Change Proposal (Not a change order)

PROJECT:	Northeastern Vermont Regional Medical Center New MRI Addition St. Johnsbury, VT		CONTRACT NO. CHANGE PROPOSAL NO. DATE:	2533 10 6-Aug-19
Attached is an item	ized quotation for changes to the subject project sur	m and/or time as	described herein.	
This document, who	en fully executed, as accepted, shall constitute auth-	orization to proc	eed with the work described herein.	
DESCRIPTION OF	PROPOSED CHANGE:			
	CFW Electric			\$2,450
	VHV			<u>\$7,394</u>
ATTACHMENTS:	CFW proposal dated 7/2/19, VHV proposal dated 7	7/24/19	Sub Total CM Fee @ 3.75% Change Proposal Total	\$9,844 \$369 \$10,213
	s Proposed Change rking Days Due To This Proposed Change	Add/Ded 0 Days	luct	\$10,213
The Amount Of Thi	s Proposal Is Subject To Revision If Not Accepted I	n 10 Days		
H.P. CUMMINGS (CONSTRUCTION COMPANY			
BY:	mith, Senior Project Manager			
			Date:	6-Aug-19
	ENGINEER		OWNER	
F	Recommend Acceptance		Accept	
	Do Not Recommend Acceptance		Do Not Accept	
BY:		BY:		
DATE:		DATE:		



Electrical Contracting Company

PO Box 142, 578 Route 2 W Danville, Vermont 05828

CHANGE ORDER #2

July 2, 2019

H.P. Cummings Construction Co. 5 High Street Woodsville, NH 03785

RE: NVRH MRI Addition – Revised Siemens Drawings Dated 06-17-19

Change Order Proposal Total - \$2,450.00

- o Revise conduit schedule and quantities per revised drawings dated 06-17-19
- o Item 7 Delete 30' ¾" EMT and ADD 30' of 2" EMT
- o Item 8 Delete 60' of 1" EMT and ADD 120' of 2 1/2" EMT
- o Item 9 Delete 60" of 2 ½ EMT and ADD 60' of 1 ½" EMT
- o Item 12 Delete 170' of 34" EMT and ADD 170' of 1" EMT

Labor - \$880.00

Materials - \$1,570.00

Total - \$2,450.00





Change Request Proposal

Project:
(name and
address)

2794 / NVRH NEW MRI ADDITION 1315 HOSPITAL DRIVE ST JOHNSBURY, VT 05819

Change request number:

Description:

Status:

Origination date:

PCO-0020

PROPOSED

07/24/19

CP #10 / PR #5 MRI REVISED DRAWINGS

Customer:

HP CUMMINGS

Notice to Proceed

Submitted date: Received date:

Rough order of magnitude: 0.00

Quotation

Submitted date:

07/24/19

Due date:

Submitted amount: 7,394.00

Requested days delay:

Revenue Detail

Billing Item

Description

Revenue 7,394.00

PCO-0020

Print Date: 07/24/19

REVISED MRI DRAWINGS

Total Revenue For CR PCO-0020 7,394.00

This quotation is guaranteed for 30 days, provided the conditions of the work site remain the same as of the date stated above. Be advised lack of a timely response could create additional interference that was not included in this quotation. Should that occur, we reserve the right to cancel or modify this proposal accordingly.

If this proposal meets with your approval, please sign below and return one copy for our records. Please feel free to contact us if you have any questions.

Approvals					
Customer: HP CUMMINGS Authorized Representative:	Contractor: VHV Company				
Ву:	By:				
Date:	Date: July 24, 2019				

Sell Summary	Labor	Material	Subs	Other	Total
HVAC - Sheetmetal	-	-	-	-	-
Mechanical Piping	3,287	3,258	-	409	6,954
Plumbing	-	-	-	-	-
Miscellaneous	-	-	440	-	440
Bond	-	-	-	-	-
Grand Total	3,287	3,258	440	409	7,394

RECAP 1 of 1

NVRH New MRIAddition

Line	Description	Qty	UOM	Hours	Rate	Labor	Material	Subs	Other	Total
8	Additional Piping on M1.3			-	-	-	-	-	-	-
9	140 - CHWS M&R			-	-	-	-	-	-	-
10	Pipe	1	ea	0.7	68.00	50	112	-	-	161
11	Fittings , Flanges , Nipples , Joints	1	ea	14.7	68.00	998	296	-	-	1,294
12	Valves	1	ea	4.0	68.00	269	230	-	-	498
13	Hanger Components, Labor	1	ea	0.7	68.00	48	9	-	-	56
14	Other	1	ea	1.2	68.00	82	141	-	-	222
15	Feet of Pipe:	10.8	LF	-	-	-	-	-	-	-
16	Number of Joints:	52	JTS	-	-	-	-	-	-	-
17	Joints Per Man Day:	20.736		-	-	-	-	-	-	-
18	Pipe volume:	1.6504	GAL	-	-	-	-	-	-	-
19	Visual Flow Meter	1	рс	-	-	-	325	-	-	325
21				-	-	-	-	-	-	-
23	DI Water for secondary CW Loop	30	gal	4.8	68.00	326	390	-	-	716
24	DI Water for Primary Loop	100	gal	16.0	68.00	1,088	1,300	-	-	2,388
25				-	-	-	-	-	-	-
26	Oxygen Monitoring by others			-	-	-	-	-	-	-
75				-	-	-	-	-	-	-
78	Pipe Labels	2	ea	0.4	68.00	27	16	-	-	43
79	Valve Tags	5	ea	0.5	68.00	34	15	-	-	49
81				-	-	-	-	-	-	-
82	Warranty	% of	Eqmt	-	101.00	-	-	-	-	-
85	Field Management	1	lot	3.2	68.00	219	-	-	-	219
86	Measuring, Detailing, Ordering	1	lot	2.1	68.00	146	-	-	-	146
87	Engineering	1	lot	-	-	-	-	-	-	-
88	Travel Expenses	1	lot	-	-	-	-	-	163	163
89	Vehicles, Tools, Ladders, etc	1	lot	-	-	-	-	-	209	209
90					-					
91	Freight (Included with Material)	1	lot	-	-	-	-	-	-	-
	Mechanical Piping Subtotal			48.3		3,287	2,833	-	372	6,492
	Mark-up %						15%	10%	10%	
	Mechanical Piping Total			48.3		3,287	3,258	-	409	6,954

PIPING 1 of 1

NVRH New MRIAddition

Line	Description	Qty	UOM	Hours	Rate	Labor	Material	Subs	Other	Total
3	ENGINEERING			-	-	-	-	-	-	-
7	Coordination Drawings	1	lot	-	-	-	-	-	-	-
8	Spool Drawings	1	lot	-	-	-	-	-	-	-
10				-	-	-	-	-	-	-
11	SERVICE			-	-	-	-	-	-	-
19	Service Veh, Tools, Ladders, etc			-	-	-	-	-	-	-
20				-	-	-	-	-	-	-
21	OTHER COSTS			-	-	-	-	-	-	-
31	Other Veh, Tools, Ladders, etc			-	-	-	-	-	-	-
39	Standard Subs			-	-	-	-	-	-	-
40	Testing + Balancing	1	LOT	-	-	-	-	-	-	-
41	Crane	1	LOT	-	-	-	-	-	-	-
42	Controls	1	LOT	-	-	-	-	-	-	-
43	Insulation (Thermalock Quote)	1	LOT	-	-	-	-	400	-	400
48				-	-	-	-	-	-	-
49	Other Subs			-	-	-	-	-	-	-
50	Core Drilling	1	LOT	-	-	-	-	-	-	-
51	Welding Sub	1	LOT	-	-	-	-	-	-	-
52	Electrical	1	LOT	-	-	-	-	-	-	-
53	GC Work	1	LOT	-	-	-	-	-	-	-
54	Plumbing	1	LOT	-	-	-	-	-	-	-
55	Piping	1	LOT	-	-	-	-	-	-	-
56	Roofing	1	LOT	-	-	-	-	-	-	-
	Miscellaneous Subtotal			-		-	-	400	-	400
	Mark-up %						15%	10%	10%	
	Miscellaneous Total			-		-	-	440	-	440

MISC 1 of 1



RE: Contract #233 Northeastern Vermont Regional Hospital New MRI Addition St. Johnsbury, VT

HPC'S CHANGE PROPOSAL REQUEST - CP 10

DATE:	June 27.	2019
DAIL.	June 21,	4017

TO: Bradley Fontaine CFW

FROM: Meagan Pennock H.P. Cummings

ENCLOSURE: Siemens Site Specific Sola XJ Drawings

Please review the updated site-specific drawings for the Siemens Sola Machine. NVRH updated to this unit from the Magnetom Aera XJ included in the project documents.

Please provide your cost changes within five (5) days.

Thank you.

Your written response should refer to HPC's Change Proposal Request - CP #10 listed above.



RE: Contract #233 Northeastern Vermont Regional Hospital New MRI Addition St. Johnsbury, VT

HPC'S CHANGE PROPOSAL REQUEST - CP 10

DATE: June 28, 2019

TO: Tim Valyou VHV

FROM: Meagan Pennock H.P. Cummings

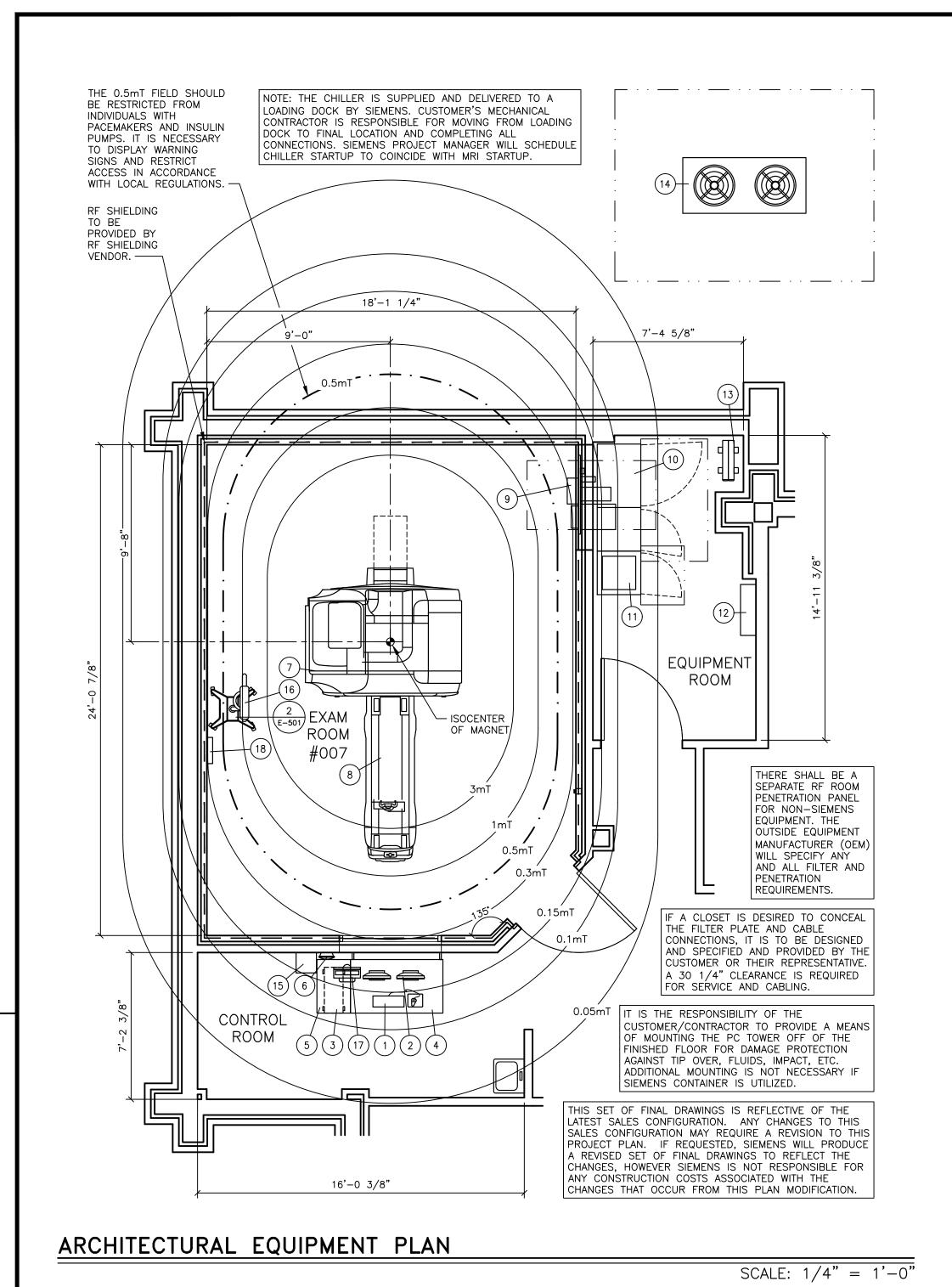
ENCLOSURE: Siemens Site Specific Sola XJ Drawings

Please review the updated site-specific drawings for the Siemens Sola Machine. NVRH updated to this unit from the Magnetom Aera XJ included in the project documents.

Please provide your cost changes within five (5) days.

Thank you.

Your written response should refer to HPC's Change Proposal Request - CP #10 listed above.



MAGNET CO-SITING

MINIMUM DISTANCE MAGNET-MAGNET (SIEMENS) 0.2T | 0.35T | 1.0T | 1.5T | 3.0T 0.2T | 32'-9" | 32'-9" | 16'-5" | 19'-9" | 32'-9" 0.35T 32'-9" 32'-9" 16'-5" 19'-9" 32'-9" 1.0T | 16'-5" | 16'-5" | 14'-10" | 16'-5" | 19'-9" 1.5T | 19'-9" | 19'-9" | 16'-5" | 16'-5" | 19'-9" 3.0T | 32'-9" | 32'-9" | 19'-9" | 19'-9" | 19'-9"

DO NOT RAMP ONE MAGNET WHILE THE OTHER IS RUNNING APPLICATIONS. SHIM IS ONLY OPTIMIZED WHEN BOTH MAGNETS ARE RAMPED UP DURING THE SHIMMING PROCEDURE.

WHEN CO-SITING AN MR SYSTEM WITH A MAGNETIC NAVIGATION SYSTEM THE MINIMUM DISTANCE FOR CLINICAL IMAGING IS 98'-6", FOR SPECTROSCOPY THE MINIMUM SEPARATION IS 121'-5".

OEM ACCESSORY ITEMS

FOR OEM (OUTSIDE EQUIPMENT MANUFACTURER) ITEMS THAT ARE SOLD AS ACCESSORIES TO THE SIEMENS MR SYSTEM (INJECTORS, LASER LIGHTS, ELASTOGRAPHY, CHILLERS, UPS, ETC.), PLEASE REFER TO THE SIEMENS PROJECT MANAGER AND THE ACTUAL EQUIPMENT VENDOR.

MAGNETIC FIELD WARNING

PLEASE BE AWARE THAT DURING THE CALIBRATION PHASE OF THE MRI INSTALLATION, THE MAGNET WILL BE AT FULL FIELD STRENGTH AND ALL NECESSARY PRECAUTIONS WHEN WORKING IN THE VICINITY OF STRONG MAGNETIC FIELDS MUST BE TAKEN. WHEN THE CALIBRATION OF THE MAGNET OVERLAPS WITH FINAL CONSTRUCTION ACTIVITIES, THERE IS THE POSSIBILITY OF THE INTRODUCTION OF FERROUS MAGNETIC OBJECTS BY WORKERS INTO THE MR ROOM. IT S THE RESPONSIBILITY OF THE CUSTOMER TO ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO ENSURE THAT THIS DOES NOT HAPPEN, AS EQUIPMENT DAMAGE AND SERIOUS BODILY INJURY COULD OCCUR.

EXAM ROOM LIGHTING

THE MAGNETIC FIELD ADVERSELY AFFECTS THE OPERATING LIFE OF LIGHT BULBS LOCATED IN THE IMMEDIATE VICINITY OF THE MAGNET. THE FILAMENT IN THE BULBS OSCILLATES WITH THE FREQUENCY OF THE POWER SUPPLY. LIGHTS IN THE VICINITY OF THE MAGNET CONNECTED TO A DC POWER SUPPLY CAN REDUCE THIS EFFECT. RESIDUAL DC RIPPLE SHOULD BE LESS THAN 5%.

STATE AGENCY REVIEW

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

NO	DESCRIPTION	SMS	WEIGHT	BTU/HR	DIMEN	ISIONS (INC	HES)	REMARKS
10	DESCRIPTION	SYM	(LBS)	TO AIR	W	D	H	INDIMANNS
1	MRC KEYBOARD	STW	5	TO AIR	27 1/4	10 1/8	1 3/4	ON CONCOLE (COUNTED
1)					•	,	· · · · · · · · · · · · · · · · · · ·	ON CONSOLE/COUNTER
2)	COLOR MONITOR FOR MRC		22	239	18 5/16	16 15/16	4 3/4	ON CONSOLE/COUNTER
3	HOST PC MRC	√ (RC)	49	2,389	11	27	18 1/8	
4)	MRC OPERATING CONSOLE TABLE	\bigcirc	132		54 3/8	31 1/2	27-46	ADJUSTABLE HEIGHT
5	CONTAINER FOR HOST PC 500	\bigcirc	238		19 5/8	31 1/2	28 3/8	
6)	ALARM BOX	AB	2		9	4	9	
7)	SOLA MAGNET IN OPERATION	B	8,779	7,506	91	170	86	
8)	PATIENT TABLE (MOBILE)	\Box	529		29 1/2	97 1/4	21-41	
9	RF-FILTER PLATE	f	287	853	46 1/2	35 1/8	21 5/8	
10)	ELECTRONICS CABINET (GPA/EPC CABINET)	(CPA)	3,307	<3,412	61 1/2	26	77 1/2	
11)	SEP CABINET	₹₽	750	<3,412	25 5/8	25 5/8	73 5/8	
12)	INTEGRATED ELECTRICAL CABINET	E	150		30	9 1/8	36	WALL MOUNTED
13)	LIEBERT GXT4 UPS WITH BATTERY	(P)	164	TBD	17	23 5/8	6 3/4	
14)	KKT KRAUS cBoxX 100 CHILLER	(₩)	1,742		32 3/4	72 1/2	80	CUST. TO LOCATE/INSTALL
15)	KKT cBoxX STATUS PANEL	€ (C)>	TBD		12	12	5	WALL MOUNTED IN CONTROL ROOM
16)	MRXPERION INJECTOR STAND AND HEAD	√ (RX)	94		23 3/8	28 3/8	71 7/8	INJECTOR ON STAND
17)	MRXPERION ICBC INJECTOR CRU	₩R)	17.6		15 3/4	10 1/4	13 1/2	ON CUSTOMERS COUNTER
18)	MRXPERION ICBC INJECTOR POWER SUPPLY	€ RP	6		15 3/8	3 3/8	15 1/2	LOCATED IN EXAM ROOM OUTSIDE 5mT FIELD

FALUSVENIT LEAGUE

PROTECTING THE MAGNETIC FIELD

THE SIEMENS MR SYSTEM UTILIZES A SUPERCONDUCTIVE MAGNET WITH AN EXTREMELY HOMOGENOUS FIELD WITHIN THE MAGNET TO PROVIDE DISTORTION REE IMAGING. THE PRESENCE OF FERROMAGNETIC MATERIAL WITHIN THE /ICINITY OF THE MAGNET CAN ADVERSELY AFFECT THE UNIFORMITY OF THE JSEFUL MAGNETIC FIELD. THIS APPLIES TO STATIONARY FERROUS MATERIAL STRUCTURAL STEEL) WHICH IS TO BE MINIMIZED. STATIONARY STEEL COMPENSATION MAY BE ACHIEVED BY MAGNET POSITIONING AND SELECTIVE JSE OF SHIMS. DISTORTION CAUSED BY MOVING FERROMAGNETIC OBJECTS (MOTOR VEHICLES. ELEVATORS) IS MORE DIFFICULT TO COMPENSATE AND MAY REQUIRE THE USE OF MAGNETIC SHIELDING.

MAGNETIC FRINGE FIELDS

MAGNETIC FIELDS MAY AFFECT THE FUNCTION OF DEVICES IN THE VICINITY OF THE MAGNET. THESE DEVICES MUST BE OUTSIDE CERTAIN MAGNETIC FIELDS. THE DISTANCES LISTED ARE FROM THE MAGNET ISOCENTER AND DO NOT CONSIDER ANY MAGNETIC ROOM SHIELDING. FIELD X & Y Z AXIS DEVICES 3.0mT | 6'-1" | 9'-2" | SMALL MOTORS, WATCHES, CAMERAS, CREDII CARDS, MAGNETIC DATA CARRIERS. I.0mT | 7'-3" | 11'-7" COMPUTERS, MAGNETIC DISK DRIVES OSCILLOSCOPES, PROCESSORS 0.5mT | 8'-3" | 13'-2" | CARDIAC PACEMAKERS, X-RAY TUBES, INSULIN PUMPS, B/W MONITORS, MAGNETIC DATA CARRIERS (LONG-TERM STORAGE) .15mT | 10'-4" | 17'-4" | SIEMENS CT SCANNERS 0.1mT | 11'-2" | 19'-1" | CRT MONITORS, SIEMENS LINEAR ACCELERATORS X-RAY IMAGE INTENSIFIERS, GAMMA 0.05mT | 13'-6" | 22'-8" CAMERAS, PET/CYCLOTRON, ELECTRON MICROSCOPES, LINEAR ACCELERATORS

THE OWNER/USER IS TO VERIFY THE LOCATION OF THE 0.5mT FIELD

AND ENSURÉ THAT IT IS MAINTAINED AS A RESTRICTED AREA.

PROTECTING THE ENVIRONMENT

PROTECTING THE IMMEDIATE ENVIRONMENT FROM THE EFFECT OF THE MAGNETIC FIELD REQUIRES CONSIDERATION. INFORMATION STORED ON MAGNETIC DATA CARRIERS SUCH AS DISCS, TAPES AND CARDS MAY BE ERASED IF NEAR THE MAGNET. CAUTION WITH REGARD TO HEART PACEMAKERS MUST BE EXERCISED. MOST PACEMAKER UNITS EMPLOY A REED RELAY WHICH MAY CHANGE OPERATING MODE WHEN EXPOSED TO AN EXTERNAL MAGNETIC FIELD. PACEMAKER USERS MUST BE KEPT AT A SPECIFIED DISTANCE FROM THE MAGNET WHICH IS DETERMINED BY THE MAGNET FIELD STRENGTH.

MAGNET SITING REQUIREMENTS

IT MUST BE ENSURED THAT THE MAGNET IS LOCATED SO THAT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD ARE NOT ADVERSELY AFFECTED BY EXTRANEOUS FIELDS AND STATIC OR DYNAMIC FERROMAGNETIC OBJECTS. X & Y AXES | Z AXIS | SOURCE OF INTERFERENCE FLOOR STEEL REINFORCEMENT<20 LBS./ FT IRON BEAMS < 66 LBS./FT. 16'-1" | 19'-1" MOVING METAL UP TO 110 LBS. WATER COOLING UNIT (CHILLER) 21'-4" | MOVING METAL UP TO 440 LBS. 24'-8" MOVING METAL UP TO 2,000 LBS. 29'-7" | ELEVATORS, TRUCKS UP TO 10,000 LBS. 20'-5" 13'-1" 13'-1" AC TRANSFORMERS LESS THAN 650 KVA 16'-5" AC TRANSFORMERS LESS THAN 1600 KVA 16'-5" 5'-0" AC CABLES, MOTORS LESS THAN 250 AMPS 5'-0" 8'-3" AC CABLES, MOTORS LESS THAN 1000 AMPS

FOR IRON OBJECTS LOCATED UP TO 45° FROM THE Z AXIS, THE

DISTANCES FOR THE Z AXIS MUST BE USED. REDUCTION IS

POSSIBLE WITH STEEL SHIELDING.

ARCHITECTURAL NOTES

1) ALL PRELIMINARY EQUIPMENT LAYOUTS SUBMITTED BY SIEMENS MEDICAL SOLUTIONS, INC. (SMS HEREAFTER) ARE BASED ON THE RECOMMENDED SPACE NECESSARY FOR THE OPERATION AND SERVICEABILITY OF THE EQUIPMENT BEING PROPOSED. SMS WILL NOT SUBMIT AN EQUIPMENT LAYOUT THAT IS NOT IN THE BEST INTEREST OF BOTH THE CUSTOMER AND SMS. ALL EQUIPMENT LAYOUTS ARE BASED EITHER ON AN ACTUAL SITE LOCATION SURVEY OR ARCHITECTURAL DRAWINGS SUPPLIED TO SMS. SMS WILL NOT BE RESPONSIBLE FOR ANY ALTERATIONS THAT ENCROACH WITHIN DESIGNATED SAFETY AND SERVICE CLEARANCE ZONES AS INDICATED ON DRAWINGS (IE. 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 SMS PROJECT MANAGER. 2) SMS IS NOT AN ARCHITECTURAL OR ENGINEERING FIRM. DRAWINGS SUPPLIED BY SMS 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.

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 SMS SHALL BE CONTINGENT UPON STRICT COMPLIANCE WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND

5) ALL DIMENSIONS SHOWN ARE TAKEN FROM FINISHED SURFACES UNLESS SPECIFIED OTHERWISE. 6) THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING RÉQUIREMENTS 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

RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THESE

DRAWINGS, UNLESS SPECIFIED OTHERWISE

SHALL FURTHER TAKE ALL RESPONSIBILITY IN THE COMMUNICATION AND COORDINATION OF ACTIVITIES OF THE RADIATION PHYSICIST AND THE ARCHITECTURAL REPRESENTATIVE. 7) SMS SHALL BE RESPONSIBLE FOR SMS EQUIPMENT INSTALLATION AND CALIBRATION, CONNECTION AND INSTALLATION OF SMS PROVIDED CABLES. THE CUSTOMER/ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR TERMINATIONS OF CUSTOMER/ELECTRICAL CONTRACTOR-SUPPLIED CABLES TO SMS 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 JOB SUPERVISION TO BE PROVIDED BY SMS. 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 VERIFY WITH SMS PROJECT MANAGER FINAL INSTALLATION DRAWINGS THE LOCATIONS AND TRAVEL OF ALL ANCILLARY EQUIPMENT TO BE CEILING OR WALL MOUNTED (IE: O.R. LIGHTS, MEDICAL GAS COLUMNS, PHYSIOLOGICAL MONITORING

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 SMS EQUIPMENT AND ANY ASSOCIATED SUPPORT

INJECTORS, CRT PLATFORMS, SPRINKLER HEADS, SMOKE DETECTORS,

CONSTRUCTION REQUIREMENTS

THE CUSTOMER/CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL CONSTRUCTION MATERIALS INCLUDING ELECTRICAL AND MECHANICAL DEVICES REQUIRED BY SIEMENS SPECIFICATIONS AND TO ENSURE THAT THE MATERIAL USED INSIDE THE RF-SHIELDING IS AS FREE OF FERROMAGNETIC PROPERTIES AS POSSIBLE. STEEL WALL STUDS ARE PERMITTED BUT MUST BE SECURED PROPERLY. ANY FERROUS MATERIAL INSIDE THE EXAM ROOM MAY BECOME A MISSILE AND CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT. FERROUS ITEMS INSIDE THE EXAM ROOM ARE THE LIABILITY OF THE CONTRACTOR AND/OR INSTALLER.

