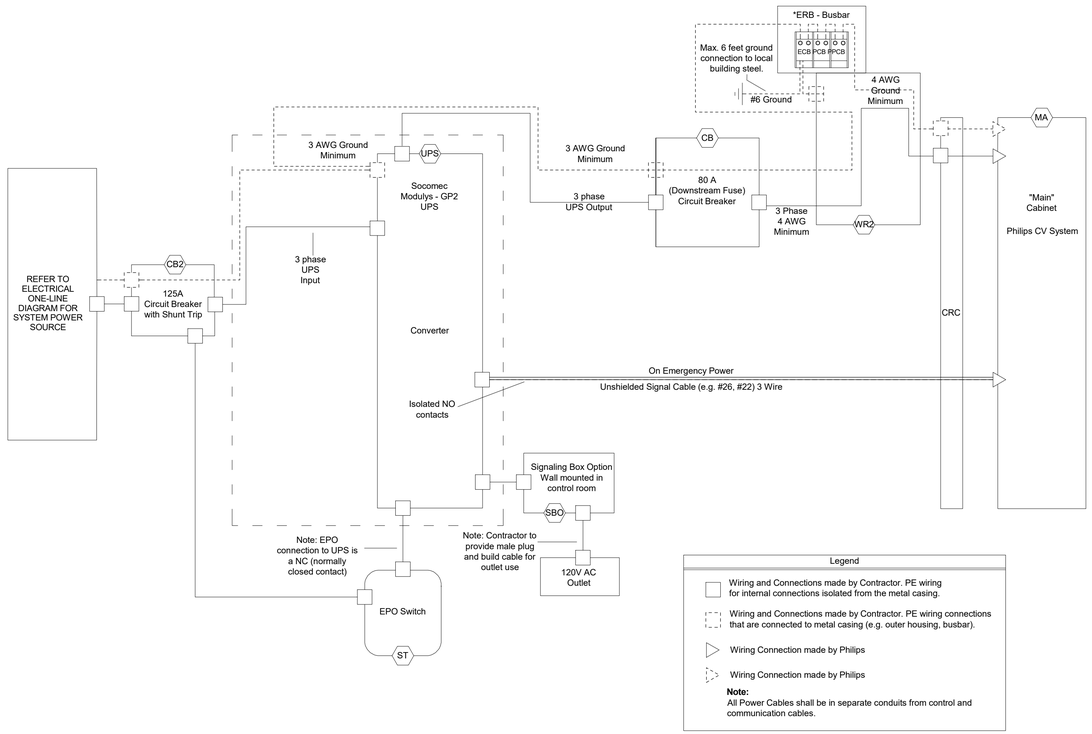
NOTES:
1. DETAIL IS TYPICAL FOR EACH OF TWO SYSTEMS.



2 GROUNDING DETAIL

NOT TO SCALE

NOTES:
1. EQUIPOTENTIAL REFERENCE BAR BY EC IN ACCORDANCE WITH THE EQUIPMENT VENDOR REQUIREMENTS.
2. GROUNDING DETAIL IS TYPICAL FOR EACH OF TWO SYSTEMS.



3 SYSTEM POWER AND GROUNDING DIAGRAM

NOT TO SCALE

NOTES:
1. DETAIL IS TYPICAL FOR EACH OF TWO SYSTEMS.

MEDICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	VOLTAGE	OCPD	kW/kVA/HP	AMPS	WIRING		CONNECTION	NOTES
						PANEL	CCT. NO.		
01	MEDITECH WALL MONITOR	120/1	20A/1P	180 VA			SEE PLANS	5-20R DUPLEX	1
02	UPS - PHILIPS	480/3	125A/3P		125.0	1DPCRH	-	DIRECT	
03	MA - PHILIPS	480/3	80A/3P		63.0	UPS	-	DIRECT	
04	ME - PHILIPS	480/3	-	-	-	-	-	-	
05	MB - PHILIPS	480/3	-	-	-	-	-	-	
06	MR - PHILIPS	480/3	-	-	-	-	-	-	
07	FW - FIREWALL	120/1	20A/1P					DIRECT	
08	CY - CONTROL ROOM CONNECTION BOX	-	-	-	-	-	-	DIRECT	
09	INTRASIGHT/SYNCVISION	120/1	20A/1P	180 VA				5-20R DUPLEX	
14	EPO	-	-	-	-	-	-	DIRECT	
25	PEDESTAL	120/1	20A/1P	720 VA		CLAB	SEE PLANS	DIRECT	
26	REFRIGERATOR PYXIS	120/1	20A/1P	600 VA		CLAB	SEE PLANS	5-20R DUPLEX	
43	MACLAB MONITOR	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
44	PRINTER	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
47	MEDITEC/PACS	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
48	ANESTHESIA MONITOR	120/1	20A/1P	600 VA		CLAB	SEE PLANS	5-20R DUPLEX	
49	COMBOLAB	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
51	MICROPACE W/ CPU	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
55	SMALL MACLAB WALL MONITOR	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
62	DEDICATED INKJET PRINTER	120/1	20A/1P	180 VA		CLAB	SEE PLANS	5-20R DUPLEX	
EPB	EP POWER BOOM	120/1	20A/1P	720 VA		NLAB/CLAB	SEE PLANS	DIRECT	2,3
CB	ENCLOSED CIRCUIT BREAKER SERVING MAINS 40E CABINET	480/3	80A/3P			-	-	DIRECT	4
CB2	SYSTEM MAIN CIRCUIT BREAKER WITH SHUNT TRIP	480/3	125A/3P			1DPCRH	-	DIRECT	4
CRAC-1.1	COMPUTER ROOM AIR CONDITIONING UNIT	480/3	20A/3P		13.2	1DPEQHA	-	DIRECT	

GENERAL NOTES:
1. VERIFY ALL FINAL MEDICAL EQUIPMENT ELECTRICAL REQUIREMENTS WITH OWNER PRIOR TO BEGINNING WORK.
2. FOR NUMBERED ITEMS ABOVE, REFER TO EQUIPMENT LEGEND ON ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
3. FOR LETTERED ITEMS ABOVE, REFER TO EQUIPMENT VENDORS' DRAWINGS FOR MORE INFORMATION.

SCHEDULE NOTES:
1. PROVIDE DATA OUTLET.
2. BOOM EQUIPPED WITH FOUR NORMAL DUPLEX RECEPTACLES AND FOUR EMERGENCY DUPLEX RECEPTACLES; PROVIDE ONE NORMAL CIRCUIT AND ONE EMERGENCY CIRCUIT AS INDICATED.
3. BOOM EQUIPPED WITH TWO NETWORK PORTS; PROVIDE TELECOMMUNICATIONS CONDUIT TO ACCOMMODATE CABLING BY OWNER'S IT INSTALLER.
4. REFER TO SYSTEM POWER AND GROUNDING DIAGRAM FOR MORE INFORMATION.

Provide a Grounding Electrode System bonded To the service equipment enclosure, grounded Conductors, and grounded electrode conductors Per 2020 NEC 250.50 and 250.104

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

RSN: *1679034*
Permit #: *22-2256682-LT*

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No.	Description	Date

COLORADO LICENSED MICHAEL P THOMPSON 55150 PROFESSIONAL ENGINEER
12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	Checker

Sheet Title
ELECTRICAL DETAILS AND SCHEDULES

Sheet Number
E.003

12/5/2022 7:19:39 AM

PANEL: 1DPCRH | OC DEVICE TYPE: BREAKER | ENCLOSURE: NEMA 1 | MAINS(A): 500A | CONTINUOUS(A): xxxx
LOCATION: MAIN ELEC. 1133 | DEVICE FAMILY: BOLT ON | MOUNTING: RECESSED | WIRING: 3-PHASE 4-WIRE | BUS SC RATING (A): 65,000A
FED FROM: DPGC | VOLTAGE: 480/277

CONNECTION NO.	DESCRIPTION	CONNECTED KVA	DEMAND KVA	DESIGN KVA	DESIGN AVE AMPS	OC DEVICE TYPE	OC DEVICE SIZE	P	FEEDER
1	PANEL '1CRH'	72		0	0	CB	100	3	
2	PANEL '2DPCRL' VIA XFMR	33.333		0	0	CB	225	3	
3	PANEL '2CRH'	17.5		0	0	CB	100	3	
4	PANEL '3CRH'	6.15		0	0	CB	100	3	
5	PANEL '4CRH'	10.968		0	0	CB	100	3	
6	PANEL '4DPCRL' VIA XFMR	0.5		0	0	CB	225	3	
7	PANEL '5CRH'	0.5		0	0	CB	100	3	
8	SPARE	0.5		0	0	CB		3	
9	SPARE	0.5		0	0	CB		3	
10	CATH #1	0.5		0	0	CB	125	3	
11	CATH #2			0	0	CB	125	3	
12	FUTURE CATH #3			0	0	CB	125	3	
13	UPS			0	0	CB	80	3	
14	SPACE			0	0	CB		3	

ALL CONNECTED	KVA	AMPS
TOTAL CONNECTED	142.5	171.5
TOTAL DEMAND	0	0.0
TOTAL DESIGN	0	0.0

PANEL: 1DPEQHA | OC DEVICE TYPE: BREAKER | ENCLOSURE: NEMA 1 | MAINS(A): 400A | CONTINUOUS(A): xxxx
LOCATION: CORRIDOR 1098 | DEVICE FAMILY: BOLT ON | MOUNTING: RECESSED | WIRING: 3-PHASE 4-WIRE | BUS SC RATING (A): 18,000A
FED FROM: 2DPEQH | VOLTAGE: 480/277

CONNECTION NO.	DESCRIPTION	CONNECTED KVA	DEMAND KVA	DESIGN KVA	DESIGN AVE AMPS	OC DEVICE TYPE	OC DEVICE SIZE	P	FEEDER
1	H-1-1	72		0	0	CB	125	3	
2	AHU-1-1 SF	33.333		0	0	CB	90	3	
3	AHU-1-1 RF	17.5		0	0	CB	45	3	
4	CRAC-1 CONDENSING UNIT	6.15		0	0	CB	20	3	
5	CRAC-1	10.968		0	0	CB	20	3	
6	HUMIDIFIER CONTROLS	0.5		0	0	CB	20	1	
7	AHU CONTROLS	0.5		0	0	CB	20	1	
8	VAV CONTROLS	0.5		0	0	CB	20	1	
9	F/S DAMPERS	0.5		0	0	CB	20	1	
10	PHP-1-1	0.5		0	0	CB	20	1	
11	SPARE			0	0			3	
12	SPARE			0	0			3	
13	SPARE			0	0			3	
14	SPARE			0	0			3	
15	SPARE			0	0			3	

ALL CONNECTED	KVA	AMPS
TOTAL CONNECTED	142.5	171.5
TOTAL DEMAND	0	0.0
TOTAL DESIGN	0	0.0

Install electrical connections per 2020 NEC 110.14, Identify disconnects per 2020 NEC 110.22 and provide working space around Electrical equipment per 2020 NEC 110.26

Provide a Grounding Electrode System bonded To the service equipment enclosure, grounded Conductors, and grounded electrode conductors Per 2020 NEC 250.50 and 250.104

PANEL DESIGNATION: CLAB (Section 1) | LOCATION: CORR 1098 | MOUNTING: SURFACE | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 225A | VOLTS: 208/120 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
LAB PLUG MOLD	EX	G	540			20/1	1	2	20/1	500			G	EX	FAX-COPIER
LAB PLUG MOLD	EX	G		540		20/1	3	4	20/1		540		G	EX	MICRO-PLUG MOLD
HALL	EX	G			360	20/1	5	6	20/1			360	G	EX	STORAGE LAB
SMOKE DAMPER	EX	G	150			20/1	7	8	20/1	540			G	EX	MICRO-PLUG MOLD
WALK-IN COMPRESSOR	EX	G		750		20/2	9	10	20/1		360		G	EX	MICRO RCPT
	EX	G			750		11	12	20/1			540	G	EX	MICRO-PLUG MOLD
WALK-IN LTS/FAN	EX	G	1000			20/1	13	14	20/1	360			G	EX	MICRO RCPT
SECURITY CAMERA	EX	G		250		20/1	15	16	20/1		360		G	EX	MICRO RCPT
SECURITY CAMERA	EX	G			250	20/1	17	18	20/1			360	G	EX	MICRO OFFICE
LAB FRIDGE	EX	G	500			20/1	19	20	20/1	540			G	EX	MICRO RCPT
MEDS/PICK	EX	G		720		20/1	21	22	20/1		1200		G	EX	EX. LOAD (VERIFY & RENAME)
UCR/MEDS	EX	G			900	20/1	23	24	20/1			1200	G	EX	EX. LOAD (VERIFY & RENAME)
R-NURSE STATION	EX	G	540			20/1	25	26	20/1	360			G	EX	MICRO RCPT
R-NURSE STATION	EX	G		540		20/1	27	28	20/1		540		G	EX	MICRO-PLUG MOLD
R-CORRIDOR	EX	G			360	20/1	29	30	20/1			360	G	EX	MICRO RCPT
R- ALCOVE	EX	G	720			20/1	31	32	**20/1**	**600**			G	**NEW**	**CATH 2 PYXIS REF**
R- RECOVER	EX	G		1080		20/1	33	34	**20/1**		**600**		G	**NEW**	**CATH 2 PYXIS ANESTH**
R- RECOVER	EX	G			1080	20/1	35	36	20/1				G	EX	SPARE
R- RECOVER	EX	G	1080			20/1	37	38	20/1	200			G	EX	J-BOX PT S RM. 1102
R- RECOVER	EX	G		1080		20/1	39	40	**20/1**		**600**		G	**NEW**	**CATH 2 POWER DOOR**
R- RECOVER	EX	G			1080	20/1	41	42	**20/1**			**600**	G	**NEW**	**CATH 1 POWER DOOR**

PANEL DESIGNATION: CLAB (Section 2) | LOCATION: CORR 1098 | MOUNTING: SURFACE | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 225A | VOLTS: 208/120 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
SAFETY HOOD *M1* RM. 1102	EX	G	1920			20/1	43	44	**20/1**	**720**			G	**NEW**	**RECP FLOOR CATH 2**
INCUBATOR *M2* RM. 1102	EX	G		840		20/1	45	46	**20/1**		**720**		G	**NEW**	**RECP FLOOR CATH 1**
BACTEC 9240 *M3* RM. 1102	EX	G			1068	20/1	47	48	20/1			1800	G	EX	MEDIA REFG. *M10* RM. 1102
BACTEC 9240 *M3* RM. 1102	EX	G	1068			20/1	49	50	**20/1**	**900**			G	**NEW**	**RECP CATH 2**
MICROSCAN *M5* RM. 1102	EX	G		1200		20/1	51	52	**20/1**		**1080**		G	**NEW**	**RECP CATH 1**
SPARE	EX	G				20/1	53	54	**20/1**			**1080**	G	**NEW**	**RECP CATH 1**
REFRIG/FREZ *M7* RM. 1102	EX	G	1200			20/1	55	56	**20/1**	**540**			G	**NEW**	**RECP CATH 1**
CATH 2 BOOM	**NEW**	G		**720**		**20/1**	57	58	**20/1**		**600**		G	**NEW**	**CATH 1 PYXIS ANESTH**
CATH 1 BOOM	**NEW**	G			**720**	**20/1**	59	60	20/1			540	G	EX	R - CATH CONTROL
SPARE	EX	G				20/1	61	62	20/1	360			G	EX	R - UPS
RCPT'S RM. 1102	EX	G	540			20/1	63	64	20/1		360		G	EX	R - UPS
RCPT'S RM. 1102	EX	G			540	20/1	65	66	**20/1**			**1080**	G	**NEW**	**RECP CATH 2**
CATH 1 PYXIS REF	**NEW**	G	**600**			**20/1**	67	68	20/1				G	EX	SPARE
R - CATH CONTROL	EX	G		360		20/1	69	70	20/1				G	EX	SPARE
RECP CATH 2	**NEW**	G			**1260**	**20/1**	71	72	20/1				G	EX	SPARE
RECP CATH 1	**NEW**	G	**1080**			**20/1**	73	74	20/1				G	EX	SPARE
RECP CATH 2	**NEW**	G		**1080**		**20/1**	75	76	20/1				G	EX	SPARE
RECP CATH 1	**NEW**	G			**1080**	**20/1**	77	78	20/1				G	EX	SPARE
RECP CATH 2	**NEW**	G	**1260**			**20/1**	79	80	20/1				G	EX	SPARE
RECP CATH 1	**NEW**	G		**1080**		**20/1**	81	82	20/1				G	EX	SPARE
SPARE	EX	G				20/1	83	84	20/1				G	EX	SPARE

PANEL DESIGNATION: CLAB (Section 3) | LOCATION: CORR 1098 | MOUNTING: SURFACE | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 225A | VOLTS: 208/120 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
SPARE	EX	G				20/1	85	86	20/1				G	EX	SPARE
SPARE	EX	G				20/1	87	88	20/1				G	EX	SPARE
SPARE	EX	G				20/1	89	90	20/1				G	EX	SPARE
SPARE	EX	G				20/1	91	92	20/1				G	EX	SPARE
SPARE	EX	G				20/2	93	94	20/1				G	EX	SPARE
SPARE	EX	G				20/1	95	96	20/1				G	EX	SPARE
SPARE	EX	G				20/1	97	98	20/1				G	EX	SPARE
SPARE	EX	G				20/1	99	100	20/1				G	EX	SPARE
SPARE	EX	G				20/1	101	102	20/1				G	EX	SPARE
SPARE	EX	G				20/1	103	104	20/1				G	EX	SPARE
SPARE	EX	G				20/1	105	106	20/2				G	EX	SPARE
SPARE	EX	G				20/1	107	108					G	EX	
SPARE	EX	G				20/1	109	110	20/2				G	EX	SPARE
SPARE	EX	G				20/1	111	112					G	EX	
SPARE	EX	G				20/1	113	114	20/2				G	EX	SPARE
SPARE	EX	G				20/1	115	116					G	EX	
SPARE	EX	G				20/1	117	118	20/1				G	EX	SPARE
SPARE	EX	G				20/1	119	120	20/1				G	EX	SPARE
SPARE	EX	G				20/1	121	122	20/1				G	EX	SPARE
SPARE	EX	G				20/1	123	124	20/1				G	EX	SPARE
SPARE	EX	G				20/1	125	126	20/1				G	EX	SPARE

TOTAL *A*	11658	17278	5620	52.4 CONN.KVA
TOTAL *B*	10780	17740	6960	145.5 CONN. AMPS
TOTAL *C*	9448	17368	7920	52.4 DEMAND KVA
TOTAL *A,B,C*		52386 CONN.		145.5 DEMAND AMPS
		52386 DEMAND		52.4 DESIGN KVA
		52386 DESIGN		145.5 DESIGN AMPS

PANEL DESIGNATION: NLAB | LOCATION: ELEC. LAB 1097 | MOUNTING: SURFACE | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 100A | VOLTS: 208/120 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
MECH RM RCPTS	EX	G	540			20/1	1	2	20/1	360			G	EX	LAB RCPT
MECH RM PUMPS	EX	G		500		20/1	3	4	20/1		540		G	EX	HALL RCPT
MECH RM PUMPS	EX	G			500	20/1	5	6	20/1			540	G	EX	HALL RCPT
CHEM FUME HOOD	EX	G	750			20/1	7	8	20/1	540			G	EX	LAB PLUGMOLD
HALL RCPTS	EX	G		540		20/2	9	10	20/1		540		G	EX	LAB PLUGMOLD
R-EQUIP/SOILED	EX	G			1260	20/1	11	12	20/1			900	G	EX	UCR/NURSE STATION
R-TOILET/UTILITY	EX	G	1260			20/1	13	14	20/1	1200			G	EX	ICE MAKER
R-UPS/EQUIPMENT	EX	G		540		20/1	15	16	**20/1**		**1440**		G	**NEW**	**RECP CATH 2 CONTROL**
SPARE	EX	G				20/1	17	18	**20/1**			**720**	G	**NEW**	**CATH 2 BOOM**
SPARE	EX	G				20/1	19	20	**20/1**	**720**			G	**NEW**	**CATH 1 BOOM**
SPARE	EX	G				20/1	21	22	**20/1**		**1440**		G	**NEW**	**RECP CATH 1 CONTROL**
R-CORRIDOR	EX	G			720	20/1	23	24	**20/1**			**900**	G	**NEW**	**RECP CATH 2**
R-NURSE STATION/MEDS	EX	G	900			20/1	25	26	20/1	540			G	EX	R-CATH ROOF
R-RECOVERY	EX	G		540		20/1	27	28	20/1		1330		G	EX	GEF-1-(1,2)
R-RECOVERY	EX	G			1440	20/1	29	30	**20/1**			**1080**	G	**NEW**	**RECP CATH 1**
R-RECOVERY	EX	G	1080			20/1	31	32	20/1	500			G	EX	TRAP PRIMER
R-NURSE STATION	EX	G		720		20/1	33	34	20/1				G	EX	SPARE
RCPT'S RM. 1103	EX	G			360	20/1	35	36	20/1				G	EX	SPARE
PANEL 'LPQA'	EX	G	4693				37	38	20/1				G	EX	SPARE
	EX	G		4693		60/3	39	40	20/1				G	EX	SPARE
	EX	G			4693		41	42	20/1				G	EX	SPARE

TOTAL *A*	9223	13083	3860	39.0 CONN.KVA
TOTAL *B*	7533	12823	5290	108.4 CONN. AMPS
TOTAL *C*	8973	13113	4140	39.0 DEMAND KVA
TOTAL *A,B,C*		39019 CONN.		108.4 DEMAND AMPS
		39019 DEMAND		39.0 DESIGN KVA
		39019 DESIGN		108.4 DESIGN AMPS

PANEL DESIGNATION: 1CRH | LOCATION: ELEC. CLOSET 1090A | MOUNTING: SURFACE | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 100A | VOLTS: 480/277 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
LTG. RM'S 1133A-1138	EX	G	2400			20/1	1	2	20/1	1500			G	EX	LTG. RM'S 1039-1055
LTG. RM'S 1005-1009	EX	G		1060		20/1	3	4	20/1		3500		G	EX	LTG. LAB RM. 1097
LTG. RM'S 1067-1090A	EX	G			2400	20/1	5	6	20/1			600	G	EX	LTG. RM'S 1018-1022
LTG. CATH SUITE	EX	G	3320			20/1	7	8	20/1				G	EX	SPARE
SPARE	EX	G				20/2	9	10	20/1				G	EX	SPARE
SPARE	EX	G				20/1	11	12	20/1				G	EX	SPARE
SPARE	EX	G				20/1	13	14	20/1				G	EX	SPARE
SPARE	EX	G				20/1	15	16	20/1				G	EX	SPARE
SPARE	EX	G				20/1	17	18	20/1				G	EX	SPARE
SPARE	EX	G				20/1	19	20	20/1				G	EX	SPARE
SPARE	EX	G				20/1	21	22	20/1				G	EX	SPARE
SPARE	EX	G				20/1	23	24	20/1				G	EX	SPARE
SPARE	EX	G				20/1	25	26	20/1				G	EX	SPARE
SPARE	EX	G				20/1	27	28	20/1				G	EX	SPARE
SPARE	EX	G				20/1	29	30	20/1				G	EX	SPARE
SPARE	EX	G				20/1	31	32	20/1				G	EX	SPARE
SPARE	EX	G				20/1	33	34	20/1				G	EX	SPARE
SPARE	EX	G				20/1	35	36	20/1				G	EX	SPARE
SPARE	EX	G				20/1	37	38	20/1				G	EX	SPARE
SPARE	EX	G				20/1	39	40	20/1				G	EX	SPARE
SPARE	EX	G				20/1	41	42	20/1				G	EX	SPARE

TOTAL *A*	5720	7220	1500	14.8 CONN.KVA
TOTAL *B*	1060	4560	3500	17.8 CONN. AMPS
TOTAL *C*	2400	3000	600	14.8 DEMAND KVA
TOTAL *A,B,C*		14780 CONN.		17.8 DEMAND AMPS
		14780 DEMAND		14.8 DESIGN KVA
		14780 DESIGN		17.8 DESIGN AMPS

PANEL DESIGNATION: 1NHA | LOCATION: CORR. 1062 | MOUNTING: RECESSED | FAULT DUTY: 10,000
MLO: X | MAIN: | BUS: 100A | VOLTS: 480/277 | PHASE: 3 | WIRE: 4

EQUIPMENT DESCRIPTION		DMD	WATTS A	WATTS B	WATTS C	BRKR SIZE			BRKR SIZE	WATTS A	WATTS B	WATTS C	DMD		EQUIPMENT DESCRIPTION
LTG. LAB RM. 1097	EX	G	1700			20/1	1	2	20/1	800			G	EX	LTG. RM'S 1018-1022
LTG. LAB RM. 1097	EX	G		3800		20/1	3	4	20/1		2850		G	EX	LTG. - CATH SUITE
LTG. RM'S 1135-1146A	EX	G				20/1	5	6	20/1				G	EX	SPARE
AIR COMPRESSOR	EX	G	2106				7	8	20/1				G	EX	SPARE
	EX	G		2106		15/3	9	10	20/1				G	EX	SPARE
	EX	G			2106		11	12	20/1				G	EX	SPARE
SPARE	EX	G				20/1	13	14	20/1				G	EX	SPARE
SPARE	EX	G				20/1	15	16	20/1				G	EX	SPARE
SPARE	EX	G				20/1	17	18	20/1				G	EX	SPARE
SPARE	EX	G				20/1	19	20	20/1				G	EX	SPARE
SPARE	EX	G				20/1	21	22	20/1				G	EX	SPARE
SPARE	EX	G				20/1	23	24	20/1				G	EX	SPARE
SPARE	EX	G				20/1	25	26	20/1				G	EX	SPARE
SPARE	EX	G				20/1	27	28	20/1				G	EX	SPARE
SPARE	EX	G				20/1	29	30	20/1				G	EX	SPARE
SPARE	EX	G				20/1	31	32	20/1				G	EX	SPARE
SPARE	EX	G				20/1	33	34	20/1				G	EX	SPARE
SPARE	EX	G				20/1	35	36	20/1				G	EX	SPARE
SPARE	EX	G				20/1	37	38	20/1				G	EX	SPARE
SPARE	EX	G				20/1	39	40	20/1				G	EX	SPARE
SPARE	EX	G				20/1	41	42	20/1				G	EX	SPARE

TOTAL *A*	3806	4606	800	15.5 CONN.KVA
TOTAL *B*	5906	8756	2850	18.6 CONN. AMPS
TOTAL *C*	2106	2106	0	15.5 DEMAND KVA
TOTAL *A,B,C*		15468 CONN.		18.6 DEMAND AMPS
		15468 DEMAND		15.5 DESIGN KVA
		15468 DESIGN		18.6 DESIGN AMPS

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

RSN: *1679034*
Permit #: *22-2256682-LT*

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No.	Description	Date

COLORADO LICENSED MICHAEL P THOMPSON 55150 PROFESSIONAL ENGINEER
12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

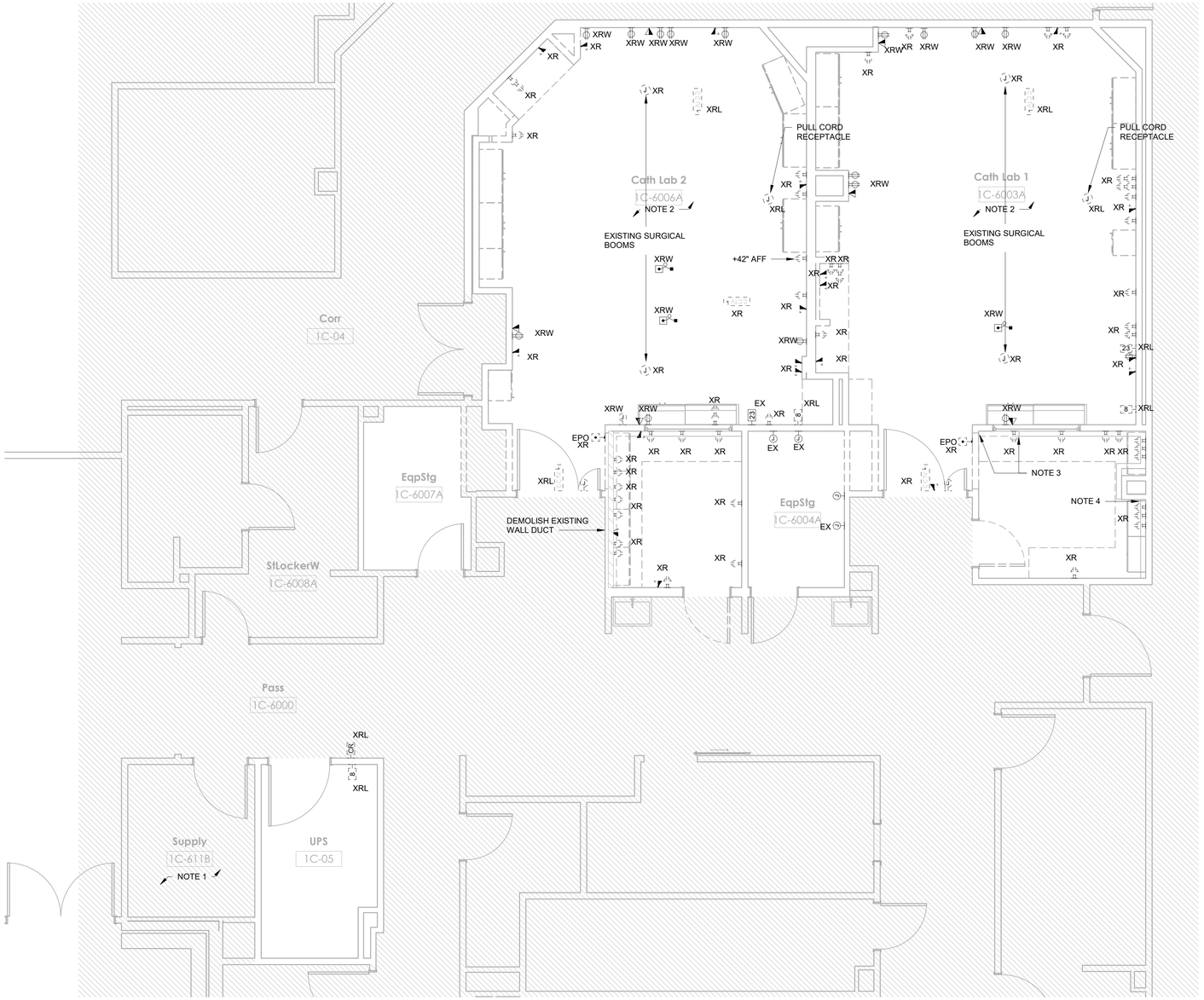
1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

Sheet Title
ELECTRICAL DETAILS AND SCHEDULES

Sheet Number
E.004

12/5/2022 7:19:44 AM



1 CATH LAB 1 & 2 --ELECTRICAL POWER AND SIGNAL DEMOLITION PLAN

1/4" = 1'-0"

PLAN NOTES:

1. DEMO EXISTING ELECTRICAL EQUIPMENT, RACEWAYS, ETC. FROM THIS ROOM.
2. EXISTING PEDESTAL TO BE MODIFIED AND REINSTALLED.
3. DEMOLISH EXISTING RACEWAY BELOW COUNTER.
4. SALVAGE AND REUSE EXISTING RACEWAY BELOW COUNTER.

This sheet of drawings has not been reviewed for code compliance.

GENERAL NOTES:

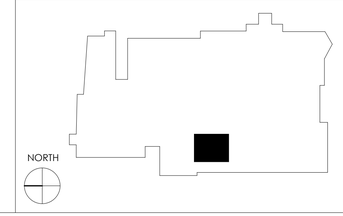
A. REFER TO ELECTRICAL GENERAL, DEMOLITION NOTES AND SYMBOLS ON SHEET E000.

B. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.

C. ALL DEVICES SHOWN ON ELECTRICAL DEMOLITION PLAN SHALL BE DEMOLISHED BACK TO SOURCE UNO. SALVAGE EXISTING CIRCUITS FOR RE-USE.
   a. 'EX' DENOTES EXISTING TO REMAIN.
   b. 'XR' DENOTES EXISITNG TO BE REMOVED.
   c. 'XRW' DENOTES EXISTING TO BE RE-WIRED, EXISTING BOX AND RACEWAY TO REMAIN. REMOVE DEVICE AND WIRING AS REQUIRED. REFER TO NEW WORK PLANS.
   d. 'REL' DENOTES EXISTING TO BE SALVAGED AND REINSTALLED IN NEW LOCATION SHOWN ON NEW WORK PLANS.

D. ALL ELECTRICAL DISTRIBUTION EQUIPMENT IS EXISTING TO REMAIN.

KEY PLAN



RSN: 1679034
Permit #: 22-2256682-LT

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12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

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Sheet Title
ELECTRICAL POWER AND SIGNAL DEMOLITION PLAN

Sheet Number
ED.101

12/5/2022 7:29:48 AM



1 CATH LAB 1 & 2 - ELECTRICAL LIGHTING DEMOLITION PLAN

1/4" = 1'-0"

This sheet of drawings has not been reviewed for code compliance.

GENERAL NOTES:

A. REFER TO ELECTRICAL GENERAL, DEMOLITION NOTES AND SYMBOLS ON SHEET E000.

B. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.

C. ALL DEVICES SHOWN ON ELECTRICAL DEMOLITION PLAN SHALL BE DEMOLISHED BACK TO SOURCE UNO. SALVAGE EXISTING CIRCUITS FOR RE-USE.
   a. 'EX' DENOTES EXISTING TO REMAIN.
   b. 'XR' DENOTES EXISITNG TO BE REMOVED.
   c. 'XRW' DENOTES EXISTING TO BE RE-WIRED, EXISTING BOX AND RACEWAY TO REMAIN. REMOVE DEVICE AND WIRING AS REQUIRED. REFER TO NEW WORK PLANS.
   d. 'REL' DENOTES EXISTING TO BE SALVAGED AND REINSTALLED IN NEW LOCATION SHOWN ON NEW WORK PLANS.

D. ALL ELECTRICAL DISTRIBUTION EQUIPMENT IS EXISTING TO REMAIN.

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12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
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Drawn by	JSC
Checked by	MPT

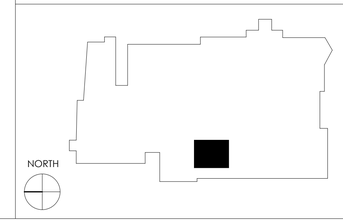
Sheet Title

ELECTRICAL LIGHTING DEMOLITION PLAN

Sheet Number

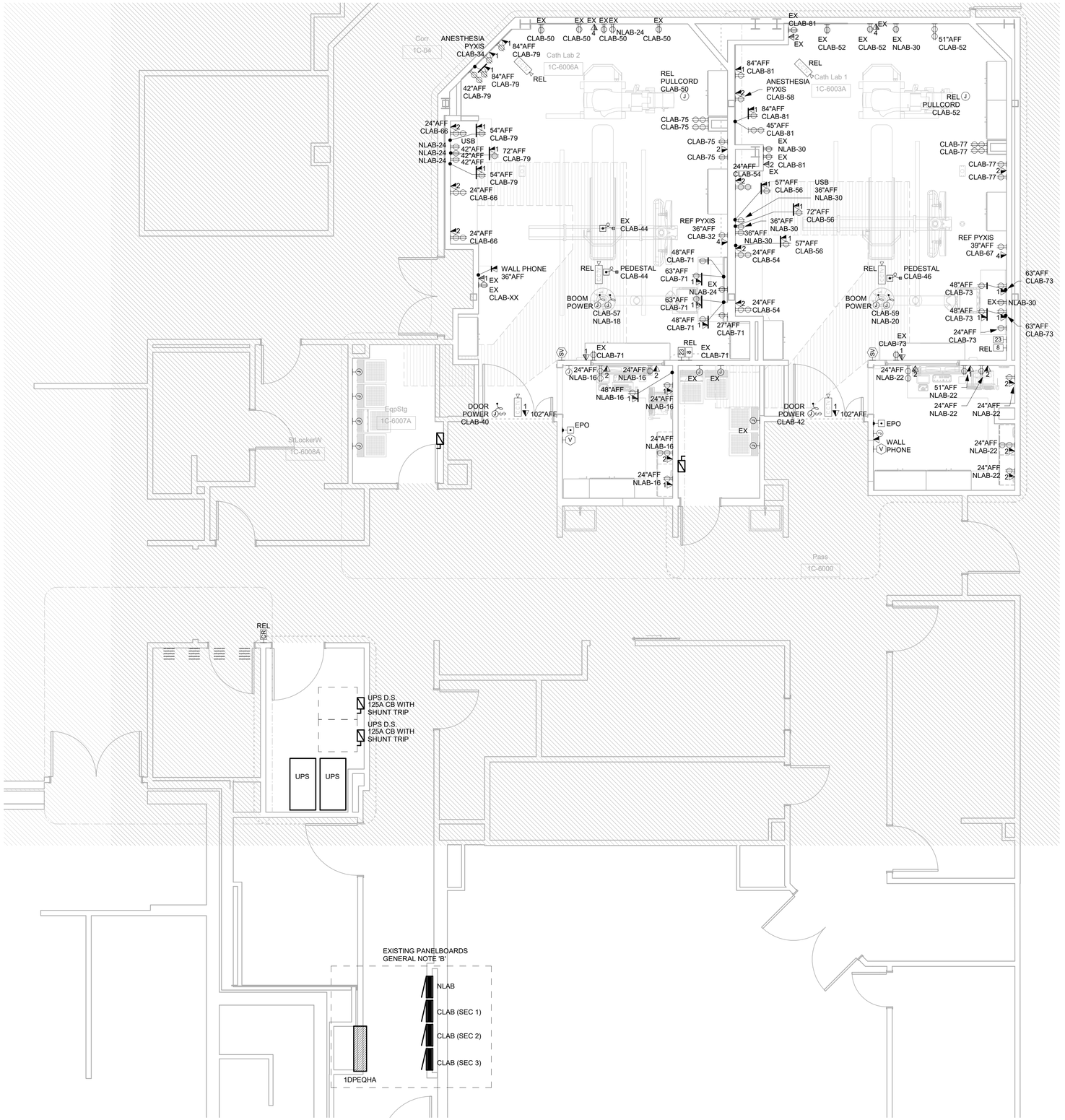
ED.201

KEY PLAN



RSN: 1679034
Permit #: 22-2256682-LT

12/5/2022 7:29:55 AM



1 CATH LAB 1 & 2 --ELECTRICAL POWER AND SIGNAL PLAN

1/4" = 1'-0"

GENERAL NOTES:

A. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E000. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.

B. ALL ELECTRICAL PANELBOARDS AND BASE BUILDING DISTRIBUTION EQUIPMENT ARE EXISTING TO REMAIN U.N.O.

C. WIRE NEW ELECTRICAL DEVICES TO INDICATED NORMAL AND CRITICAL BRANCH PANELBOARDS, UNO. CIRCUIT NUMBERS SHOWN ARE FOR DESIGN INTENT ONLY. VERIFY AVAILABLE CIRCUITS IN FIELD.

D. DEVICES MARKED 'EX' ARE EXISTING TO BE REWIRED TO CIRCUITS AS SHOWN. REUSE EXISTING RACEWAY AND BOX AS IS PRACTICABLE. PROVIDE NEW DEVICE AS REQUIRED.

E. ALL RECEPTACLES SHALL BE HOSPITAL GRADE. ALL POWER DEVICES SERVED BY EMERGENCY BRANCH CIRCUITS SHALL HAVE RED COVERPLATE.

F. DEVICE MOUNTING HEIGHTS ARE SHOWN FOR INFORMATION ONLY, COORDINATE EXACT DEVICE INSTALL LOCATION WITH ARCHITECTURAL ELEVATION DETAILS.

G. MODIFY EXISTING EQUIPOTENTIAL GROUNDING SYSTEM AS REQUIRED.

H. NEW FIRE ALARM DEVICES SHALL BE SIMPLEX. COORDINATE INSTALLATION WITH MAIN FACILITY FIRE ALARM UPDATE PROJECT.

I. ALL MECHANICAL EQUIPMENT IS EXISTING TO REMAIN U.N.O. REFER TO MECHANICAL DRAWINGS. PROVIDE NEW POWER CONNECTION TO CRAC UNIT, REFER TO ELECTRICAL AND MECHANICAL EQUIPMENT SCHEUDLES. FOE VAV UNITS ADJUST EXISTING EQUIPMENT POWER AND WIRING AS REQUIRED AND EXTEND TO NEW LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR.

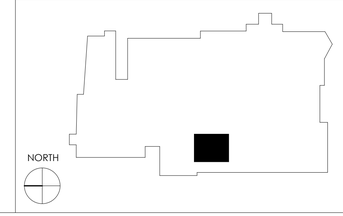
Install electrical connections per 2020 NEC 110.14, Identify disconnects per 2020 NEC 110.22 and provide working space around Electrical equipment per 2020 NEC 110.26

Every circuit and circuit modification shall be legibly Identified as to it's clear, evident and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others. 2020 NEC 408.4

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
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RSN: *1679034*
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KEY PLAN



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No.	Description	Date



12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

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Aurora, CO 80012

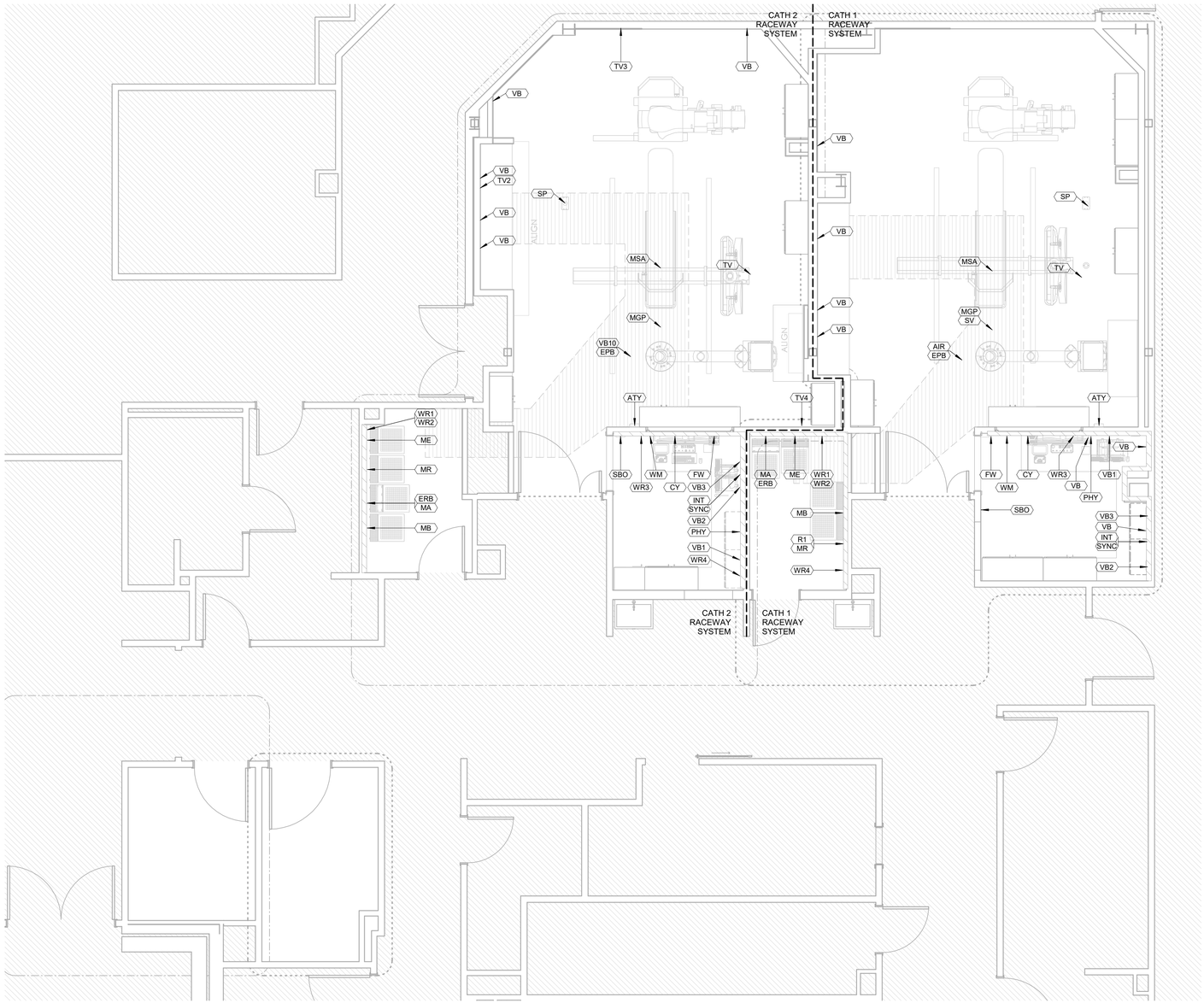
Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
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Sheet Title
ELECTRICAL POWER AND SIGNAL PLAN

Sheet Number
E.101

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12/5/2022 7:18:56 AM



1 CATH LAB 1 & 2 --ELECTRICAL RACEWAY PLAN

1/4" = 1'-0"

This sheet of drawings has not been reviewed for code compliance.

RACEWAY NOTES:

1. EXISTING RACEWAY MEETS OR EXCEEDS MINIMUM SIZE REQUIREMENT AND MAY BE REUSED WHERE PRACTICABLE.
2. EXISTING RACEWAY EXCEEDS EQUIPMENT VENDOR'S MAXIMUM LENGTH; VERIFICATION REQUIRED.
3. EXISTING RACEWAY SMALLER THAN REQUIRED; PROVIDE NEW RACEWAY IN ACCORDANCE WITH VEQUIPMENT VENDOR'S REQUIREMENTS.
4. VERIFY EXISTING RACEWAY LENGTH.
5. REROUTE EXISTING CONDUIT TO EQUIPMENT PEDESTAL.

GENERAL NOTES:

A. RACEWAY FOR MEDICAL EQUIPMENT SHOWN FOR DESIGN INTENT ONLY. REFER TO MEDICAL EQUIPMENT VENDOR DRAWINGS FOR RACEWAY REQUIREMENTS, DETAILS, AND ADDITIONAL INFORMATION. CONTRACTOR SHALL INSTALL RACEWAY SYSTEMS TO ACCOMODATE MAXIMUM VENDOR CABLE LENGHTS.

B. CONTRACTOR SHALL INSTALL EMPTY RACEWAY SYSTEM AND EQUIPMENT DESIGNATED AS CONTRACTOR/OWNER PROVIDED ON VENDOR DRAWINGS. CUT AND PATCH WALLS, CEILING, AND FLOOR SLAB FOR INSTALLATION OF NEW CONDUITS.

