

**Section 4**

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and Data Sheets:  
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**Section 4**

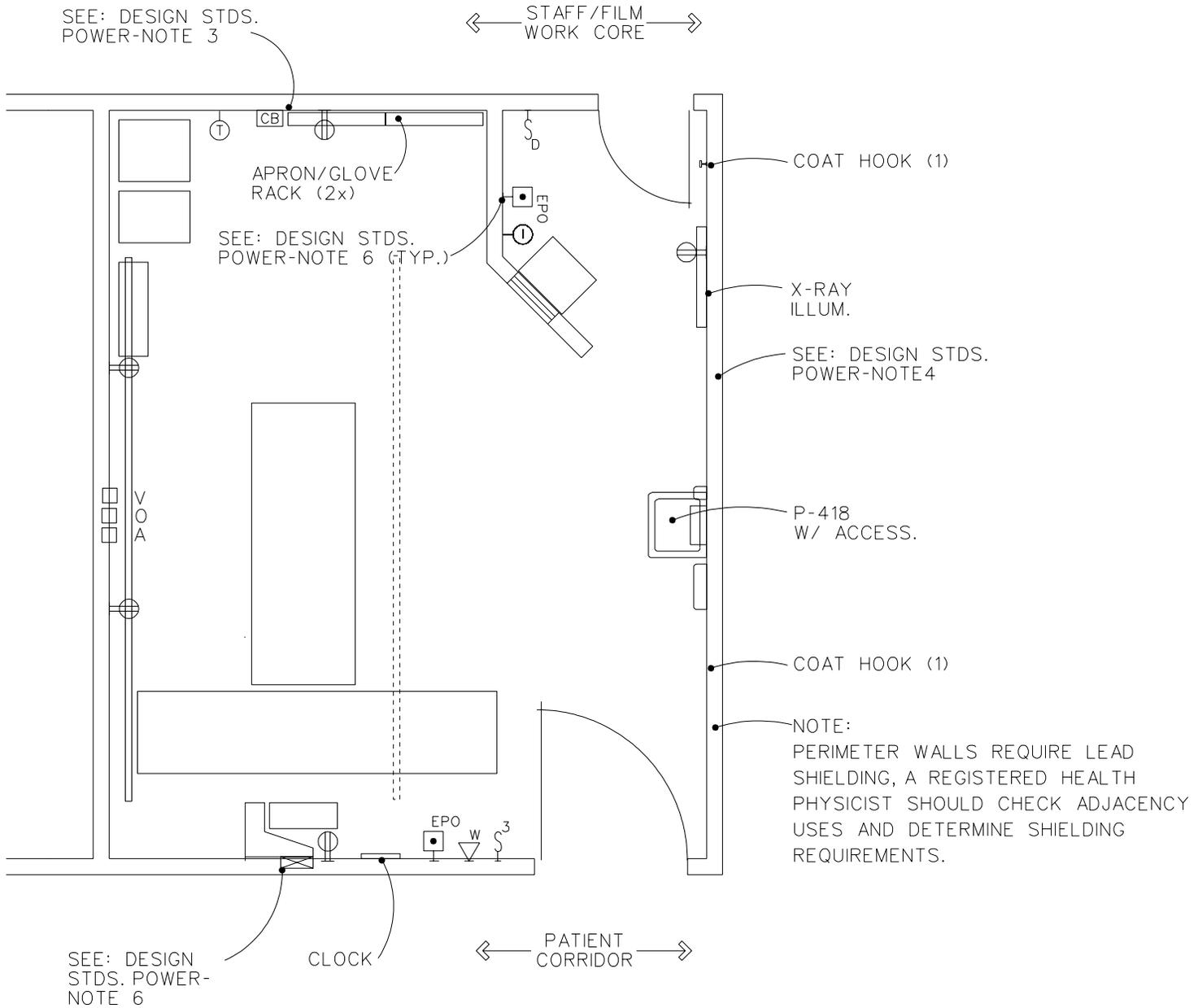
**Design Guide Plates  
and Data Sheets:  
Patient Care Areas**

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# Equipment Plan General Purpose Radiographic Room W/ Control

