

	Room	Lead in Partitions (mm)	Lead in Doors & Control Windows (mm)	Lead on Floor Slabs (mm)	Lead on Ceiling Slabs (mm)	Height of Lead in Partitions
1	Radiographic Fluoroscopic Room (Ceiling Mounted X-Ray) Special Procedures Diagnostic and Tele-Fluoroscopy (Ceiling Mounted X-Ray)	1.5mm (3mm for on Partition on Dark Room Side)	1.5 mm (3 mm for Door to Dark Room)	None on 100 mm (min.) Normal Weight Concrete	None	2100 mm (7")
2	Deep Therapy Room: Conventional Cobalt Betatrons Linear Accelerators	Shielding as Determined by a Licensed Physicist				
3	Cystoscopic Room	1.5mm (3mm for on Partition on Dark Room Side)	1.5 mm (3 mm for Door to Dark Room)	None on 100 mm (min.) Normal Weight Concrete	None	2100 mm (7")
4	Animal X-Ray, Animal Research, Radiography and Fluoroscopy	1.5mm (3mm for on Partition on Dark Room Side)	1.5mm (3mm for on Partition on Dark Room Side)	1.5 mm (3 mm for Door to Dark Room)	None on 100 mm (min.) Normal Weight Concrete	None
5	Dental X-Ray Area Oral Surgery Room General Treatment Operatories	1 mm	1 mm	None	None	2100 mm (7")
6	Dental X-Ray Room (Portable 50/65 KVP)	None	None	None	None	None
7	Fluoroscopic Rooms, Vertical or Tilt Type, Gastroenterology (No Radiography)	1.5 mm (No Control Booth Required)	1.5 mm	None on 100 mm (min.) Normal Weight Concrete	None	2100 mm (7")
8	Operating Room Including Animal Operating (Portable X-Ray), Cardiac and Neurosurgical Operating Room (Portable X-Ray)	None (Except 3 mm on Dark Room Side)	None (Except 3 mm on Dark Room Side)	None	None	None
9	Cardiac Catheterization in cardiopulmonary Clinic (Fixed Equipment) Operating Room (Fixed Equipment)	1.5mm (3mm for on Partition on Dark Room Side)	1.5 mm (3 mm for Door to Dark Room)	None on 100 mm (min.) Normal Weight Concrete	None	2100 mm (7")
10	Ultrasound & Thermography	None	None	None	None	None

GENERAL NOTES:

1. ALL RADIOLOGY FACILITY PROJECTS WILL BE REVIEWED BY THE VA HEALTH PHYSICS PROGRAM OFFICE FOR APPROPRIATE APPLICATION OF PROTECTIVE STANDARDS.
- 2.* LEAD SHIELDING REQUIREMENTS IN PARTITIONS ADJACENT TO, FACING, OR PROXIMITY TO PHOTOGRAPHIC LABS SHOULD BE REVIEWED BY A REGISTERED PHYSICIST.

DETAIL TITLE / LEAD LINING IN X-RAY ROOMS

SCALE : NONE

DATE ISSUED :DECEMBER 2008

CADD DETAIL NO. : SD134900-01.DWG

Department of
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MILLI-METERS	DECIMALS OF AN INCH	FRACTIONS OF AN INCH	LBS. PER SQ. FT	LEAD GLASS EQUIVALENT
0.396	0.0156	1/64"	1	1 PLY APPROX. 1/4"
0.792	0.0312	1/32"	2	1 PLY APPROX. 1/4"
1.000	0.0391	5/128"	2 1/2	1 PLY APPROX. 1/4"
1.191	0.0469	3/64"	3	1 PLY APPROX. 1/4"
1.587	0.0625	1/16"	4	1 PLY APPROX. 1/4"
1.984	0.0781	5/64"	5	1 PLY APPROX. 1/4"
2.380	0.0937	3/32"	6	1 PLY APPROX. 1/4"
3.175	0.1250	1/8"	8	2 PLY APPROX. 1/2"
3.967	0.1562	5/32"	10	2 PLY APPROX. 1/2"
4.763	0.1875	3/16	12	3 PLY APPROX. 3/4"
5.555	0.2187	7/32"	14	3 PLY APPROX. 3/4"
6.350	0.2500	1/4"	16	4 PLY APPROX. 1"
7.142	0.2812	9/32"	18	4 PLY APPROX. 1"
8.465	0.3333	1/3"	20	5 PLY APPROX. 1 1/4"
9.525	0.3750	* 3/8"	22 1/2	6 PLY APPROX. 1 1/2"
10.160	0.4000	2/5"	24	6 PLY APPROX. 1 1/2"
10.317	0.4062	13/32"	25	6 PLY APPROX. 1 1/2"
11.112	0.4375	* 7/16"	28	7 PLY APPROX. 1 3/4"
12.700	0.5000	1/2"	30	7 PLY APPROX. 1 3/4"
14.267	0.5625	* 9/16"	34	8 PLY APPROX. 2"
15.876	0.6250	5/8"	38	9 PLY APPROX. 2 1/4"
16.934	0.6667	2/3"	40	9 PLY APPROX. 2 1/4"
19.050	0.7500	3/4"	44	10 PLY APPROX. 2 1/2"
20.637	0.8125	* 13/16"	48	11 PLY APPROX. 2 3/4"
22.225	0.8750	7/8"	52	12 PLY APPROX. 3"
25.400	1.000	1"	60	14 PLY APPROX. 3 1/4"

GENERAL NOTES:

1. SHEET LEAD IN THIS TABLE GIVEN IN COMMERCIAL THICKNESSES EXCEPT AS NOTED.
- 2.* THESE SPECIAL THICKNESSES MAY BE ROLLED IF IN SUFFICIENT QUANTITIES



