Architectural Alliance,Inc.

Addendum No. **1**

Project: **Cath Lab Room 1 Equipment Replacement**
CHRISTUS St Elizabeth Hospital

Date: **5-19-22**

All bidders are herewith notified of the following additions, deletions, changes or clarifications to the drawings dated 5-17-22 and shall be acknowledged as received on the proposal.

1. Refer to Sheet A101
    a. Add Demo Note 6 pointing to existing furred over window located on southern end of the east exterior wall corner of Cath Lab Room 101

2. Reference revised Siemens equipment drawings, Revision 2 dated 5/11/22 relocating the UPS and Cabinet in the Equipment Room.

3. See attached Lead Shielding Report from Trinity Physics Consulting, LLC dated May 17, 2022..
    a. Door / Frame 01 and drywall surrounding this relocate new door will required 1/32” lead shielding

    b. All penetrations (electrical boxes, etc) in perimeter walls shall be wrapped with lead equal to the wall shielding noted.

End of Addendum # 1

Date: 5-19-22

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Beaumont, Texas 77701

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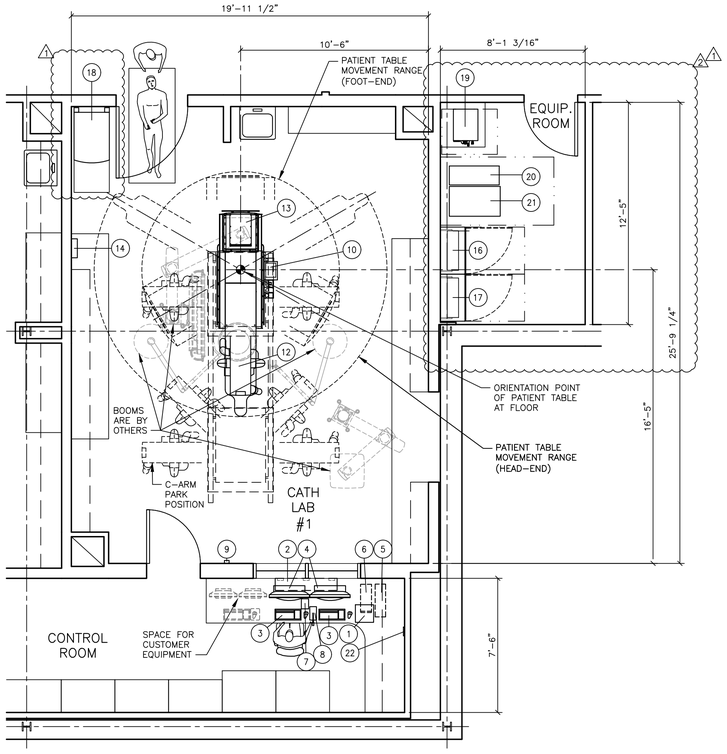
Ronald M. Jones, AIA
J. Rob Clark, AIA



19" LIVE+REF+3D MONITORS FOR OEM BOOM MOUNTING, MOUNTED BY CUSTOMER IN COORDINATION W/SIEMENS PROJECT MANAGER.

NON-SIEMENS (OEM) DISPLAY BOOMS CONTAINING SIEMENS MONITORS:

IMPORTANT SAFETY CRITERIA: FAILURE TO MEET THE FOLLOWING REQUIREMENTS MAY RESULT IN RISK OF INJURY TO PATIENTS, PERSONNEL OR DAMAGE TO THE EQUIPMENT!

1) IT MUST BE POSSIBLE TO MANUALLY MOVE THE BOOM VERTICALLY WITH A FORCE LESS THAN 85 N (19 LBS) WHEN POSITIONING THE DISPLAY BOOM OVER THE PATIENT.

2) TO AVOID THE RISK OF CRUSHING PERSONS OR DAMAGING EQUIPMENT IN THE EVENT THAT THE ANGIOGRAPHY SYSTEM COMES INTO CONTACT WITH THE DISPLAY BOOM, IT MUST BE POSSIBLE TO PUSH THE BOOM AWAY IN A HORIZONTAL DIRECTION WITH A FORCE LESS THAN 50 N (11 LBS).

3) MOTORIZED, HEIGHT-ADJUSTABLE DISPLAY BOOMS WHICH CANNOT MANUALLY BE PUSHED AWAY MAY NOT BE USED.

DELIVERY AND INSTALLATION:
IT IS RECOMMENDED THAT INSTALLATION OF 3RD PARTY DISPLAY BOOMS BE COORDINATED WITH THE INSTALLATION OF THE SIEMENS SYSTEM. IN ORDER TO ENSURE THE SIMULTANEOUS INSTALLATION OF THE SYSTEM AND THE DISPLAY BOOM, THE CUSTOMER SHOULD TAKE STEPS EARLY IN THE PLANNING PROCESS TO ENSURE THAT THE BOOM MANUFACTURER'S LEAD TIME CAN BE COORDINATED WITH THE DELIVERY OF THE SIEMENS EQUIPMENT. THE THIRD-PARTY MANUFACTURER IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF THE DISPLAY BOOM(S). THE THIRD-PARTY MANUFACTURER IS RESPONSIBLE FOR INSTALLING THE SIEMENS COMPONENTS IN THE DISPLAY BOOM IN ACCORDANCE WITH SIEMENS SPECIFICATIONS. SIEMENS ASSUMES NO RESPONSIBILITY FOR ANY DAMAGE TO SIEMENS COMPONENTS WHICH ARE NOT INSTALLED IN ACCORDANCE WITH SIEMENS SPECIFICATIONS. SIEMENS TECHNICIANS MUST BE GIVEN INSTRUCTIONS AND/OR TRAINING AS APPROPRIATE BY THE 3RD PARTY MANUFACTURER FOR MAINTENANCE/SERVICE OF THE SIEMENS COMPONENTS (I.E. DISPLAY, CABLES), OR A TECHNICIAN FROM THE THIRD-PARTY MANUFACTURER MUST BE PRESENT WHENEVER ANY SERVICE WORK IS PERFORMED.

IT IS THE RESPONSIBILITY OF THE CUSTOMER/CONTRACTOR TO PROVIDE A MEANS OF MOUNTING THE SYNGO X PC TOWER OFF OF FINISHED FLOOR FOR DAMAGE PROTECTION AGAINST TIP-OVER, FLUIDS, IMPACT, ETC.

SINKS, COUNTERTOPS AND ALL CASEWORK SHOWN IS SUGGESTED AND MUST BE DESIGNED SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR.

STRETCHER SIZE (6'-5" X 2'-7") SHOWN IS FOR REFERENCE ONLY. VERIFICATION AND COORDINATION BY CUSTOMER IS REQUIRED TO ENSURE PROPER TRANSPORT AND WORKFLOW ACCESS.

THIS SET OF FINAL DRAWINGS IS REFLECTIVE OF THE LATEST SALES CONFIGURATION. ANY CHANGES TO THIS SALES CONFIGURATION MAY REQUIRE A REVISION TO THIS PROJECT PLAN. IF REQUESTED, SIEMENS WILL PRODUCE A REVISED SET OF FINAL DRAWINGS TO REFLECT THE CHANGES, HOWEVER SIEMENS IS NOT RESPONSIBLE FOR ANY CONSTRUCTION COSTS ASSOCIATED WITH THE CHANGES THAT OCCUR FROM THIS PLAN MODIFICATION.

NOTE: THE UPS IS SUPPLIED AND DELIVERED TO CUSTOMER'S LOADING DOCK BY SIEMENS. CUSTOMER'S ELECTRICIAN IS RESPONSIBLE FOR MOVING FROM LOADING DOCK TO FINAL LOCATION AND COMPLETING ALL CONNECTIONS. THE UPS MUST NOT BE LOCATED IN A PATIENT ENVIRONMENT. SIEMENS PROJECT MANAGER WILL SCHEDULE UPS STARTUP PRIOR TO DELIVERY OF SIEMENS IMAGING EQUIPMENT.

EQUIPMENT LEGEND

NO	DESCRIPTION	SMS SYM	WEIGHT (LBS)	BTU/HR TO AIR	DIMENSIONS (INCHES) W	D	H	REMARKS
1	ACE (ARCHIVE CONTROL EXTENSION)	—	13	N/A	12 1/4	11 3/4	4	ON COUNTER
2	CONTROL ROOM DISTRIBUTOR	DX	64	342	41 1/2	8 1/4	16 1/8	WALL MOUNTED
3	KEYBOARD	—	2.2	342	17 1/2	6 1/8	2 1/8	ON COUNTER
4	30" ARTIS COCKPIT COLOR DISPLAY	—	35	580	27 1/8	10	27 3/4	ON COUNTER
5	ARTIS COCKPIT CONTROLLER	—	33	1,365	7	22	17 1/2	ON FLOOR
6	SYNGO X WORKSTATION TOWER, KEYBOARD, MONITOR	WP	40	2,730	7 1/2	19	17	ON FLOOR
7	INTERCOM POWER UNIT	—	---	---	6 3/4	5	1 3/8	ON COUNTER
8	INTERCOM MICROPHONE/LOUDSPEAKER (CONTROL ROOM)	—	---	---	4 1/2	9	2	ON COUNTER
9	INTERCOM LOUDSPEAKER (PROCEDURE ROOM)	XZ	---	---	3 1/4	2	6	WALL MOUNTED
10	TABLE CONTROL MODULES	—	13.8	---	16 1/2	8 3/4	3 1/2	ON TABLE OR TROLLEY
11	BOOM 1 KIT 19" (2) DISPLAYS LIVE+REF	D1	25	512	33	8 1/4	13 1/2	OEM BOOM MOUNTED
12	ARTIS Q CEILING C-ARM STAND	P1	1,994	682	---	---	---	C-ARM CEILING SUSPENDED
13	PATIENT TABLE (BASIC, STANDARD TABLE)	T1	997	683	---	---	---	FLOOR MOUNTED
14	INJECTOR WALL CONNECTION BOX	W	11	---	12 3/4	4	10 1/2	WALL MOUNTED
15	POLYDOROS A100 GENERATOR CABINET	XU	723	4,094	31 1/2	17 1/8	87	FLOOR MOUNTED
16	CABLE CABINET	XC	265	---	31 1/2	17 1/8	87	FLOOR MOUNTED
17	SYSTEM CONTROL CABINET	XS	655	5,460	31 1/2	17 1/8	87	FLOOR MOUNTED
18	AXIS IMAGE SYSTEM	IS	331	4,347	23 3/4	37 1/4	28	ON CASTERS
19	TUBE COOLING UNIT	XU	80	15,355	16 1/2	28 1/4	19 1/4	FLOOR OR SHELF MOUNTED
20	EATON 9355 15KVA UPS AND BATTERY	EX	755	8,134	12 3/4	33 1/2	47 3/4	SEE MFG REQUIREMENTS
21	EATON 9355 OUTPUT TRANSFORMER CABINET	—	490	---	20	34 1/8	66	SEE MFG REQUIREMENTS
22	EATON 9355 REMOTE MONITORING DEVICE	MA	0.5	---	6	1	3	SEE MFG REQUIREMENTS

	PROJECT MILESTONES TO BE COMPLETED BEFORE EQUIPMENT DELIVERY	REFERENCE SHEET
☐	Storage area available for storing items during installation	A-101
☐	Lead shielding (walls, doors, windows) complete	A-101
☐	Climate control functioning 24 hours a day, 7 days a week	A-101
☐	Delivery path verified for largest piece, including rails	A-101
☐	Casework complete in control room	A-101
☐	All walls primed and painted. Flooring installed	A-101
☐	Room lighting complete and functional	A-101
☐	Network drops active and IP addresses obtained for Siemens Remote Services (SRS)	A-102
☐	Nothing hanging below ceiling in area shaded on drawing	A-102
☐	Floor thickness and anchoring spec's verified. If req'd, alt solutions per engineer of record in place	S-101
☐	All conduits, troughs, in-floor pull boxes and/or core drills avoid conflict with floor plate anchors	S-101
☐	Unistrut installed to correct height, location, and levelness (check minimum ceiling height)	S-102
☐	Cable runs checked to ensure maximum lengths not exceeded	E-101
☐	X-Ray warning light and wiring installed	E-101
☐	Contractor supplied electrical wiring / pigtails installed	E-102
☐	Cable inlets located per plans	E-102
☐	EPO's installed and functional	E-102
☐	UPS started and functional	E-102
☐	Ancillary equipment (OEM items, booms, etc) installed	E-102
☐	Breakers installed and facility power available	E-501
☐	All rooms containing Siemens equipment are clean and dust-free	A-101