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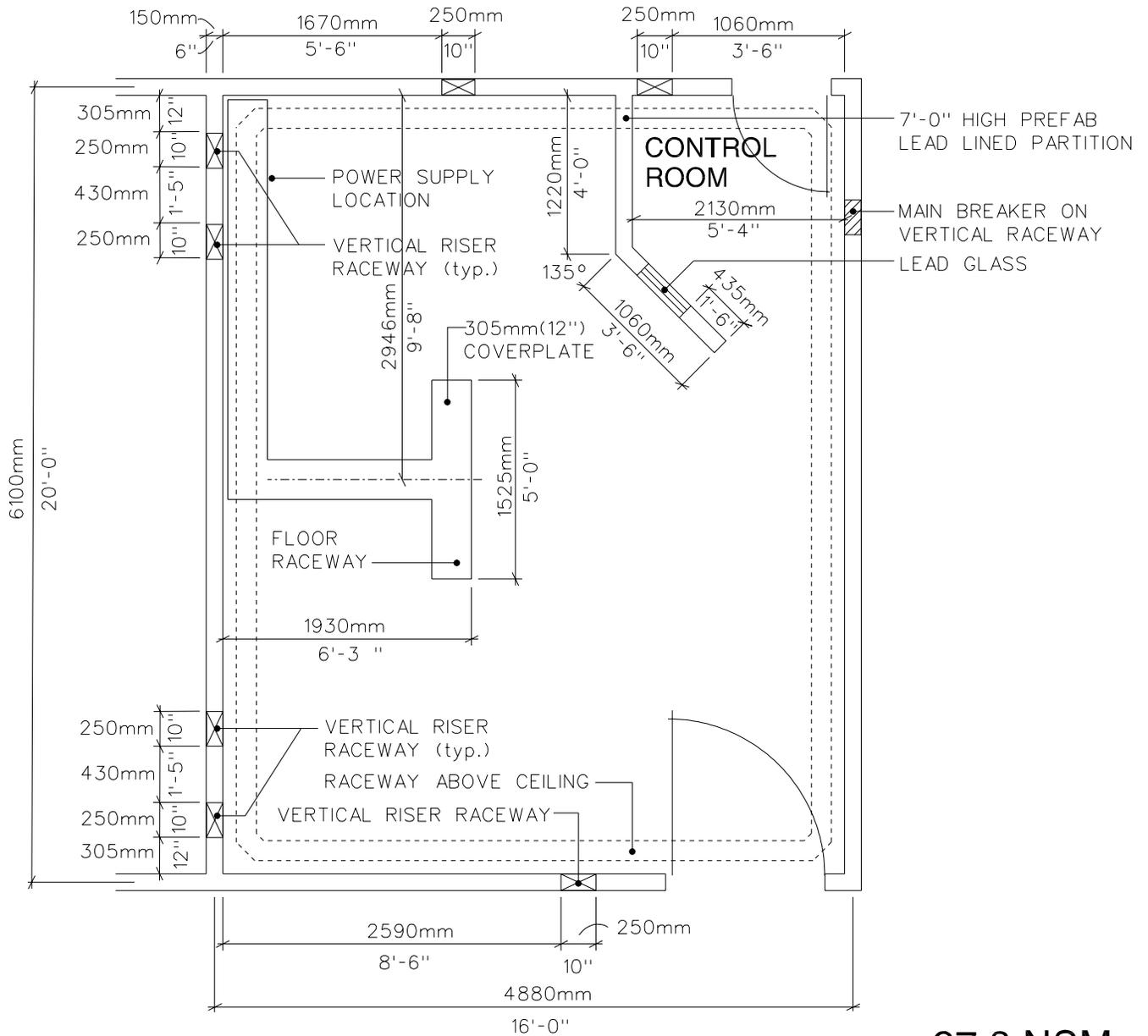
NOTE:  
LEAD LINING WALLS SHALL BE 150mm (6") MINIMUM THICKNESS- 205mm (8") WHEN RADIOLOGY ROOMS ARE BACK TO BACK.