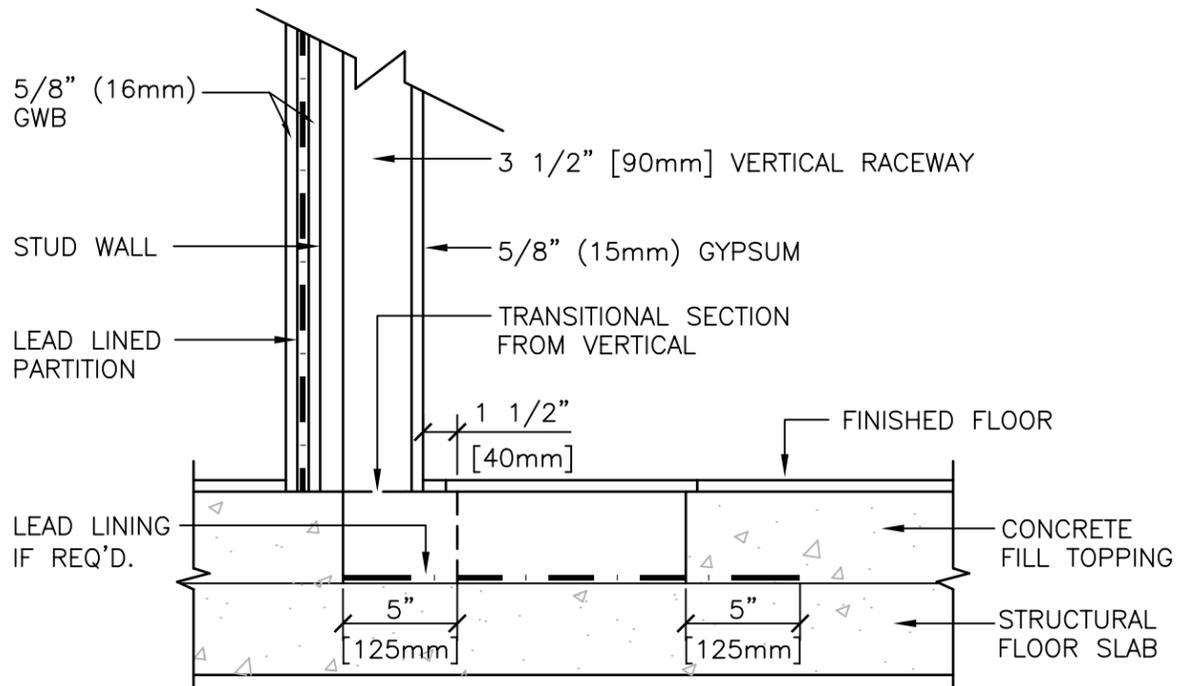
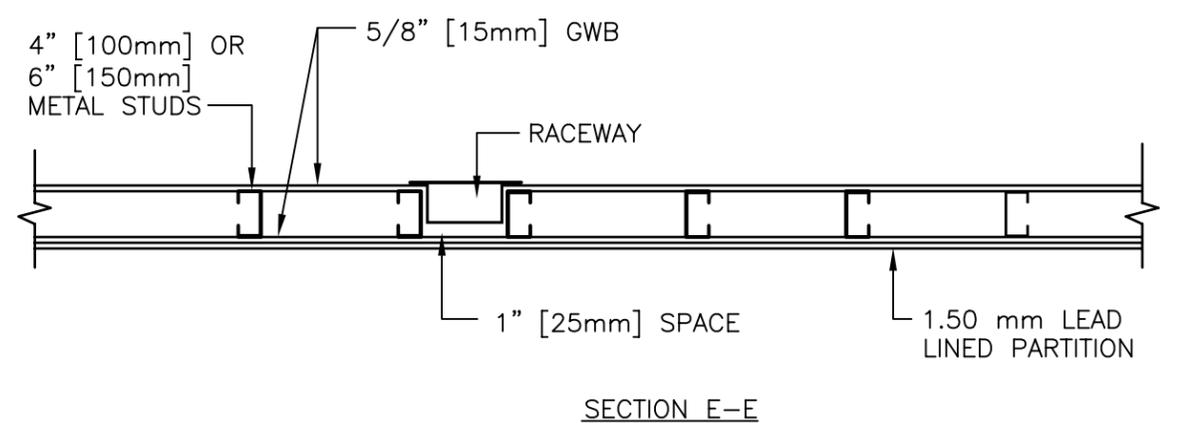
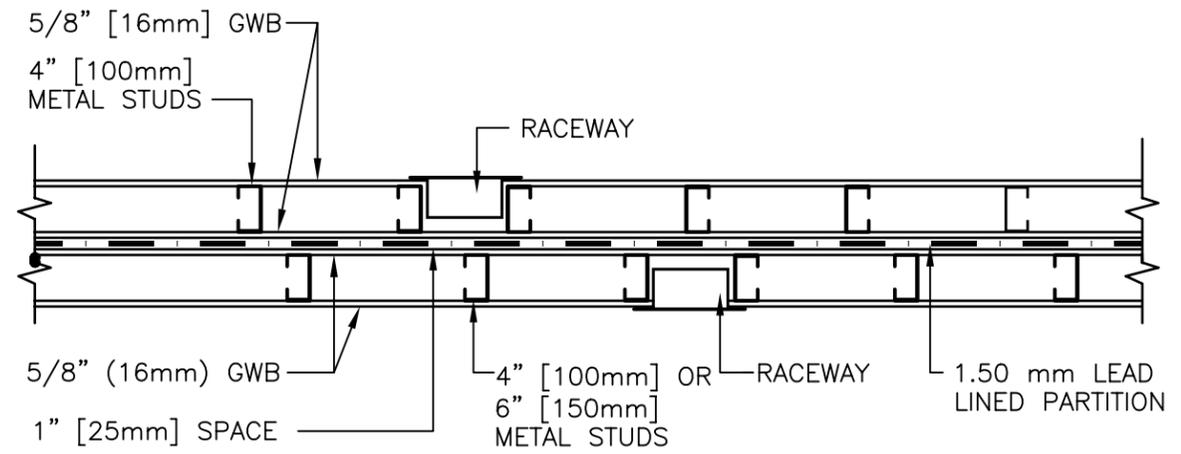