ARCHITECTURAL NOTES

1) ALL PRELIMINARY EQUIPMENT LAYOUTS SUBMITTED BY SIEMENS HEALTHCARE ARE BASED ON THE RECOMMENDED SPACE NECESSARY FOR THE OPERATION AND SERVICEABILITY OF THE EQUIPMENT BEING PROPOSED. SIEMENS WILL NOT SUBMIT AN EQUIPMENT LAYOUT THAT IS NOT IN THE BEST INTEREST OF BOTH THE CUSTOMER AND SIEMENS. ALL EQUIPMENT LAYOUTS ARE BASED EITHER ON AN ACTUAL SITE SURVEY OR ARCHITECTURAL DRAWINGS SUPPLIED TO SIEMENS. SIEMENS WILL NOT BE RESPONSIBLE FOR ANY ALTERATIONS THAT ENCROACH WITHIN DESIGNATED SAFETY AND SERVICE CLEARANCE ZONES AS INDICATED ON DRAWINGS (I.E., PIPE CHASES, VENTILATION DUCTS, CASEWORK, AND SOFFITS, ETC.) MADE BY THE CUSTOMER OR REQUIRED BY A CUSTOMER'S ARCHITECTURAL FIRM ONCE PRELIMINARY DRAWINGS HAVE BEEN SUBMITTED AND APPROVED. DO NOT ALTER ANY SPECIFICATIONS AND/OR DIMENSIONS WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER.
2) SIEMENS HEALTHCARE IS NOT AN ARCHITECTURAL OR ENGINEERING FIRM. DRAWINGS SUPPLIED BY SIEMENS ARE NOT CONSTRUCTION DRAWINGS. THEREFORE, THESE DRAWINGS ARE TO BE USED ONLY FOR INFORMATION TO COMPLEMENT ACTUAL CONSTRUCTION DRAWINGS AVAILABLE FROM A CUSTOMER APPOINTED ARCHITECTURAL REPRESENTATIVE OR A CUSTOMER'S ENGINEERING DESIGN GROUP. THE CUSTOMER'S ARCHITECT AND GENERAL CONTRACTOR SHALL BE ULTIMATELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE CODES AND PROFESSIONAL DESIGN REQUIREMENTS INCLUDING OSHA/NEC SAFETY CLEARANCE REQUIREMENTS IN ADDITION TO SIEMENS-REQUIRED SAFETY/SERVICE CLEARANCES SHOWN.
3) THE CUSTOMER IS RESPONSIBLE FOR ALL ROOM AND AREA PREPARATION COSTS, PROFESSIONAL FEES, PERMITS, REPORTS, AND INSPECTION FEES.
4) EQUIPMENT WARRANTIES, EXPRESSED OR IMPLIED ON THE PART OF SIEMENS SHALL BE CONTINGENT UPON STRICT COMPLIANCE WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THESE DRAWINGS, UNLESS SPECIFIED OTHERWISE.
5) ALL DIMENSIONS SHOWN ARE FROM FINISHED SURFACES UNLESS SPECIFIED OTHERWISE.
6) THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST. ACTUAL PROTECTION REQUIREMENTS SHALL BE SPECIFIED BY A REGISTERED RADIATION PHYSICIST AT CUSTOMER'S ENGAGEMENT AND EXPENSE. RESPONSIBILITY FOR ALL INFORMATION AS TO THE ROOM LOCATION, USE, AND NUMBER OF ANTICIPATED EXAMINATIONS TO BE PERFORMED PER TIME PERIOD SHALL BE PROVIDED TO THE PHYSICIST BY THE CUSTOMER. THE CUSTOMER SHALL FURTHER TAKE ALL RESPONSIBILITY IN THE COMMUNICATION AND COORDINATION OF ACTIVITIES OF THE RADIATION PHYSICIST AND THE ARCHITECTURAL REPRESENTATIVE.
7) SIEMENS HEALTHCARE SHALL BE RESPONSIBLE FOR SIEMENS EQUIPMENT INSTALLATION, CALIBRATION, CONNECTION AND INSTALLATION OF SIEMENS PROVIDED CABLES. THE CUSTOMER/ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR TERMINATIONS OF CUSTOMER/ELECTRICAL CONTRACTOR-SUPPLIED CABLES TO SIEMENS EQUIPMENT. IN THE EVENT THAT SPECIFIC TRADE RULES OR LICENSE REQUIREMENTS PROHIBIT THIS, THE CUSTOMER SHALL INITIATE THE SERVICES OF APPROVED OTHER CONTRACTORS AND PAY FOR SELECTED, APPROVED PARTIES TO PERFORM THIS WORK WITH SUPERVISION PROVIDED BY SIEMENS. CALIBRATION WHEN ACCOMPLISHED OUTSIDE OF NORMAL INSTALLATION SEQUENCES DUE TO CONTRACTOR OR TRADE RULE ACTIONS OR REQUIREMENTS SHALL BE SUPPORTED BY, CHARGED TO, AND ACCEPTED BY THE CUSTOMER AS AN ADDITIONAL INSTALLATION EXPENSE.
8) THE CUSTOMER SHALL COORDINATE WITH SIEMENS PROJECT MANAGER THE LOCATIONS AND TRAVEL OF ALL ANCILLARY EQUIPMENT TO BE CEILING OR WALL MOUNTED (I.E.: O.R. LIGHTS, MEDICAL GAS COLUMNS, PHYSIOLOGICAL MONITORING INJECTORS, CRT PLATFORMS, SPRINKLER HEADS, SMOKE DETECTORS, ELECTRICAL OUTLETS, HVAC GRILLES, SPEAKERS, AND GENERAL ROOM LIGHTING, ETC.).
9) THE GENERAL CONTRACTOR/CUSTOMER SHALL BE RESPONSIBLE FOR ALL FINAL PAINT, TOUCH-UP AND ANY COSMETIC OR TRIM WORK WHICH NEEDS TO BE OR IS REQUIRED TO BE COMPLETED AFTER THE INSTALLATION OF THE SIEMENS EQUIPMENT AND ANY ASSOCIATED SUPPORT APPARATUS.
10) CUSTOMER/CONTRACTOR MUST ASSIST SIEMENS INSTALLERS WITH INSTALLATION OF EQUIPMENT ABOVE 14'-0". REFER TO THE ELECTRICAL NOTES ON SIEMENS SHEET E-101 FOR MORE DETAILS.

TRANSPORT/STORAGE FLAT PANEL DETECTOR

IN SYSTEMS WITH FLAT PANEL DETECTORS, THE DETECTOR IS REMOVED FROM THE STAND FOR TRANSPORT TO THE CUSTOMER. THE LIMITED TRANSPORT AND STORAGE CONDITIONS APPLY FOR THE DETECTOR.

FLAT PANEL DETECTOR:

TEMPERATURE RANGE: 14° F TO 131° F
RELATIVE HUMIDITY: 20% TO 95% NON CONDENSING
AIR PRESSURE: 700 hPa TO 1060 hPa

TRANSPORTING REQUIREMENTS

LARGEST CRATE WITH PACKING:
103.6"(L) x 46.5"(D) x 81.5"(H), 2,590 LBS.

LARGEST INDIVIDUAL PIECE WITH CARRIAGE (MIN. DOOR OPENING):
97 1/4"(L) x 39 1/2"(W) x 75"(H), 2,006 LBS.

CEILING RAILS ARE 14 FT.(L) x 3"(W) x 3"(H)

MIN. CORRIDOR WIDTH: 82.7"

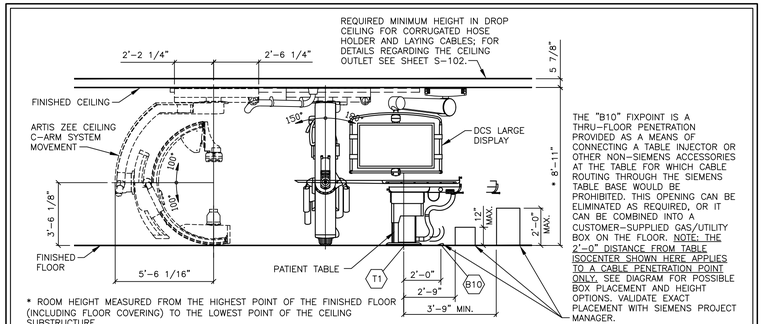
RESOURCE LIST (SMS USE ONLY)

DESIGNATION	PG NUMBER	DATE
ARTIS Q / Q.ZEN CEILING	AXAQ-060.891.01.01.02	04.13

ARTIS Q/ZEN/ZEE CEILING REV. 31

ARCHITECTURAL EQUIPMENT PLAN

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



THE "B10" FIXPOINT IS A THRU-FLOOR PENETRATION PROVIDED AS A MEANS OF CONNECTING A TABLE INJECTOR OR OTHER NON-SIEMENS ACCESSORIES AT THE TABLE FOR WHICH CABLE ROUTING THROUGH THE SIEMENS TABLE BASE WOULD BE PROHIBITED. THIS OPENING CAN BE ELIMINATED AS REQUIRED, OR IT CAN BE COMBINED INTO A CUSTOMER-SUPPLIED GAS/UTILITY BOX ON THE FLOOR. NOTE: THE 2'-0" DISTANCE FROM TABLE ISOCENTER SHOWN HERE APPLIES TO A CABLE PENETRATION POINT ONLY. SEE DIAGRAM FOR POSSIBLE BOX PLACEMENT AND HEIGHT OPTIONS. VALIDATE EXACT PLACEMENT WITH SIEMENS PROJECT MANAGER.

* ROOM HEIGHT MEASURED FROM THE HIGHEST POINT OF THE FINISHED FLOOR (INCLUDING FLOOR COVERING) TO THE LOWEST POINT OF THE CEILING SUBSTRUCTURE

WITH NON-TILTING TABLE

1 ARTIS Q/Q.ZEN/ZEE CEILING TYPICAL ELEVATION — SCALE: NONE

STATE AGENCY REVIEW

PRIOR TO SIEMENS EQUIPMENT INSTALLATION, APPROVAL OF CONSTRUCTION OR STRUCTURAL MODIFICATIONS UTILIZING X-RAY FOR DIAGNOSTIC OR THERAPEUTIC PURPOSES, MUST BE OBTAINED BY THE CUSTOMER FROM THE APPROPRIATE STATE AGENCY, IF APPLICABLE.

MAGNETIC FIELD PRECAUTIONS

THE PRESENCE OF MAGNETIC FIELDS IN THE VICINITY OF EQUIPMENT MAY HAVE AN ADVERSE EFFECT. IT IS THE CUSTOMER'S RESPONSIBILITY TO VERIFY THAT THE FOLLOWING VALUES ARE NOT EXCEEDED.

MAXIMUM ALLOWABLE MAGNETIC FIELD	DEVICES
1.0mT (10 GAUSS)	COMPUTERS, MAGNETIC DISK DRIVES, OSCILLOSCOPES, PROCESSORS
0.5mT (5 GAUSS)	X-RAY TUBES, B/W MONITORS, MAGNETIC DATA CARRIERS, DATA STORAGE DRIVES
0.2mT (2 GAUSS)	SIEMENS CT SCANNERS
0.15mT (1.5 GAUSS)	COLOR MONITORS, SIEMENS LINEAR ACCELERATORS
0.05mT (0.5 GAUSS)	X-RAY IMAGE INTENSIFIERS, GAMMA CAMERAS, PET/CYCLOTRON, OTHER LINEAR ACCELERATORS
MAGNETIC FIELDS SHOULD BE MEASURED PRIOR TO DELIVERY	

CEILING HEIGHT REQUIREMENT

8 FT. – 11 IN.

SYM	DATE	DESCRIPTION
3	05/11/22	CHANGE TO CABINET & UPS LOCATIONS IN EQUIP ROOM
2	05/05/22	CUST REQUESTED CHANGE TO EQUIPMENT ROOM LAYOUT
1	04/06/22	R101R(D) DATED 12/15/21 APPROVED BY CUSTOMER FOR FINALS
0		

—ISSUE BLOCK—

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SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

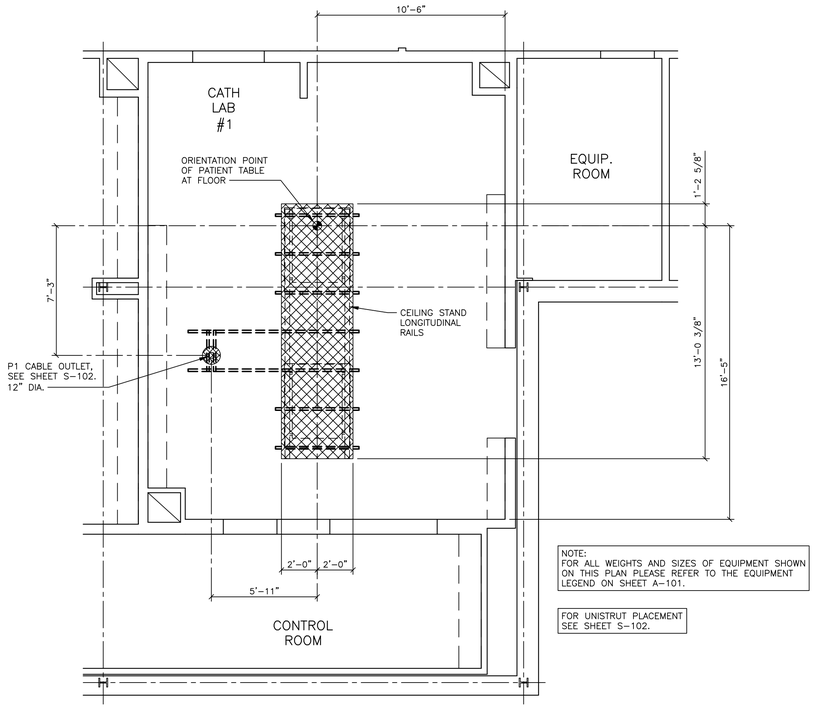
PROJECT #: 2004511
SHEET: A-101
SHEET 1 OF 88
DRAWN BY: M. YATZUS
SCALE: AS NOTED
REF. #: CPQ-177367
DATE: 04/06/22

ATTENTION:

- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.
- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

NOT FOR CONSTRUCTION - REFERENCE DOCUMENT

ATTENTION! LIGHTING AND HVAC DUCTS HAVING THE POTENTIAL TO HEAT OR COOL SIEMENS COMPONENTS MUST NOT BE LOCATED WITHIN SIEMENS CEILING RAIL SYSTEMS AS INDICATED BY THE SHADED AREAS ON THIS PLAN. SPRINKLER HEADS MUST NOT BE LOCATED WITHIN THE SHADED AREAS AS WELL. IF REQUIRED, LAMINAR AIRFLOW DIFFUSERS MAY BE LOCATED WITHIN SIEMENS CEILING RAIL SYSTEMS PROVIDED THEY DO NOT EXTEND BELOW THE FINISHED CEILING OR HEAT/COOL SIEMENS EQUIPMENT. IF PLACED WITHIN SIEMENS RAIL SYSTEMS, THE CUSTOMER MUST ACCEPT RESPONSIBILITY FOR THE FACT THAT, DEPENDING ON THE POSITION OF THE CARRIAGE WITHIN THE CEILING RAILS, THERE IS POTENTIAL FOR CERTAIN DIFFUSERS IN THIS AREA TO BE BLOCKED. THE CUSTOMER MUST ALSO ACCEPT RESPONSIBILITY FOR POTENTIAL DIFFICULTIES IN SERVICING THE CUSTOMER'S MECHANICAL EQUIPMENT IN THE CEILING, IF PLACED WITHIN THESE SHADED AREAS. PLEASE COORDINATE THE PLACEMENT OF THESE ITEMS WITH THE SIEMENS PROJECT MANAGER. SIEMENS SHALL BEAR NO RESPONSIBILITY FOR ANY EQUIPMENT DAMAGES RESULTING FROM THE INSTALLATION OF CUSTOMER-SUPPLIED INFRASTRUCTURE NOT ADHERING TO THE ABOVE STATED REQUIREMENTS.

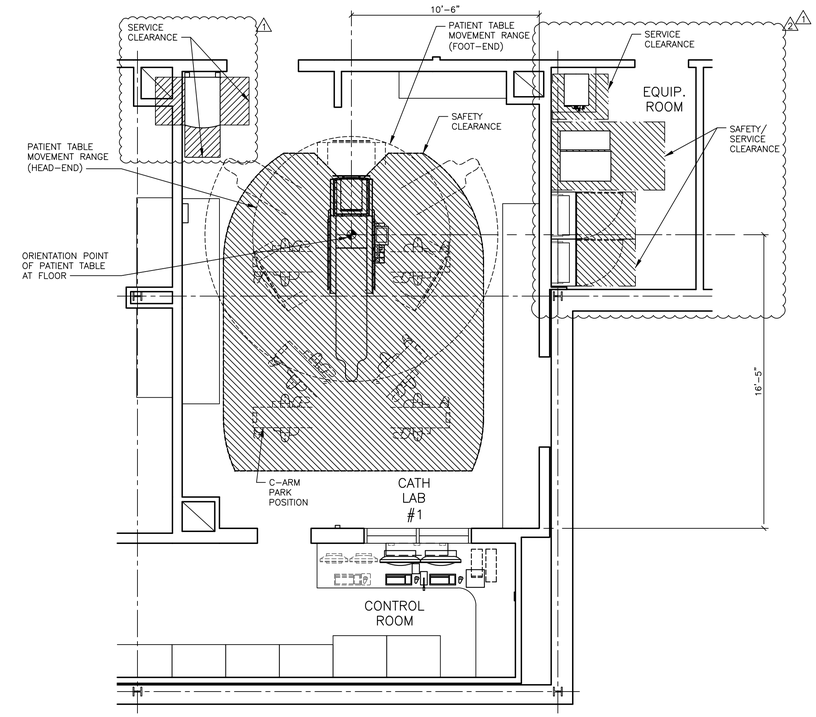


NOTE:
FOR ALL WEIGHTS AND SIZES OF EQUIPMENT SHOWN ON THIS PLAN PLEASE REFER TO THE EQUIPMENT LEGEND ON SHEET A-101.