REV 2

PROJECT MILESTONES REFERENCE SHEET PROJECT MILESTONES TO BE COMPLETED BEFORE EQUIPMENT DELIVERY DELIVERY PATH VERIFIED S-101 FLOOR LEVEL MEETS SIEMENS SPECIFICATIONS AND ALL BASEPLATES INSTALLED RF ROOM TEST COMPLETED AND MEETS SIEMENS SPECIFICATIONS A-502 E-101 ALL RACEWAY, CONDUITS AND JUNCTION BOXES INSTALLED ALL PLUMBING INSTALLED AND TESTED M - 101POWER SCHEDULE COMPLETED E-102 ALL EPO BUTTONS INSTALLED AND TESTED E-101 MR COMPATIBLE LIGHTING AND CEILING GRIDS INSTALLED IN MAGNET ROOM A-101 CONTROL ROOM COMPLETED ENOUGH TO FACILITATE THE INSTALLATION A-101 CHILLED WATER SUPPLY AVAILABLE AND MEETS SIEMENS SPECIFICATIONS M - 101MR COMPATIBLE LIGHTING AND CEILING GRIDS INSTALLED IN MAGNET ROOM A - 101HVAC SYSTEM COMPLETE, TESTED AND WORKING PER SIEMENS SPECIFICATIONS M - 101QUENCH PIPE CONSTRUCTED AND INSTALLED PER SIEMENS SPECIFICATIONS M - 501ETHERNET CONNECTION INSTALLED AND IN OPERATION AT THE SHOWN LOCATIONS E-101

CASEWORK & ACCESSORY NOTES

I) ALL CASEWORK IS EITHER EXISTING OR IS TO BE DESIGNED, DETAILED, FURNISHED AND INSTALLED BY THE CUSTOMER AND/OR CONTRACTOR. FOLLOW DESIGN RECOMMENDATIONS INCLUDED HEREWITH, AS THEY ARE ESSENTIAL FOR THE SUCCESSFUL INSTALLATION & OPERATION OF THE SIEMENS EQUIPMENT.

2) ALL FURNITURE (CHAIRS, ETC.) FOR THE CONTROL ROOM ARE TO BE PROVIDED BY THE CUSTOMER.

RESOURCE LIST	(SMS USE ONL	Y)
DESIGNATION	PG NUMBER	DATE
PLANNING GUIDE	M11-010.891.01.01.02	07.18

R. SUTHERS

SOLA REV 2

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

			FAX: EMAIL: timothy.carmichael@siemens
			NORTHEAS
			131
			THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT
\Diamond	06/17/19	1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS	SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.
SYM	DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.
			SCALE: PEF #:

ORTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819

OJECT MANAGER: TIMOTHY CARMICHAEL

(603) 387-4211

MRI SUITE 1 - SOLA XJ GRADIENTS PROJECT #: 1902436

- 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.

ATTENTION:

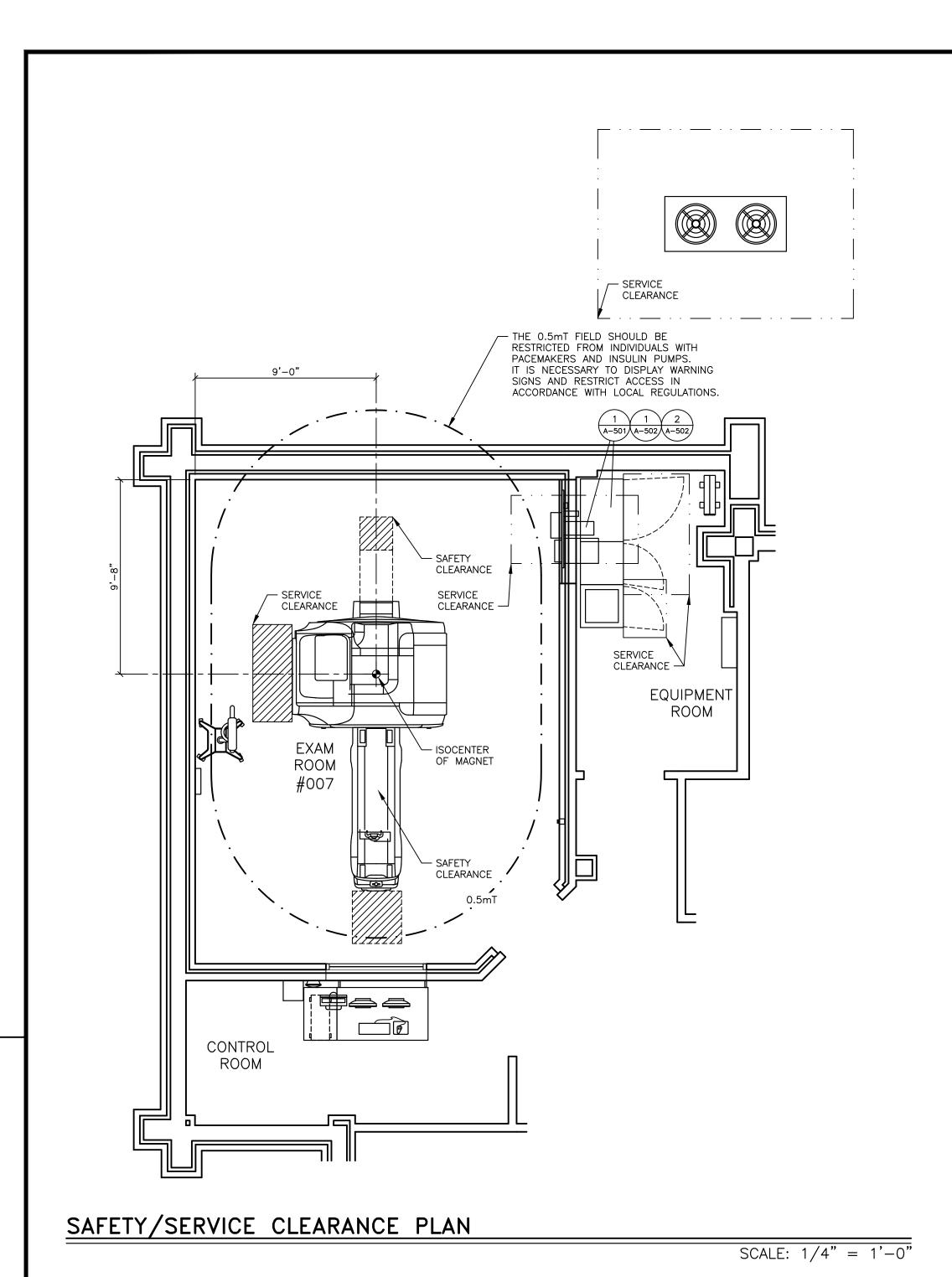
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

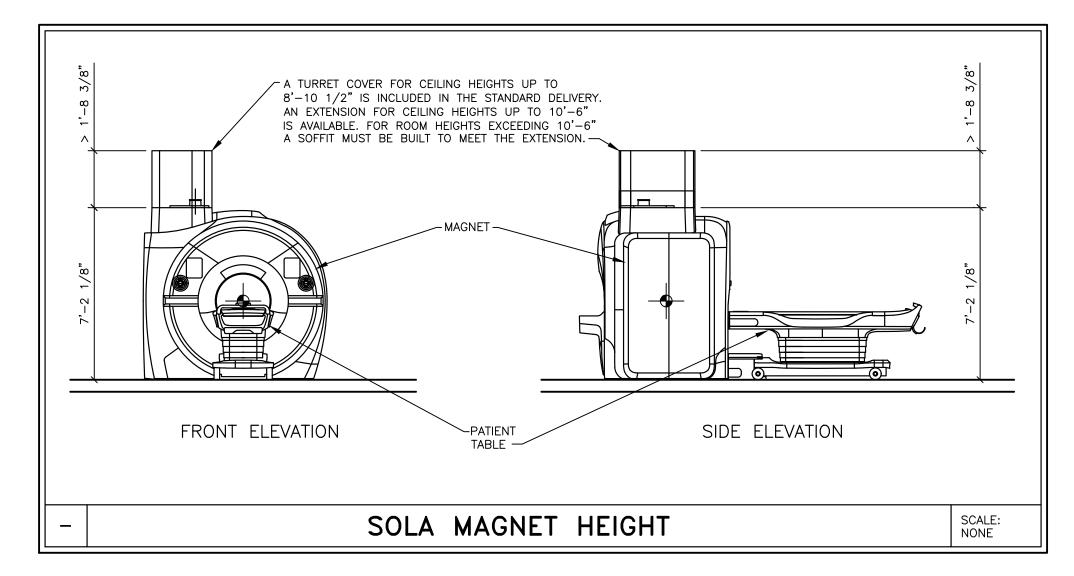
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-ISSUE BLOCK-AS NOTED

EXTENT OF THE LAW. RIGHTS ARE RESERVED. REF. #: PUFQGY 06/17/19

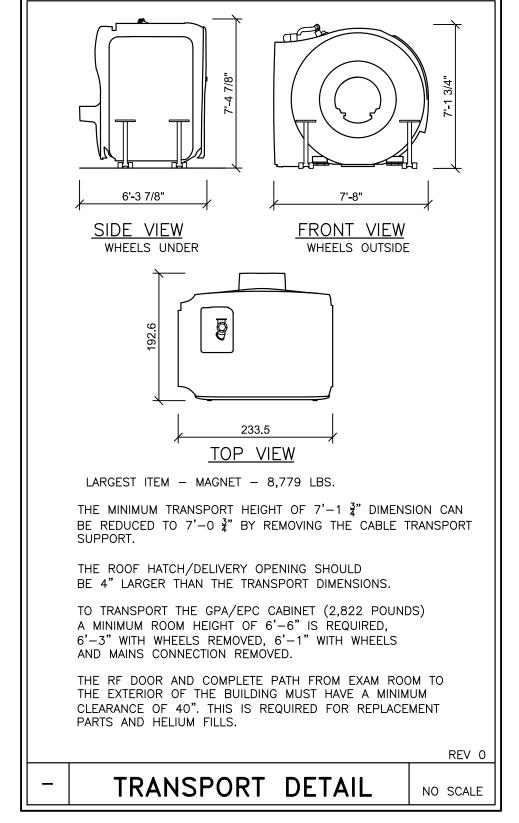
SIEMENS





NOISE LEVELS XJ GRADIENTS							
SYSTEM ROOM	NOISE LEVEL / dB(A)						
CONTROL ROOM	< 55						
EXAMINATION ROOM	80.3 dB(A) — 8 HOUR AVERAGE 98.7 dB(A) MAXIMUM, MEASURED INSIDE THE EXAM ROOM.						
EQUIPMENT ROOM	<65						
NOISE LEVELS ARE BASED ON AN AVERAGE MEASUREMENT OVER 8 HOURS OF CLINICAL SCANNING. PEAK LEVELS MAY BE HIGHER FOR CERTAIN SEQUENCES.							

I IT IS THE CUSTOMER'S RESPONSIBILITY TO ENSURE THAT ALL LOCAL/ STATE/OSHA NOISE REGULATIONS ARE ADHERED TO. ADDITIONAL NOISE DATA MAY BE PROVIDED BY SIEMENS PROJECT MANAGER UPON REQUEST.



SURFACE COIL STORAGE

SURFACE COILS ARE COMPONENTS OF THE MRI SYSTEM THAT ARE ATTACHED TO THE PATIENT TABLE DURING EXAMS. WHEN NOT IN USE COILS SHOULD BE STORED SO THAT THEY ARE FREE FROM DAMAGE. THE DESIGN OF THE MR EXAM ROOM MUST HAVE AMPLE STORAGE SPACE TO ACCOMMODATE ANY COILS THAT THE OWNER WILL HAVE. COILS MAY BE SELECTED FROM THE LIST BELOW. STORAGE PROVIDED BY CUSTOMER/CONTRACTOR.

BT GOSTOMERY CONTINUEDA.							
COIL NAME	POUND	INCHES					
3312 10 1012	WEIGHT	LENGTH	WIDTH	HEIGHT			
BIOMATRIX HEAD/NECK 20	13	16 3/4	14 5/8	15 1/8			
BIOMATRIX SPINE 32	23	47 1/4	19 1/4	3			
BODY 18	4	15 1/8	23 1/4	3			
FLEX LARGE 4	1.2	20 3/8	8 7/8	-			
FLEX SMALL 4	1	14 3/8	8 7/8				

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

ROJECT MANAGER: TIMOTHY CARMICHAEL EL: (603) 387-4211 1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS DESCRIPTION

NORTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 MRI SUITE 1 — SOLA XJ GRADIENTS THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.

PROJECT #: 1902436

SIEMENS

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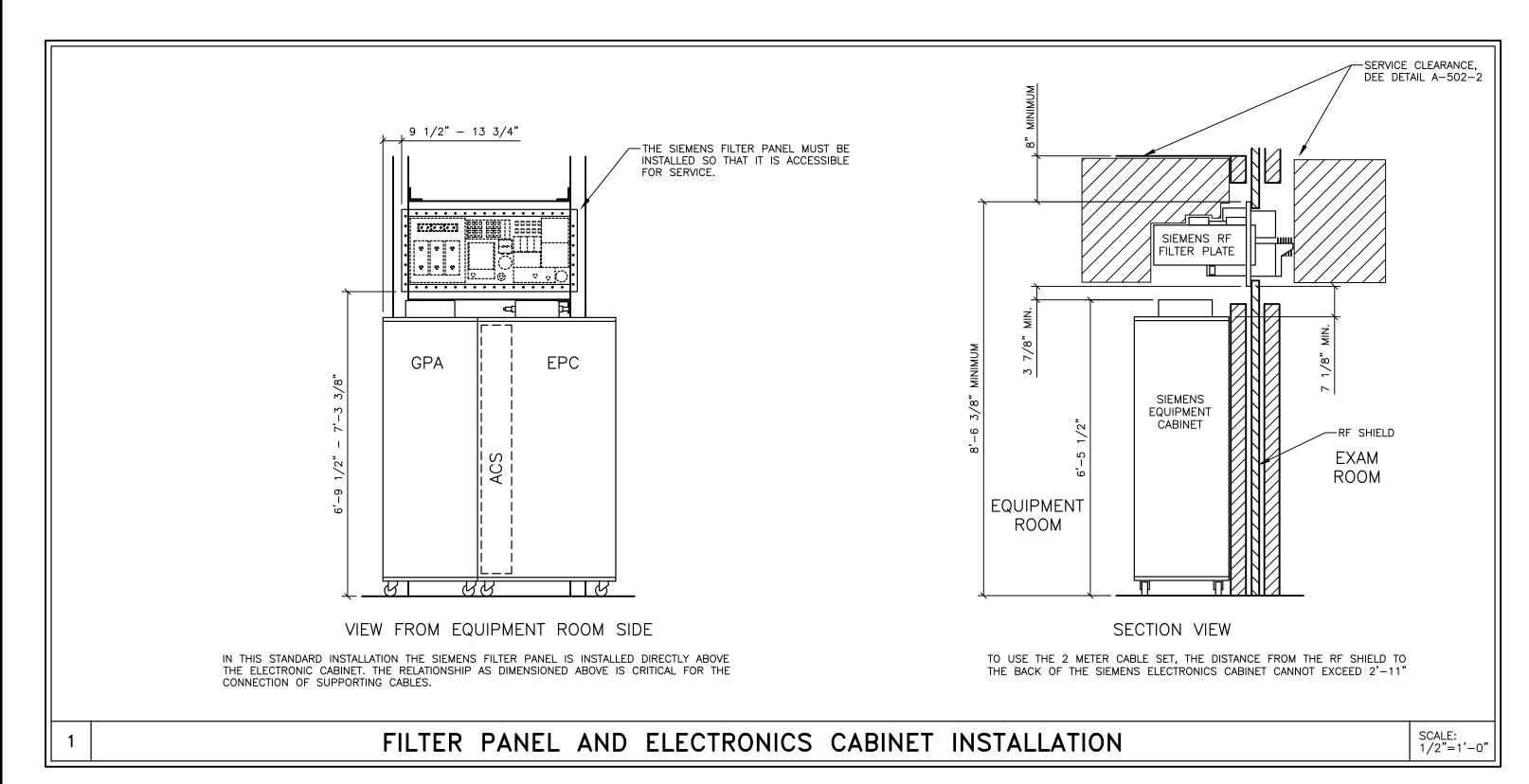
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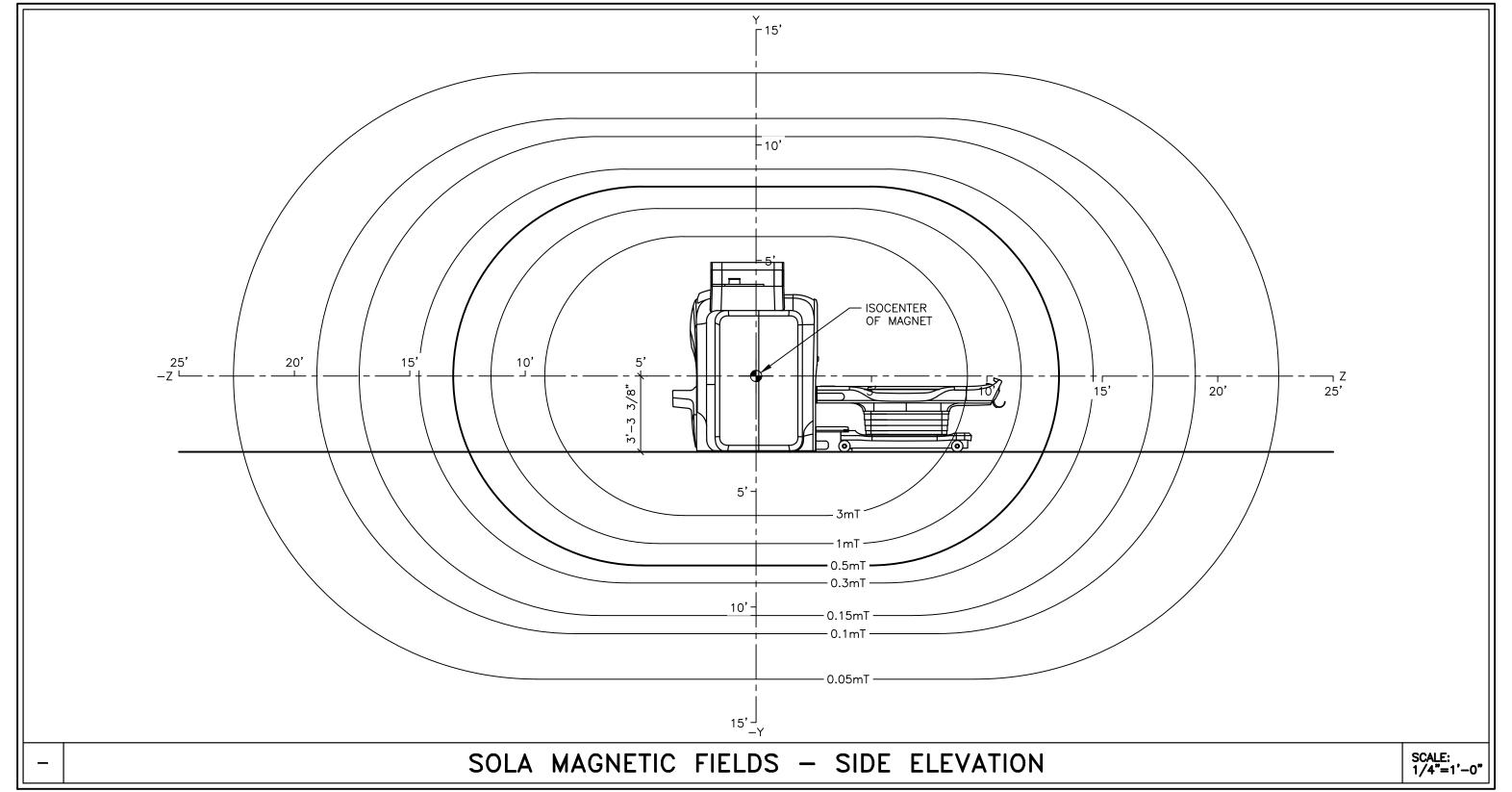
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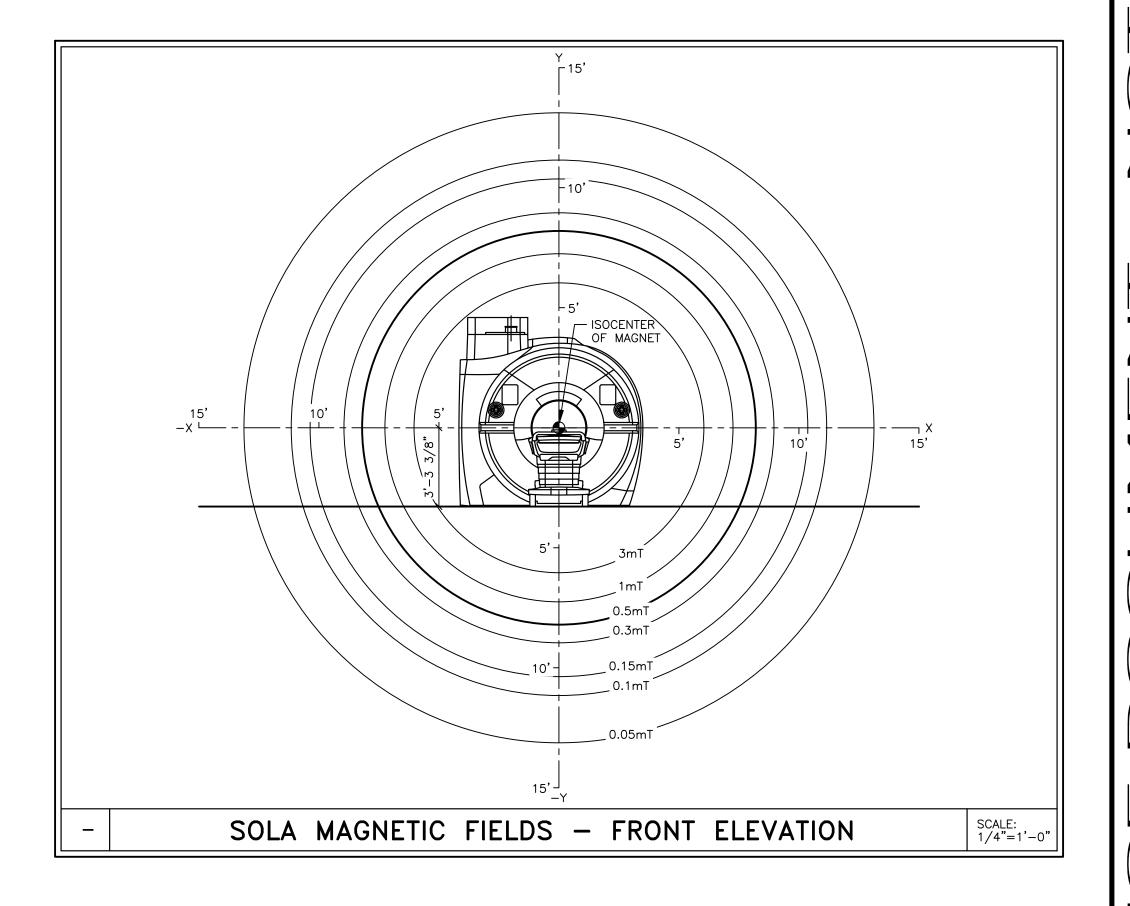
ALL RIGHTS ARE RESERVED. -ISSUE BLOCK-SCALE: AS NOTED

SHEET OF 2 10 R. SUTHERS

SOLA REV 2







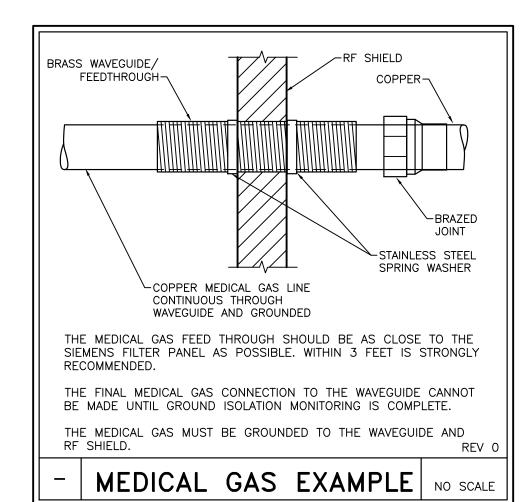
SOLA REV 2 PROJECT MANAGER: TIMOTHY CARMICHAEL
TEL: (603) 387-4211 SIEMENS NORTHEASTERN VERMONT REG HOSP

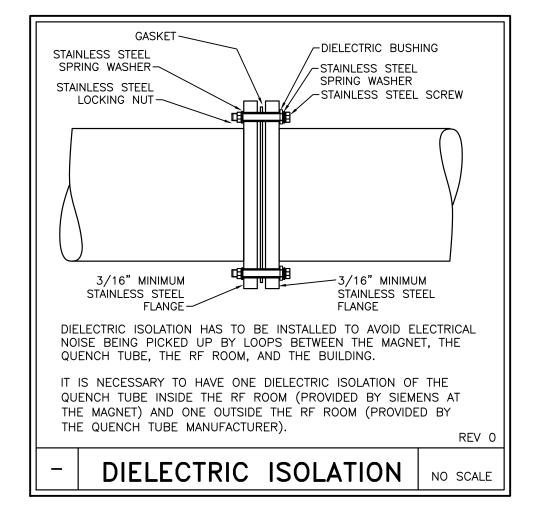
1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 MRI SUITE 1 — SOLA XJ GRADIENTS

PROJECT #: 1902436

06/17/19 1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS

DATE





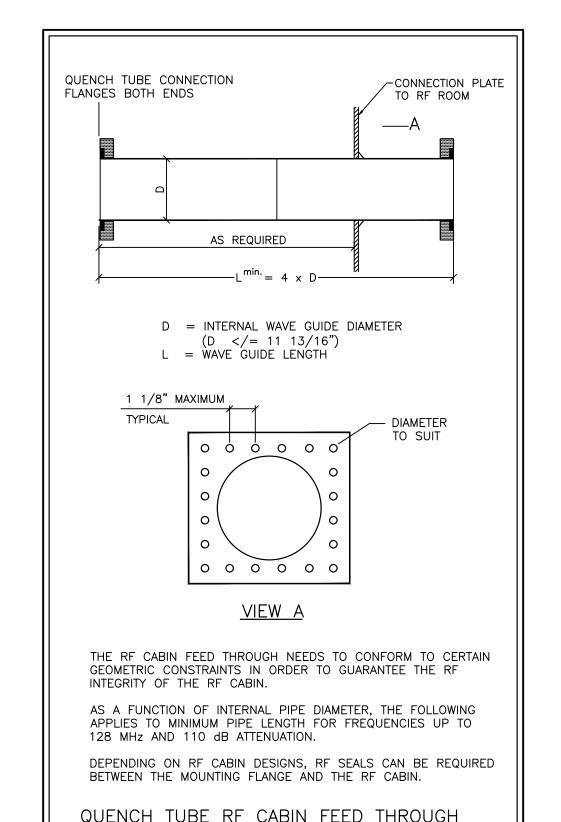


BROADBAND RF NOISE IS A SINGLE TRANSIENT OR CONTINUOUS SERIES OF TRANSIENT DISTURBANCES CAUSED BY AN ELECTRICAL DISCHARGE. LOW HUMIDITY ENVIRONMENTAL CONDITIONS WILL HAVE HIGHER PROBABILITY OF ELECTRICAL DISCHARGE. THE ELECTRICAL DISCHARGE CAN OCCUR DUE TO ELECTRICAL ARCING OR MERELY STATIC DISCHARGE. SOME POTENTIAL SOURCES CAPABLE OF PRODUCING ELECTRICAL

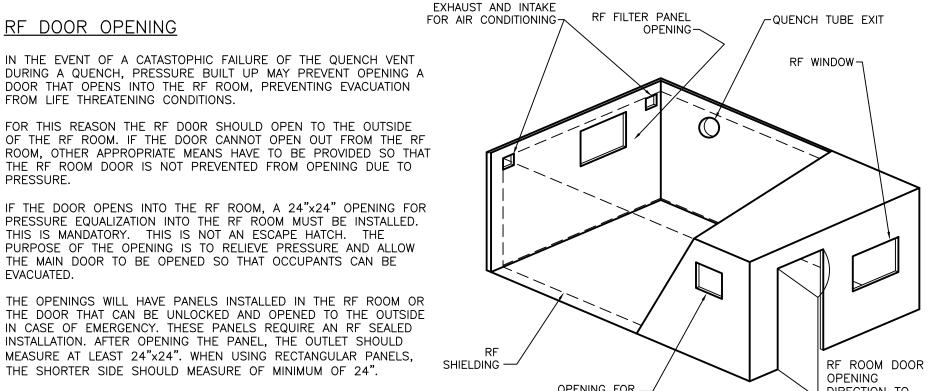
- DISCHARGE INCLUDE: LOOSE HARDWARE/FASTENERS-VIBRATION OR MOVEMENT (ELECTRICAL CONTINUITY MUST ALWAYS BE MAINTAINED).
- FLOORING MATERIAL INCLUDING RAISED ACCESS FLOORING (PANELS AND SUPPORT HARDWARE) AND CARPETING.