CATH 1 RACEWAY REQUIREMENTS:

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	minimum Raceway (Conduit) Size	maximum Raceway (Conduit) Length	NOTES
1	PBG/K	GE	1	G	3/4"	6'	NOTE L2
2	ERB	Room Outlets	1	G	3/4"	-	
3	MA	WL	1	P	3/4"	55'	
4	ATY	DS	1	S	3/4"	55'	
5	ATY	MA	1	S	2 1/2"	41'	
6	ATY	TV	1	S	3/4"	65'	NOTE L2
7	SP	MG	2	C	1 1/2"	44'	NOTE 1
8	SP	MG	1	P/G	1 1/2"	39'	NOTE 1
9	SP	MG	1	S	1"	39'	NOTE 1
10	SP	MG	1	H	2 1/2"	37'	NOTE 1
11	SP	MP	1	P/G	2"	39'	NOTE 1
12	SP	MP	1	S	2"	39'	NOTE 1
13	SP	MP	1	S	2"	37'	NOTE 1
14	MSA	MA	1	S	3"	39'	NOTE 3
15	MSA	MA	1	P	1 1/2"	39'	NOTE L2
16	MSA	MP	1	P/G	2"	39'	NOTE L2
17	MSA	MP	1	S	2"	39'	NOTE L2
18	TV	MA	1	P	1 1/2"	55'	NOTE 1
19	TV	MA	1	S	2 1/2"	55'	NOTE 1
20	TV	MP	1	P	2"	55'	
21	TV	MK	1	S	1 1/2"	55'	NOTE 1
22	TV	MK	1	P/G	1 1/2"	55'	NOTE 1
23	TV	WM	1	S	3/4"	65'	
24	CY	MP	1	S	2"	55'	NOTE 1
25	CY	MA	1	P/G	1 1/2"	55'	NOTE 1
26	CY	MA	1	S	2 1/2"	55'	NOTE 1
27	MA	WM	1	S	1 1/2"	82'	
28	MP	WM	1	S	1"	82'	NOTE 1
29	TV	WR1	2	S	1 1/2"	-	NOTE 1
30	MSA	WR3	2	S	1 1/2"	-	NOTE 1

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	minimum Raceway (Conduit) Size	maximum Raceway (Conduit) Length	NOTES
31	MSA	IVUS	1	S	2 1/2"	-	
32	IVUS	Physio Monitor	1	S	2"	33'	
33	Third Party	Third Party	-	-	-	-	
34	Third Party	FBG/K	-	G	-	-	
35	VB1	MK	1	S	1"	82'	NOTE 1
36	VB2	MK	1	S	1"	82'	NOTE 1
37	VB3	MK	1	S	1"	82'	
38	VB4	MK	1	S	1"	82'	
39	VB5	MK	1	S	1"	82'	
40	VB6	MK	1	S	1"	82'	NOTE 1
41	VB7	MK	1	S	1"	82'	NOTE 1
42	VB8	MK	1	S	1"	82'	NOTE 1
43	VB9	MK	1	S	1"	82'	
44							NOT USED
45	VB4	CY	1	S	1"	91'	
46	VB5	CY	1	S	1"	91'	
47	VB6	CY	1	S	1"	91'	NOTE L4
48	VB7	CY	1	S	1"	91'	NOTE L4
49	VB8	CY	1	S	1"	91'	NOTE L4
50	VB9	CY	1	S	1"	91'	
51							NOT USED
52	INT	MSA	1	S	3"	75'	NOTE 5
53	TV2	MK	1	S	2 1/2"	82'	
54	TV2	MK	1	P	2 1/2"	82'	
55	TV3	MK	1	S	2 1/2"	82'	
56	TV3	MK	1	P	2 1/2"	82'	
57	TV4	MK	1	S	2 1/2"	82'	
58	TV4	MK	1	P	2 1/2"	82'	
59	POWER PANEL	CB2	1	P	Per N.E.C	Per N.E.C	
60	POWER PANEL	CB2	1	G	Per N.E.C	Per N.E.C	

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum Raceway (Conduit) Length	NOTES
61	CB2	UPS	1	G	Per N.E.C	Per N.E.C	
62	UPS	CB	1	G	Per N.E.C	Per N.E.C	
63	CB2	ERB	1	G	Per N.E.C	Per N.E.C	
64	MA	ERB	1	G	Per N.E.C	Per N.E.C	
65	WR2	ERB	1	G	Per N.E.C	Per N.E.C	
66	CB2	UPS	1	P	Per N.E.C	Per N.E.C	
67	CB2	ST	1	P	Per N.E.C	Per N.E.C	
68	UPS	ST	1	S	Per N.E.C	Per N.E.C	
69	UPS	CB	1	P	Per N.E.C	Per N.E.C	
70	CB2	MA	1	P	Per N.E.C	Per N.E.C	
71	UPS	MA	1	S	Per N.E.C	Per N.E.C	
72	SBO	UPS	1	S	Per N.E.C	Per N.E.C	
73	WR2	WR1	1	G	1"	60'	
74	EPB	WR2	1	G	1"	-	
75	EPB	CY	1	S	1"	78'	
76	EPB	MK	1	S	1"	68'	
77	EPB	WR1	1	S	2 1/2"	-	
78	EPB	WR3	1	P	2 1/2"	-	
79	WR2	WR1	1	P	2 1/2"	-	
80	WR1	WR3	1	S	2 1/2"	-	

CATH 2 RACEWAY REQUIREMENTS:

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	minimum Raceway (Conduit) Size	maximum Raceway (Conduit) Length	NOTES
1	PBG/K	GE	1	G	3/4"	6'	NOTE L2
2	PBG	Room Outlets	1	G	3/4"	-	NOTE 1
3	MA	WL	1	P	3/4"	55'	NOTE 1
4	ATY	DS	1	S	3/4"	55'	NOTE 1
5	ATY	MA	1	S	2 1/2"	41'	NOTE 1
6	ATY	TV	1	S	3/4"	65'	NOTE 1
7	SP	MG	2	C	1 1/2"	44'	NOTE 1
8	SP	MG	1	P/G	1 1/2"	39'	NOTE 1
9	SP	MG	1	S	1"	39'	NOTE 1
10	SP	MG	1	H	2 1/2"	37'	NOTE 1
11	SP	MP	1	P/G	2"	39'	NOTE 1
12	SP	MP	1	S	2"	39'	NOTE 1
13	SP	MA	1	S	2"	37'	NOTE 1
14	MSA	MA	1	S	3"	39'	NOTE 3
15	MSA	MA	1	P	1 1/2"	39'	NOTE L2
16	MSA	MP	1	P/G	2"	39'	NOTE L2
17	MSA	MP	1	S	2"	39'	NOTE L2
18	TV	MA	1	P	1 1/2"	55'	NOTE 1
19	TV	MA	1	S	2 1/2"	55'	NOTE 1
20	TV	MP	1	P	2"	55'	
21	TV	MK	1	S	1 1/2"	55'	NOTE 1
22	TV	MK	1	P/G	1 1/2"	55'	NOTE 1
23	TV	WM	1	S	3/4"	65'	
24	CY	MP	1	S	2"	55'	NOTE 1
25	CY	MA	1	P/G	1 1/2"	55'	NOTE 1
26	CY	MA	1	S	2 1/2"	55'	
27	MA	WM	1	S	1 1/2"	82'	
28	MA	WM	1	S	1"	82'	
29	TV	WR3	2	S	1 1/2"	-	
30	MSA	WR3	2	S	1 1/2"	-	

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum Raceway (Conduit) Length	NOTES
31	MSA	PHY	1	S	2 1/2"	-	
32	PHY	PHYSIO MONITOR	1	S	2"	33'	
33	THIRD PARTY	THIRD PARTY	-	-	-	-	
34	THIRD PARTY	PBG/K	-	G	-	-	
35	VB1	MK	1	S	1"	82'	NOTE 1
36	VB2	MK	1	S	1"	82'	NOTE 1
37	VB3	MK	1	S	1"	82'	
38	VB4	MK	1	S	1"	82'	
39	VB5	MK	1	S	1"	82'	
40	VB6	MK	1	S	1"	82'	NOTE 1
41	VB7	MK	1	S	1"	82'	NOTE 1
42	VB8	MK	1	S	1"	82'	NOTE 1
43	VB9	MK	1	S	1"	82'	
44							NOT USED
45	VB4	CY	1	S	1"	91'	
46	VB5	CY	1	S	1"	91'	
47	VB6	CY	1	S	1"	91'	NOTE L4
48	VB7	CY	1	S	1"	91'	NOTE L4
49	VB8	CY	1	S	1"	91'	NOTE L4
50	VB9	CY	1	S	1"	91'	
51							NOT USED
52	INT	MSA	1	S	Per N.E.C	Per N.E.C	NOTE 5
53	POWER PANEL	CB2	1	P	Per N.E.C	Per N.E.C	
54	POWER PANEL	CB2	1	G	Per N.E.C	Per N.E.C	
55	CB2	UPS	1	G	Per N.E.C	Per N.E.C	
56	UPS	CB	1	G	Per N.E.C	Per N.E.C	
57	CB2	PBG/K	1	G	Per N.E.C	Per N.E.C	
58	MA	PBG/K	1	G	Per N.E.C	Per N.E.C	
59	WR2	ERB	1	G	Per N.E.C	Per N.E.C	
60	CB2	UPS	1	P	Per N.E.C	Per N.E.C	

Raceway(Conduit)							
Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum Raceway (Conduit) Length	NOTES
61	CB2	ST	1	P	Per N.E.C	Per N.E.C	
62	UPS	ST	1	S	Per N.E.C	Per N.E.C	
63	UPS	CB	1	P	Per N.E.C	Per N.E.C	
64	CB	MA	1	P	Per N.E.C	Per N.E.C	
65	UPS	MA	1	S	Per N.E.C	Per N.E.C	
66	SBO	UPS	1	S	Per N.E.C	Per N.E.C	
67	TV2	MK	1	S	2 1/2"	82'	
68							NOT USED
69	TV3	MK	1	S	2 1/2"	82'	
70							NOT USED
71	TV4	MK	1	S	2 1/2"	82'	
72							NOT USED
73	EPB	WR2	1	G	1"	-	NOTE 1
74	EPB	CY	1	S	1"	78'	NOTE 1
75	EPB	MK	1	S	1"	68'	NOTE 1
76							NOT USED
77							NOT USED
78							NOT USED
79							NOT USED
80	WR2	WR3	1	G	1"	60'	

RSN: 1679034
Permit #: 22-2256682-LT

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No.	Description	Date

COLORADO LICENSED
MICHAEL P THOMPSON
56150
PROFESSIONAL ENGINEER
12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

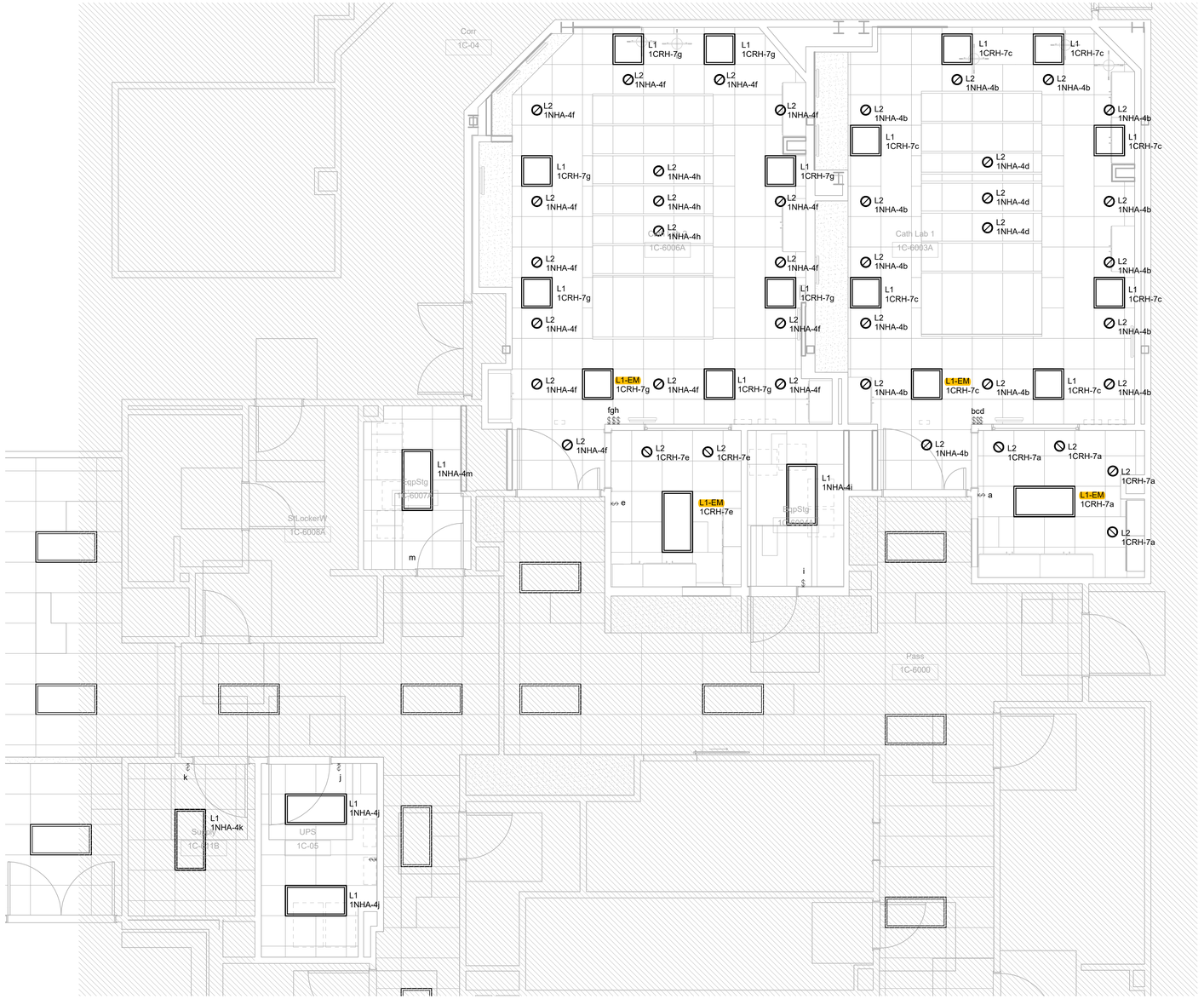
Sheet Title

ELECTRICAL RACEWAY PLAN

Sheet Number

E.102

12/5/2022 7:20:12 AM



1 CATH LAB 1 & 2 --ELECTRICAL LIGHTING REFLECTED CEILING PLAN

1/4" = 1'-0"

GENERAL NOTES:

A. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E000. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.

B. ALL ELECTRICAL PANELBOARDS AND BASE BUILDING DISTRIBUTION EQUIPMENT ARE EXISTING TO REMAIN U.N.O.

C. WIRE NEW ELECTRICAL DEVICES TO INDICATED NORMAL AND CRITICAL BRANCH PANELBOARDS, UNO. CIRCUIT NUMBERS SHOWN ARE FOR DESIGN INTENT ONLY. VERIFY AVAILABLE CIRCUITS IN FIELD.

D. LIGHTING FIXTURES MARKED 'EM' SHALL BE PROVIDED WITH INTEGRAL 90MIN BATTERY BACKUP.

LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	LAMP		FIXTURE		MANUFACTURER	ITEM NUMBER	REMARKS
		QUANT	TYPE/CRI-CT	VOLT	WATTS			
L1	2"X2 & 2X4" DIRECT/INDIRECT TROFFER	NOTE 4	LED-80-4000K	277	31W	LITHONIA	2VTL4,40L,ADP,MVOLT,EZ1	NOTES 1,2,3,4
L2	6" ROUND HEALTHCARE DOWNLIGHT.	NOTE 4	LED-80-4000K	277	23W	GOTHAM	EVO6SG,40,30,DFR,SOL,MVOLT,EZ1	NOTES 1,2,3,4
X1	EXIT SIGN - CEILING	NOTE 4	LED	277	4.5W	LITHONIA	EDG-EDGR SERIES	NOTES 1,2,3,4,5

NOTES:
1. MANUFACTURERS' CATALOG NUMBERS ARE INTENTIONALLY INCOMPLETE; COORDINATE REQUIRED TRIM KITS, MOUNTING BRACKETS, LAMPS, FINISHES, ETC. WITH THE ARCHITECT. CONTRACT DOCUMENTS, SPECIFICATIONS, AND OTHER TRADES.
2. VERIFY TYPE OF CEILING OR WALL FOR MOUNTING OF LIGHTING FIXTURES PRIOR TO ORDERING.
3. COORDINATE ALL FIXTURE COLOR AND FINISH AND EXACT LOCATIONS WITH ARCHITECT.
4. SEE ELECTRICAL AND ARCHITECTURAL PLANS,DETAILS FOR ALL LIGHT FIXTURE QUANTITIES.
5. PROVIDE DIRECTIONAL CHEVRONS/ARROWS AS INDICATED ON PLANS.

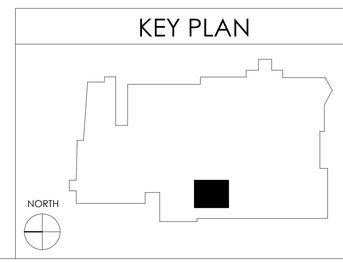
Provide Emergency Illumination Equipment That complies with 2020 NEC 700.12(F) or NEC 700.

Suspended Ceiling Systems and the Luminaires They support shall meet the requirements of 410.36(B) 2020 NEC

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: R. Lowman
Date: Dec 15, 2022
2015 INTERNATIONAL CODES & 2020 NEC

RSN: 1679034
Permit #: 22-2256682-LT

KEY PLAN



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No.	Description	Date



12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

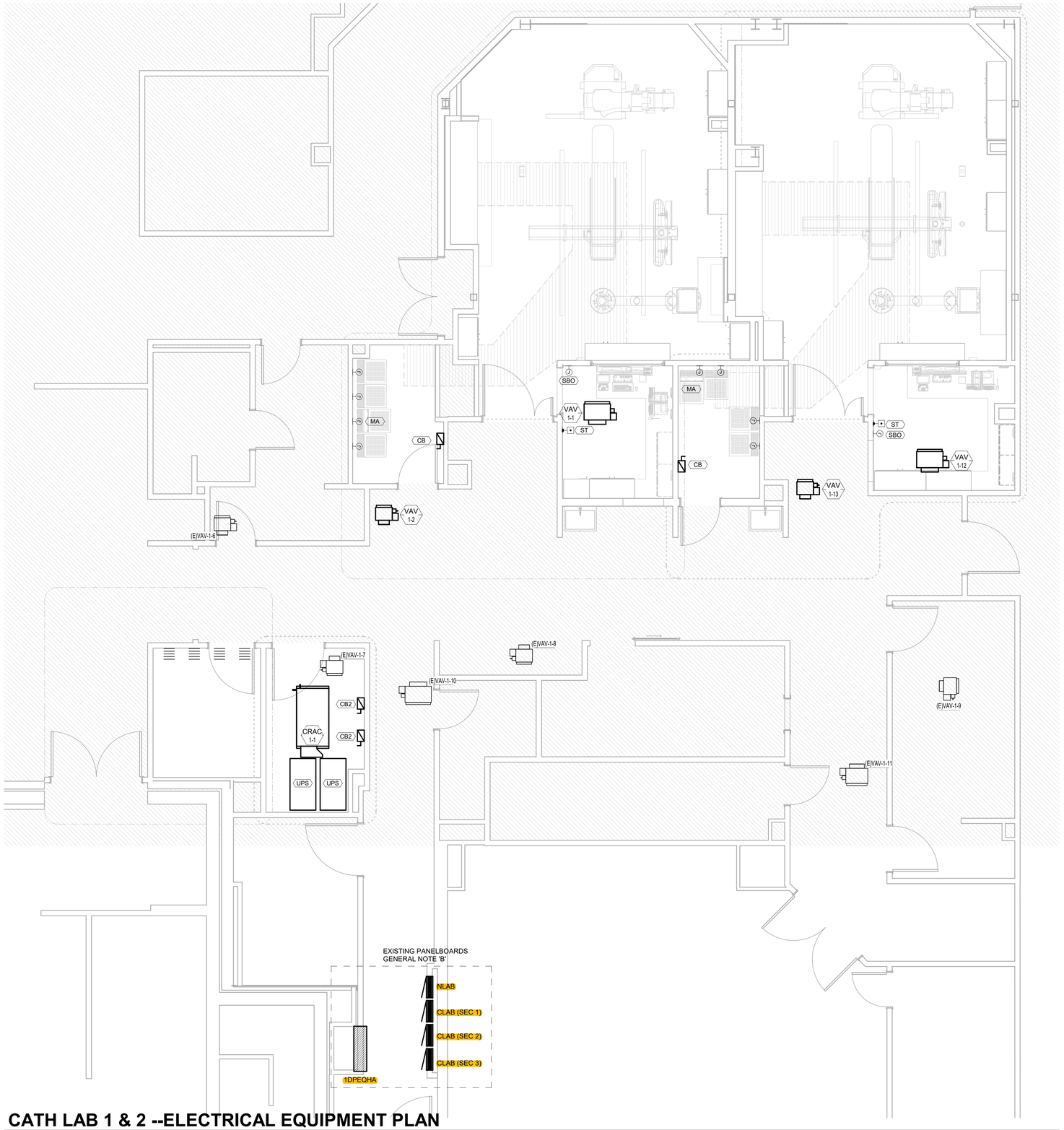
1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

Sheet Title
ELECTRICAL LIGHTING REFLECTED CEILING PLAN

Sheet Number
E.201

12/5/2022 7:29:26 AM



1 CATH LAB 1 & 2 --ELECTRICAL EQUIPMENT PLAN

1/4" = 1'-0"

GENERAL NOTES:

A. REFER TO ELECTRICAL GENERAL NOTES AND SYMBOLS ON SHEET E000. REFER TO ELECTRICAL SPECIFICATIONS ON SHEET E001.

B. ALL ELECTRICAL PANELBOARDS AND BASE BUILDING DISTRIBUTION EQUIPMENT ARE EXISTING TO REMAIN U.N.O.

C. REFER TO SHEET E.003 FOR ELECTRICAL EQUIPMENT SCHEDULES AND SYSTEM POWER AND GROUNDING DIAGRAM.

D. MODIFY EXISTING EQUIPOTENTIAL GROUNDING SYSTEM AS REQUIRED.

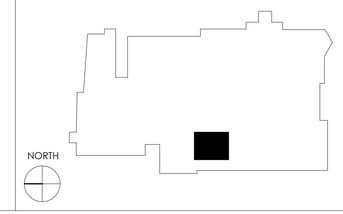
E. ALL MECHANICAL EQUIPMENT IS EXISTING TO REMAIN U.N.O. REFER TO MECHANICAL DRAWINGS. PROVIDE NEW POWER CONNECTION TO CRAC UNIT. REFER TO ELECTRICLA AND MECHANICAL EQUIPMENT SCHEUDLES. FOE VAV UNITS ADJUST EXISTING EQUIPMENT POWER AND WIRING AS REQUIRED AND EXTEND TO NEW LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR.

This sheet of drawings has not been reviewed for code compliance.

City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *R. Lowman*
Date: *Dec 15, 2022*
2015 INTERNATIONAL CODES & 2020 NEC

RSN: *1679034*
Permit #: *22-2256682-LT*

KEY PLAN



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No.	Description	Date

COLORADO LICENSED
MICHAEL P THOMPSON
55150
PROFESSIONAL ENGINEER
12.02.2022

21-048 - TMCA SOUTH CATH 1 & 2 RENOVATION

1501 S Potomac St.
Aurora, CO 80012

Issue	ISSUE FOR CONSTRUCTION
Date	2 DECEMBER 2022
Project Number	21-048
Drawn by	JSC
Checked by	MPT

Sheet Title

ELECTRICAL EQUIPMENT PLAN

Sheet Number

E.301

12/5/2022 7:20:35 AM

PHILIPS

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.



*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
-	2/09/2022.	Created Preliminary Site Preparation Support Document per Quote #1-2LFTCPH. Rev. 4	VS
A	4/29/2022	Created Final Site Preparation Support Document per Order #. 6600562827.020000.	VS
B	9/21/2022	Updated architectural background per file "21-048 TMCA Cath 1 and 2". Moved INT/SYNC towards the window. Moved cabinets MB and MR 6" to the left to meet the existing location. Added TV's and New EP Boom Rectangle in the exam room. Changes clouded in red.	VS
C	10/20/2022	Adding Mavig Radiation Shield and Light, MCS surgical Lamp per pending change order.	LS
D	11/9/2022	Updated monitors to be Philips provided on E1 and E3, located video boxes per User Need Checklist, updated IntraSight conduit to land on MGP, and crossed out 3rd party equipment conduits on EP Boom. Added existing risers on E1 and EL1. Red clouded changes.	LS

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PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
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Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

C1

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General Conditions

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 their expense for preparation of site. Philips required specifications and any required MEP, construction and structural alterations shall be incorporated into customer's design and construction documents. Compliance with all safety, electrical, and building design codes relevant to the build out of the clinical area for Philips equipment and its installation is the customer's responsibility. Sufficiency of such plans and specifications, specifically including, but not limited to the accuracy of the dimensions described therein, shall be the sole responsibility of the customer. The customer shall advise Philips of conditions at or near the site, which could adversely affect the function of the equipment and/or carrying out of the delivery and installation work. This 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.

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 shall bear any expense in obtaining same or in complying with any related rules, regulations, ordinances and statutes.

4. **Radiation Protection**
The customer or their contractor, at their own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection and testing.

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 undesirable 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 customer or general contractor shall provide Philips with a project/construction schedule with milestones to assist in the coordination of delivery of Philips supplied products and 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, then additional work required for the equipment will not be 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 work scope and these drawings, the turnkey contract work scope shall govern.

9. **Infection Control and Interim Life Safety Measure**
Compliance with all Infection Control and Interim Life Safety Measures shall be the sole responsibility of the customer. The customer shall provide all means and methods necessary for compliance with Infection Control (IC) and Interim Life Safety Measures (ILSM) in connection with the construction and installation/operation of the products shown herein and shall bear any expenses related to same.

(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 by the customer before the delivery and installation of equipment can begin.

1. Walls to be painted or covered, baseboards installed, floors to be tiled and/or covered, ceiling shall have grid tiles and luminaires installed and operational.

2. Doors and windows, especially radiation protection barriers, installed and finished with locksets operational.

3. All electrical convenience outlets, raceways, wireways, auxiliary fittings, knockouts, cable connectors, terminal and power distribution blocks, cable openings, chase nipples, junction boxes and pull boxes installed and operational.

4. A private supply mains branch circuit with overcurrent protective circuit breaker and manual operable circuit disconnect means shall be present and operational. Definition of "Private supply" means an end-leave of the hospital distribution system after the last overcurrent protective disconnect means from which all equipment included in the Azurion ground domain is powered. Note that only equipment included in the Azurion certification and equipment with which the Azurion has a compatibility statement are allowed to be inside the Azurion ground domain. All other electrical equipment is not allowed to have a functional connection to the Azurion system and shall have no direct galvanic connection to prevent ground loops. 3rd party equipment that does not have a function connection with the Azurion system, but that is intended to be used inside the same patient area as the Azurion System shall be grounded to the PCB inside the ERB with a ground bonding of <= 200 mOhm for plugable equipment.

5. Philips does not allow 3rd party equipment inside our cabinets.

6. 120V convenience outlets operational.

7. 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.

8. All contractor supplied cables pulled and terminated.

9. A dust-free environment in and around the procedure room.

10. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications.

11. 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 conditional failure.

12. All plumbing installed and finished.

13. 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.

14. Clear door openings for moving equipment into the building must be 42" (1067mm) W x 82" (2083mm) H min. 48" (1219mm) W x 82" (2083mm) H rec., Or larger contingent on an 8'-0" (2438mm) corridor width.

15. Countertop is 30" (765mm) for seated height and 36" (915mm) for standing height.

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 Medical 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 are the responsibility of the customer.

(22.0)

HVAC Requirement for General Equipment Locations

Operation	
Temperature	59°F (15°C) to 86°F (30°C)
Temperature gradient	Max. 1°F / Minute (0.5°C / Minute)
Humidity (non-condensing) Humidity shall be stable within 10%	20% to 80%
Exam Room	*5459 BTU/hr
Equipment Room	*12625 BTU/hr
Control Room	*1945 BTU/hr

***Average heat emission during clinical use**
Data applicable for basic system:
Large monitor + 4 x small monitor in Monitor Ceiling Suspension
1 workstation + 2 x small monitor in Control Room

Add 1194 BTU/hr for additional large monitor
Add 273 BTU/hr for additional small monitor
Add 1024 BTU/hr for additional workstation
See AL sheet for additional heat load in case of UPS

Equipment's designed airflow is from front/side to back. Please design the air handling in the rack cabinet equipment area accordingly.

Heating, ventilation, and air conditioning requirements must maintain temperature at 59°F (15°C) to 86°F (30°C) as well as a non-condensing relative humidity at 20-80% with 10% maximum variation. These temperature and humidity levels must be maintained in all (3) rooms (equipment, examination and control rooms).

(22.0)

Electrical Requirements
Mains 40E Cabinet

Maximum Rated Power:	100kW
Supply Configuration:	3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6 AWG, 90°C or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating: Minimum 4 AWG for 80A circuit breaker rating.
Nominal Line Voltage:	480 VAC, 60 Hz
Branch Power Requirement:	100 kVA (System only; verify UPS power requirements)
Circuit Breaker:	3 phase, Type D 80A with long-time delay

(20.1)

Remote Control of Room Lighting

The control of customer lighting must incorporate an electrical isolation system such as demonstrated on Sheet ED3. Lighting scheme is the responsibility of the customer.

(12.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Drawn By: Luis Selles

Project Details
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N-WES210501 D
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Quote: 1-2LFTCPH Rev.4
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AN

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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
H Furnished by Philips and installed by Third Party

	Equipment Designation	Description	Weight (lbs)	Heat Load (BTU/hr)	Detail Sheet
A	SP	Clea Stand with Short L-Arm	2557	1706	AD2
A	MSA	Angio Diagnost 7 with Pivot	999	205	AD2
A	ME	Certeray iX Generator Cabinet	320	2971	AD3
A	MR	Peripheral 40E Cabinet	441	2049	AD3
A	MA	Mains 40E Cabinet	826	5464	AD3
A	MB	Image 40E Cabinet	441	1877	AD3
A	CY	Control Room Connection Box	102	567	AD3
A	DB	Documentation Box - Mounted on Wheels (Final location to be coordinated with customer and/or local Philips Service)	176	0	AD4
A	ATY	Exam Room Auxiliary Box	7	1.7	AD4
A	FW	Firewall	4	205	AD6
A	VB1 ~ VB10	Video Connection Box	2.2	-	AD4
D	UPS	Low Load Fluoro (LLF) UPS	1356	8750	AD6
D	SBO	Signaling Box Option (for LLF UPS)	13	-	AD6
A	TV2	Live/Reference Slave Monitor	-	-	-
A	TV3	Live/Reference Slave Monitor	-	-	-
A	TV4	Live/Reference Slave Monitor	-	-	-
A	INT	IntraSight- Workstation	83	-	AD4
A	SYNC	SyncVision	71	-	AD4
		Items not on Philips Quote/Order			
A	EPB	Equipment Rack DVI (EP Power Boom)-(Including Accessories) with Rectangle Plate	865	-	AD6
E	MGP	Med Gas Pedestal	-	-	-
B/G	MAV	Mavig 2.5m Ceiling Track w/ Rad Shield and Y LED 1F Surgical Light	167	350	AD5
A	TV	58" + (2) 21" LCD Monitor Suspension with Y LED 1F Surgical Light	636	1020	AD5

PHILIPS

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AL

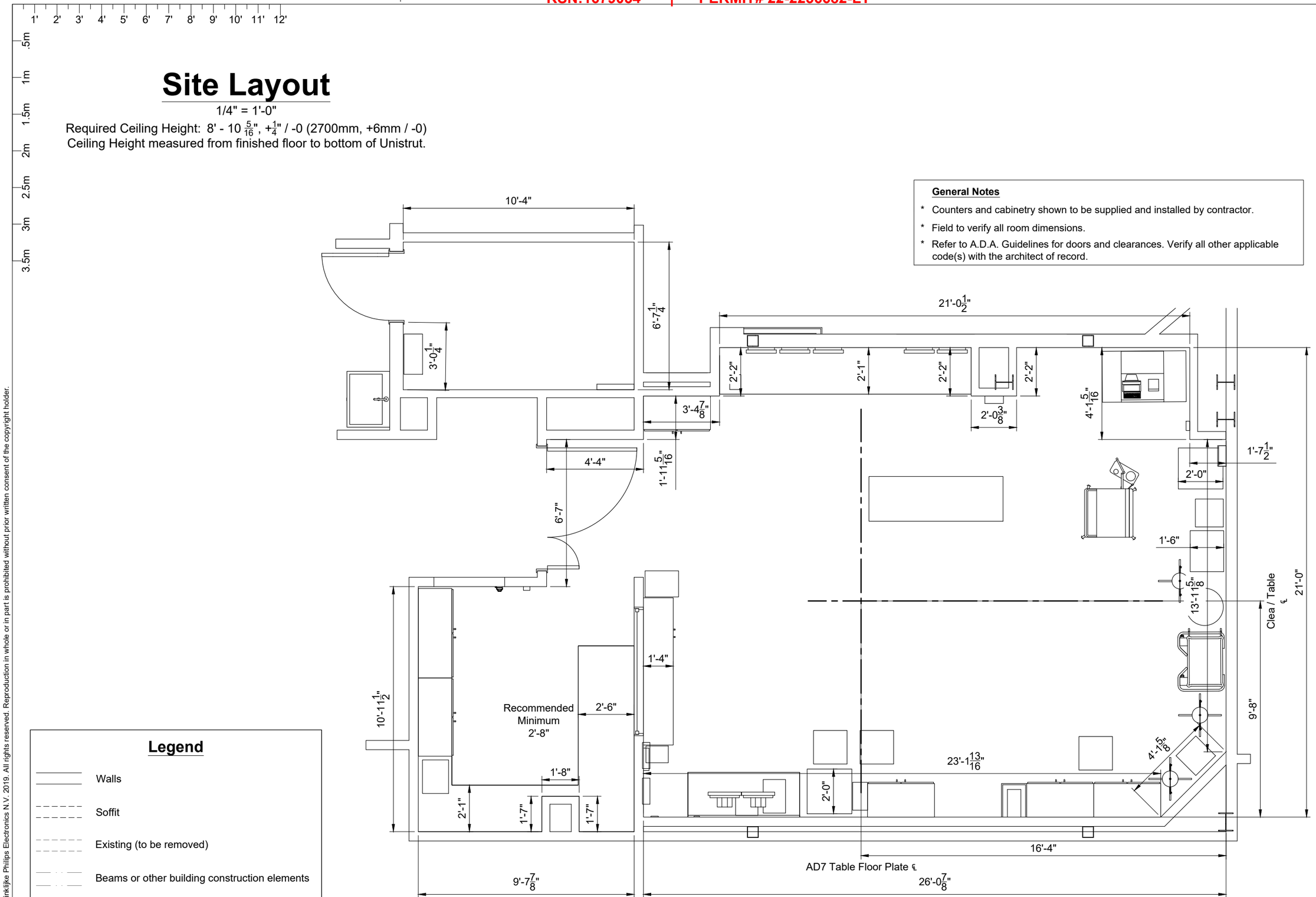
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Site Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
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.

Legend

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

PHILIPS

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Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
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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

General Notes

* Field to verify all room dimensions.
* Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.
* The customer shall advise Philips of existing and/or new conditions at or near the site, which could adversely affect the function of the equipment and/or carrying out of the delivery and installation work. Refer to sheet - AN line #2 of General Conditions for additional information.

Planning Issues and Considerations

⚠8 A minimum of 3'-0" (915mm) clear distance is recommended around the foot end of the AD7 table when fully extended to ensure adequate space for staff flow.

⚠9 Potential collision of equipment with noted counter.

⚠10 Exact equipment configuration to be verified with local Philips Sales.
- A 2.5m Mavig Rail with Radiation Shield and Y LED Light 1F is not listed on order, but it's shown per request.

Planning Issues and Considerations

⚠1 Verify exact location and configuration of existing floor plate, Unistrut, and electricals with local Philips service for reuse.

⚠2 Verify quantity and designation of Live/Reference slaving monitors with local Philips Service.

⚠3 Conduit run(s) from SP to MA/MR/ME must be able to take the most direct route. (Maximum conduit length = 37'/37'/39')

⚠4 Third Party Items - It is the region's responsibility to interface and coordinate customer's non-catalog item(s) with Philips' equipment. Verify feasibility and ensure full functionality and movement of the system.

⚠5 Med Gas Pedestal may present a tripping hazard. Verify with customer requirement.

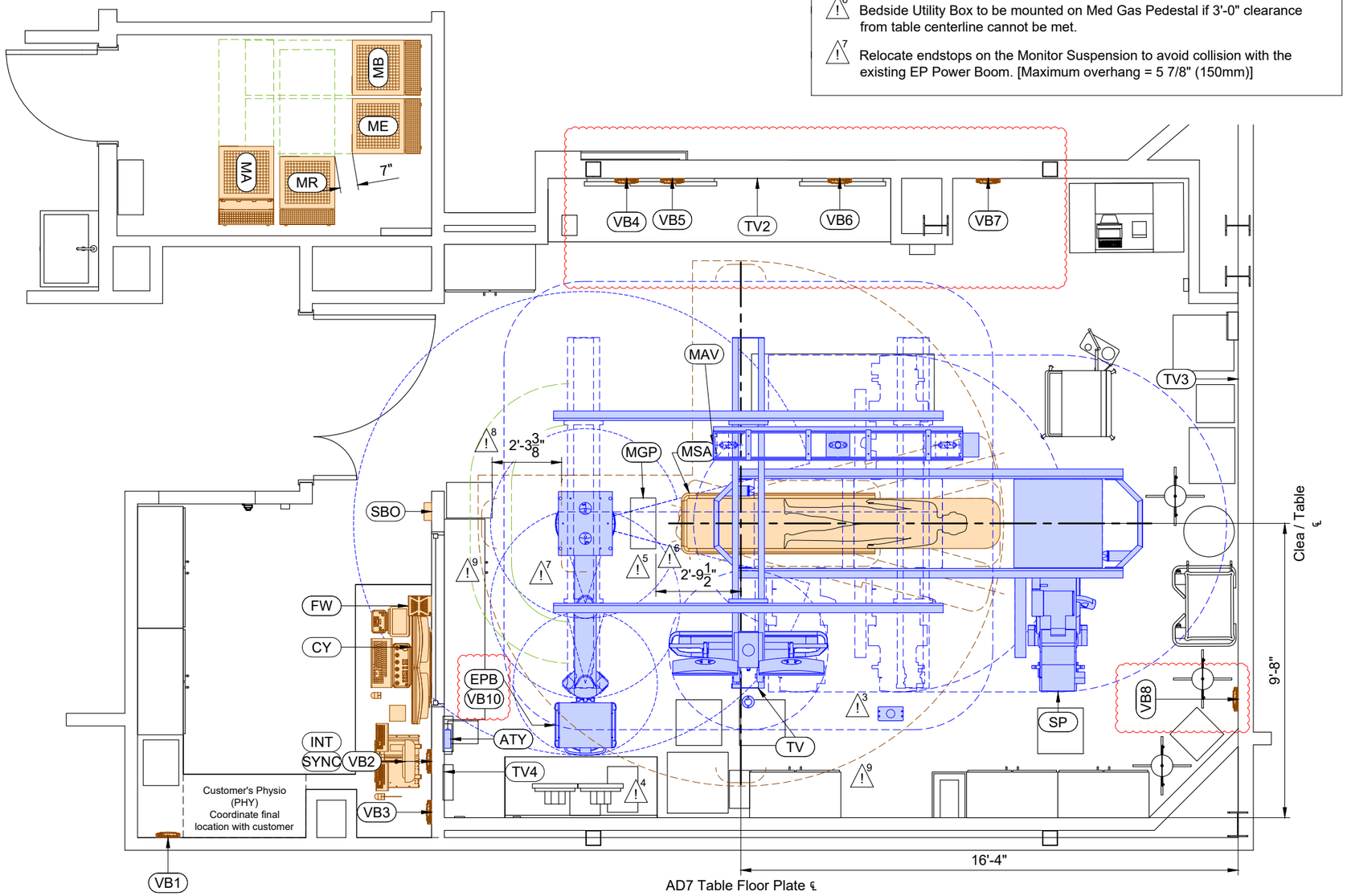
⚠6 Bedside Utility Box to be mounted on Med Gas Pedestal if 3'-0" clearance from table centerline cannot be met.

⚠7 Relocate endstops on the Monitor Suspension to avoid collision with the existing EP Power Boom. [Maximum overhang = 5 7/8" (150mm)]

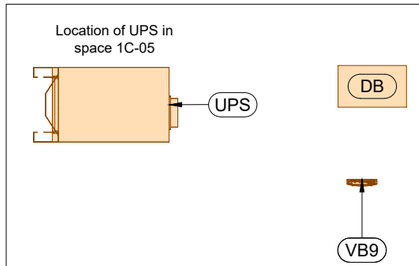
Equipment Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0
(2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



	Source	Location	Displayed
VB1	Physio	Control	FlexVision
VB2	INT	Control	FlexVision
VB3	SYNC	Control	FlexVision
VB4	TBD	Exam	FlexVision
VB5	TBD	Exam	FlexVision
VB6	TBD	Exam	FlexVision
VB7	TBD	Exam	FlexVision
VB8	TBD	Exam	FlexVision
VB9	TBD	TBD	FlexVision
VB10	TBD	Exam	FlexVision



Exact location to be coordinated by Customer and local Philips service.

PHILIPS

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Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

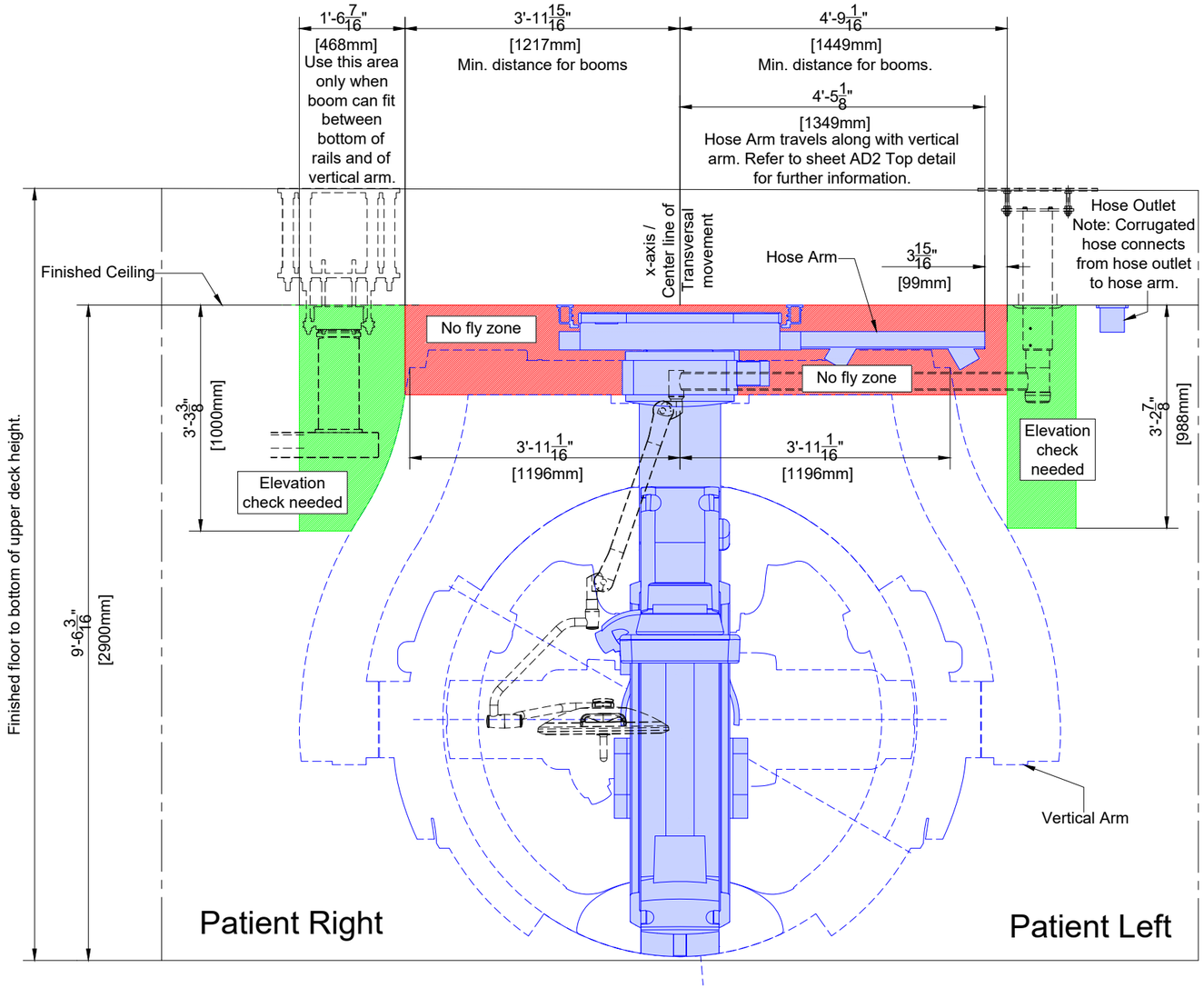
Philips Contacts
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Email: william.tupa@philips.com
Drawn By: Luis Selles

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Elevation View

1/2" = 1'-0"

General Notes

* Finished ceiling height is not the same as unistrut height as illustrated on SD1 Philips Fixing Block for Philips Ceiling Rails (Clip Rails) detail.

PHILIPS

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Aurora, CO
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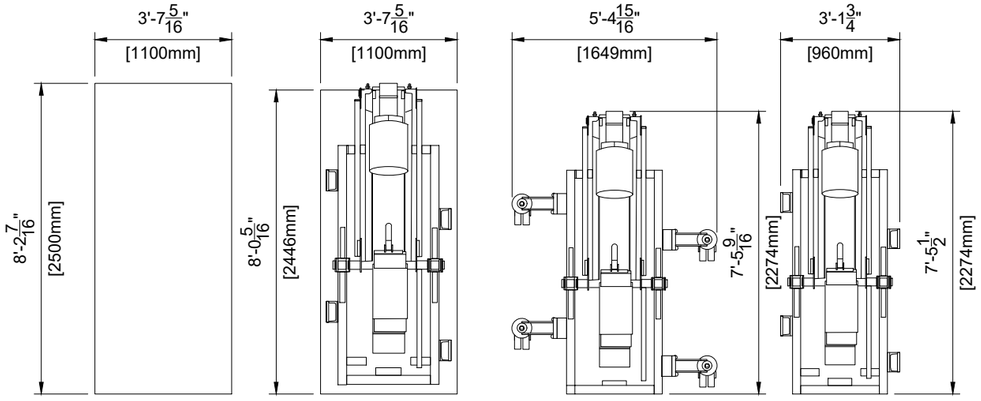
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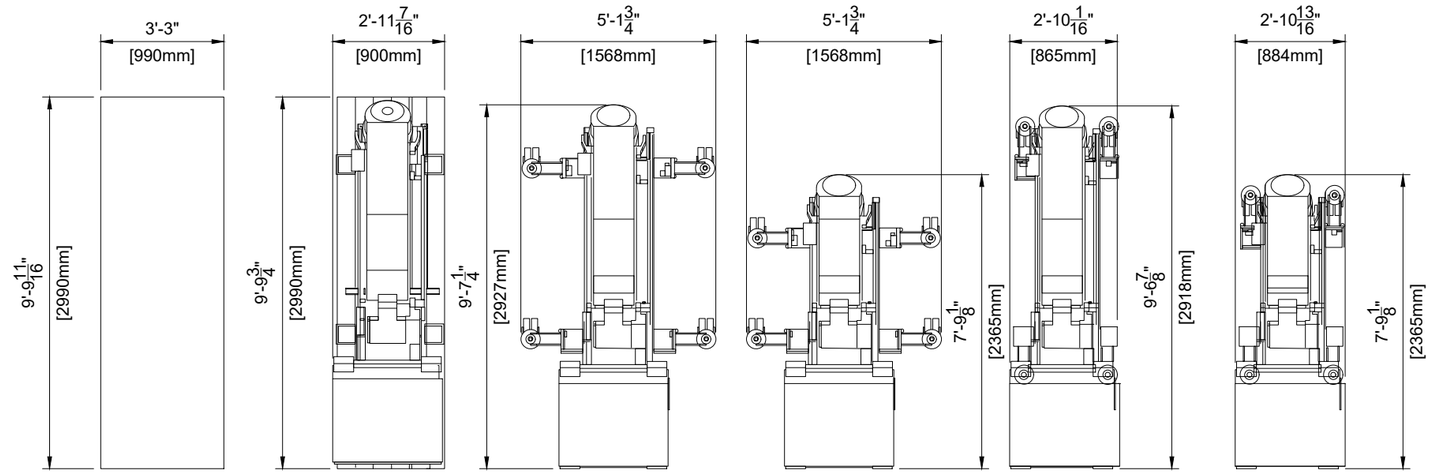
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Detail - Clea Ceiling (C-ARM) Transport Details



Transport Possibilities				
	Crate	**Pallet**	**Kick Wheels Wide**	**Kick Wheels Small**
Height	77.95" (1980mm)	76.22" (1936mm)	69.02" (1753mm)	77.76" (1975mm)
Weight	2050 lbs (930 kg)	1940 lbs (880 kg)	2061 lbs (935 kg)	1764 lbs (800 kg)

Detail - Clea Ceiling (L-ARM) Transport Details



Transport Possibilities						
	Crate	**Pallet**	**Klick Wheels Wide**	**Klick Wheels Wide Elevator**	**Klick Wheels Small**	**Klick Wheels Small Elevator**
Height	57.09" (1450mm)	54.80" (1392mm)	49.25" (1251mm)	79.53" (2020mm)	49.25" (1251mm)	79.53" (2020mm)
Weight	2094 lbs (950 kg)	1973 lbs (895 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)

(12.0)

PHILIPS

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Medical Center of Aurora
Aurora, CO
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AD1

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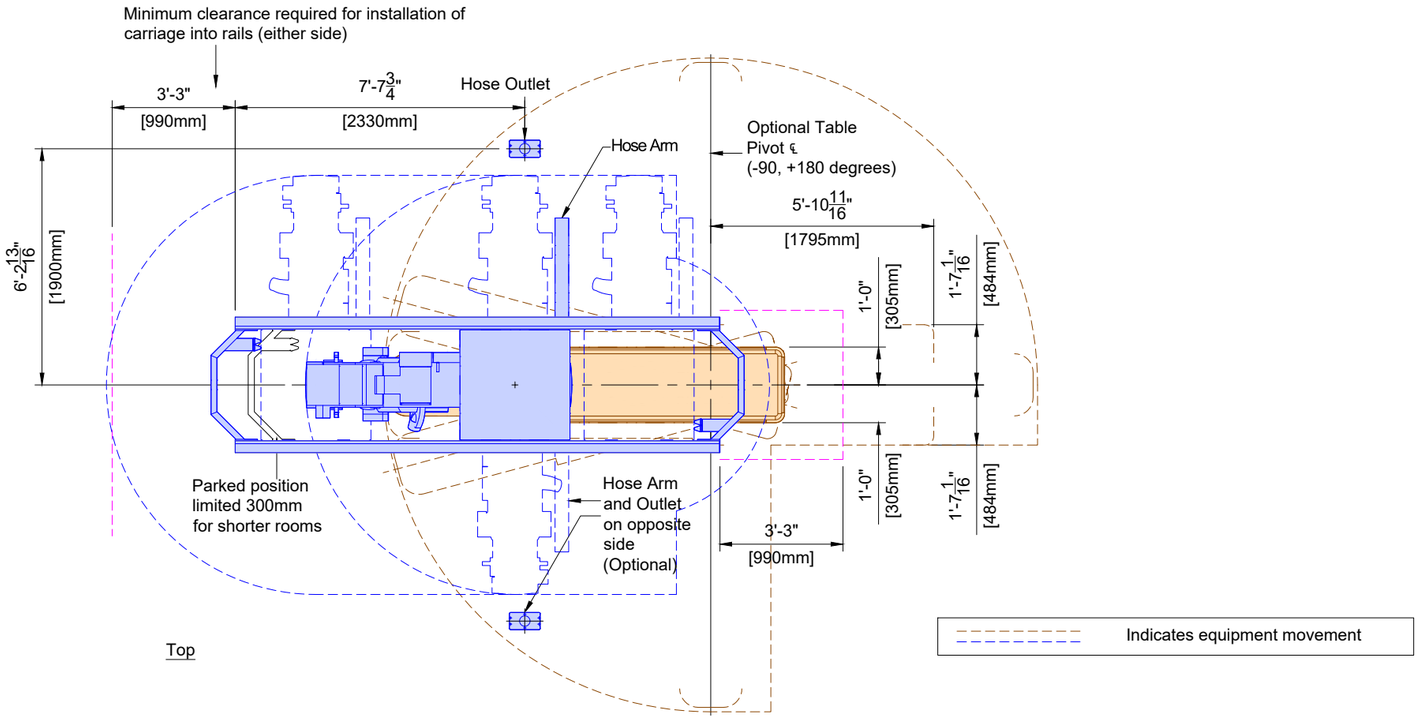


Table Pivot is optional. This allows the table to rotate -90, +180 degrees about center of table base.