FOR UNISTRUT PLACEMENT SEE SHEET S-102.

REFLECTED CEILING PLAN

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



SAFETY/SERVICE CLEARANCE PLAN

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

CEILING NOTES

1) ALL CEILING MOUNTED LIGHT FIXTURES, MECHANICAL REGISTERS AND SPRINKLER HEADS SHALL BE FLUSH WITH FINISHED CEILING, SHALL BE OUTSIDE OF ALL HATCHED AREAS AND SHALL BE SPECIFIED BY THE ARCHITECT OF RECORD AND SUBSEQUENT CONSULTING ENGINEERS.

2) THE ACTUAL CEILING DESIGN AND COORDINATION OF LIGHTING AND MECHANICAL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE ARCHITECT OF RECORD AND HIS SUBSEQUENT CONSULTING ENGINEERS.

3) THE CUSTOMER/CONTRACTOR SHALL BE RESPONSIBLE FOR FABRICATING, SUPPLYING AND INSTALLING ALL LIGHT, MECHANICAL AND STRUCTURAL SUPPORTING SYSTEMS. SIEMENS MEDICAL SOLUTIONS INC. IS ONLY RESPONSIBLE FOR THE SUPPLYING, INSTALLING AND CALIBRATION OF SMS EQUIPMENT AS SPECIFIED ON THE EQUIPMENT SCHEDULE AS SHOWN ON SHEET A-101.

4) ALL ELECTRICAL AND STRUCTURAL SYSTEMS SHOWN ON THE REFLECTED CEILING PLAN HAVE BEEN COORDINATED WITH THE EQUIPMENT LOCATIONS AS SHOWN ON THE 1/4" SCALE ARCHITECTURAL EQUIPMENT PLAN (SHEET A-101). ANY CHANGES TO THE SMS EQUIPMENT CONFIGURATION AS SHOWN, DUE TO PLACEMENT OF LIGHTING, STRUCTURAL, ELECTRICAL AND MECHANICAL SYSTEMS, MUST BE APPROVED IN WRITING BY THE SMS PROJECT MANAGER PRIOR TO THE COMPLETION OF CONSTRUCTION DOCUMENTS.

ARTIS Q/ZEN/ZEE CEILING
REV. 31

CEILING HEIGHT REQUIREMENT
8 FT. - 11 IN.

SYM	DATE	DESCRIPTION
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-ISSUE BLOCK-

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SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS

2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 - ARTIS Q CEILING

PROJECT #: 2004511
SHEET OF: 2 8 8
DRAWN BY: M. YATZUS
SCALE: AS NOTED
REF. #: CPQ-177367
DATE: 04/06/22

SHEET: A-102

ATTENTION:

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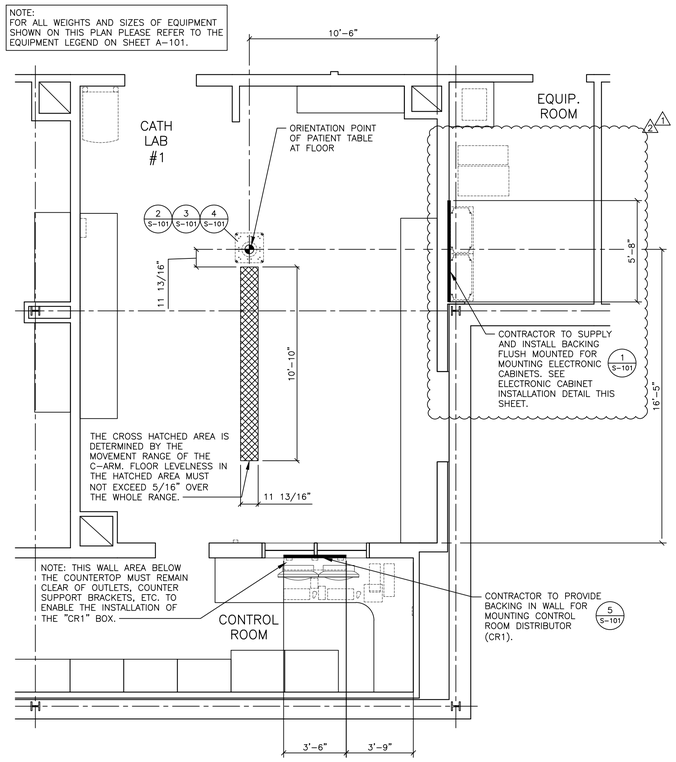
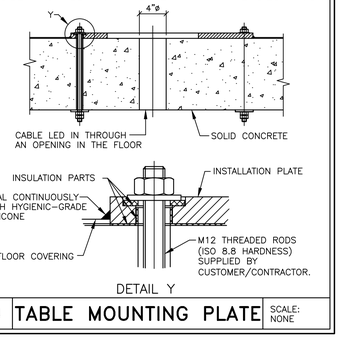


STRUCTURAL FLOOR PLAN

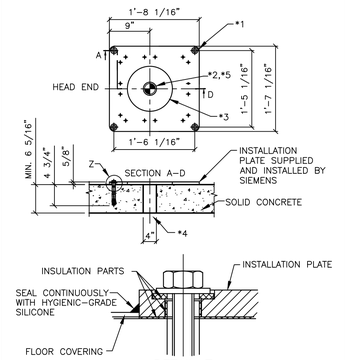
SCALE: 1/4" = 1'–0"

TABLE INSTALLATION PLATE WITH THREADED RODS



4 **TABLE MOUNTING PLATE** SCALE: NONE

TABLE INSTALLATION PLATE WITH ANCHORS



*1 MOUNTING USING (4) HILTI HEAVY–DUTY EXPANSION ANCHORS, HSL–3 M12/25, SUPPLIED BY SIEMENS. MINIMUM CONCRETE QUALITY IS C20/25.

MAX. TENSILE FORCE PER MOUNTING POINT: 1,012 LBS.

*2 AREA FOR LEADING CABLES INTO TABLE BASE

*3 OPENING IN INSTALLATION PLATE

*4 CABLE LED IN THROUGH AN OPENING IN THE FLOOR

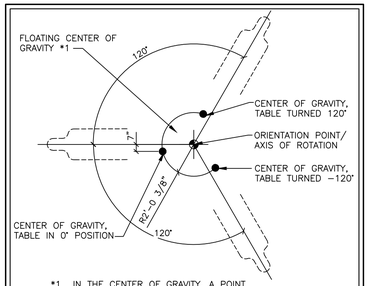
*5 PATIENT TABLE ORIENTATION POINT

3 **TABLE MOUNTING PLATE** SCALE: NONE

STRUCTURAL NOTES

1) THE CUSTOMER/CONTRACTOR SHALL FURNISH AND INSTALL ALL STRUCTURAL SUPPORT MEMBERS AND NEEDED HARDWARE FOR THE INSTALLATION OF THE SIEMENS EQUIPMENT.
2) THE OVERHEAD STRUCTURAL SUPPORT SYSTEM SHALL BE FIXED, RIGID AND BRACED FOR SWAY.
3) ALL STRUCTURAL SUPPORT MEMBERS SHALL BE TRUE, SQUARE, LEVEL, PARALLEL AND COPLANAR WITH RESPECT TO EACH OTHER, WITH A HORIZONTAL STRUCTURAL SUPPORT MEMBER TO BE LOCATED AND SET WITH A TRANSIT.
4) ALL STRUCTURAL SUPPORT DETAILS SHOWN ARE SAMPLE DETAILS BASED UPON TYPICAL AND STANDARD BUILDING PRACTICES AND ARE NOT INTENDED AS ACTUAL CONSTRUCTION DETAILS. ALL CONSTRUCTION DETAILS AND SUPPORT CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL STRUCTURAL ENGINEER AT THE CUSTOMER'S EXPENSE. IN THE EVENT AN EXISTING SUPPORT SYSTEM IS TO BE USED, IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF THAT SYSTEM.
5) MOUNTING PLATES, FRAMES, AND HARDWARE SUPPLIED BY SIEMENS AS DETAILED IN THIS DRAWING SET ARE INSTALLED BY SIEMENS UNLESS OTHERWISE REQUIRED. ANY DEVIATION FROM THE PROVIDED MATERIALS OR MOUNTING METHODS MUST BE DESIGNED AND DOCUMENTED BY THE STRUCTURAL ENGINEER OF RECORD. ALTERNATE MOUNTING MATERIALS (I.E. ANCHORS, THREADED ROD, BACKING PLATES, ETC.) MUST BE SUPPLIED BY THE CUSTOMER/CONTRACTOR. SIEMENS MAY REQUIRE ASSISTANCE FROM THE CUSTOMER/CONTRACTOR WITH INSTALLATION WHEN UTILIZING ALTERNATE MOUNTING MATERIALS.
6) ALL CEILING FIXTURES (I.E. AIR SUPPLY GRILLES, AIR RETURN GRILLES, EXHAUST GRILLES, SPRINKLER HEADS, INCANDESCENT AND FLUORESCENT LIGHT FIXTURES, INTERCOM SPEAKERS, MEDICAL GAS COLUMNS, ETC.) SHALL BE INSTALLED FLUSH MOUNTED WITH THE FINISHED CEILING TO PROVIDE FREE AND UNRESTRICTED TRAVEL OF THE SMS CEILING MOUNTED EQUIPMENT.
7) THE BOTTOM SIDE OF THE UNISTRUT CEILING GRID AND ANY CEILING MOUNTED SUPPORT PLATES ARE TO BE INSTALLED FLUSH WITH THE FINISHED CEILING. THE CUSTOMER/CONTRACTOR SHALL ALSO PROVIDE COVERSTRIPS FOR THE UNISTRUT.
8) THE STRUCTURAL PLANNING AS SHOWN ON THE 1/4" STRUCTURAL PLAN HAS BEEN COORDINATED WITH THE EQUIPMENT LOCATION AS SHOWN ON THE 1/4" EQUIPMENT LAYOUT PLAN. FOR THIS REASON, ANY DEVIATIONS FROM THE STRUCTURAL PLANNING AS SHOWN MUST BE APPROVED BY SMS PLANNING DEPARTMENT.
9) THE STRUCTURAL ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAIL OF FLOOR, WALL, AND CEILING STRUCTURES IN ACCORDANCE WITH THE STRUCTURAL INFORMATION SHOWN, AND LOCAL GOVERNING BUILDING CODES.
10) ALL ANCHORS, SUPPORTS AND BRACES FOR SECURING THE SIEMENS EQUIPMENT ON THE UNDERSIDE OF THE CONCRETE SLAB (WHETHER SUPPLIED BY SIEMENS OR CONTRACTOR) SHALL BE SECURED IN A MANNER TO PREVENT THEM FROM FALLING DURING A DE–INSTALLATION. ALL WORK FOR SECURING THESE MOUNTS SHALL BE BY THE CONTRACTOR.

TABLE CENTER OF GRAVITY



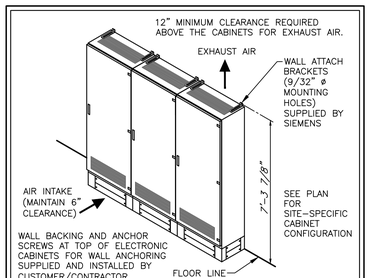
*1 IN THE CENTER OF GRAVITY, A POINT LOAD OF MAX. 1,798 LBS. IS EXERTED.

THE CENTER OF GRAVITY WHEN THE TABLE IS TURNED WAS DETERMINED UNDER THE FOLLOWING CONDITIONS:

- TABLETOP EXTENDED COMPLETELY IN THE HEAD POSITION.
- TABLETOP MOVED TRANSVERSELY TO THE STOP.
- TABLETOP NOT TILTED.
- TABLETOP LOADED WITH A PATIENT WEIGHT OF 441 LBS.
- TABLE ACCESSORIES (88 LBS.) INSTALLED ON THE ACCESSORY RAIL ON THE LEFT.

2 **PATIENT TABLE CENTER OF GRAVITY** SCALE: NONE

ELECTRONIC CABINET INSTALLATION



1 **ELECTRONIC CABINET INSTALLATION** SCALE: NONE

GENERAL PATIENT TABLE NOTES

THE PRE–INSTALLATION ITEMS ARE PART OF THE PRE–INSTALLATION SHIPMENT.

THE PRE–INSTALLATION KIT CONTAINS THE MOUNTING PLATE WITH INSTALLATION HARDWARE.

THE MOUNTING PLATE FOR THE PATIENT TABLE MUST BE INSTALLED ON A SOLID BASE THAT HAS SUFFICIENT LOAD CAPACITY. CUT AWAY THE FLOOR COVERING, IF NECESSARY, ANY MATERIAL IN THE LOCATION OF THE MOUNTING PLATES THAT DOES NOT HAVE THE REQUIRED LOAD CAPACITY MUST BE REPLACED WITH FILLED CONCRETE.

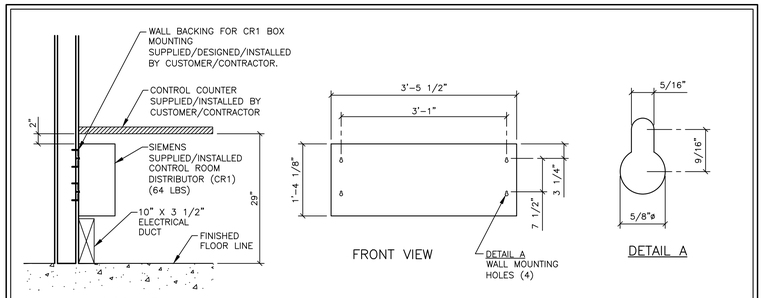
HILTI HEAVY DUTY EXPANSION ANCHORS ARE INCLUDED IN THE SHIPMENT FOR INSTALLING THE MOUNTING PLATE. IF NECESSARY, THE MOUNTING PLATES CAN ALSO BE INSTALLED USING M12 THREADED STUDS, MINIMUM HARDNESS RATED 8.8 PER THE ISO NORM, WHICH ARE INSERTED THROUGH THE CEILING OF THE ROOM BELOW (THREADED STUDS, ETC. MUST BE OBTAINED LOCALLY).

PATIENT TABLE TENSION LOADS

MOUNTING PLATE ON SOLID CONCRETE.

FOOT–END LOAD PER INSTALLATION PLATE MOUNTING POINT: MAXIMUM TENSILE FORCE 1,012 LBS.