REV 0

- ELECTRICAL FIXTURES (LIGHTING FIXTURES, TRACK LIGHTING, EMERGENCY LIGHTING, BATTERY CHARGERS, OUTLETS).
- DUCTING FOR HVAC AND CABLE ROUTING. RF SHIELD SEALS (WALLS, DOORS, WINDOWS, ETC.).



WAVE GUIDE



TO ENSURE UNOBSTRUCTED VENTING, THIS OPENING CANNOT BE SUBDIVIDED. THIS MEANS THAT, FOR EXAMPLE, RF SEALED HONEYCOMB GRIDS ARE NOT PERMITTED.

PRESSURF.

EASY REMOVAL OF THE PANEL BY A PERSON HAS TO BE ENSURED AND A MINIMUM DISTANCE OF 40" TO A FIXED OBJECT MUST BE MAINTAINED. THE PANEL SHOULD BE INSTALLED IN AN ACCESSIBLE LOCATION AND ALLOW ESCAPE OF THE LOW DENSITY HELIUM.

AS AN ALTERNATIVE TO AN OUTSWING DOOR. THE STATIONARY OBSERVATION WINDOW IS REPLACED BY A WINDOW OPENING INTO THE CONTROL AREA OR THE DOOR IS REPLACED WITH AN RF SEALED SLIDING DOOR. IT SHOULD BE ENSURED THAT THE DOOR CLOSES IN A WAY THAT ALLOWS IT TO MOVE AWAY FROM THE FRAME IN CASE OF OVERPRESSURE.

IF THE DOOR OPENS TO THE OUTSIDE, THE OPENING IN THE RF ROOM IS STILL RECOMMENDED.

THE RF ROOM MANUFACTURER CAN PROVIDE YOU WITH ADDITIONAL RF SEALED ROOM OPENINGS THAT LEAD DIRECTLY TO THE OUTSIDE. HOWEVER, THESE OPENINGS ARE ALSO CONDUITS FOR NOISE GENERATED OUTSIDE THE RF ROOM. UNOBSTRUCTED FLOW THROUGH THIS PIPE MUST BE GUARANTEED.

RF ROOM DOOR OPENING FOR -DIRECTION TO PRESSURE EQUALIZATION SAFETY ASPECTS FOR THE RF ROOM:

IT MUST BE POSSIBLE TO LOCK THE RF ROOM (EXAMINATION ROOM) DOOR FROM THE OUTSIDE. IT MUST ALSO BE POSSIBLE TO OPEN THE DOOR FROM THE INSIDE WITHOUT A KEY OR ADDITIONAL DEVICE.

THE RF DOOR IS AN IMPORTANT COMPONENT FOR GOOD IMAGE QUALITY AS WELL AS SAFETY, THE OWNER/OPERATOR OF THE MR SYSTEM MUST MAINTAIN THE RF ROOM AS INSTRUCTED BY THE RF ROOM MANUFACTURER IN ORDER TO GUARANTEE CORRECT FUNCTION

NO FERROMAGNETIC ITEMS CAN BE BROUGHT INTO THE RF ROOM AFTER THE MAGNET HAS BEEN RAMPED UP TO FIELD. MAGNETIC ITEMS WILL BECOME ATTRACTED TO THE MAGNET WITH NO WARNING AND DUE TO THE HIGH MAGNETIC FIELD, WILL BECOME MISSILES.

NOTE: FOR DOORS MOVED BY AN AUXILIARY DRIVES (ELECTRICAL OR PNEUMATIC), MANUAL OPERATION HAS TO BE ENSURED. AN OUTSIDE WINDOW SHOULD BE IN THE VICINITY TO ALLOW VENTING EXHAUSTED GAS TO THE OUTSIDE. THE INTEGRITY OF THE RF SHIELD MUST BE TESTED AFTER REMODELING.

SAFETY INFORMATION - PRESSURE EQUALIZATION

RF SHIELDING

1) THE EXAMINATION AREA MUST BE SHIFLDED TO PROVIDE A REDUCTION OF RADIO FREQUENCY WAVES EMANATING FROM EXTERNAL TRANSMITTERS. THE REQUIRED ATTENUATION IS 90dB IN THE FREQUENCY RANGE OF 15-128 MHz. IF CO-SITING TWO SYSTEMS EACH ROOM SHOULD BE 100 dB.

2) THE RF SHIELD MUST BE TESTED BEFORE AND AFTER MAGNET PANEL IS INSTALLED. THE RF-SHIELDING MUST BE INSULATED FROM ALL GROUNDS SUCH THAT THE ONLY GROUND IS THE SINGLE POINT GROUND ON THE OUTSIDE OF THE RF-ROOM WALL. RESISTANCE \geq 100 OHMS.

3) ALL ELECTRICAL LINES INTO THE RF ROOM MUST BE ROUTED THROUGH RF FILTERS (PROVIDED BY RF SHIELDING SUPPLIER). ALL ELECTRICALLY NON-CONDUCTIVE SUPPLY LINES (E.G. FIBER OPTIC CABLES, OR HOSES) INTO THE RF ROOM MUST BE ROUTED THROUGH RF SEALED WAVE GUIDES (PROVIDED BY RF SHIELDING SUPPLIER).

4) FOR PRESSURE EQUALIZATION PURPOSES THE RF DOOR SHOULD OPEN TO THE OUTSIDE OF THE RF ROOM. AS AN ALTERNATIVE A 24"X24" OPENING IN THE RF ROOM FOR PRESSURE EQUALIZATION IS REQUIRED. REV 1

SHIELDING GENERAL NOTES

1) SIEMENS REQUESTS THAT THE SHIELDING MANUFACTURER(S) SUBMIT FINAL SHOP DRAWINGS TO SIEMENS FOR REVIEW PRÌOR TO THEIR INCLUSION IN CONSTRUCTION DOCUMENTS. SIEMENS SHALL BE COPIED ON ALL FIELD ORDER CHANGES CONCERNING CHANGES IN RF AND MAGNETIC SHIELDING CONDITIONS, CONFIGURATION AND SPECIFICATION. THE RF AND MAGNETIC SHIELDING CONTRACTOR(S) SHALL FURNISH "AS BUILT" SCALED AND DIMENSIONED PLANS REFLECTING ANY AND ALL FIELD ORDER CHANGES PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

2) ALL CHANGES TO SIEMENS RECOMMENDED OPENINGS AND PENETRATIONS SHALL BE APPROVED BY THE SIEMENS PROJECT MANAGER PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

3) THE SIZE, LOCATION, AND DIMENSIONS OF ANY MAGNETIC SHIELDING REQUIRED HAS BEEN DETERMINED BY SIEMENS. THIS INFORMATION HAS BEEN SUPPLIED TO THE MAGNETIC SHIELDING FABRICATOR TO DESIGN THE STRUCTURAL SUPPORT SYSTEM REQUIRED FOR THE MAGNETIC SHIELDING MATERIAL.

FILTER PLATE GENERAL NOTES

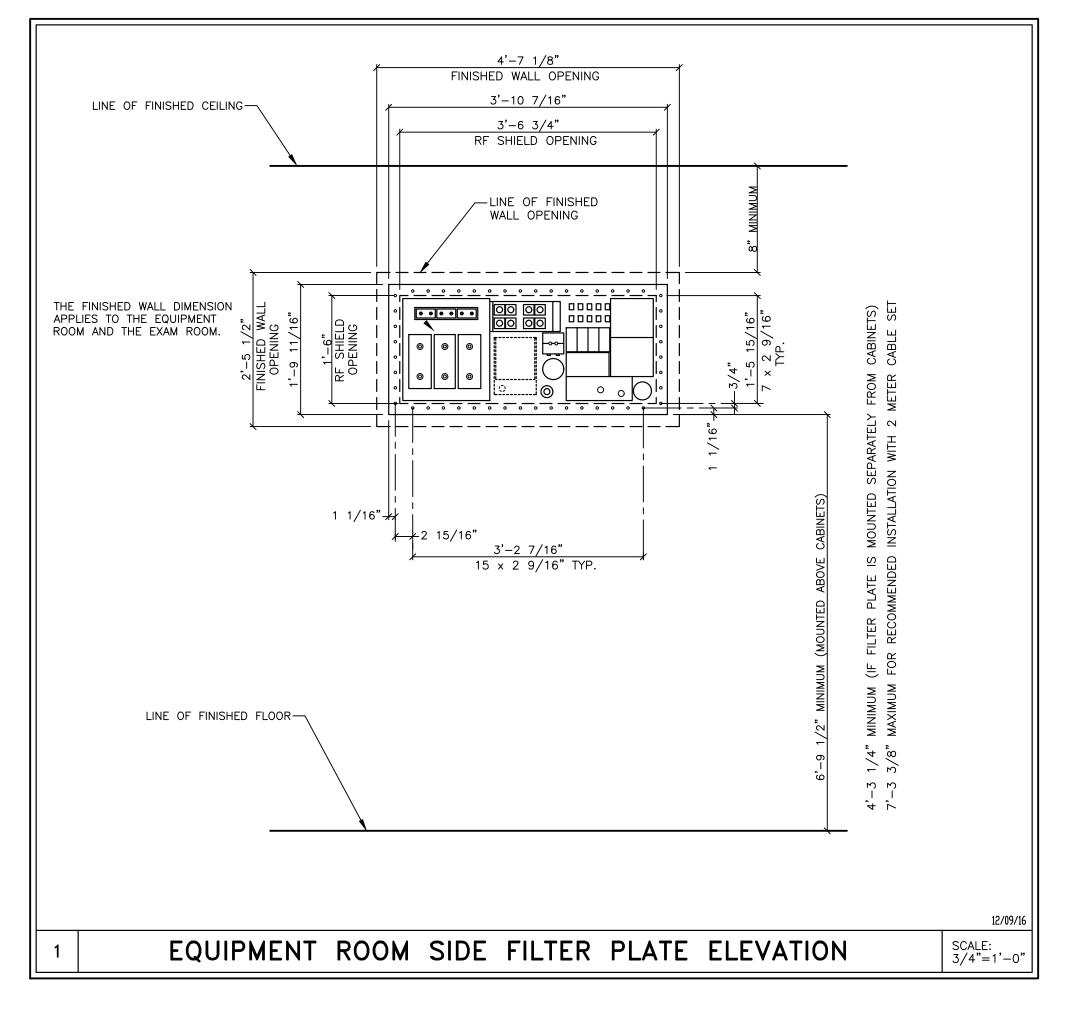
1) STRUCTURAL SUPPORT AND INTEGRATION OF THE SIEMENS SUPPLIED AND INSTALLED FILTER PLATE WITH MAGNETIC AND RF SHIELDING SHALL BE SPECIFIED, DETAILED AND NOTED BY THE RF AND MAGNETIC SHIELDING MANUFACTURER(S) WITH OVERALL COORDINATION WITH SIEMENS SITE SPECIFIC RECOMMENDATIONS TO BE THE RESPONSIBILITY OF THE ARCHITECT OF RECORD.

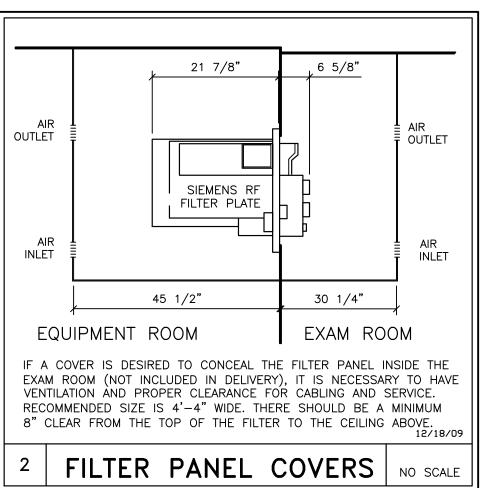
2) THE FILTER PLATE FRAME, RF FILTER PLATE BLANK, RF GASKET AND MOUNTING HARDWARE FOR THE PURPOSES OF TESTING THE INTEGRITY OF THE RF ENCLOSURE PRIOR TO THE INSTALLATION OF THE SIEMENS SUPPLIED AND INSTALLED RF FILTER PLATE SHALL BE PROVIDED AND INSTALLED BY THE SHIELDING CONTRACTOR(S) UNLESS SPECIFIED OTHERWISE.

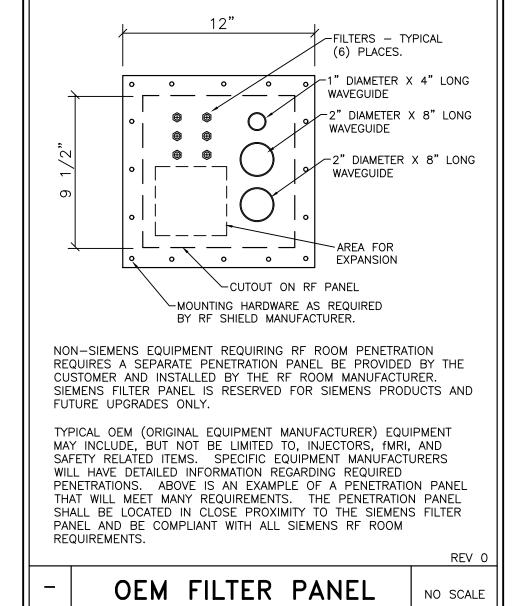
REV 0

SCALE:

NONE







				REV
	PROJECT MANAGER: TIMOTHY CARMICHATEL: (603) 387-4211 VMAIL: EXT: FAX: EMAIL: timothy.carmichael@siemens-he		SIEN	1ENS
		TERN VERMON HOSPITAL DR, SAINT JOHNSBURY, VT MRI SUITE 1 - SOLA XJ GRADIENTS	05819	HOSF
06/17/19 1902436 RA DATED 06/12/	THIS TITLE BLOCK WITHOUT	PROJECT #: 1902436	SHEET:	E O C

EXAM ROOM INTERIOR NOTES

1) ONLY NON-MAGNETIC MATERIALS ARE TO BE USED AND INSTALLED N THE RF ROOM. SEE CONSTRUCTION REQUIREMENTS.

2) A SUSPENDED CEILING MUST BE STATICALLY SUSPENDED, NOT SUSPENDED WITH MOVABLE CLAMPS, SPRINGS, ETC.

3) RODS IN SUSPENDED CEILINGS MUST BE INSTALLED SECURELY. GALVANIC CONTENT BETWEEN THE RODS MUST BE GUARANTEED, THEY MUST NOT JUST LIE ON TOP OF ONE ANOTHER. A WIRE JUMPER BETWEEN RODS MAY BE USEFUL.

4) ELECTRICAL WIRING, FOR AMBIENT LIGHTS FOR EXAMPLE, MUST NOT SÍMPLY REST ON THE SUSPENDED CEILING, THEY MUST BE FASTENED OR INSIDE A CONDUIT TO PREVENT MOTION.

REV 1

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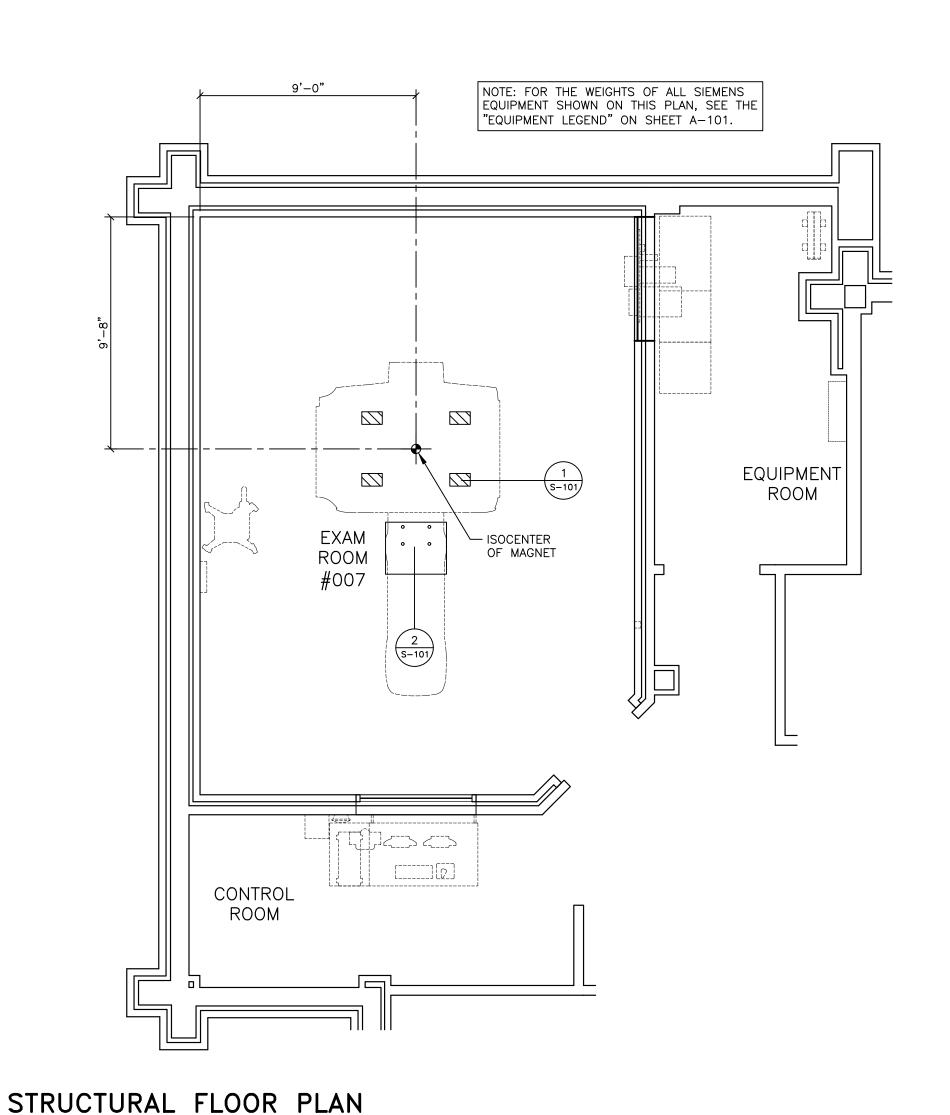
REV 0

NO SCALE

PHYSICIST TO SPECIFY RADIATION PROTECTION.

FULL EXTENT OF THE LAW. ALL RIGHTS ARE RESERVED. R. SUTHERS

APPROVED BY CUSTOMERS FOR FINALS -ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. DATE DESCRIPTION THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION REF. #: PUFQGY SCALE: AS NOTED -ISSUE BLOCK-



ATTENTION:

 $-9'-11" \times 18'-5"$ AREA OF FLOOR IN ACCORDING TO OUR EXPERIENCE, THE VICINITY OF THE MAGNET SHALL THE MASS OF THE FLOOR SHOULD 15 3/4" BE 123 POUNDS/SQUARE FOOT BE LEVEL WITHIN $+/- \frac{1}{6}$ " (CORRESPONDING TO A THICKNESS -----OF 8" MINIMUM) TO ACHIEVE GOOD VIBRATION AND STRUCTURE-BORNE NOISE SOUND ISOLATION. THIS IS " TYP. 8 POSITIONS - SEISMIC ANCHOR LOCATIONS A RECOMMENDATION. STOP CHOC -11.2 kN (2518 POUNDS FORCE) 11.2 kN (2518 POUNDS FORCE) — MAGNET ISOCENTER 11.2 kN (2518 POUNDS FORCE) - SEISMIC ANCHOR LOCATIONS 11.2 kN (2518 POUNDS FORCE) 14 13/16" 14 13/16" VIBRATION OF THE SITE HAS THE ABILITY TO AFFECT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD. THEREFORE EXTERNAL VIBRATIONS OR SHOCKS AFFECTING THE MAGNET MAY DEGRADE IMAGE QUALITY. IN THE THREE SPATIAL ORIENTATIONS THE BUILDING MUST NOT EXCEED ACCELERATION OF $0.001 \text{ m/s}^2 \text{ OR } -80 \text{ dB(G)} \text{ G=} 9.81 \text{ m/s}^2$

THE REQUIREMENT FOR amax IS MEASURED AS MAXIMUM RMS VALUE PER FREQUENCY COMPONENT <0.5Hz IN THE FOURIER TRANSFORMATION OF THE

THE VIBRATION LEVEL OF CONTINUOUS VIBRATIONS (CAUSED BY AIR CONDITIONER, COMPRESSOR, ETC.) AT THE LOCATION OF THE MAGNET MUST NOT EXCEED THE SPECIFIED VALUES. FOR ALL NON-CONTINUOUS TRANSIENT VIBRATIONS THE FIGURES SHOULD BE MULTIPLIED BY 4 (OR 12 dB). CONTACT SIEMENS PROJECT MANAGER FOR MORE DETAILS.

ANTI STATIC FLOOR COVERING IS NECESSARY TO REDUCE THE RISK OF STATIC ELECTRIC DISCHARGES THAT MAY DAMAGE SENSITIVE EQUIPMENT AND COMPONENTS.

SCALE: 3/8"=1'-0 MAGNET BASE DETAIL

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

WITH A TRANSIT. 4) ALL STRUCTURAL SUPPORT DETAILS SHOWN ARE SAMPLE DETAILS BÁSED 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

A HORIZONTAL STRUCTURAL SUPPORT MEMBER TO BE LOCATED AND SET

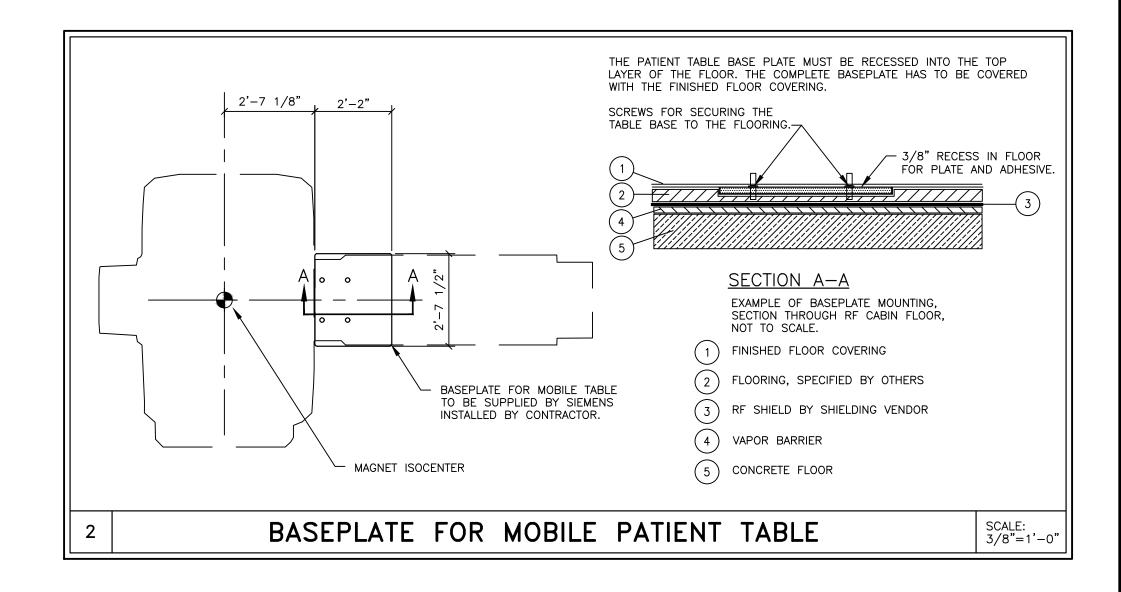
5) MOUNTING PLATES, FRAMES, AND HARDWARE SUPPLIED BY SIEMENS AS DETAILED IN THIS DRAWING SET ARE INSTALLED BY SIEMENS UNLESS OTHERWISE REQUIRED. ANY DEVIATION FROM THE PROVIDED MATERIALS OR MOUNTING METHODS MUST BE DESIGNED AND DOCUMENTED BY THE STRUCTURAL ENGINEER OF RECORD. ALTERNATE MOUNTING MATERIALS (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

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.

UTILIZING ALTERNATE MOUNTING MATERIALS.

7) 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.

8) THE STRUCTURAL ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAIL OF FLOOR, WALL AND CEILING STRUCTURES IN ACCORDANCE WITH THE WEIGHTS, MOMENTS AND FORCES AS SHOWN ON OUR STRUCTURAL CALCULATIONS, OR INFORMATION, IN CONSIDERATION OF FORCES AS DETERMINED PER LOCAL GOVERNING BUILDING CODES.



CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

ROJECT MANAGER: TIMOTHY CARMICHAEL EL: (603) 387-4211 SIEMENS AUTHORIZATION WILL 1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS RESULT IN PROSECUTION UNDER DATE DESCRIPTION

NORTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT

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

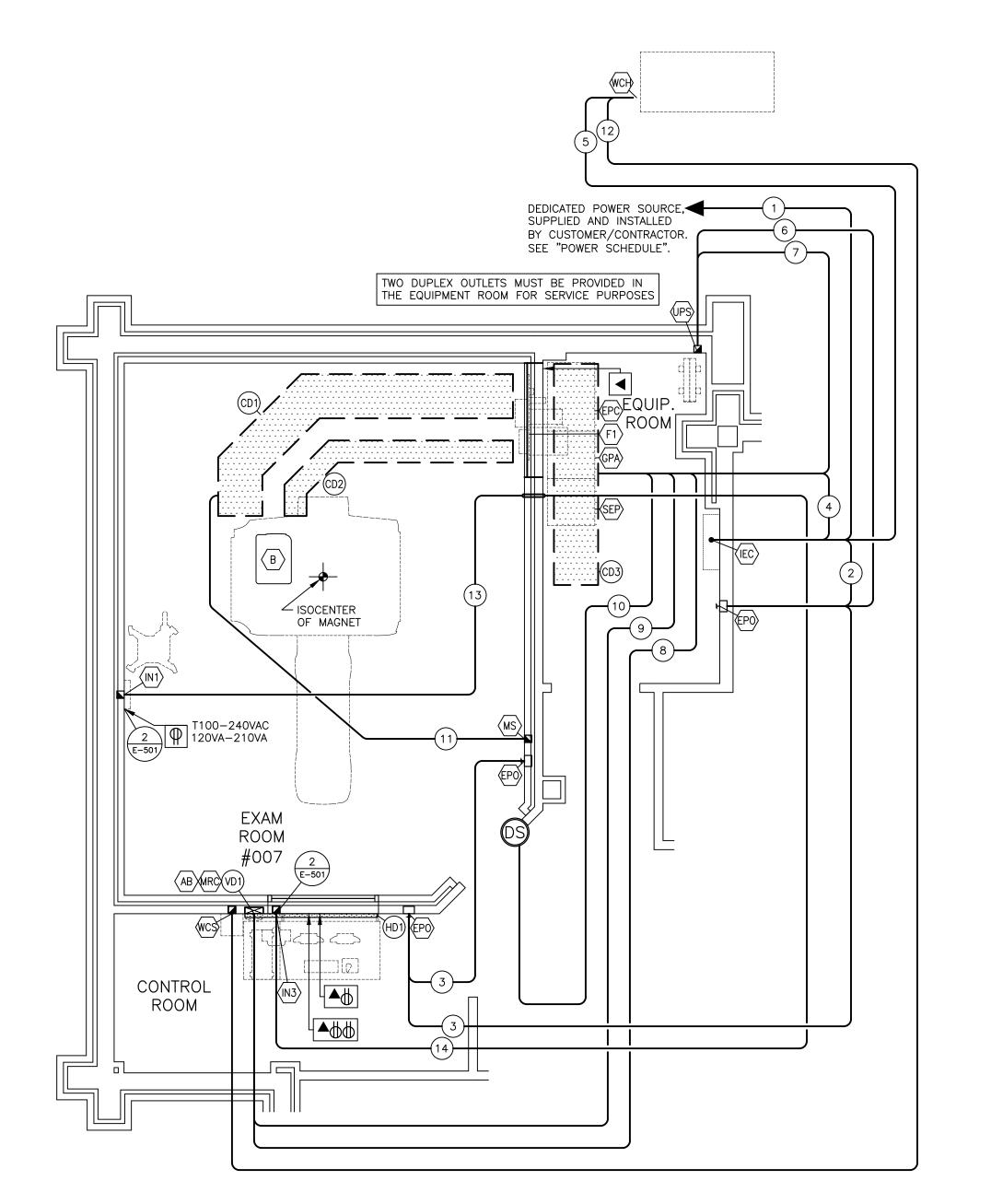
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5 10 R. SUTHERS 06/17/19

SIEMENS

SOLA REV 2



	SYMBOLS				
	ALL MAY NOT APPLY				
	CAUTION OR WARNING				
(1)	CRITICAL NOTE(S)				
[77]	PANEL OR ENCLOSURE BY CUSTOMER/CONTRACTOR				
	OPENING IN RACEWAY OR TRENCHDUCT				
	PULLBOX IN (FLOOR/WALL/CEILING)				
	OPENING IN ACCESS FLOORING				
(DS)	RF DOOR SWITCH — MCMASTER—CARR SUPPLY ROLLER LIMIT SWITCH 7076k14 PROVIDED BY CONTRACTOR, AND MOUNTED AT TOP OF DOOR. COORDINATE WITH SIEMENS PROJECT MANAGER.				
Н	(EPO) EMERGENCY POWER OFF BUTTON				
	CEILING DUCT				
	SURFACE MOUNTED DUCT				
\boxtimes	VERTICAL DUCT				
•	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK IN AN ACCESSIBLE LOCATION (VERIFY WITH SIEMENS PROJECT MANAGER).				
\ominus	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET LOCATED NEAR THE ETHERNET CONNECTION. REV 2				

		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION	REMARKS
		SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
(AB)	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX
(F)(F)(SF)	18" x 18"	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
B	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS
(P)		EMERGENCY POWER OFF BUTTONS, SUPPLIED BY SIEMENS, INSTALLED BY ELECTRICAL CONTRACTOR. MOUNTED WITH CENTERLINE AT 5'-0" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102
€D		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL
Œ		INTEGRATED ELECTRICAL CABINET SUPPLIED BY SIEMENS, INSTALLED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
(NI)	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY— MUST BE LOCATED OUTSIDE OF 5mT FIELD
(N3)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOLE
(MRC)	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER
₩ S>	AS REQUIRED	NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MAGNET STOP
₽	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	LIEBERT 9XT4 UPS
(€)	AS REQUIRED	PULL BOX MOUNTED ADJACENT TO WATER CHILLER PROVIDED WITH FLEX-TITE CONDUIT FROM PULL BOX TO KNOCK OUT PANEL ON CHILLER. COORDINATE WITH SIEMENS PROJECT MANAGER.	WATER CHILLER
€ ©	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN LOCATION COORDINATED WITH SIEMENS PROJECT MANAGER, WIRES ENTER CONTROL PANEL FROM THE BOTTOM.	CHILLER REMOTE CONTROL/ STATUS PANEL CABLE TRAY
(11)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	SEE DETAIL E-501/1
(0)2)	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
(03)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/1
(HD1)	4" x 2"	HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS.	
(N)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	
1)	AS PER NEC	CONDUIT FROM FACILITY POWER TO INTEGRATED ELECTRICAL CABINET "IEC"	SEE POWER SCHEDULE, SHEET E-102
2	AS PER NEC	CONDUIT FROM "IEC" TO "EPO"	SEE DETAIL E-501/1
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102
4)	(1) 2"ø	CONDUIT FROM "IEC" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET.	
5	AS REQUIRED	CONDUIT FROM "IEC" TO "WCH".	
6	(1) 3/4"ø	CONDUIT FROM "EPO" TO "UPS".	
7	(1) 2"ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 25 FEET
8	(2) 2 1/2"ø	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	NOT TO EXCEED 54 FT.
9	(1) 1 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
10	(1) 1/2"ø	CONDUIT FROM "DS" TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
11)	(1) 3/4"ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 25 FT.
(12)	(1) 1"ø	CONDUIT FROM "WCH" TO "WCS".	NOT TO EXCEED 164 FEET
(13)	(1) 2"ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 40 FEET
<u>(14)</u>	(1) 2"ø	CONDUIT FROM NEAR "F1" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET

CONTRACTOR SUPPLIED CABLES				
FROM	VIA	ТО	DESCRIPTION	REMARKS
SOURCE	1	IEC	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.	
IEC	2	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.	
EPO	3	EP0	DETERMINED BY ELECTRICAL CONTRACTOR.	
IEC	4,CD3	EPC	(3) 2/0 AND (1) 2/0 EQUIPMENT GROUND. TO REDUCE EMI (INTERFERENCE) THE POWER CABLES MUST BE SHIELDED. THIS CAN BE ACHIEVED BY USING EMT, WHICH IS CONSIDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR SHIELDED CONDUCTORS MUST BE USED.	LANDED BY ELECTRICAL CONTRACTOR
IEC	5	WCH	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.	
EP0	6	UPS	DETERMINED BY ELECTRICAL CONTRACTOR.	6 FOOT TAILS
WCH	12	WCS	THERMOSTAT WIRE SUPPLIED AND INSTALLED BY CONTRACTOR.	MEDIX X OR DIMPLEX

ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF 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 TO ANSI, IEEE AND NEMA STANDARDS. WHERE APPLICATBLE, PROVIDE ONLY MATERIALS AND PRODUCTS THAT ARE ULLISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE. 2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT 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 SIEMENS PROJECT MANAGER. 3) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS

HEALTHCARE EQUIPMENT SHALL BE DEDICATED CIRCUIT. 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 THE FOLLOWING BUT IS NOT LIMITED TO UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND

5) RACEWAY AND CONDUIT NOTES: ALL ITEMS IN THE MAGNET ROOM SHALL BE NON-FERROUS. ALL CONDUITS SHALL BE INSTALLED PER LATEST 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. 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 EXCÉED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL DETAILS.

PROVIDE ENCLOSED METAL SYSTEM (WIRE DUCT) WIRE DUCT RACEWAY SYSTEM WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT (FOR POWER AND SIEMENS HEALTHCARE CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY, FOR UL SYSTEMS, THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM INVESTIGATION OF THIS EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS AS THEY CAN BE IN THE SAME RACEWAY. PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE

COVERS. LOCATIONS OF OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN

FIELD ARE TO 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.

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 INSTALL TEAM PULL SIEMENS SUPPLIED CABLES AT CUSTOMER 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 IN WIRE 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

AT CUSTOMER EXPENSE. 6) WIRING: WIRING SHALL BE 600 VOLT CLASS, STRANDED TYPE THHN-THWN, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 75° C (165° F). SIZED AS INDICATED. THE CUSTOMER/CONTRACTOR SHALL LEAVE MINIMUM 10 FT. WIRE TAILS AT ALL OUTLÉT POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR. 7) ALL CIRCUIT BREAKERS SHALL BE RATED FOR 25 KV RMS SHORT

ELECTRICIANS TO HELP SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES

ELECTRICAL RACEWAY PLAN

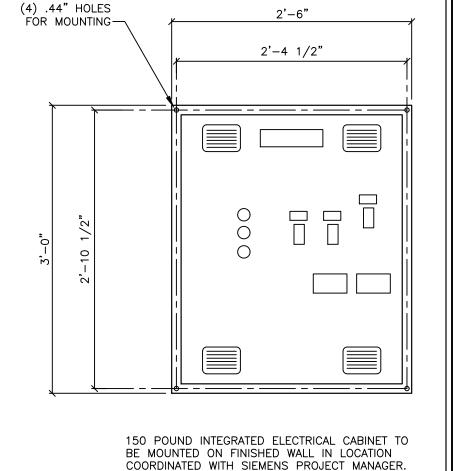
SCALE: 1/4" = 1'-0"

INTEGRATED ELECTRICAL CABINET (IEC) INSTALLATION

- 1) THE ENCLOSURE MUST BE MOUNTED AT A HEIGHT SO THE TOP OF THE MAIN CIRCUIT BREAKER HANDLE, WHEN IN THE ON POSITION DOES NOT EXCEED 6'-7" ABOVE THE FLOOR (PER NEC #404.8).
- 2) INCOMING POWER IS CONNECTED TO THE MAIN CIRCUIT BREAKER LOCATED AT THE UPPER RIGHT OF THE MAIN DISCONNECT PANEL.
- 3) THERE ARE NO CONDUIT KNOCKOUTS PROVIDED IN THE IEC. THE ELECTRICAL CONTRACTOR MUST PUNCH THE CONDUIT HOLES IN THE ENCLOSURE WALLS IN THE DESIRED LOCATIONS. THE CONDUITS MAY ENTER ON THE TOP, BOTTOM, OR EITHER SIDE. NOTE: WHEN DRILLING OR PUNCHING THE CONDUIT ENTRY HOLES, PROTECT THE INTERNAL COMPONENTS FROM THE FALLING METAL
- 4) THE MR IS LOCATED ON THE LOAD SIDE OF CONTACTOR K2, TERMINALS 2T1,4T2 AND 6T3. THE CHILLER IS LOCATED ON THE LOAD SIDE OF BREAKER Q3, TERMINALS 2T1 AND 4T2 AND 6T3. SET THE ELECTRONIC TRIP UNITS ON THE MAIN, CHILLER AND MR CIRCUIT BREAKERS ACCORDING TO THE POWER REQUIREMENTS.

5) RF CABINET LIGHTS ARE CONNECTED TO SPRING TERMINALS X01, IN THE

- LÓWER LEFT CORNER OF THE PANEL. 6) CONNECT THE EMERGENCY POWER OFF (EPO) CIRCUITS TO TERMINALS XO2.
- CONNECT THE IEC EPO TO TERMINALS 1 AND 2 OF XO2, AND CONNECT THE UPS EPO TO TERMINALS 4 AND 5 OF XO2. 7) CONNECT THE UPS CIRCUIT TO TERMINALS 1 AND 2 OF X03. THESE
- TERMINALS ARE JUMPERED TO TERMINALS 4 AND 5 OF XO2. DO NOT CONNECT THE UPS CIRCUIT TO TERMINALS 1 AND 2 OF XO2, THIS WILL DAMAGE THE SAFETY RELAY AND CAUSE THE PANEL TO NOT FUNCTION.



INTEGRATED ELECTRICAL CABINET

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

			PROJECT MANAGER: TIMOTHY CARMICHATEL: (603) 387-4211 VMAIL: EXT: FAX: EMAIL: timothy.carmichael@siemens-he NORTHEAST 1315 H	ealthi
\triangle	06/17/19	1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS	THIS TITLE BLOCK WITHOUT	PR(

387-4211 ny carmichael@siemens—healthineers.com

RTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819

MRI SUITE 1 - SOLA XJ GRADIENTS PROJECT #: 1902436

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.

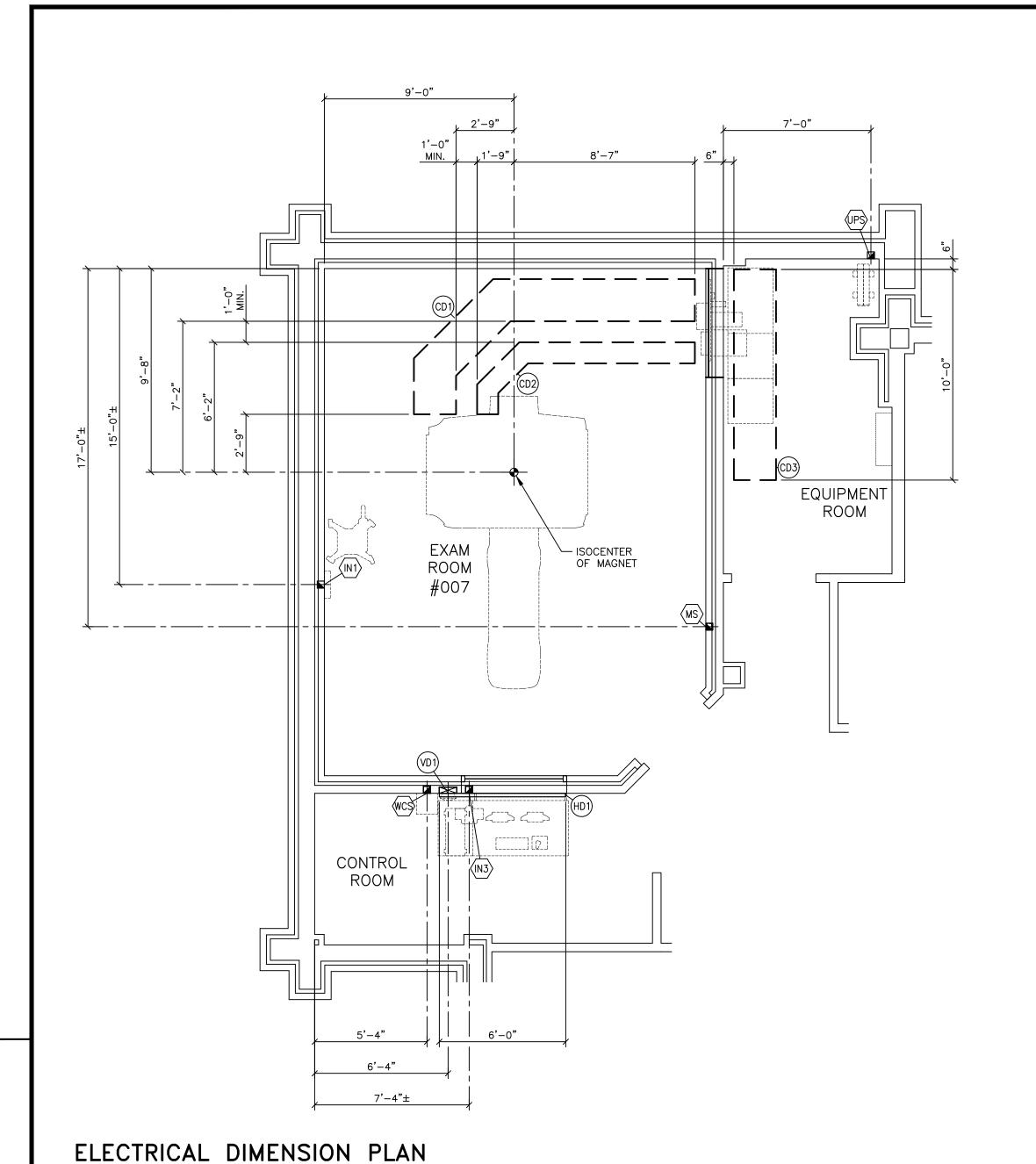
DATE

DESCRIPTION SCALE: AS NOTED -ISSUE BLOCK-

TENT OF THE LAW. ALL RIGHTS ARE RESERVED. 10 REF. #: 06/17/19 R. SUTHERS

SIEMENS

SOLA REV 2



MINIMUM 225 AMP WIRE EQUIPMENT ROOM EXAM ROOM CONTROL ROOM NOTE #1 MIN 150 AMP WIRE

DETERMINED BY THE ELECTRICAL ENGINEER
OF RECORD PER N.E.C AND TO MAINTAIN

SIEMENS IMPEDANCE REQUIREMENTS.

I ELECTRONICS NOTE #2 INSTALLED E O THIS CIRCUIT MINIMUM 80 AMP WIRE SUPPLIED BY
SIEMENS AND
INSTALLED BY
CONTRACTOR

ITEM QTY DESCRIPTION INTEGRATED ELECTRICAL CABINET PROVIDED BY SIEMENS, INSTALLED SURFACE MOUNTED BY ELECTRICAL

1) ALL WIRES MUST BE SAME SIZE. NOTE: UNLESS OTHERWISE NOTED ALL BREAKERS WILL BE 80% RATED.

EPO VARIES NOTE 1 - EPO CIRCUIT #1 PROVIDED BY SIEMENS WITH THE INTEGRATED ELECTRICAL CABINET. NORMALLY CLOSED, WIRED IN SERIES, INSTALLED BY CUSTOMER/CONTRACTOR. CONNECTED TO IEC CABINET ONLY.

> NOTE 2 - EPO CIRCUIT #2 EPO CONTACTS TO BE NORMALLY CLOSED, WIRED IN SERIES, CONNECTED TO UPS ONLY.

THE EPOs MUST BE INSTALLED BY A QUALIFIED ELECTRICAL CONTRACTOR ACCORDING TO NATIONAL ELECTRICAL CODE, STATE AND LOCAL REGULATIONS. 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

UNLESS OTHERWISE NOTED, ALL ITEMS LISTED IN THIS SCHEDULE SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR.

POWER QUALITY NOTES

1) IT IS THE CUSTOMER'S RESPONSIBILITY TO COMPLY WITH THE POWER QUALITY REQUIREMENTS FOR SIEMENS MEDICAL SYSTEMS

2) THE ELECTRICAL FEEDER TO THE SIEMENS MEDICAL SYSTEMS EQUIPMENT MUST FEED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS, AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE.

3) THE ELECTRICAL FEEDER TO THE IMAGING SYSTEM MUST BE RUN DÍRECTLY TO A MAIN FACILITY DISTRIBUTION PANEL OR TO THE FACILITY SERVICE ENTRANCE, WITH NO OTHER LOADS POWERED FROM

4) IN ORDER TO COMPLY WITH IMAGING SYSTEM POWER QUALITY RÉQUIREMENTS, ADDITIONAL POWER CONDITIONING DEVICES MAY BE REQUIRED. EXAMPLES INCLUDE VOLTAGE REGULATORS, TRANSFORMERS, SURGE PROTECTIVE DEVICES, FILTERS, AND/OR UNINTERRUPTIBLE POWER SUPPLIES (UPS). RECOMMENDED FOR THE INSTALLATION OF ELECTRONIC EQUIPMENT CAN BE FOUND IN IEEE STANDARD 1100-1999 "POWERING AND GROUNDING ELECTRONIC **EQUIPMENT:**

5) POWER CONDITIONING DEVICES NOT APPROVED BY SIEMENS MÉDICAL SYSTEMS MAY NOT BE COMPATIBLE WITH THE MAGNETOM SYSTEM. "FERRORESONANT" POWER CONDITIONING EQUIPMENT RE-APPLIED FROM PREVIOUS GENERATION SYSTEMS IS ALSO GENERALLY EXCLUDED DUE TO HIGHER POWER REQUIREMENTS OF

THE NEWER SYSTEMS. 6) INCOMING SOURCE POWER WIRES MUST BE SEPARATED FROM ANY SIEMENS CABLING BY A MINIMUM OF 12".

POWER SCHEDULE POWER REQUIREMENTS

> VOLTAGE VARIATION:480 VAC ±10% FOR ALL LINE AND LOAD CONDITIONS 480V, 3 WIRE + GROUND WYE VOLTAGE UNBALANCE: 2% MAXIMUM DIFFERENCE BETWEEN PHASES 480V - 3 PHASE 60 Hz ± 1.0 Hz FREQUENCY: LINE IMPEDANCE: <180 m0HMS 69 kVA CONNECTION VALUE SHORT TIME POWER (LESS THAN 3 SECONDS) 75 kVA MAIN BREAKER SIZE (M) 225 A MR SYSTEM BREAKER 100 A CHILLER BREAKER 80 A ALL BREAKERS ARE RATED AT 80%

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.

DEMAND AND CAPACITY

1) IF EQUIPMENT UPGRADE IS ANTICIPATED, INSTALLING ELECTRICAL POWER TO MEET THE REQUIREMENTS OF THE HIGHER POWER GRADIENT PACKAGE AT THE TIME OF INITIAL INSTALLATION WILL REDUCE THE COST TO UPGRADE THE ELECTRICAL SYSTEM LATER.

2) RECOMMENDED TRANSFORMER SIZE (SYSTEM WITHOUT UPS) IS BASED ON INDUSTRY STANDARD ISOLATION TRANSFORMER KVA RATINGS. SOURCE IMPEDANCE FEEDING THE MAGNETOM SYSTEM, INCLUDING ANY ISOLATION TRANSFORMERS, MUST MEET EQUIPMENT REQUIREMENTS AS LISTED HERE. SIEMENS RECOMMENDS A TRANSFORMER WITH COPPER WINDINGS, AN ELECTRO-STATIC SHIELD, AND A LOW IMPEDANCE (<3%) TO ENSURE THAT SOURCE IMPEDANCE REQUIREMENTS ARE MET.

3) OVER CURRENT PROTECTION IS SPECIFIED FOR SYSTEMS WITHOUT AN UNINTERRUPTIBLE POWER SUPPLY (UPS). ADDITION OF A UPS REQUIRES A HIGHER CAPACITY MAINS CONNECTION (DEPENDENT UPON UPS MODEL AND SIZE). MAXIMUM FAULT CURRENT IS DEPENDENT UPON THE IMPEDANCE OF THE FACILITY ELECTRICAL SYSTEM. THE CUSTOMER'S ARCHITECT OR ELECTRICAL CONTRACTOR TO SPECIFY AIC RATING OF OVER CURRENT PROTECTION BASED ON FACILITY IMPEDANCE CHARACTERISTICS.

4) MOMENTARY POWER IS BASED ON A MAXIMUM RMS VALUE FOR A PERIOD NOT TO EXCEED FIVE (5) SECONDS, AS DEFINED IN NEC. 517.2. STAND-BY AND AVERAGE CURRENT ARE SUBSTANTIALLY

5) THE CONDUCTOR SIZE SHOULD BE SELECTED TO MEET THE VOLTAGE DROP REQUIREMENTS, TAKING INTO CONSIDERATION THE MAINS CAPACITY, RUN LENGTH, AND ANY ADDITIONAL TRANSFORMERS USED TO OBTAIN THE PROPER EQUIPMENT VOLTAGE LEVEL. NEMA STANDARD XR-9-1989 (R1994,R2000) PROVIDES GENERAL GUIDELINES FOR SIZING CONDUCTORS, TRANSFORMERS, AND ELECTRICAL SYSTEMS FOR MEDICAL IMAGING SYSTEMS.

6) LONG-TIME POWER IS BASED ON THE HIGHEST AVERAGE RMS VÁLUES FOR A PERIOD EXCEEDING 5 MINUTES DURING CLINICAL SYSTEM OPERATION, AS DEFINED IN NEC 517.2.

7) A CIRCUIT BREAKER WITH A HIGH INRUSH RATING (>8x RATED CURRENT) IS REQUIRED TO PERMIT SWITCH-ON OF THE UPS SYSTEM WITHOUT SPURIOUS TRIPPING, CIRCUIT BREAKERS WITH AN ADJUSTABLE MAGNETIC TRIP (SIEMENS FD6 SERIES OR SIMILAR) ARE HIGHLY RECOMMENDED.

REV 1

||ELECTRICAL INSTALLATION NOTES|

1) INSTALL THE MR SYSTEM CIRCUIT BREAKER IN OR NEAR THE EQUIPMENT ROOM. THE PERMITTED FRINGE FIELD FOR THE PANEL IS UP TO 3mT. IF THE FRINGE FIELDS HAVE HIGHER VALUES, MAGNETIC SHIELDING MUST BE PROVIDED OR THE DISTANCE FROM THE MAGNET MUST BE INCREASED.

2) AN ACCEPTABLE MEANS FOR SWITCHING MAIN POWER ON AND OFF SHOULD BE INSTALLED IN THE MAIN BREAKER PANEL. INSTALL EMERGENCY SHUTDOWN BUTTONS IN EACH ROOM WHERE THERE IS

SIEMENS EQUIPMENT.

3) THE ELECTRICAL FEEDER TO THE SIEMENS EQUIPMENT MUST FÉED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS AND OTHER POTENTIAL SOURCES OF ELECTRICAL

4) THE EMERGENCY POWER OFF (EPO) BUTTONS ARE TO BE MUSHROOM TYPE WITH PUSH LOCK AND PULL TO RELEASE.

5) WALL RECEPTACLES MADE OF FERROMAGNETIC MATERIALS ARE NOT PERMITTED IN THE EXAM ROOM. PERIPHERAL UNITS (SUCH AS VENTILATORS) NOT APPROVED FOR USE IN A HIGH MAGNETIC FIELD ENVIRONMENT CAN INFLUENCE THE MAGNETIC FIELD. COMPROMISING IMAGE QUALITY. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND USE OF RECEPTACLES IN THE EXAM ROOM. INSTALLATION OF RECEPTACLES AND THE FILTERS REQUIRED ARE TO BE COORDINATED WITH THE RF SHIELDING SUPPLIER.

6) THE RF SHIELD MUST BE FITTED WITH A GROUND STUD OR BUS BAR, LOCATED WITHIN 24" OF THE AUXILIARY FILTERS FOR ROOM LIGHTS AND OUTLETS, SUPPLIED AND INSTALLED BY THE RF SHIELD

7) IN ORDER TO PREVENT GROUND LOOPS, ALL CUSTOMER OR CUSTOMER/CONTRACTOR SUPPLIED AC POWER ENTERING THE EXAMINATION ROOM (I.E. OUTLETS, EPO, ETC.) SHOULD BE SUPPLIED VIA AN ISOLATION TRANSFORMER. THE ISOLATION TRANSFORMER SECONDARY WINDING GROUND CONDUCTOR SHOULD BE CONNECTED TO THE RF SHIELD GROUND STUD OR BUS BAR. SEE NOTE 6 ABOVE AND THE AUXILIARY AC POWER FOR EXAMINATION ROOM DETAIL.