(12.0)

	Clea Stand (Short L-Arm)	
SP	Weight	Heat Dissipation
	2557 lbs	1706 BTU/hr

(12.0)

	Angio Diagnost 7	
MSA	Weight	Heat Dissipation
	999 lbs	205 BTU/hr

PHILIPS

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Aurora, CO
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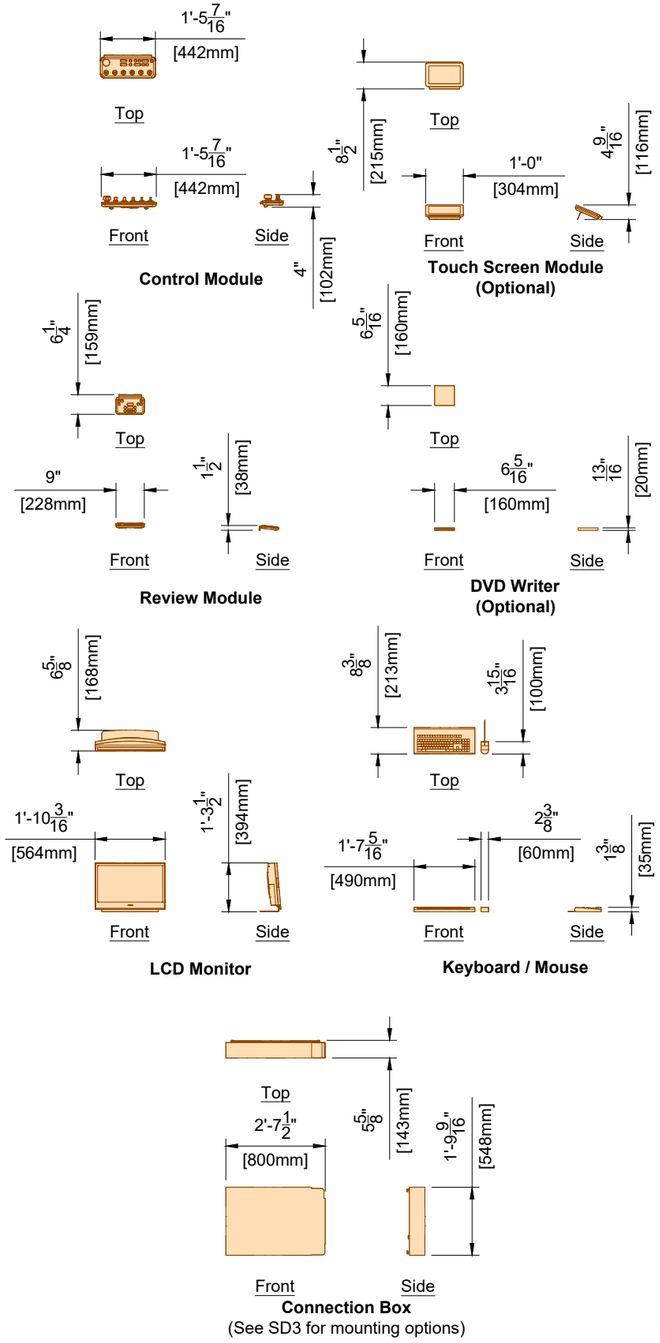
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AD2

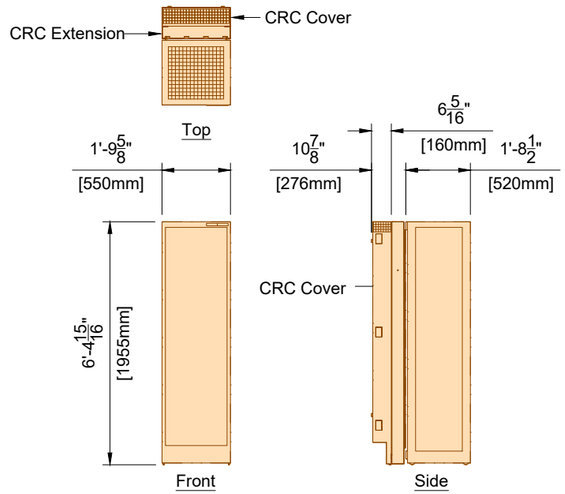
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CY	Control Room Connection Box (All Components)	
	Weight	Heat Dissipation
	102 lbs	567 BTU/hr

(19.0)

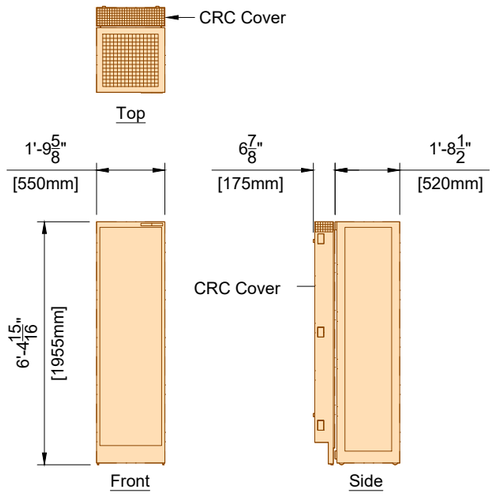


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

MA	Mains 40E Cabinet	
	Weight	Heat Dissipation
	826 lbs	5464 BTU/hr

(19.0)

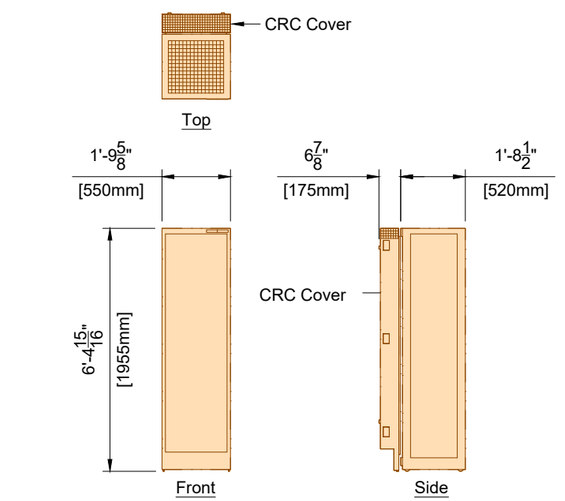


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 48 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

MB	Image 40E Cabinet	
	Weight	Heat Dissipation
	441 lbs	1877 BTU/hr

(19.0)

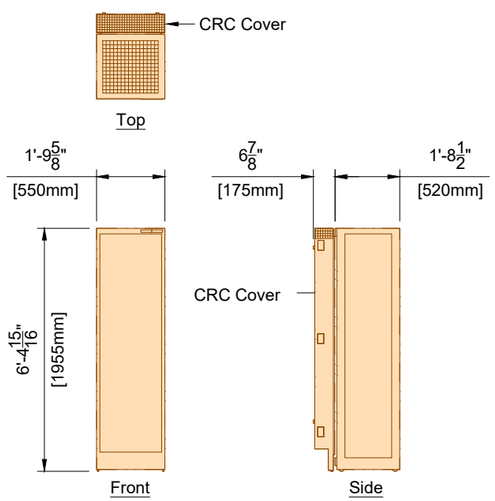


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 65 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

MR	Peripheral 40E Cabinet	
	Weight	Heat Dissipation
	441 lbs	2049 BTU/hr

(19.0)



The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

ME	Certeray iX Generator 40E Cabinet	
	Weight	Heat Dissipation
	320 lbs	2971 BTU/hr

(19.0)

PHILIPS

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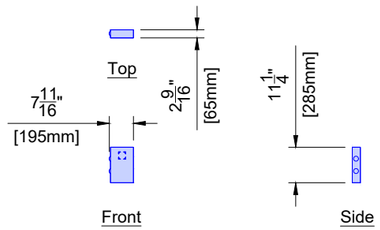
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6600562827.010000

AD3

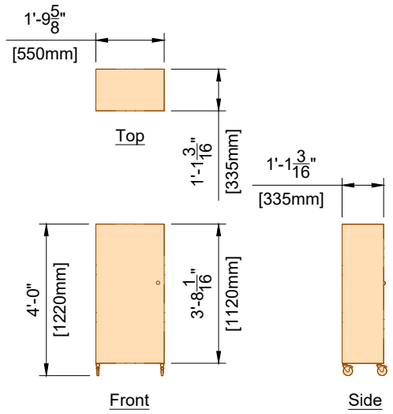
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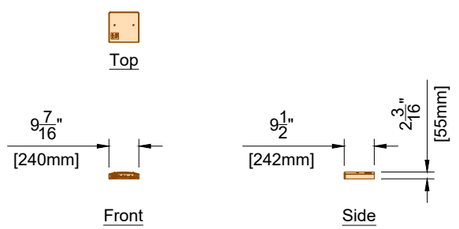
(19.0)

ATY	Auxiliary Box	
	Weight	Heat Dissipation
	7 lbs	1.7 BTU/hr



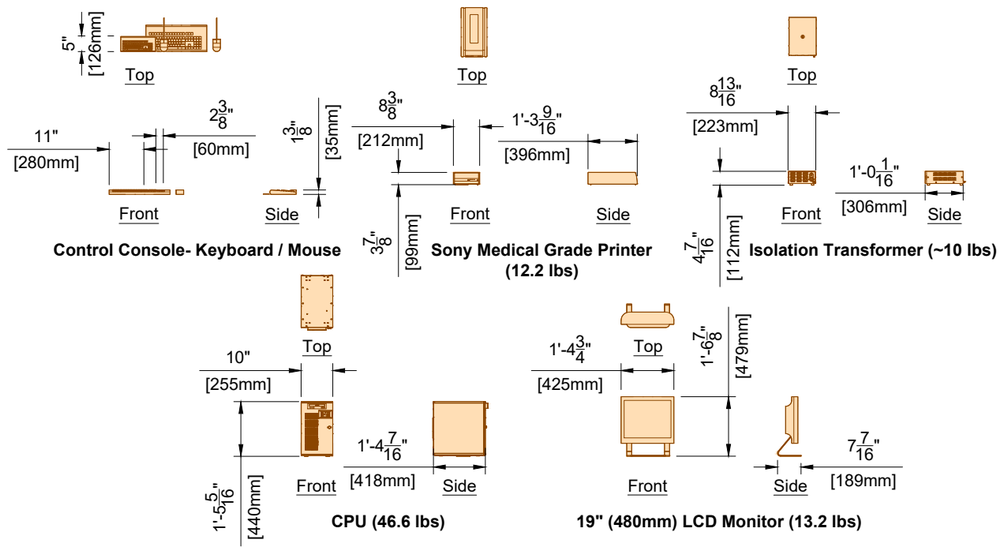
(19.0)

DB	Documentation Box	
	Weight	Heat Dissipation
	176 lbs	0 BTU/hr



(21.0)

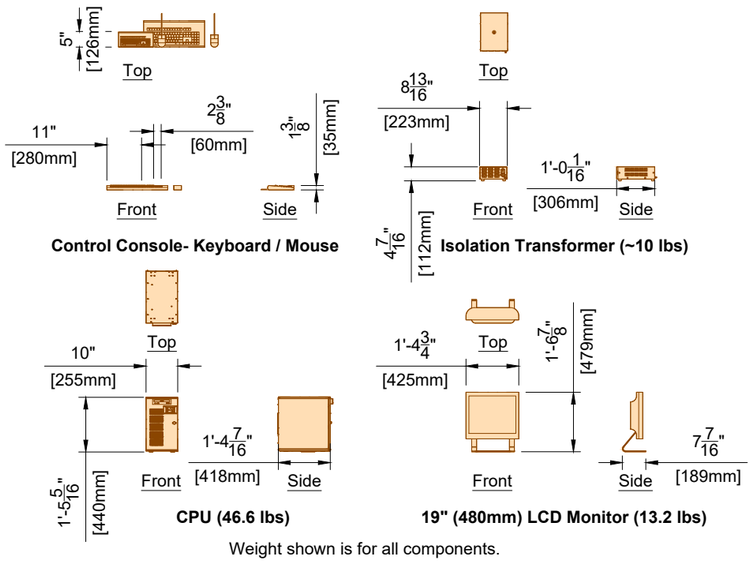
VB1 ~ VB10	Video Connection Box	
	Weight	Heat Dissipation
	2.2 lbs	- BTU/hr



Weight shown is for all components.

(20.0)

INT	IntraSight - Workstation	
	Weight	Heat Dissipation
	83 lbs	- BTU/hr



Weight shown is for all components.

(20.0)

SYNC	SyncVision	
	Weight	Heat Dissipation
	71 lbs	- BTU/hr

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

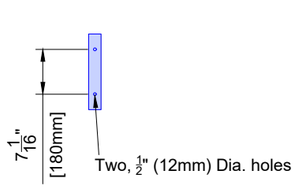
AD4

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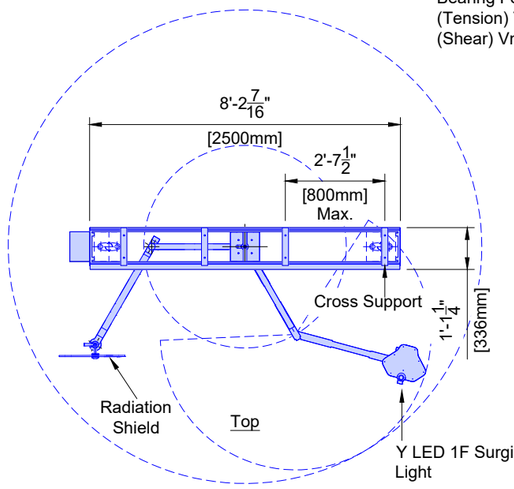
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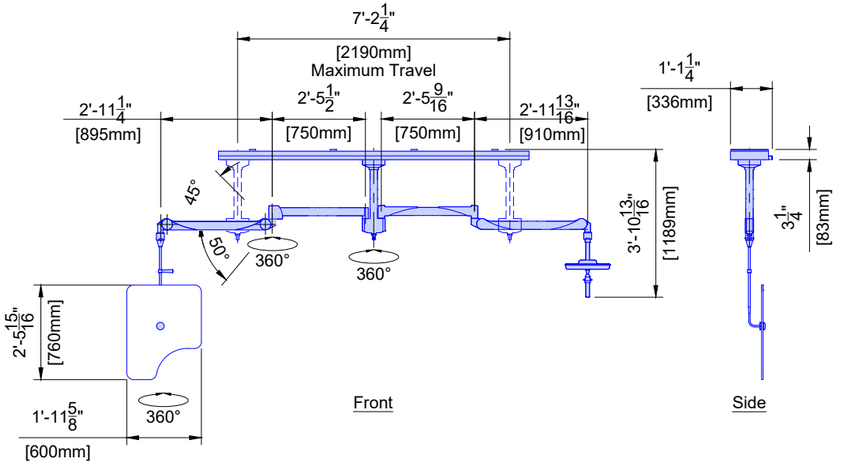
Detail - Cross Support
(Not to scale)



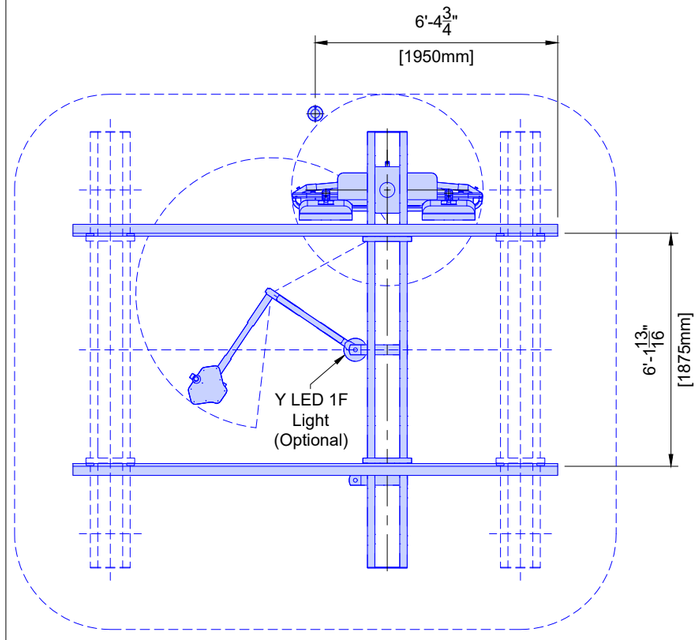
Cable Spooler

Bearing Forces:
(Tension) Tmax = 908 lbs/support
(Shear) Vmax = 38 lbs/support

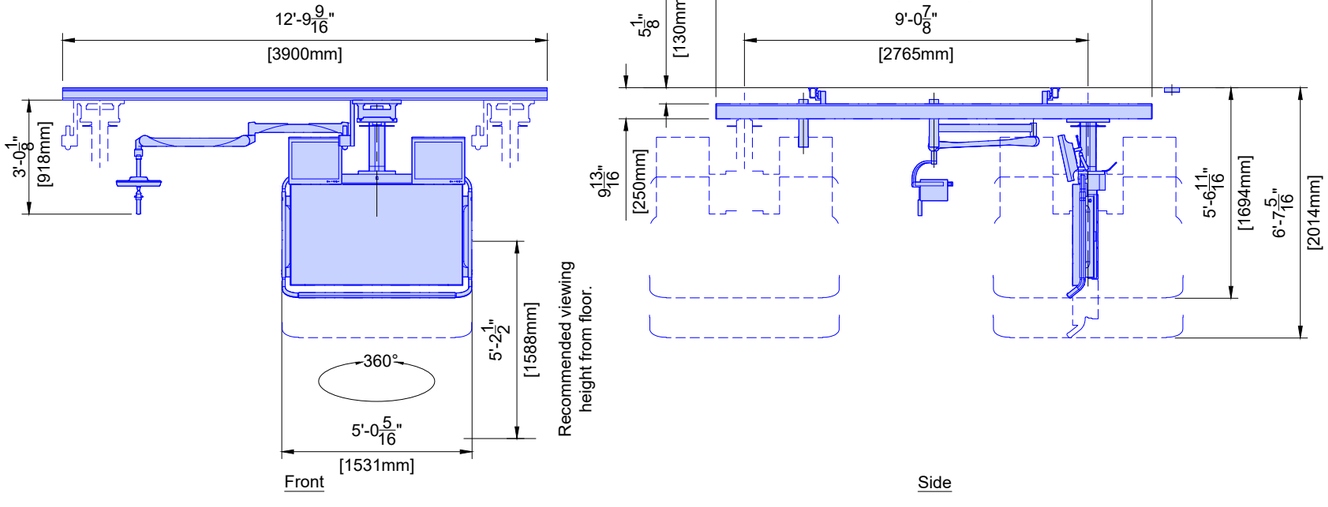




MAV	Mavig 2.5m Ceiling Track w/ Radiation Shield and Y LED 1F light (22.0)	
	Weight	Heat Dissipation
	167 lbs	350 BTU/hr



Bearing Forces:
(Tension) Tmax = 661 lbs/support
(Shear) Vmax = 150 lbs/support



For swing labs, 2700mm long ceiling rails are delivered. Maximum longitudinal column travel = 2100mm.
Weight shown is total weight including monitors, suspension, cabling, and options.

TV	58" + (2) 21" LCD Monitor Suspension with Y LED 1F light (21.0)	
	Weight	Heat Dissipation
	603 lbs	1020 BTU/hr

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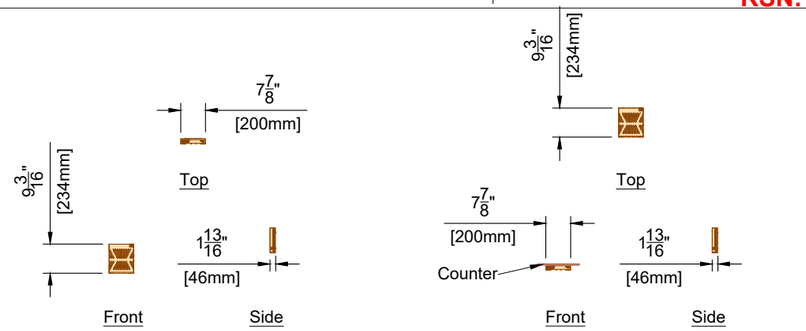
Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

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AD5

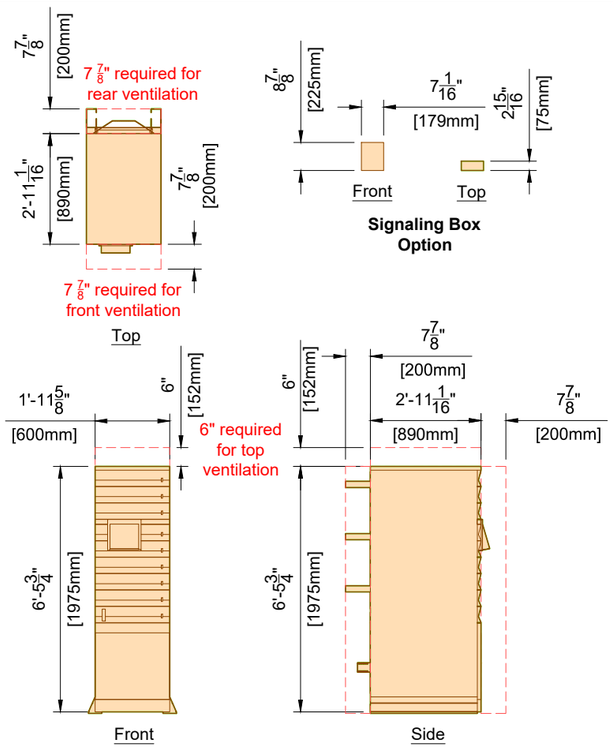
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Weight shown is for all components.
Firewall must be installed maximum of 6'-6 3/4" from the CY.

(20.0)

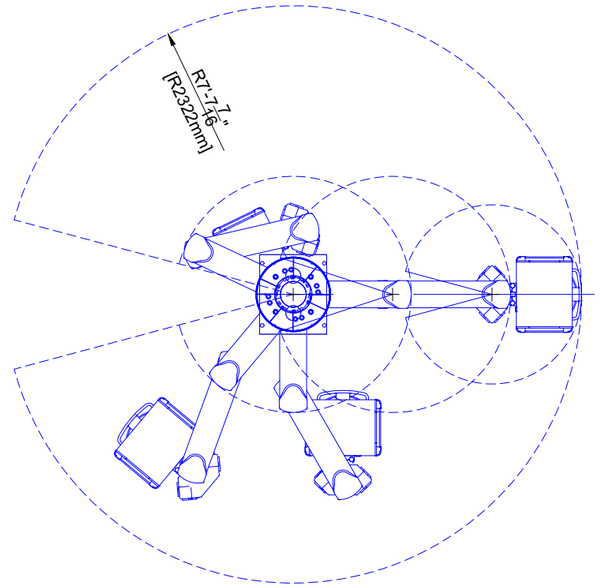
	Firewall	
FW	Weight	Heat Dissipation
	4 lbs	205 BTU/hr



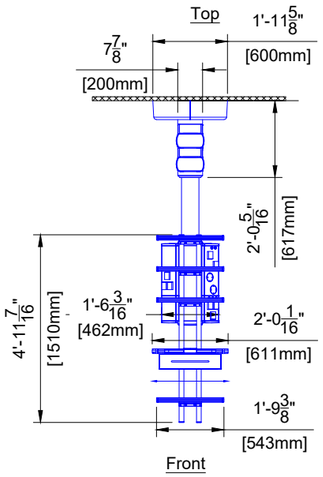
Acoustic noise level: <= 58 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(20.0)

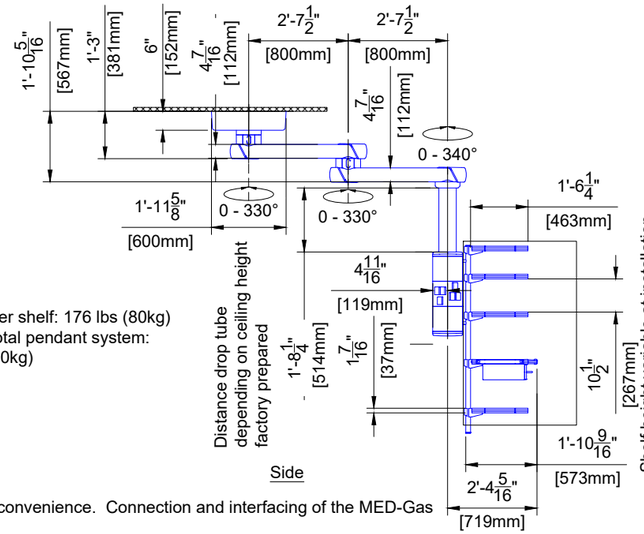
	Low Load Fluoro (LLF) UPS	
	Weight	Heat Dissipation
UPS	1356 lbs	8750 BTU/hr
SBO	13 lbs	- BTU/hr



	Configuration
Required items	**Stand-alone Version**
Video Connection Box mounting and Video Connection Box-TX cabling	Present
Flexible conduit with guide wire	Present
Number of shelves	5
Number of drawers	1
Cable management accesories: 2 rails, 8 hooks	Present
Number of Infusion bottle holder (T-pole)	1
Number of extension arms with VESA 100 monitor interface	1
Number of power outlets	4 standard and 4 emergency
Number of Ethernet network outlets	1
Note: This does not include the Video Connection Box itself, only a mechanical solution to mount a Video Connection Box. For details, consult the Sales Department.	
*The above is standard configuration - not site specific.	



Max load per shelf: 176 lbs (80kg)
Max load total pendant system: 485 lbs (220kg)



MED-Gas

1. The EP Boom comes with option MED-Gas outlets for customer convenience. Connection and interfacing of the MED-Gas to the EP Power Boom is the contractor's responsibility.
2. Standard configuration listed below. Other configurations may be possible. Contact Philips Project Manager for information.
   - 4 is standard and 8 is maximum in any configuration: Vacuum, N2O, Oxygen (or NO gases), WAGD
   -Chemetron, DISS, Puritan Bennett, or Ohmeda fitting type
   -4 standard power duplex outlets
   -4 emergency power duplex outlets
   -MAX total of 12 standard or emergency power duplexes of any combination
   -2 network ports (2 minimum and 8 maximum)
   -1 conduit in rack for 3rd party cabling (with 4 optional 1xG23 (22mm) and up to 4 max but not recommended to have more than 3 since went up to G23 from G17)
3. Equipment rack configuration must be confirmed by customer with Philips Project Manager prior to system entering production.
4. Once production starts, it is not possible to change the configuration of the equipment rack.

Delivery in Crate
86" (2185mm) L x 34" (864mm) W x 67" (1702mm) H
Weight = 865 lbs (393 kg)

(21.0)

	Equipment Rack DVI (EP Power Boom)	
EPB	Weight	Heat Dissipation
	865 lbs (393 kg)	- BTU/hr

Weight includes:
-Pre-installation ceiling frame 309 lbs (141 kg)
-Equipment Rack 389 lbs (177 kg)
-Accessories max. 167 lbs (76 kg)

(21.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

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AD6

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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. Philips equipment must be electrically isolated from anchorage.

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.
The floor surface upon which Philips equipment is to be placed/anchored shall be flat and level to within $\frac{1}{16}$" (2mm) over a length of 39" (1m).

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. Philips equipment must be electrically isolated from anchorage.

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 .236" (6mm) per entire span.

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 (i.e., bolts, spring nuts, lock and flat washers) and strip closures shall be provided by the customer.

5. Lighting
Luminaires 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 luminaire 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 Zones 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 this sheet. 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. Philips equipment must be electrically isolated from anchorage.

8. Floor Obstructions/ Floor Coverings
There shall be no obstructions on the floor (sliding door tracks, etc.) within the serviceability area of the Philips technical cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service. Technical equipment room floor shall be commercial grade "VCT" Vinyl Composition Tile or a flooring material of equal hardness and compression resistance.

9. Safety Factors
Ceiling loads as mentioned in the PRD are worst case loads and excluding safety factors. Proper safety factors need to be applied by Design Professional/Engineer of Record.

10. Stiffness Requirements of Ceiling
Horizontal Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
Vertical Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
Rotation Stiffness: minimal 20,000,000 Newtonmeter/Rad - 177,014 (klb in)/Rad

For Clea Stand (1160 kg or 11600 N): the maximum allowed deflection of the ceiling and/or floor construction is 1.93 mm.
For Poly G Stand (1085 kg or 10850 N): the maximum allowed deflection of the ceiling construction is 1.80 mm.
For Poly G Stand (873 kg or 8730 N): the maximum allowed deflection of the floor construction is 1.46 mm.
For Larc Stand (835 kg or 8350 N): the maximum allowed deflection of the ceiling construction is 1.39 mm.
For FlexArm (FlexArm weight is 1250 kg and ceiling stiffness is 6,000,000 Newton/meter): Max allowed deflection of ceiling structure is 2.1mm.
For FlexMove Clea Stand (1860 kg or 18600 N): the maximum allowed deflection of the ceiling construction is 3.10 mm.

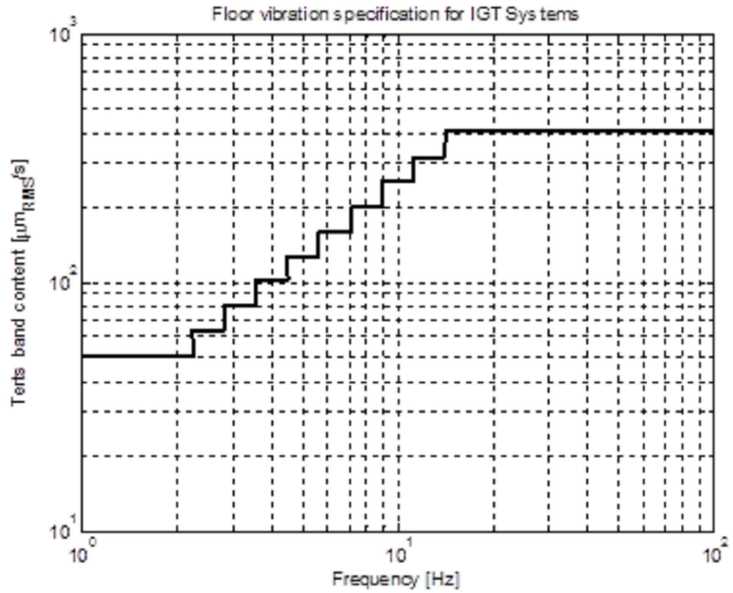
Equipment Support Information

11. Requirements for External Vibration
The maximum allowed external vibration level of floors and ceilings, to which the equipment is mounted that will not adversely affect the image quality, is specified in terms of RMS velocity levels in 1/3-octave or terts bands, as follows:

Center frequency [Hz]	1	1.25	1.6	2	2.5	3.15	4	5	6.3	8
Terts band value [µm/s] (RMS)	50.8	50.8	50.8	50.8	63.5	80.01	101.6	127	160	203.2
Center frequency [Hz]	10	12.5	16	20	25	31.5	40	50	63	80
Terts band value [µm/s] (RMS)	254	317.5	406.4	406.4	406.4	406.4	406.4	406.4	406.4	406.4
Center frequency [Hz]	100	125	160	200						
Terts band value [µm/s] (RMS)	406.4	406.4	406.4	406.4						

Terts Band Specification for External Vibrations

A graphical representation of this specification is given below:



Terts Band Specification for External Vibrations

Terts band spectra shall be calculated on the basis of time traces with a duration of 10 minutes (600 seconds), taken at representative locations and during representative times during working days.

(21.1)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
Project Manager: Will Tupa
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Drawn By: Luis Selles

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N-WES210501 D
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See S1 for Floor & Wall Support Layout

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.

Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (exceptions may exist, see Note 2)
B Furnished and installed 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 Number	Description	Detail Sheet
B	CY	Support in wall for Control Room Connection Box (CY)	SD3
A	CY	Anchors in wall for Control Room Connection Box (CY)	SD3
E	MSA	AD7 Universal Floor Plate	SD1
B	FW	Firewall	AD5 SD2
E	MGP	Med Gas Pedestal	-

See S2-S3 for Ceiling Support Layout

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
H Furnished by Philips and installed by Third Party

	Item Number	Description	Detail Sheet
A	SP	2 - Philips Clea Rails	SD1
A	TV	2 - Philips Monitor Equipment Rails	SD1
E	UNI	Unistrut (P1000/P1001 in meeting Philips ceiling requirements, geometry of channel and geometry of fixing block) - Bottom of Unistrut 1/4" (6mm) to 1/2" (13mm) Below Finished Ceiling	SD1
B	UNI2	Unistrut (P1000/P1001 in meeting Philips ceiling requirements, geometry of channel and geometry of fixing block) - Bottom of Unistrut 1/4" (6mm) to 1/2" (13mm) Below Finished Ceiling	SD1
D	EPB	Equipment Rack DVI (EP Power Boom) Ceiling Plate and Interface Plate	SD4
B	AO	Additional Opening on Finished Ceiling - Required for Installation of the Boom (to be covered after Equipment Rack DVI (EP Power Boom) is installed)	SD4
B/G	MAV	Mavig 2.5m Ceiling Track	AD5

PHILIPS

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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

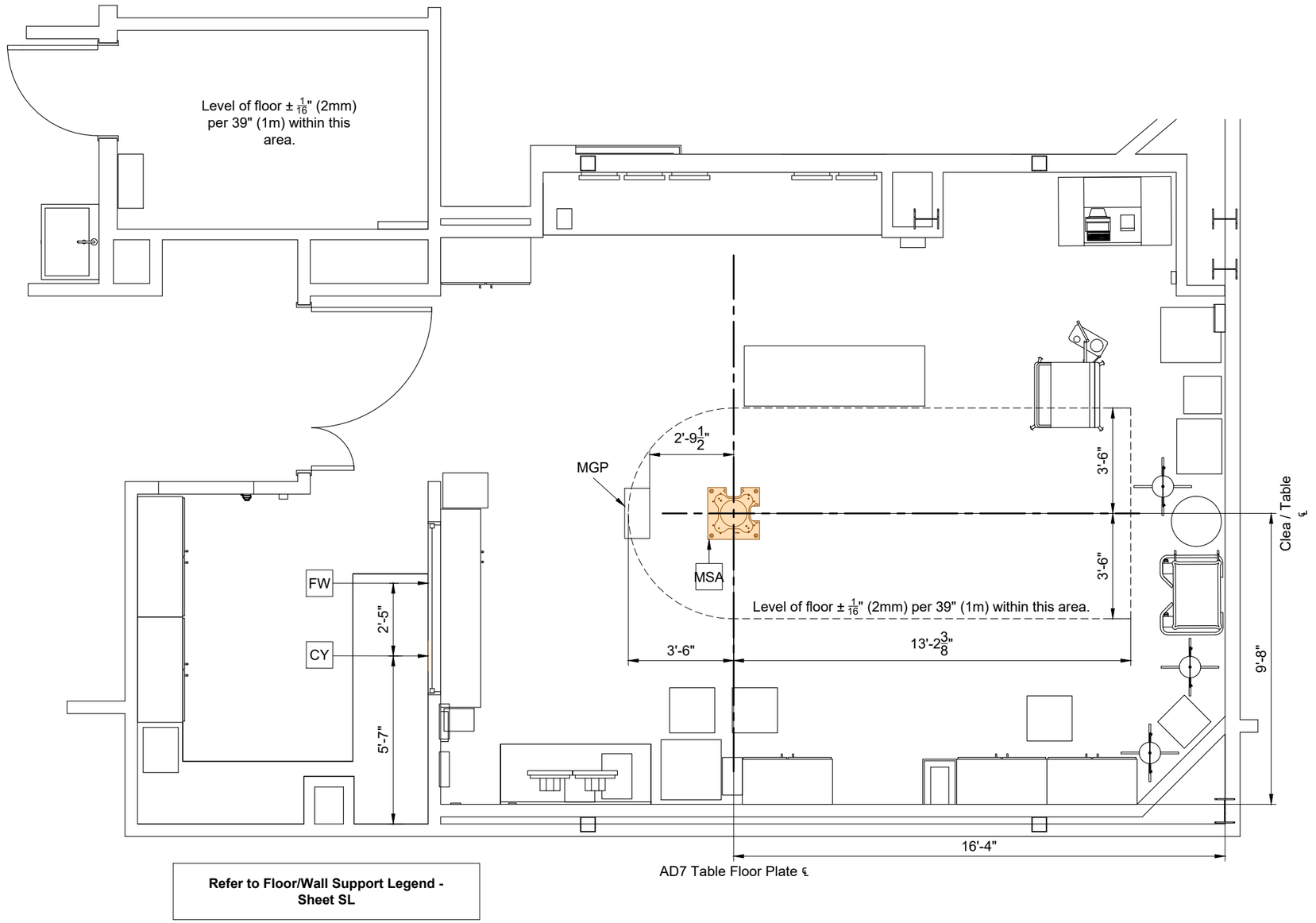
Floor & Wall Support Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 $\frac{5}{16}$", +$\frac{1}{4}$" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.

Planning Issues and Considerations

⚠1 Verify exact location and configuration of existing floor plate with local Philips service for reuse.



Refer to Floor/Wall Support Legend - Sheet SL

PHILIPS

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S1

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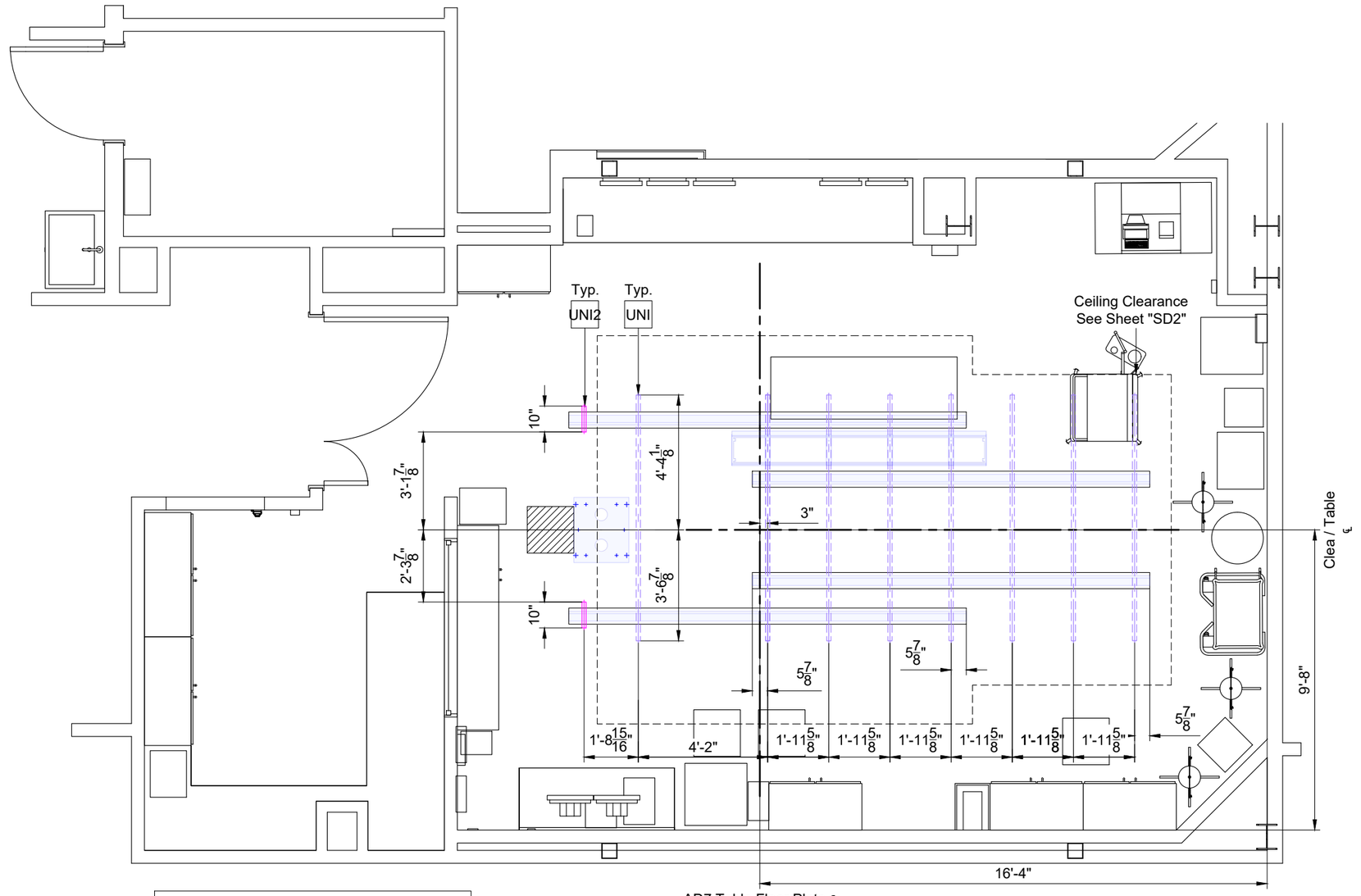
Ceiling Support Layout - Unistrut

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.

Planning Issues and Considerations

1. Structural engineer to verify reusability of Unistrut on site. The permissible stress and strain amount on existing Unistrut may be insufficient.
2. Extra clip rails are required for the Monitor rails of the Azurion 7 C20.



Refer to Ceiling Support Legend - Sheet SL

PHILIPS

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S2

05.18.2021

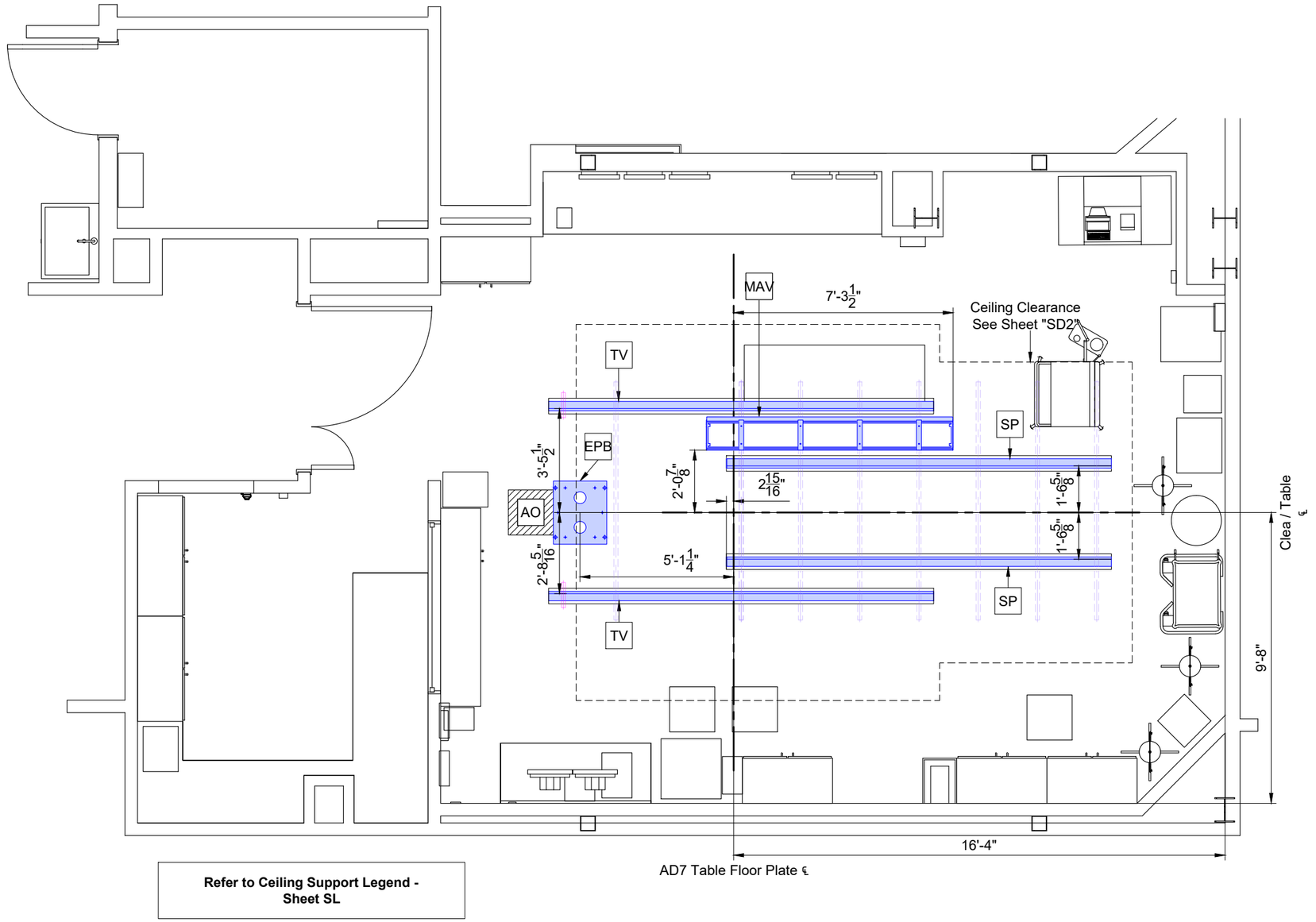
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Ceiling Support Layout - Equipment

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 $\frac{5}{16}$", +$\frac{1}{4}$" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



Refer to Ceiling Support Legend - Sheet SL

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

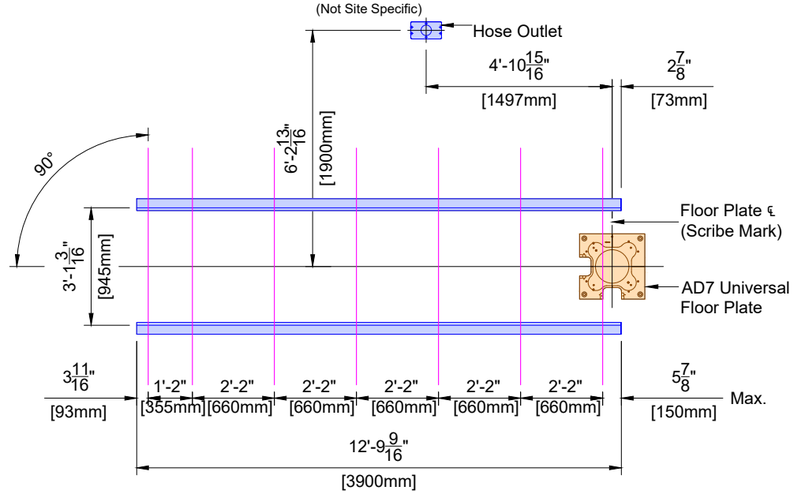
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Detail - Structural Azurion 7 C20

(Not Site Specific)



27" (685mm) maximum allowed distance between unistrut. 5-7/8" (150mm) maximum rail overhang from last unistrut attachment at either side.
Floor plate supplied by Philips / installed by Contractor. Counterbored holes are sized for 1/2" (12mm) anchors per Seismic requirements.