CONTROL ROOM DISTRIBUTOR (CR1)



5 **CONTROL ROOM DISTRIBUTOR (CR1)** SCALE: NONE

CEILING HEIGHT REQUIREMENT

8 FT. – 11 IN.

ARTIS Q/ZEE CEILING REV. 31

ATTENTION:

- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.
- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X–RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

SYM	DATE	DESCRIPTION
3	05/11/22	CHANGE TO CABINET & UPS LOCATIONS IN EQUIP ROOM
2	05/05/22	CUST REQUESTED CHANGE TO EQUIPMENT ROOM LAYOUT
1	04/06/22	R101R(D) DATED 12/15/21 APPROVED BY CUSTOMER FOR FINALS

–ISSUE BLOCK–

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SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

PROJECT #: 2004511

SHEET: S–101

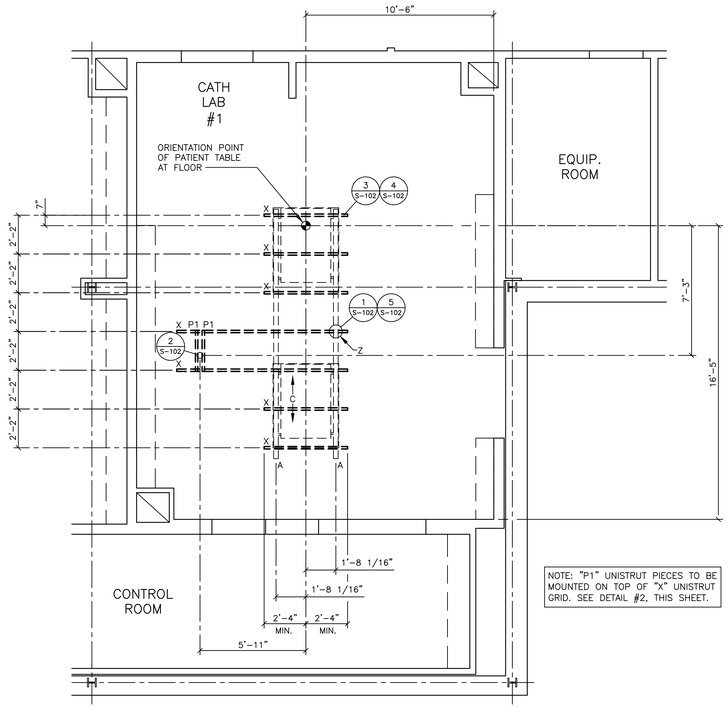
SHEET 3 OF 8 8

DRAWN BY: M. YATZUS

SCALE: AS NOTED

REF. #: CPQ–177357

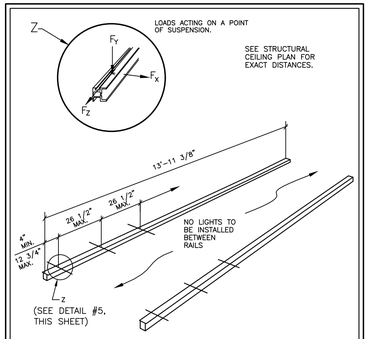
DATE: 04/06/22



NOTE: "P1" UNISTRUT PIECES TO BE MOUNTED ON TOP OF "X" UNISTRUT GRID. SEE DETAIL #2, THIS SHEET.

STRUCTURAL CEILING PLAN

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



TYPICAL AT ALL INTERSECTIONS OF UNISTRUT AND C-ARM LONGITUDINAL RAILS "A"

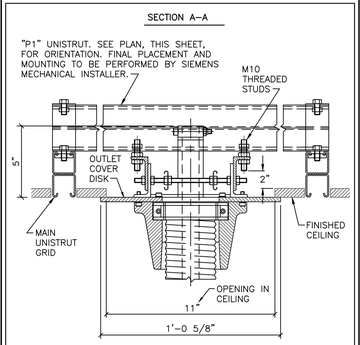
MAXIMUM LOADS DURING OPERATION	F MAX. =
F_Y = VERTICAL CEILING LOAD PER MOUNTING POINT (ONE MOUNTING POINT INCLUDES (2) SCREWS) LOAD ON THE INDIVIDUAL SCREWS VARIES (MAX LOAD 1,439 LBS). THE DYNAMIC LOAD IS EXERTED ON EACH MOUNTING POINT BECAUSE THIS IS A FLOATING SINGLE LOAD.	1,800 LBS.
F_X = MAXIMUM TRANSVERSE FORCE EXERTED ON THE RAIL.	450 LBS.
F_Z = MAXIMUM LONGITUDINAL FORCE EXERTED ON THE RAIL.	900 LBS.

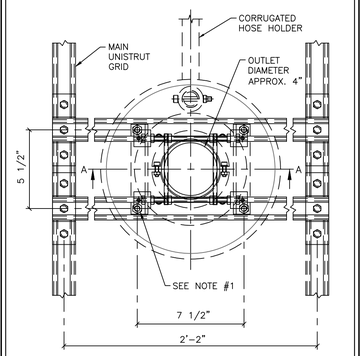
NOTES:
A STRUCTURAL CEILING (IE UNISTRUT) MUST BE INSTALLED BY THE CUSTOMER/CONTRACTOR AND MUST MEET THE FOLLOWING SPECIFICATIONS:

1) THE BOTTOM SURFACE MUST BE POSITIONED HORIZONTALLY. (MAXIMUM DEVIATION IS 0.5MM/M (1/64"/39").
2) THE UNISTRUT SUB CONSTRUCTION SHOULD BE DESIGNED SUCH THAT VIBRATION INDUCED BY THE LONGITUDINAL AND TRANSVERSE FORCES ARE LIMITED TO THE VIBRATION SPECIFICATION AS SPECIFIED ON THE ENVIRONMENTAL CONDITIONS TABLE LOCATED ON THE M-501 SHEET. IF NECESSARY, THE STRUCTURAL CEILING (IE UNISTRUT) MUST BE REINFORCED WITH LONGITUDINAL AND TRANSVERSE BRACING.
3) PROVIDE LONGITUDINAL AND DIAGONAL SUPPORT BEAMS.
4) WITH A HORIZONTAL EXERTED FORCE OF 135 LBS., THE STRUCTURAL CEILING (IE UNISTRUT) MOVEMENT MAY NOT EXCEED 0.3MM (1/64").
5) THE GREATEST SHIFTING SINGLE LOAD (CEILING STAND) EXERTS A FORCE OF 1800 LBS ON THE CEILING. THE MAXIMUM DEFLECTION ON THE INSTALLATION CEILING CAUSED BY THIS SINGLE LOAD MAY NOT BE GREATER THAN 3MM (7/64").

1 | CEILING LOADS | SCALE: NONE

SECTION A-A





NOTES:
1) CEILING ATTACHMENT WITH A PULLING FORCE ON EACH SCREW OF LESS THAN 338 LBS.
2) UNISTRUT PIECES AND UNISTRUT HARDWARE/ACCESSORIES SUPPLIED BY CUSTOMER/CONTRACTOR. ALL OTHER ATTACHMENT ITEMS SUPPLIED BY SIEMENS.

CEILING STAND CEILING OUTLET FOR A UNISTRUT CEILING (P1)

2 | CEILING OUTLET DETAIL | SCALE: NTS

CEILING PLAN LEGEND

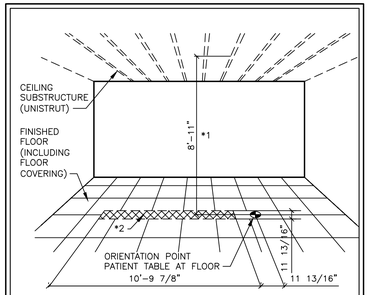
SUPPLIED/INSTALLED BY SIEMENS

SYM	DESCRIPTION	DET
A	LONGITUDINAL RAILS ATTACHED TO UNISTRUT	1,5
C	CEILING STAND MOVES ALONG LONGITUDINAL RAILS	1
D	DCS RAILS ATTACHED TO UNISTRUT	1,5
E	DCS CARRIAGE MOVES ALONG LONGITUDINAL RAILS	
F	RAD. SHIELD RAILS ATTACHED TO UNISTRUT	–
G	RADIATION SHIELD SUPPORT CARRIAGE MOVES ALONG RAILS	–
Z	LONGITUDINAL RAIL SUPPORT MOUNTING POINT BOLTED TO UNISTRUT FRAME	5

SUPPLIED/INSTALLED BY CUSTOMER/CONTRACTOR

SYM	DESCRIPTION	DET
X	UNISTRUT P-1001 (OR EQUIVALENT AS SPECIFIED BY STRUCTURAL ENGINEER OF RECORD) MOUNTED FLUSH WITH FINISHED CEILING. MUST BE LEVEL AS SPECIFIED BY SIEMENS ON STRUCTURAL NOTES AND DETAILS.	4
P1	CEILING OUTLET SUPPORTS	2

NOTE:
ALL STRUCTURAL SUPPORT DETAILS SHOWN ARE SAMPLE DETAILS BASED UPON TYPICAL AND STANDARD BUILDING PRACTICES AND ARE NOT INTENDED AS ACTUAL CONSTRUCTION DETAILS. ALL CONSTRUCTION DETAILS AND SUPPORT CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL STRUCTURAL ENGINEER AT THE CUSTOMER'S EXPENSE. IN THE EVENT AN EXISTING SUPPORT SYSTEM IS TO BE USED, IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF THAT SYSTEM.



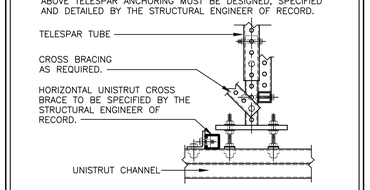
*1 ROOM HEIGHT MEASURED FROM THE HIGHEST POINT IN THE CROSSED HATCHED AREA ON THE FINISHED FLOOR (INCLUDING FLOOR COVERING) TO THE LOWEST POINT OF THE CEILING SUBSTRUCTURE (UNISTRUT). HERE, THE AREA OF THE CEILING SUBSTRUCTURE (UNISTRUT) IN WHICH THE LONGITUDINAL RAILS FOR THE CEILING STAND ARE INSTALLED IS THE DETERMINING FACTOR.

REQUIRED ROOM HEIGHT: 8'-11"

*2 THE CROSS-HATCHED AREA IS DETERMINED BY THE MOVEMENT RANGE OF THE CEILING STAND C-ARM.

MAXIMUM ADMISSIBLE FLOOR UNEVENNESS IN THE HATCHED AREA: 5/16".

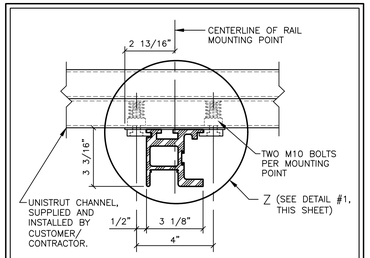
3 | ADMISSIBLE ROOM HEIGHT | SCALE: 1/4"



NOTE: UNISTRUT CHANNEL COVERS MUST BE SUPPLIED AND INSTALLED BY CONTRACTOR AFTER EQUIPMENT HAS BE MOUNTED TO THE CEILING.

THIS DETAIL SHOWS A UNIVERSAL TELESPAR DROP THAT IS TYPICAL OF THE STRUCTURAL SUPPORT SYSTEM USED FOR CEILING MOUNTED IMAGING EQUIPMENT. THE ACTUAL STRUCTURAL SUPPORT SYSTEM MUST BE DESIGNED, DETAILED AND SPECIFIED BY THE STRUCTURAL ENGINEER OF RECORD. UNLESS OTHERWISE SPECIFIED, THE CUSTOMER/CONTRACTOR SHALL SUPPLY AND INSTALL ALL SUPPORT MEMBERS AND NEEDED HARDWARE. IN THE EVENT AN EXISTING SUPPORT SYSTEM IS TO BE USED, IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF THAT SYSTEM. SEE THE 1/4" SCALE PLAN FOR LOCATIONS AND SPACING OF UNISTRUT CHANNELS.

4 | UNISTRUT DETAIL | SCALE: NONE



TYPICAL MOUNTING DETAIL

5 | CEILING RAILS | SCALE: NONE

CEILING HEIGHT REQUIREMENT

8 FT. – 11 IN.

ARTIS Q/ZEEN/ZEE CEILING
REV. 31

SYM	DATE	DESCRIPTION
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–ISSUE BLOCK–

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SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

PROJECT #: 2004511
SHEET: S-102
SHEET 4 OF 8 8
DRAWN BY: M. YATZUS
SCALE: AS NOTED
REF. #: CPQ-177367
DATE: 04/06/22

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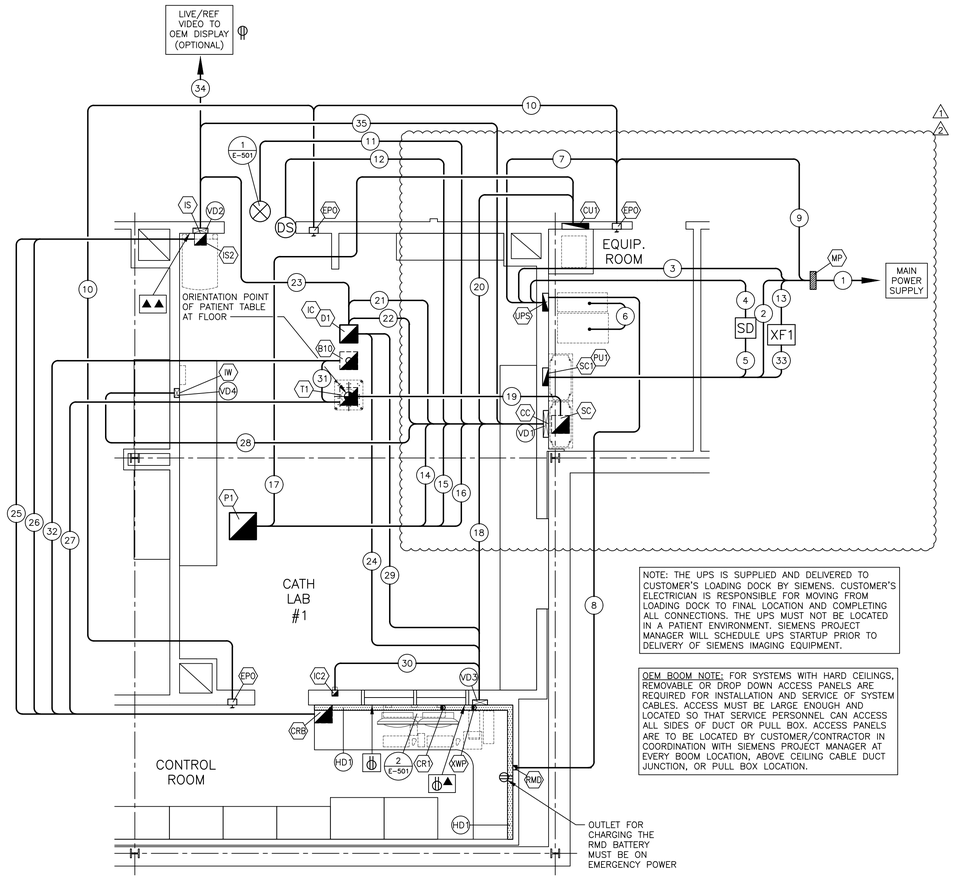
NOT FOR CONSTRUCTION - REFERENCE DOCUMENT



ELECTRICAL RACEWAY PLAN

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

SYMBOLS

ALL MAY NOT APPLY

	CIRCUIT BREAKER BY CUSTOMER/CONTRACTOR
	OPENING IN RACEWAY OR TRENCHDUCT
	PULLBOX IN (FLOOR/WALL/CEILING)
	OPENING IN ACCESS FLOORING
	WARNING LIGHT (X-RAY ON)
DS	DOOR SAFETY SWITCH
EPO	(EPO) EMERGENCY POWER OFF BUTTON
	TRENCH DUCT
	CEILING DUCT
	UNDER FLOOR DUCT
	SURFACE DUCT
	VERTICAL DUCT
	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK (VERIFY WITH SMS PROJECT MANAGER).
	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET
	110 VOLT, 20 AMP, HOSPITAL GRADE QUAD OUTLET