**27.8 NSM**  
**300 NSF**



# Utility Plan General Purpose Radiographic Room W/ Control

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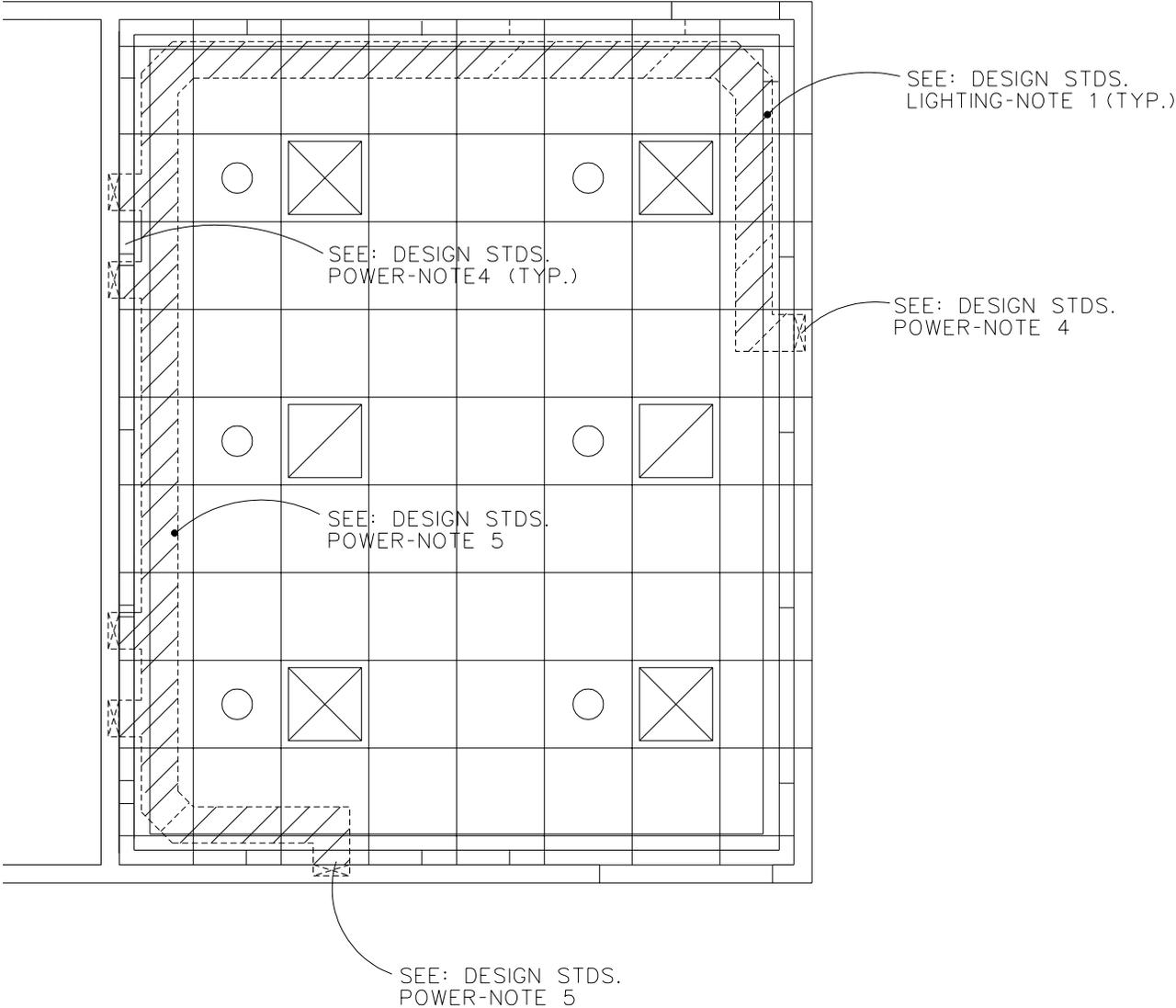


**27.8 NSM**  
**300 NSF**

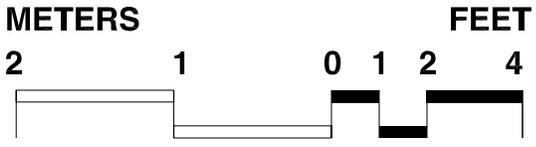


# Reflected Ceiling Plan General Purpose Radiographic Room W/ Control

Final Draft 12-31-95  
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NOTE:  
CEILING PLAN AS SHOWN IS TO BE USED AS A GUIDE ONLY. DIRECTION AND LAYOUT OF CEILING TRACK AND SUSPENSION SYSTEM VARIES WITH MANUFACTURERS. FINAL LOCATION OF DIFFUSERS, LIGHTS, ETC. HAS TO BE COORDINATED WITH EQUIPMENT MANUFACTURERS.