Clea
Clea Bearing Forces:
(Tension) Tmax = 2931 lbs/fixing block
(Shear) Vmax = 1227 lbs/fixing block

AD7 Table
Floor Plate to Floor Bolt Forces:
(Tension) Tmax = 1950 lbs/bolt
(Shear) Vmax = 776 lbs/bolt

Note: The bearing force shown for the Clea is the maximum instantaneous equipment bearing load that can result from abusive use of the system. This force can occur at two locations (each fixing block) simultaneously on the same Unistrut (or equal) rail.
If seismic forces must be considered, please refer to the seismic calculation sheets provided by Philips for the specific system components.

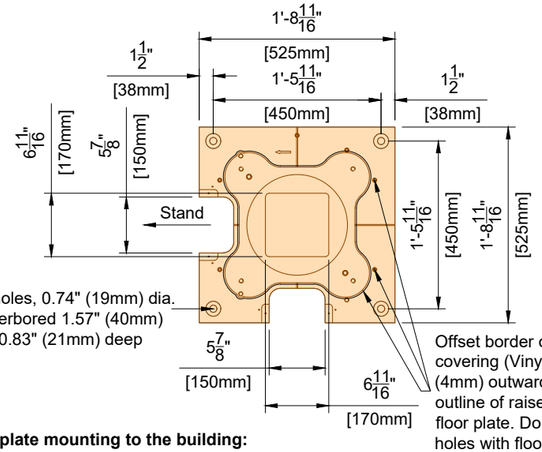
MSA SP

(22.0)

Detail - AD7 Universal Floor Plate - Notes for Installation

(Not to scale)

1. 1.18" (30mm) thick floor plate, flush mounted with top of slab.
2. Level within 1/32" (1mm) per 39" (1m) across surface of plate.



Four holes, 0.74" (19mm) dia. Counterbored 1.57" (40mm) dia. x 0.83" (21mm) deep

Offset border of floor covering (Vinyl) by 0.16" (4mm) outwards. Follow outline of raised portion of floor plate. Do not cover holes with floor covering due to fluid protection plate mounting.

Floor plate mounting to the building:
In case threaded rods are used and the nut protrudes above the floor plate surface, DO NOT GRIND DOWN THE NUT, but follow the procedure stated below to ensure the nut is flush with the floor plate surface.

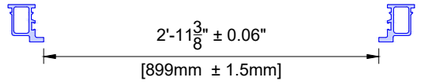
MSA

1. Use Jam nuts M16 (h=8.0mm) or (h=9.5mm)
2. Use only 1 washer.
3. Use loctite 243 instead of a lock washer.
4. Torque value to be determined by structural engineer of record.

(19.0)

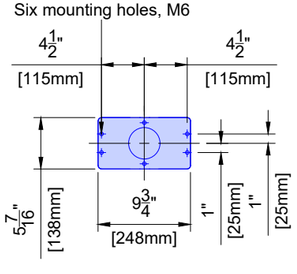
Detail - Clip Rail Spacing

(Not to scale)



Detail - Cable Hose Outlet

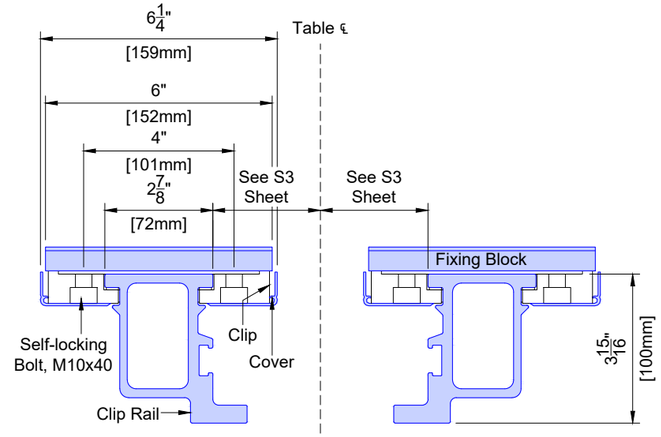
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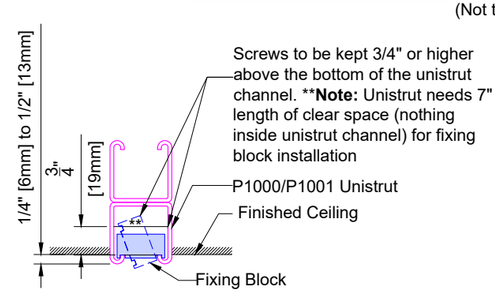
Detail - Clip Rail Cross-Section

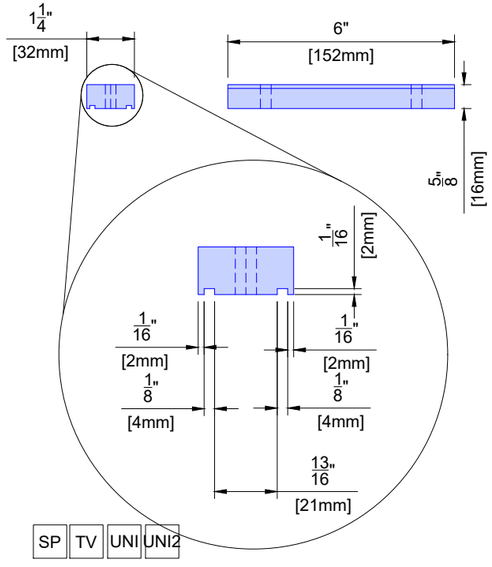
(Not to scale)



Detail - Philips Fixing Block for Philips Ceiling Rails (Clip Rails)

(Not to scale)





SP TV UNI UNI2

General Requirements:
1. Philips does not specify the overhead equipment support structure. Unistrut 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 its products are appropriate for each project.
2. P1000/P1001 Unistrut is specified.

Finished Ceiling Requirements:
1. 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 mounted 1/4" (6mm) to 1/2" (13mm) above bottom of Unistrut.

Fixing Block Installation Requirements:
1. Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
2. Fixing blocks for Philips ceiling rails (Clip rails) are designed to be installed in P1000/P1001Unistrut.
3. The inside of the Unistrut must be clear of obstructions (including paint).

Unistrut Requirements:
1. Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, line #4 "Ceiling Support Apparatus".
2. Welding Unistrut may warp Unistrut and deteriorate the structural integrity of the Unistrut. Consult the Structural Engineer of Record prior to welding any Unistrut.
3. Third party structural laminar modular array venders the minimum rail fixing block Unistrut length shall be 7 inches.

(22.0)

PHILIPS

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Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Email: william.tupa@philips.com
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6600562827.010000

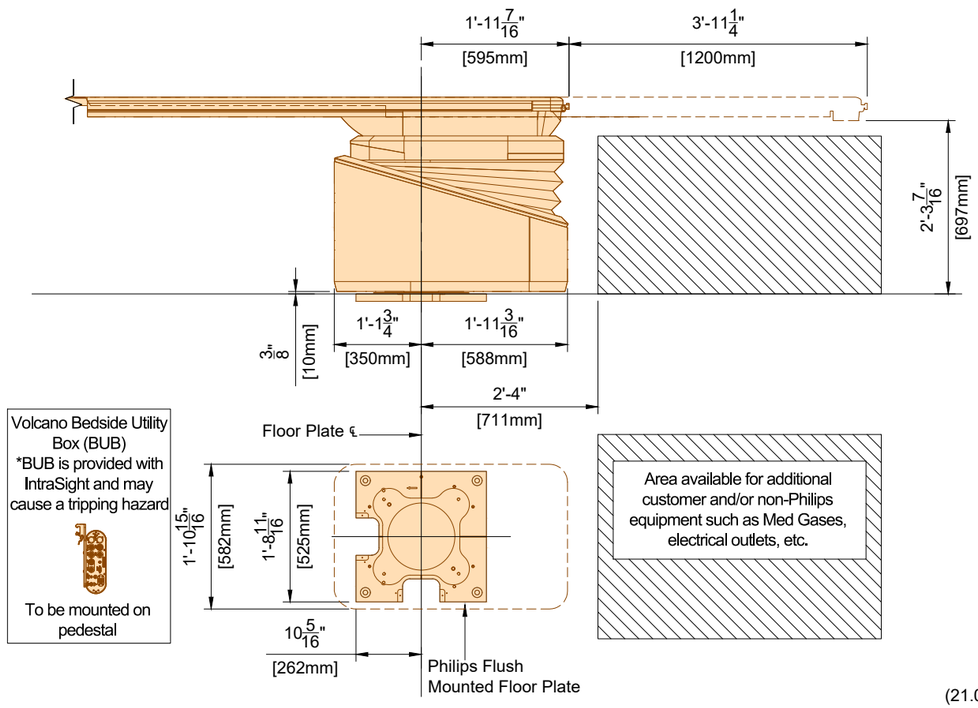
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Detail - AD7 Table, Fixed/Pivot Base - Clearance Area

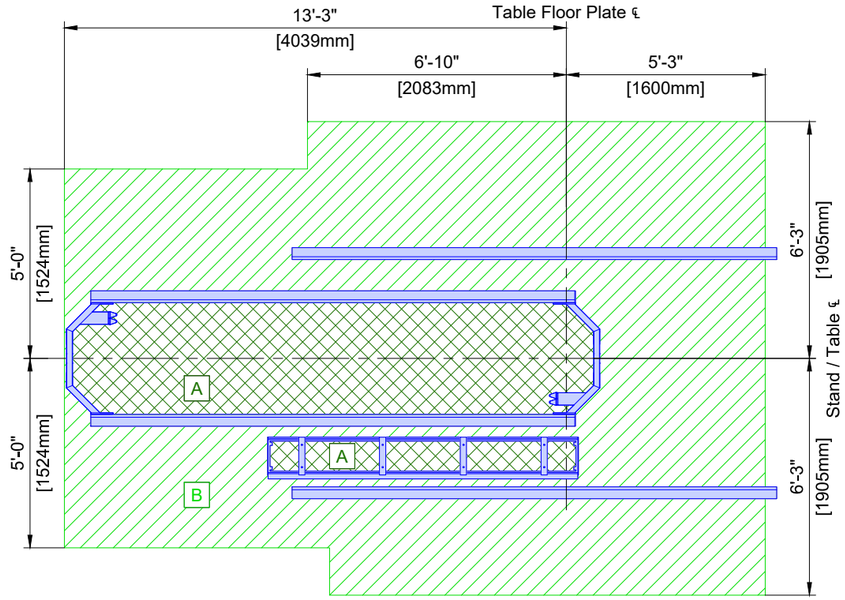
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Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)



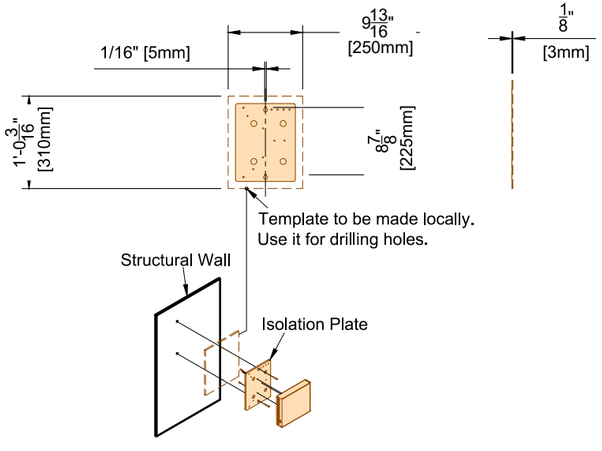
A No objects that project below finished ceiling are allowed in this area (lights, smoke detectors, sprinkler heads, etc).

B No objects that project more than 4.5" (115mm) below finished ceiling are allowed in this area (lights, smoke detectors, sprinkler heads, soffit, etc).

(14.0)

Detail - Firewall Cisco ASA-5506 - Hole Pattern for Mounting

(Not to scale)



FW

(20.0)

PHILIPS

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Medical Center of Aurora
Aurora, CO
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Pre-Evaluated and -Approved Anchor Reference List for Philips Installers

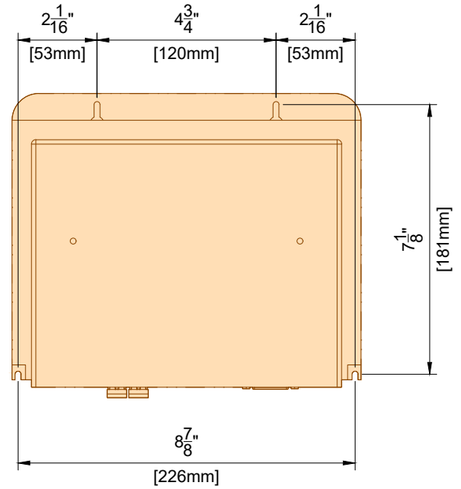
Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be 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)
Mavig Ceiling Track	A	Bolts, flat washer, lock washer, spring nuts	A307 Grade or ASME Grade 5 Bolts: $\frac{3}{8}$" (10mm) x 2" (50mm) L Spring Nuts: $\frac{3}{8}$" (10mm)	8	Unistrut
Control Room Connection Box (CY)	A	Round Phillips Head Self Drilling Screws	#10-16 x 1 $\frac{1}{2}$" (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	B	SPAX Multipurpose flat head screw	#10 x 1 $\frac{1}{2}$" (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	C	Toggler Snaptoggle and (round head screws)	#BA and (#10-24 x 2 $\frac{1}{2}$" (63.5mm) L)	3	Minimum $\frac{5}{8}$" (16mm) Drywall

(16.0)

Detail - Video Connection Box - Hole Pattern for Mounting

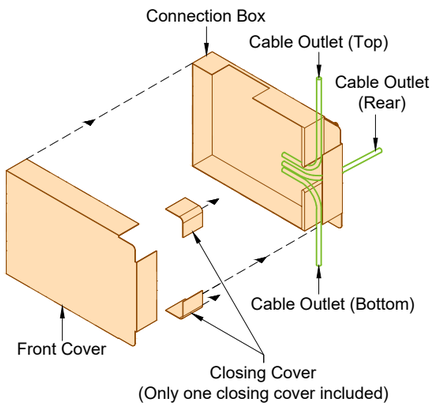
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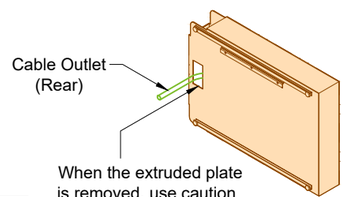


(19.0)

Detail - CY - Cable Outlets

(Not to scale)



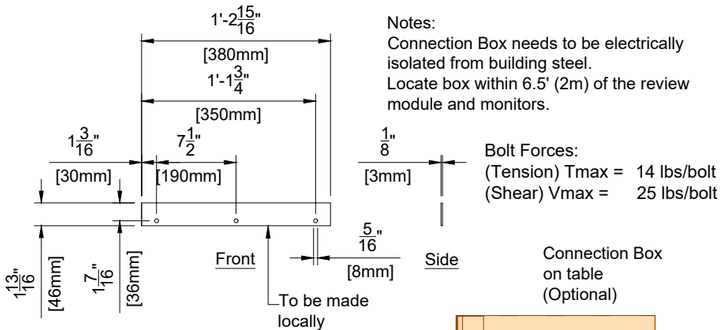


CY

(19.0)

Detail - CY - Wall Mount Template

(Not to scale)

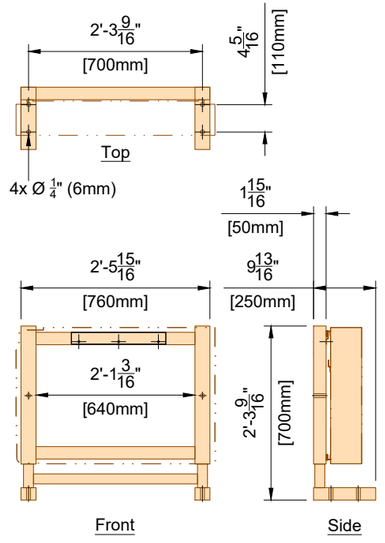


Connection Box Weight: 66 lbs

(17.0)

Detail - CY Support Frame Option

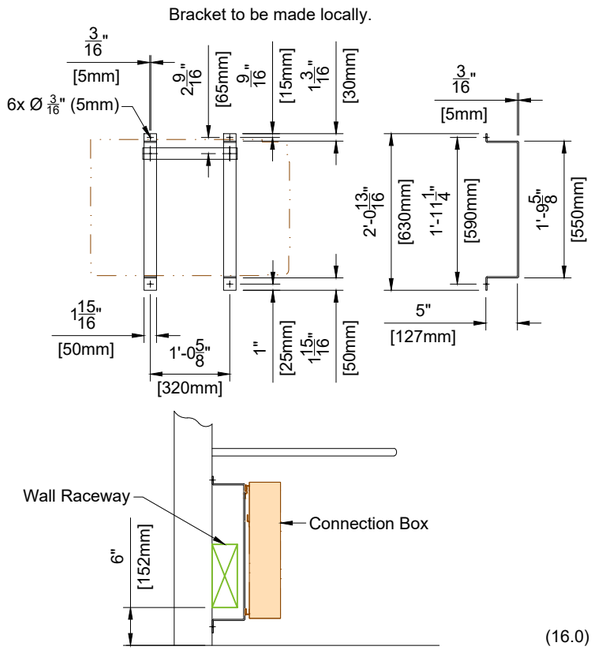
(Not to scale)



(16.0)

Detail - CY - Bracket Mount Option

(Not to scale)



(16.0)

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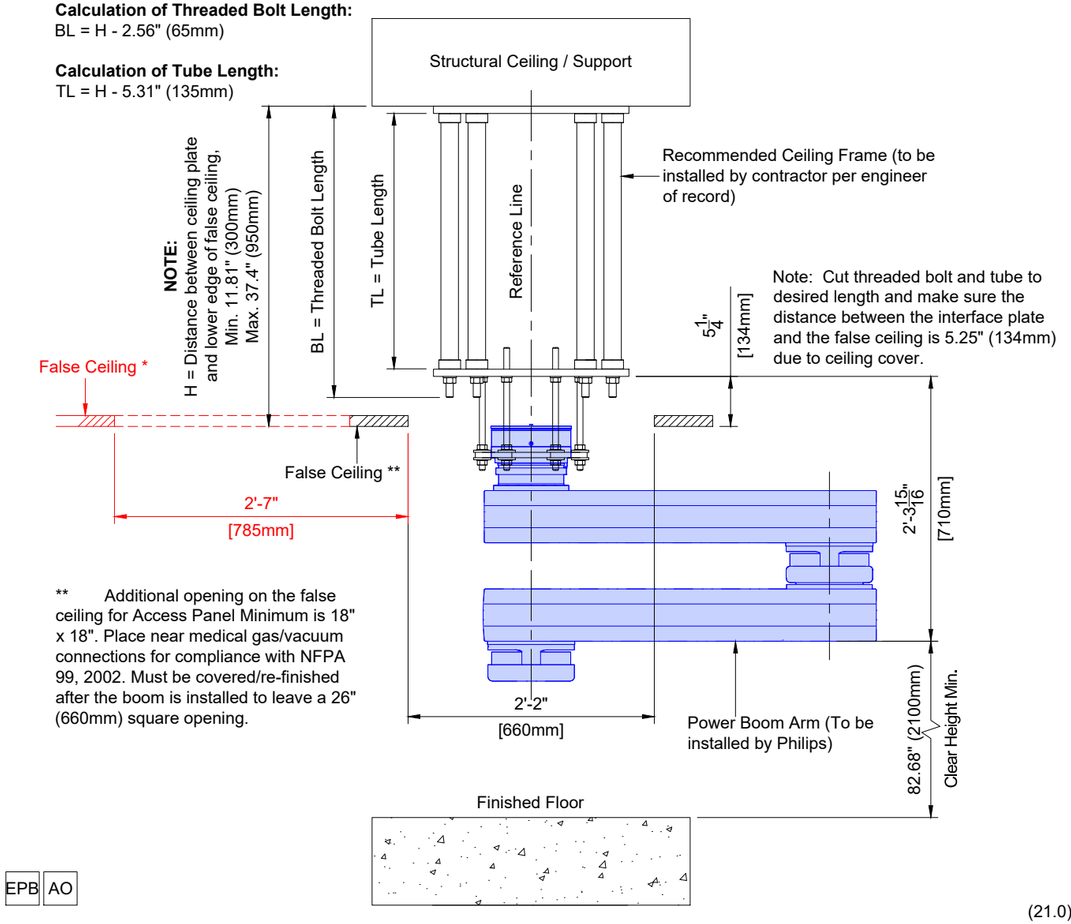
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Detail - Calculation of Bolt/Tube Length from Ceiling Frame Power Boom

(Not to scale)

Calculation of Threaded Bolt Length:
BL = H - 2.56" (65mm)

Calculation of Tube Length:
TL = H - 5.31" (135mm)



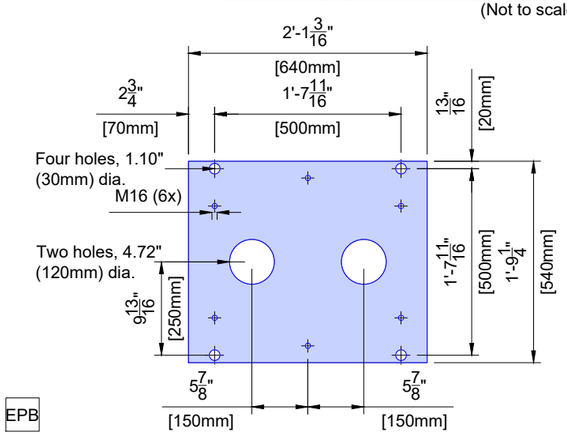
** Additional opening on the false ceiling for Access Panel Minimum is 18" x 18". Place near medical gas/vacuum connections for compliance with NFPA 99, 2002. Must be covered/re-finished after the boom is installed to leave a 26" (660mm) square opening.

EPB AO

(21.0)

Detail - Equipment Rack DVI (EP Power Boom) Interface Plate

(Not to scale)



0.78" (20mm) thick ceiling plate, mounted to the structural ceiling.

Ceiling plate mounting to the building:
Use heavy load anchors (4X) (not supplied), recommended:
1. HILTI HST M20 x 170/30

Max. vertical force = 1060 lbs (481 kg)(4718N)

Max Load Bearing Capacity of Ceiling Frame Kit = 13,700N and 13,500NM bending moment

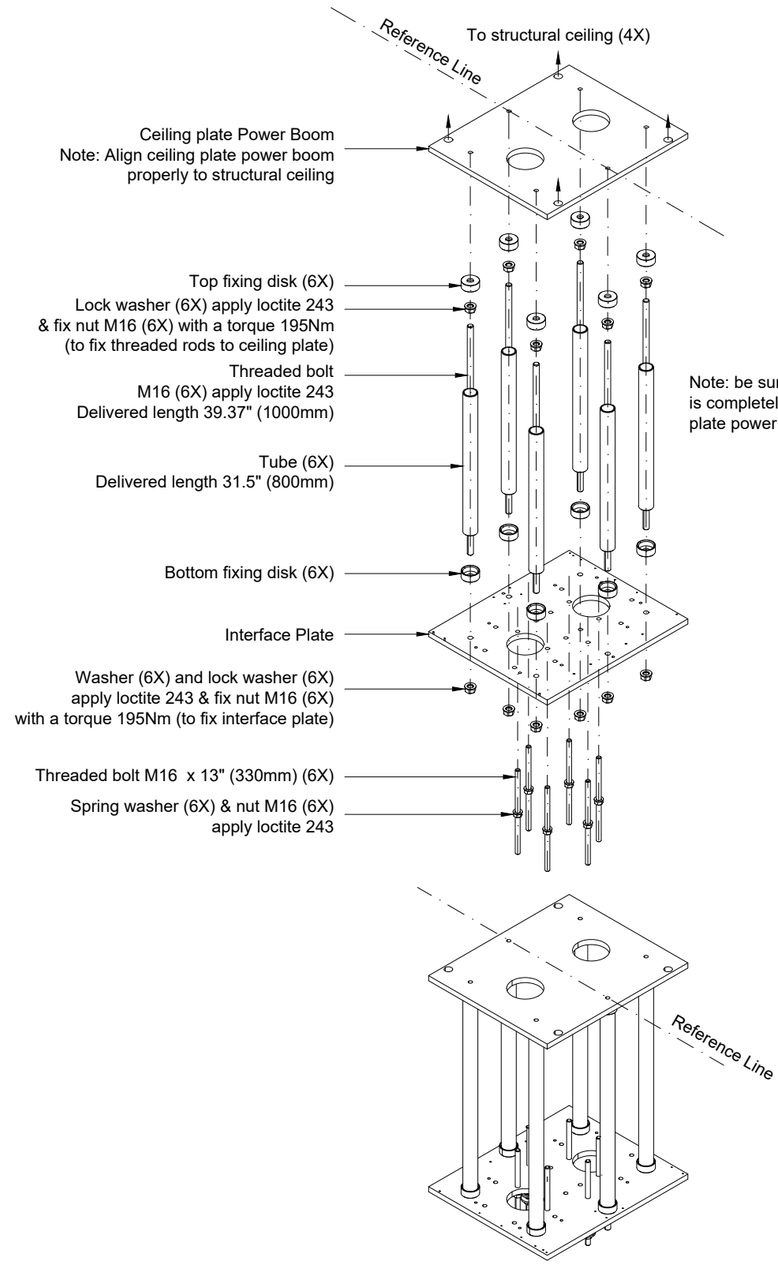
EPB

(21.0)

Detail - Exploded Ceiling Frame Power Boom

(Not to scale)

To be installed by customer/contractor per engineer of record.



Note: be sure that threaded bolt M16 (6x) is completely screwed (20mm) in ceiling plate power boom

EPB

(21.0)

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Emergency Power

Philips does not require equipment to be on emergency power. If the customer deems it necessary for the equipment to be supplied with emergency power, the following specifications must be applied:

The Mains 40E cabinet feeding an Azurion system will have an absolute peak current of <=300A @ 480V. Maximum momentary current <=80A per phase when averaged over a 5-second window. Note that during acquisition, the current harmonics (including sub- and inter-harmonics) up to 1 kHz can be substantial. Account for: 30% for the mains frequency +/- the frame speed, up to 20% for the 5th harmonics, up to 10% for the 7th harmonics.

Maximum differential mode induced disturbance voltage on these wires shall be a <3V peak at all frequencies. Maximum common mode current on these wires shall be less than 3 micro-amp at frequencies between 30-1000MHz to meet EMC regulations.

For systems delivered to site before Jan 2016 or with SIB (system interface box) 4522163320978. When this interface is used a Sub-D capacitive filter adapter with 5.6nF between pins and chassis shall be placed on X14 of the SIB input in the MA-cabinet (e.g. Amphenol FCE17B25AD290).

(22.0)

Electrical Requirement Notes for Systems with Mains 40E Cabinet

Electrical power distribution at the facility shall comply with:

Utilization voltages per ANSI C84.1 - 2006 range A.

Voltage to be supplied is 3 phase, Wye or symmetric Delta 3-line +PE.

Phase conductors to be sized for instantaneous voltage drop per NEC 517.73 and Philips recommendations.

All Philips equipment is grounded via the equipment insulated ground wire. Metal raceway bonding shall be used as a secondary ground fault return path only for the supply mains to the equipment. The raceway system ground and isolated equipment ground shall be bonded together via the ERB terminal jumpers.

The Philips system has a private ground domain per clause 250.96B of the NEC. The raceway from the X-ray breaker (CB) to the Mains 40E Cabinet shall be supplemented by an internal insulated equipment grounding conductor installed in accordance with clause 250.146(D) of the NEC. The Azurion equipment ground domain and the branch circuit ground domain are bonded together in the ERB via a ground bonding jumper.

ANSI / NFPA 70 - National Electrical Code
Article 250 - Grounding
Article 517 - Healthcare Facilities
ANSI / NFPA 99 - Healthcare Facilities

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, and Voltage regulators.
Do not install such devices in the supply mains branch circuit of the Azurion system without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductive reactance 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. The minimum conductor size is based on the total line impedance and NEC requirements. Impedance calculations are to be performed by an electrical engineer.

(22.0)

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, raceways (conduits, wireways, auxiliary gutters etc.), 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 four separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: Branch circuit equipment supply mains power wires together with the branch circuit isolated equipment bonding wire. Group B: Equipment Secondary Circuit AC supply and associated isolated ground cable/wire harnesses. Group C: Equipment signal wires and cable harnesses plus equipment low-voltage DC supply cable/wire harnesses. Group D: X-Ray high-voltage cables, the use of 90 deg. ells is not acceptable. On ceiling duct and wall duct use 45 deg. bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables based on 725.136 for low voltage signaling cables and conductors and 517.80 for communications and signaling cables in health care applications. Secondary circuits of transformer powered communications and signaling systems are not required to be enclosed in raceways unless otherwise specified by Chapter 7 or Chapter 8. All wire harnesses of the Azurion system are required to be run in a raceway (wireway) dedicated to Azurion wire harnesses. No foreign wiring shall be run in the same wireway together with the Azurion wire harnesses. Separation between Group A and other groups is mandatory along the full run of group A wires. Separation between groups B, C, and D is recommended for the first 3 meters behind the equipment cabinets and for the locations where wire-harness over-length is suspended.

4. Raceways (Conduit)
Raceway (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. Best practice to name the physical conduit. 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 90°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.

(19.0)

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, raceway 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) must be provided with raceway runs to validate runs are within length restrictions.

3. All pre - terminated, cut to length cables, will be supplied and installed by Philips. All cables and conductors to the equipment supply mains branch circuit breaker shall be supplied and installed by the contractor, subject to local arrangements.

4. Provide and install 50mm diameter chase nipples between adjacent wall boxes.

5. Electrical raceway ducts 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 raceways 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 systems as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway systems could exceed maximum allowable length of furnished cables. Conduits or raceways installed above ceilings must be kept as near as practicable to finished ceilings and still permit accessibility.

6. Raceway sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Code, whichever govern.

7. Convenience outlets are not shown on the plans. Their number and location are to be specified by the customer/architect.

8. Electrical contractor shall install grounding and bonding conductors at raceway openings within wall boxes as required by national and local electrical codes. Ground bond wires and lugs shall be installed in such a way to prevent the inadvertent contact with the installed Philips equipment to maintain Philips isolated ground scheme and maintain patient safety.

9. Install an insulated stranded ground wire per feeder/conductor size from the Main Disconnect (CB) to the ERB (minimum size 4 AWG) and from the ERB to the Mains 40E Cabinet (minimum size 4 AWG).

10. Philips equipment must be electrically isolated from conduits, raceways, ducts, seismic anchoring, floor anchoring, etc.

(18.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

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Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

EN

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Electrical 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 Number	Description	Detail Sheet
		Wall	
B	CB	480V, 3 phase, Type D 80 A circuit breaker with long-time delay and shunt trip (e.g. Square D HDL36080 or equivalent). Run power from breaker to "MA", leaving an 8' (2440mm) tail at "MA". See Sheet "ED1" for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	GE	Local building steel (i.e. structural steel, ground rod). (Not shown on plan)	
B	ERB	Equi-Potential Reference Bar mounted in a 12" (305mm) W x 12" (305mm) H x 4" (105mm) D pull box with hinged cover, surface mounted to the bottom of "WR2" when possible.	ED2
E	ME, MB, MA, MR	19 1/4"W x 67"H x 4" D flanged-edge terminal wall box, surface mounted 75" A.F.F. to top of box. General D contractor to cut top and/or bottom of box as required.	ED3
B	CY, WM, INT, SYNC, VB1, VB2, VB3	Grommet opening on "WR3". Approximate location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	VB4, VB5, VB6, VB7, VB8, VB9	4" (105mm) W x 4" (105mm) H x 4" (105mm) D pull box with removable screw-type cover plate, flush mounted. Exact height to be determined. Verify location with local Philips Service.	
E	WR1, WR2	10"W x 4"D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at finished floor. "WR2" is at 75" A.F.F. to bottom of raceway. "WR1" may need to be cut at the location of "CY" connection box.	ED3
E	WR3	10" (255mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR3" is at finished floor. "WR3" may need to be cut at the location of the "CY" connection box.	ED3
B	PHY	Stub up point for physiological monitoring cables. Run raceway (conduit) to customer's physiological console location. Contact manufacturer for power requirements, etc.	
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. See Sheet "ED3" diagram for connection details. (Not shown on plan)	ED3
B	TV2, TV3, TV4	6" (155mm) W x 6" (155mm) H x 4" (105mm) D pull box. Location to be determined, verify location with local Philips Service.	

Electrical Legend

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	Item Number	Description	Detail Sheet
		Wall	
B	FW	Approximate location shown for Firewall is recommended and may be changed - verify relocation with local Philips Service. Firewall must be installed maximum of 6'-6 3/4" from the CY.	
B	ATY	Auxiliary Box - 6" (155mm) W x 6" (155mm) H x 4" (105mm) D wall box, flush mounted with removable screw-type cover plate. Location shown is recommended and may be changed - verify height and relocation with local Philips Service.	
B	WL	Warning Light - Provide a surface or flush mounted light fixture above door to indicate when X-ray is on, if required by local code or physicist of record. (Not shown on plan)	ED3
B	CB	480V, 3 phase, Type D 80 A circuit breaker with long-time delay (e.g. Square D HDL36080 or equivalent). Run power from breaker to "MA", leaving an 8' (2440mm) tail at "MA". 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" (if required by local code or owner, and mandatory for VA and D.O.D installations). If UPS is utilized, EPO switch will run 2 sets of communication wires to input breaker to UPS and to UPS itself (Not shown on plan)	ED4
B	CB2	UPS input breaker. 125A, 3-pole circuit breaker with shunt trip. (Not shown on plan).	ED4
D	UPS	UPS - 75 kVA.	ED4
D	SBO	Signaling Box Option (wall mounted in the control area). Exact height to be determined. Location shown is recommended and may be changed - verify relocation with customer/contractor.	ED4
		Floor	
E	MSA	10" (255mm) W x 10" (255mm) L x 6" (155mm) D floor box, under the floor with a 5" (130mm) core drill up to the underside of AD7 universal floor plate. Contractor to provide protection around core drill hole so that there are no sharp edges for protection of cables. Consult with local Philips Service. Extended as needed.	
E	MGP	Med Gas Pedestal. Verify exact size with customer/contractor and location with Local Philips Service.	
		Network Connectors	
B	N1	RJ45 type Ethernet 10/100/1000 Mbit network connector with access to customer's network. 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 these components.	
B	N2	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity.	N1

See E1 - E4 sheets for conduit and raceway requirements.

PHILIPS

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Azurion 7 C20 - Catalyst
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Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

EL1

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Electrical Legend

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

Item Number — Detail Sheet

		Description	
		Ceiling	
B	SP	18" (460mm) W x 18" (460mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate. Provide one 3" (80mm) diameter knockout.	
E	TV	18" (460mm) W x 18" (460mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate. Provide a 2 $\frac{1}{2}$" (65mm) round cutout (Two 2 $\frac{1}{2}$" (65mm) round cutouts are required for systems with two monitor carriages - verify with local Philips Service).	
B	EPB VB10	18" (460 mm) W x 18" (460 mm) L x 6" (150 mm) D ceiling box, above finished ceiling. Video connection box mounted on Equipment Rack DVI (EP Power Boom).	
B/G	M3	4" (105 mm)W x 4" (105 mm)L x 2 1/2" (65 mm)D ceiling box, flush mounted with removable screw-type cover plate. Hardwire 120 - 240 VAC, 50 - 60 Hz hospital power to "M3".	
E	R2 R3 R4	18" (457mm) W x 3 $\frac{1}{2}$ " (89mm) D riser duct with removable screw-type cover plate, flush mounted from to above finished ceiling. R2 and R3 are not shown, existing location to be determined on the field with the current site conditions.	ED3
E	R1	10" (255mm) W x 4" (105mm) D riser duct with removable screw-type cover plate, surface mounted from wall raceway to wall box.	ED3
E	R5	18" (457mm) W x 3 $\frac{1}{2}$ " (89mm) D riser duct with removable screw-type cover plate, surface mounted from WR2 to above finished ceiling.	ED3
		Duplexes	
B	S	120V/20A dedicated duplex outlet for service in the equipment room. (Not shown on plan)	
B		120V/20A dedicated duplex outlet.	
G	250	250V/30A dedicated duplex outlet for optional third party equipment (e.g. Spectranetics Laser - Not shown on plan).	
B	3	120VAC with 1Amp power draw SBO (Signaling Box Option)	
B	1	Provide (2) 120V/20A power supply for the Equipment Rack DVI (EP Power Boom) convenience and emergency outlets. Contractor to install power to the EP Power Boom.	
B	2	Provide 6A fused switchable circuit for the Equipment Rack DVI (EP Power Boom) electrical brakes. Must be connected to a separately switchable electric circuit. Contractor to install power to the EP Power Boom.	

See E1 - E4 sheets for conduit and raceway requirements.

PHILIPS

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Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
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EL2

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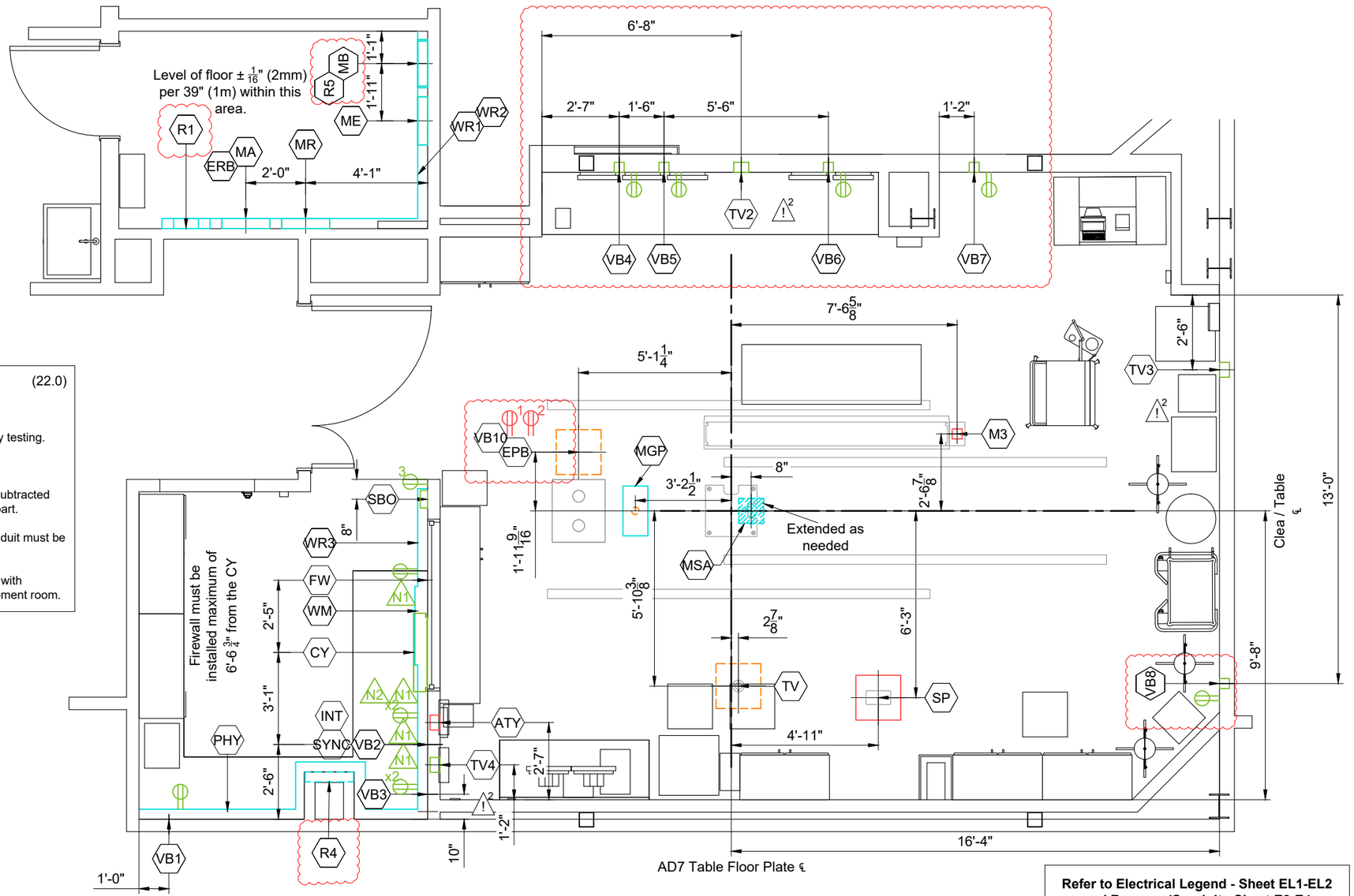
Electrical Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.

Planning Issues and Considerations

1. Verify exact location and configuration of existing electricals with local Philips service for reuse.
2. TV's 2, 3 and 4 should be at 6' from the finished floor.



General Notes for Testing and Service Purpose: (22.0)

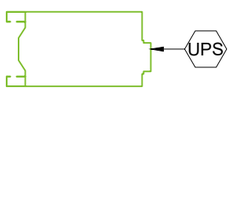
The conduit must meet these 3 criteria:

- Accessible for the FSE during install & annual PM Electrical Safety testing.
- Max Lenght of the ground wire stays below 60'-0".
- A #6 ground to be used.

The calculated ground resistance to the added wire would need to be subtracted from the measured ground bonding between the ERB and accessible part.

Conduit is added to bypass long hallways during testing purposes. Conduit must be alone. Verify with field and customer requirement.

Exam room placement of conduit termination should be on shared wall with equipment room, if possible, if not, exam room wall closest to the equipment room.



Exact location to be coordinated by Customer and local Philips service.

Refer to Electrical Legend - Sheet EL1-EL2 and Raceway/Conduit - Sheet E2-E4

PHILIPS

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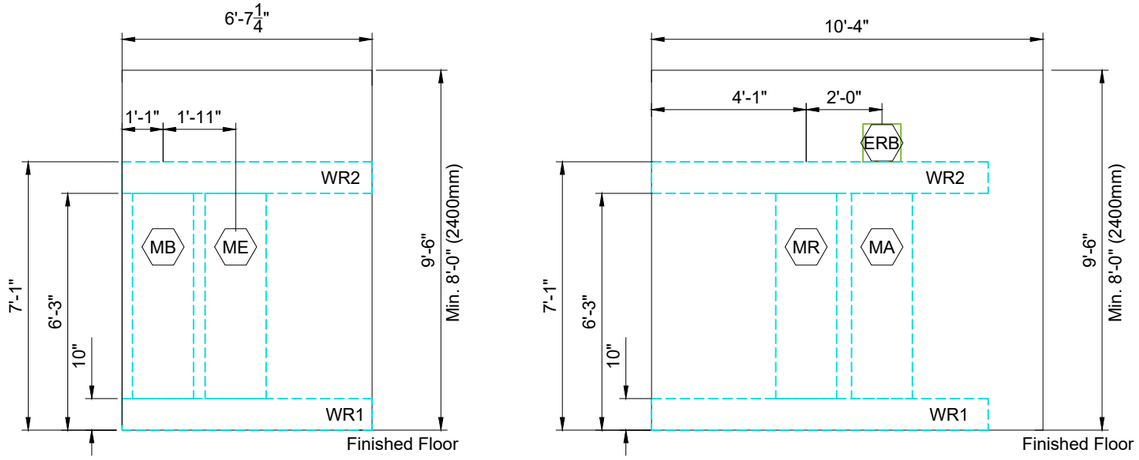
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N-WES210501 D
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E1

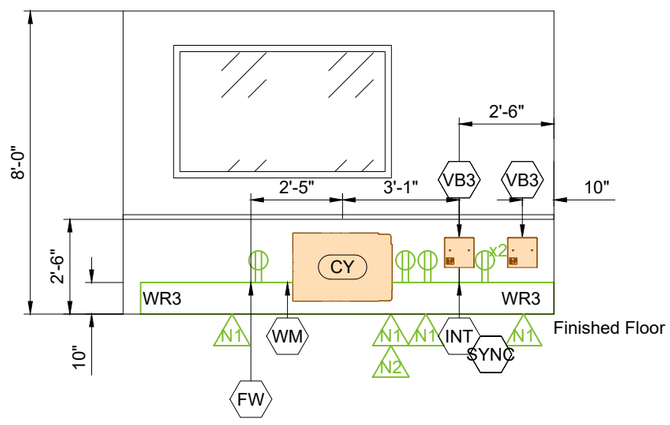
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Equipment Closet
(Site Specific)



Control Room
(Site Specific)



Note: The use of 90 degree ells is not acceptable. Use 45 degree bends at all raceway corners. For raceway (conduit) runs, use the minimum bending radius specific to the raceway (conduit) diameter. The use of crossover tunnels at all applicable locations is required. The above mentioned recommendations will help to ensure the integrity of the cables and fiber optic runs.

* **Countertop Height Guide:**
  30" (765mm) for standard seated height.
  36" (915mm) for standard standing height.
* **Ensure that the wall junction boxes are mounted perpendicular to the floor.**
* **Verify exact ceiling height of Equipment and Control Room Area.**
* **Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.**

PHILIPS

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RSN:1679034 | PERMIT# 22-2256682-LT

Raceway (Conduit) Required

General Notes

1. All raceway (conduit) runs must take most direct route point to point.
2. A Greenlee pull string/measuring tape (part no. 435, or equivalent) must be provided with raceway (conduit) runs

A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips
B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor
C Raceway (Conduits) and cables supplied and installed by contractor
D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC); D Power (DC); G Ground; S Signal; H High Tension; C Cooling Hose; A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	1	ERB	GE	1	G	¾"	6'	-
C	2	ERB	Room Outlets	1	G	¾"	-	See Sheet "ED2" for details.
C	3	MA	WL	1	P	¾"	55'	-
C	4	ATY	DS	1	S	¾"	55'	-
A	5	ATY	MA	1	S	2 ½"	41'	-
A	6	ATY	TV	1	S	¾"	65'	-
A	7	SP	ME	2	C	1 ½"	44'	Tube Cooling Hoses.
A	8	SP	ME	1	P/G	1 ½"	39'	-
A	9	SP	ME	1	S	1"	39'	-
A	10	SP	ME	1	H	2 ½"	37'	High Tension Cables.
A	11	SP	MR	1	P/G	2"	39'	-
A	12	SP	MR	1	S	2"	39'	-
A	13	SP	MA	1	S	2"	37'	-
A	14	MSA	MA	1	S	3"	39'	-
A	15	MSA	MA	1	P	1 ½"	39'	-
A	16	MSA	MR	1	P/G	2"	39'	-
A	17	MSA	MR	1	S	2"	39'	-
A	18	TV	MA	1	P	1 ½"	55'	-
A	19	TV	MA	1	S	2 ½"	55'	-
A	20	TV	MR	1	P	2"	55'	-
A	21	TV	MB	1	S	1 ½"	55'	For FlexVision XL.
A	22	TV	MB	1	P/G	1 ½"	55'	-
A	23	TV	WM	1	S	¾"	65'	For Intercom.
A	24	CY	MR	1	S	2"	55'	Conduits to land on wall raceway adjacent to CY.
A	25	CY	MA	1	P/G	1 ½"	55'	Conduits to land on wall raceway adjacent to CY.
A	26	CY	MA	1	S	2 ½"	55'	Conduits to land on wall raceway adjacent to CY.
A	27	MA	WM	1	S	1 ½"	82'	Conduits to land on wall raceway adjacent to CY.
A	28	MR	WM	1	S	1"	82'	Conduits to land on wall raceway adjacent to CY.
A/C	29	TV	WR3	2	S	1 ½"	-	For equipment (IE. Physio Monitor/ Slave Monitor/ VBs on back of FlexVision)
C	30	MSA	WR3	2	S	1 ½"	-	For future options (Patient Monitoring). Verify with local Philips Service if auxiliary box should be used.