GROUNDING NOTES

EQUIPMENT GROUND CONDUCTOR TO COMPLY WITH THE FOLLOWING:

1) SIZED EQUIVALENT TO THE PHASE CONDUCTORS (FULL

SIZED GROUND). 2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS

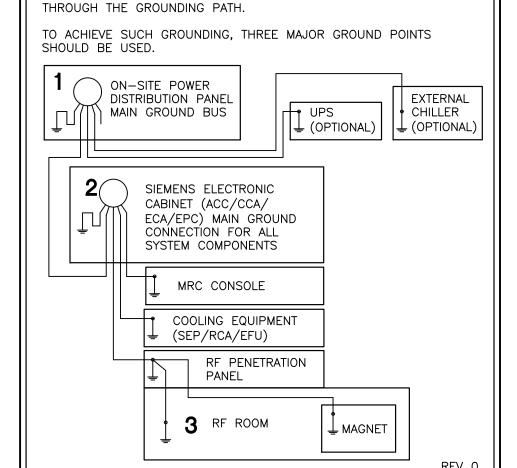
EQUIPMENT. 3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS.

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.

MR GROUNDING NOTES

THE INTERNAL GROUND WIRING OF THE MR SYSTEM MUST BE INSTALLED WITH MINIMUM GROUND LOOPS. THIS IS TO PREVENT NOISE CURRENTS AND GENERAL DISTURBANCES FROM FLOWING



SOLA REV 2

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

OJECT MANAGER: TIMOTHY CARMICHAEL (603) 387-4211 NORTHEASTERN VERMONT REG HOSP THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL 1902436 RA DATED 06/12/ RESULT IN PROSECUTION UNDER

PROJECT #: 1902436

1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 MRI SUITE 1 - SOLA XJ GRADIENTS APPROVED BY CUSTOMERS FÓR FÍNAL FULL EXTENT OF THE LAW.

ATTENTION:

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.

- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED

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

DOCUMENTS FOR REFERENCE.

- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION

PHYSICIST TO SPECIFY RADIATION PROTECTION.

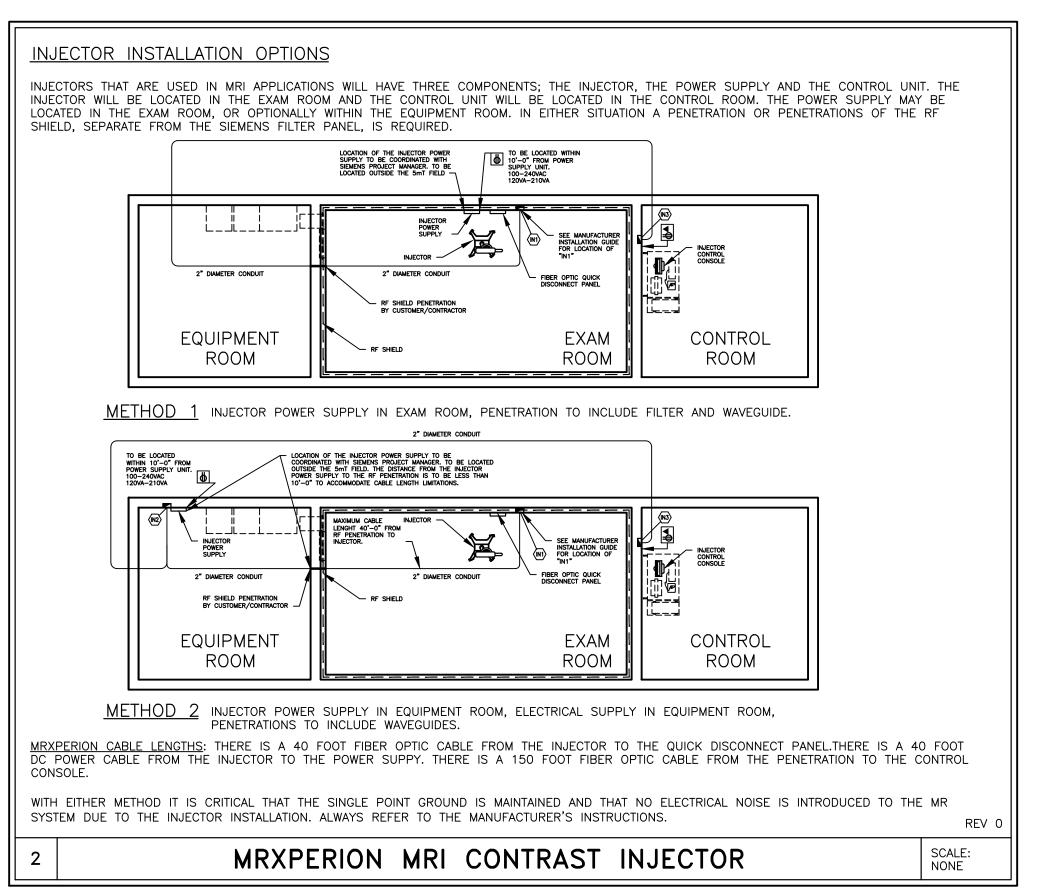
-ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION

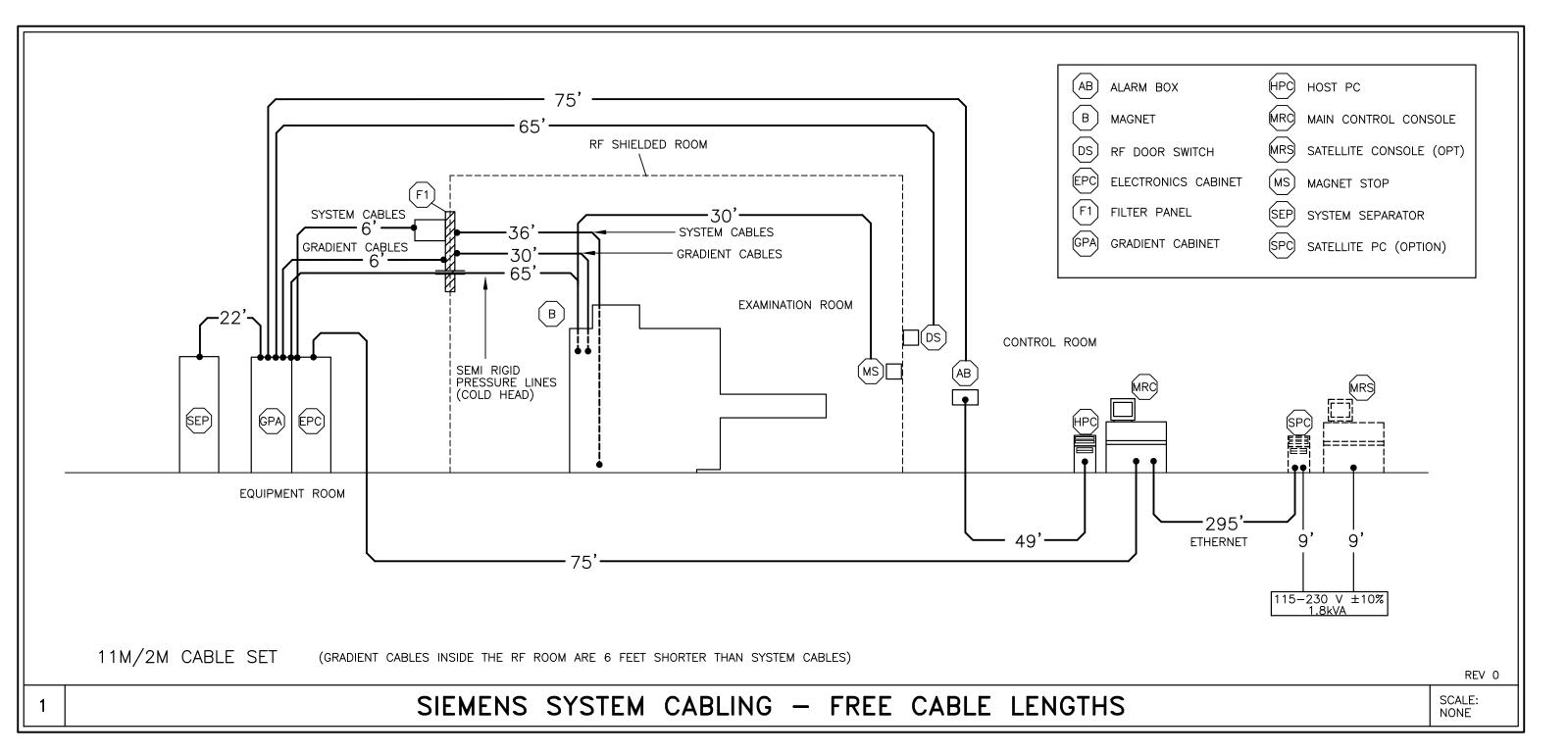
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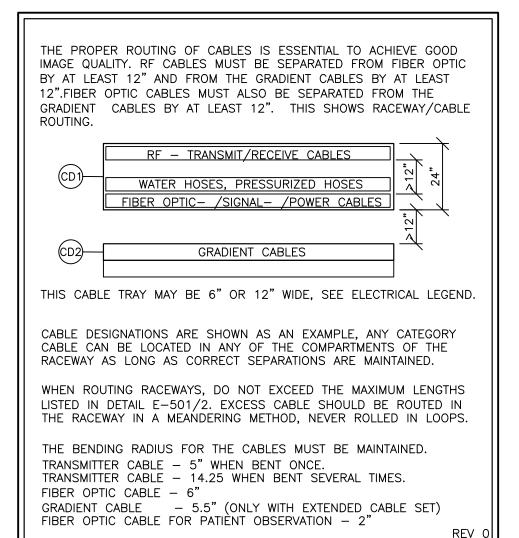
ALL RIGHTS ARE RESERVED. DATE DESCRIPTION REF. #: PUFQGY SCALE: AS NOTED -ISSUE BLOCK-

10 R. SUTHERS 06/17/19

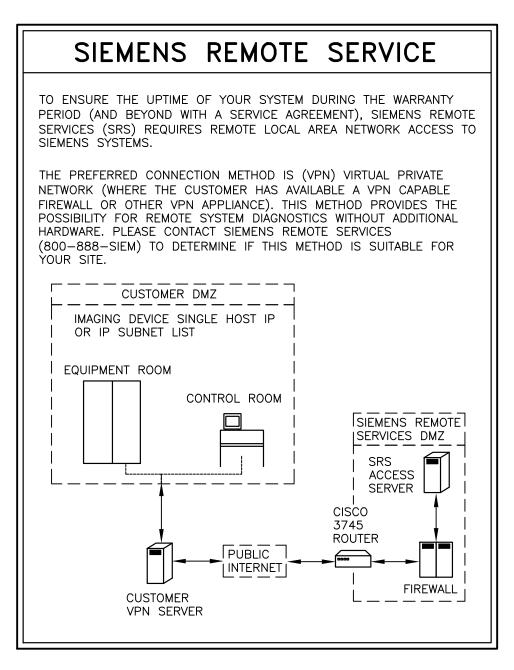
SIEMENS







CABLE SEPARATION



CONDUITS AND RACEWAYS

1) ALL POWER CONDUCTORS SUPPLIED BY THE CUSTOMER/ CONTRACTOR SHALL BE INSTALLED IN METAL RACEWAY, 600 VOLT CLASS, STRANDED TYPE THHN-THWN, RATED FOR 75°C (165°F) OPERATION. RECOMMEND MINIMUM 5 FEET WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY SIEMENS MEDICAL SYSTEMS.

2) THE CABLE GROUPS INCLUDED WITH THE MAGNETOM SYSTEM MAY BE ROUTED IN THE SAME CABLE TRAY IF PROVIDED WITH AN 8" SEPARATION BETWEEN SMALL SIGNAL LINES, GRADIENT CABLES, AND THE RF TRANSMIT CABLE. A 24" WIDE LADDER TYPE CABLE TRAY IS RECOMMENDED. CABLES SHOULD NOT BE BUNDLED TOGETHER.

3) NOTE THE CABLE CONNECTOR SIZES (LARGEST CONNECTOR SIZE IS 2 1/2" x 2 1/2") FOR CABLE FEED—THROUGHS AND CABLE DUCTS.

4) THE CABLE LENGTHS SPECIFIED ARE THE STANDARD LENGTHS.

5) THE SIEMENS SYSTEM CABLES ARE NOT PLENUM RATED AND SHOULD NOT BE RUN UNPROTECTED IN AN AIR PLENUM UNLESS ENCLOSED IN A SEALED CABLE TRAY OR CONDUIT.

CABLE LENGTH RESTRICTIONS

1) THE CABLE SET LENGTH IDENTIFIES THE "FREE CABLE LENGTH". THIS IS THE LENGTH FROM CONNECTION POINT TO CONNECTION POINT. THE CABLE LENGTH IS NOT THE DISTANCE BETWEEN COMPONENTS.

2) THE GRADIENT CABLES INSIDE THE RF SHIELDED ROOM ARE 6'-0" SHORTER THAN THE OTHER SYSTEM CABLES. THIS MEANS THAT IF THE 22' CABLE SET IS SELECTED, THE GRADIENT CABLES WILL BE 16' IN LENGTH. THE GRADIENT CABLES NEED TO GO UP INTO THE CABLE TRAY IN THE CEILING AT THE FILTER PLATE AND DOWN AT THE MAGNET. THESE VERTICAL RUNS MUST BE DEDUCTED FROM THE TOTAL CABLE LENGTH OF 16'.

REV 0

SOLA REV 2

ROJECT MANAGER: TIMOTHY CARMICHAEL SIEMENS (603) 387-4211 MAIL: timothy carmichael@siemens-healthineers.com NORTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 MRI SUITE 1 - SOLA XJ GRADIENTS THE USE OR REPRODUCTION OF PROJECT #: THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL 1902436 1902436 RA DATED 06/12/ RESULT IN PROSECUTION UNDER APPROVED BY CUSTOMERS FOR FINALS FULL EXTENT OF THE LAW. ALL RIGHTS ARE RESERVED. DATE DESCRIPTION 8 10 R. SUTHERS

ATTENTION:

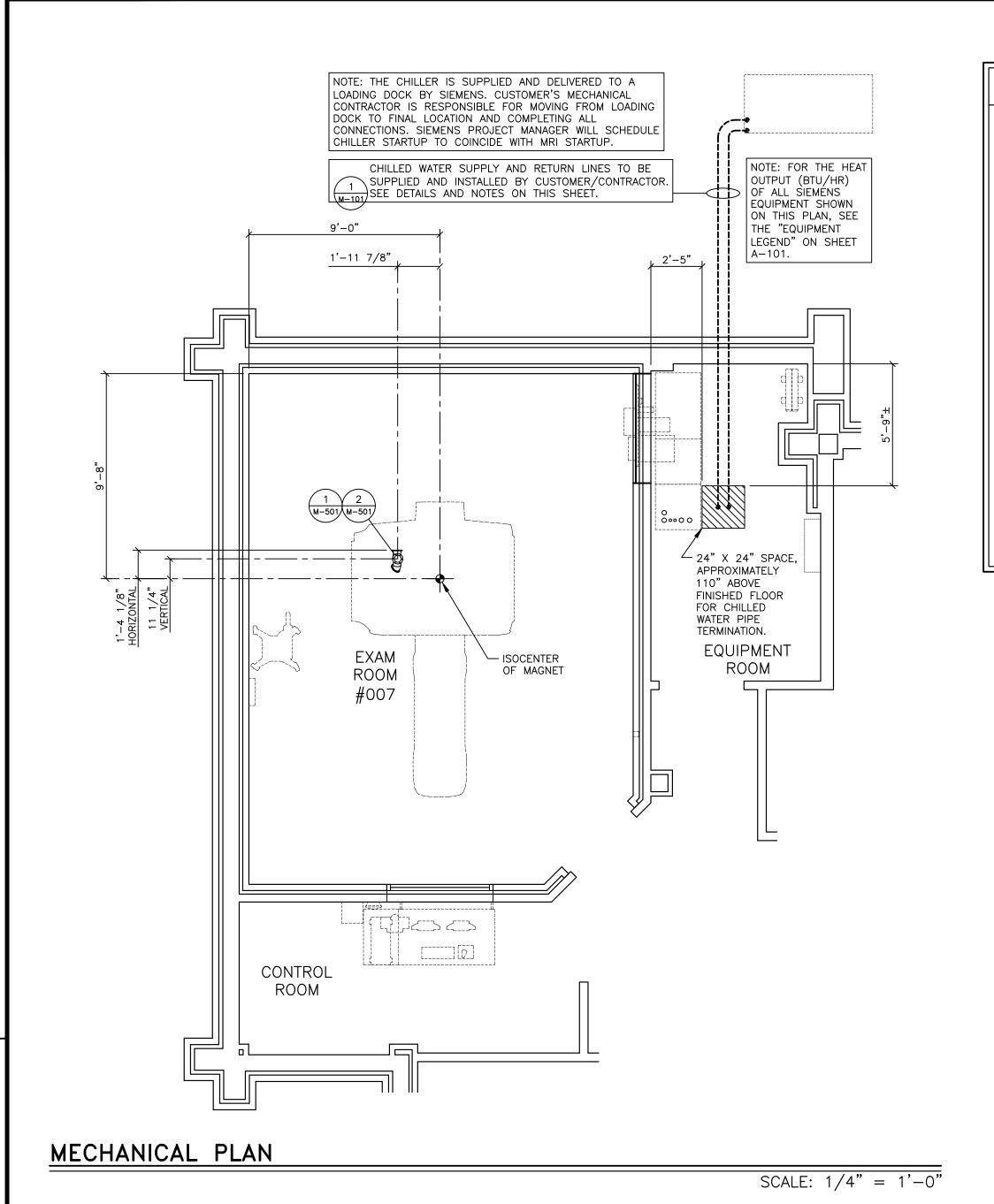
- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD 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.

REF. #: PUFQGY SCALE: AS NOTED -ISSUE BLOCK-

06/17/19



ATTENTION:

ENVIRONMENTAL REQUIREMENTS

I) AIR CONDITIONING IS TO PROVIDE A TEMPERATURE OF 70°F ±5°F IN THE EXAM ROOM, 70°F±10°F IN THE EQUIPMENT & CONTROL AREAS, RELATIVE HUMIDITY OF 40-60% (NON-CONDENSING) IS REQUIRED EXAMINATION ROOM AND 40-80% (NON-CONDENSING) IN ALL OTHER AREAS WHERE SIEMENS EQUIPMENT IS INSTALLED. THESE CONDITIONS ARE TO BE MET AT ALL TIMES; 24 HOURS A DAY, 7 DAYS A WEEK.

2) A DEDICATED AIR CONDITIONING AND HUMIDIFICATION SYSTEM IS RÉCOMMENDED FOR THE EXAM ROOM. A MINIMUM AIR EXCHANGE RATE OF 6 TIMES PER HOUR FOR THE EXAM ROOM IS REQUIRED. IT IS RECOMMENDED TO INSTALL A FRESH AIR SYSTEM WITH 30%-50% FRESH AIR INTAKE. AIR SUPPLY AND RETURN ABOVE THE FINISHED CEILING IN THE EXAM ROOM IS RECOMMENDED. EACH ROOM SHOULD HAVE A DEDICATED CONTROL AND SENSOR TO MONITOR AND ADJUST

3) THE HEAT INTO THE EXAM ROOM IS LESS THAN 10,236 BTU/HR. THE HEAT INTO THE EQUIPMENT ROOM IS LESS THAN 3,412 BTU/HR. THIS HEAT DISSIPATION IS FROM THE SIEMENS EQUIPMENT ONLY, AUXILIARY SUPPORT EQUIPMENT (ie. UPS) AND LIGHTING MUST BE CONSIDERED FOR TOTAL HEAT LOADS.

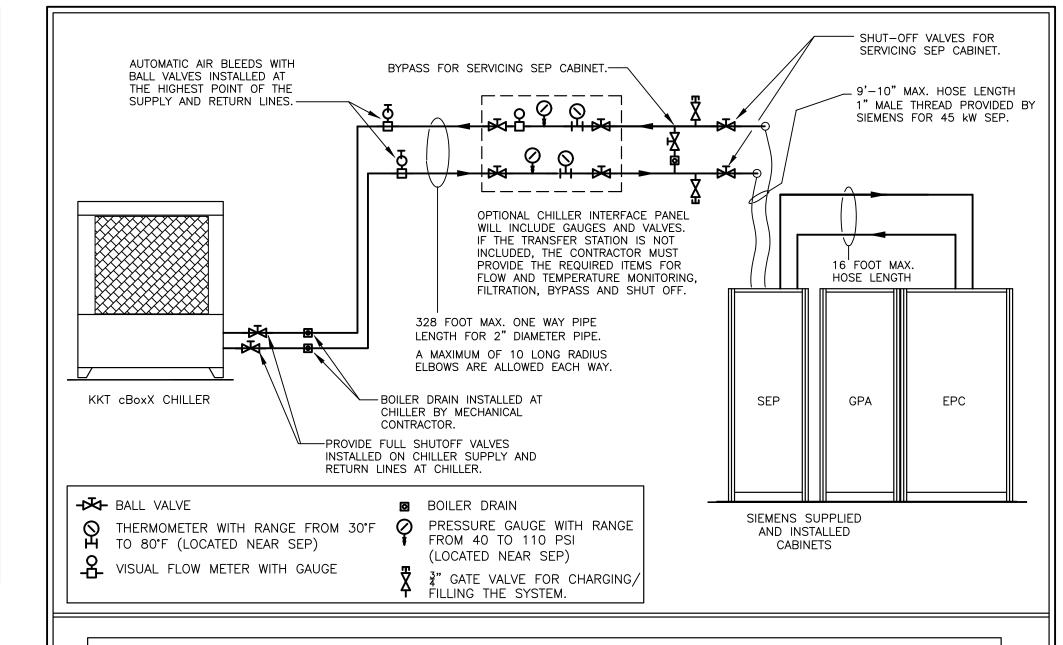
4) IT IS IMPORTANT FOR FRESH AIR INTAKE SYSTEMS TO EXHAUST AÍR DIRECTLY OUT OF THE BUILDING. THE EXHAUST AIR MUST NOT BE DEFLECTED INTO ANOTHER ROOM. THE MAGNET ROOM EXHAUST AIR SHOULD BE INSTALLED AT LEAST 6'-6" ABOVE FINISHED FLOOR.

5) THE AIR INTAKE OF THE AIR CONDITIONING SYSTEM MUST NOT BE LOCATED IN THE VICINITY OF THE QUENCH VENT EXHAUST. 6) IF THE INPUT DRAWS UPON AIR FROM OUTSIDE THE BUILDING, IT

7) DO NOT LOCATE ANY HVAC DIFFUSERS ABOVE THE MAGNET. THERE SHALL NOT BE AIR BLOWING DIRECTLY ON THE MAGNET. 12/11/12

IS RECOMMENDED TO INSTALL AN ON-SITE FILTER TO REMOVE DUST

PARTICLES GREATER THAN 10 MICRONS.



ALL PIPING AND PLUMBING FIXTURES SHALL BE FURNISHED, INSTALLED, PRESSURE TESTED AND CHARGED BY THE MECHANICAL CONTRACTOR PRIOR TO THE DELIVERY AND INSTALLATION OF THE SIEMENS SUPPLIED AND INSTALLED EQUIPMENT UNLESS SPECIFIED **OTHERWISE**

AT THE HIGHEST POINT OF THE WATER SUPPLY PIPE FROM THE CHILLER AN AUTOMATIC DEAERATION DEVICE (AIR VENT) WITH BALL VALVE MUST BE INSTALLED BY THE MECHANICAL CONTRACTOR. SYSTEM MUST BE PROVEN TO BE FREE FROM LEAKAGE.

RESPONSIBLE FOR THE SITE SPECIFIC DESIGN AND SPECIFICATION OF THE MECHANICAL AND PIPING SYSTEMS AS SHOWN AND SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES. ALL WORK SHALL BE PERFORMED BY THE MECHANICAL CONTRACTOR AND SHALL BE SUBJECT TO COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES. THE SUPPLY AND RETURN PIPES FROM THE CHILLED WATER SUPPLY TO THE SEP MUST BE LABELED TO SHOW FLOW DIRECTION AND CONTENT (WATER/GLYCOL).

THE MECHANICAL ENGINEER OF RECORD SHALL BE ULTIMATELY

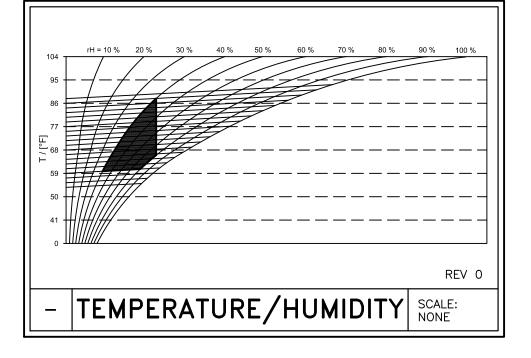
PIPING SCHEMATIC CHILLED WATER-KKT cBoxX 70 CHILLER | SCALE: NONE

CHILLED WATER SUPPLY

A CHILLED WATER SUPPLY IS REQUIRED TO THE MRI SYSTEM 24 HOURS A DAY, YEAR ROUND FOR THE COLD HEAD AND GRADIENT SYSTEMS. THIS CAN BE PROVIDED BY A cBOXx CHILLER IN COMBINATION WITH A SEP (SEPARATOR) CABINET.

THE PIPE SIZE BETWEEN THE cBOXx CHILLER AND SEP MUST BE 2 INCH UP TO 200 FEET, CONSULT cBOXx FOR LONGER PIPE. 27 GALLONS OF DISTILLED/DE-IONIZED WATER MUST BE PROVIDED

FOR FILLING THE SECONDARY WATER CIRCUIT. THE SUPPLY AND RETURN CHILLED WATER PIPES MUST BE LABELED. THE LOCATION OF THE LABELS MUST BE AT ALL CONNECTION AND REFILLING POINTS AND MUST CONTAIN FLOW DIRECTION AND CONTENTS.



CHILLED WATER REQUIREMENTS

XJ GRADIENTS WATER REQUIREMENTS TO BE MEASURED AT THE SEP CABINET FLOW RATE: 23.78-29.05 GPM

WATER TEMPERATURE:	42.8°F - 53.6°F
BTU DISCHARGE TO THE WATER	170,759 BTU/HR
WATER PRESSURE	MAXIMUM 87 PSI
LOSS OF PRESSURE FOR SEP CABINET	<14.5 PSI 11.6 TYPICAL
CHILLED WATER ACIDITY RANGE	6 pH TO 8 pH
CHILLED WATER HARDNESS	<250 ppm CALCIUM CARBONATE
CHLORINE GAS CONCENTRATION	<200 ppm
FILTRATION	500 um

FOR INSTALLATION OF A DIMPLEX CHILLER. IT IS THE RESPONSIBILITY OF THE CUSTOMER/MECHANICAL CONTRACTOR TO PROVIDE A MIXTURE OF WATER WITH 40% ETHYLENE GLYCOL OR 50% PROPYLENE GLYCOL PRIOR TO CHILLER START UP. DO NOT USE AUTOMOTIVE ANTI-FREEZE. DO NOT MIX DIFFERENT BRANDS OF GLYCOL.

DIMPLEX CHILLERS USE 70-100 GALLONS PLUS THE PIPE LENGTH. CONTRACTOR TO PROVIDE 65-95 GALLONS OF DE-MINERALIZED WATER. DO NOT USE TAP WATER.

MECHANICAL NOTES

1) THE AIR H.V.A.C. SYSTEM MUST OPERATE FOR A MINIMUM OF 48 CONSECUTIVE HOURS PRIOR TO THE DELIVERY OF THE EQUIPMENT. 2) THE FILTERS MUST BE CHANGED IMMEDIATELY PRIOR TO THE

DELIVERY OF THE EQUIPMENT.