ELECTRICAL LEGEND

SYM	SIZE	DESCRIPTION SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	REMARKS
ACC	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 4"ø CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR. PROVIDE STAINLESS STEEL WATERPROOF PLATE ON TOP OF CORED OPENING IN FLOOR.	TABLE ACCESSORIES
CC	18" X 8"	BUSHED OPENING IN VERTICAL DUCT "VD1" COVER AT FLOOR LINE.	CABLE CABINET
CH	3"ø	BUSHED OPENING IN TOP OF HORIZONTAL DUCT "HD1".	CONTROL ROOM DISTRIBUTOR
CRB	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. FOR A SINGLE CONDUIT CONNECTION TO THIS BOX, PROVIDE A 3" CONDUIT THRU FLOOR. FOR MULTIPLE CONDUIT CONNECTIONS, PROVIDE (2) 4" CONDUITS THRU FLOOR. E.C. TO DESIGN TRANSITION TO SURFACE FLOOR DUCT AS REQUIRED.	CONTROL ROOM UNDER-FLOOR BOX
CU	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT 2 INCHES ABOVE SHELF HEIGHT. PROVIDE BOX WITH REMOVABLE FRONT COVER AND (1) 4"ø BUSHING IN CENTER OF REMOVABLE COVER FOR CABLE EXIT. SEE PLAN FOR LOCATION.	COOLING UNIT
D1	AS REQUIRED	PULL BOX MOUNTED ABOVE FINISHED CEILING WITH REMOVABLE BOTTOM COVER WITH 3"ø BUSHED OPENING. NOTE: IF LOCAL CODES REQUIRE COMPLETE CABLE CONTAINMENT IN RACEWAY, THIS BOX MUST BE SIZED SUCH THAT A 8" X 6" X 3" SIEMENS POWER DISTRIBUTION BOX CAN BE INSTALLED INSIDE THIS PULL BOX.	BOOM DVI 2xBWD-19D (live+ref)
EPO	---	EMERGENCY OFF BUTTONS FOR CIRCUIT BREAKERS. EPO'S MUST PREVENT RESETTING OF CIRCUIT BREAKERS WHEN IN OFF POSITION. EPO'S MUST BE RECESSED OR SHIELDED. FINAL LOCATION DETERMINED BY CUSTOMER	EMERGENCY POWER OFF
IC	---	FIXPOINT DESIGNATION, SAME PULL BOX / OPENING AS "D1".	INTERCOM COMFORT MIC
IS	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT A RECOMMENDED HEIGHT OF 6' AFF.	INTERCOM COMFORT SPEAKER
IW	4"ø	BUSHED OPENING IN HORIZONTAL DUCT "HD2" COVER IN SHOWN LOCATION.	IMAGE SYSTEM
MP	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED FLOOR WITH REMOVABLE TOP COVER WITH 4"ø BUSHED OPENING.	IMAGE SYSTEM
P1	3"ø	BUSHED OPENING IN VERTICAL DUCT "VD5" AT HEIGHT COORDINATED WITH THE INSTALLATION OF THE INJECTOR WALL CONNECTION BOX.	INJECTOR WALL OUTLET
PU1	---	MAIN PANEL WITH MAIN BREAKER. LOCATION DETERMINED BY CUSTOMER/CONTRACTOR. SEE "POWER SCHEDULE"	BREAKER PANEL
RMD	AS REQUIRED	PULL BOX MOUNTED ABOVE FINISHED CEILING. PROVIDE REMOVABLE BOTTOM COVER WITH 8"ø BUSHED OPENING. PROVIDE CORRESPONDING OPENING AT CEILING LINE.	C-ARM
SC	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"ø BUSHED OPENING AT BOTTOM OF COVER.	GENERATOR
SD	AS REQUIRED	SINGLE-GANG RJ45 JACK	UPS REMOTE DISPLAY
SC1	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"ø BUSHED OPENING AT BOTTOM OF COVER.	SYSTEM CABINET
SC2	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 6"ø CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR WITH BUSHING AT FLOOR LINE.	SYSTEM CABINET
SD	30A	3-PHASE (PLUS N,G) 30A, 600V HD FUSIBLE SERVICE DISCONNECT LOCATED AT EYE-LEVEL, WITHIN 10' OF SIEMENS SYSTEM CABINET (SC1) AND 30A RKS FUSES. SEE POWER SCHEDULE.	UPS SERVICE DISCONNECT
T1	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 4"ø CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR WITH BUSHING AT FLOOR LINE.	TABLE
UPS	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"ø BUSHED OPENING.	15KVA UPS
XF1	750VA	STEP-DOWN TRANSFORMER. SEE POWER SCHEDULE.	XFMR FOR TABLE OUTLET
XWP	2"ø	BUSHED OPENING IN HORIZONTAL DUCT "HD1" COVER IN SHOWN LOCATION.	XWP LD INPUT
HD1	3 1/2" X 10"	HORIZONTAL DUCT MOUNTED ON FINISHED WALL AT FLOOR LINE. PROVIDE DUCT WITH REMOVABLE FRONT COVER. CONNECT TO "VD3" AS SHOWN.	HORIZONTAL WALL DUCT
VD1	3 1/2" X 18"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL. BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT
VD2 VD3	3 1/2" X 10"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL. BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT
VD4	3 1/2" X 6"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL. BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT
1	EC TO SIZE	CONDUIT FROM PANEL TO "MP"	SEE "POWER SCHEDULE"
2	EC TO SIZE	CONDUIT FROM "MP" TO "PU1"	SEE "POWER SCHEDULE"
3	EC TO SIZE	CONDUIT FROM "MP" TO "UPS" WITH FLEX CONDUIT FROM UPS BOX TO UPS CABINET.	SEE "POWER SCHEDULE"
4	EC TO SIZE	CONDUIT FROM "UPS" TO "SD" WITH FLEX CONDUIT FROM UPS BOX TO OUTPUT XFMR CABINET.	SEE "POWER SCHEDULE"
5	EC TO SIZE	CONDUIT FROM "SD" TO "SC1"	SEE "POWER SCHEDULE"
6	EC TO SIZE	FLEX CONDUIT FROM UPS CABINET TO OUTPUT TRANSFORMER CABINET	SEE "POWER SCHEDULE"
7	3/4"ø	CONDUIT FROM "UPS" TO "EPO" WITH FLEX CONDUIT FROM UPS BOX TO UPS CABINET.	SEE "POWER SCHEDULE"
8	3/4"ø	CONDUIT FROM "RMD" TO "UPS"	SEE "POWER SCHEDULE"
9	3/4"ø	CONDUIT FROM "MP" TO "EPO"	SEE "POWER SCHEDULE"
10	EC TO SIZE	CONDUIT FROM "EPO" TO "EPO"	
11	EC TO SIZE	CONDUIT FROM "SC1" TO "WL"	
12	EC TO SIZE	CONDUIT FROM "SC1" TO "DS"	
13	EC TO SIZE	CONDUIT FROM "MP" TO "XF1" (OPTIONAL)	TABLE POWER OUTLET
14	2"ø	CONDUIT FROM "P1" TO "VD1" (PU1)	MAX. CONDUIT LENGTH 25'
15	(2) 3"ø	CONDUITS FROM "P1" TO "VD1" (PU1)	MAX. CONDUIT LENGTH 25'
16	3"ø	CONDUIT FROM "P1" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 25'
17	2 1/2"ø	CONDUIT FROM "P1" TO "CU1" FOR LIQUID COOLING HOSES	MAX. CONDUIT LENGTH 75'
18	(2) 3"ø	CONDUITS FROM "VD1" ("SC1") TO "VD3" ("CR1")	MAX. CONDUIT LENGTH 35'
19	3"ø	CONDUIT FROM "SC" (SC1) TO "T1" UNDER FLOOR	MAX. CONDUIT LENGTH 33'
20	2"ø	CONDUIT FROM "VD1" (SC1) TO "CU1"	MAX. CONDUIT LENGTH 80'
21	1"ø	CONDUIT FROM "VD1" (SC1) TO "D1"	MAX. CONDUIT LENGTH 80'
22	2 1/2"ø	CONDUIT FROM "VD1" (SC1) TO "D1"	MAX. CONDUIT LENGTH 44'
23	2"ø	CONDUIT FROM "VD2" (IS) TO "D1"	MAX. CONDUIT LENGTH 63'
24	1"ø	CONDUIT FROM "VD3" (XWP) TO "D1"	MAX. CONDUIT LENGTH 62'
25	3"ø	CONDUIT FROM "IS2" ("IS") TO "CRB" ("CR1") UNDER FLOOR	MAX. CONDUIT LENGTH 48'
26	2"ø	CONDUIT FROM "IS2" ("IS") TO "CRB" ("CR1") UNDER FLOOR	MAX. CONDUIT LENGTH 48'
27	3"ø	CONDUIT FROM "CRB" TO "T1" UNDER FLOOR (VOLCANO S5i CABLE SET FOR PHILIPS INTRASIGHT)	MAX. CONDUIT LENGTH 75'
28	3"ø	CONDUIT FROM "VD1" (SC1) TO "VD4" ("IW") (INJECTOR WALL CONNECTION)	MAX. CONDUIT LENGTH 38'
29	3/4"ø	CONDUIT FROM "VD3" (CR1) TO "IC" (INTERCOM)	MAX. CONDUIT LENGTH 66'
30	3/4"ø	CONDUIT FROM "VD3" (CR1) TO "IC2" (INTERCOM)	MAX. CONDUIT LENGTH 60'
31	3"ø	CONDUIT FROM "T1" TO "B10" UNDER FLOOR	
32	3"ø	CONDUIT FROM "CRB" TO "B10" UNDER FLOOR (CUSTOMER PATIENT MONITORING)	
33	1/2"ø	CONDUIT FROM "XF1" TO "SC1" (THEN "SC" AND ROUTE THROUGH CONDUIT #19 TO "T1") (OPTIONAL TABLE POWER OUTLET)	MAX. CONDUIT LENGTH 64'
34	2"ø	CONDUIT FROM "VD2" (IS) TO "CUSTOMER MONITOR" (LIVE+REF VIDEO TO OEM OPTION)	MAX. CONDUIT LENGTH 98'
35	3"ø	CONDUIT FROM "SC" ("SC1") TO "IS2" ("IS") UNDER FLOOR	MAX. CONDUIT LENGTH 56'

CEILING HEIGHT REQUIREMENT

8 FT. - 11 IN.

ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA-70), O.S.H.A. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUNTY, STATE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH ANSI, IEEE AND NEMA STANDARDS AND ARE U.L. LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK AND ALL EQUIPMENT INSTALLED SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED/ENFORCED BY THE AUTHORITY HAVING JURISDICTION.

2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT INTO THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST OR BE DISCOVERED THAT PREVENT THE INSTALLATION OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO FABRICATION OF EQUIPMENT, OR THE PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALTER DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER. ALL DIMENSIONS ARE FROM FINISHED SURFACES. CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERIFIED BY THE SIEMENS PROJECT MANAGER.

3) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS HEALTHCARE EQUIPMENT SHALL BE FROM A MEDICAL IMAGING PANEL OR BUILDING SERVICE EQUIPMENT THAT IS A GROUNDED 3 OR 4-WIRE 'WYE' SOURCE PER THE SPECIFIC EQUIPMENT OPERATION REQUIREMENTS. A DEDICATED CIRCUIT SHALL BE PROVIDED THAT IS KEPT ENTIRELY FREE AND INDEPENDENT OF ALL OTHER BUILDING WIRING, NO ELEVATORS, GENERATORS, PUMPS, HVAC OR SIMILAR EQUIPMENT SHALL BE CONNECTED TO THE SAME CIRCUIT OR MEDICAL IMAGING PANEL THAT SERVES THE SIEMENS HEALTHCARE EQUIPMENT. IF THE POWER SUPPLY SOURCE DOES NOT MEET THE SPECIFIC SIEMENS EQUIPMENT POWER REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE.

4) WORK FURNISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROVIDED BY SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED AND INSTALLED BY CUSTOMER/CONTRACTOR INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING, UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, ACCESS PANELS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND GROUNDING.

5) RACEWAY AND CONDUIT NOTES: ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE.

CONDUIT BODIES SHALL NOT BE USED. WHERE A CONDUIT ENTERS A BOX, FITTING, OR OTHER ENCLOSURE, AN INSULATED THROAT CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABRASION. ALL CONNECTORS FOR EMT SHALL BE COMPRESSION OR DOUBLE SET SCREW TYPE.

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES OR STEAM AND HOT WATER PIPES. INSTALL RACEWAY RUNS ABOVE WATER AND STEAM PIPES PROVIDED THAT CABLE RUN DISTANCES ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE INDICATED. THE CONTRACTOR SHALL MAKE CERTAIN THAT ANY CONDUIT/RACEWAY RUNS CONTAINING SIEMENS HEALTHCARE CABLES DO NOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL DETAILS. LISTED CONDUIT SIZES FOR SIEMENS-SUPPLIED CABLES MUST BE MAINTAINED IN ORDER TO ENABLE THE TOTAL CABLE BUNDLE INCLUDING CONNECTORS TO BE PULLED THROUGH WITHOUT DAMAGE.

PROVIDE ENCLOSED METAL WIRE DUCT RACEWAY SYSTEM WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT INTO TWO OR THREE SEPARATE COMPARTMENTS AS SHOWN ON THE SIEMENS PLANS (FOR POWER AND SIEMENS HEALTHCARE CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY. THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM CERTIFICATION OF THE EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS.

PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE COVERS. LOCATIONS OF BUILDING MATERIAL OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN FIELD ARE TO BE COORDINATED WITH THE DRAWING REQUIREMENTS AND BUILDING STRCTURE. THOSE THAT ARE NOT INDICATED OR INTERFER WITH BUILDING ELEMENTS SHALL BE COORDINATED WITH SIEMENS PROJECT MANAGER. ELECTRICAL PULL BOXES AND RACEWAY COVERS SHALL BE INSTALLED IN A MANNER TO ALLOW ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE. CONTRACTORS MUST PROVIDE PULL STRINGS FOR ALL CONDUIT AND WIRE DUCT/RACEWAY. IN-FLOOR TRENCH DUCT AND FLUSH FLOOR BOXES SHALL BE PROVIDED WITH FULLY GASKETED REMOVABLE COVERS.

WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED HIGHER THAN 14 FEET ABOVE FINISHED FLOOR, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP THE SIEMENS INSTALLERS PULL SIEMENS SUPPLIED CABLES AT CUSTOMER'S EXPENSE. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED ABOVE A HARD CEILING (I.E. SHEET ROCK), A 24" x 24" ACCESS PANEL IS REQUIRED AT EACH JUNCTION BOX AND WITHIN 2 FEET OF EACH RACEWAY TRANSITION (SUCH AS A 90 DEGREE ELBOW OR TEE) IN DUCT/RACEWAY. THERE MUST BE FREE AND CLEAR ACCESS TO JUNCTION BOXES AND WIRE DUCT/RACEWAY. WHEN ACCESS PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP SIEMENS INSTALLERS PULL SIEMENS SUPPLIED CABLES AT CUSTOMER'S EXPENSE.

6) WIRING: ALL WIRING INSTALLED SHALL BE 600 VOLT CLASS, STRANDED TYPE THHN/THWN-2, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 90° C (194° F), SIZED AS INDICATED, INSTALLED IN METAL RACEWAYS. THE CUSTOMER/CONTRACTOR SHALL LEAVE A MINIMUM 10 FEET OF WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR.