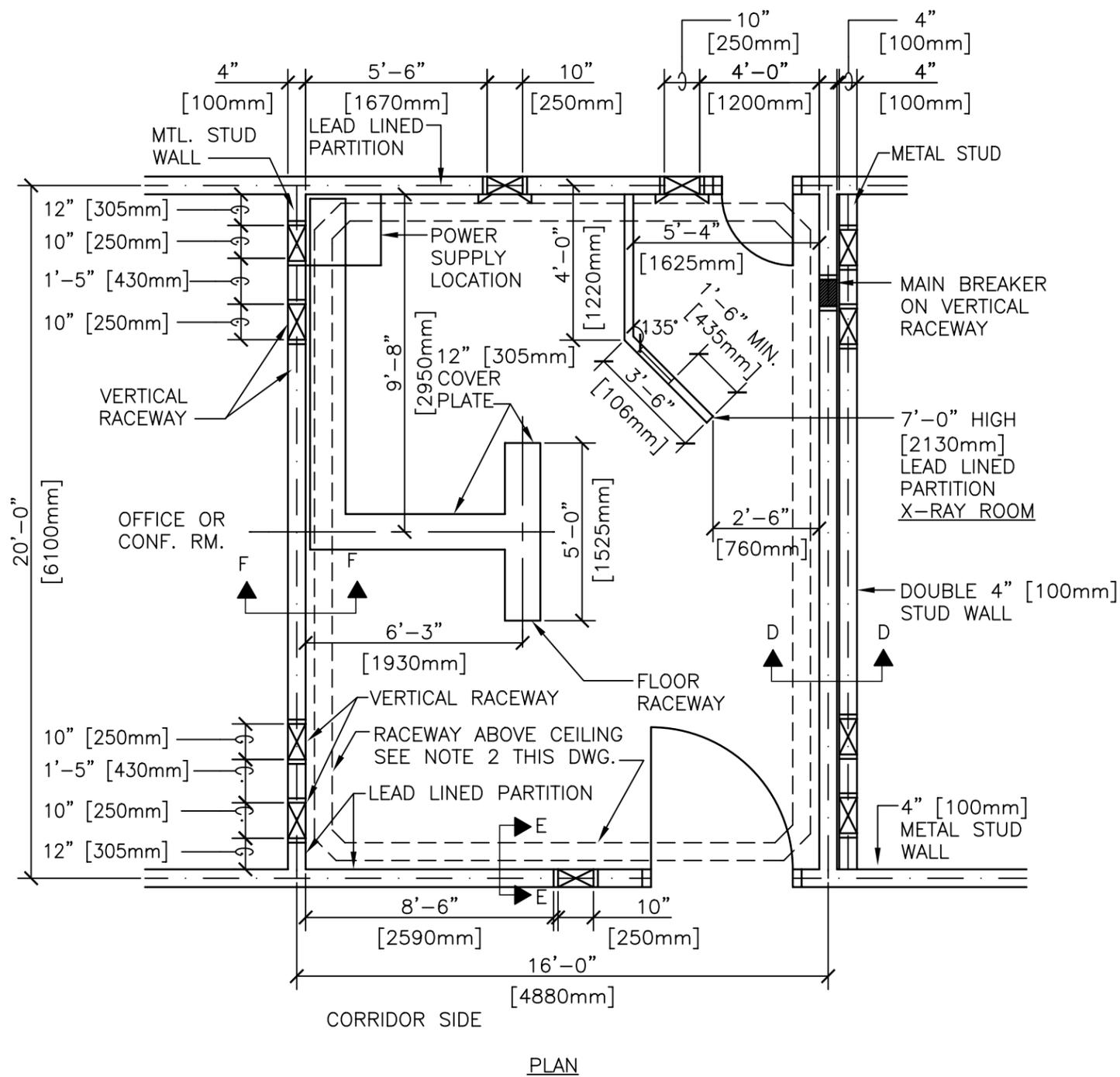
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DETAIL TITLE / LEAD SHEET THICKNESS & WEIGHT