Planning Issues and Considerations

* Exact size, location, and adaptability for reuse of existing conduits to be verified with local Philips Service.

Raceway (Conduit) Required

General Notes

1. All raceway (conduit) runs must take most direct route point to point.
2. All raceway (conduit) runs must have a pull string.

A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips
B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor
C Raceway (Conduits) and cables supplied and installed by contractor
D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC); D Power (DC); G Ground; S Signal; H High Tension; C Cooling Hose; A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	31	MSA	PHY	1	S	2 ½"	-	For future options (Patient Monitoring). Verify with local Philips Service if auxiliary box should be used.
G	32	PHY	Physio Monitor	1	S	2"	33'	Optional for remote location.
G	33	Third Party	Third Party	-	-	-	-	For Injector, Auxiliary Box, Patient Monitoring, Video Networking, etc.
G	34	Third Party	ERB	-	G	-	-	For Injector, Auxiliary Box, Patient Monitoring, Video Networking, etc.
A	35	VB1	MB	1	S	1"	82'	-
A	36	VB2	MB	1	S	1"	82'	-
A	37	VB3	MB	1	S	1"	82'	-
A	38	VB4	MB	1	S	1"	82'	-
A	39	VB5	MB	1	S	1"	82'	-
A	40	VB6	MB	1	S	1"	82'	-
A	41	VB7	MB	1	S	1"	82'	-
A	42	VB8	MB	1	S	1"	82'	-
A	43	VB9	MB	1	S	1"	82'	-
A	44	VB10	MB	1	S	1"	82'	-
A	45	VB4	CY	1	S	1"	91'	-
A	46	VB5	CY	1	S	1"	91'	-
A	47	VB6	CY	1	S	1"	91'	-
A	48	VB7	CY	1	S	1"	91'	-
A	49	VB8	CY	1	S	1"	91'	-
A	50	VB9	CY	1	S	1"	91'	-
A	51	VB10	CY	1	S	1"	91'	-
A	52	INT	MSA	1	S	3"	75'	Conduit opening must be covered if the IntraSight system is planned for future installation.
A	53	TV2	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	54	TV2	MB	1	P	2 1/2"	82'	Live/reference monitors.
A	55	TV3	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	56	TV3	MB	1	P	2 1/2"	82'	Live/reference monitors.
A	57	TV4	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	58	TV4	MB	1	P	2 1/2"	82'	Live/reference monitors.
C	59	Power Panel	CB2	1	P	Per N.E.C.	Per N.E.C.	
C	60	Power Panel	CB2	1	G	Per N.E.C.	Per N.E.C.	

PHILIPS

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E3

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Raceway (Conduit) Required

General Notes

1. All raceway (conduit) runs must take most direct route point to point.
2. A Greenlee pull string/measuring tape (part no. 435, or equivalent) must be provided with raceway (conduit) runs

A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips
B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor
C Raceway (Conduits) and cables supplied and installed by contractor
D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC), D Power (DC), G Ground, S Signal, H High Tension, C Cooling Hose, A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	61	CB2	UPS	1	G	Per N.E.C.	Per N.E.C.	
C	62	UPS	CB	1	G	Per N.E.C.	Per N.E.C.	
C	63	CB	ERB	1	G	Per N.E.C.	Per N.E.C.	Conduit must hit WR2 raceway.
C	64	MA	ERB	1	G	Per N.E.C.	Per N.E.C.	
C	65	WR2	ERB	1	G	Per N.E.C.	Per N.E.C.	
C	66	CB2	UPS	1	P	Per N.E.C.	Per N.E.C.	
C	67	CB2	ST	1	P	Per N.E.C.	Per N.E.C.	
C	68	UPS	ST	1	S	Per N.E.C.	Per N.E.C.	
C	69	UPS	CB	1	P	Per N.E.C.	Per N.E.C.	
C	70	CB	MA	1	P	Per N.E.C.	Per N.E.C.	Conduit must hit WR2 raceway.
C	71	UPS	MA	1	S	Per N.E.C.	Per N.E.C.	
C	72	SBO	UPS	1	S	Per N.E.C.	Per N.E.C.	For Signaling Box Option.
G	73	WR2	WR3	1	G	1"	60'	For Testing & Service Purposes. Required to run a #6 ground. #6 ground to be ran in conduit non-terminated. Refer to E1 for further explanation.
A	74	EPB	WR2	1	G	1"	-	-
A	75	EPB	CY	1	S	1"	78'	-
A	76	EPB	MB	1	S	1"	68'	-
C	77	EPB	WR3	1	S	2 1/2"	-	*For 3rd party equipment.
G	78	EPB	WR3	1	P	2 1/2"	-	*For 3rd party equipment.
C	79	WR1	WR3	1	P	2 1/2"	-	*For 3rd party equipment to control room.
G	80	WR1	WR3	1	S	2 1/2"	-	*For 3rd party equipment to control room.
C	81	Power Supply	M3	1	P	3/4"	-	Project electrician to land 120 - 240 VAC, 50 - 60 Hz in M3 terminal block. Light requires: Plus 24, Minus 24, and Ground.
C	82	Power Supply	TV	1	P	3/4"	-	Project electrician to land 120 - 240 VAC, 50 - 60 Hz in TV terminal block. Light requires: Plus 24, Minus 24, and Ground.
A	83	INT	MGP	1	S	3"	75'	Conduit opening must be covered if the IntraSight system is planned for future installation.
D	84	R2	R5	4	P	1 1/2"	68'	Existing on old drawing, verify reusability and length installed on site
D	85	R2	R5	4	S	1 1/2"	68'	Existing on old drawing, verify reusability and length installed on site
D	86	R3	R4	3	S	2 1/2"	-	Existing on old drawing, verify reusability and length installed on site

* Verify with 3rd party vendor for conduit and power requirements of the components placed in the Equipment Rack DVI (EP Power Boom) (EPB).

Raceway (Conduit) Required

General Notes

1. All raceway (conduit) runs must take most direct route point to point.
2. All raceway (conduit) runs must have a pull string.

A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips
B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor
C Raceway (Conduits) and cables supplied and installed by contractor
D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC), D Power (DC), G Ground, S Signal, H High Tension, C Cooling Hose, A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

E4

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Power Quality Requirements (Mains 40E Cabinet)

Maximum Rated Power	100kW
Supply Configuration	3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6 AWG, 90°C temperature or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating: Minimum 4 AWG for 80A circuit breaker rating.
Nominal Line Voltage	480 VAC, 60 Hz
Line Voltage Variation	Voltage variations are never to exceed ±10% when measured using 10 minute mean RMS values with a measurement window of 1 week. At least 95% of all measured 10 minute mean RMS values shall be within ±5% of the configured nominal voltage.
Line Voltage Balance	2% maximum of nominal voltage between phases
Frequency Variation	± 1.0 Hz
Voltage Surges	To 110% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Voltage Sags	To 90% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Line Impulses	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-Ground Voltage	2.0V maximum RMS value
Neutral-Ground Impulses	No more than 1 per hour that exceeds 25V and 1 milli-Joule
High Frequency Noise	3.0V steady-state maximum. Over 3.0V permitted for 100 msec. maximum, 1 per hour max.
Grounded Conductor Impedance	0.1 Ohms @ 60 Hz maximum

Branch Circuit and Wire Gauge Requirements (Mains 40E Cabinet)

Branch Power	100 kVA (System only; verify UPS power requirements)
Max. Standby Current	8A per phase
Circuit Breaker (CB)	3 Phase, Type D 80A with long-time delay
For information only. Terminal block accommodates AWG 00 to AWG 4 in mains cabinet. Engineer of record responsible for calculating phase conductor and equipment ground conductor sizes. Recommended phase conductor and equipment ground conductor sizes for 1% impedance of supply conductors to circuit breaker (CB).	
Max. Instantaneous Power (at X-ray tube power 100 kV 1000mA current)	100 kW
Max. Inst. Current @ CB (RMS value over half-cycle)	300A @ 480V
Max. Phase-phase impedance @ CRC	0.455 Ω
Long Term Rating	63A at 480V
Momentary Rating (using a window of 5 seconds)	125A at 480V

CB

(19.1)

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Aurora, CO
Room: Cath Lab #1

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6600562827.0100000

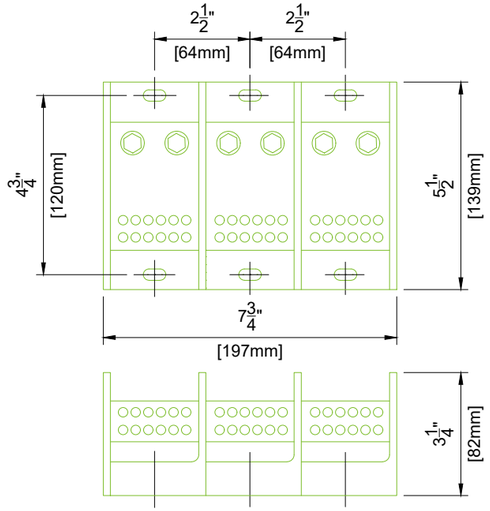
ED1

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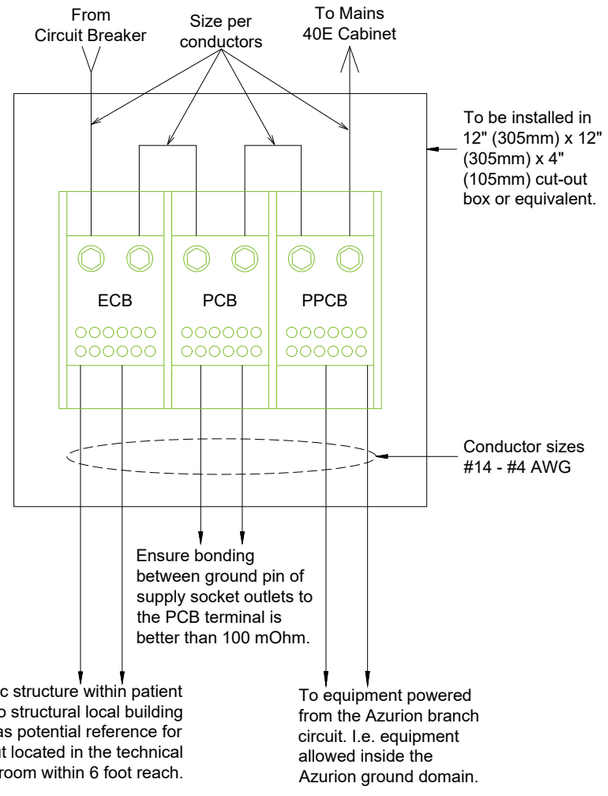
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Detail - Equi-Potential Reference Bar Application

(Not to scale)



1. Furnished and installed by Contractor
2. Purchase from local Mersen distributor, https://ep-us.mersen.com/ Catalog #MPDB69143
3. MPDB Series UL 1953 Open-Style Power Distribution Blocks https://ep-us.mersen.com/products/product/mpdb69143



ERB

(19.0)

Invasive Procedures

This equipment may be used for invasive procedures; therefore, the area to be installed is classified as critical care area per NFPA-99 and NFPA-70 (NEC). These documents specify maximum touch voltages and ground impedance in these areas.

Test performed by GSSNA service require that these specifications are met by the GSSNA equipment. It is the facility's responsibility to ensure that these specifications are met by the wall outlet, facility structure, and other equipment not installed by GSSNA.

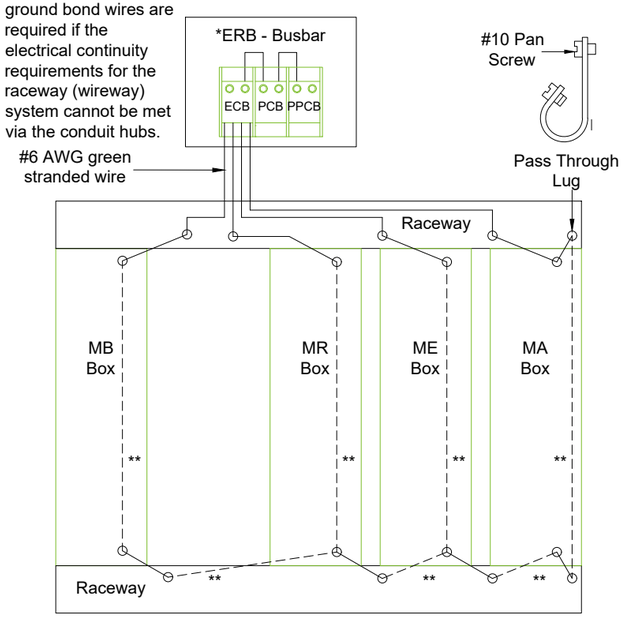
The GSSNA specified "Equi-Potential Reference Bar (ERB)" serves as a ground reference for GSSNA equipment. It may also serve as the "Reference Grounding Point" of the room as defined in NFPA 99-3.3.140 for non-Philips Healthcare equipment.

Equi-Potential Reference Bar (ERB)
A) Equip-Potential Conductor Bar (ECB)
B) Protective Conductor Bar (PCB)
C) Philips Protective Conductor Bar (PPCB)

Detail - Grounding

(Not to scale / Not site specific)

* ERB to be placed at a reachable height.
**Verify with Engineer of Record and local codes if additional ground bond wires are required if the electrical continuity requirements for the raceway (wireway) system cannot be met via the conduit hubs.



(16.0)

PHILIPS

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Aurora, CO
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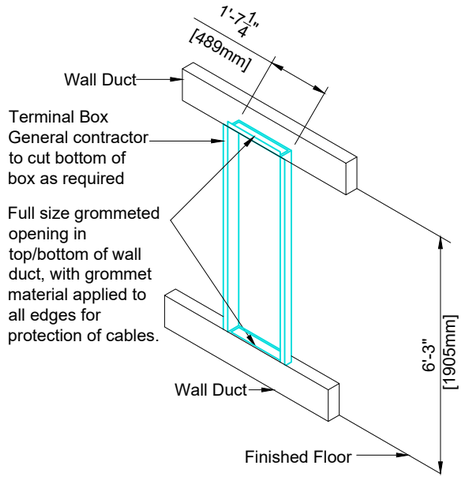
Project Details
Drawing Number
N-WES210501 D
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Detail - Wall Box Mounting
(Not to scale)



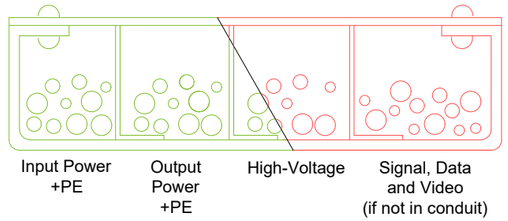
MA MB ME MR

(12.0)

Detail - Cable Trough Divisions
(Not to scale)

Contractors to discuss raceway plan with Philips Project Manager. Raceways (troughs or ducts) may be separated by metal barriers into four sections. Only required separation if for Group A wires that must be separated from other groups. See sheet EN for more information:

1. Supply Mains conductors and associated PE.
2. Secondary Circuit (Azurion equipment internal single phase 230Vac) conductors and associated PE.
3. High-Voltage wire harness to X-Ray stands.
4. Signal, data and video cables.

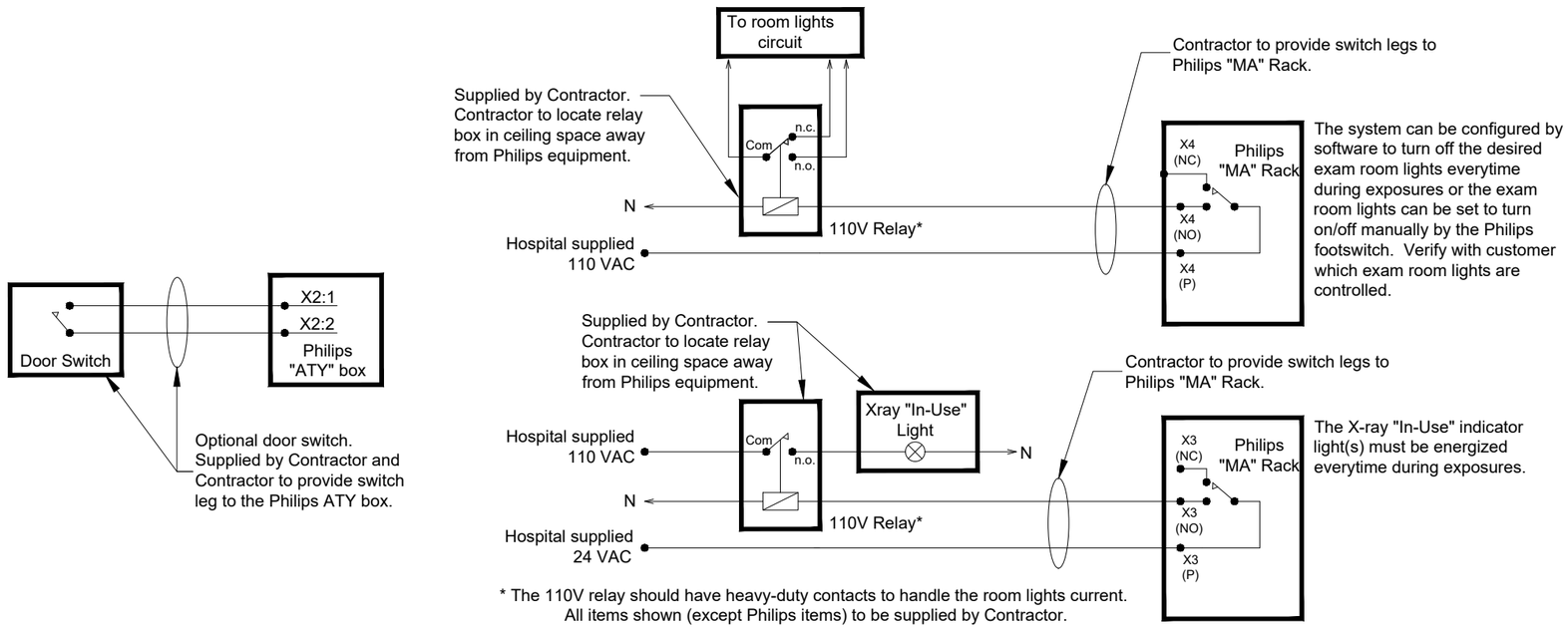


5. It is important that all cables are placed in the appropriate raceway (trough), and at no given point do any cables from one division cross cables from another. Trough separation must be continuous from the beginning.
6. Raceway (trough or ducts): steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.

WR1 WR2 WR3 R1 R2 R3 R4 R5

(16.0)

Diagram - Typical Connection of X-Ray In-Use Light, Exam Room Lights, & Door Switch



* The 110V relay should have heavy-duty contacts to handle the room lights current. All items shown (except Philips items) to be supplied by Contractor.

Note: Nominal voltage may not exceed 230 Vac and the current to stays below 1 A nominal.

WL DS

(22.0)

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Project
Azurion 7 C20 - Catalyst
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Aurora, CO
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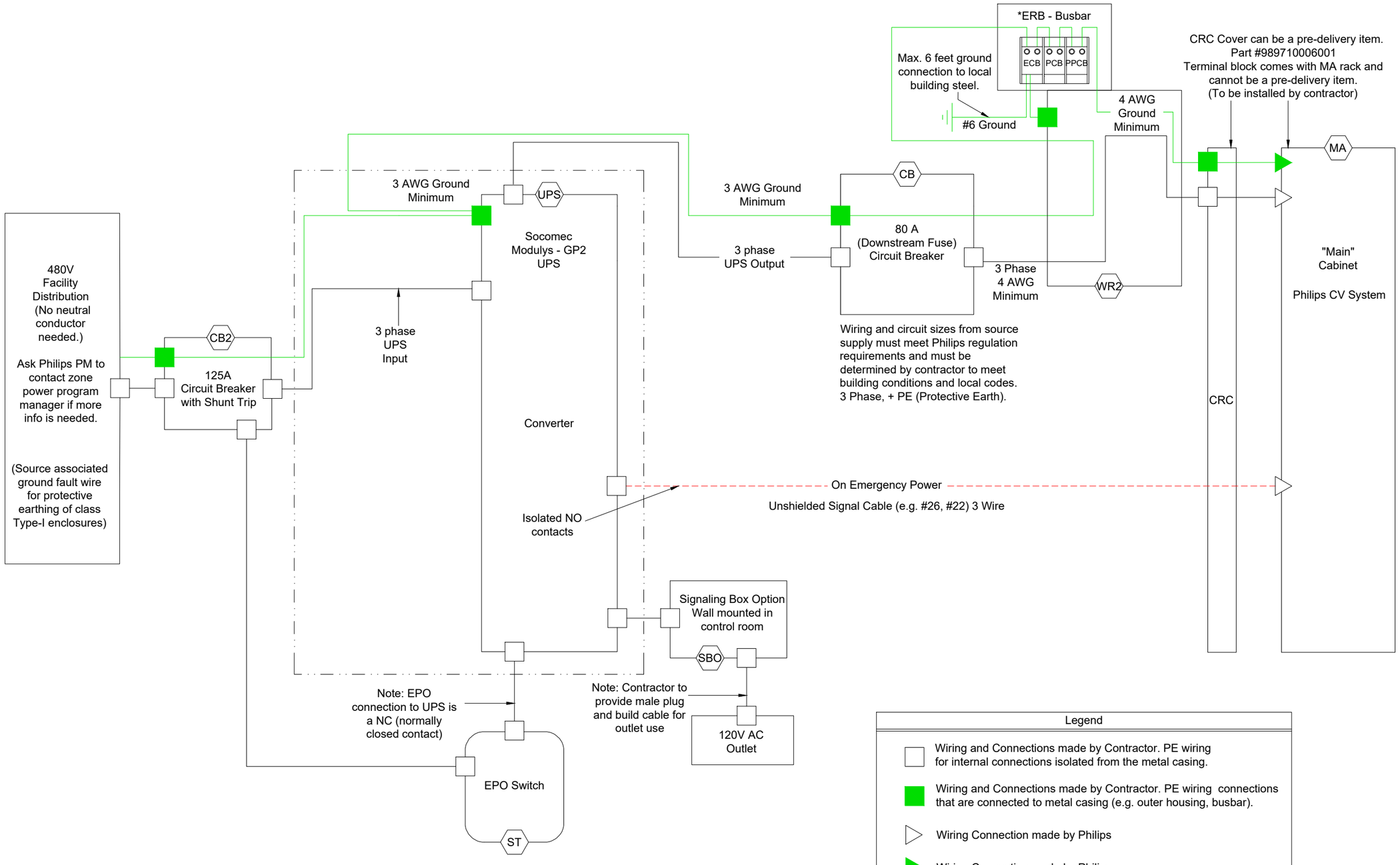
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6600562827.010000

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Legend

- Wiring and Connections made by Contractor. PE wiring for internal connections isolated from the metal casing.
- Wiring and Connections made by Contractor. PE wiring connections that are connected to metal casing (e.g. outer housing, busbar).
- Wiring Connection made by Philips
- Wiring Connection made by Philips

Note:
All Power Cables shall be in separate conduits from control and communication cables.

Note: Wire sizes will be dependent on:
1. Lug size of UPS and MA terminal block
2. 1% impedance of supply conductors to circuit breaker (CB).
3. Maintain voltage (no voltage drop)

Diagram - Connection Diagram Modulys - GP2 UPS 480V

(21.0)

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
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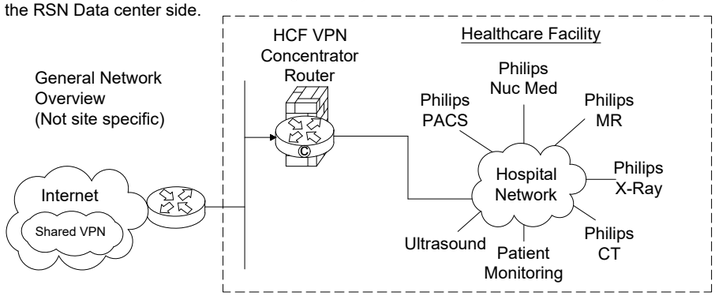
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Philips Healthcare Remote Services Network (RSN)

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.

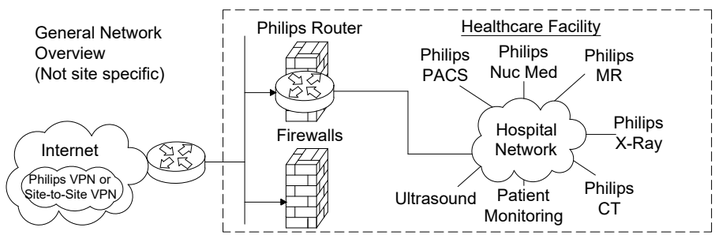


Action Required by Hospital:
- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, 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.

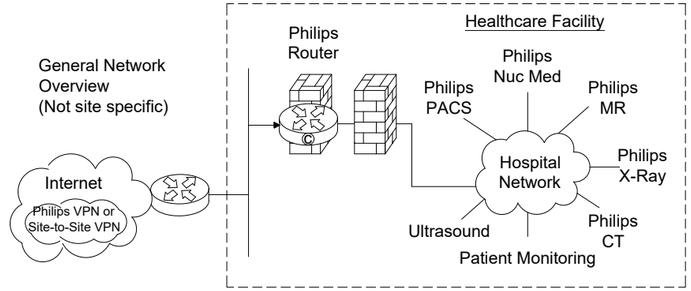
Connectivity Details:
- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router 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.



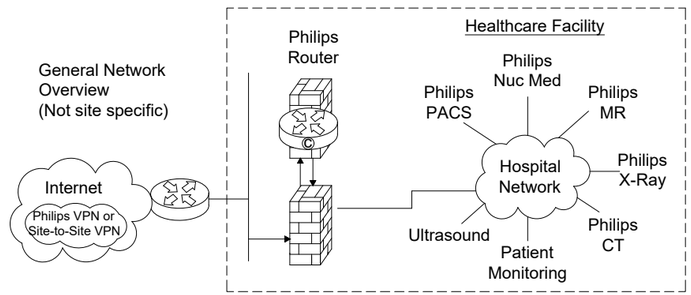
Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route 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 and 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.

(12.0)

PHILIPS

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N1

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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.*

Azurion	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number (5101):	

XtraVision	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title XtraVision:	
Port Number (3110):	
AE Title for X-Ray Mod:	
IP for X-Ray Modality:	

EP Navigator	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	

View Forum	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	

XperIM	IP Sec [ ]yes [ ]no		
	Location 1	Location 2	Location3
Physical Location:			
Hostname:			
MAC Address:			
IP Address			
Netmask:			
Gateway:			
AE Title:			
Port Number (3010):			

Remote Software Installation (RPS)	
Enable Distribution:	[ ] yes [ ] no
Enable Installation:	[ ] yes [ ] no

Dicom Printer				
	Location 1	Location 2	Location3	Location 4
Physical Location:				
Hostname:				
IP Address				
AE Title:				
Port Number :				

PACS	Physical Location:				
	Store/ Import 1	Store/ Import 2	Store/ Export	Query/ Retrieve	Storage/ Commit
Hostname:					
IP Address					
AE Title:					
Port Number :					

PACS	Physical Location:				
	Store/ Import 1	Store/ Import 2	Store/ Export	Query/ Retrieve	Storage/ Commit
Hostname:					
IP Address					
AE Title:					
Port Number :					

Audit Trail	
Physical Location:	
Hostname:	
IP Address	
AE Title:	
Port Number :	

Time Synchronization	
Physical Location:	
Server Name:	

RIS	**Physical Location:**		
	Basic Local RIS	WLM	MPPS
Hostname:			
IP Address:			
AE Title:			
Max PDU Size:	16384 or		
Port Number:		[ ] yes [ ] no	[ ] yes [ ] no
Secure Node:		[ ] yes [ ] no	[ ] yes [ ] no
Encryption:			
Certificate Name:			
PPSM IHE Compatible:			[ ] yes [ ] no

Time Synchronization	
Azurion:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura Xper:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura CV20:	20/21(ftp), 80(http), 4440(fsf)
XtraVision:	20/21(ftp), 80(http), 443(https), 5660(ist/ice), 5900(vnc), 9905(lots)
EP Navigator (R3):	20/21(ftp), 443(https), 5660(ist/ice), 9055(lots)
EP Cockpit (R1.2):	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
CX50:	
Xper IM:	
View Forum	

Hospital Network			
	M2M Server (PRS)	Proxy	ePO Server (PRS)
Scheme (https):			
IP Address (192.68.49.50):			
Portnumber (443):			
Use Proxy Server:	[ ] yes [ ] no		
IP Address			
Port Number:			
User Name:			
Password:			

(13.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
Project Manager: Will Tupa
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Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

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.
- ☐ **Installation Team:** Has received the room drawings and necessary contact phone numbers.
- ☐ **Millwork:** Completely installed in all rooms.
- ☐ **Parking:** Parking area identified for installers.
- ☐ **Performance Testing Requirements Identified:** Determine if Certificate of Compliance is required, (i.e. NEMA, OSHPD, AHCA).
- ☐ **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.
- ☐ **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.
- ☐ **ERB Conductor Bar:** Installed per Philips Final Drawings. All Philips-provided electrical boxes and contractor-provided raceway are grounded to the ERB.
- ☐ **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.
- ☐ **Video Connection Boxes:** Locations, video sources, and display destinations are verified with customer, and the Philips Final Drawings are updated with the information.
- ☐ **3rd Party Booms (if applicable):** Compatibility, locations, and isolation kits have been verified with boom vendor and the Philips Final Drawings are updated with the information. If required, a '*Request for Modification*' has been submitted.
- ☐ **3rd Party Booms (if applicable):** Installed prior to Philips equipment delivery.
- ☐ **Ceiling Height:** Verified per Philips Final Drawings. Single plane measure from finished floor to bottom of Unistrut. For Bi-Plane, from Clea plate to bottom of Unistrut.
- ☐ **Ceiling Obstructions:** Verify there are no obstructions where Philips rails will be installed.
- ☐ **Ceiling Plate for Equipment Rack (EP Boom) (if applicable):** Installed and leveled per Philips Final Drawings.
- ☐ **Ceiling Unistruts (P1001 or equal):** Installed and leveled per Philips Final Drawings.
- ☐ **Clearances:** Verified to the closest obstacles (i.e. walls, cabinets), in order to lift up the C-arm, monitor support, etc.
- ☐ **Fixing Blocks:** Provided by Philips, verify the block properly sits in the Unistrut channel with no obstructions, as designed.
- ☐ **FlexArm Clearance (if applicable):** Verified per Philips Final Drawings.
- ☐ **FlexMove (if applicable):** Must order Ceiling/Floor levelness kit, complete form and submit.
- ☐ **Floor Plates:** Patient Support and Stand (if applicable), are installed, isolated, and leveled, at the correct locations per Philips Final Drawings.
- ☐ **Med Gas Box (if applicable):** Location does not interfere with the installation and movement of the Philips equipment. The Philips Final Drawings are updated with the location.
- ☐ **Back Boxes:** Installed with required covers and grommet material per Philips Final Drawings. Specifically, the spacing between the boxes and height off of finished floor.
- ☐ **ERB Grounding Block:** Installed within 6 feet of building steel, and non-Philips-provided electrical equipment ground conductors, to include wall outlets installed per Philips Final Drawings.
- ☐ **Hospital Mains Supply Wiring:** For Allura R8.2 and Azurion systems, installed per Philips Final Drawings, for connection in Cabinet Rear Cover (CRC) of MA-Cabinet.
- ☐ **Hospital Mains Supply:** For system versions prior to Allura R8.2 (in the USA), the Hospital Mains must be available for connection at the PDU or gssPDU, and then to MA & ME-Cabinets (by the electrician).

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.

Required Prior to Install Complete

- ☐ **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
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #1

Philips Contacts
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Project Details
Drawing Number
N-WES210501 D
Date Drawn: 11/9/2022
Quote: 1-2LFTCPH Rev.4
Order: 6600562827.020000
6600562827.010000

CHK

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PHILIPS

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.



*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
-	2/08/2022.	Created Preliminary Site Preparation Support Document per Quote #1-2LFE7LS. Rev. 4	VS
A	4/22/2022	Created Final Site Preparation Support Document per Order: 6600562623.010000 and 6600562623.020000	LS
B	5/4/2022	Added TV rails per change order.	JV
C	9/16/2022	Updated architectural background per file "21-048 TMCA Cath 1 and 2". Moved INT/SYNC towards the window. Added TV's in the exam room. Changes clouded in red. Updated to new standard planning.	VS
D	10/20/2022	Adding Mavig Radiation Shield and Light, MCS surgical Lamp per pending change order.	LS
E	11/9/2022	Updated monitors to be Philips provided on E1 and E3, located video boxes per User Need Checklist, updated IntraSight conduit to land on MGP, and crossed out 3rd party equipment conduits on EP Boom. Updated per Order RBK: 6600562624.010000 and 6600562624.020000, and Change Orders attached. Added existing risers on E1 and EL1.	LS

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PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
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Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

C1

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General Conditions

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 their expense for preparation of site. Philips required specifications and any required MEP, construction and structural alterations shall be incorporated into customer's design and construction documents. Compliance with all safety, electrical, and building design codes relevant to the build out of the clinical area for Philips equipment and its installation is the customer's responsibility. Sufficiency of such plans and specifications, specifically including, but not limited to the accuracy of the dimensions described therein, shall be the sole responsibility of the customer. The customer shall advise Philips of conditions at or near the site, which could adversely affect the function of the equipment and/or carrying out of the delivery and installation work. This 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.

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 shall bear any expense in obtaining same or in complying with any related rules, regulations, ordinances and statutes.

4. **Radiation Protection**
The customer or their contractor, at their own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection and testing.

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 undesirable 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 customer or general contractor shall provide Philips with a project/construction schedule with milestones to assist in the coordination of delivery of Philips supplied products and 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, then additional work required for the equipment will not be 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 work scope and these drawings, the turnkey contract work scope shall govern.

9. **Infection Control and Interim Life Safety Measure**
Compliance with all Infection Control and Interim Life Safety Measures shall be the sole responsibility of the customer. The customer shall provide all means and methods necessary for compliance with Infection Control (IC) and Interim Life Safety Measures (ILSM) in connection with the construction and installation/operation of the products shown herein and shall bear any expenses related to same.

(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 by the customer before the delivery and installation of equipment can begin.

1. Walls to be painted or covered, baseboards installed, floors to be tiled and/or covered, ceiling shall have grid tiles and luminaires installed and operational.

2. Doors and windows, especially radiation protection barriers, installed and finished with locksets operational.

3. All electrical convenience outlets, raceways, wireways, auxiliary fittings, knockouts, cable connectors, terminal and power distribution blocks, cable openings, chase nipples, junction boxes and pull boxes installed and operational.

4. A private supply mains branch circuit with overcurrent protective circuit breaker and manual operable circuit disconnect means shall be present and operational. Definition of "Private supply" means an end-leave of the hospital distribution system after the last overcurrent protective disconnect means from which all equipment included in the Azurion ground domain is powered. Note that only equipment included in the Azurion certification and equipment with which the Azurion has a compatibility statement are allowed to be inside the Azurion ground domain. All other electrical equipment is not allowed to have a functional connection to the Azurion system and shall have no direct galvanic connection to prevent ground loops. 3rd party equipment that does not have a function connection with the Azurion system, but that is intended to be used inside the same patient area as the Azurion System shall be grounded to the PCB inside the ERB with a ground bonding of <= 200 mOhm for plugable equipment.

5. Philips does not allow 3rd party equipment inside our cabinets.

6. 120V convenience outlets operational.

7. 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.

8. All contractor supplied cables pulled and terminated.

9. A dust-free environment in and around the procedure room.

10. All HVAC (heating, ventilating and air conditioning) installed and operational as per specifications.

11. 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 conditional failure.

12. All plumbing installed and finished.

13. 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.

14. Clear door openings for moving equipment into the building must be 42" (1067mm) W x 82" (2083mm) H min. 48" (1219mm) W x 82" (2083mm) H rec., Or larger contingent on an 8'-0" (2438mm) corridor width.

15. Countertop is 30" (765mm) for seated height and 36" (915mm) for standing height.

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 Medical 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 are the responsibility of the customer.

(22.0)

HVAC Requirement for General Equipment Locations

Operation	
Temperature	59°F (15°C) to 86°F (30°C)
Temperature gradient	Max. 1°F / Minute (0.5°C / Minute)
Humidity (non-condensing) Humidity shall be stable within 10%	20% to 80%
Exam Room	*5459 BTU/hr
Equipment Room	*12625 BTU/hr
Control Room	*1945 BTU/hr

***Average heat emission during clinical use**
Data applicable for basic system:
Large monitor + 4 x small monitor in Monitor Ceiling Suspension
1 workstation + 2 x small monitor in Control Room

Add 1194 BTU/hr for additional large monitor
Add 273 BTU/hr for additional small monitor
Add 1024 BTU/hr for additional workstation
See AL sheet for additional heat load in case of UPS

Equipment's designed airflow is from front/side to back. Please design the air handling in the rack cabinet equipment area accordingly.

Heating, ventilation, and air conditioning requirements must maintain temperature at 59°F (15°C) to 86°F (30°C) as well as a non-condensing relative humidity at 20-80% with 10% maximum variation. These temperature and humidity levels must be maintained in all (3) rooms (equipment, examination and control rooms).

(22.0)

Electrical Requirements
Mains 40E Cabinet

Maximum Rated Power:	100kW
Supply Configuration:	3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6 AWG, 90°C or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating: Minimum 4 AWG for 80A circuit breaker rating.
Nominal Line Voltage:	480 VAC, 60 Hz
Branch Power Requirement:	100 kVA (System only; verify UPS power requirements)
Circuit Breaker:	3 phase, Type D 80A with long-time delay

(20.1)

Remote Control of Room Lighting

The control of customer lighting must incorporate an electrical isolation system such as demonstrated on Sheet ED3. Lighting scheme is the responsibility of the customer.

(12.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

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Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

AN

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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
H Furnished by Philips and installed by Third Party

	Equipment Designation	Description	Weight (lbs)	Heat Load (BTU/hr)	Detail Sheet
A	SP	Clea Stand with Short L-Arm	2557	1706	AD2
A	MSA	Angio Diagnost 7 with pivot	999	205	AD2
A	ME	Certeray iX Generator Cabinet	320	2971	AD3
A	MR	Peripheral 40E Cabinet	441	2049	AD3
A	MA	Mains 40E Cabinet	826	5464	AD3
A	MB	Image 40E Cabinet	441	1877	AD3
A	CY	Control Room Connection Box	102	567	AD3
A	DB	Documentation Box - Mounted on Wheels (Final location to be coordinated with customer and/or local Philips Service)	176	0	AD4
A	ATY	Exam Room Auxiliary Box	7	1.7	AD4
A	FW	Firewall	4	205	AD5
A	VB1 ~ VB10	Video Connection Box	2.2	-	AD4
D	UPS	Low Load Fluoro (LLF) UPS	1356	8750	AD5
D	SBO	Signaling Box Option (for LLF UPS)	13	-	AD5
A	TV2	Live/Reference Slave Monitor (Located in Exam Room)	-	-	-
A	TV3	Live/Reference Slave Monitor (Located in Exam Room)	-	-	-
A	TV4	Live/Reference Slave Monitor (Located in Exam Room)	-	-	-
A	INT	IntraSight- Workstation	83	-	AD4
A	SYNC	SyncVision	71	-	AD4
A	TV	58" + (2) 21" LCD Monitor Suspension with Y LED 1F Surgical Light	636	1020	AD6
		Items not on Philips Quote/Order			
E	EPB	Equipment Rack DVI (EP Power Boom)-(Including Accessories) with Rectangle Plate	865	-	AD5
B	MGP	Med Gas Pedestal	-	-	-
B/G	MAV	Mavig 2.5m Ceiling Track w/ Rad Shield and Y LED 1F Surgical Light	167	350	AD6

PHILIPS

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AL

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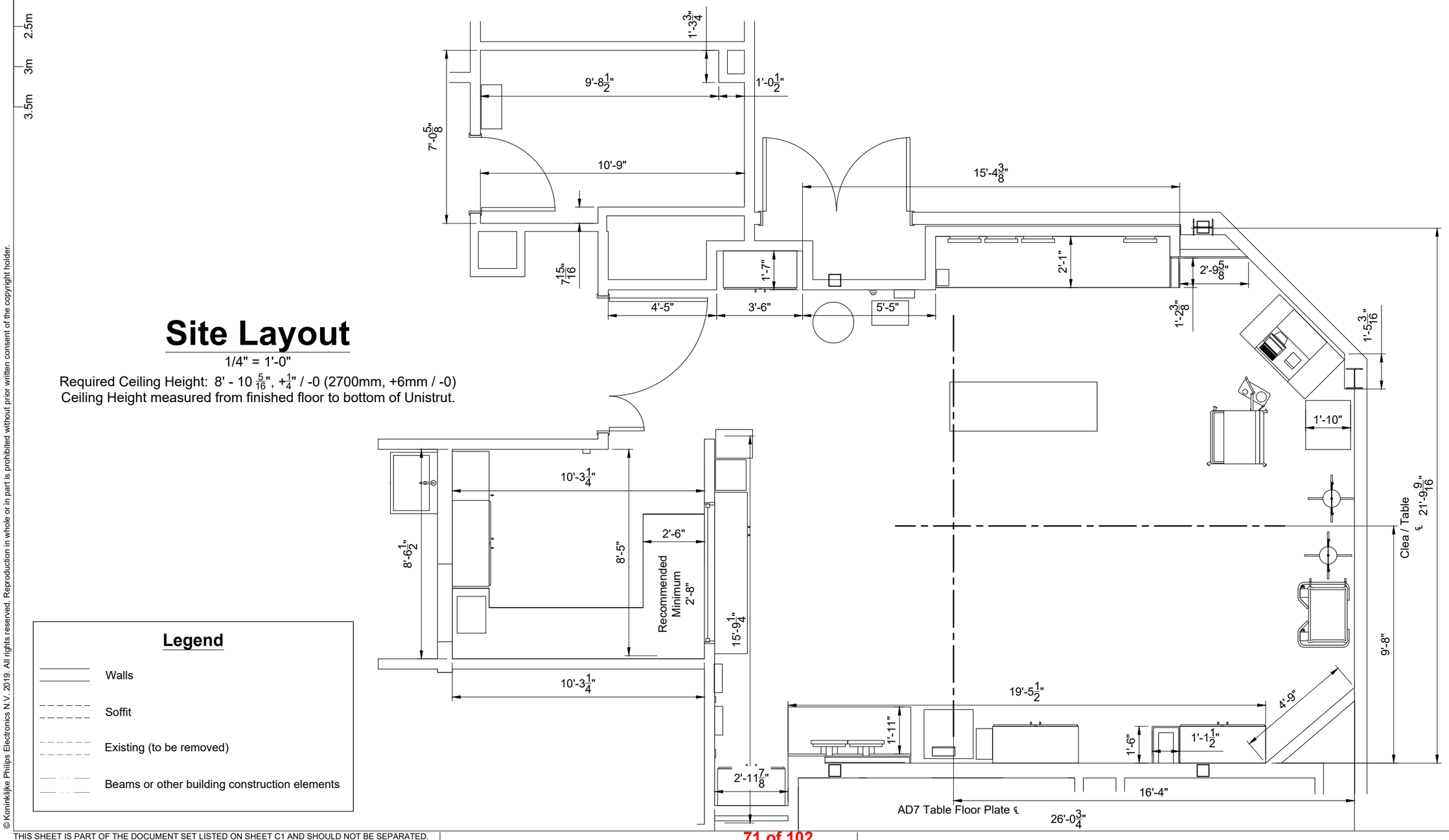
General Notes

* 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.

Site Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



Legend

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

PHILIPS

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Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

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A1

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Equipment Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.

Planning Issues and Considerations

12 Exact equipment configuration to be verified with local Philips Sales.
- A 2.5m Mavig Rail with Radiation Shield and Y LED Light 1F is not listed on order, but it's shown per request.
- Surgical Light mounted on MCS is not listed on order, but it is shown per pending change order.
- An EP Boom with a Round Plate is listed on Change Order, but not shown. Existing Rectangular Plate is shown instead

13 A minimum clearance of 2'-6 5/16" (770mm) in front of system cabinets or 3'-6 1/8" (1070mm) when cabinets are facing one another is required. Customer's Architect/Engineer of record are responsible for all code compliance.

14 Due to door location and swing, servicing will create a safety hazard due to position of rack MB.

Planning Issues and Considerations

1 Verify exact location and configuration of existing floor plate, Unistrut, and electricals with local Philips service for reuse.

2 Potential collision of equipment with noted counters / wall.

3 Conduit run(s) from SP to MA/MR/ME must be able to take the most direct route. (Maximum conduit length = 37'/37'/39')

4 Verify quantity and designation of Live/Reference slaving monitors with local Philips Service.

5 Bedside Utility Box to be mounted on Med Gas Pedestal if 3'-0" clearance from table centerline cannot be met.

6 Med Gas Pedestal may present a tripping hazard. Verify with customer requirement.

7 Equipment layout depicts the Clea Stand with the Reverse Hose Cable Outlet. It is the Region's responsibility to ensure that the order is place within the necessary time frame.

8 View of patient may be limited. Verify with customer requirement.

9 Service access to equipment will be difficult. Customer's Architect/Engineer of record are responsible for all code compliance.

10 Relocate endstops on the Monitor Suspension to avoid collision with the EP Power Boom. [Maximum overhang = 5 7/8" (150mm)]

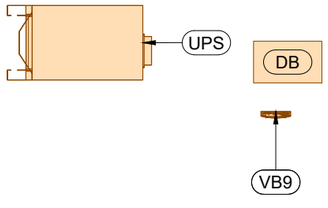
11 Potential collision of the "SP" Hose Arm Carrier and the Mavig Radiation Shield post.