3) SIEMENS REQUIRES THE USE OF A DEDICATED H.V.A.C. SYSTEM FOR THE EQUIPMENT ROOM TO BE LOCATED, SIZED AND SPECIFIED BY THE MECHANICAL ENGINEER OF RECORD AND TO BE SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

4) SIEMENS RECOMMENDS THAT THE CUSTOMER PROVIDE AND INSTALL AN OXYGEN MONITORING SYSTEM WITH VISUAL AND AUDIBLE ALARMS TO INDICATE WHEN THE OXYGEN CONTAINED IN AMBIENT AIR FALLS BELOW PRE-PROGRAMMED SAFETY LEVELS WITH THE SENSOR TO BE LOCATED IN THE SCAN ROOM IN THE AREA DESIGNATED FOR CRYOGEN FILLING.

5) THE SIEMENS ACTIVE SHIELDED MAGNET RECIRCULATES LIQUID HELIUM, ELIMINATING THE NEED FOR A DEDICATED CRYOGEN STORAGE AREA. THE RECIRCULATING SYSTEM SIGNIFICANTLY REDUCES THE HELIUM "BOIL OFF". THE MAGNET WILL REQUIRE OCCASIONAL FILLING, A DELIVERY ROUTE FOR CRYOGEN DEWARS MUST BE ESTABLISHED. A MINIMUM 36" CLEARANCE IS REQUIRED.

REV 0

FIRE CONTROL NOTES

1) SIEMENS HAS NO SPECIFIC REQUIREMENT FOR FIRE PROTECTION.

FIRE PROTECTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH LOCAL CODES AND CUSTOMER'S INSURANCE REQUIREMENTS. ALL FIRE PROTECTION SYSTEMS SHALL BE DEFINED BY THE ARCHITECT OF RECORD WITH DESIGN, SPECIFICATION AND DETAILING OF THE FIRE PROTECTION SYSTEM BY THE MECHANICAL ENGINEER OF RECORD IN ACCORDANCE WITH SIEMENS GUIDELINES AS STATED HEREIN. THE ELECTRONIC EQUIPMENT OF THE MR SYSTEMS WILL BE DAMAGED BY WATER, REDUCTION OR ELIMINATION OF WATER USED FOR FIRE SUPPRESSION WILL REDUCE POTENTIAL WATER DAMAGE. PRE-ACTION INERT GAS, OR HALOCARBONS OR OTHER METHODS CAN REDUCE OR ELIMINATE WATER. REFER TO YOUR FIRE PROTECTION PROFESSIONAL.

2) THE USE OF SMOKE DETECTORS INSIDE OF THE MR EXAMINATION ROOM IS NOT RECOMMENDED. SMOKE DETECTORS, BY DESIGN, CAN GENERATE NOISE THAT MAY INTERFERE WITH THE MRI EXAMINATION AND CAUSE IMAGE ARTIFACTS. IF THE USE OF A SMOKE DETECTOR IN THE EXAMINATION ROOM IS MANDATED BY LOCAL REQUIREMENTS SPECIAL NOISE TESTS MUST BE PERFORMED BY SIEMENS SERVICE AFTER THE MRI IS OPERATIONAL. MRI EQUIPMENT PERFORMANCE PROBLEMS DUE TO SMOKE DETECTORS ARE THE RESPONSIBILITY OF THE CUSTOMER AND ARE NOT COVERED UNDER WARRANTY OR SERVICE AGREEMENT.

3) ALL MATERIAL USED INSIDE THE MAGNET ROOM SHALL BE NON-MAGNETIC. SEE CONSTRUCTION REQUIREMENTS.

4) ALL PENETRATIONS IN THE RF CABIN/SHIELD SHALL BE THROUGH A WAVE GUIDE TO BE EQUIPPED WITH A DIELECTRIC COUPLER ON BOTH ENDS OF THE WAVE GUIDE. ALL WAVE GUIDES SHALL BE DESIGNED, DETAILED AND SPECIFIED BY THE RF CABIN/SHIELD CONTRACTOR WITH ALL LOCATIONS TO BE DETERMINED BY THE ARCHITECT AND MECHANICAL ENGINEER OF RECORD TO BE ESTABLISHED IN A PRE-PLANNING MEETING PRIOR TO THE DESIGN, SPECIFICATION, AND FABRICATION OF THE RF CABIN/SHIELD.

5) EACH ELECTRICAL PENETRATION OF THE RF CABIN/SHIELD FOR ELECTRICAL SERVICING OF THE FIRE PROTECTION SYSTEM SHALL BE THROUGH AN RF FILTER TO BE SUPPLIED BY THE RF SHIELD CONTRACTOR WITH FILTER LOCATIONS TO BE DETERMINED BY THE ARCHITECT AND THE ELECTRICAL ENGINEER OF RECORD TO BE ESTABLISHED IN A PRE-PLANNING MEETING PRIOR TO THE DESIGN, SPECIFICATION AND FABRICATION OF THE RF CABIN/SHIELD.

6) IT IS PERMISSIBLE TO RUN "BLACK PIPE" UP TO THE DIELECTRIC COUPLER ON THE OUTSIDE OF THE RF SHIELD.

7) THERE MUST BE NO GROUND CONNECTIONS MADE DURING THE THE INSTALLATION OF EITHER THE PIPING OR ELECTRICAL FOR THE FIRE PROTECTION SYSTEM.

8) THE USE OF HALON IS NOT ACCEPTABLE.

9) THE LOCATION OF FIRE CONTROL SYSTEM COMPONENTS SHALL BE COORDINATED THROUGH THE ARCHITECT OF RECORD WITH ALL LOCATIONS TO BE COORDINATED WITH SIEMENS EQUIPMENT LOCATIONS AS SHOWN ON THE 1/4" SCALE EQUIPMENT LOCATION PLAN.

10) THE FIRE CONTROL CONTRACTOR SHALL VERIFY EQUIPMENT MOUNTING PROCEDURES AND LOCATIONS ON ANY WALLS CONTAINING RF SHIELDING WITH THE SIEMENS PROJECT MANAGER PRIOR TO THE COMMENCEMENT OF WORK.

REV 1

COMPRESSOR LINE INSULATION

COMPRESSOR LINES RUNNING FROM THE COMPRESSOR (OR SEP CABINET) TO THE MAGNET ARE INSULATED BY SIEMENS. ADDITIONAL INSULATION (ARMAFLEX OR EQUIVALENT) FOR NOISE REDUCTION (CHIRPING) MAY BE REQUIRED. ADDITIONAL INSULATION NOT PROVIDED BY SIEMENS.

SOLA REV 2

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

(603) 387-4211 SIEMENS AUTHORIZATION WILL 1902436 RA DATED 06/12/ RESULT IN PROSECUTION UNDER APPROVED BY CUSTOMERS FÓR FÍNAL FULL EXTENT OF THE LAW. ALL RIGHTS ARE RESERVED. DESCRIPTION DATE

-ISSUE BLOCK-

NORTHEASTERN VERMONT REG HOSP 1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 HE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT

SCALE: AS NOTED

OJECT MANAGER: TIMOTHY CARMICHAEL

REF. #: PUFQGY

PROJECT #: 1902436 R. SUTHERS

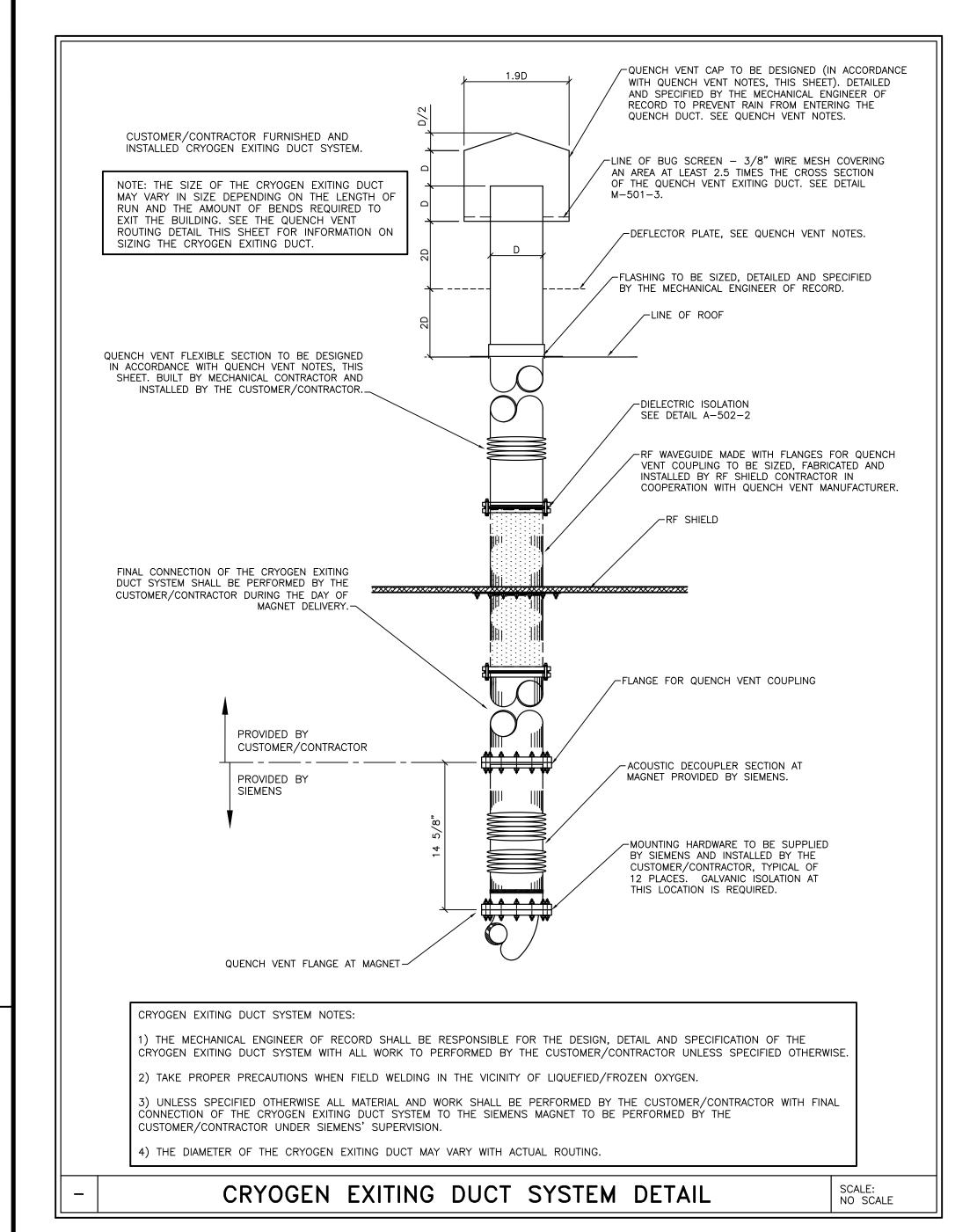
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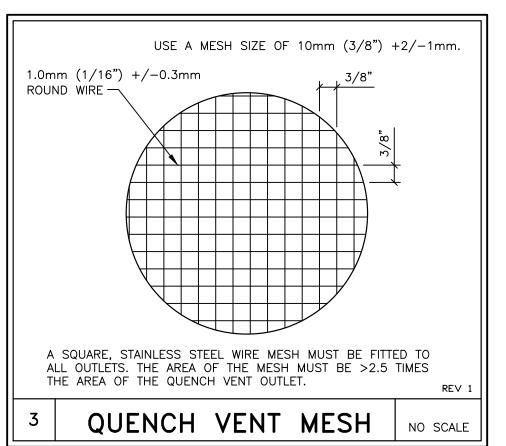
MRI SUITE 1 - SOLA XJ GRADIENTS

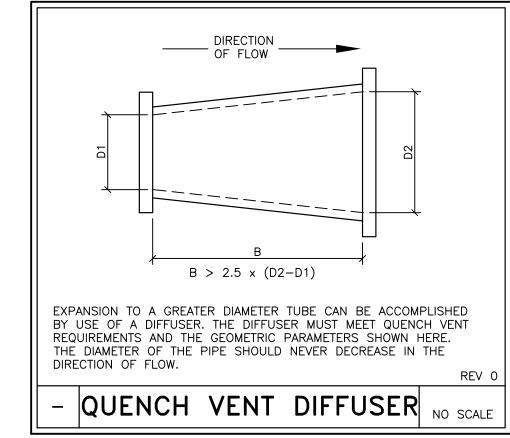
SIEMENS

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.







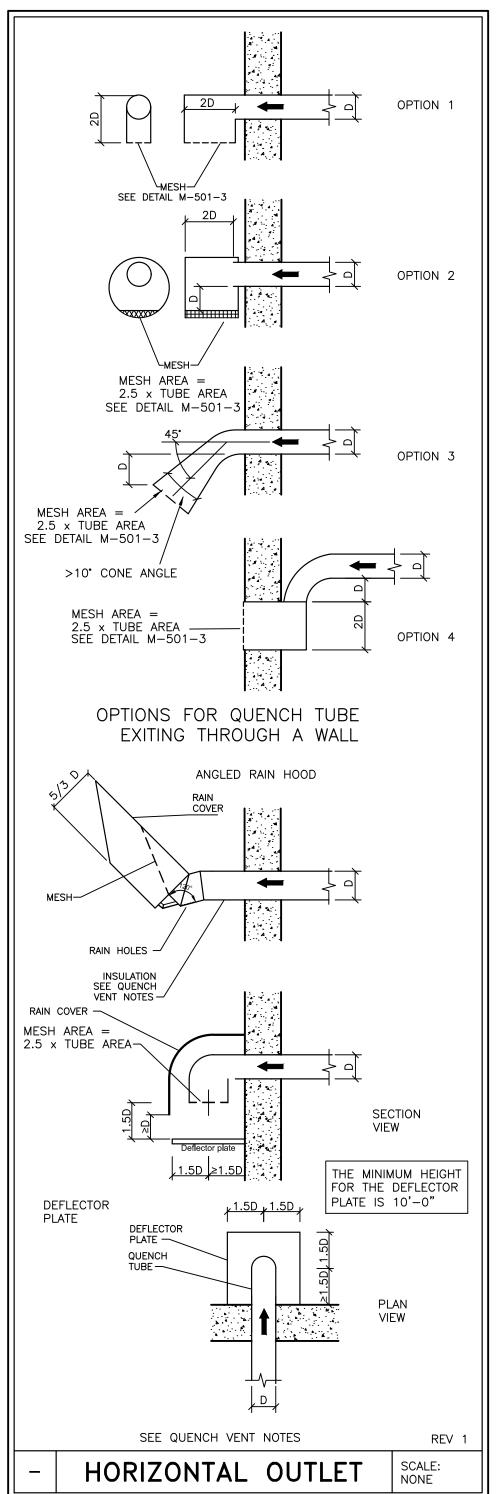
CRYOGEN NOTES

I) "CRYOGENS" IS A TERM USED TO IDENTIFY THE REFRIGERANT USED TO MAKE THE MAGNET "SUPER-CONDUCTING", IN THIS APPLICATION, LIQUID AND GASEOUS HELIUM. SPECIAL CARE MUST BE TAKEN DURING THE TRANSFILLING OF THE MAGNET WITH CRYOGENS AND NORMAL EXHAUST OF CRYOGENS FROM THE SYSTEM. ASIDE FROM THE OBVIOUS DANGER OF FREEZING. HELIUM GAS WILL ALSO DISPLACE THE OXYGEN IN THE ROOM. THE INSTALLATION OF AN APPROVED TOXGARD MONITORING SYSTEM IS RECOMMENDED.

2) THERE SHALL BE A TRANSPORT ROUTE FOR DELIVERY OF CRYOGENS TO THE EXAM ROOM. SPECIAL VESSELS CALLED DEWARS ARE USED TO TRANSPORT HELIUM. A 250 LITER DEWAR WEIGHS 335 POUNDS AND HAS A 32" DIAMETER, A 500 LITER IS 540 POUNDS, AND IS 42" IN DIAMETER.

3) HELIUM GAS CYLINDERS MAY BE USED DURING THE INITIAL FILLING OF HELIUM INTO THE MAGNET. THE FACILITY IN WHICH THESE MAY BE USED NEEDS TO HAVE THE ABILITY TO TEMPORARILY STORE AND SECURE THESE CYLINDERS THAT WILL PREVENT THEM FROM INADVERTENTLY FALLING OVER.

4) OUTSIDE VENTING OF THE HELIUM IS TO BE PROVIDED BY MEANS OF A VENT PIPE OF NON-MAGNETIC MATERIAL CALLED A QUENCH REV 0



QUENCH VENT DESIGN INSTRUCTIONS

A RISK OF DANGER THAT MAY LEAD TO DEATH OR SERIOUS INJURY AND CAN RESULT IN STRUCTURAL DAMAGE. THE EXHAUST MUST NOT BE VENTED IN AN ENCLOSED SPACE. THE OPERATOR OF THE SYSTEM MUST PREPARE AN EMERGENCY PLAN IN THE EVENT OF A QUENCH. 3) THE QUENCH TUBE CONSISTS OF STRAIGHT, HYDRAULICALLY SMOOTH SECTIONS, BENDS UP TO 90° AND A DIFFUSER, IF REQUIRED. THE END OF THE TUBE MUST BE PROTECTED FROM RAIN, SNOW, AND FOREIGN OBJECTS. ROUND SECTIONS ONLY, NO SQUARE SECTIONS. 4) THE SIEMENS MAGNET HAS A QUENCH VALVE ASSEMBLY FOR CONNECTION TO THE TUBE LOCATED AT THE TOP LEFT SIDE OF THE MAGNET (SEE MAGNET ELEVATION). THE MECHANICAL CONTRACTOR WILL SUPPLY AND INSTALL A QUENCH VENT TUBE WITH CAP. TO BE NON-MAGNETIC STAINLESS STEEL (>22 GAUGE RECOMMENDED)

ALSO BE FLEXIBLE.

5) THE MAXIMUM INTERNAL PRESSURE IS CALCULATED AT 1.45 PSI. THE MAXIMUM PRESSURE SHOULD BE ENGINEERED FOR 6.5 PSI.

PRESSURE CALCULATION

6) USE THE QUENCH VENT CALCULATOR PROVIDED BY SIEMENS TO DESIGN A QUENCH VENT THAT MEETS DESIGN REQUIREMENTS FOR DIAMETER, LENGTH, NUMBER OF ELBOWS AND PRESSURE DROP. ALL BENDS MUST BE SMOOTH WALLED AND HAVE A CENTERLINE TO INTERNAL PIPE DIAMETER RATIO OF 1.5 TO 5.0. EXPANSIONS TO PIPE DIAMETER CAN BE DONE WITH A DIFFUSER. ONLY ROUND TUBE SECTIONS MAY BE USED, RECTANGULAR SECTIONS ARE NOT ALLOWED.

7) THERE MUST BE A 12-19 INCH FLEXIBLE SECTION OF PIPE FOR CONNECTION TO THE QUENCH VALVE AT THE MAGNET WITH AN INSIDE DIAMETER GREATER THAN 4" (1.5T) OR 6" (3.0T) AND ABLE TO WITHSTAND 6.5 PSI.

8) SECTIONS OF THE PIPE CAN ONLY BE JOINED BY WELDING OR BOLTED FLANGES WITH FIBER GASKETS. ROTARY FLANGES ARE PERMITTED, VEE CLAMPED FLANGES MAY NOT BE USED.

9) THE PROTECTION AT THE END OF THE TUBE SHALL BE 3/8" WIRE MESH WITH 1/16 INCH WIRES, COVERING AN AREA AT LEAST 2.5 TIMES THE CROSS SECTION AREA OF THE QUENCH PIPE.

10) WHERE THE QUENCH TUBE EXITS THROUGH A FLAT ROOF. THE THE OUTLET MUST BE ABOVE A LEVEL WHERE WATER COULD ENTER IN THE EVENT THAT THE ROOF DRAINS BECOME BLOCKED. IN THE CASE OF A HORIZONTAL EXIT THROUGH A WALL, THE OUTLET SHALL BE ANGLED DOWNWARD NOT LESS THAN 1 PIPE DIAMETER TO PREVENT RAIN INGRESS. THE EXIT SHALL BE LOCATED ABOVE THE LEVEL OF

11) WHERE THE QUENCH TUBE EXITS VERTICALLY, A RAIN COVER MUST ALSO BE FITTED WITH THE DIAMETER TO BE TWO TIMES THE DIAMETER OF THE QUENCH TUBE. THE CLEARANCE BETWEEN THE RAIN GUARD AND THE MESH SHALL 2 TIMES THE DIAMETER OF THE TUBE. A DEFLECTOR PLATE SHALL BE WELDED TO THE TUBE WHERE IT EXITS THE ROOF TO PREVENT HELIUM FROM RE-ENTERING THE BUILDING. THE DEFLECTOR SHALL BE AT LEAST 3 TIMES THE DIAMETER OF THE QUENCH TUBE AND LOCATED TWO PIPE DIAMETERS ABOVE THE ROOF AND TWO PIPE DIAMETERS BELOW THE

DURING A QUENCH THE HELIUM GAS EXITING THE QUENCH PIPE MAY BE AT TEMPERATURES OF LESS THAN -400°F. DUE TO THIS TEMPERATURE ROOFING MATERIALS OR ITEMS AROUND THE VENT EXIT MAY BE ADVERSELY AFFECTED. CONSIDERATION OF MATERIALS AND ITEMS PLACED NEAR THE VENT EXIT SHOULD BE TAKEN INTO ACCOUNT SO DAMAGE DOES NOT OCCUR.

12) WHERE THE QUENCH TUBE EXITS HORIZONTALLY, THE OUTLET MÚST CONFORM TO OPTIONS 1-4 OR THE ANGLED RAIN HOOD. THE OUTLET SHOULD NOT BE LOCATED WHERE HELIUM GAS CAN BE DRAWN INTO AN AIR INLET, ENTER AN OPEN WINDOW, OR BLOW DIRECTLY ONTO STRUCTURE OR EQUIPMENT. RESTRICT ACCESS TO WINDOWS AND DOORS TO AVOID INJURY FROM COLD BURNS AND ASPHYXIATION BY 9'-11" ON EACH SIDE, BELOW AND 19'-9" ABOVE, IF THE OUTLET IS POSITIONED TOO LOW A DEFLECTOR PLATE CAN BE USED WITH OPTION 1 AND 3.

WARNING SIGNS AND OUTLET RESTRICTIONS
A WARNING SIGN MUST BE FIXED AND VISIBLE NEAR THE QUENCH VENT OUTLET. THE TUBE MUST HAVE A WARNING POSTED ALONG IT'S ENTIRE LENGTH FOR EXTREMELY COLD HELIUM GAS -AUTHORIZED PERSONNEL ONLY.

13) AREAS WITH ACCESS IN THE AREA OF THE OUTLET MUST BE CLÉARLY IDENTIFIED AND FENCED, FOR EXAMPLE, A ROOF OUTLET WITH MAINTENANCE ACCESS.

INSULATION AND GALVANIC SEPARATION 14) THE QUENCH TUBE MUST HAVE MINIMUM 1" INSULATION FOR THE FULL LENGTH. WITHIN THE RF ROOM THERE SHOULD BE A 1" LAYER OF MINERAL FIBER INSULATION WITH A VAPOR BARRIER AND " CLASS O OR CLASS AP ARMAFLEX. OUTDOOR PIPES MUST BE WEATHERPROOF. THE INSULATION MUST NOT TOUCH THE MAGNET COVERS. TO AVOID RF DISTURBANCES THE INSULATION MUST NOT MAKE ELECTRICAL CONTACT WITH THE WAVEGUIDE.

15) GALVANIC SEPARATION MUST BE PROVIDED BETWEEN THE MAGNET, THE QUENCH VENT, THE RF ROOM, AND THE BUILDING, TWO SEPARATIONS ARE REQUIRED USING STAINLESS STEEL BOLTS, INSULATING BUSHES AND LOCKING NUTS. NO OTHER DESIGNS ARE PERMITTED FOR SAFETY.

QUENCH VENT NOTES

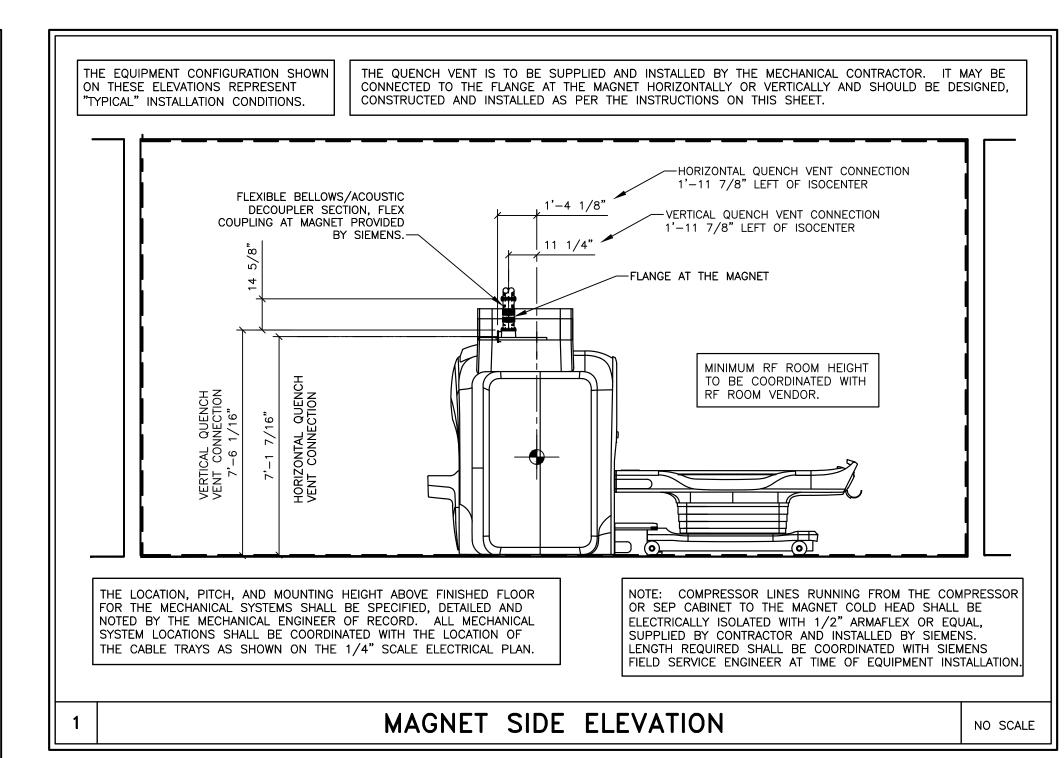
1) IN THE EVENT OF A QUENCH, THE THERMAL ENERGY DISSIPATED CAUSES AN EXTREMELY RAPID BOIL OFF OF THE LIQUID HELIUM. THE SYSTEM MUST BE CAPABLE OF VENTING THE LARGE VOLUME OF GAS GENERATED AT THE APPROXIMATE EXPANSION RATIO OF 1:700 FROM LIQUID AT 4.2°K TO ROOM TEMPERATURE GAS. THE EXHAUST SYSTEM IS CRITICAL FOR THE SAFE OPERATION OF THE MAGNET, THE DATA IN THIS DOCUMENT MUST BE FOLLOWED. SINCE HELIUM VENTED IN A QUENCH IS AN ASPHYXIANT & AN EXTREMELY COLD GAS, THE QUENCH TUBE MUST ALWAYS END AT A POINT WHERE ACCESS BY PEOPLE IS NOT POSSIBLE. QUENCH TUBE PLANNING MUST ONLY BE DONE BY QUALIFIED PERSONNEL. IT IS THE OWNER'S RESPONSIBILITY TO ENSURE THAT THE QUENCH TUBE IS MAINTAINED IN AN OPERABLE STATE.