## Design Standards

# General Purpose Radiographic Room w/Control

### ARCHITECTURAL

Ceiling:	Acoustic lay-in ceiling tile
Ceiling Ht:	2890 mm (9'-6")
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl composition tile
Slab Depr:	100 mm (4")
Notes:	1200mm (4'-0") wide door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

### SPECIAL EQUIPMENT

None

### LIGHTING

General:	30 FC
Special:	--
Notes:	<ol style="list-style-type: none"> <li>1. Continuous fluorescent direct/indirect wall mounted fixture, acrylic prismatic lens on top and bottom, W/2-F32T8 lamps, 3500 deg. K, CRI=75 (min.)</li> <li>2. Illumination level controlled by dimmer.</li> <li>3. Recessed lensed incandescent down light W/100W, A-21 lamps</li> </ol>

### POWER

General:	--
Emergency:	--
Notes:	<ol style="list-style-type: none"> <li>1. The electrical plan as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements to be per the x-ray system suppliers equipment installation drawings.</li> <li>2. Electrical trades shall provide necessary conduit, openings, bushings, nipples, flexible conduit etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.</li> </ol>

### POWER (cont.)

- Notes: 3. 480V., 3P., 150A., adjustable trip flush mounted circuit breaker with shunt trip. Run empty 600 mm (2') C. from circuit breaker to x-ray duct above finished ceiling.
4. 250 mm x 140 mm (10" x 5-1/2") deep flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
  5. 250 mm x 140 mm (10" x 5-1/2") deep x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.
  6. Emergency Power Off (EPO) push button station. Connect to shunt trip circuit breakers.
  7. Run 13 mm (1/2") C. from door switch to junction box at x-ray controller. Connect door switch so that if door is opened the x-ray system will be shut off.

### COMMUNICATIONS

ADP:	--
Radio:	Yes
Telephone:	--
Intercom:	--
Pub. Addr:	--
Notes:	

# Design Standards

## General Purpose Radiographic Room w/Control

### HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	24°C (75°F)
Dry Bulb Temp Heating:	22°C (72°F)
Minimum % Outside Air:	15
100% Exhaust Air:	No
Noise Criteria:	NC-40
Steam:	--
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	30%
Minimum Air Changes/Hr.:	6
Room Pressure:	0
AC Load Lighting	40 W/m <sup>2</sup> (3.7 W/sf)
AC Load Equipment:	97 W/m <sup>2</sup> (9 W/sf)
Number of People:	6
Special Exhaust:	--

Notes: 1. See HVAC Design Manual for Hospital Projects for lead wrapping of ductwork penetrating lead lined walls.

### PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	Possible
Medical Air:	--
Medical Vacuum:	Yes
Oxygen:	Yes

Notes: 1. Check with the Medical Center regarding Silver Recovery System.

# Equipment Guide List

## General Purpose Radiographic Room w/Control

SYMBOL	QTY	AI	DESCRIPTION
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**NOTE:** OPTIONAL COMPONENTS TO BE DETERMINED BY VETERANS HEALTH ADMINISTRATION

**NOTE:** PROVIDE ONLY WHEN APPROVED FOR A SPECIFIC PROJECT (OXYGEN, AIR, VACUUM OUTLET AND BRACKET).

**NOTE:** OUTLETS TO BE ON THE WALL, NEAR HEAD END OF X-RAY TABLE, 1524mm (60") ABOVE THE FLOOR.

**NOTE:** OUTLET, WALL, MEDICAL AIR (PG-18-1, MCS 15491;H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, OXYGEN (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, VACUUM (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.