General Notes

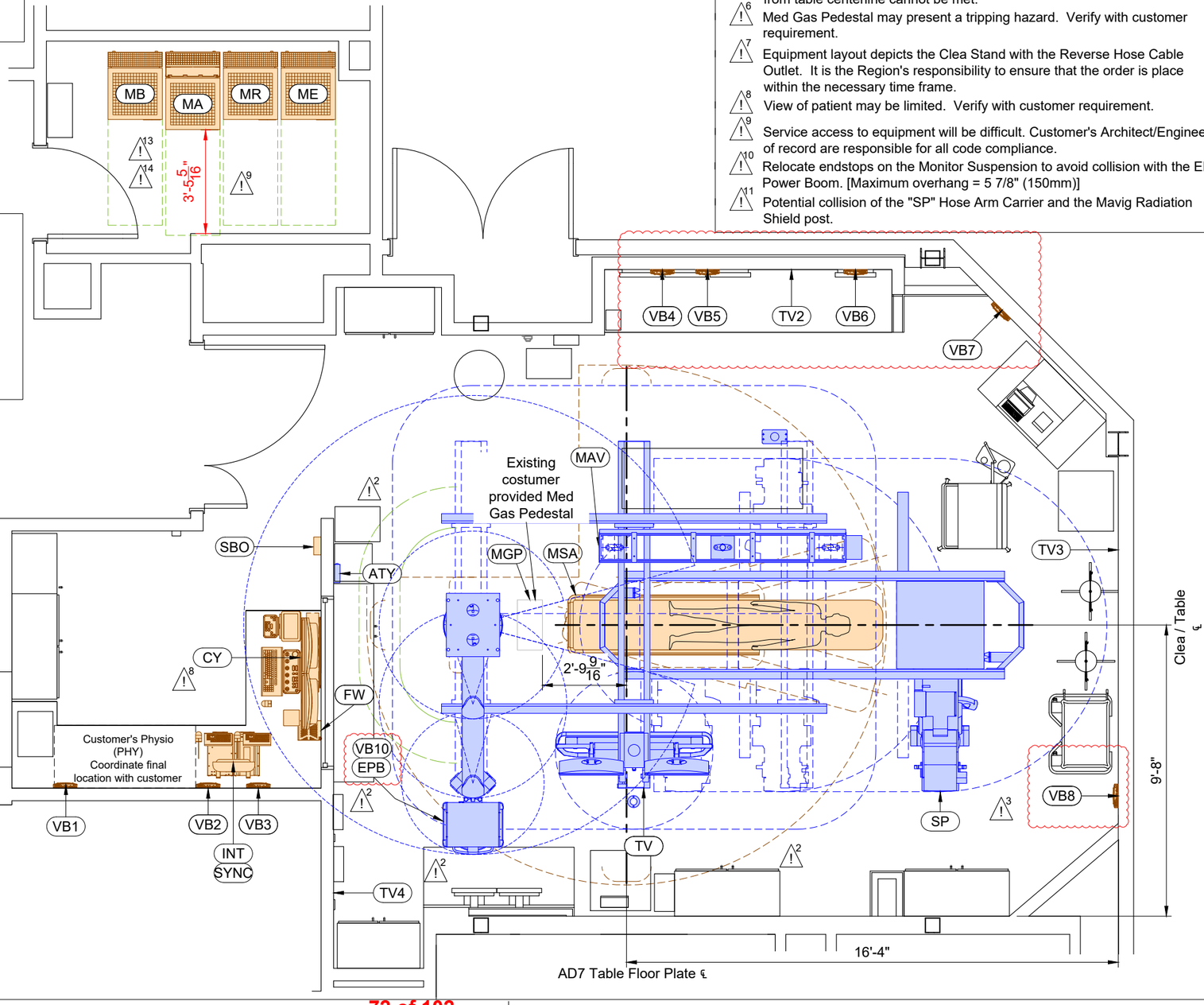
* Field to verify all room dimensions.
* Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.
* The customer shall advise Philips of existing and/or new conditions at or near the site, which could adversely affect the function of the equipment and/or carrying out of the delivery and installation work. Refer to sheet - AN line #2 of General Conditions for additional information.

	Source	Location	Displayed
VB1	Physio	Control	FlexVision
VB2	INT	Control	FlexVision
VB3	SYNC	Control	FlexVision
VB4	TBD	Exam	FlexVision
VB5	TBD	Exam	FlexVision
VB6	TBD	Exam	FlexVision
VB7	TBD	Exam	FlexVision
VB8	TBD	Exam	FlexVision
VB9	TBD	TBD	FlexVision
VB10	TBD	Exam	FlexVision

Location of UPS in space 1C-05



Exact location to be coordinated by Customer and local Philips service.



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Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

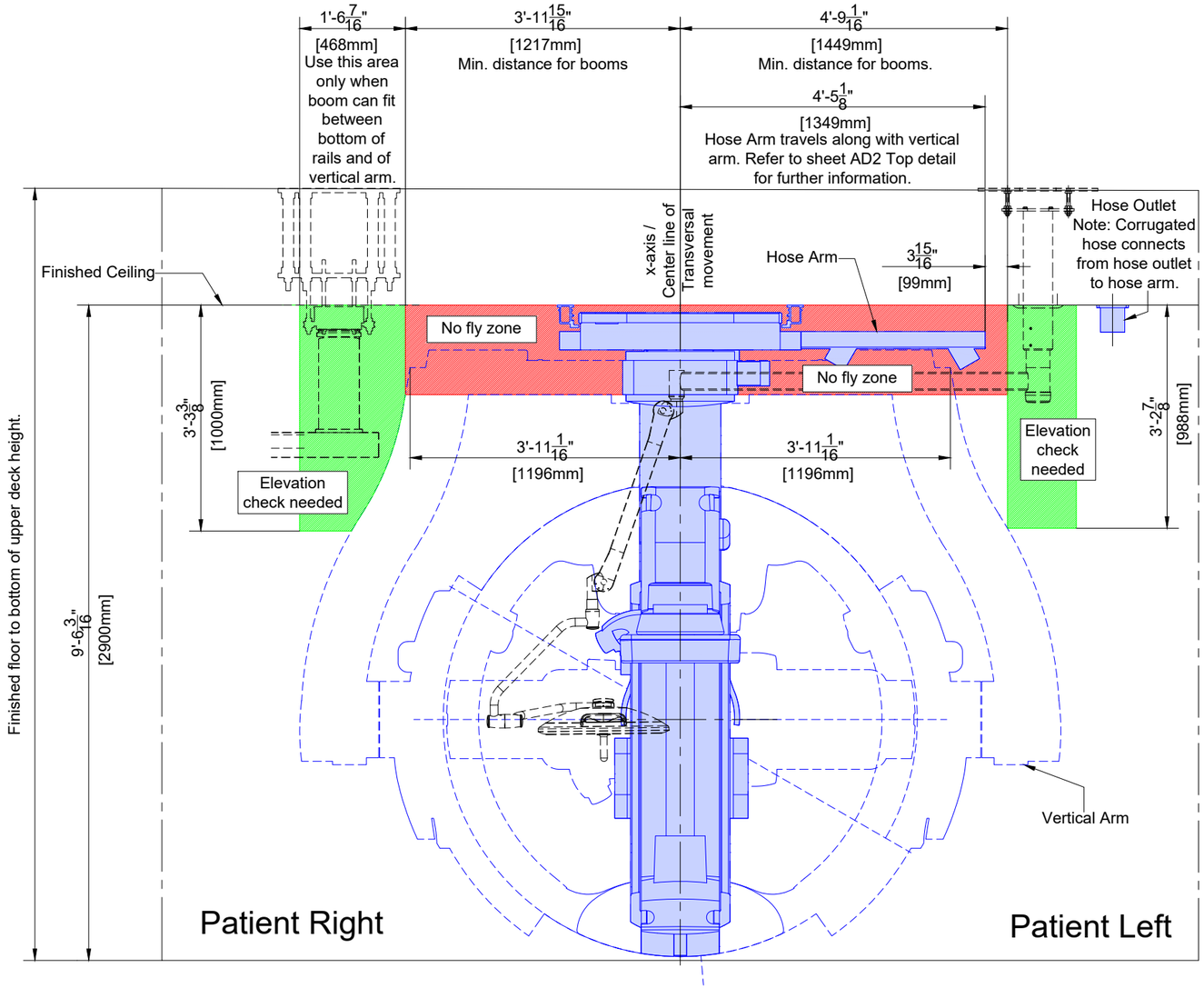
Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

A2

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Elevation View

1/2" = 1'-0"

General Notes

* Finished ceiling height is not the same as unistrut height as illustrated on SD1 Philips Fixing Block for Philips Ceiling Rails (Clip Rails) detail.

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Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
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Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

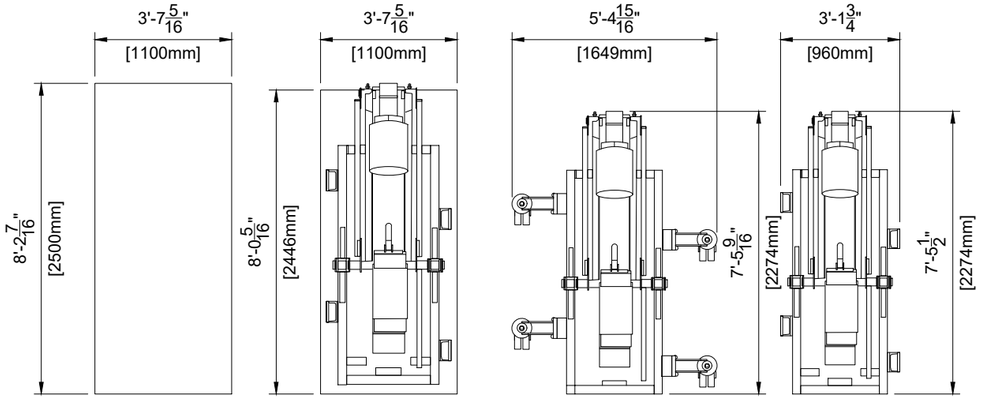
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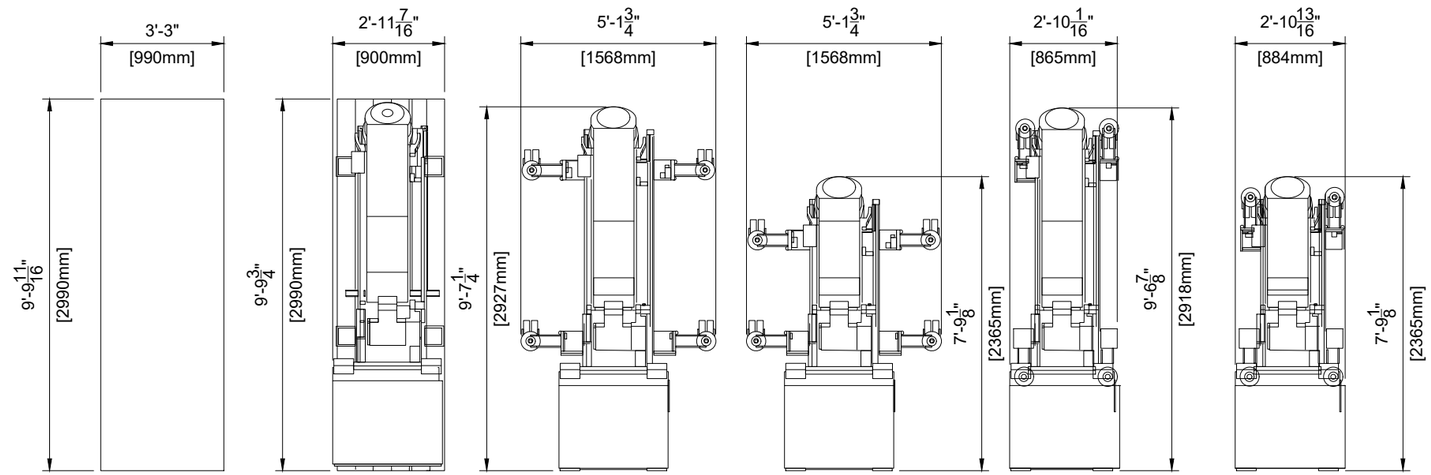
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Detail - Clea Ceiling (C-ARM) Transport Details



Transport Possibilities				
	Crate	**Pallet**	**Kick Wheels Wide**	**Kick Wheels Small**
Height	77.95" (1980mm)	76.22" (1936mm)	69.02" (1753mm)	77.76" (1975mm)
Weight	2050 lbs (930 kg)	1940 lbs (880 kg)	2061 lbs (935 kg)	1764 lbs (800 kg)

Detail - Clea Ceiling (L-ARM) Transport Details



Transport Possibilities						
	Crate	**Pallet**	**Klick Wheels Wide**	**Klick Wheels Wide Elevator**	**Klick Wheels Small**	**Klick Wheels Small Elevator**
Height	57.09" (1450mm)	54.80" (1392mm)	49.25" (1251mm)	79.53" (2020mm)	49.25" (1251mm)	79.53" (2020mm)
Weight	2094 lbs (950 kg)	1973 lbs (895 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)	1896 lbs (860 kg)

(12.0)

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Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

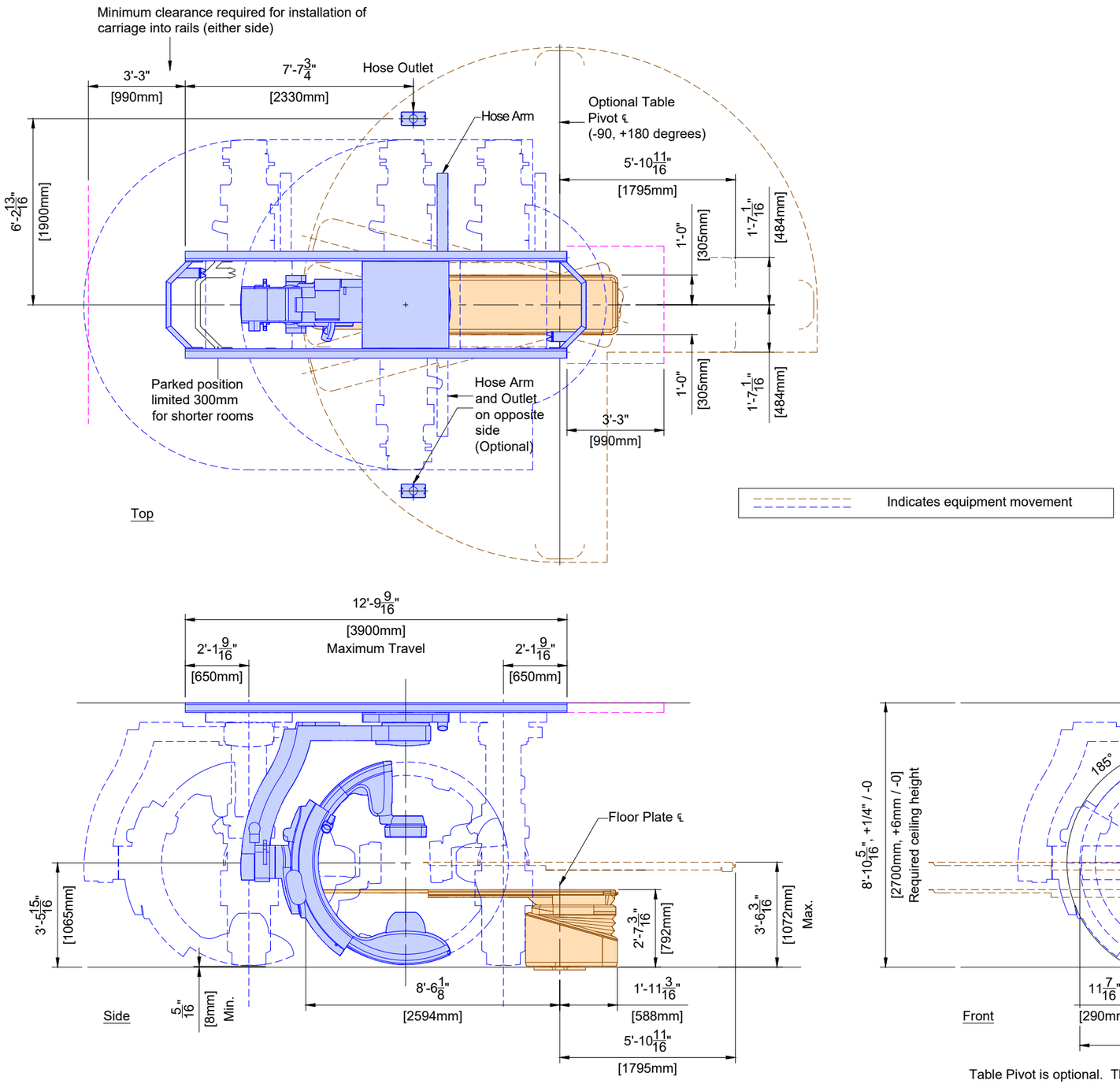
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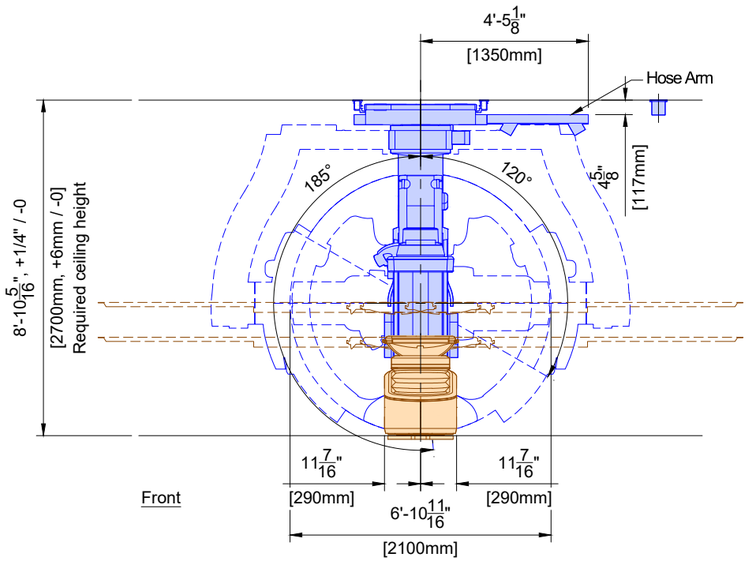


Table Pivot is optional. This allows the table to rotate -90, +180 degrees about center of table base.

(12.0)

	Clea Stand (Short L-Arm)	
SP	Weight	Heat Dissipation
	2557 lbs	1706 BTU/hr

(12.0)

	Angio Diagnost 7	
MSA	Weight	Heat Dissipation
	999 lbs	205 BTU/hr

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Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

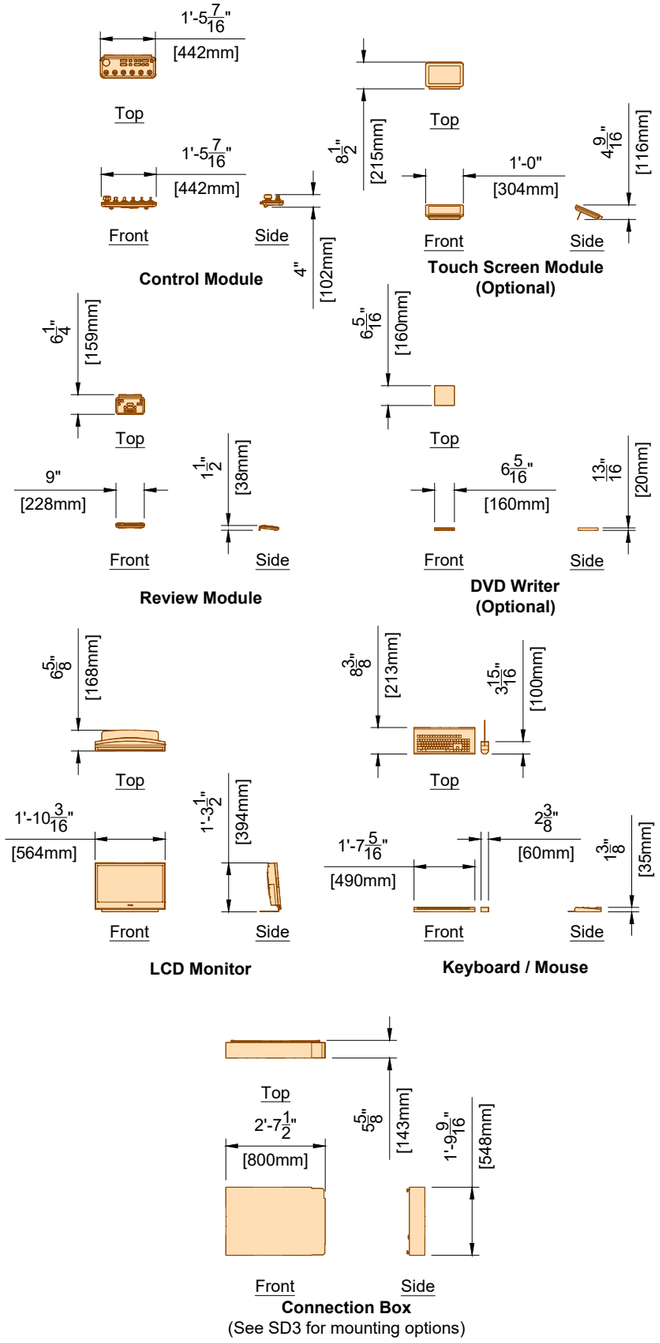
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AD2

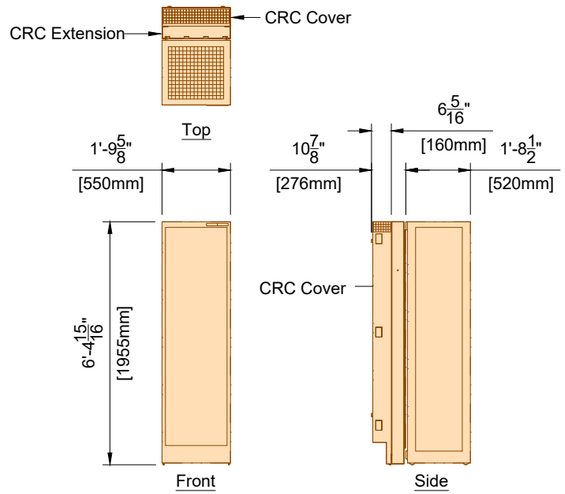
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(19.0)

	Control Room Connection Box (All Components)	
CY	Weight	Heat Dissipation
	102 lbs	567 BTU/hr

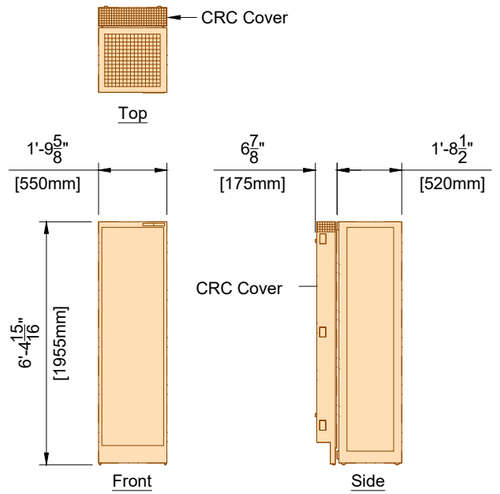


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(19.0)

	Mains 40E Cabinet	
MA	Weight	Heat Dissipation
	826 lbs	5464 BTU/hr

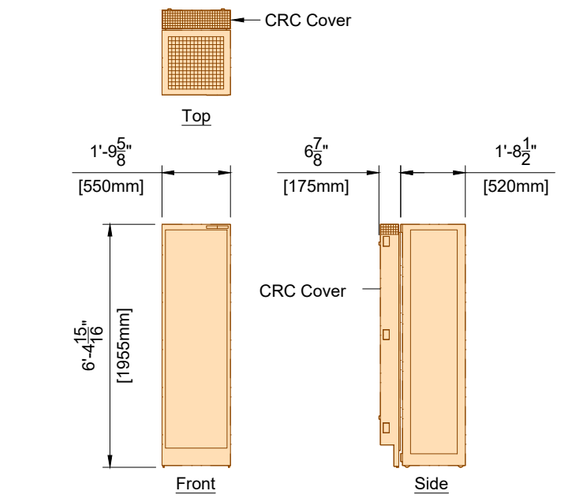


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 48 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(19.0)

	Image 40E Cabinet	
MB	Weight	Heat Dissipation
	441 lbs	1877 BTU/hr

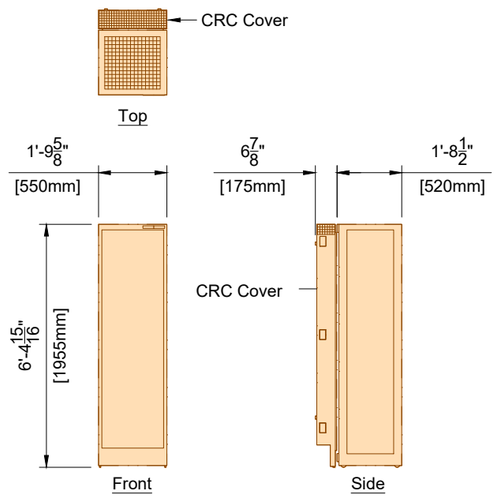


The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 65 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(19.0)

	Peripheral 40E Cabinet	
MR	Weight	Heat Dissipation
	441 lbs	2049 BTU/hr



The CRC Cover must be attached to the wall box.

Acoustic noise level: <= 55 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(19.0)

	Certeray iX Generator 40E Cabinet	
ME	Weight	Heat Dissipation
	320 lbs	2971 BTU/hr

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Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

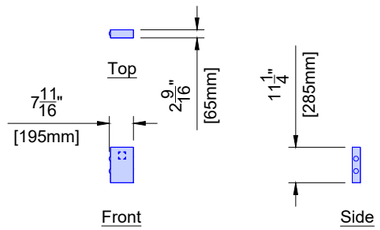
Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

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AD3

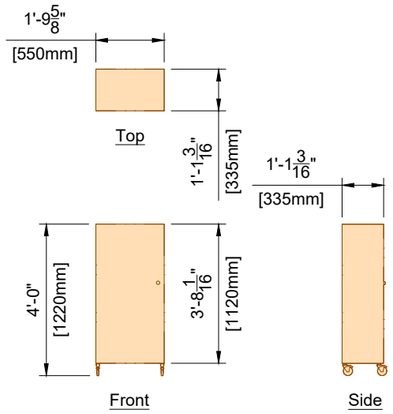
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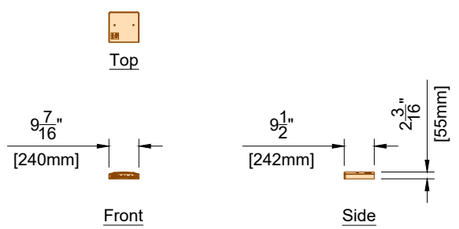
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	Auxiliary Box	
ATY	Weight	Heat Dissipation
	7 lbs	1.7 BTU/hr



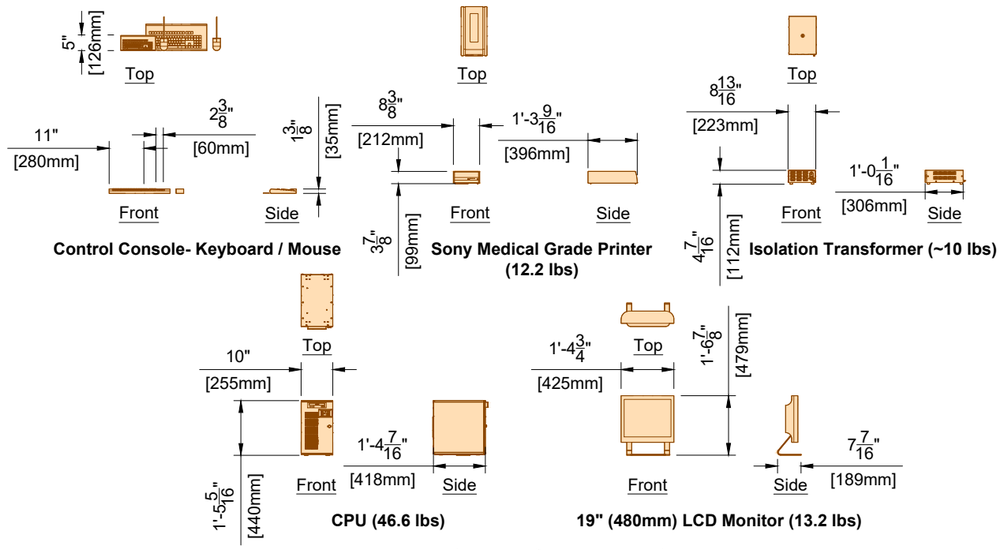
(19.0)

	Documentation Box	
DB	Weight	Heat Dissipation
	176 lbs	0 BTU/hr



(21.0)

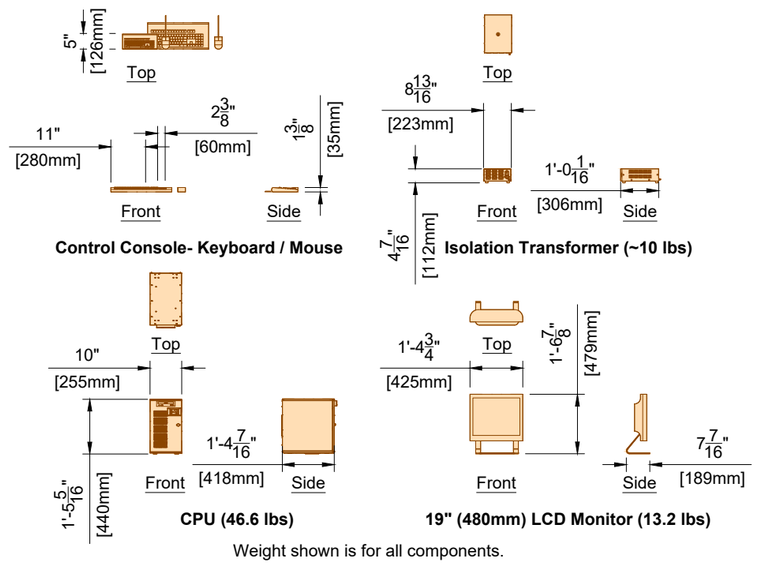
	Video Connection Box	
VB1 ~ VB10	Weight	Heat Dissipation
	2.2 lbs	- BTU/hr



Weight shown is for all components.

(20.0)

	IntraSight - Workstation	
INT	Weight	Heat Dissipation
	83 lbs	- BTU/hr



Weight shown is for all components.

(20.0)

	SyncVision	
SYNC	Weight	Heat Dissipation
	71 lbs	- BTU/hr

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Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

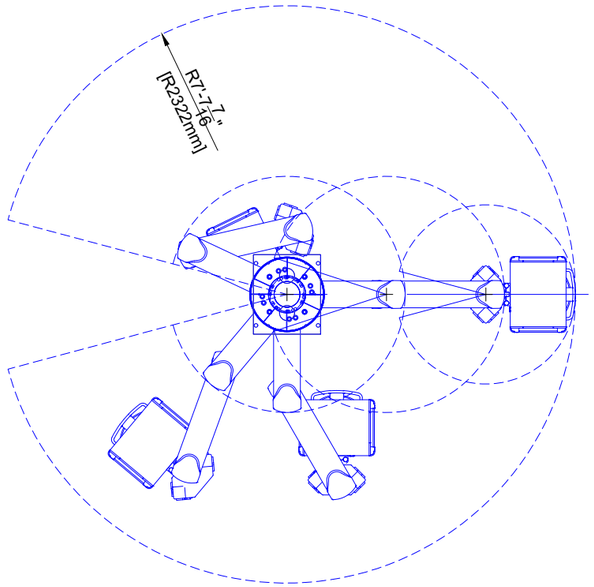
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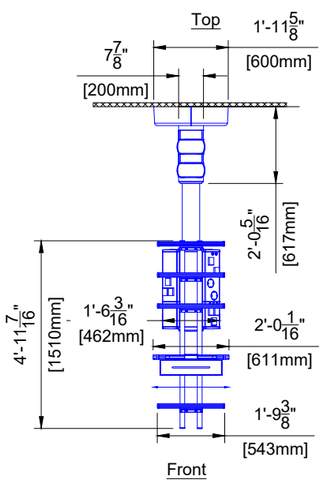
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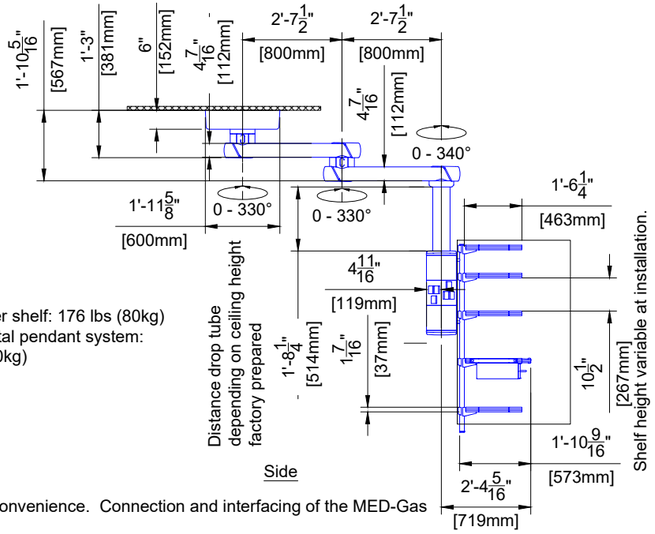
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	Configuration
Required items	**Stand-alone Version**
Video Connection Box mounting and Video Connection Box-TX cabling	Present
Flexible conduit with guide wire	Present
Number of shelves	5
Number of drawers	1
Cable management accesories: 2 rails, 8 hooks	Present
Number of Infusion bottle holder (T-pole)	1
Number of extension arms with VESA 100 monitor interface	1
Number of power outlets	4 standard and 4 emergency
Number of Ethernet network outlets	1
Note: This does not include the Video Connection Box itself, only a mechanical solution to mount a Video Connection Box. For details, consult the Sales Department.	
*The above is standard configuration - not site specific.	



Max load per shelf: 176 lbs (80kg)
Max load total pendant system: 485 lbs (220kg)



MED-Gas

1. The EP Boom comes with option MED-Gas outlets for customer convenience. Connection and interfacing of the MED-Gas to the EP Power Boom is the contractor's responsibility.
2. Standard configuration listed below. Other configurations may be possible. Contact Philips Project Manager for information.
   - 4 is standard and 8 is maximum in any configuration: Vacuum, N2O, Oxygen (or NO gases), WAGD
   -Chemetron, DISS, Puritan Bennett, or Ohmeda fitting type
   -4 standard power duplex outlets
   -4 emergency power duplex outlets
   -MAX total of 12 standard or emergency power duplexes of any combination
   -2 network ports (2 minimum and 8 maximum)
   -1 conduit in rack for 3rd party cabling (with 4 optional 1xG23 (22mm) and up to 4 max but not recommended to have more than 3 since went up to G23 from G17)
3. Equipment rack configuration must be confirmed by customer with Philips Project Manager prior to system entering production.
4. Once production starts, it is not possible to change the configuration of the equipment rack.

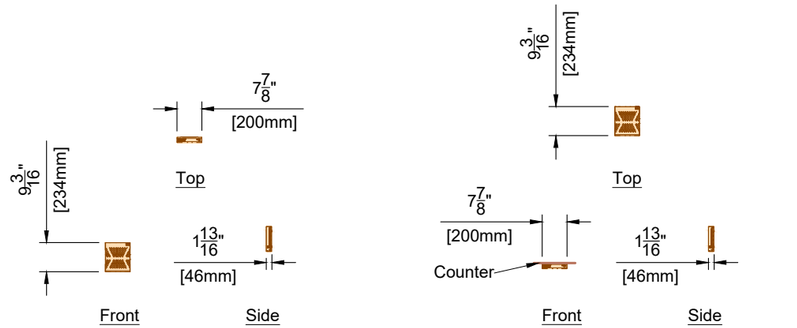
Delivery in Crate
86" (2185mm) L x 34" (864mm) W x 67" (1702mm) H
Weight = 865 lbs (393 kg)

(21.0)

	Equipment Rack DVI (EP Power Boom)	
EPB	Weight	Heat Dissipation
	865 lbs (393 kg)	- BTU/hr

Weight includes:
-Pre-installation ceiling frame 309 lbs (141 kg)
-Equipment Rack 389 lbs (177 kg)
-Accessories max. 167 lbs (76 kg)

(21.0)

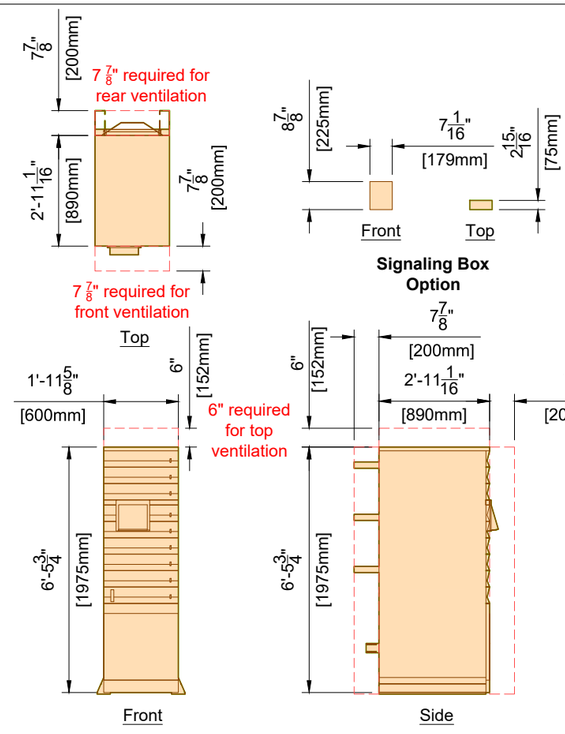


Weight shown is for all components.
Firewall must be installed maximum of 6'-6 3/4" from the CY.

(20.0)

	Firewall	
FW	Weight	Heat Dissipation
	4 lbs	205 BTU/hr

FW



UPS Cabinet

Acoustic noise level: <= 58 dB(A) @ 1 meter in front of the rack and 1 meter high (1 meter = 39.37")

(20.0)

	Low Load Fluoro (LLF) UPS	
	Weight	Heat Dissipation
UPS	1356 lbs	8750 BTU/hr
SBO	13 lbs	- BTU/hr

PHILIPS

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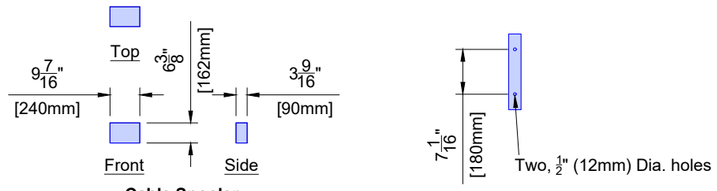
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AD5

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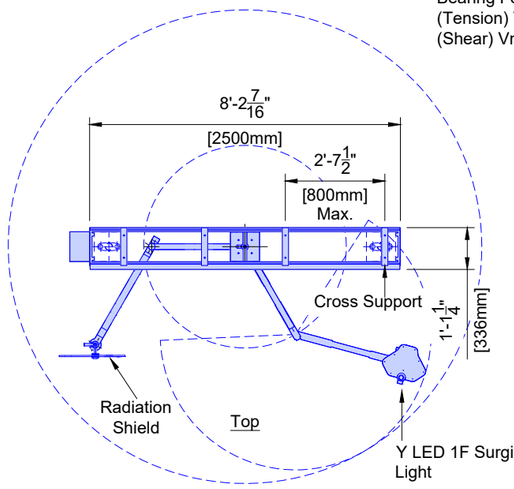
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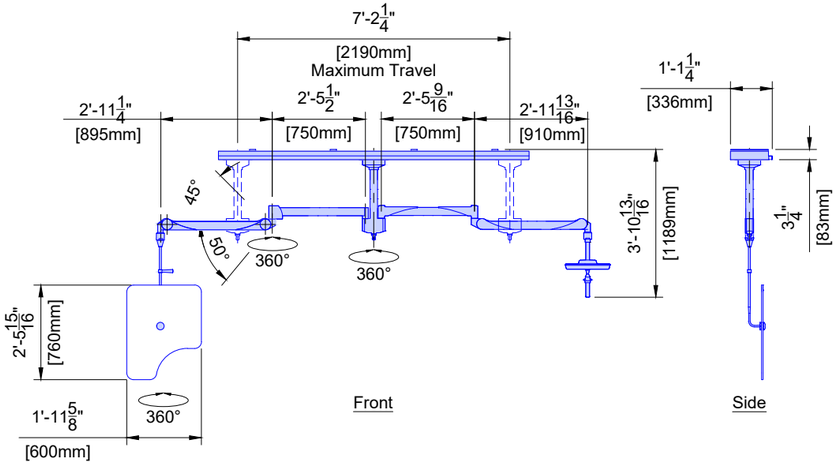
Detail - Cross Support
(Not to scale)



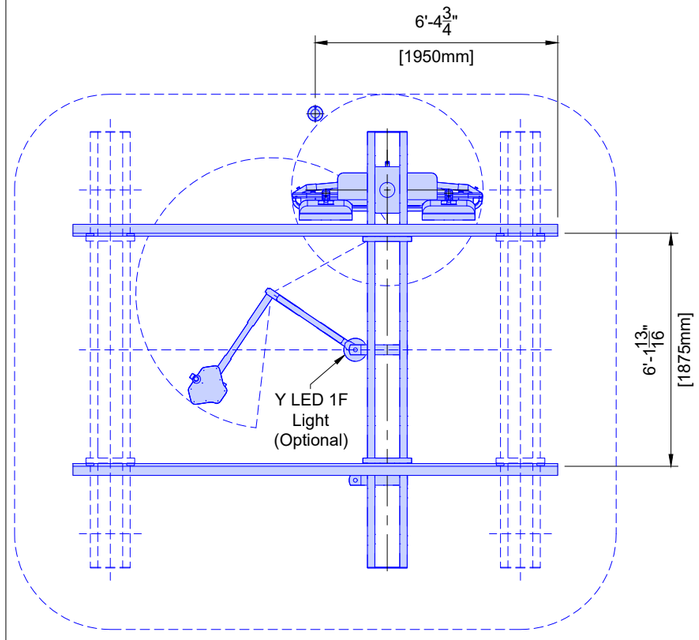
Cable Spooler

Bearing Forces:
(Tension) Tmax = 908 lbs/support
(Shear) Vmax = 38 lbs/support



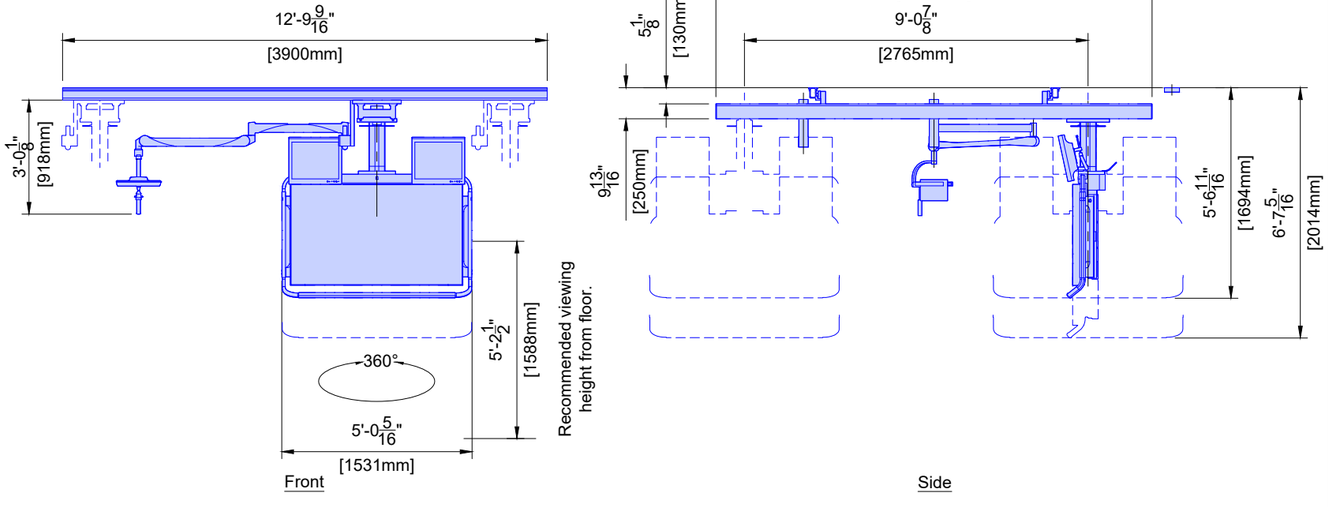


MAV	Mavig 2.5m Ceiling Track w/ Radiation Shield and Y LED 1F light (22.0)	
	Weight	Heat Dissipation
	167 lbs	350 BTU/hr



Bearing Forces:
(Tension) Tmax = 661 lbs/support
(Shear) Vmax = 150 lbs/support

Top



Front

Side

For swing labs, 2700mm long ceiling rails are delivered. Maximum longitudinal column travel = 2100mm.
Weight shown is total weight including monitors, suspension, cabling, and options.

TV	58" + (2) 21" LCD Monitor Suspension with Y LED 1F light (21.0)	
	Weight	Heat Dissipation
	603 lbs	1020 BTU/hr

PHILIPS

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Aurora, CO
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AD6

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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. Philips equipment must be electrically isolated from anchorage.

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.
The floor surface upon which Philips equipment is to be placed/anchored shall be flat and level to within $\frac{1}{16}$" (2mm) over a length of 39" (1m).

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. Philips equipment must be electrically isolated from anchorage.

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 .236" (6mm) per entire span.

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 (i.e., bolts, spring nuts, lock and flat washers) and strip closures shall be provided by the customer.

5. Lighting
Luminaires 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 luminaire 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 Zones 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 this sheet. 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. Philips equipment must be electrically isolated from anchorage.

8. Floor Obstructions/ Floor Coverings
There shall be no obstructions on the floor (sliding door tracks, etc.) within the serviceability area of the Philips technical cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service. Technical equipment room floor shall be commercial grade "VCT" Vinyl Composition Tile or a flooring material of equal hardness and compression resistance.

9. Safety Factors
Ceiling loads as mentioned in the PRD are worst case loads and excluding safety factors. Proper safety factors need to be applied by Design Professional/Engineer of Record.

10. Stiffness Requirements of Ceiling
Horizontal Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
Vertical Stiffness: preferred 10,000,000 Newton/meter - 57.1 klb/in, minimal 6,000,000 Newton/meter - 34.2 klb/in
Rotation Stiffness: minimal 20,000,000 Newtonmeter/Rad - 177,014 (klb in)/Rad

For Clea Stand (1160 kg or 11600 N): the maximum allowed deflection of the ceiling and/or floor construction is 1.93 mm.
For Poly G Stand (1085 kg or 10850 N): the maximum allowed deflection of the ceiling construction is 1.80 mm.
For Poly G Stand (873 kg or 8730 N): the maximum allowed deflection of the floor construction is 1.46 mm.
For Larc Stand (835 kg or 8350 N): the maximum allowed deflection of the ceiling construction is 1.39 mm.
For FlexArm (FlexArm weight is 1250 kg and ceiling stiffness is 6,000,000 Newton/meter): Max allowed deflection of ceiling structure is 2.1mm.
For FlexMove Clea Stand (1860 kg or 18600 N): the maximum allowed deflection of the ceiling construction is 3.10 mm.

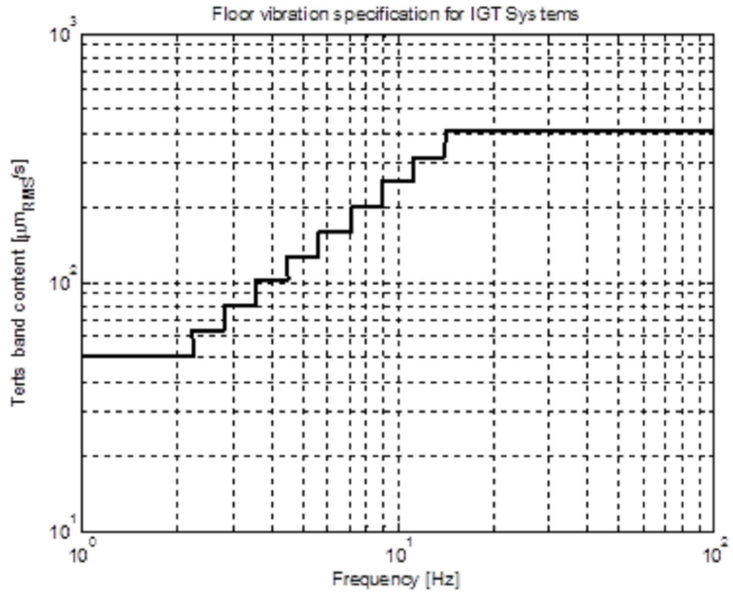
Equipment Support Information

11. Requirements for External Vibration
The maximum allowed external vibration level of floors and ceilings, to which the equipment is mounted that will not adversely affect the image quality, is specified in terms of RMS velocity levels in 1/3-octave or terts bands, as follows:

Center frequency [Hz]	1	1.25	1.6	2	2.5	3.15	4	5	6.3	8
Terts band value [µm/s] (RMS)	50.8	50.8	50.8	50.8	63.5	80.01	101.6	127	160	203.2
Center frequency [Hz]	10	12.5	16	20	25	31.5	40	50	63	80
Terts band value [µm/s] (RMS)	254	317.5	406.4	406.4	406.4	406.4	406.4	406.4	406.4	406.4
Center frequency [Hz]	100	125	160	200						
Terts band value [µm/s] (RMS)	406.4	406.4	406.4	406.4						

Terts Band Specification for External Vibrations

A graphical representation of this specification is given below:



Terts Band Specification for External Vibrations

Terts band spectra shall be calculated on the basis of time traces with a duration of 10 minutes (600 seconds), taken at representative locations and during representative times during working days.