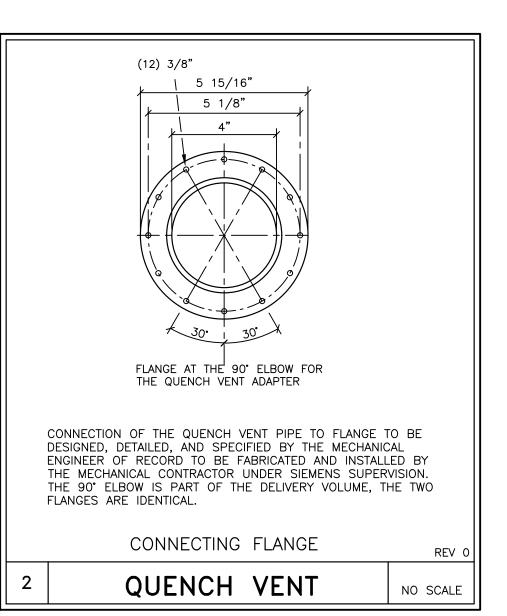
2) IF THE QUENCH VENT IS NOT CONFIGURED CORRECTLY THERE IS

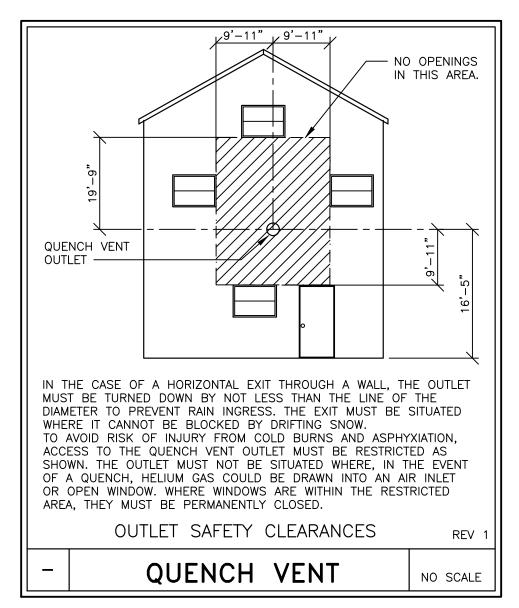
GRADES AISI304, 309, 316, OR 321 ONLY. THERMAL CONDITIÓNS MAY CAUSE THE TUBE TO CONTRACT UP TO 3mm/METER SO A STAINLESS STEEL BELLOWS OR FLEXIBLE SECTION MUST BE INSTALLED A MINIMUM OF EVERY 32'-9" NOT TO EXCEED 2% OF THE OVERALL LENGTH. THE QUENCH TUBE MAY ALSO BE MADE OF ALUMINUM, EXTRUDED TUBE ALUMINUM GRADES 6063 AND 6082 ONLY MUST BE USED. ROLLED AND WELDED TUBE FROM SHEET ALUMINUM GRADE 5083 ONLY MUST BE USED. THE WALL SECTIONS OF ALUMINUM TUBE MUST BE A MINIMUM 14 GAUGE. THERMAL CONTRACTION OF 4.5 MM/METER MUST BE CONSIDERED FOR ALUMINUM QUENCH TUBES. THE MOVEMENT OF THE BELLOWS MUST BE RESTRICTED TO PREVENT EXCESSIVE EXPANSION DUE TO PRESSURE. THE WEIGHT OF THE TUBE MUST BE SUPPORTED BY THE BUILDING AND BE FLEXIBLE ENOUGH TO ALLOW MOVEMENT FROM THERMAL CONTRACTION. THE WALL EXIT SHOULD

CONNECTING SECTIONS

16) THE DESIGN AND CONSTRUCTION OF THE QUENCH PIPE MUST BE DOCUMENTED WITH DRAWINGS AND CALCULATIONS THAT ARE KEPT WITH INSTALLATION DOCUMENTS. IT MUST COMPLY WITH THE REQUIREMENTS IN THIS DOCUMENT BEFORE BEING CONNECTED TO THE MAGNET.







HELIUM CONTENT			
MAXIMUM LIQUID FILL	1,356 LITERS		
TYPICAL BOIL OFF RATE	0.0 L/HR	FOR TYPICAL CLINICAL USE DEPENDING ON SEQUENCES	
TYPICAL REFILL INTERVAL NA		AND OPERATING TIME.	

SOLA REV 2

		PROJECT MANAGER: TIMOTHY CARMICH TEL: (603) 387-4211 VMAIL: EXT: FAX: EMAIL: timothy.carmichael@siemens-h			SIEMENS
		NORTHEAS 1315	HOSPITAL DR, SAIN	ERMONT T JOHNSBURY, VT DLA XJ GRADIENTS	
06/17/19	1902436 RA DATED 06/12/19 APPROVED BY CUSTOMERS FOR FINALS	THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.	PROJECT #: 1902	2436	SHEET:
DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.	SHEET OF 10 10	DRAWN BY: R. SUTHERS	

REF. #: PUFQGY

SCALE: AS NOTED

-ISSUE BLOCK-

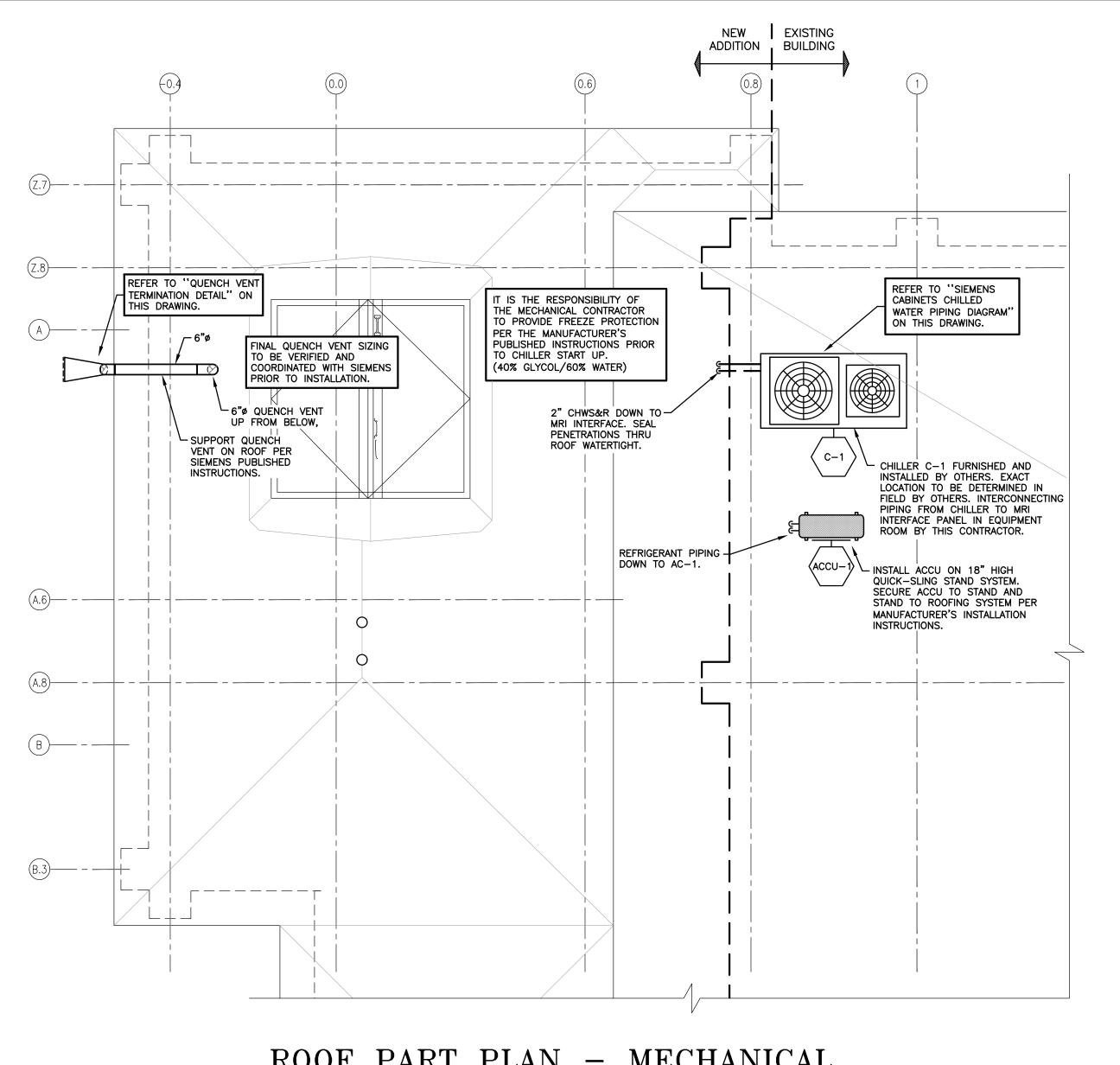
ATTENTION:

- 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.

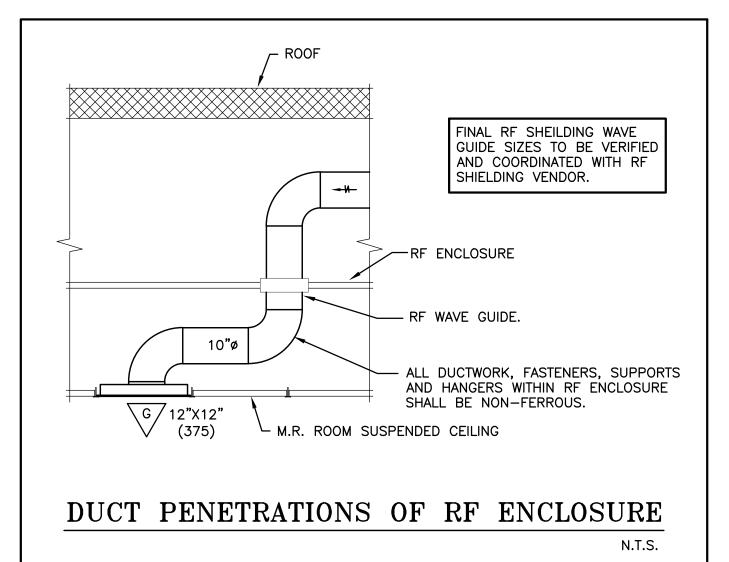
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

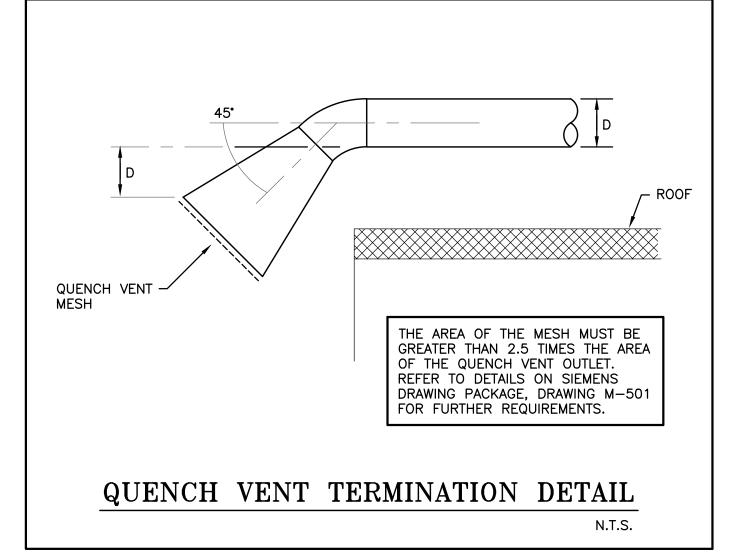
PHYSICIST TO SPECIFY RADIATION PROTECTION.

- 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

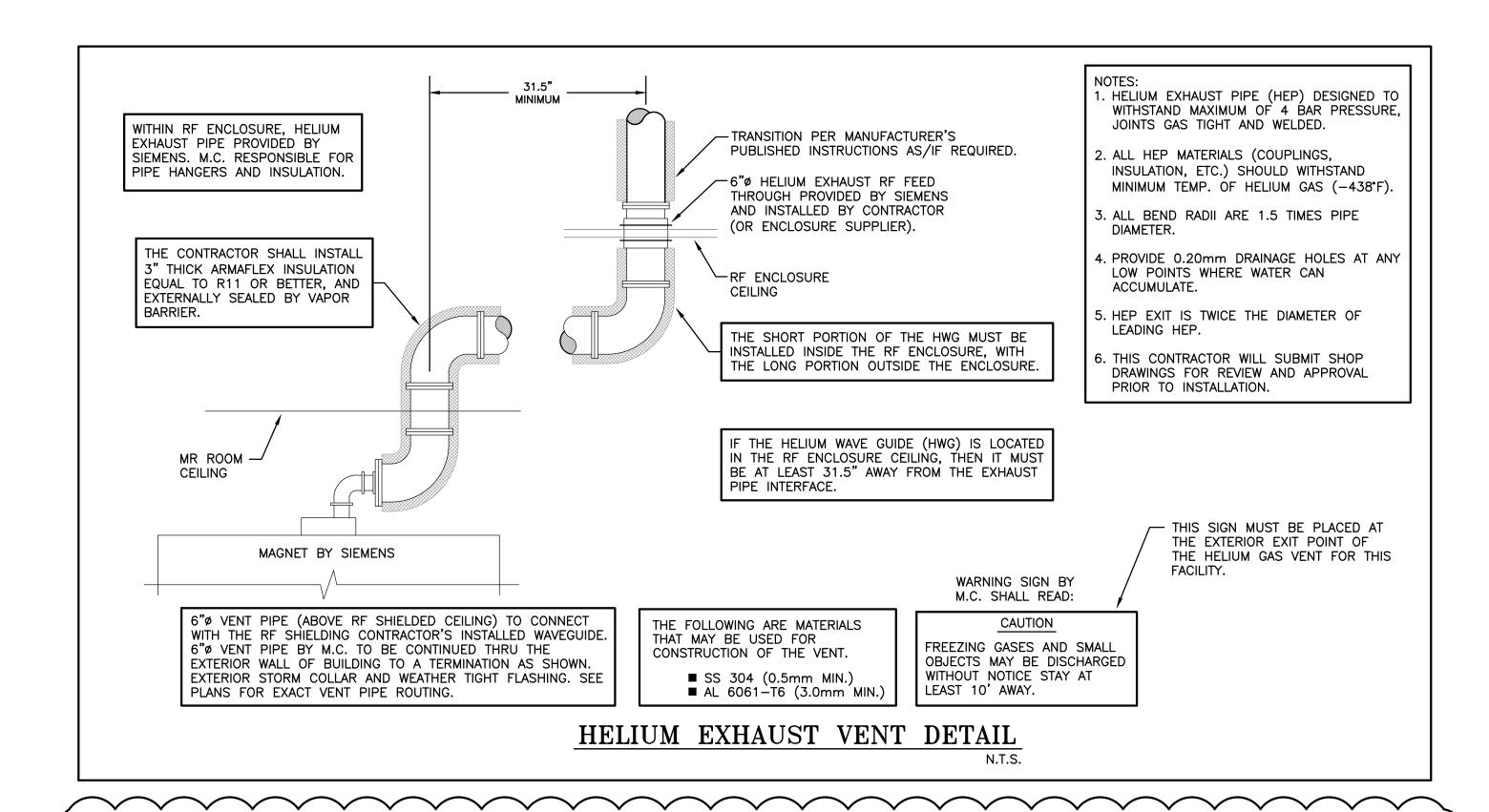


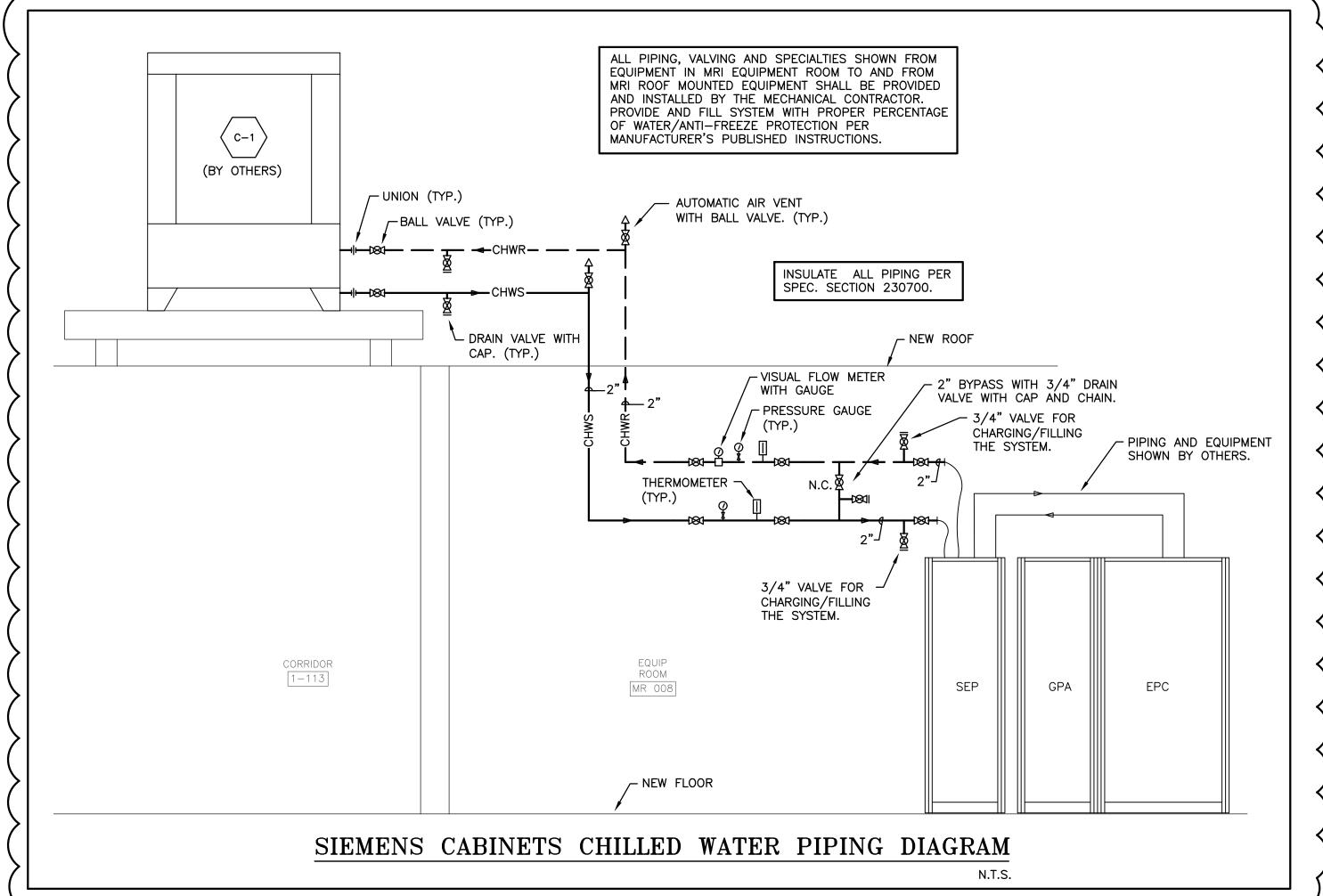
ROOF PART PLAN - MECHANICAL





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





YEATON ASSOCIATES, INC. Bedford, NH | Littleton, NH MEP/FP Engineers 603.444.6578 www.yeatonassociates.com KEY PLAN YA Project # 18V02ME

Fleck A Archite

ROOF P, MECH

Sheet 3 of 4

POWER KEYNOTES 'O'

- 1. REFER TO SIEMENS MRI SITE SPECIFIC EQUIPMENT DRAWINGS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
- 2. ROUTE 2#12,#12G.,3/4"C. TO AVAILABLE 20A/1P CIRCUIT BREAKER IN NEAREST NORMAL 120V PANEL AND MAKE FINAL TERMINATIONS. BRANCH CIRCUIT SHALL BE ROUTED VIA THE MRI SHEILD FILTER.
- 3. ROUTE 2#12,#12G.,3/4"C. TO AVAILABLE 20A/1P CIRCUIT BREAKER IN NEAREST NORMAL 120V PANEL AND MAKE FINAL TERMINATIONS.
- 4. ROUTE 2#12,#12G.,3/4"C. ADJACENT NORMAL RECEPTACLE BRANCH CIRCUIT SERVING EXISTING RECEPTACLES AND MAKE FINAL TERMINATIONS.
- 5. EXTEND EXISTING 2"C. SERVING EXISTING MRI TRAILER. ROUTE 4#4/0 IN EXISTING CONDUIT AND MAKE FINAL TERMINATIONS TO EXISTING 250A CIRCUIT BREAKER. MODIFY TRIP SETTING OF EXISTING CIRCUIT BREAKER TO 225A.
- 6. ROUTE 3#2,#8G.,1 1/2"C. TO MRI CHILLER ON ROOF AND MAKE FINAL TERMINATIONS.
- 7. RELOCATE EXISTING MRI TRAILER DISCONNECT TO NEW LOCATION ADJACENT TO NEW TRAILER LOCATION. ROUTE 4#1/0,2"C. TO EXISTING UTILITY TRANSFORMER SECONDARY AND MAKE FINAL TERMINATIONS. COORDINATE WITH UTILITY COMPANY. PROVIDE REQUIRED TRENCHING AND BACKFILL AS REQUIRED COORDINATE WITH SITE CONTRACTOR.
- 8. PROVIDE 25A/2P CIRCUIT BREAKER IN NEAREST 120/208V NORMAL PANEL WITH AVAILABLE SPACE AND CAPACITY. ROUTE 2#10,#10G.,1"C. AND MAKE FINAL TERMINATIONS.



YEATON ASSOCIATES, INC Bedford, NH | Littleton, NH

MEP/FP Engineers 603.444.6578 18V02ME

Fleck & Lewis Architects P.C.

Great Hollow Road Box 886 Hanover, New Hampshire (603) 643-4226

LEVEL 1 PLAN - POWER KEYNOTES REVISIONS

PROJECT: NORTHEASTERN VERMONT REGIONAL HOSPITAL NEW MRI ADDITION PROJECT

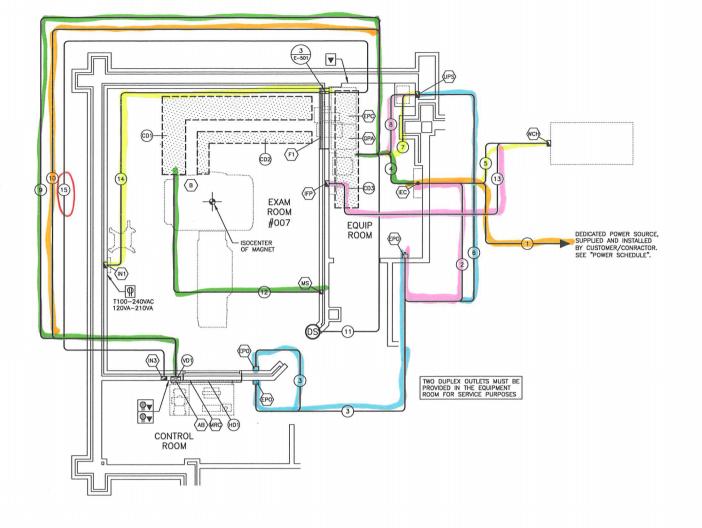
PR NO: 1598.00	DATE: 8 July, 2019	SKE-2
SCALE: 1/8" = 1'-0"	Revises Sheet E1.2	SNE-Z



		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION	REMARKS
		SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
(AB)	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX
(FP) (FP) (SEP)	18" x 18"	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
B	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS
₽		EMERGENCY POWER OFF BUTTONS, SUPPLIED BY SIEMENS, INSTALLED BY ELECTRICAL CONTRACTOR. MOUNTED WITH CENTERLINE AT 5'-0" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102
(F1)		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL
(F)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN EQUIPMENT ROOM, MOUNTED AT HEIGHT NEAR THE TOP RIGHT OF THE INTERFACE PANEL. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INTERFACE PANEL
Œ		INTEGRATED ELECTRICAL CABINET SUPPLIED BY SIEMENS, INSTALLED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
(N1)	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY— MUST BE LOCATED OUTSIDE OF 5mT FIELD
(N3)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOLE
(MRC)	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER
₩ S>	AS REQUIRED	NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MAGNET STOP
®	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	EATON 9130 UPS
	AS REQUIRED	PULL BOX MOUNTED ADJACENT TO WATER CHILLER PROVIDED WITH FLEX—TITE CONDUIT FROM PULL BOX TO KNOCK OUT PANEL ON CHILLER. COORDINATE WITH SIEMENS PROJECT MANAGER.	WATER CHILLER
	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
(02)	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
(D3)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/1
HDI	4" × 2"	6'-0" LONG HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS. BEGIN AT AND CONNECT TO VERTICAL DUCT "VD1".	
(VD1)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	
	AS PER NEC	CONDUIT FROM FACILITY POWER TO INTEGRATED ELECTRICAL CABINET "IEC"	SEE POWER SCHEDULE, SHEET E-102
2)	AS PER NEC	CONDUIT FROM "IEC" TO "EPO"	SEE DETAIL E-501/1
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102
4	(1) 2"ø	CONDUIT FROM "IEC" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET.	
5	AS REQUIRED	CONDUIT FROM "IEC" TO "WCH".	
6	(1) 3/4 " ø	CONDUIT FROM "EPO" TO "UPS".	
7	(1) 3/4"ø	SURFACE MOUNTED FLEX CONDUIT FROM "UPS" TO SIEMENS PROVIDED UPS/EPO CONTROL BOX,	MAXIMUM LENGTH 4 FEET
8	(1) 1"ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 29 FEET
9	(2) 2 1/2"ø	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	NOT TO EXCEED 54 FT.
(10)	(1) 1 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
	(1) 1/2"ø	CONDUIT FROM "DS" TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
12	(1) 3/4"ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 25 FT.
(13)	(1) 2"ø	CONDUIT FROM "WCH" TO "IFP".	NOT TO EXCEED 164 FEET
(14)	(1) 2"ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 40 FEET
(15)	(1) 2"ø	CONDUIT FROM "IN1" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET



		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION	REMARKS
		SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
AB	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX
€PÇ (PA) (SEP	18" x 18"	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
B B	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS
₽		EMERGENCY POWER OFF BUTTONS, SUPPLIED BY SIEMENS, INSTALLED BY ELECTRICAL CONTRACTOR. MOUNTED WITH CENTERLINE AT 5'-0" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102
F1		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL
Œ		INTEGRATED ELECTRICAL CABINET SUPPLIED BY SIEMENS, INSTALLED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
(N1)	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY— MUST BE LOCATED OUTSIDE OF 5mT FIELD
(N3)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOLE
(IRC)	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER
(MS)	AS REQUIRED	NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MAGNET STOP
(P)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	LIEBERT 9XT4 UPS
	AS REQUIRED	PULL BOX MOUNTED ADJACENT TO WATER CHILLER PROVIDED WITH FLEX—TITE CONDUIT FROM PULL BOX TO KNOCK OUT PANEL ON CHILLER. COORDINATE WITH SIEMENS PROJECT MANAGER.	WATER CHILLER
(C)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN LOCATION COORDINATED WITH SIEMENS PROJECT MANAGER, WIRES ENTER CONTROL PANEL FROM THE BOTTOM.	CHILLER REMOTE CONTROL/ STATUS PANEL
(01)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
	12"×4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
(33)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/1
(HD1)	4" x 2"	HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS.	
(VD1)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	
1	AS PER NEC	CONDUIT FROM FACILITY POWER TO INTEGRATED ELECTRICAL CABINET "IEC"	SEE POWER SCHEDULE, SHEET E-102
2	AS PER NEC	CONDUIT FROM "IEC" TO "EPO"	SEE DETAIL E-501/1
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102
4	(1) 2"ø	CONDUIT FROM "IEC" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET.	
5	AS REQUIRED	CONDUIT FROM "IEC" TO "WCH".	
6	(1) 3/4 " ø	CONDUIT FROM "EPO" TO "UPS".	
7	(1) 2"ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 25 FEET
8	(2) 2 1/2"ø	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	NOT TO EXCEED 54 FT.
9	(1) 1 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
10	(1) 1/2"ø	CONDUIT FROM "DS" TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
11)	(1) 3/4"ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 25 FT.
(12)	(1) 1"ø	CONDUIT FROM "WCH" TO "WCS".	NOT TO EXCEED 164 FEET
(13)	(1) 2 " ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 40 FEET
(14)	(1) 2"ø	CONDUIT FROM NEAR "F1" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET



ELECTRICAL RACEWAY PLAN

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

	SYMBOLS
	ALL MAY NOT APPLY
A	CAUTION OR WARNING
(I)	CRITICAL NOTE(S)
222	PANEL OR ENCLOSURE BY CUSTOMER/CONTRACTOR
	OPENING IN RACEWAY OR TRENCHDUCT
	PULLBOX IN (FLOOR/WALL/CEILING)
	OPENING IN ACCESS FLOORING
<u>®</u>	RF DOOR SWITCH - MCMASTER-CARR SUPPLY ROLLER LIMIT SWITCH 7076k14 PROVIDED BY CONTRACTOR, AND MOUNTED AT TOP OF DOOR. COORDINATE WITH SIEMENS PROJECT MANAGER.
Ю	(EPO) EMERGENCY POWER OFF BUTTON
	CEILING DUCT
CHIMICAL	SURFACE MOUNTED DUCT
\boxtimes	VERTICAL DUCT
•	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK IN AN ACCESSIBLE LOCATION (VERIFY WITH SIEMENS PROJECT MANAGER).
0	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET LOCATED NEAR THE ETHERNET CONNECTION. REV 2

	INTEGRATED ELECTRICAL CABINET (IEC) INSTALLATION		F" HOLES	¬ 1		2'-6"	
	1) THE ENCLOSURE MUST BE MOUNTED AT A HEIGHT SO THE TOP OF THE MAIN CIRCUIT BREAKER HANDLE, WHEN IN THE ON POSITION DOES NOT EXCEED 6'-7" ABOVE THE FLOOR (PER NEC ∯404.8).				2	-4 1/2"	_
	 INCOMING POWER IS CONNECTED TO THE MAIN CIRCUIT BREAKER LOCATED AT THE UPPER RIGHT OF THE MAIN DISCONNECT PANEL. 	Ì					
1	3) THERE ARE NO CONDUIT KNOCKOUTS PROVIDED IN THE IEC. THE ELECTRICAL CONTRACTOR MUST PUNCH THE CONDUIT HOLES IN THE ENCLOSURE WALLS IN THE DESIRED LOCATIONS. THE CONDUITS MAY ENTER ON THE TOP, BOTTOM, OR EITHER SIDE. NOTE: WHEN DRILLING OR PUNCHING THE CONDUIT ENTRY HOLES, PROTECT THE INTERNAL COMPONENTS FROM THE FALLING METAL CHIPS.			turi			
	4) THE MR IS LOCATED ON THE LOAD SIDE OF CONTACTOR K2, TERMINALS 271,412 AND 613. THE CHILLER IS LOCATED ON THE LOAD SIDE OF BREAKER 0.3, TERMINALS 211 AND 412 AND 613. SET THE ELECTRONIC TIRP UNITS ON THE MAIN, CHILLER AND MC CIRCULT BREAKERS ACCORDING TO THE POWER REQUIREMENTS.	3,-0.	2'-10 1/2"		0 0		
	5) RF CABINET LIGHTS ARE CONNECTED TO SPRING TERMINALS X01, IN THE LOWER LEFT CORNER OF THE PANEL.				i		li
	6) CONNECT THE EMERGENCY POWER OFF (EPO) CIRCUITS TO TERMINALS XO2. CONNECT THE IEC EPO TO TERMINALS 1 AND 2 OF XO2, AND CONNECT THE UPS EPO TO TERMINALS 4 AND 5 OF XO2.						
	7) CONNECT THE UPS CIRCUIT TO TERMINALS 1 AND 2 OF X03. THESE TERMINALS ARE JUMPERED TO TERMINALS 4 AND 5 OF X02.	*					
	DO NOT CONNECT THE UPS CIRCUIT TO TERMINALS 1 AND 2 OF XO2, THIS WILL DAMAGE THE SAFETY RELAY AND CAUSE THE PANEL TO NOT FUNCTION.			BE MOU	UND INTEGRATED NTED ON FINISHE NATED WITH SIEM	ED WALL IN LO	CATION
1	INTEGRATED ELECTRICAL	. С	ABIN	IET			SCALE: 1"=1'-0"

SYM	SIZE	DESCRIPTION **	REMARKS
/®	3"ø	SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR OPENING IN FACE OF VERTICAL DUCT 5'-O" ABOVE FINISHED FLOOR IN LOCATION TO BE	ALARM BOX
	3 9	COORDINATED WITH THE ARCHITECT.	
®® 18" x 18"		LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
<u>B</u>	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS
₽		EMERGENCY POWER OFF BUTTONS, SUPPLIED BY SIEMENS, INSTALLED BY ELECTRICAL CONTRACTOR. MOUNTED WITH CENTERLINE AT 5'-O' ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102
(F)		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL
(P)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN EQUIPMENT ROOM, MOUNTED AT HEIGHT NEAR THE TOP RIGHT OF THE INTERFACE PANEL. PROVIDE NEATLY FINISHED AND REMOYABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INTERFACE PANEL
Œ		INTEGRATED ELECTRICAL CABINET SUPPLIED BY SIEMENS, INSTALLED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
(M)	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY— MUST BE LOCATED OUTSIDE OF 5mT FIELD
(II)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOLE
€	4" x 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER
₽	AS REQUIRED	NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MAGNET STOP
Ø	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2*6 OPENING IN FINISHED COVER.	EATON 9130 UPS
©	AS REQUIRED	PULL BOX MOUNTED ADJACENT TO WATER CHILLER PROVIDED WITH FLEX-TITE CONDUIT FROM PULL BOX TO KNOCK OUT PANEL ON CHILLER. COORDINATE WITH SIEMENS PROJECT MANAGER.	WATER CHILLER
(a)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12° CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED, DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
@	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12° SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
@ 24"x4"		ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANGER IN EQUIPMENT ROOM MAINTAINING 12° CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18° MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/1
(10)	4" × 2"	$6'\!-\!0"$ long horizontal duct surface mounted on wall in control area at floor line as shown, finished to match walls. Begin at and connect to vertical duct "VD1".	
(0)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	
0	AS PER NEC	CONDUIT FROM FACILITY POWER TO INTEGRATED ELECTRICAL CABINET "IEC"	SEE POWER SCHEDULE, SHEET E-102
2	AS PER NEC	CONDUIT FROM "IEC" TO "EPO"	SEE DETAIL E-501/1
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102
4	(1) 2"ø	CONDUIT FROM "IEC" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CAMBO	
(5)	AS REQUIRED	CONDUIT FROM "IEC" TO "WCH".	
6	(1) 3/4°ø	CONDUIT FROM "EPO" TO "UPS".	
0	(1) 3/4°ø	SURFACE MOUNTED FLEX CONDUIT FROM "UPS" TO SIEMENS PROVIDED UPS/EPO CONTROL BOX,	MAXIMUM LENGTH 4 FEET
8	(1) 1"ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 29 FEET
9	(2) 2 1/2"\$	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	NOT TO EXCEED 54 FT.
10	(1) 1 1/2"#	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
11)	(1) 1/2*ø	CONDUIT FROM "DS" TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
12	(1) 3/4"ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 25 FT.
(13)	(1) 2"ø	CONDUIT FROM "WCH" TO "IFP".	NOT TO EXCEED 164 FEET
(1)	(1) 2"ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 40 FEET
(15)	(1) 2"ø	CONDUIT FROM "IN1" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET

CONTRACTOR SUPPLIED CABLES					
FROM	VIA	то	DESCRIPTION	REMARKS	
SOURCE	1	IEC	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.		
IEC	2	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.		
EPO	3	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.		
IEC	4,CD3	EPC	(3) 2/0 AND (1) 2/0 EQUIPMENT GROUND. TO REDUCE EMI (INTERFERENCE) THE POWER CABLES MUST BE SHIELDED. THIS CAN BE ACHIEVED BY USING EMT, WHICH IS CONSIDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR SHIELDED CONDUCTORS MUST BE USED.	LANDED BY ELECTRICAL CONTRACTOR	
IEC	5	WCH	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.		
EP0	6	UPS	DETERMINED BY ELECTRICAL CONTRACTOR.	6 FOOT TAILS	

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM 08/20/18 DATE DESCRIPTION -ISSUE BLOCK-

DJECT MANAGER: TIMOTHY CARMICHAEL : (603) 387-4211

SIEM

SHEET

NORTHEASTERN VERMONT REGIONAL HOS

1315 HOSPITAL DRIVE, SAINT JOHNSBURY, VT 05819 MRI ROOM #007 — MAGNETOM AERA XJ GRADIENTS

1) COMPLANCE: ELECTRICAL WORK SHALL BE IN COMPLANCE WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA-70). O.S. REGISE TO THE NATIONAL ELECTRICAL CODE (NFPA-70). O.S. REGISE AND FOR THE NATIONAL ELECTRICAL CODE (NFPA-70). O.S. REGISE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT COMPLY TO ANSI, IEEE AND PLANDARDS. WHERE APPLICATIBLE PROVIDE ONLY MATERIALS AND PRODUCTS THAT ARE UL LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK SHALL COMPLY WITHE LATEST EDITION OF NATIONAL ELECTRICAL CODE.
2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FITHE EXISTING STRUCTURE AS SHOWN, IN ON THE DRAWINGS, SHOULD ACCOUNTIONS EXIST OR BE DISCOVERED THAT PREVENT THE OWNER'S CONDITIONS ON THE PROPRIED STRUCTURE CONTRACTOR SHALL NOTIFY THE OWNER'S PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALT DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEVING WRITTEN CONFINATION FROM SIEMENS PROJECT MANAGER. ALL DIMENSIONS, ARE FROM FINISHED SUPFACES CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMERS/CONTRACTOR WITH LOCATIONS BEING FIELD VERFIELD BY

DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTRATION AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER, ALL DIMENSIONS ARE FROM FINISHED SURFACES CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMET/CONTRACTOR WAY LOCATIONS BEING FILED VERFIELD BY SIMPLY SOURCE. POWER SUPPLIES FOR SIEMENS HEALTHCARE EQUIPMENT SHALL BE DEDICATED CIRCUIT.

4) WORK EVENISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROBE SIEMENS HEALTHCARE EQUIPMENT SHALL BE DEDICATED CIRCUIT.

5) SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHAD BY CUSTOMER/CONTRACTOR: WORK NOT PROBE SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHAD BY CUSTOMER/CONTRACTOR: WORK NOT PROBE SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHAD INSTALLED BY CUSTOMER/CONTRACTOR: WORK NOT PROBE SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHAD INSTALLED BY CUSTOMER/CONTRACTOR: WORK NOT PROBE SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHAD IN STALLED BY CUSTOMER/CONTRACTOR: SUCKES, CONDUITS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WALCHIS, WIRNO, BOYLORS, CONDUITS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WALCHIS, WAS AND DUCTS, WAIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WALCHIS, W

TRANSTION IN WIRE DUCT/RACEWAY. THERE MUST BE FREE AND CLE ACCESS TO JUNCTION BOSES AND WIRE DUCT/RACEWAY. WHEN ACCES PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE LECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICANS TO HELP SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED OF A CUSTOMER PERFENSE.

6) MIRING: WIRING SHALL BE 600 VOLT CLASS, STRANDED TYPE THINN-THAN, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIM OPERATING TEMPERATURE OF 75 C (165 °F). SIZED AS INDICATED. CUSTOMER/FOONTRACTOR SHALL LEAVE MINIMUM 10 FT. WIRE TALLS FOR THAL CONNECTION BY THE CUSTOMER/FOONTRACTOR SHALL BOXES MINIMUM 10 FT. WIRE TALLS FOR THAL CONNECTION BY THE CUSTOMER/FOONTRACTOR SHALL BOXES MINIMUM 10 FT. WIRE TALLS TO THE CONNECTION BY THE CUSTOMER/FOONTRACTOR SHALL BOXES MINIMUM 10 FT. WIRE TALLS TO THE CONNECTION BY THE CUSTOMER/FEEDRICAL CONTRACTOR TALLS AND THE PROVIDED SHALL BE SHATE FOR 92 NO. PUS. SHOW.

ALL CIRCUIT BREAKERS SHALL BE RATED FOR 25 KV RMS SHO CIRCUIT RATING.

PROJECT #:

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.

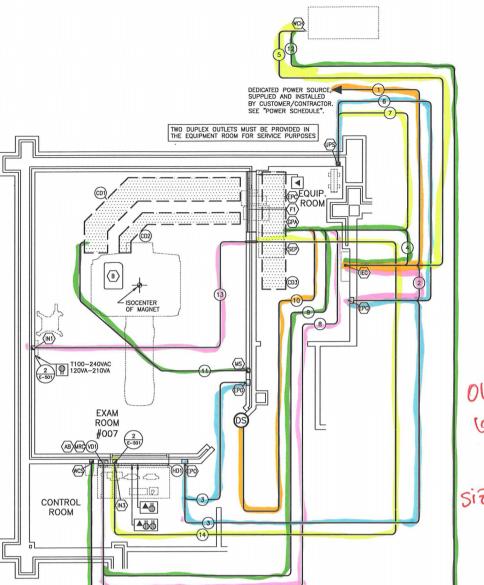
-THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

-IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

-ALL DIVENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.

-THIS DRAWING DOES NOT PROVIDE RADIATION SHELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER'S RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW. 1802727 6 OF 10 ALL RIGHTS ARE RESERVED. J. RAPER REF. #30198701 AS NOTED 08/20/18



SYMBOLS						
ALL MAY NOT APPLY						
\triangle	CAUTION OR WARNING					
(i)	CRITICAL NOTE(S) PANEL OR ENCLOSURE BY CUSTOMER/CONTRACTOR OPENING IN RACEWAY OR TRENCHDUCT					
222						
	PULLBOX IN (FLOOR/WALL/CEILING)					
	OPENING IN ACCESS FLOORING					
6 9	RF DOOR SWITCH — MCMASTER—CARR SUPPLY ROLLER LIMIT SWITCH 7076k14 PROVIDED BY CONTRACTOR, AND MOUNTED AT TOP OF DOOR. COORDINATE WITH SIEMENS PROJECT MANAGER.					
Ю	(EPO) EMERGENCY POWER OFF BUTTON					
	CEILING DUCT					
anningani.	SURFACE MOUNTED DUCT VERTICAL DUCT					
\bowtie						
•	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK IN AN ACCESSIBLE LOCATION (VERIFY WITH SIEMENS PROJECT MANAGER).					
=	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET LOCATED NEAR THE ETHERNET CONNECTION.					

not on old set

Old drawings call out

size increase (1) 3/4"\$

SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR OPENING IN FACE OF VERTICAL DUCT $5^\prime\!-\!0^\circ$ above finished floor in location to be coordinated with the architect. **₽** 18" x 18" LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY. MAGNET CABLE ACCESS EMERGENCY POWER OFF BUTTONS, SUPPLIED BY SIEMENS, INSTALLED BY ELECTRICAL CONTRACTOR. MOUNTED WITH CENTERLINE AT 5'-0" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD. SEE POWER SCHEDULE, SHEET E-102 SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL INTEGRATED ELECTRICAL CABINET SUPPLIED BY SIEMENS, INSTALLED BY CUSTOMER/CONTRACTOR. SEE POWER SCHEDULE NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-O' ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT. PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROMDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT. 4" v 4" OPENING IN FACE OF RACEWAY IN SHOWN LOCATION. HOST COMPUTER NON-FERROUS SINGLE CANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT. AS REQUIRED MAGNET STOP PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"# OPENING IN FINISHED COVER. **✓ ®** PULL BOX MOUNTED ADJACENT TO WATER CHILLER PROVIDED WITH FLEX-TITE CONDUIT FROM PULL BOX TO KNOCK OUT PANEL ON CHILLER. COORDINATE WITH SIEMENS PROJECT MANAGER 6 PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN LOCATION COORDINATED WITH SIEMENS PROJECT MANAGER, WIRES ENTER CONTROL PANEL FROM THE BOTTOM. CHILLER REMOTE CONTROL/ STATUS PANEL ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1), WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CAR SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET. **(**@) ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN C01 AND C02 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET. CABLE TRAY SEE DETAIL E-501/1 ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM CABLE TRAY
SEE DETAIL E-501/1 AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL. **(10)** HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN FINISHED TO MATCH WALLS. 4" x 2" VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS. CONDUIT FROM FACILITY POWER TO INTEGRATED ELECTRICAL CABINET "IEC" SEE DETAIL E-501/1 AS PER NEC CONDUIT FROM "IEC" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET. AS REQUIRED CONDUIT FROM "IEC" TO "WCH". (1) 3/4"ø CONDUIT FROM "EPO" TO "UPS". (1) 2°ø CONDUIT FROM "UPS" TO "CD3" (EPC) MAXIMUM LENGTH 25 FEET NOT TO EXCEED 54 FT. (2) 2 1/2°ø CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC). (1) 1 1/2°ø CONDUIT FROM "VD1" (AB) TO "CD3" (EPC). NOT TO EXCEED 60 FT. (1) 1/2°ø CONDUIT FROM "DS" TO "CD3" (EPC). (1) 3/4°ø CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RE NOT TO EXCEED 164 FEET (1) 1"ø CONDUIT FROM "WCH" TO "WCS". (1) 2°ø NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES. NOT TO EXCEED 40 FEET

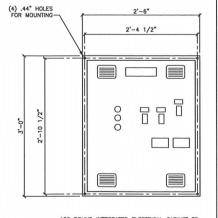
ELECTRICAL LEGEND

ELECTRICAL RACEWAY PLAN

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

INTEGRATED ELECTRICAL CABINET (IEC) INSTALLATION

- 1) THE ENCLOSURE MUST BE MOUNTED AT A HEIGHT SO THE TOP OF THE MAIN CIRCUIT BREAKER HANDLE, WHEN IN THE ON POSITION DOES NOT EXCEED $6^{\circ}-7^{\circ}$ ABOVE THE FLOOR (PER NEC #404.8).
- 2) INCOMING POWER IS CONNECTED TO THE MAIN CIRCUIT BREAKER LOCATED AT THE UPPER RIGHT OF THE MAIN DISCONNECT PANEL.
- 3) THERE ARE NO CONDUIT KNOCKOUTS PROVIDED IN THE IEC. THE ELECTRICAL CONTRACTOR MUST PUNCH THE CONDUIT HOLES IN THE ENCLOSURE WALLS IN THE DESIRED LOCATIONS. THE CONDUITS MAY ENTER ON THE TOP, BOTTOM, OR ETHER SIDE. NOTE: WHEN DRILLING OR PUNCHING THE CONDUIT ENTRY HOLES, PROTECT THE INTERNAL COMPONENTS FROM THE FALLING METAL CHIPS.
- 4) THE MR IS LOCATED ON THE LOAD SIDE OF CONTACTOR K2, TERMINALS 271,472 AND 6T3. THE CHILLER IS LOCATED ON THE LOAD SIDE OF BREAKER Q3, TERMINALS 271 AND 472 AND 6T3. SET THE ELECTRONIC TRIP UNITS ON THE MAIN, CHILLER AND MC RICCULTI BREAKERS ACCORDING TO THE POWER REQUIREMENTS.



150 POUND INTEGRATED ELECTRICAL CABINET TO BE MOUNTED ON FINISHED WALL IN LOCATION COORDINATED WITH SIEMENS PROJECT MANAGER.

INTEGRATED ELECTRICAL CABINET

SCALE: 1"=1'-0"

CONTRACTOR SUPPLIED CABLES					
FROM	VIA	то	DESCRIPTION	REMARKS	
SOURCE	1	IEC	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.		
IEC	2	EP0	DETERMINED BY ELECTRICAL CONTRACTOR.		
EP0	3	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.		
IEC	4,CD3	EPC	(3) 2/O AND (1) 2/O EQUIPMENT GROUND, TO REDUCE EMI (INTERFERENCE) THE POWER CABLES MUST BE SHELDED. THIS CAN BE ACHEVED BY USING EMT, WHICH IS CONSIDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR SHIELDED CONDUCTORS MUST BE USED.		
IEC	5	WCH	(3) PHASE CONDUCTORS, (1) FULL-SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.		
EP0	6	UPS	DETERMINED BY ELECTRICAL CONTRACTOR.	6 FOOT TAILS	
WCH	12	wcs	THERMOSTAT WIRE SUPPLIED AND INSTALLED BY CONTRACTOR. MEDIX X OR DIMPLEX		

DATE

CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

NORTHEASTERN VERMONT REG H

1315 HOSPITAL DR, SAINT JOHNSBURY, VT 05819 MRI SUITE 1 — SOLA XJ GRADIENTS

06/17/19

PROJECT #: 1902436

WN BY: R. SUTHERS

ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA-70), D. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUSTATE AND FEDERAL AGENCIES. PROVIDE MERIALS AND EQUIPMENT COMPLY TO ANSI, IEEE AND NEMA STANDARDS. WHERE APPLICABLE PROVIDE ONLY MATERIALS AND PRODUCTS THAT ARE UL LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK SHALL COMPLY WITHE LATEST EDITION OF NATIONAL ELECTRICAL CODE.

LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK SHALL COMPLY WIT THE LATEST EDITION OF NATIONAL ELECTRICAL CODE.

2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD A COMMITIONS SHIST OR BE DISCOVERED THAT PREVENT THE INSTILLA OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER! PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. ON NOT ALT DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTRACTION, AND RECEIVING WRITHEN 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 VERTIFIED BY SIEMENS PROJECT MANAGER, ALL DIMENSIONS ARE FROM FINISHED SURFACES CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERTIFIED BY SIEMENS PROJECT MANAGER, POWER SUPPLIES FOR SIEMENS PROJECT MANAGER POWER SUPPLIES FOR SIEMENS PHALLED BY SIEMENS PROJECT MANAGER BUT SHOWN ON DRAWINGS TO BE FURNISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROBY SIEMENS HALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED IN CONTRACTORS. WORK NOT PROBY SIEMENS HALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED IN CONTRACTORS. WIGHTH OF THE SHAPE SHEAT SHOWN ON DRAWINGS TO BE FURNISHED TO UNCESS NOTED OTHERWISE. ELECTROLUM BUT SHOWN ON DRAWINGS TO BE SUFFICES, WILLIED SHOWN ON DRAWINGS. TO BE SUFFICES, WILLIED SHOWN ON SWITCHES, WILLISHS, WIRKING WIRKING TROUGHES, PULL BOXES, CONDUTS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WILLIGHTS, WIRKING WIRKING TROUGHES, FULL BOXES, CONDUTS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WILLIGHTS, WIRKING WIRKING TROUGHES, WILLIGHTS, WIRKING TROUGHES, WILLISH, WIRKING TROUGHES, WILLISHS, WILLISHS, WIRKING TROUGHES, WILLISHS, WILLISHS, WIRKING TROUGHES, WILLISHS, WIRKING TR

LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT GROUNDING.

5) RACEWAY AND CONDUIT NOTES: ALL ITEMS IN THE MAGNET ROC SHALL BE NON-FERROUS. ALL CONDUITS SHALL BE INSTALLED PER LATEST NATIONAL ELECTRICAL CODE

LATEST NATIONAL ELECTRICAL CODE

LATEST NATIONAL ELECTRICAL CODE

LATEST NATIONAL ELECTRICAL CODE

LATEST NATIONAL ROCKERS

LATEST NATIONAL ROCKERS

CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABR

KEP RACCWAYS AT LEAST 6 INDERS AWAY FROM PAPALLEL RO

OF FLUES OR STEMA AND HOT WATER PIPES, INSTALL RACEWAY RU

ABOVE WATER AND STEMA PIPES PROVIDED THAT CABLE RUN DISTA

ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN

MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY, INSTALL CONDUIT

A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE

CONSIDERING THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EX

AS OTHERWISE INDICATED. THE CONTRACTOR SHALL MAKE CERTIAN IN

ANY CONDUIT/RACEWAY RUNS CONTAINING SIEWENS HEALTHCARE CA

DO NOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN OF

ELECTRICAL DETAILS.

ANT CONDUIT/FACEWAY RUNS CONTAINING SIEMERS HEALTICARE ON ON ONOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON ELECTED PROVIDE FILAGED METAL SYSTEM (WIRE DUCT) WIRE DUCT PROVIDE FILAGED METAL SYSTEM (WIRE DUCT) WIRE DUCT PROVIDE FILAGES SHOWN ON DARWINGS WITH DIMDERS TO SEPARATE THE DUCT (FOR POWER AND SIEMENS HEALTHCARE CABLD MODERS AND CROSSOVER PICES TO BE PROVIDED AS NCCESSARY, U. SYSTEMS, THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO C SEPARATION REQUIREMENT WAS EVALUATED DURING THE U.S SYSTEM CABLE ASSEMBLES INTO SEPARATION SEPARATION OF THE SYSTEM CABLE ASSEMBLES INTO SEPARATE OR PARTITIONED RACKWOOD OF THE STATEMENT OF THE STATEMENT OF THE SYSTEM CABLE ASSEMBLES INTO SEPARATE OR PARTITIONED RACKWOOD OF THE STATEMENT OF THE STATEMENT OF THE SYSTEM CAGINES OF THE SYSTEM

OPERATING TEMPERATURE OF 75° C (165° F). SIZED AS INDICATED.

FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR
7) ALL CIRCUIT BREAKERS SHALL BE RATED FOR 25 KV RMS SHO
CIRCUIT RATING.

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.

THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW. ↑ 06/17/19 1902436 RA DATED 06/12/ APPROVED BY CUSTOMERS FOR FINA ALL RIGHTS ARE RESERVED. DESCRIPTION SCALE: REF. #: PUFQGY -ISSUE BLOCK-

SHEET OF 10

SIEM

SYMBOL	MAGNETOM SIZE	SOLA SIZE	DESCRIPTION	CHANGE	
AB	3"	3"			
EPC; GPA; SEP	18X18	18X18			
В	AS REQ.	AS REQ.			
EPO	•				
F1					
IFP		N/A			
IEC					
IN1					
IN3					
MRC					
MS					
PS					
WCH					
			PULL BOX MOUNTED FLUSH		
WCS	N/A	ADDED	W/FINISHED WALL		
CD1					
CD2					
CD3					
HD1					
VD1					
1					
2					
3					
4	(1) 2"	(1) 2"			
5	AS REQ.	AS REQ.			
6	(1) 3/4"	(1) 3/4"			
7	(1) 3/4"	(1) 2"		conduit size increase, run change	
8	(1) 1"	(2) 2 1/2"		conduit size & quantity increase, run change	
9	(2) 2 1/2"	(1) 1 1/2"		conduit size & quantity decrease,	
10	(1) 1 1/2"	(1) 1/2"		conduit size decrease, ,run change	
11	(1) 1/2"	(1) 3/4"		conduit size increase, run change	
12	(1) 3/4"	(1) 1"		conduit size increase, run change	
13	(1) 2"	(1) 2"		run change	
14	(1) 2"	(1) 2"		run change	
15	(1) 2"			deleted	