7) SHORT CIRCUIT REQUIREMENTS: ALL CIRCUIT BREAKERS SUPPLIED FOR THE SIEMENS EQUIPMENT REQUIREMENTS SHALL BE RATED HIGHER THAN THE SHORT CIRCUIT AVAILABLE AT THE TERMINALS OF THE ELECTRICAL EQUIPMENT AS DETERMINED BY THE ENGINEER OF RECORD, BUT NOT LESS THAN 35,000A RMS SYMMETRICAL AT 480V, 3-PHASE, 60 HERTZ. THE CONTRACTOR SHALL OBTAIN THE CORRECT SHORT CIRCUIT CURRENT RATING OF ALL THE NEW EQUIPMENT FOR INSTALLATION FROM THE ENGINEER OF RECORD.

CONDUIT LENGTH CALCULATIONS

IF SITE-SPECIFIC CONDITIONS EXCEED THE FOLLOWING ASSUMED VALUES, THEN ADDITIONAL LENGTH MUST BE SUBTRACTED BY THE ELECTRICAL CONTRACTOR FROM THE MAXIMUM CONDUIT LENGTHS LISTED.

IF DUCT LOCATIONS ARE ALTERED FROM THE SHOWN LAYOUT, IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO RECALCULATE THE MAXIMUM CONDUIT LENGTHS.

ASSUMED VALUES USED IN CALCULATING STATED MAXIMUM CONDUIT LENGTHS:
VERTICAL DUCTS - 12'-0"
FLOOR PENETRATIONS - 3'-0"

ARTG Q/L22N/ZEE CEILING
REV. 31

ATTENTION:

- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.
- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

SYM	DATE	DESCRIPTION
2	05/11/22	CHANGE TO CABINET & UPS LOCATIONS IN EQUIP ROOM
1	05/05/22	CUST REQUESTED CHANGE TO EQUIPMENT ROOM LAYOUT
A	04/06/22	R101R(D) DATED 12/15/21 APPROVED BY CUSTOMER FOR FINALS

-ISSUE BLOCK-

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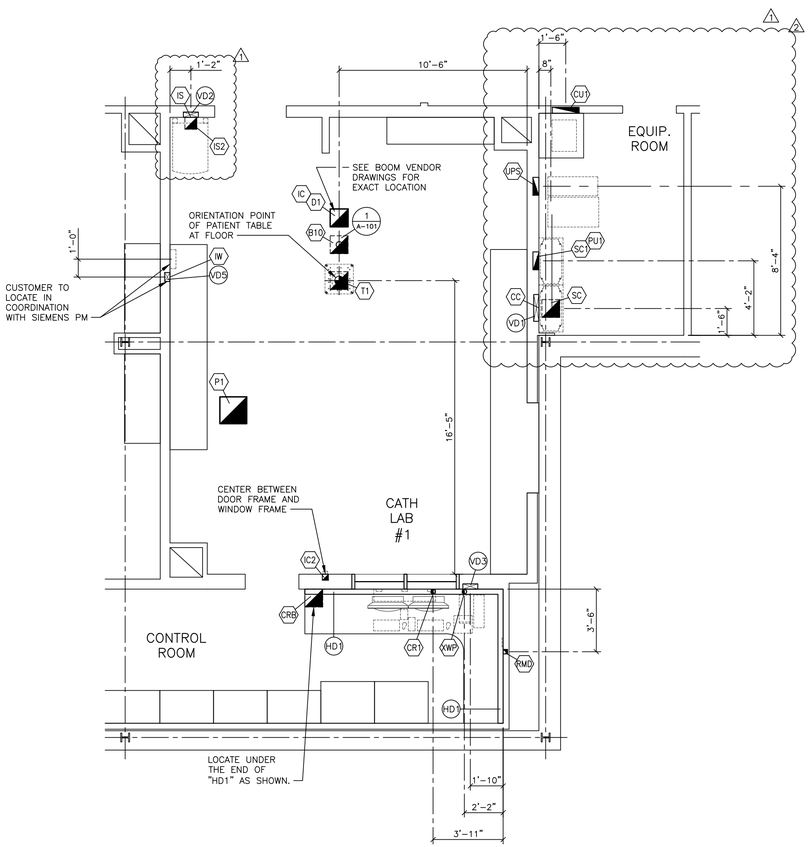
SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 - ARTIS Q CEILING

PROJECT #: 2004511
SHEET OF: 5 8 8
DRAWN BY: M. YATZUS
DATE: 04/06/22
SCALE: AS NOTED
REF. #: CPQ-177357
SHEET: E-101

REFERENCE - DOCUMENT NOT FOR CONSTRUCTION



ELECTRICAL DIMENSION PLAN

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

CEILING HEIGHT REQUIREMENT

8 FT. – 11 IN.

ARTIS Q/ZEN/ZEE CEILING
REV. 31

SYM	DATE	DESCRIPTION
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–ISSUE BLOCK–

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SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

PROJECT #: 2004511

SHEET: E-102

SHEET 6 OF 8 8

DRAWN BY: M. YATZUS

SCALE: AS NOTED

REF. #: CPQ-177357

DATE: 04/06/22

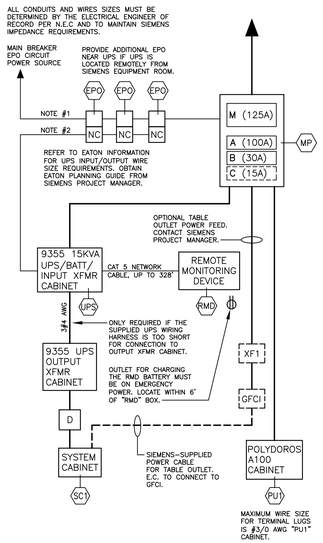
ATTENTION:

– THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.
– THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.
– IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.
– ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
– THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

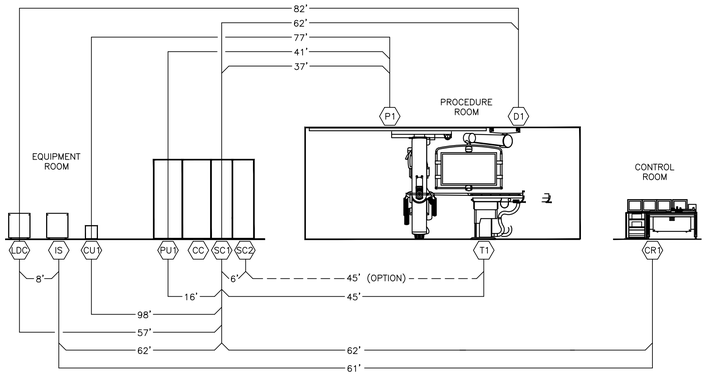
REFERENCE DOCUMENT - NOT FOR CONSTRUCTION

POWER SCHEDULE

ALL CONDUITS AND WIRES SIZES MUST BE DETERMINED BY THE ELECTRICAL ENGINEER OF RECORD PER N.E.C AND TO MAINTAIN SIEMENS IMPEDANCE REQUIREMENTS.



ITEM	QTY	DESCRIPTION
MP	1	MAIN PANEL WITH CIRCUIT BREAKERS FLUSH OR SURFACE MOUNTED.
M	1	MAIN BREAKER MUST HAVE TRIPPING DEVICE SO WHEN ANY EPO IS PRESSED, THE MAIN BREAKER TRIPS.
		MAIN BREAKER AMPS: 125
		VOLTS / PHASES / NEUTRAL / GROUND / TOTAL WIRES
		480/277Y / 3 / 1 / 1 / 5 (NOTE 1)
A	1	BREAKER AMPS: 100 (FOR PU1)
		VOLTS / PHASES / NEUTRAL / GROUND / TOTAL WIRES
		480Y / 3 / 0 / 1 / 4 (NOTE 1)
B	1	BREAKER AMPS: 30 (FOR SC1)
		VOLTS / PHASES / NEUTRAL / GROUND / TOTAL WIRES
		480/277Y / 3 / 1 / 1 / 5 (NOTE 1)
C	1	BREAKER AMPS: 15 (FOR STEP-DOWN XFMR "XF1")
		VOLTS / PHASES / NEUTRAL / GROUND / TOTAL WIRES
		480 / 1 (L1,L2) / 0 / 1 / 3
1) PHASE AND NEUTRAL TO BE THE SAME SIZE. GROUND SIZED PER NEC. NOTE: UNLESS OTHERWISE NOTED, ALL BREAKERS WILL BE 80% RATED		
D	1	3-PHASE (PLUS N,G) 30A, 600V HD FUSIBLE SERVICE DISCONNECT LOCATED AT EYE-LEVEL, WITHIN 10' OF SIEMENS SYSTEM CABINET (SC1) AND 30A RK5 FUSES.
XF1	1	750VA, 480V PRIMARY, 120V GROUNDED SECONDARY STEP-DOWN SINGLE-PHASE TRANSFORMER WITH PRIMARY AND SECONDARY FUSE PROTECTION FOR TABLE OUTLET POWER, CONNECTED TO AN ADJACENT FLUSH WALL-MOUNTED 15A, 125VAC UL 943 GFCI WITH BLANK FACE (NO CONTACT OPENINGS OR NEMA CONFIGURATION) WITH LED INDICATION, PUSH-TO-TEST AND PUSH-TO-RESET BUTTONS, AND A CLEAR LEXAN HINGED COVER TO AVOID INADVERTENT MANUAL TRIP.
EPO	VARIES	NOTE 1 – EPO CIRCUIT #1 MAIN CIRCUIT BREAKER EMERGENCY POWER OFF BUTTON WITH PROTECTIVE COVER THAT PREVENTS ACCIDENTAL ACTIVATION. THE EPO MUST BE OF FAIL-SAFE DESIGN. ALL EPO'S TO HAVE MECHANICAL LATCHING MECHANISM. EPO MUST BE RESET BEFORE MAIN BREAKER CAN RESUME OPERATION. CONTACTS AND WIRING CONFIGURATION TO BE DESIGNED BY ELECTRICAL ENGINEER OF RECORD. NOTE 2 – EPO CIRCUIT #2 EPO CONTACTS TO BE NORMALLY CLOSED, WIRED IN SERIES, CONNECTED TO 9355 UPS ONLY. THE EPOs MUST BE INSTALLED BY A QUALIFIED ELECTRICAL CONTRACTOR ACCORDING TO NATIONAL ELECTRICAL CODE, STATE AND LOCAL REGULATIONS. MEASURES SHOULD BE TAKEN TO DESIGN THE CIRCUIT IN SUCH A WAY THAT IT WILL ALWAYS WORK WHEN THE MEDICAL EQUIPMENT IS POWERED. THE CUSTOMER IS SOLELY RESPONSIBLE FOR THE IMPLEMENTATION OF THE EPOs AND THEIR ASSOCIATED CIRCUITS AND MUST MAKE THE FINAL DETERMINATION CONSIDERING ALL SITE CONDITIONS AND REGULATORY FACTORS.
ALL ITEMS LISTED IN THIS SCHEDULE SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR.		



ARTIS Q/Q.ZEN/ZEE CEILING MAXIMUM CABLE LENGTHS (TYPICAL EQUIPMENT)

POWER REQUIREMENTS

WIRING SYSTEM:	480Y/277V, 3 PHASE, 5-WIRE, 60 HZ.
MINIMUM POWER SUPPLY: IF AN ON-SITE TRANSFORMER IS REQUIRED TO OBTAIN OPERATING VOLTAGE, IT MUST BE OF SUFFICIENT CAPACITY AND CHARACTERISTICS TO MAINTAIN SUPPLY VOLTAGE AND IMPEDANCE REQUIREMENTS (TRANSFORMER AND CONDUCTORS).	
X-RAY GENERATOR (PU1) MOMENTARY RATING: (RADIOGRAPHIC EXPOSURE)	162 KVA
X-RAY GENERATOR (PU1) LONG-TIME RATING: (FLUOROSCOPY)	14 KVA
SYSTEM CABINET (SC1) LONG-TIME RATING:	8.5 KVA
LINE IMPEDANCE	≤ 120 (mΩ)

POWER QUALITY PARAMETERS

MAXIMUM LINE VOLTAGE VARIATION	±10% OF SYSTEM VOLTAGE
PHASE IMBALANCE:	2%
FREQUENCY VARIATION:	± 1 HZ

POWER SUPPLY NOTES:

1. INCOMING POWER SUPPLIES FOR SIEMENS EQUIPMENT SHOULD BE DEDICATED (BACK TO SOURCE), ISOLATED AND INSULATED FROM ANY OTHER EQUIPMENT SUCH AS ELEVATORS, GENERATORS, HVAC SYSTEMS, ETC.
2. SIEMENS HEALTHCARE REQUIRES THAT THE INCOMING POWER MEETS THE POWER QUALITY REQUIREMENTS.

GROUNDING NOTES

EQUIPMENT GROUNDING CONDUCTOR TO COMPLY WITH THE FOLLOWING:

1) SIZE GROUNDING WIRE TO SIEMENS EQUIPMENT PER POWER SCHEDULE REQUIREMENTS.
2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS EQUIPMENT.
3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS.
4) CONTINUOUS, WITH NO BREAKS OR USE OF CONDUIT, CHASSIS OR EARTH AS THE SOLE GROUNDING PATH.
5) BONDED TO CHASSIS AND/OR CONDUIT IN ACCORDANCE WITH THE NEC REQUIREMENTS.
6) MINIMIZE CONNECTIONS OR TERMINALS TO ENSURE CONTINUITY OVER THE LIFE OF THE INSTALLATION.
7) AS A NORM, THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE <500mA DURING OPERATION OF THE IMAGING EQUIPMENT.

POWER QUALITY

POOR POWER WILL ALTER EQUIPMENT PERFORMANCE

IT IS IN THE CUSTOMER'S INTEREST THAT THE ELECTRICAL CONTRACTOR BE RESPONSIBLE FOR TESTING AND VERIFYING THAT THE EQUIPMENT POWER SUPPLY COMPLIES WITH THE SIEMENS SPECIFICATIONS.

TABLE POWER OUTLET SAFETY

NOTE: LIFE-SUSTAINING EQUIPMENT MUST NOT BE CONNECTED TO THE TABLE POWER OUTLET (IF INSTALLED) IN THE SIEMENS PATIENT TABLE. POWER WILL BE DISCONNECTED IF EPO BUTTON IS PRESSED. TABLE OUTLET IS 120V, FUSED AT 5A.

NOTES:

1. 24 VDC RELAYS MUST INCLUDE A FREE-WHEELING DIODE (P/N 1N4002 OR EQUIVALENT).
2. ALL ITEMS PROVIDED BY CUSTOMER ELECTRICAL CONTRACTOR EXCEPT CONTACTS INSIDE SIEMENS "SC1" CABINET (ITEMS INSIDE DOTTED LINES).
3. ALL WIRING THAT CONNECTS TO SIEMENS "SC1" CABINET MUST BE 14-18 AWG STRANDED WIRE.
4. ONLY 3 WIRES LABELED "24 VDC", "ROOM LIGHTS" AND "X-RAY ON" SHOULD BE SENT TO SIEMENS "SC1" CABINET.
5. 24 VDC RELAYS ARE TO BE SELECTED BY ELECTRICAL CONTRACTOR TO HANDLE THE VOLTAGE AND AMPERAGE OF LIGHTING CURCUIT.
6. IF NEEDED, A SWITCH TO BLOCK RADIATION CAN BE INSTALLED IN SERIES WITH THE DOOR CONTACT.
   * THE SWITCH (24 VDC / 20 MA) MUST BE PROVIDED ON SITE.
   * CONTROL USING +24 V FROM THE SYSTEM CONTROL CABINET
   * PLAN THE SWITCH SO THAT UNINTENTIONAL OPERATION IS NOT POSSIBLE.
   * THE SWITCH MUST BE PROVIDED WITH AN APPROPRIATE SYMBOL (OR DESIGNATION) FROM WHICH THE FUNCTION CAN BE RECOGNIZED.