(21.1)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

SN

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See S1 for Floor & Wall Support Layout

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.

Floor & Wall Support Legend

A Furnished and installed/anchored by Philips (exceptions may exist, see Note 2)
B Furnished and installed 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 Number	Description	Detail Sheet
B	CY	Support in wall for Control Room Connection Box (CY)	SD3
A	CY	Anchors in wall for Control Room Connection Box (CY)	SD3
E	MSA	AD7 Universal Floor Plate	SD1
B	FW	Firewall	AD5 SD2
E	MGP	Med Gas Pedestal	-

See S2-S3 for Ceiling Support Layout

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
H Furnished by Philips and installed by Third Party

	Item Number	Description	Detail Sheet
A	SP	2 - Philips Clea Rails	SD1
E	UNI	Unistrut (P1000/P1001 in meeting Philips ceiling requirements, geometry of channel and geometry of fixing block) - Bottom of Unistrut 1/4" (6mm) to 1/2" (13mm) Below Finished Ceiling	SD1
E	EPB	Equipment Rack DVI (EP Power Boom) Ceiling Plate and Interface Plate	SD5
E	AO	Additional Opening on Finished Ceiling - Required for Installation of the Boom (to be covered after Equipment Rack DVI (EP Power Boom) is installed)	SD5
A	TV	2 - Philips Monitor Equipment Rails	SD1
B/G	MAV	Mavig 2.5m Ceiling Track	AD6
B	UNI2	Unistrut (P1000/P1001 in meeting Philips ceiling requirements, geometry of channel and geometry of fixing block) - Bottom of Unistrut 1/4" (6mm) to 1/2" (13mm) Below Finished Ceiling	SD1

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
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Drawn By: Luis Selles

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SL

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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

Planning Issues and Considerations

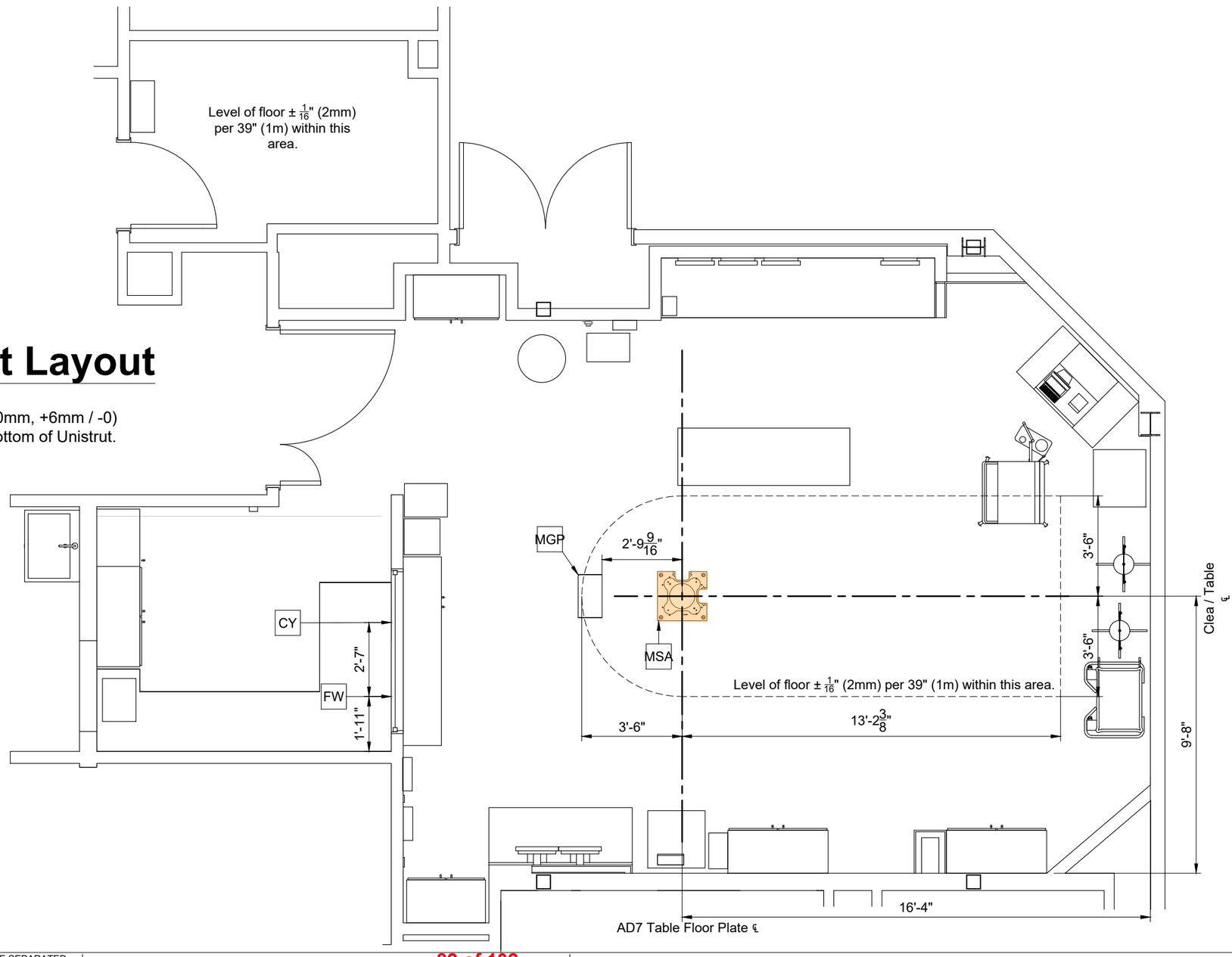
⚠1 Verify exact location and configuration of existing floor plate with local Philips service for reuse.

⚠1

Floor & Wall Support Layout

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



Refer to Floor/Wall Support Legend - Sheet SL

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S1

05.18.2021

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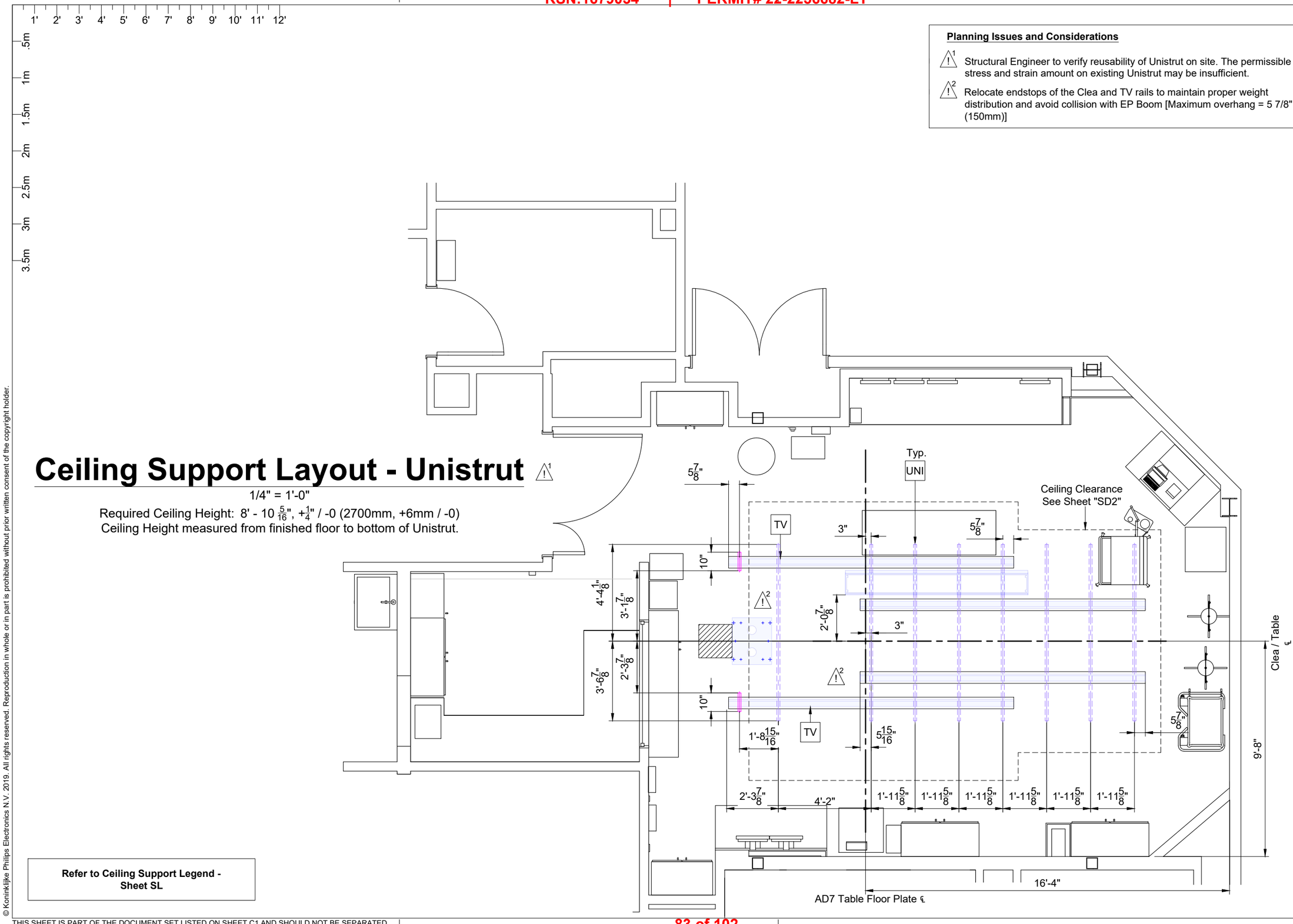
Planning Issues and Considerations

1. Structural Engineer to verify reusability of Unistrut on site. The permissible stress and strain amount on existing Unistrut may be insufficient.
2. Relocate endstops of the Clea and TV rails to maintain proper weight distribution and avoid collision with EP Boom [Maximum overhang = 5 7/8" (150mm)]

Ceiling Support Layout - Unistrut ⚠1

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



Refer to Ceiling Support Legend - Sheet SL

PHILIPS

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S2

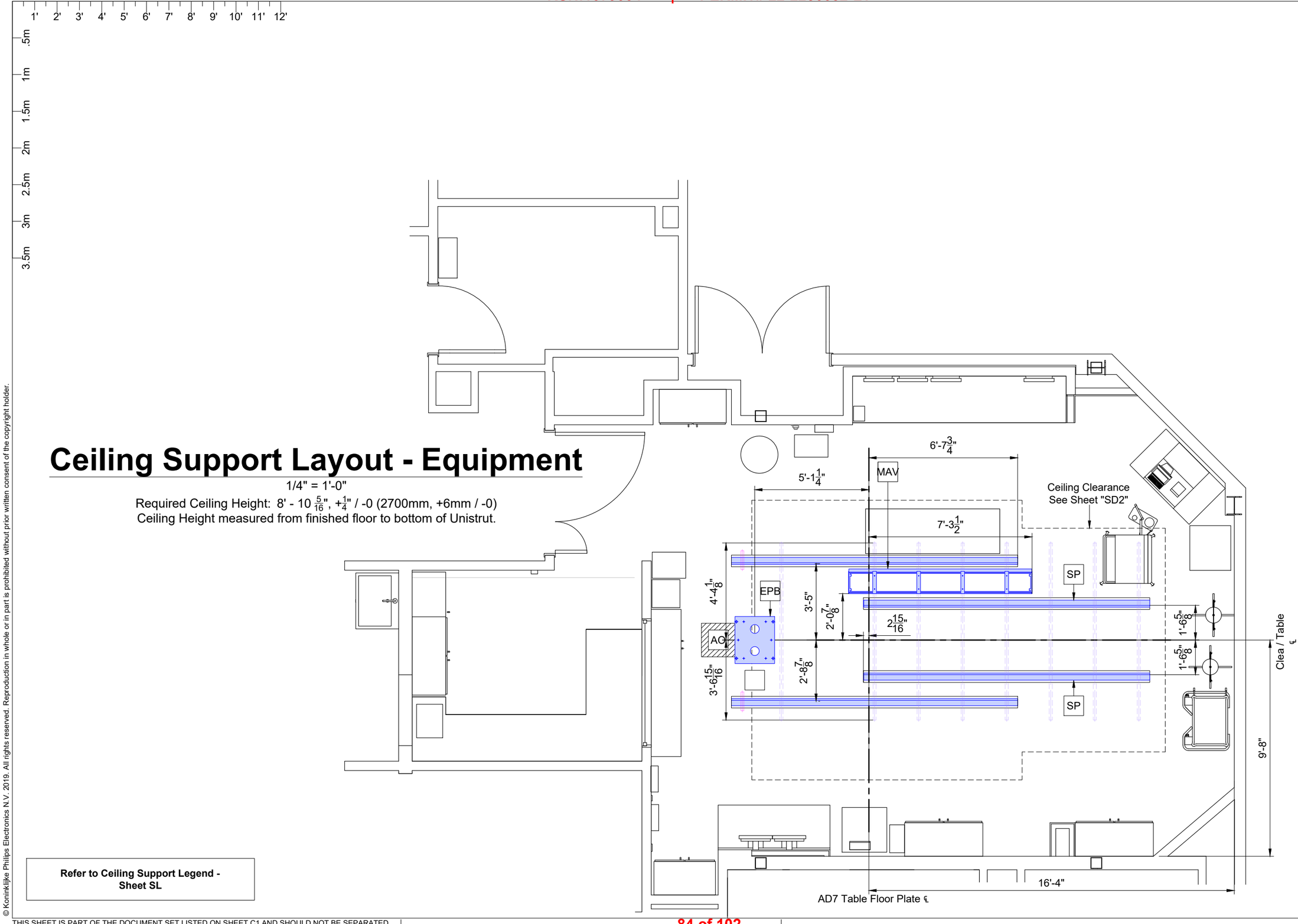
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Ceiling Support Layout - Equipment

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 $\frac{5}{16}$", +$\frac{1}{4}$" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut.



Refer to Ceiling Support Legend - Sheet SL

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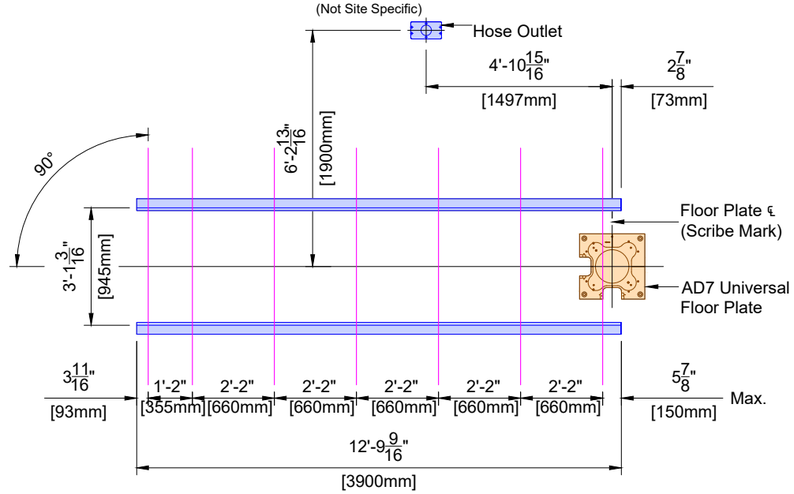
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S3

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Detail - Structural Azurion 7 C20

(Not Site Specific)



27" (685mm) maximum allowed distance between unistrut. 5-7/8" (150mm) maximum rail overhang from last unistrut attachment at either side.
Floor plate supplied by Philips / installed by Contractor. Counterbored holes are sized for 1/2" (12mm) anchors per Seismic requirements.

Clea
Clea Bearing Forces:
(Tension) Tmax = 2931 lbs/fixing block
(Shear) Vmax = 1227 lbs/fixing block

AD7 Table
Floor Plate to Floor Bolt Forces:
(Tension) Tmax = 1950 lbs/bolt
(Shear) Vmax = 776 lbs/bolt

Note: The bearing force shown for the Clea is the maximum instantaneous equipment bearing load that can result from abusive use of the system. This force can occur at two locations (each fixing block) simultaneously on the same Unistrut (or equal) rail.
If seismic forces must be considered, please refer to the seismic calculation sheets provided by Philips for the specific system components.

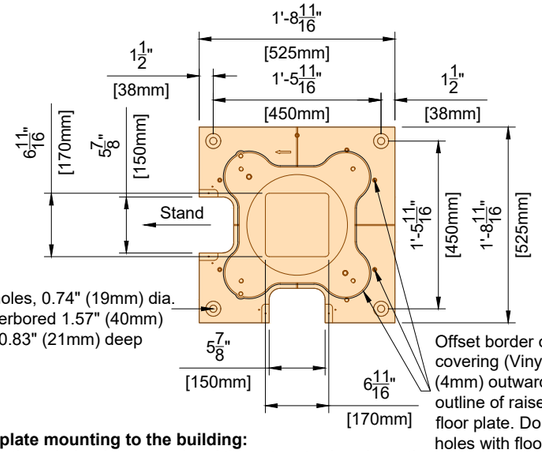
MSA SP

(22.0)

Detail - AD7 Universal Floor Plate - Notes for Installation

(Not to scale)

1. 1.18" (30mm) thick floor plate, flush mounted with top of slab.
2. Level within 1/32" (1mm) per 39" (1m) across surface of plate.



Floor plate mounting to the building:
In case threaded rods are used and the nut protrudes above the floor plate surface, DO NOT GRIND DOWN THE NUT, but follow the procedure stated below to ensure the nut is flush with the floor plate surface.

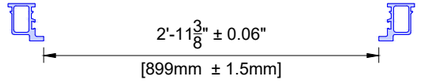
MSA

1. Use Jam nuts M16 (h=8.0mm) or (h=9.5mm)
2. Use only 1 washer.
3. Use loctite 243 instead of a lock washer.
4. Torque value to be determined by structural engineer of record.

(19.0)

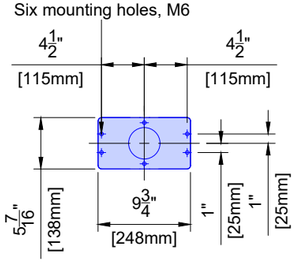
Detail - Clip Rail Spacing

(Not to scale)



Detail - Cable Hose Outlet

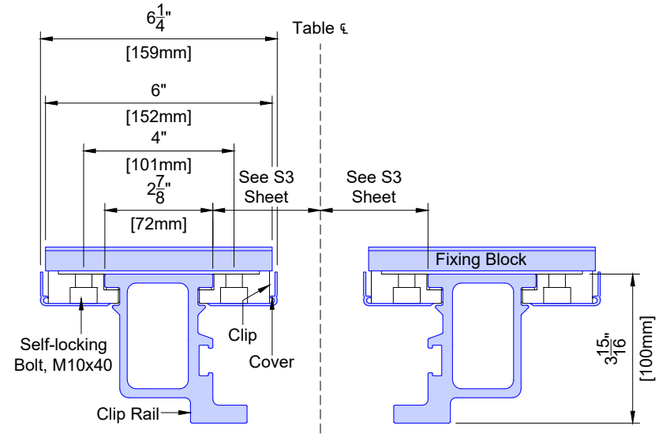
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(12.0)

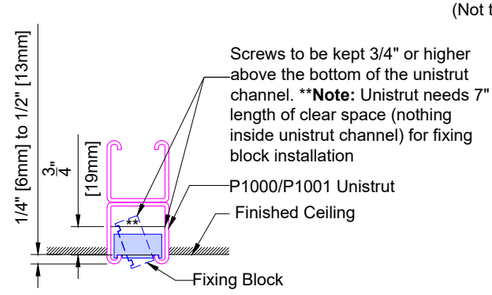
Detail - Clip Rail Cross-Section

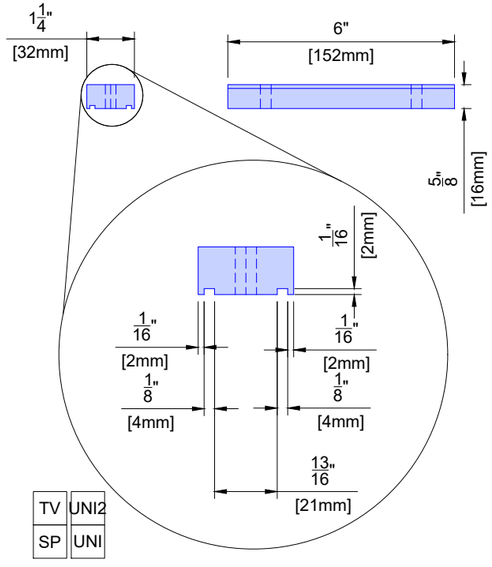
(Not to scale)



Detail - Philips Fixing Block for Philips Ceiling Rails (Clip Rails)

(Not to scale)





TV UNI2
SP UNI

General Requirements:
1. Philips does not specify the overhead equipment support structure. Unistrut 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 its products are appropriate for each project.
2. P1000/P1001 Unistrut is specified.

Finished Ceiling Requirements:
1. 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 mounted 1/4" (6mm) to 1/2" (13mm) above bottom of Unistrut.

Fixing Block Installation Requirements:
1. Nothing shall be attached to the Unistrut with any fastener that protrudes into the Unistrut which would interfere with positioning of the fixing block.
2. Fixing blocks for Philips ceiling rails (Clip rails) are designed to be installed in P1000/P1001Unistrut.
3. The inside of the Unistrut must be clear of obstructions (including paint).

Unistrut Requirements:
1. Unistrut elements must be rigid and comply with the ceiling structure requirements. See SN sheet, line #4 "Ceiling Support Apparatus".
2. Welding Unistrut may warp Unistrut and deteriorate the structural integrity of the Unistrut. Consult the Structural Engineer of Record prior to welding any Unistrut.
3. Third party structural laminar modular array venders the minimum rail fixing block Unistrut length shall be 7 inches.

(22.0)

PHILIPS

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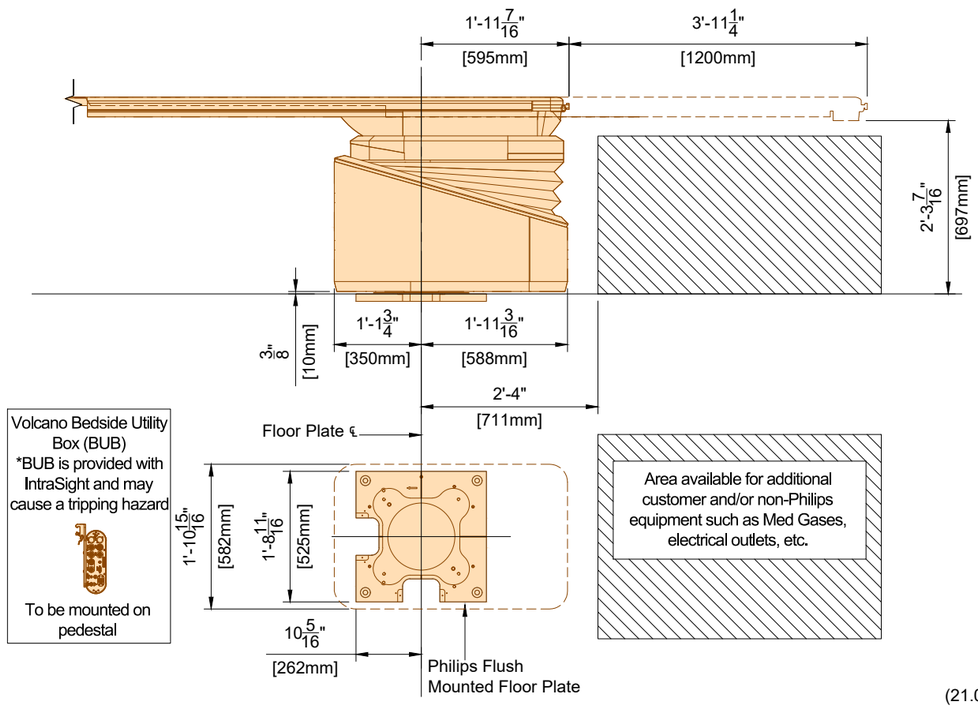
SD1

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Detail - AD7 Table, Fixed/Pivot Base - Clearance Area

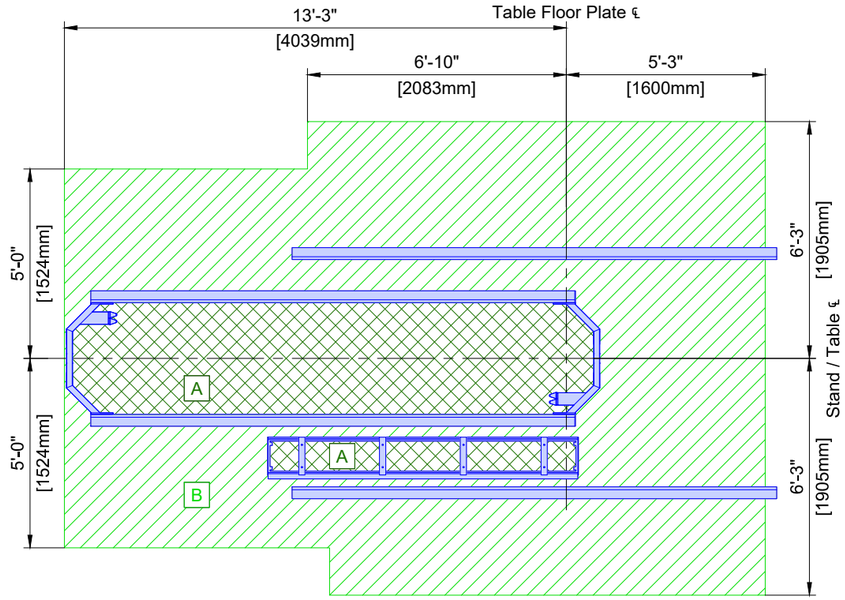
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(21.0)

Detail - Restricted Ceiling Area for Objects that Project Below Finished Ceiling

(Not site specific)



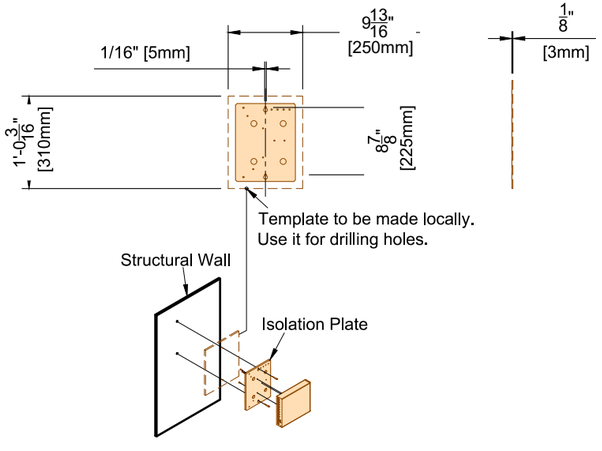
A No objects that project below finished ceiling are allowed in this area (lights, smoke detectors, sprinkler heads, etc).

B No objects that project more than 4.5" (115mm) below finished ceiling are allowed in this area (lights, smoke detectors, sprinkler heads, soffit, etc).

(14.0)

Detail - Firewall Cisco ASA-5506 - Hole Pattern for Mounting

(Not to scale)



FW

(20.0)

PHILIPS

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SD2

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Pre-Evaluated and -Approved Anchor Reference List for Philips Installers

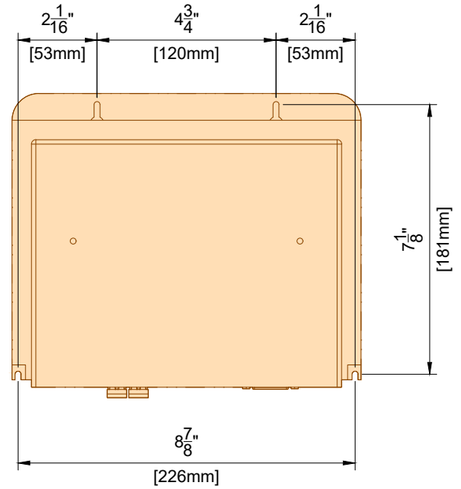
Anchors for items that are installed/anchored by customer/contractor shall be provided by customer/contractor. Anchors for items that are installed/anchored by Philips shall be provided by Philips. If customer's engineering documents specify anchors other than those listed below, the anchors shall be 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)
Mavig Ceiling Track	A	Bolts, flat washer, lock washer, spring nuts	A307 Grade or ASME Grade 5 Bolts: $\frac{3}{8}$" (10mm) x 2" (50mm) L Spring Nuts: $\frac{3}{8}$" (10mm)	8	Unistrut
Control Room Connection Box (CY)	A	Round Phillips Head Self Drilling Screws	#10-16 x 1 $\frac{1}{2}$" (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	B	SPAX Multipurpose flat head screw	#10 x 1 $\frac{1}{2}$" (38mm) L	3	Drywall with minimum 20 gauge Steel backing
	C	Toggler Snaptoggle and (round head screws)	#BA and (#10-24 x 2 $\frac{1}{2}$" (63.5mm) L)	3	Minimum $\frac{5}{8}$" (16mm) Drywall

(16.0)

Detail - Video Connection Box - Hole Pattern for Mounting

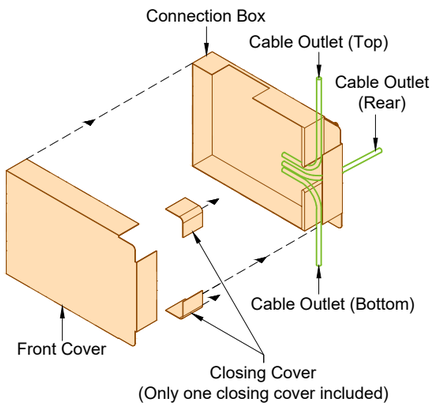
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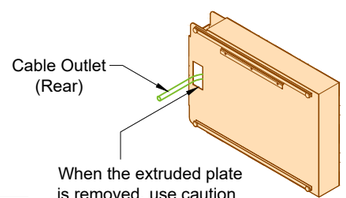


(19.0)

Detail - CY - Cable Outlets

(Not to scale)



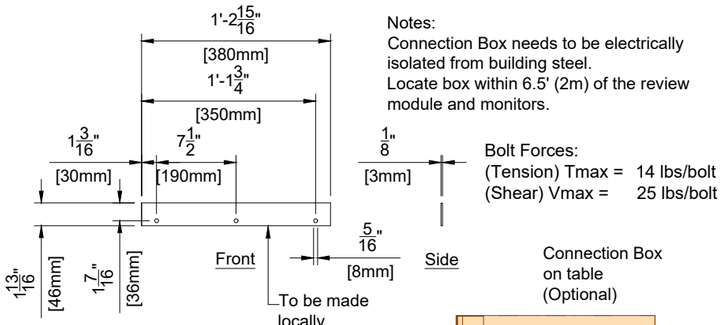


CY

(19.0)

Detail - CY - Wall Mount Template

(Not to scale)

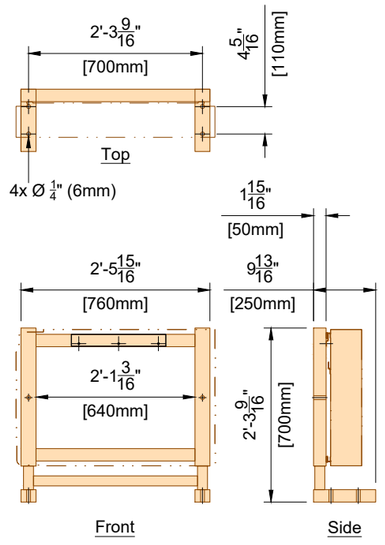


Connection Box Weight: 66 lbs

(17.0)

Detail - CY Support Frame Option

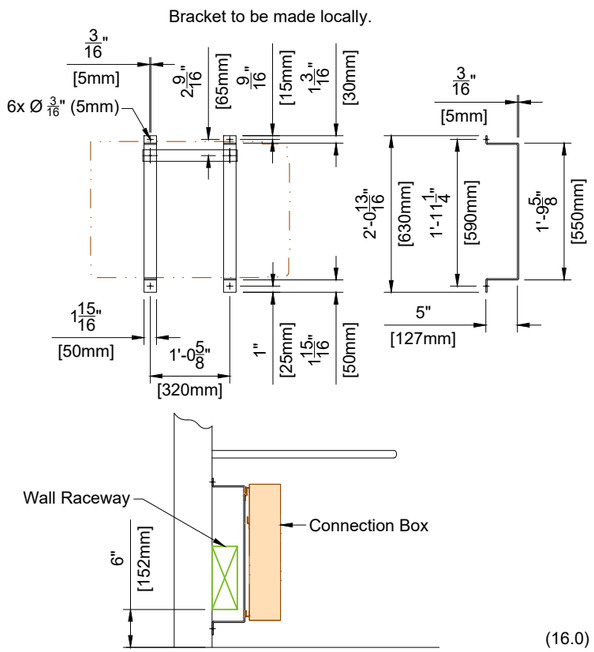
(Not to scale)



(16.0)

Detail - CY - Bracket Mount Option

(Not to scale)



(16.0)

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

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Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

SD3

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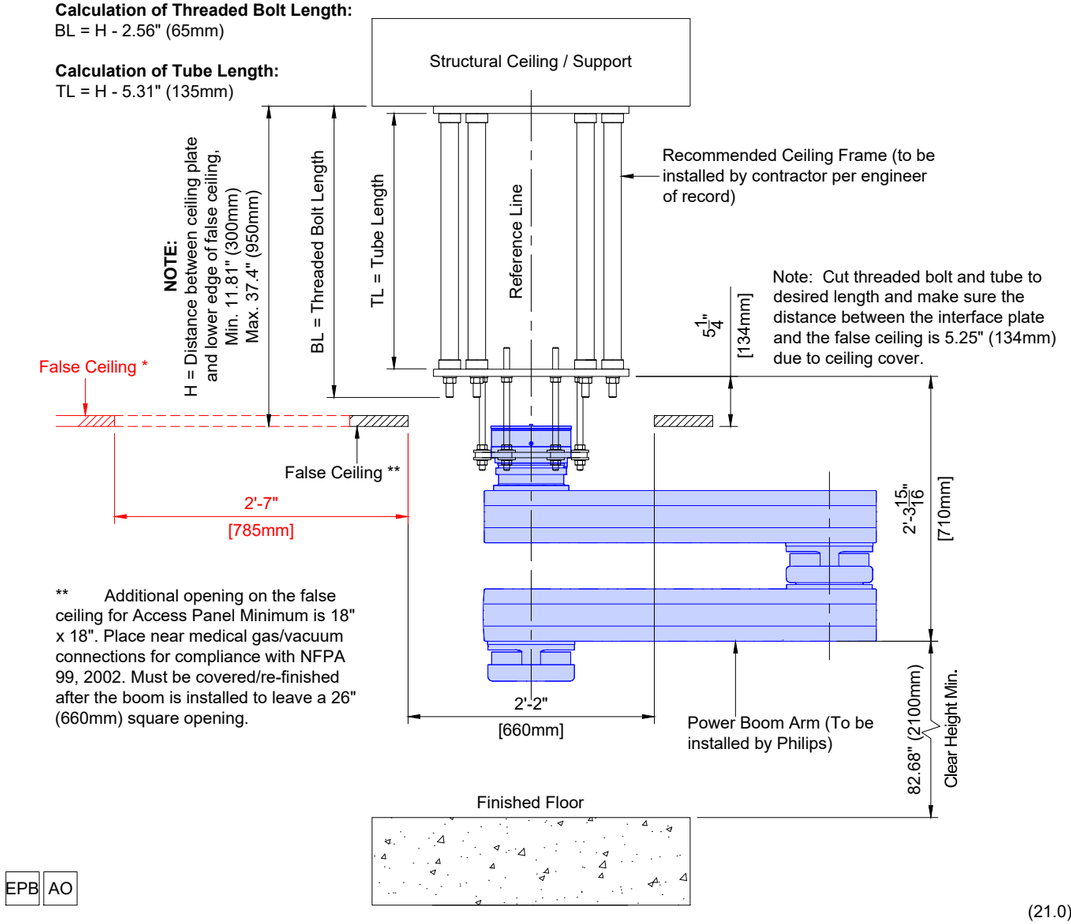
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Detail - Calculation of Bolt/Tube Length from Ceiling Frame Power Boom

(Not to scale)

Calculation of Threaded Bolt Length:
BL = H - 2.56" (65mm)

Calculation of Tube Length:
TL = H - 5.31" (135mm)



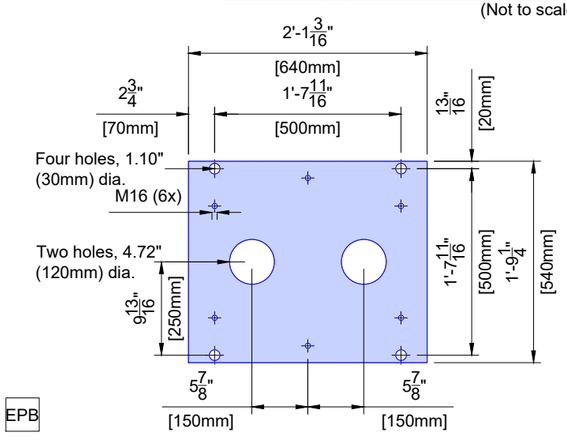
** Additional opening on the false ceiling for Access Panel Minimum is 18" x 18". Place near medical gas/vacuum connections for compliance with NFPA 99, 2002. Must be covered/re-finished after the boom is installed to leave a 26" (660mm) square opening.

EPB AO

(21.0)

Detail - Equipment Rack DVI (EP Power Boom) Interface Plate

(Not to scale)



0.78" (20mm) thick ceiling plate, mounted to the structural ceiling.

Ceiling plate mounting to the building:
Use heavy load anchors (4X) (not supplied), recommended:
1. HILTI HST M20 x 170/30

Max. vertical force = 1060 lbs (481 kg)(4718N)

Max Load Bearing Capacity of Ceiling Frame Kit = 13,700N and 13,500NM bending moment

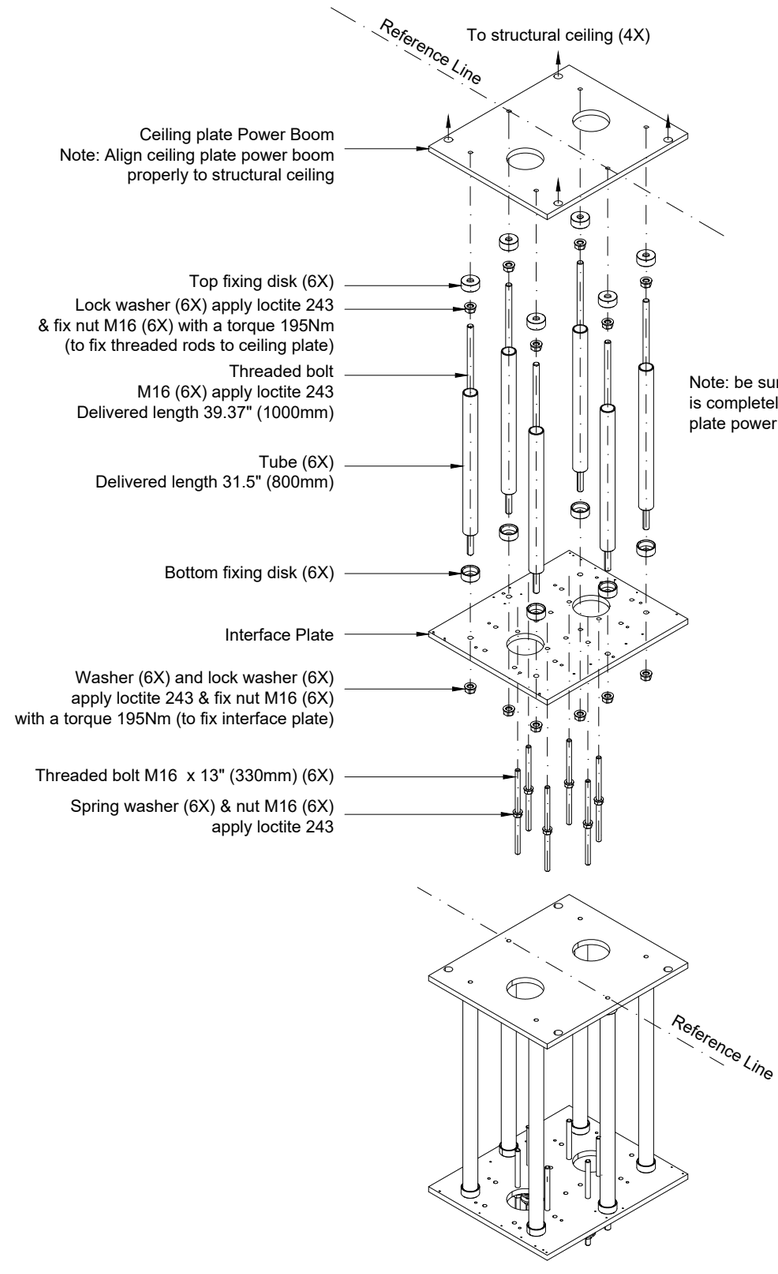
EPB

(21.0)

Detail - Exploded Ceiling Frame Power Boom

(Not to scale)

To be installed by customer/contractor per engineer of record.



Note: be sure that threaded bolt M16 (6x) is completely screwed (20mm) in ceiling plate power boom

EPB

(21.0)

PHILIPS

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Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
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Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

SD4

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Emergency Power

Philips does not require equipment to be on emergency power. If the customer deems it necessary for the equipment to be supplied with emergency power, the following specifications must be applied:

The Mains 40E cabinet feeding an Azurion system will have an absolute peak current of <=300A @ 480V. Maximum momentary current <=80A per phase when averaged over a 5-second window. Note that during acquisition, the current harmonics (including sub- and inter-harmonics) up to 1 kHz can be substantial. Account for: 30% for the mains frequency +/- the frame speed, up to 20% for the 5th harmonics, up to 10% for the 7th harmonics.

Maximum differential mode induced disturbance voltage on these wires shall be a <3V peak at all frequencies. Maximum common mode current on these wires shall be less than 3 micro-amp at frequencies between 30-1000MHz to meet EMC regulations.

For systems delivered to site before Jan 2016 or with SIB (system interface box) 4522163320978. When this interface is used a Sub-D capacitive filter adapter with 5.6nF between pins and chassis shall be placed on X14 of the SIB input in the MA-cabinet (e.g. Amphenol FCE17B25AD290).

(22.0)

Electrical Requirement Notes for Systems with Mains 40E Cabinet

Electrical power distribution at the facility shall comply with:

Utilization voltages per ANSI C84.1 - 2006 range A.

Voltage to be supplied is 3 phase, Wye or symmetric Delta 3-line +PE.

Phase conductors to be sized for instantaneous voltage drop per NEC 517.73 and Philips recommendations.

All Philips equipment is grounded via the equipment insulated ground wire. Metal raceway bonding shall be used as a secondary ground fault return path only for the supply mains to the equipment. The raceway system ground and isolated equipment ground shall be bonded together via the ERB terminal jumpers.

The Philips system has a private ground domain per clause 250.96B of the NEC. The raceway from the X-ray breaker (CB) to the Mains 40E Cabinet shall be supplemented by an internal insulated equipment grounding conductor installed in accordance with clause 250.146(D) of the NEC. The Azurion equipment ground domain and the branch circuit ground domain are bonded together in the ERB via a ground bonding jumper.

ANSI / NFPA 70 - National Electrical Code
Article 250 - Grounding
Article 517 - Healthcare Facilities
ANSI / NFPA 99 - Healthcare Facilities

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, and Voltage regulators.
Do not install such devices in the supply mains branch circuit of the Azurion system without consulting Philips installation or service personnel.
4. Line impedance is the combined resistance and inductive reactance 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. The minimum conductor size is based on the total line impedance and NEC requirements. Impedance calculations are to be performed by an electrical engineer.

(22.0)

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, raceways (conduits, wireways, auxiliary gutters etc.), 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 four separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: Branch circuit equipment supply mains power wires together with the branch circuit isolated equipment bonding wire. Group B: Equipment Secondary Circuit AC supply and associated isolated ground cable/wire harnesses. Group C: Equipment signal wires and cable harnesses plus equipment low-voltage DC supply cable/wire harnesses. Group D: X-Ray high-voltage cables, the use of 90 deg. ells is not acceptable. On ceiling duct and wall duct use 45 deg. bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables based on 725.136 for low voltage signaling cables and conductors and 517.80 for communications and signaling cables in health care applications. Secondary circuits of transformer powered communications and signaling systems are not required to be enclosed in raceways unless otherwise specified by Chapter 7 or Chapter 8. All wire harnesses of the Azurion system are required to be run in a raceway (wireway) dedicated to Azurion wire harnesses. No foreign wiring shall be run in the same wireway together with the Azurion wire harnesses. Separation between Group A and other groups is mandatory along the full run of group A wires. Separation between groups B, C, and D is recommended for the first 3 meters behind the equipment cabinets and for the locations where wire-harness over-length is suspended.

4. Raceways (Conduit)
Raceway (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. Best practice to name the physical conduit. 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 90°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. (19.0)

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, raceway 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) must be provided with raceway runs to validate runs are within length restrictions.

3. All pre - terminated, cut to length cables, will be supplied and installed by Philips. All cables and conductors to the equipment supply mains branch circuit breaker shall be supplied and installed by the contractor, subject to local arrangements.

4. Provide and install 50mm diameter chase nipples between adjacent wall boxes.

5. Electrical raceway ducts 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 raceways 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 systems as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway systems could exceed maximum allowable length of furnished cables. Conduits or raceways installed above ceilings must be kept as near as practicable to finished ceilings and still permit accessibility.

6. Raceway sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Code, whichever govern.

7. Convenience outlets are not shown on the plans. Their number and location are to be specified by the customer/architect.

8. Electrical contractor shall install grounding and bonding conductors at raceway openings within wall boxes as required by national and local electrical codes. Ground bond wires and lugs shall be installed in such a way to prevent the inadvertent contact with the installed Philips equipment to maintain Philips isolated ground scheme and maintain patient safety.

9. Install an insulated stranded ground wire per feeder/conductor size from the Main Disconnect (CB) to the ERB (minimum size 4 AWG) and from the ERB to the Mains 40E Cabinet (minimum size 4 AWG).

10. Philips equipment must be electrically isolated from conduits, raceways, ducts, seismic anchoring, floor anchoring, etc.