**NOTE:** LOW LEVEL DIMMED INCANDESCENT LIGHTING SYSTEM IN ADDITION TO GENERAL FLUORESCENT ILLUMINATION SYSTEM (PG-18-1, MCS 16510)

**NOTE:** RECEPTACLE, ELECTRICAL, DUPLEX, 120 VOLT, 20 AMP (PG-18-1, MCS 16140; H-18-3, CS 801-3)

**NOTE:** SHIELDING, RADIATION, FOR ROOMS WITH FIXED X-RAY EQUIPMENT, IN ACCORDANCE WITH (PG-18-1, MCS 13091; H-18-3, CS 64-1; PG-18-4, SD 24 THRU 24K AND NCRP REPORT NO. 33, 35 AND 49)

	1	CC	DISPENSER, SOAP, WALL MOUNTED WITH FOOT CONTROL (PG-18-1, MCS 10800)
P-418	1	CC	LAVATORY, STRAIGHT BACK, SENSOR CONTROL (PG-18-1, MCS 15450 VOL3 SD 380)
	1	CF	CABINET, STORAGE, WALL MOUNTED, 254mm (10") ABOVE FINISHED FLOOR, 5 SHELVES AND FOLDING DOOR, APPROX., 610mm x 406mm x 1575mm (24" x 16" x 62")
	1	VC	X-RAY UNIT, RADIOGRAPHIC AND FLUOROSCOPIC CONSISTS OF THE FOLLOWING COMPONENTS:
	1	VC	BUCKY, TILT, WALL MOUNTED (USE IN TYPE R-F #2 AND TYPE R-F #3)
	1	VC	CAMERA UNIT, CINE, FOR USE WITH IMAGE INTENSIFIER (OPTIONAL)
	1	VC	CAMERA, SPOT, 100 OR 105mm (USE IN TYPE R-F #3)
	1	VC	CAMERA, TV (FOR USE WITH IMAGE INTENSIFIER) (OPTIONAL)
	1	VC	CONTROL, CINE CAMERA
	1	VC	IMAGE INTENSIFIER, 152mm, 229mm (6", 9"), OR DUAL TYPE TO BE DETERMINED ON PROJECT BASIS
	1	VC	MODULE, POWER
	AR	VC	MONITOR, FOR USE WITH IMAGE INTENSIFIER