WARNING LIGHT/ROOM LIGHT SCHEMATIC

1	LIGHTING DETAIL	SCALE: NONE

UPS BACKUP REQUIREMENT

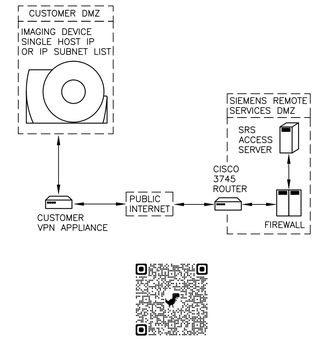
IF A SIEMENS TILTING/O.R. TABLE IS PURCHASED, A UPS PROVIDING TABLE MOVEMENT IS REQUIRED. IF NOT PURCHASED FROM SIEMENS, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE A UPS THAT ALLOWS A TILTING/O.R. TABLE TO BE MOVED TO A ZERO DEGREE TILT POSITION DESIGNATED FOR CPR WITHIN 15 SECONDS. IF THE CUSTOMER OR SIEMENS-SUPPLIED UPS SOLUTION IS NOT INSTALLED AND OPERATIONAL AT THE TIME OF THE SIEMENS IMAGING SYSTEM INSTALLATION, SIEMENS CANNOT AND WILL NOT TURNOVER THE AFFECTED SIEMENS SYSTEM!

SIEMENS SMART REMOTE SERVICE

TO ENSURE THE UPTIME OF YOUR SYSTEM DURING THE WARRANTY PERIOD (AND BEYOND WITH A SERVICE AGREEMENT), SIEMENS REMOTE SERVICES (SRS) REQUIRES REMOTE LOCAL AREA NETWORK ACCESS TO SIEMENS SYSTEMS.

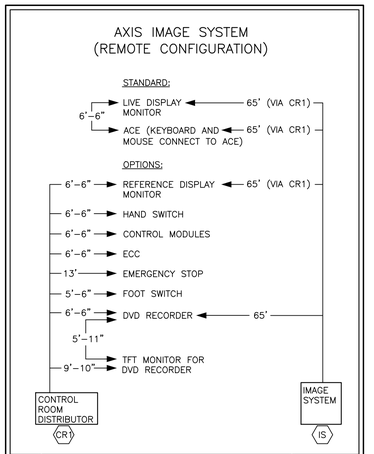
THE PREFERRED CONNECTION METHOD IS (VPN) VIRTUAL PRIVATE NETWORK (WHERE THE CUSTOMER HAS AVAILABLE A VPN CAPABLE FIREWALL OR OTHER VPN APPLIANCE). THIS METHOD PROVIDES THE POSSIBILITY FOR REMOTE SYSTEM DIAGNOSTICS WITHOUT ADDITIONAL HARDWARE. PLEASE CONTACT SIEMENS SMART REMOTE SERVICES TO DETERMINE BEST IMPLEMENTATION FOR YOUR SITE. CONTACT:

IMCPTSCSRS.DL@SIEMENS-HEALTHINEERS.COM.



NETWORK REQUIREMENT

A GIGABIT NETWORK IS REQUIRED FOR ADEQUATE IMAGE DATA TRANSFER SPEED BETWEEN THE IMAGER AND 3D RECONSTRUCTION WORKSTATION. WORKFLOW AND CLINICAL NEEDS DEMAND 3D IMAGES BE AVAILABLE FOR REVIEW BY CLINICAL STAFF IMMEDIATELY UPON ACQUISITION.



2	CONTROL ROOM SYSTEM CONNECTIONS	SCALE: NONE

CABLE PROTECTION

CABLES ARE NOT PLENUM RATED. ALL CABLES MUST BE ROUTED IN CABLE DUCTS OR CABLE CONDUITS.

CONTRACTOR SUPPLIED CABLES

FROM	VIA	TO	DESCRIPTION	REMARKS
PANEL	1	MP	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND	SEE "POWER SCHEDULE"
MP	2	PU1	3#2, 1#2 GROUND AND CONNECT	SEE "POWER SCHEDULE"
MP	3	UPS	ELECTRICAL CONTRACTOR TO SIZE	SEE "POWER SCHEDULE"
UPS	4	SD	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND	SEE "POWER SCHEDULE"
SD	5	SC1	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND (MAX #6 AWG)	SEE "POWER SCHEDULE"
UPS	6	XFMR	ELECTRICAL CONTRACTOR TO SIZE	SEE "POWER SCHEDULE"
UPS	7	EPO	2#12	SEE "POWER SCHEDULE"
RMD	8	UPS	CAT 5 NETWORK CABLE, UP TO 328'	SEE "POWER SCHEDULE"
MP	9	EPO	2#12	SEE "POWER SCHEDULE"
EPO	10	EPO	4#12, PLUS GROUND	SEE "POWER SCHEDULE"
SC1	11	WL	2#14-18 AWG	SEE "LIGHTING DETAIL" SHEET E-501
SC1	12	DS	24V SIGNAL, 2#14-18 AWG	DOOR SWITCH
MP	13	XF1	EC TO SIZE (OPTIONAL TABLE POWER OUTLET)	SEE "POWER SCHEDULE"

SIEMENS SUPPLIED CABLES

FROM	VIA	TO	DESCRIPTION	REMARKS
P1	14, VD1	PU1	P1 LEFT SIDE	MAXIMUM LENGTH 41'
P1	15, VD1	PU1	(2) HIGH VOLTAGE CABLES P1 LEFT SIDE	MAXIMUM LENGTH 41'
P1	16, VD1	SC1	P1 LEFT SIDE	MAXIMUM LENGTH 37'
P1	1 17	CU1	FOR LIQUID COOLING HOSES (P1 LEFT SIDE)	MAXIMUM LENGTH 77'
SC1	VD1, 18, VD3, HD1	CR1	FOR CONTROL ROOM OPTIONS (CONTROL MODULES, FOOT SWITCH, DISPLAY, ECC)	MAXIMUM LENGTH 62'
SC1	SC, 19	T1	NOT WITH OR TABLE	MAXIMUM LENGTH 45'
SC1	VD1, 20	CU1		MAXIMUM LENGTH 98'
SC1	UNDER CABINETS	PU1		MAXIMUM LENGTH 16'
SC1	VD1, 21	D1	OEM DISPLAY CONNECTION	MAXIMUM LENGTH 98'
SC1	VD1, 22	D1	OEM DISPLAY CONNECTION	MAXIMUM LENGTH 62'
IS	VD2, 23	D1	OEM DISPLAY CONNECTION	MAXIMUM LENGTH 75'
XWP	HD1, VD3, 24	D1	WITH BOOM 1 KIT WHEN SYNGO X IS INCLUDED	MAXIMUM LENGTH 75'
IS	IS2, 25, CRB	CR1		MAXIMUM LENGTH 61'
IS	IS2, 26, CRB	CR1		MAXIMUM LENGTH 61'
CRB	27	T1	VOLCANO S5i CABLE SET FOR PHILIPS INTRASIGHT IVUS SYSTEM	MAXIMUM LENGTH 98'
SC1	VD1, 28, VD4	IW	INJECTOR WALL CONNECTION	MAXIMUM LENGTH 62'
CR1	HD1, VD3, 29	IC	INTERCOM PROCEDURE ROOM MICROPHONE	MAXIMUM LENGTH 82'
CR1	HD1, VD3, 30	IC2	INTERCOM PROCEDURE ROOM LOUDSPEAKER	MAXIMUM LENGTH 82'
T1	31	B10		
CRB	32	B10	CUSTOMER PATIENT MONITORING, ETC.	
XF1	33, SC1, SC, 19	T1	OPTIONAL TABLE POWER OUTLET	MAXIMUM LENGTH 91'
IS	VD2, 34	CUSTOMER MONITOR	LIVE+REF VIDEO INTERFACE TO OEM (OPTION)	MAXIMUM LENGTH 110'
SC1	VD1, 35, VD2	IS	62' CABLES SELECTABLE ON FACTORY CHECKLIST	MAXIMUM LENGTH 62'

ARTIS Q/Q.ZEN/ZEE CEILING REV. 31

SYM	DATE	DESCRIPTION
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0	04/06/22	R101R(D) DATED 12/15/21 APPROVED BY CUSTOMER FOR FINALS

-ISSUE BLOCK-

PROJECT MANAGER: ALAN ESCHBERGER
TEL: (713) 416-4974
VMAIL: EXT:
FAX:
EMAIL: alan.eschberger@siemens-healthineers.com

SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS

2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

PROJECT #: 2004511
SHEET: E-501
SHEET OF: 7 OF 8 8
DRAWN BY: M. YATZUS
SCALE: AS NOTED
REF. #: CPQ-177367
DATE: 04/06/22

ATTENTION:

- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.
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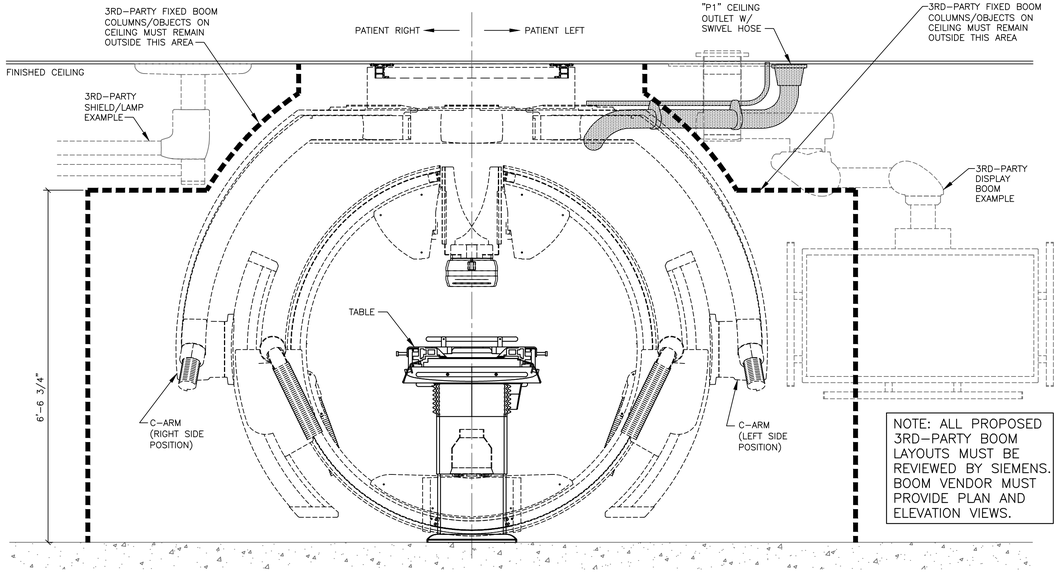
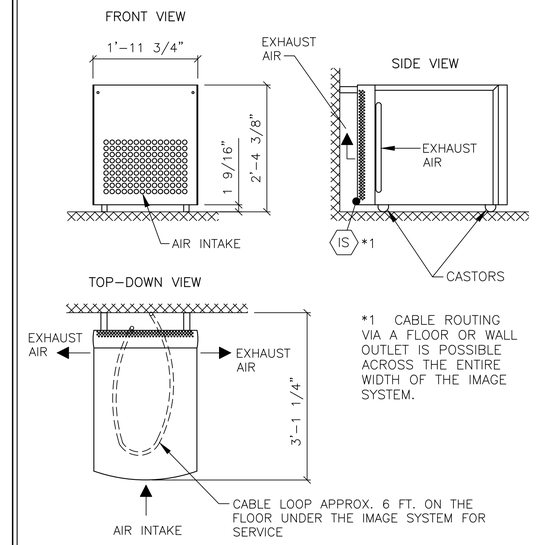
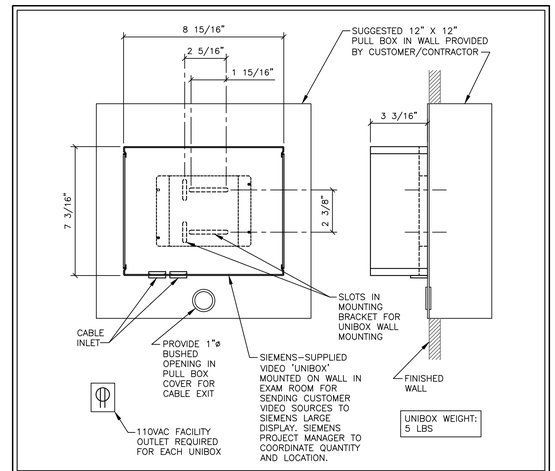
REFERENCE DOCUMENT - NOT FOR CONSTRUCTION



4 | 3RD–PARTY CEILING BOOM COORDINATION (FOOT–END ELEVATION) | SCALE: 3/4" = 1'–0"

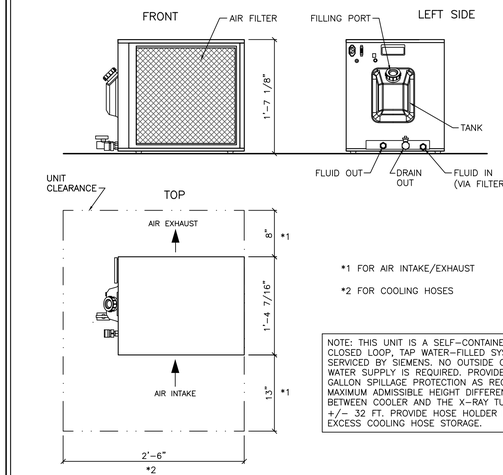


1 | AXIS IMAGE SYSTEM | SCALE: 3/4"=1'–0"