(18.0)

PHILIPS

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Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

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Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

EN

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Electrical 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 Number	Description	Detail Sheet
		Wall	
B	GE	Local building steel (i.e. structural steel, ground rod). (Not shown on plan)	
B	ERB	Equi-Potential Reference Bar mounted in a 12" (305mm) W x 12" (305mm) H x 4" (105mm) D pull box with hinged cover, surface mounted to the top of "WR2" when possible.	ED2
B	CY, WM, VB1, VB2, VB3, INT, SYNC	Grommet opening on "WR3". Approximate location shown is recommended and may be changed - verify relocation with local Philips Service.	
B	VB9, VB4, VB5, VB6, VB7, VB8	4" (105mm) W x 4" (105mm) H x 4" (105mm) D pull box with removable screw-type cover plate, flush mounted. Exact height to be determined. Verify location with local Philips Service.	
E	ME, MR, MA, MB	19 $\frac{1}{4}$" (490mm) W x 67" (1705mm) H x 4" (105mm) D flanged-edge terminal wall box, surface mounted 75" (1905mm) A.F.F. to top of box.	ED3
E	WR1, WR2	10" (255mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at finished floor. "WR2" is at 75" (1905mm) A.F.F. to bottom of raceway.	ED3
E	WR3	10" (255mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR3" is at finished floor. "WR3" may need to be cut at the location of the "CY" connection box.	ED3
B	PHY	Stub up point for physiological monitoring cables. Run conduit to customer's physiological console location. Contact manufacturer for power requirements, etc.	
E	ATY	Auxiliary Box - 6" (155mm) W x 6" (155mm) H x 4" (105mm) D wall box, flush mounted with removable screw-type cover plate. Location shown is recommended and may be changed - verify height and relocation with local Philips Service.	
B	WL	Warning Light - Provide a surface or flush mounted light fixture above door to indicate when X-ray is on, if required by local code or physicist of record. See Sheet "ED2" diagram for connection details. (Not shown on plan)	ED3
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. See Sheet "ED2" diagram for connection details. (Not shown on plan)	ED3
B	FW	Approximate location shown for Firewall is recommended and may be changed - verify relocation with local Philips Service. Firewall must be installed maximum of 6'-6 3/4" from the CY.	
B	WR4	10" (255mm) W x 4" (105mm) D wall raceway, surface mounted with removable screw-type cover plate. "WR4" is at finished floor.	ED3

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	Item Number	Description	Detail Sheet
		Floor	
E	MSA	10" (255mm) W x 10" (255mm) L x 6" (155mm) D floor box, under the floor with a 5" (130mm) core drill up to the underside of AD7 universal floor plate. Contractor to provide protection around core drill hole so that there are no sharp edges for protection of cables. Consult with local Philips Service. Extended as needed.	
E	MGP	Med Gas Pedestal. Verify exact size with customer/contractor and location with Local Philips Service.	
		Ceiling	
E	SP	18" (460mm) W x 18" (460mm) L x 6" (155mm) D ceiling box, flush mounted with removable screw-type cover plate. Provide one 3" (80mm) diameter knockout.	
E	TV	18" (460mm) W x 18" (460mm) L x 6" (155mm) D ceiling box, above finished ceiling. Provide a 2 1/2" (65mm) round cutout (Two 2 1/2" (65mm) round cutouts are required for systems with two monitor carriages. Box to be located near the 3rd party boom(s) with the Philips monitors, coordinate locally. (Not shown on plan)	
B	TV2, TV3, TV4	6" (155mm) W x 6" (155mm) H x 4" (105mm) D ceiling box, above finished ceiling. Location to be determined, verify location with local Philips Service.	
E	EPB, VB10	18" (460 mm) W x 18" (460 mm) L x 6" (150 mm) D ceiling box, above finished ceiling. Video connection box mounted on Equipment Rack DVI (EP Power Boom).	
B/G	M3	4" (105 mm)W x 4" (105 mm)L x 2 1/2" (65 mm)D ceiling box, flush mounted with removable screw-type cover plate. Hardwire 120 - 240 VAC, 50 - 60 Hz hospital power to "M3".	
		Duplexes	
B	S	120V/20A dedicated duplex outlet for service in the equipment room. (Not shown on plan)	
B		120V/20A dedicated duplex outlet.	
G	250	250V/30A dedicated duplex outlet for optional third party equipment (e.g. Spectranetics Laser - Not shown on plan).	
B	3	120VAC with 1Amp power draw SBO (Signaling Box Option)	
E	1	Provide (2) 120V/20A power supply for the Equipment Rack DVI (EP Power Boom) convenience and emergency outlets. Contractor to install power to the EP Power Boom.	
E	2	Provide 6A fused switchable circuit for the Equipment Rack DVI (EP Power Boom) electrical brakes. Must be connected to a separately switchable electric circuit. Contractor to install power to the EP Power Boom.	
		Network Connectors	
B	N1	RJ45 type Ethernet 10/100/1000 Mbit network connector with access to customer's network. 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 these components.	
B	N2	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity.	N1

See E1 - E4 sheets for conduit and raceway requirements.

PHILIPS

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Drawing Number
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Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
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EL1

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Item Number — Detail Sheet

Description

Electrical Legend

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Item Number — Detail Sheet

Description

Wall

B	CB	480V, 3 phase, Type D 80 A circuit breaker with long-time delay (e.g. Square D HDL36080 or equivalent). Run power from breaker to "MA", leaving an 8' (2440mm) tail at "MA". 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" (if required by local code or owner, and mandatory for VA and D.O.D installations). If UPS is utilized, EPO switch will run 2 sets of communication wires to input breaker to UPS and to UPS itself (Not shown on plan)	ED4
B	CB2	UPS input breaker. 125A, 3-pole circuit breaker with shunt trip. (Not shown on plan).	ED4
D	UPS	UPS - 75 kVA.	ED4
D	SBO	Signaling Box Option (wall mounted in the control area). Exact height to be determined. Location shown is recommended and may be changed - verify relocation with customer/contractor.	ED4
E	R2, R3, R4	18" (457mm) W x 3 $\frac{1}{2}$" (89mm) D riser duct with removable screw-type cover plate, flush mounted from to above finished ceiling. R2 and R3 are not shown, existing location to be determined on the field with the current site conditions.	ED3
E	R1	10" (255mm) W x 4" (105mm) D riser duct with removable screw-type cover plate, surface mounted from wall raceway to wall box.	ED3
E	R5	18" (457mm) W x 3 $\frac{1}{2}$" (89mm) D riser duct with removable screw-type cover plate, surface mounted from WR2 to above finished ceiling.	ED3

See E1 - E4 sheets for conduit and raceway requirements.

PHILIPS

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EL2

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Electrical Layout ⚠1

1/4" = 1'-0"

Required Ceiling Height: 8' - 10 5/16", +1/4" / -0 (2700mm, +6mm / -0)
Ceiling Height measured from finished floor to bottom of Unistrut..

Planning Issues and Considerations

⚠1 Verify exact location and configuration of existing electricals with local Philips service for reuse.

General Notes for Testing and Service Purpose: (22.0)

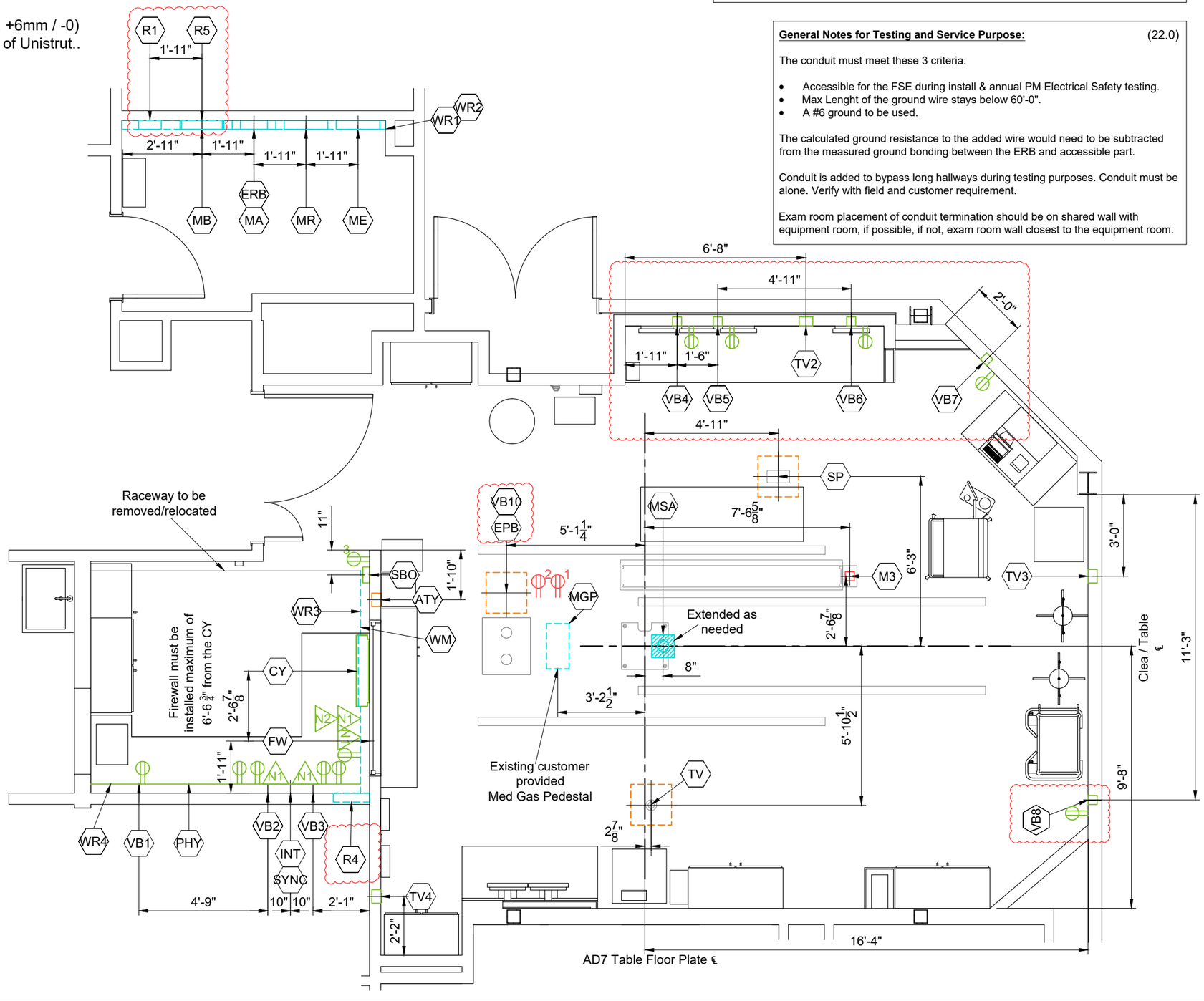
The conduit must meet these 3 criteria:

- Accessible for the FSE during install & annual PM Electrical Safety testing.
- Max Lenght of the ground wire stays below 60'-0".
- A #6 ground to be used.

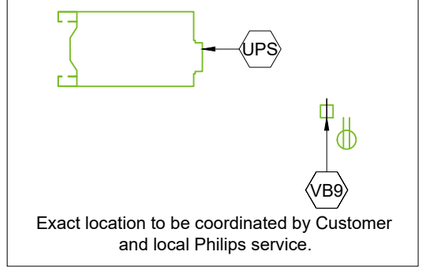
The calculated ground resistance to the added wire would need to be subtracted from the measured ground bonding between the ERB and accessible part.

Conduit is added to bypass long hallways during testing purposes. Conduit must be alone. Verify with field and customer requirement.

Exam room placement of conduit termination should be on shared wall with equipment room, if possible, if not, exam room wall closest to the equipment room.



Refer to Electrical Legend - Sheet EL1 and Raceway/Conduit - Sheet E2-E4



Exact location to be coordinated by Customer and local Philips service.

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
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Drawn By: Luis Selles

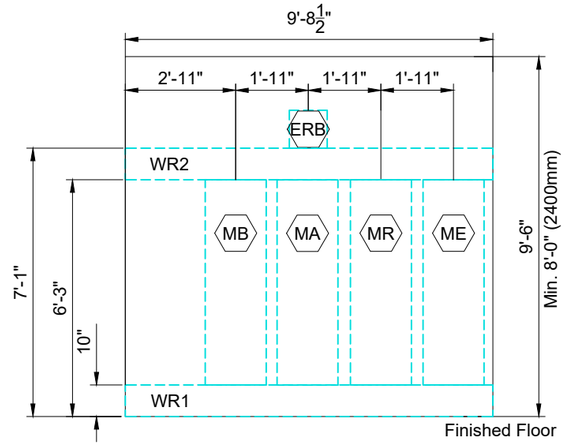
Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

E1

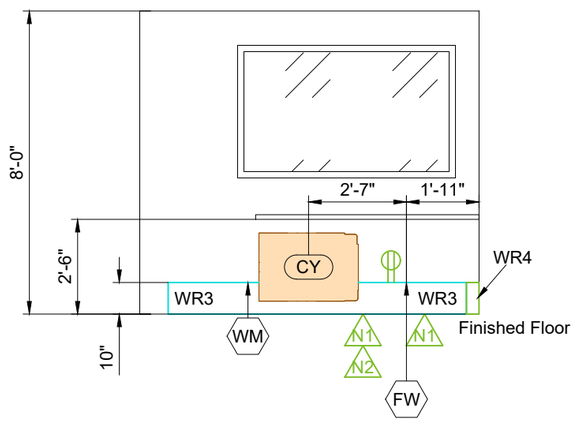
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Equipment Closet
(Site Specific)



Control Room
(Site Specific)



Note: The use of 90 degree ells is not acceptable. Use 45 degree bends at all raceway corners. For raceway (conduit) runs, use the minimum bending radius specific to the raceway (conduit) diameter. The use of crossover tunnels at all applicable locations is required. The above mentioned recommendations will help to ensure the integrity of the cables and fiber optic runs.

* **Countertop Height Guide:**
  30" (765mm) for standard seated height.
  36" (915mm) for standard standing height.
* **Ensure that the wall junction boxes are mounted perpendicular to the floor.**
* **Verify exact ceiling height of Equipment and Control Room Area.**
* **Architect to coordinate with end users/technicians to determine final placement of control desk components prior to installation in order to avoid rework. Architect to coordinate with Philips Project Manager to reflect final placement on Philips drawings.**

PHILIPS

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E2

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RSN:1679034 | PERMIT# 22-2256682-LT

Raceway (Conduit) Required

General Notes

1. All raceway (conduit) runs must take most direct route point to point.
2. A Greenlee pull string/measuring tape (part no. 435, or equivalent) must be provided with raceway (conduit) runs

A Raceway (Conduit) supplied/installed by contractor - Philips cables installed by Philips
B Raceway (Conduit) supplied/installed by contractor - Philips cables installed by contractor
C Raceway (Conduits) and cables supplied and installed by contractor
D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC), D Power (DC), G Ground, S Signal, H High Tension, C Cooling Hose, A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	1	ERB	GE	1	G	¾"	6'	-
C	2	ERB	Room Outlets	1	G	¾"	-	See Sheet "ED2" for details.
C	3	MA	WL	1	P	¾"	55'	-
C	4	ATY	DS	1	S	¾"	55'	-
A	5	ATY	MA	1	S	2 ½"	41'	-
A	6	ATY	TV	1	S	¾"	65'	-
A	7	SP	ME	2	C	1 ½"	44'	Tube Cooling Hoses.
A	8	SP	ME	1	P/G	1 ½"	39'	-
A	9	SP	ME	1	S	1"	39'	-
A	10	SP	ME	1	H	2 ½"	37'	High Tension Cables.
A	11	SP	MR	1	P/G	2"	39'	-
A	12	SP	MR	1	S	2"	39'	-
A	13	SP	MA	1	S	2"	37'	-
A	14	MSA	MA	1	S	3"	39'	-
A	15	MSA	MA	1	P	1 ½"	39'	-
A	16	MSA	MR	1	P/G	2"	39'	-
A	17	MSA	MR	1	S	2"	39'	-
A	18	TV	MA	1	P	1 ½"	55'	-
A	19	TV	MA	1	S	2 ½"	55'	-
A	20	TV	MR	1	P	2"	55'	-
A	21	TV	MB	1	S	1 ½"	55'	For FlexVision XL.
A	22	TV	MB	1	P/G	1 ½"	55'	-
A	23	TV	WM	1	S	¾"	65'	For Intercom.
A	24	CY	MR	1	S	2"	55'	Conduits to land on wall raceway adjacent to CY.
A	25	CY	MA	1	P/G	1 ½"	55'	Conduits to land on wall raceway adjacent to CY.
A	26	CY	MA	1	S	2 ½"	55'	Conduits to land on wall raceway adjacent to CY.
A	27	MA	WM	1	S	1 ½"	82'	Conduits to land on wall raceway adjacent to CY.
A	28	MR	WM	1	S	1"	82'	Conduits to land on wall raceway adjacent to CY.
A/C	29	TV	WR3	2	S	1 ½"	-	For equipment (IE. Physio Monitor/ Slave Monitor/ VBs on back of FlexVision) For future options (Patient Monitoring). Verify with local Philips Service if auxiliary box should be used.
C	30	MSA	WR3	2	S	1 ½"	-	

* Verify with 3rd party vendor for conduit and power requirements of the components placed in the Equipment Rack DVI (EP Power Boom) (EPB).

Raceway (Conduit) Required

General Notes

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2. All raceway (conduit) runs must have a pull string.

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D Raceway (Conduit) existing - cables supplied and installed by Philips
E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* P Power (AC), D Power (DC), G Ground, S Signal, H High Tension, C Cooling Hose, A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	31	MSA	PHY	1	S	2 ½"	-	For future options (Patient Monitoring). Verify with local Philips Service if auxiliary box should be used.
G	32	PHY	Physio Monitor	1	S	2"	33'	Optional for remote location.
G	33	Third Party	Third Party	-	-	-	-	For Injector, Auxiliary Box, Patient Monitoring, Video Networking, etc.
G	34	Third Party	ERB	-	G	-	-	For Injector, Auxiliary Box, Patient Monitoring, Video Networking, etc.
A	35	VB1	MB	1	S	1"	82'	-
A	36	VB2	MB	1	S	1"	82'	-
A	37	VB3	MB	1	S	1"	82'	-
A	38	VB4	MB	1	S	1"	82'	-
A	39	VB5	MB	1	S	1"	82'	-
A	40	VB6	MB	1	S	1"	82'	-
A	41	VB7	MB	1	S	1"	82'	-
A	42	VB8	MB	1	S	1"	82'	-
A	43	VB9	MB	1	S	1"	82'	-
A	44	VB10	MB	1	S	1"	82'	-
A	45	VB4	CY	1	S	1"	91'	-
A	46	VB5	CY	1	S	1"	91'	-
A	47	VB6	CY	1	S	1"	91'	-
A	48	VB7	CY	1	S	1"	91'	-
A	49	VB8	CY	1	S	1"	91'	-
A	50	VB9	CY	1	S	1"	91'	-
A	51	VB10	CY	1	S	1"	91'	-
A	52	INT	MSA	1	S	3"	75'	Conduit opening must be covered if the IntraSight system is planned for future installation.
C	53	Power Panel	CB2	1	P	Per N.E.C.	Per N.E.C.	
C	54	Power Panel	CB2	1	G	Per N.E.C.	Per N.E.C.	
C	55	CB2	UPS	1	G	Per N.E.C.	Per N.E.C.	
C	56	UPS	CB	1	G	Per N.E.C.	Per N.E.C.	
C	57	CB	ERB	1	G	Per N.E.C.	Per N.E.C.	Conduit must hit WR2 raceway.
C	58	MA	ERB	1	G	Per N.E.C.	Per N.E.C.	
C	59	WR2	ERB	1	G	Per N.E.C.	Per N.E.C.	
C	60	CB2	UPS	1	P	Per N.E.C.	Per N.E.C.	

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
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E3

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Raceway (Conduit) Required

General Notes

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E Raceway (Conduit) existing - cables supplied by Philips and installed by contractor
F Raceway (Conduit) existing - cables supplied and installed by contractor
G Optional equipment, verify with local Philips Service

* **P** Power (AC)
D Power (DC)
G Ground
S Signal
H High Tension
C Cooling Hose
A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements
C	61	CB2	ST	1	P	Per N.E.C.	Per N.E.C.	
C	62	UPS	ST	1	S	Per N.E.C.	Per N.E.C.	
C	63	UPS	CB	1	P	Per N.E.C.	Per N.E.C.	
C	64	CB	MA	1	P	Per N.E.C.	Per N.E.C.	Conduit must hit WR2 raceway.
C	65	UPS	MA	1	S	Per N.E.C.	Per N.E.C.	
C	66	SBO	UPS	1	S	Per N.E.C.	Per N.E.C.	For Signaling Box Option.
A	67	TV2	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	68	TV2	MB	1	P	2 1/2"	82'	Live/reference monitors.
A	69	TV3	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	70	TV3	MB	1	P	2 1/2"	82'	Live/reference monitors.
A	71	TV4	MB	1	S	2 1/2"	82'	Live/reference monitors.
A	72	TV4	MB	1	P	2 1/2"	82'	Live/reference monitors.
D	73	EPB	WR2	1	G	1"	-	-
D	74	EPB	CY	1	S	1"	78'	-
D	75	EPB	MB	1	S	1"	68'	-
C	76	EPB	WR3	1	S	2 1/2"	-	*For 3rd party equipment.
G	77	EPB	WR3	1	P	2 1/2"	-	*For 3rd party equipment.
C	78	WR1	WR3	1	P	2 1/2"	-	*For 3rd party equipment to control room.
G	79	WR1	WR3	1	S	2 1/2"	-	*For 3rd party equipment to control room.
G	80	WR2	WR3	1	G	1"	60'	For Testing & Service Purposes. Required to run a #6 ground. #6 ground to be ran in conduit non-terminated. Refer to E1 for further explanation.
C	81	Power Supply	M3	1	P	3/4"	-	Project electrician to land 120 - 240 VAC, 50 - 60 Hz in M3 terminal block. Light requires: Plus 24, Minus 24, and Ground.
C	82	Power Supply	TV	1	P	3/4"	-	Project electrician to land 120 - 240 VAC, 50 - 60 Hz in TV terminal block. Light requires: Plus 24, Minus 24, and Ground.
A	83	INT	MGP	1	S	3"	75'	Conduit opening must be covered if the IntraSight system is planned for future installation.
D	84	R2	R5	4	P	1 1/2"	68'	Existing on old drawing, verify reusability and length installed on site
D	85	R2	R5	4	S	1 1/2"	68'	Existing on old drawing, verify reusability and length installed on site
D	86	R3	R4	3	S	2 1/2"	-	Existing on old drawing, verify reusability and length installed on site

* Verify with 3rd party vendor for conduit and power requirements of the components placed in the Equipment Rack DVI (EP Power Boom) (EPB).

Raceway (Conduit) Required

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* **P** Power (AC)
D Power (DC)
G Ground
S Signal
H High Tension
C Cooling Hose
A Air Supply Hose

	Raceway (Conduit) Run No.	From	To	Raceway (Conduit) Quantity	Cable Type (*)	Minimum Raceway (Conduit) Size	Maximum (Raceway) Conduit Length	Special Requirements

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

Philips Contacts
Project Manager: Will Tupa
Contact Number: (720) 470-3209
Email: william.tupa@philips.com
Drawn By: Luis Selles

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E4

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Power Quality Requirements (Mains 40E Cabinet)

Maximum Rated Power	100kW
Supply Configuration	3 phase, equally sized insulated power conductors and an insulated equipment grounding conductor. Insulated grounding conductor shall have the same or larger size than line conductors. Line wires shall be no smaller than 6 AWG, 90°C temperature or higher temperature rating. The conductor size is dependant on the upstream circuit breaker rating: Minimum 4 AWG for 80A circuit breaker rating.
Nominal Line Voltage	480 VAC, 60 Hz
Line Voltage Variation	Voltage variations are never to exceed ±10% when measured using 10 minute mean RMS values with a measurement window of 1 week. At least 95% of all measured 10 minute mean RMS values shall be within ±5% of the configured nominal voltage.
Line Voltage Balance	2% maximum of nominal voltage between phases
Frequency Variation	± 1.0 Hz
Voltage Surges	To 110% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Voltage Sags	To 90% of steady-state voltage 100 msecs. Maximum duration, 6 per hour max.
Line Impulses	1000 VPK above phase-neutral RMS absolute maximum. No more than 1 impulse per hour to exceed 500 VPK.
Neutral-Ground Voltage	2.0V maximum RMS value
Neutral-Ground Impulses	No more than 1 per hour that exceeds 25V and 1 milli-Joule
High Frequency Noise	3.0V steady-state maximum. Over 3.0V permitted for 100 msec. maximum, 1 per hour max.
Grounded Conductor Impedance	0.1 Ohms @ 60 Hz maximum

Branch Circuit and Wire Gauge Requirements (Mains 40E Cabinet)

Branch Power	100 kVA (System only; verify UPS power requirements)
Max. Standby Current	8A per phase
Circuit Breaker (CB)	3 Phase, Type D 80A with long-time delay
For information only. Terminal block accommodates AWG 00 to AWG 4 in mains cabinet. Engineer of record responsible for calculating phase conductor and equipment ground conductor sizes. Recommended phase conductor and equipment ground conductor sizes for 1% impedance of supply conductors to circuit breaker (CB).	
Max. Instantaneous Power (at X-ray tube power 100 kV 1000mA current)	100 kW
Max. Inst. Current @ CB (RMS value over half-cycle)	300A @ 480V
Max. Phase-phase impedance @ CRC	0.455 Ω
Long Term Rating	63A at 480V
Momentary Rating (using a window of 5 seconds)	125A at 480V

CB

(19.1)

PHILIPS

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Aurora, CO
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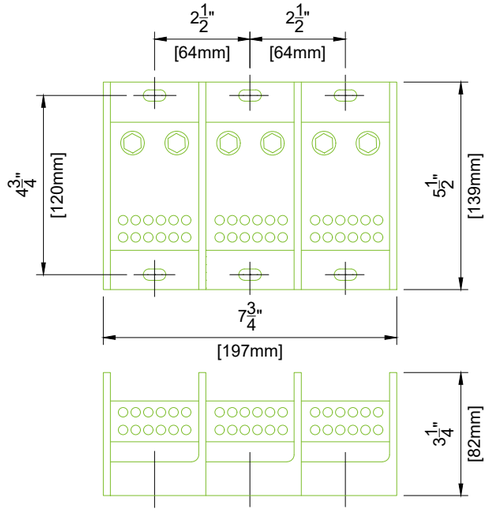
ED1

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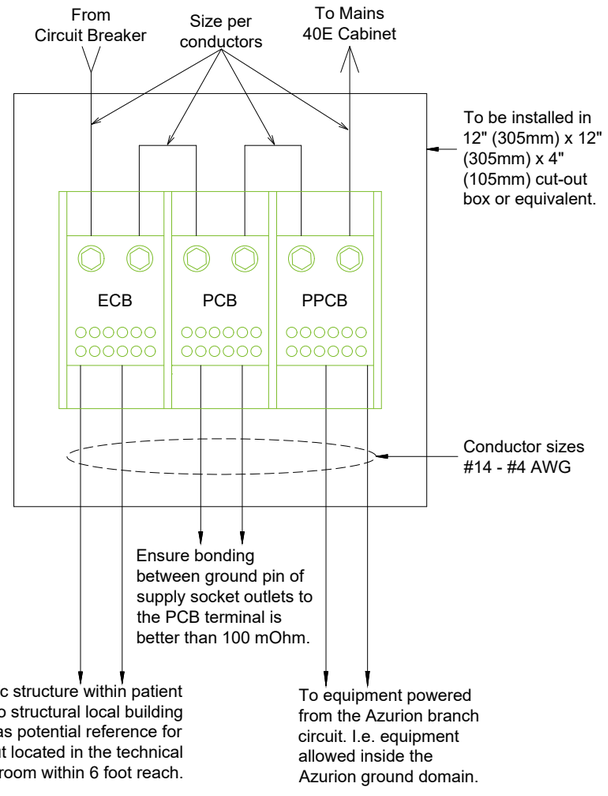
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Detail - Equi-Potential Reference Bar Application

(Not to scale)



1. Furnished and installed by Contractor
2. Purchase from local Mersen distributor, https://ep-us.mersen.com/ Catalog #MPDB69143
3. MPDB Series UL 1953 Open-Style Power Distribution Blocks https://ep-us.mersen.com/products/product/mpdb69143



ERB

(19.0)

Invasive Procedures

This equipment may be used for invasive procedures; therefore, the area to be installed is classified as critical care area per NFPA-99 and NFPA-70 (NEC). These documents specify maximum touch voltages and ground impedance in these areas.

Test performed by GSSNA service require that these specifications are met by the GSSNA equipment. It is the facility's responsibility to ensure that these specifications are met by the wall outlet, facility structure, and other equipment not installed by GSSNA.

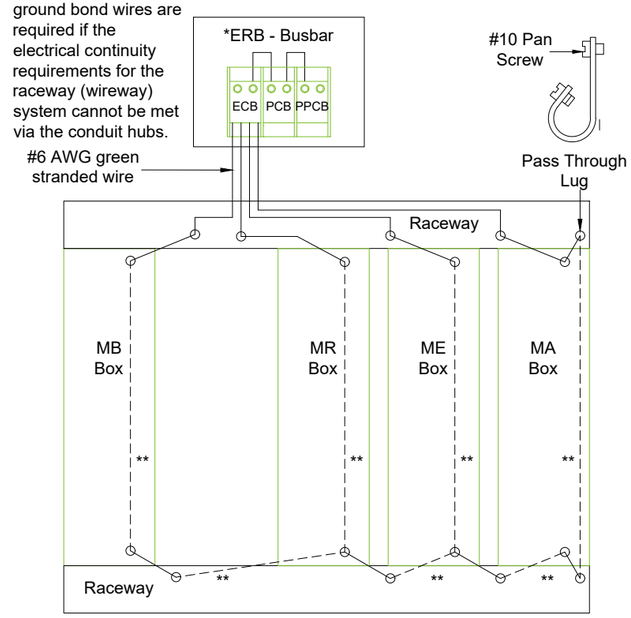
The GSSNA specified "Equi-Potential Reference Bar (ERB)" serves as a ground reference for GSSNA equipment. It may also serve as the "Reference Grounding Point" of the room as defined in NFPA 99-3.3.140 for non-Philips Healthcare equipment.

Equi-Potential Reference Bar (ERB)
A) Equip-Potential Conductor Bar (ECB)
B) Protective Conductor Bar (PCB)
C) Philips Protective Conductor Bar (PPCB)

Detail - Grounding

(Not to scale / Not site specific)

* ERB to be placed at a reachable height.
**Verify with Engineer of Record and local codes if additional ground bond wires are required if the electrical continuity requirements for the raceway (wireway) system cannot be met via the conduit hubs.



(16.0)

PHILIPS

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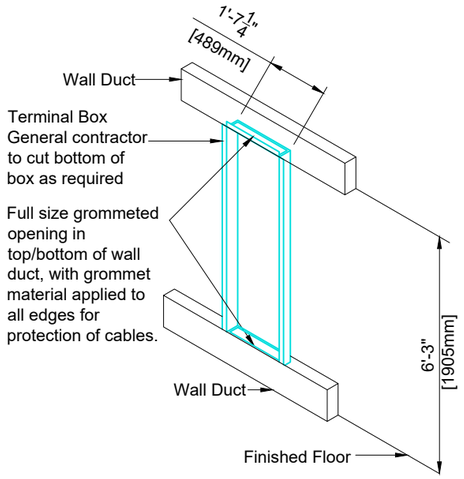
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Detail - Wall Box Mounting
(Not to scale)



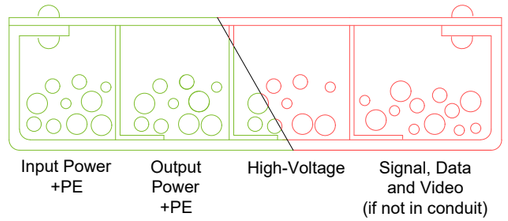
ME MR MA MB

(12.0)

Detail - Cable Trough Divisions
(Not to scale)

Contractors to discuss raceway plan with Philips Project Manager. Raceways (troughs or ducts) may be separated by metal barriers into four sections. Only required separation if for Group A wires that must be separated from other groups. See sheet EN for more information:

1. Supply Mains conductors and associated PE.
2. Secondary Circuit (Azurion equipment internal single phase 230Vac) conductors and associated PE.
3. High-Voltage wire harness to X-Ray stands.
4. Signal, data and video cables.

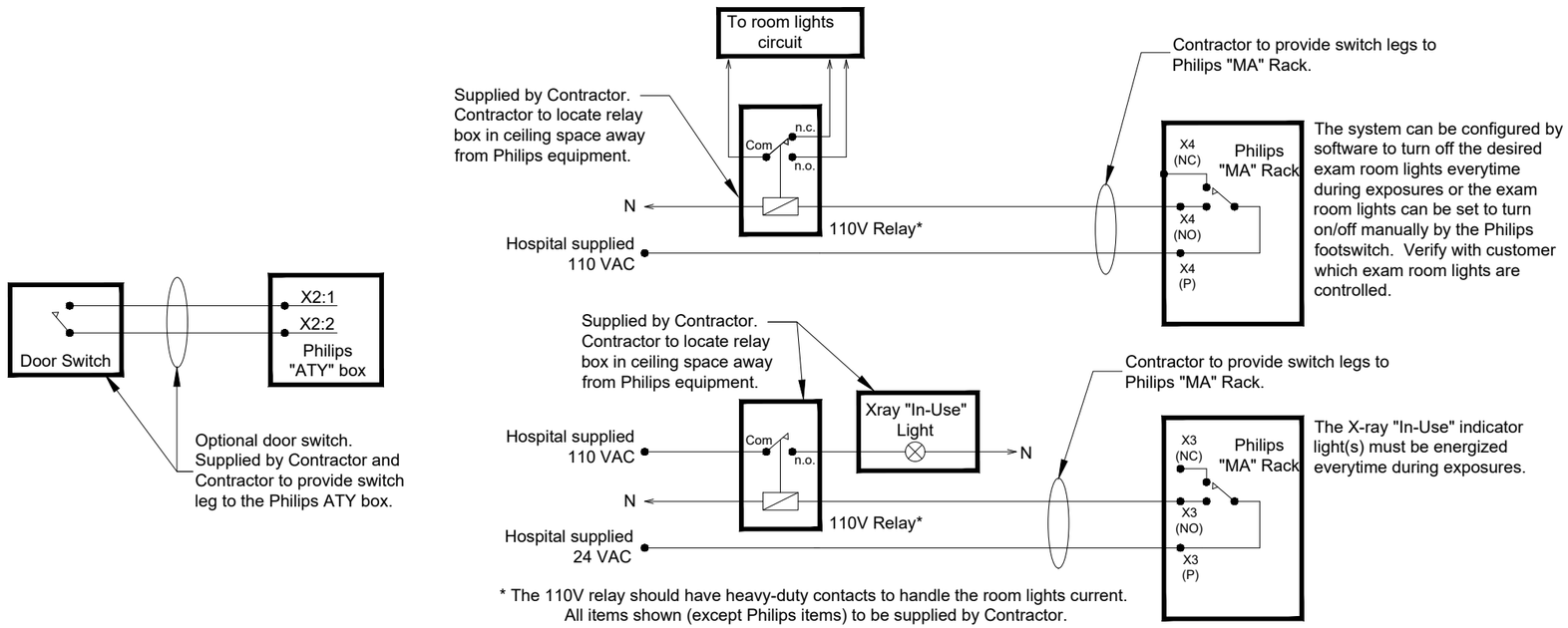


5. It is important that all cables are placed in the appropriate raceway (trough), and at no given point do any cables from one division cross cables from another. Trough separation must be continuous from the beginning.
6. Raceway (trough or ducts): steel with steel dividers grounded to building ground.
7. Contractor to provide cable restraints in all troughs.

WR1 WR2 WR3 R1 R2 R3 R4 R5

(16.0)

Diagram - Typical Connection of X-Ray In-Use Light, Exam Room Lights, & Door Switch



* The 110V relay should have heavy-duty contacts to handle the room lights current.
All items shown (except Philips items) to be supplied by Contractor.

Note: Nominal voltage may not exceed 230 Vac and the current to stays below 1 A nominal.

WL DS

(22.0)

PHILIPS

Project
Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

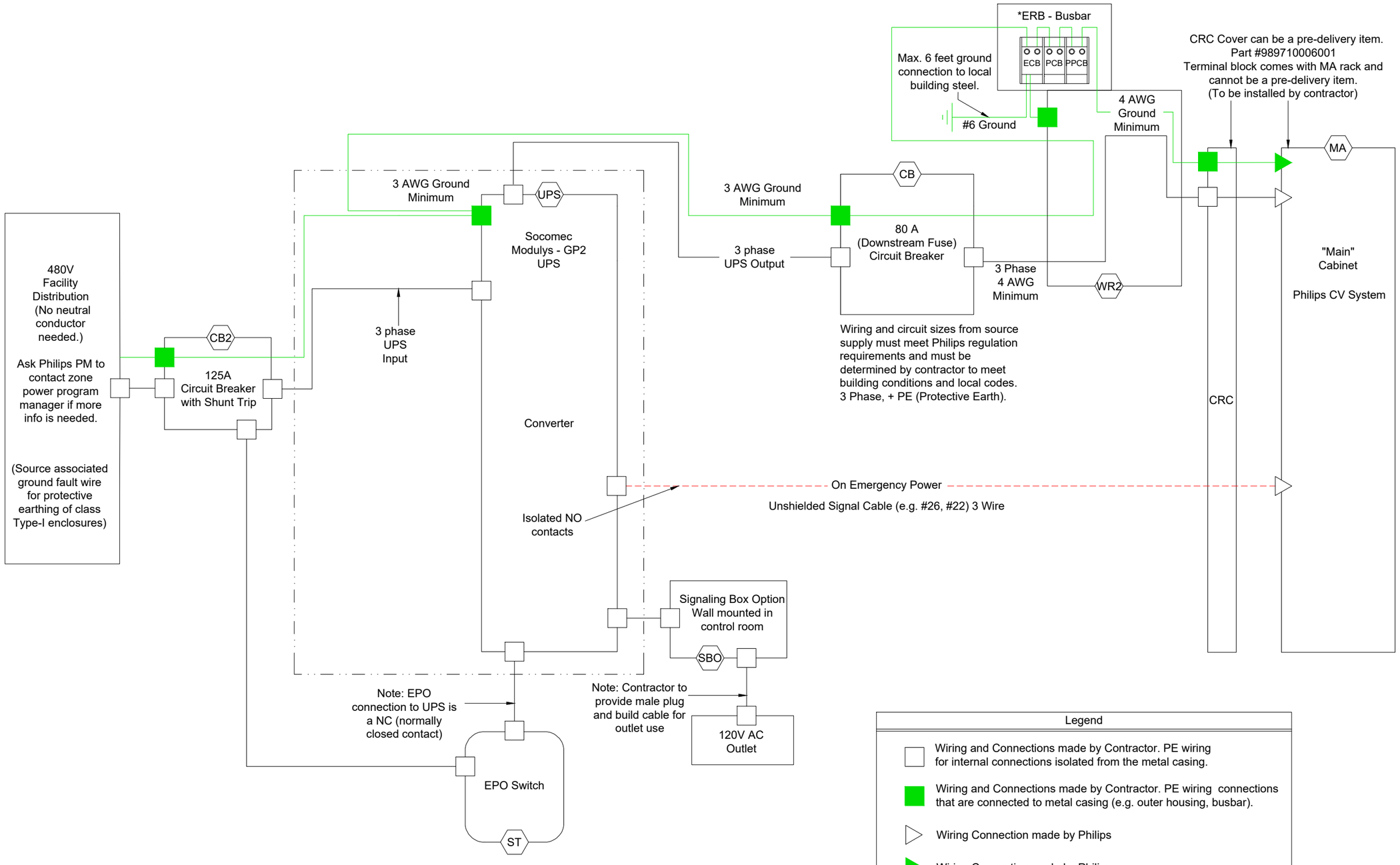
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Drawn By: Luis Selles

Project Details
Drawing Number
N-WES210500 E
Date Drawn: 11/9/2022
Quote: 1-2LFE7LS Rev.4
Order: 6600562624.010000
6600562624.020000

ED3

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Legend

- Wiring and Connections made by Contractor. PE wiring for internal connections isolated from the metal casing.
- Wiring and Connections made by Contractor. PE wiring connections that are connected to metal casing (e.g. outer housing, busbar).
- Wiring Connection made by Philips
- Wiring Connection made by Philips

Note:
All Power Cables shall be in separate conduits from control and communication cables.

Note: Wire sizes will be dependent on:
1. Lug size of UPS and MA terminal block
2. 1% impedance of supply conductors to circuit breaker (CB).
3. Maintain voltage (no voltage drop)

Diagram - Connection Diagram Modulys - GP2 UPS 480V

(21.0)

PHILIPS

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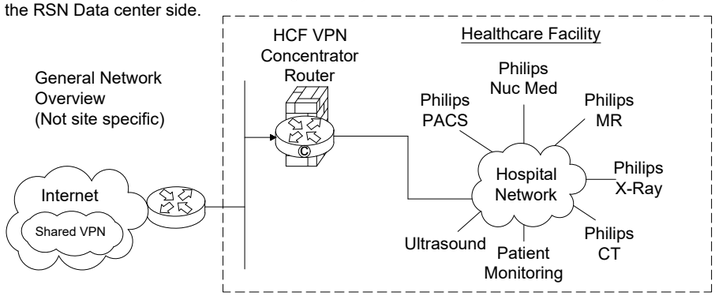
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Philips Healthcare Remote Services Network (RSN)

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.

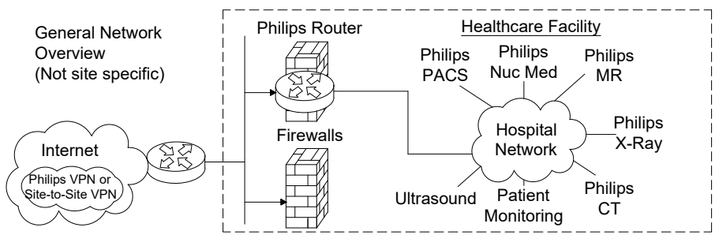


Action Required by Hospital:
- Review and approve connection details.
- Complete appropriate Site Checklist.
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, 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.

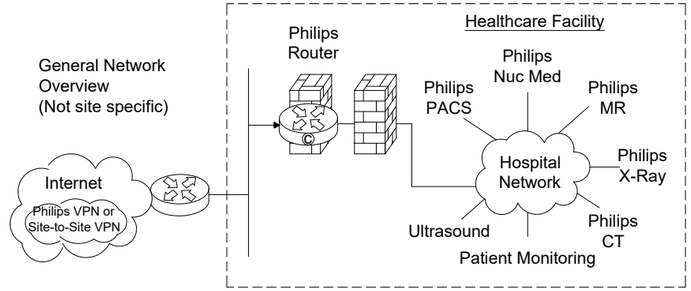
Connectivity Details:
- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router 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.



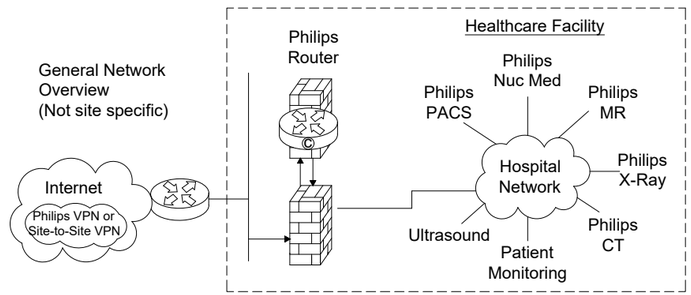
Action Required by Hospital:
- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network.
- Complete appropriate Site Checklist.
- Route 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 and 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.

(12.0)

PHILIPS

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Azurion 7 C20 - Catalyst
Medical Center of Aurora
Aurora, CO
Room: Cath Lab #2

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N1

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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.*

Azurion	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number (5101):	

XtraVision	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title XtraVision:	
Port Number (3110):	
AE Title for X-Ray Mod:	
IP for X-Ray Modality:	

EP Navigator	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	

View Forum	IP Sec [ ]yes [ ]no
Physical Location:	
Hostname:	
MAC Address:	
IP Address	
Netmask:	
Gateway:	
AE Title:	
Port Number:	

XperIM	IP Sec [ ]yes [ ]no		
	Location 1	Location 2	Location3
Physical Location:			
Hostname:			
MAC Address:			
IP Address			
Netmask:			
Gateway:			
AE Title:			
Port Number (3010):			

Remote Software Installation (RPS)	
Enable Distribution:	[ ] yes [ ] no
Enable Installation:	[ ] yes [ ] no

Dicom Printer				
	Location 1	Location 2	Location3	Location 4
Physical Location:				
Hostname:				
IP Address				
AE Title:				
Port Number :				

PACS	Physical Location:				
	Store/ Import 1	Store/ Import 2	Store/ Export	Query/ Retrieve	Storage/ Commit
Hostname:					
IP Address					
AE Title:					
Port Number :					

PACS	Physical Location:				
	Store/ Import 1	Store/ Import 2	Store/ Export	Query/ Retrieve	Storage/ Commit
Hostname:					
IP Address					
AE Title:					
Port Number :					

Audit Trail	
Physical Location:	
Hostname:	
IP Address	
AE Title:	
Port Number :	

Time Synchronization	
Physical Location:	
Server Name:	

RIS	**Physical Location:**		
	Basic Local RIS	WLM	MPPS
Hostname:			
IP Address:			
AE Title:			
Max PDU Size:	16384 or		
Port Number:		[ ] yes [ ] no	[ ] yes [ ] no
Secure Node:		[ ] yes [ ] no	[ ] yes [ ] no
Encryption:			
Certificate Name:			
PPSM IHE Compatible:			[ ] yes [ ] no

Time Synchronization	
Azurion:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura Xper:	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
Allura CV20:	20/21(ftp), 80(http), 4440(fsf)
XtraVision:	20/21(ftp), 80(http), 443(https), 5660(ist/ice), 5900(vnc), 9905(lots)
EP Navigator (R3):	20/21(ftp), 443(https), 5660(ist/ice), 9055(lots)
EP Cockpit (R1.2):	20/21(ftp), 80(http), 443(https), 5900(vnc), 9903(fsf.net)
CX50:	
Xper IM:	
View Forum	

Hospital Network			
	M2M Server (PRS)	Proxy	ePO Server (PRS)
Scheme (https):			
IP Address (192.68.49.50):			
Portnumber (443):			
Use Proxy Server:	[ ] yes [ ] no		
IP Address			
Port Number:			
User Name:			
Password:			

(13.0)

PHILIPS

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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.
- ☐ **Installation Team:** Has received the room drawings and necessary contact phone numbers.
- ☐ **Millwork:** Completely installed in all rooms.
- ☐ **Parking:** Parking area identified for installers.
- ☐ **Performance Testing Requirements Identified:** Determine if Certificate of Compliance is required, (i.e. NEMA, OSHPD, AHCA).
- ☐ **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.
- ☐ **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.
- ☐ **ERB Conductor Bar:** Installed per Philips Final Drawings. All Philips-provided electrical boxes and contractor-provided raceway are grounded to the ERB.
- ☐ **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.
- ☐ **Video Connection Boxes:** Locations, video sources, and display destinations are verified with customer, and the Philips Final Drawings are updated with the information.
- ☐ **3rd Party Booms (if applicable):** Compatibility, locations, and isolation kits have been verified with boom vendor and the Philips Final Drawings are updated with the information. If required, a '*Request for Modification*' has been submitted.
- ☐ **3rd Party Booms (if applicable):** Installed prior to Philips equipment delivery.
- ☐ **Ceiling Height:** Verified per Philips Final Drawings. Single plane measure from finished floor to bottom of Unistrut. For Bi-Plane, from Clea plate to bottom of Unistrut.
- ☐ **Ceiling Obstructions:** Verify there are no obstructions where Philips rails will be installed.
- ☐ **Ceiling Plate for Equipment Rack (EP Boom) (if applicable):** Installed and leveled per Philips Final Drawings.
- ☐ **Ceiling Unistruts (P1001 or equal):** Installed and leveled per Philips Final Drawings.
- ☐ **Clearances:** Verified to the closest obstacles (i.e. walls, cabinets), in order to lift up the C-arm, monitor support, etc.
- ☐ **Fixing Blocks:** Provided by Philips, verify the block properly sits in the Unistrut channel with no obstructions, as designed.
- ☐ **FlexArm Clearance (if applicable):** Verified per Philips Final Drawings.
- ☐ **FlexMove (if applicable):** Must order Ceiling/Floor levelness kit, complete form and submit.
- ☐ **Floor Plates:** Patient Support and Stand (if applicable), are installed, isolated, and leveled, at the correct locations per Philips Final Drawings.
- ☐ **Med Gas Box (if applicable):** Location does not interfere with the installation and movement of the Philips equipment. The Philips Final Drawings are updated with the location.
- ☐ **Back Boxes:** Installed with required covers and grommet material per Philips Final Drawings. Specifically, the spacing between the boxes and height off of finished floor.
- ☐ **ERB Grounding Block:** Installed within 6 feet of building steel, and non-Philips-provided electrical equipment ground conductors, to include wall outlets installed per Philips Final Drawings.
- ☐ **Hospital Mains Supply Wiring:** For Allura R8.2 and Azurion systems, installed per Philips Final Drawings, for connection in Cabinet Rear Cover (CRC) of MA-Cabinet.
- ☐ **Hospital Mains Supply:** For system versions prior to Allura R8.2 (in the USA), the Hospital Mains must be available for connection at the PDU or gssPDU, and then to MA & ME-Cabinets (by the electrician).

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.

Required Prior to Install Complete

- ☐ **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

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