SCALE : NONE

DATE ISSUED :DECEMBER 2008

CADD DETAIL NO. : SD134900-02.DWG

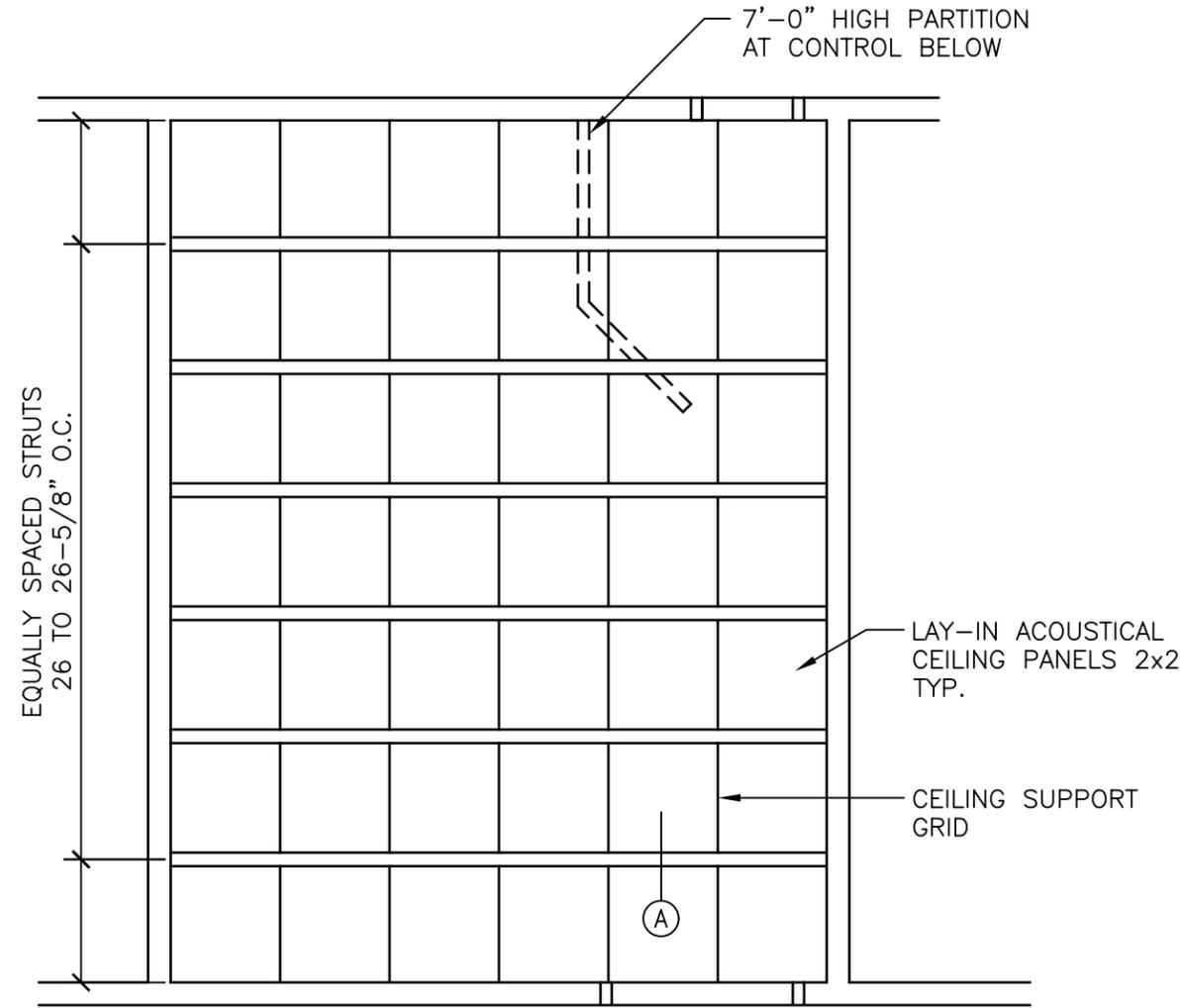


- GENERAL NOTES:
1. VERTICAL & HORIZONTAL RACEWAYS REQUIRE A 6" [152mm] DEPTH WHERE THERE IS A 3.5" [115mm] TOPPING & DEPRESS THE SLAB 2.5" [65mm]. WHERE THE SLAB DOES NOT HAVE A TOPPING, DEPRESS THE SLAB 6" [152mm].
 2. RACEWAY CORNERS ARE BEVELED AT 45 DEGREES TO FACILITATE CONDUIT INSTALLATION.
 3. 6" [152mm] LEAD LINED PARTITION AT THE ENTIRE PERIMETER.

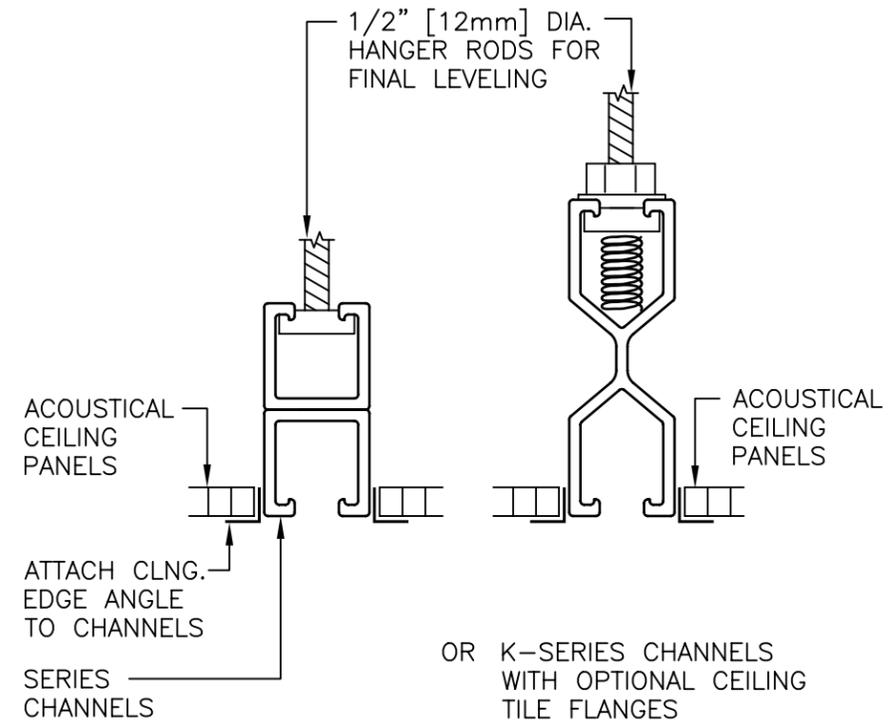
DETAIL TITLE / DOD / VA UNIVERSAL X-RAY (R-F) ROOM PLAN AND SECTIONS