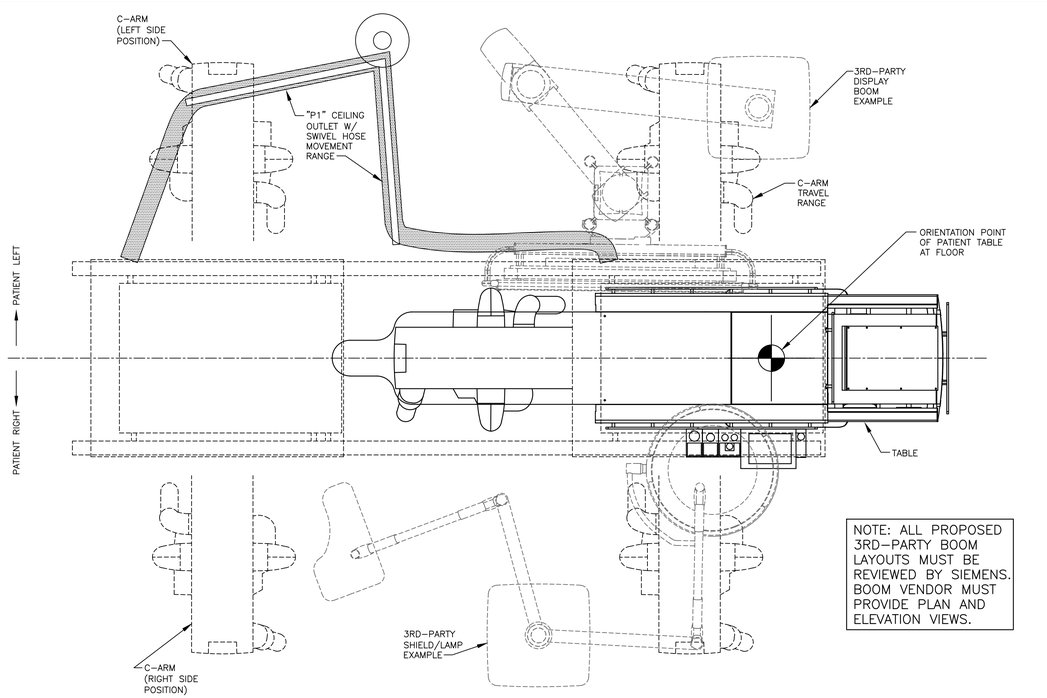


3 | WALL UNIBOX (VIDEO) | SCALE: NONE

ENVIRONMENTAL CONDITIONS		
EXAM AND CONTROL ROOM	TEMPERATURE RANGE: RELATIVE HUMIDITY:	59°F–86°F (RECOMMENDED 70°F) 20% – 75% NON–CONDENSING
IMAGE SYSTEM (IS)	TEMPERATURE RANGE: RELATIVE HUMIDITY: MAX. TEMP. GRADIENT: AIR FLOW VOLUME: MAX. NOISE LEVEL:	50°F–95°F (RECOMMENDED 70°F) 20%–75% NON CONDENSING 18° F/HR 371 CFM 53 dB(A)
GENERATOR (PU1)	TEMPERATURE RANGE: RELATIVE HUMIDITY: MAX. TEMP. GRADIENT: AIR FLOW VOLUME: MAX. NOISE LEVEL:	50°F–95°F (RECOMMENDED 70°F) 20%–75% NON CONDENSING 9° F/HR 94 CFM 55 dB(A)
SYSTEM CABINET (SC1)	TEMPERATURE RANGE: RELATIVE HUMIDITY: MAX. TEMP. GRADIENT: AIR FLOW VOLUME: MAX. NOISE LEVEL:	59°F–86°F (RECOMMENDED 70°F) 20% – 75% NON–CONDENSING 9° F/HR 294 CFM 48 dB(A)
COOLING UNIT (CU1)	TEMPERATURE RANGE: RELATIVE HUMIDITY: AIR FLOW VOLUME: MAX. NOISE LEVEL:	41°F–86°F (RECOMMENDED 70°F) FROST FREE 647 CFM 55 dB(A)
STAND WITH FLAT DETECTOR	MAX. TEMPERATURE GRADIENT: ATMOSPHERIC PRESSURE: SHOCKS: VIBRATIONS:	9° F/HR 700hPa – 1040hPa MAX. 10G/16MS MAX. 0.1 G/10–200HZ



2 | TUBE COOLING UNIT | SCALE: 1"=1'–0"



5 | 3RD–PARTY CEILING BOOM COORDINATION (PLAN VIEW) | SCALE: 3/4" = 1'–0"

HEAT LOADS
FOR BTU'S OF SEIMENS EQUIPMENT, REFER TO THE EQUIPMENT LEGEND, SHEET A–101.

CEILING HEIGHT REQUIREMENT
8 FT. – 11 IN.

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–ISSUE BLOCK–

PROJECT MANAGER: ALAN ESCHBERGER
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EMAIL: alan.eschberger@siemens–healthineers.com

SIEMENS

CHRISTUS HEALTH SOUTHEAST TEXAS
2830 CALDER ST, BEAUMONT, TX 77726
ROOM 1 – ARTIS Q CEILING

PROJECT #: 2004511
SHEET: M-501
SHEET 8 OF 8
DRAWN BY: M. YATZUS
SCALE: AS NOTED
REF. #: CPQ–177367
DATE: 04/06/22

ARTIS Q/ZEE/ZEE CEILING REV. 31

NOT FOR CONSTRUCTION - REFERENCE DOCUMENT -

Trinity Physics Consulting, LLC
14655 NW Freeway, Suite 132
Houston, Texas 77040
fax 713.690.5657
713.690.3020

Christus St. Elizabeth Hospital – Cardiac Cath Lab 1

May 17, 2022

Kristen Watkins, Director of Radiology
2830 Calder Street
Lumberton, Texas 77657702

Dear Ms. Watkins,

This **Room Shielding Calculation Evaluation**, completed **May 17, 2022**, specifies the minimum required shielding for the new x-ray room being installed in this facility.

The attached drawings show the placement and thickness of the required lead shielding. Also attached are the detailed assumptions used in the calculations. Thicknesses for alternative shielding materials for each barrier are also specified in the attached details. They include steel, concrete, wood, and glass. All shielding must extend to at least 7 foot above finished floor (AFF).

These calculations are based on the recommendations and shielding data found in NCRP Report 147. Some of these data and methods have been modified in keeping with recent research as published in various professional journals.

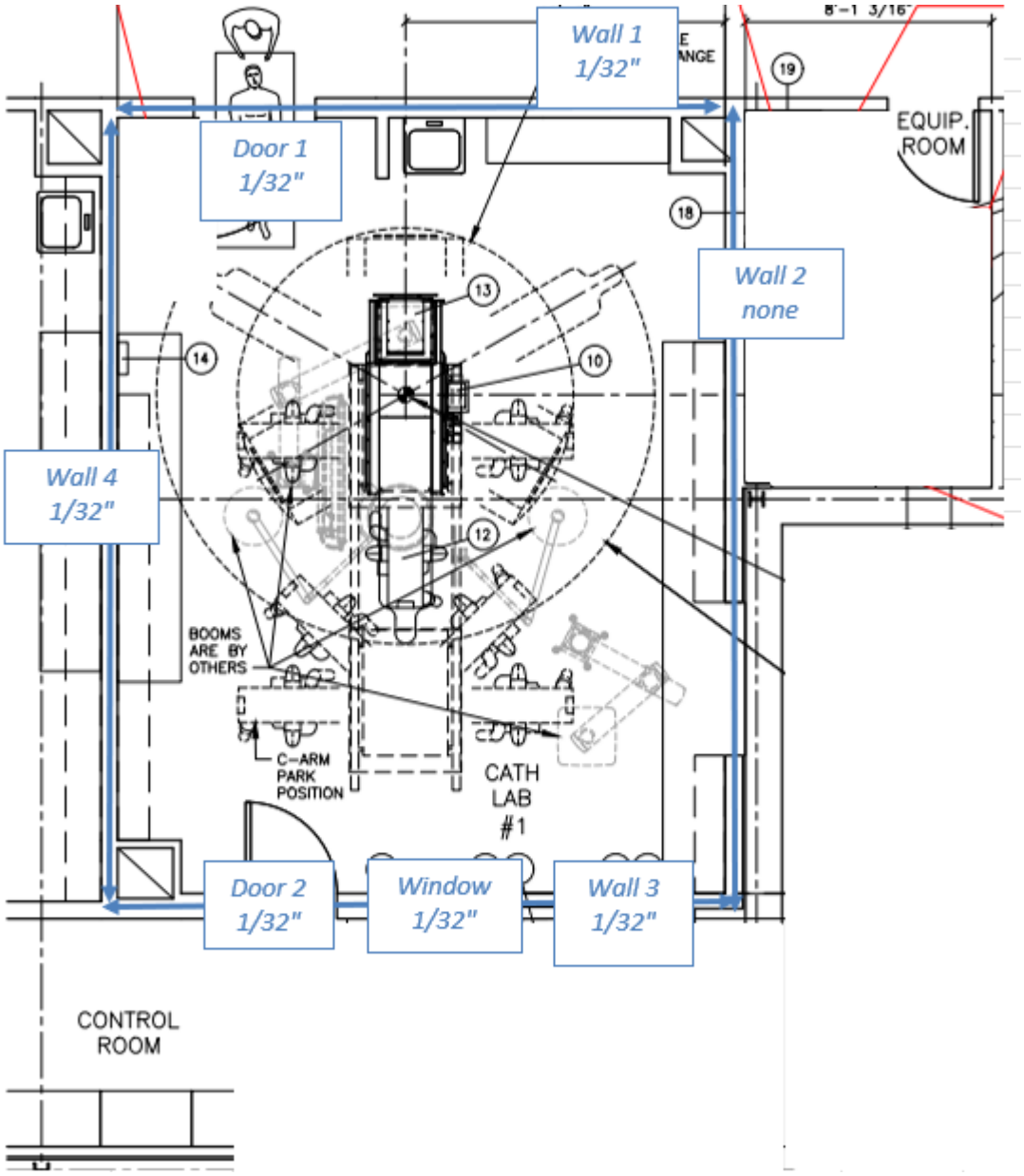
In no case will any assumptions used in this report compromise the safety of the general public or occupationally exposed employees. All barrier thicknesses are calculated to reduce radiation levels to below the regulated dose limits as required by ALARA.

When followed by a post-construction survey to verify the integrity of the required shielding, this report may satisfy requirements to document dose levels to members of the public. For this reason, a copy of this report should be kept on site along with other records that may be reviewed by the Texas Department of State Health Services, Radiation Control Program.

Laura S. Flowers

Laura S. Flowers, Ph.D., DABR
Licensed Medical Physicist No. 10631

Christus St. Elizabeth Hospital – Cardiac Cath Lab 1
May 17, 2022



***NOTES**

Wall 3: Control window may be Lead Glass or at least 0.75 mm equivalent Lead Acrylic.

No additional shielding is required above or below.

CALCULATION DETAILS:

This section of the report specifies the assumptions used in each calculation, such as distance, occupancy and workload. For each barrier, the minimum required lead is calculated and shown in millimeters. The calculation is then repeated for concrete, gypsum, steel, glass, and wood, any of which may be used in place of lead if the thickness and cost is not prohibitive. The minimum required thickness of lead is then transferred to the attached drawing, where it is rounded up to a commercially available thickness.

Rounding up the calculated lead thicknesses to commercially available sheet thicknesses also provides a margin of safety over and above those which are inherent in this report. For example, a typical lead-lined wall has two layers of 5/8 inch sheetrock, which is a fairly good attenuator for diagnostic x-rays. Therefore, the shielded exposure rates in these calculations are further reduced by roughly 50%. Other conservative assumptions, such as ignoring attenuation in the patient, have been included in these calculations. The result is that exposures throughout the facility are significantly lower than the required limits, in keeping with the concept of ALARA.

Room: Cath Lab 1 Workload (patients per week) = 20

Barrier: Wall 1 - Door — Uncontrolled Area, Occupancy = 0.125

Required Pb		Limit	distance	Unshielded	
lb/sq ft	inches	mGy/wk	feet	mGy/wk	Trans
1	1/64	0.02	16.65	0.26	0.07635

Required shielding for various construction materials:

Lead	0.33	mm
Concrete	29.4	mm
Gypsum	91.5	mm
Steel	2.3	mm
Glass	35.4	mm
Wood	344.6	mm

Recommended lb/sq ft	Shielded Air Kerma (uGy/wk)
2	3.9

Barrier:	Wall 1 - Hallway				Uncontrolled Area, Occupancy = 0.2
Required Pb		Limit	distance	Unshielded	
lb/sq ft	inches	mGy/wk	feet	mGy/wk	Trans
1.5	1.5/64	0.02	16.01	0.45	0.04412

Required shielding for various construction materials:

Lead	0.47	mm		
Concrete	38.9	mm		Shielded
Gypsum	123.2	mm	Recommended	Air Kerma
Steel	3.4	mm	lb/sq ft	(uGy/wk)
Glass	46.5	mm	2	6.8
Wood	419.8	mm		

Barrier:	Wall 2 - Equipment				Uncontrolled Area, Occupancy = 0.025
Required Pb		Limit	distance	Unshielded	
lb/sq ft	inches	mGy/wk	feet	mGy/wk	Trans
0.5	0.5/64	0.02	15.24	0.06	0.31983

Required shielding for various construction materials:

Lead	0.10	mm		
Concrete	10.0	mm		Shielded
Gypsum	27.8	mm	Recommended	Air Kerma
Steel	0.6	mm	lb/sq ft	(uGy/wk)
Glass	11.8	mm	none	19.9
Wood	149.5	mm		

Barrier:	Wall 2 - Outside				Uncontrolled Area, Occupancy = 0.025
Required Pb		Limit	distance	Unshielded	
lb/sq ft	inches	mGy/wk	feet	mGy/wk	Trans
0.5	0.5/64	0.02	16.00	0.06	0.35252

Required shielding for various construction materials:

Lead	0.08	mm		
Concrete	9.0	mm		Shielded
Gypsum	24.7	mm	Recommended	Air Kerma
Steel	0.5	mm	lb/sq ft	(uGy/wk)
Glass	10.5	mm	none	18.0
Wood	136.4	mm		

Barrier: Wall 3 - Control — Controlled Area, Occupancy = 1

Required Pb lb/sq ft	Required Pb inches	Limit mGy/wk	distance feet	Unshielded mGy/wk	Trans
1.5	1.5/64	0.10	15.15	2.53	0.03951

Required shielding for various construction materials:

Lead	0.49	mm		
Concrete	40.9	mm		Shielded
Gypsum	129.9	mm	Recommended	Air Kerma
Steel	3.6	mm	lb/sq ft	(uGy/wk)
Glass	48.8	mm	2	38.0
Wood	435.0	mm		

Barrier: Wall 3 - Window — Controlled Area, Occupancy = 1

Required Pb lb/sq ft	Required Pb inches	Limit mGy/wk	distance feet	Unshielded mGy/wk	Trans
1.5	1.5/64	0.10	15.15	2.53	0.03951

Required shielding for various construction materials:

Lead	0.49	mm		
Concrete	40.9	mm		Shielded
Gypsum	129.9	mm	Recommended	Air Kerma
Steel	3.6	mm	lb/sq ft	(uGy/wk)
Glass	48.8	mm	2	38.0
Wood	435.0	mm		

Barrier: Wall 3 - Door — Controlled Area, Occupancy = 1

Required Pb lb/sq ft	Required Pb inches	Limit mGy/wk	distance feet	Unshielded mGy/wk	Trans
2	2/64	0.10	12.64	3.64	0.02750

Required shielding for various construction materials:

Lead	0.60	mm		
Concrete	47.8	mm		Shielded
Gypsum	152.7	mm	Recommended	Air Kerma
Steel	4.5	mm	lb/sq ft	(uGy/wk)
Glass	56.7	mm	2	54.5
Wood	484.8	mm		

Barrier:	Wall 4 - CCL2				Uncontrolled Area, Occupancy = 0.5
Required Pb		Limit	distance	Unshielded	
lb/sq ft	inches	mGy/wk	feet	mGy/wk	Trans
2.5	2.5/64	0.02	12.92	1.74	0.01149

Required shielding for various construction materials:

			Recommended	Shielded Air Kerma
Lead	0.88	mm	lb/sq ft	(uGy/wk)
Concrete	66.1	mm	2	13.6
Gypsum	210.6	mm		
Steel	6.9	mm		
Glass	76.7	mm		
Wood	604.8	mm		