Department of Veterans Affairs





REFLECTED CEILING PLAN
UNIVERSAL X-RAY ROOM



(A) SUPPORT STRUT DETAILS LAY-IN CEILING

GENERAL NOTES:

PROVIDE SUSPENDED GRID OF STRUT CHANNELS TO SUPPORT X-RAY MACHINE RAILS. A/E SHALL DESIGN SUPPORT SYSTEM TO SUIT BUILDING STRUCTURE. SUPPORT RAILS FROM STRUCTURAL BEAMS OR JOISTS (PROVIDE INTERMEDIATE FRAMING AS NECESSARY). DO NOT SUPPORT FROM METAL DECK, CONCRETE SLABS, OR WALK-ON (INTERSTITIAL) DECKS. BRACE SUPPORT SYSTEM FOR LATERAL LOADS FROM MOVING EQUIPMENT AND SEISMIC. PROVIDE LIGHTING AND HVAC PER VA DESIGN MANUALS.

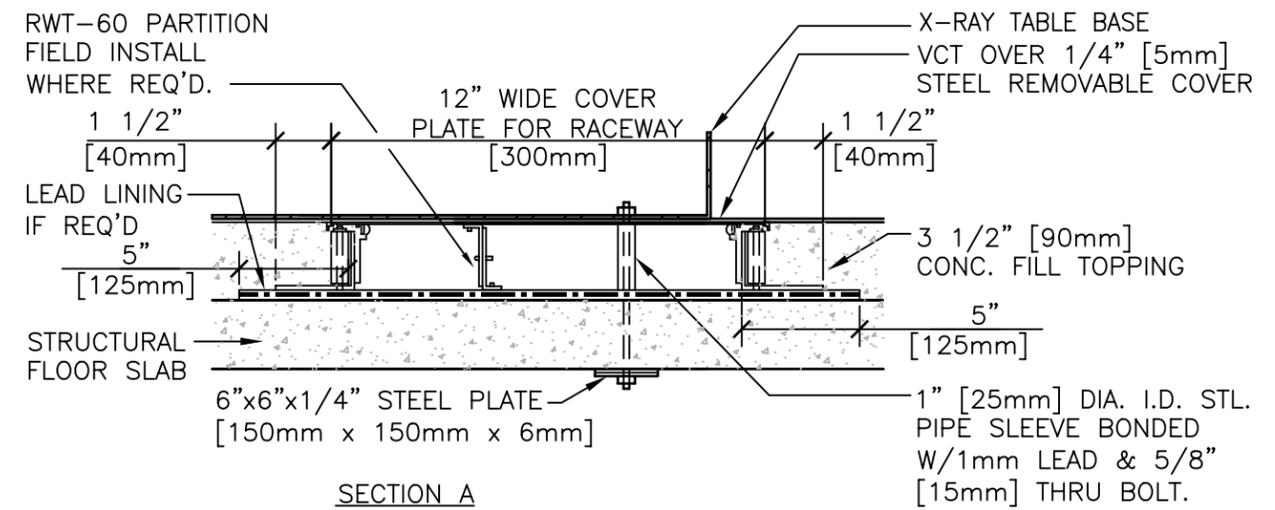
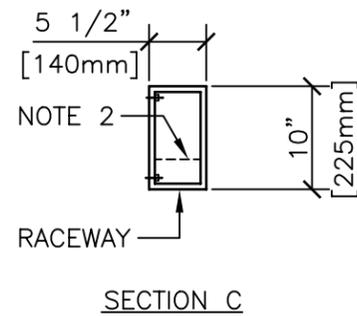
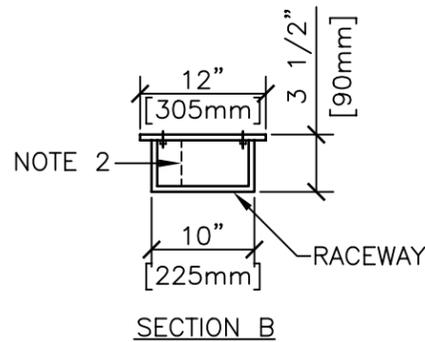
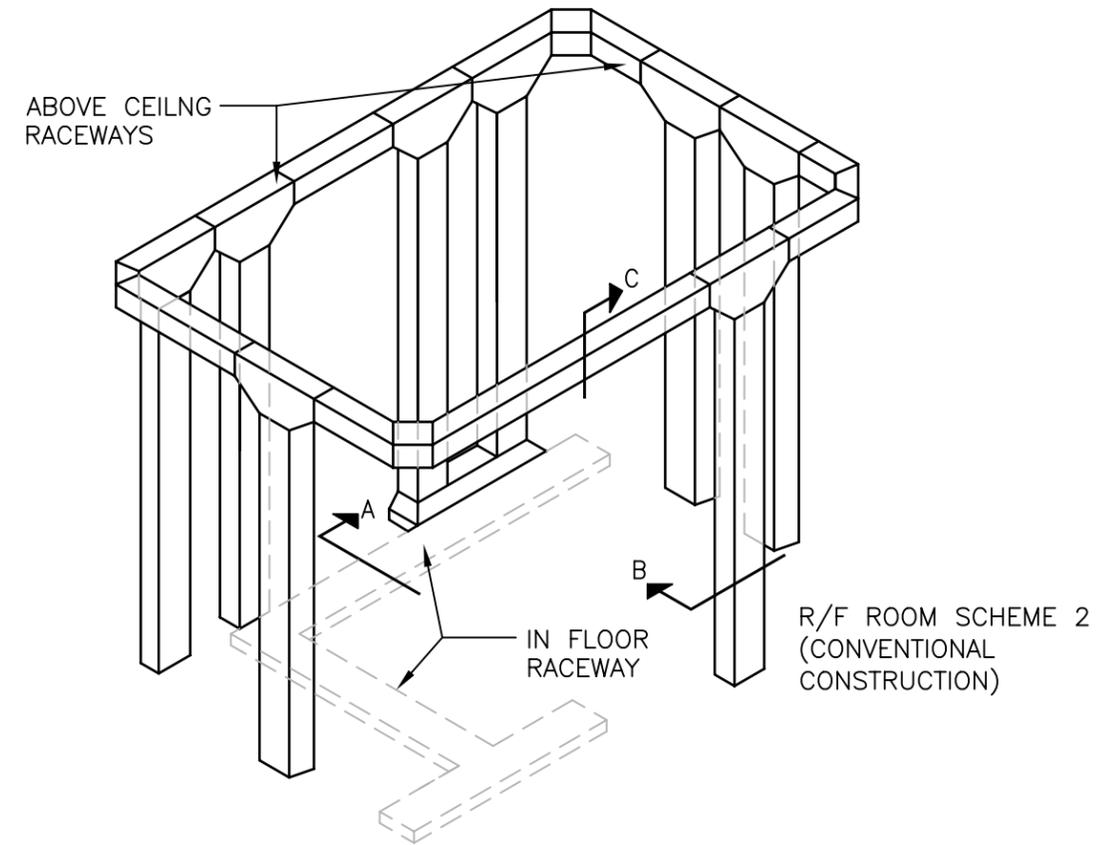
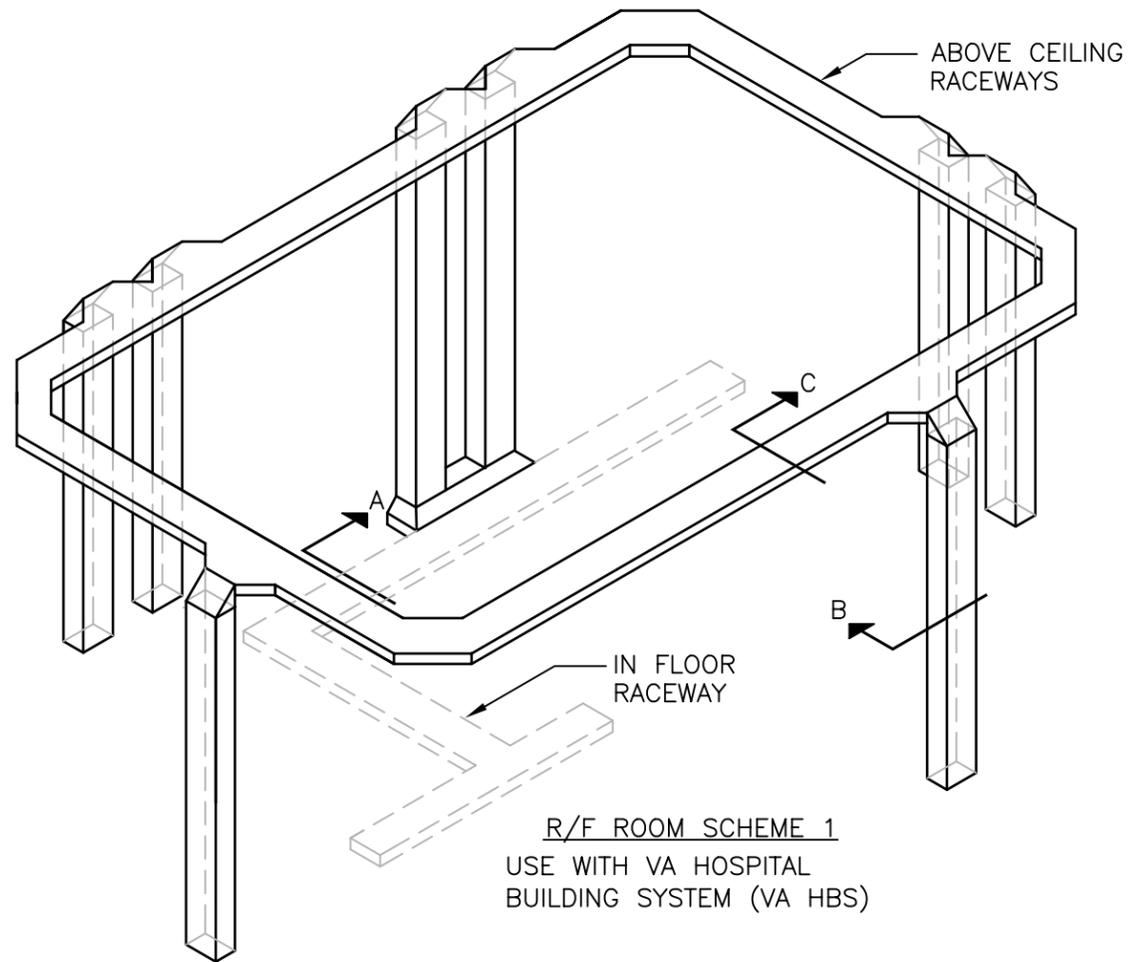
DETAIL TITLE / SUPPORT SYSTEM FOR CEILING
MOUNTED X-RAY EQUIPMENT

SCALE : NONE

DATE ISSUED : DECEMBER 2008

CADD DETAIL NO. : SD134900-04.DWG





GENERAL NOTES:

1. REFER TO STANDARD DETAILS 13 49 00-1 & 13 49 00-2 FOR LEAD LINING REQUIREMENTS.
2. INSTALL DIVIDERS IN RACEWAYS IF REQUIRED.
3. LOCATE RACEWAY ON THE UNDERSIDE OF THE VA HBS WALK-ON DECK.

DETAIL TITLE / DOD / VA UNIVERSAL X-RAY (R-F0) ROOM RACEWAY LAYOUT SCHEME 1 & 2

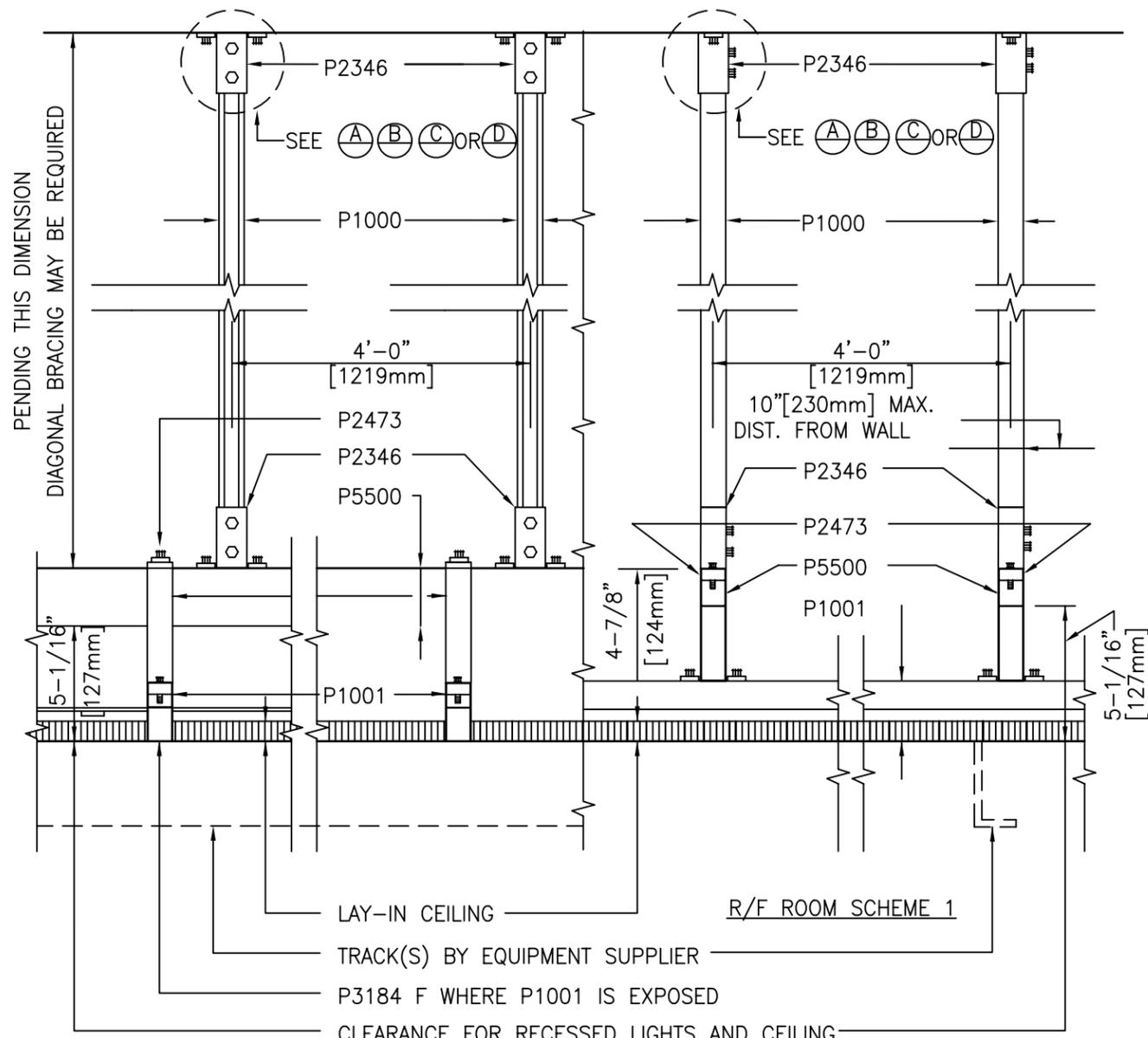
SCALE : NONE

DATE ISSUED :DECEMBER 2008

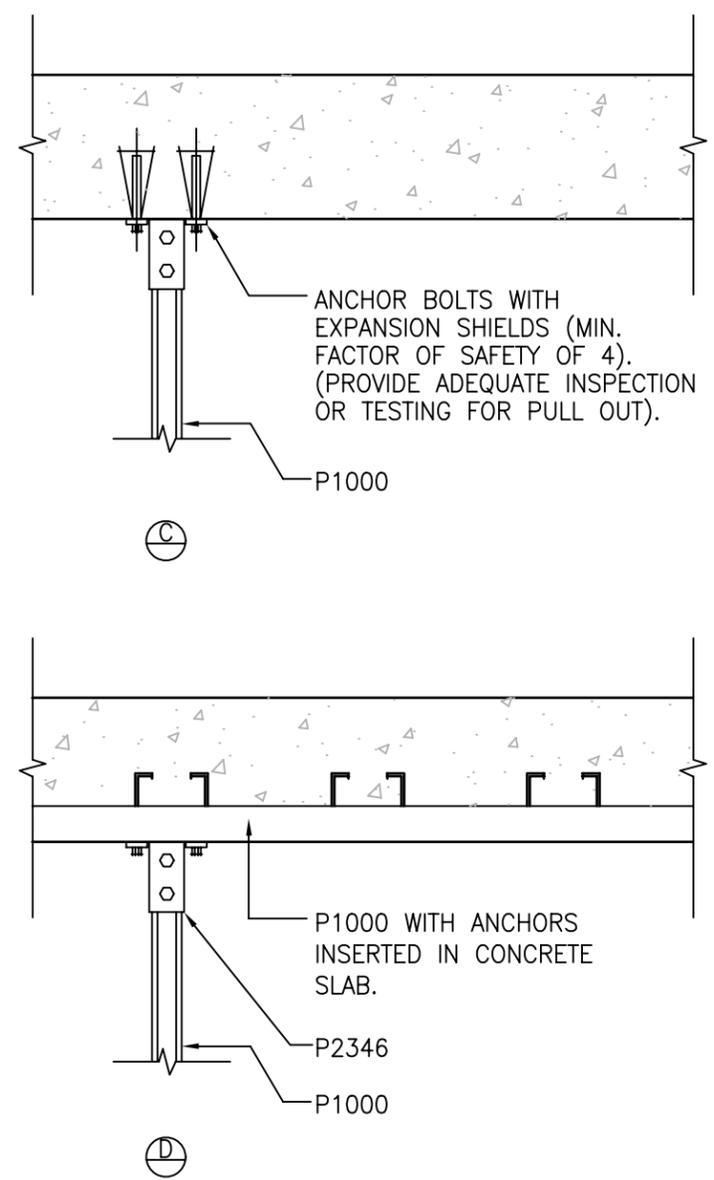
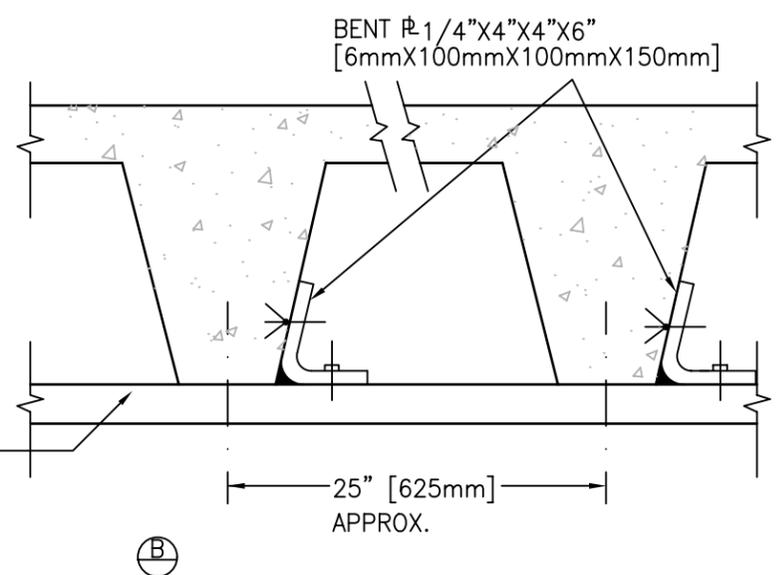
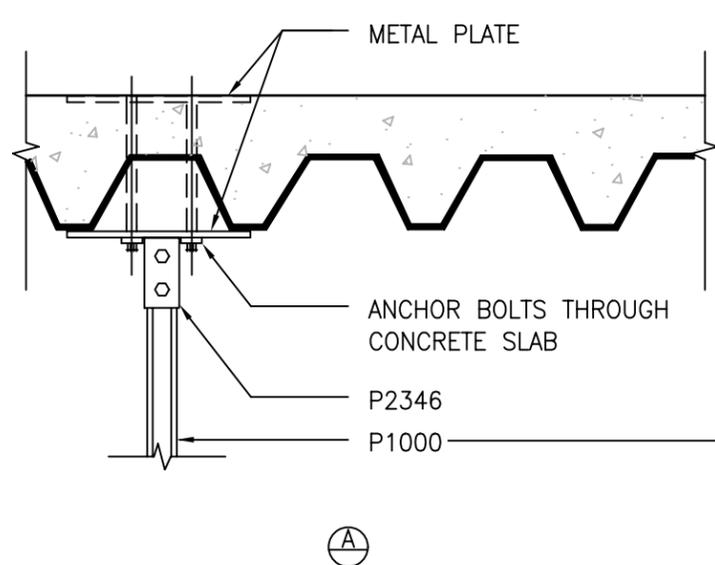
CADD DETAIL NO. : SD134900-05.DWG

Department of
Veterans Affairs





SECTION THROUGH SUPPORT SYSTEM



NOTES:
 ALL SUPPORTS AND HANGERS SHALL BE ARRANGED AS SHOWN ON ARCHITECTURAL DRAWINGS AND SHALL TERMINATE APPROX. 6" [150mm] FROM FACE OF WALLS OR PARTITIONS, EXCEPT FOR MEMBERS FLUSH WITH CEILING.
 THE NUMBER SHOWN ON DRAWING WITH A "P" PREFIX ARE UNISTRUT CATALOG NUMBERS USED AS A CONVENIENCE FOR IDENTIFYING DESIRED SHAPES AND THICKNESS OF MEMBERS.

NOTE FOR ARCHITECT:
 DETAILS A, B, C & D SHOW ANCHORAGE SUPPORT INTO VARIOUS TYPES OF SLAB CONDITIONS. ACTUAL SUPPORT MUST BE DESIGNED TO SUIT THE PARTICULAR SITUATION.

DETAIL TITLE / DOD / VA UNIVERSAL X-RAY (R-F) ROOM SUPPORT SYSTEM FOR CEILING MOUNTED X-RAY EQUIPMENT



SCALE : NONE

DATE ISSUED :DECEMBER 2008

CADD DETAIL NO. SD134900-06.DWG