# Equipment Guide List

## General Purpose Fluoroscopic Room w/Control

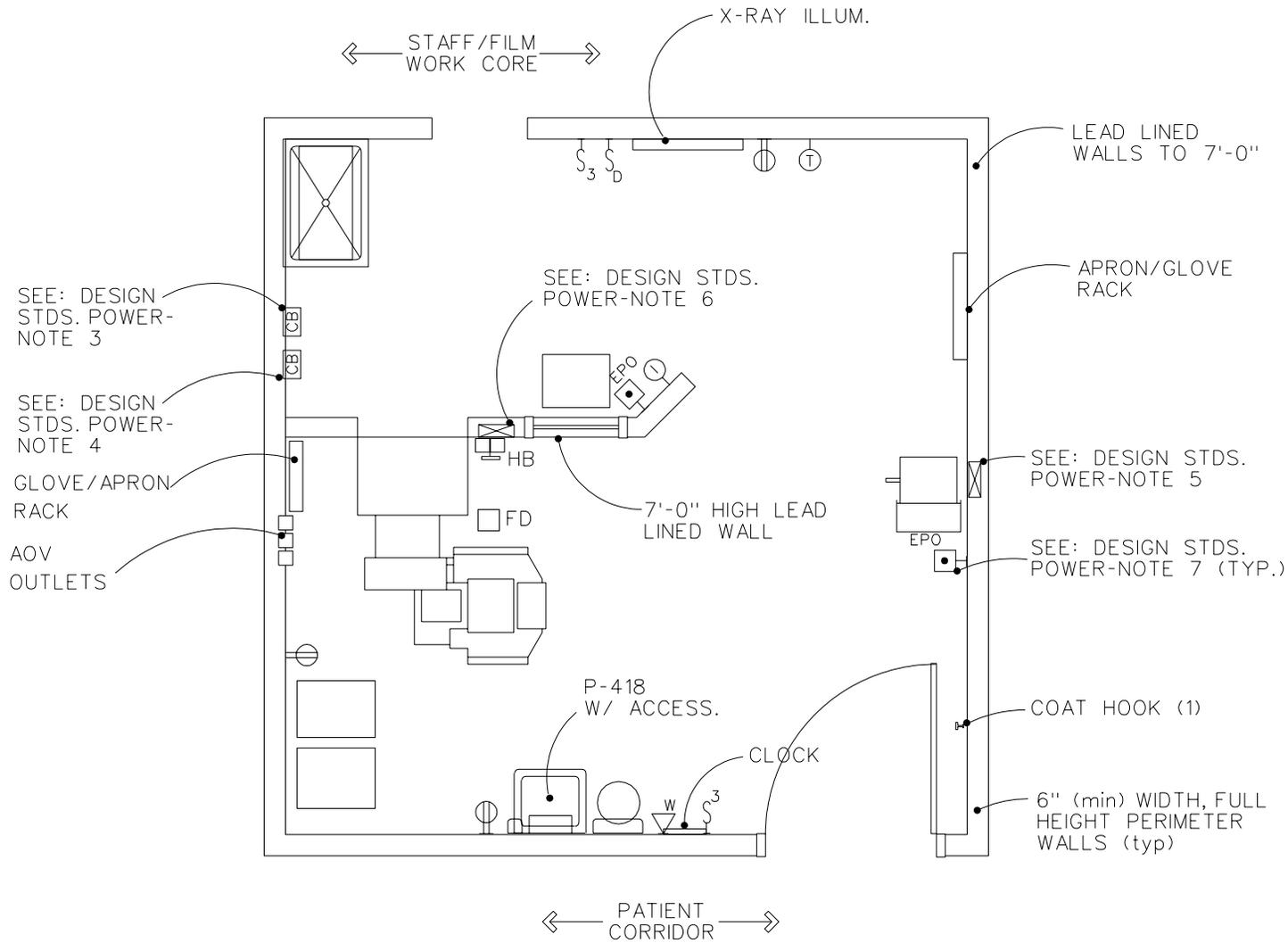
SYMBOL	QTY	AI	DESCRIPTION
	1	VC	RAILS, CEILING FOR TUBE CARRIAGE, UNIVERSAL MOUNT
	1	VC	RECORDER, TV TAPE
	1	VC	STARTER, TUBE, HIGH SPEED
	1	VC	TABLE, 90 DEGREE - 15 DEGREE TRENDELENBURG R&F, WITH SPOT FILM DEVICE (TWO-WAY OR FOUR WAY TABLE TOP AND SIZE OF SPOT FILM DEVICE TO BE DETERMINED ON PROJECT BASIS)
	1	VC	TABLE, TILT, 90 DEGREE - 90 DEGREE R&F, WITH SPOT FILM DEVICE (TWO-WAY OR FOUR WAY TABLE TOP AND SIZE OF SPOT FILM DEVICE TO BE DETERMINED ON PROJECT BASIS)
	1	VC	TRANSFORMER, HIGH TENSION, X-RAY
	1	VC	TUBE CARRIAGE, CEILING MOUNTED
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPOSAL, NEEDLES, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	ILLUMINATOR, X-RAY, 120 VOLT, 20 AMP, WALL MOUNTED, APPROX., 508mm x 787mm (20" x 31"), 2 IN 1
	2	VV	RACK, GLOVE/APRON, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305mm (12") DIAMETER

## General Purpose Fluoroscopic Control Area

SYMBOL	QTY	AI	DESCRIPTION
			<p><b>NOTE:</b> PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN X-RAY ROOM, WHEN CONTROL BOOTH IS SEPARATED FROM X-RAY ROOM.</p> <p><b>NOTE:</b> INCANDESCENT, DIMMING SYSTEM (PG-18-1, MCS 16510)</p> <p><b>NOTE:</b> INTERCOM, STATION (PG-18-1, MCS 16760)</p> <p><b>NOTE:</b> OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (PG-18-1, MCS 16111)</p> <p><b>NOTE:</b> WINDOW, LEAD GLASS, MINIMUM 457mm x 610mm (18" x 24") (PG-18-1, MCS 13091; PG-18-4,)</p>
	1	VC	CONSOLE, CONTROL, X-RAY, FOR RADIOGRAPIC UNIT (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)

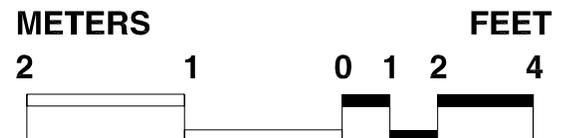
# Equipment & Utility Plan Dedicated Chest Room

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Revised May 1997



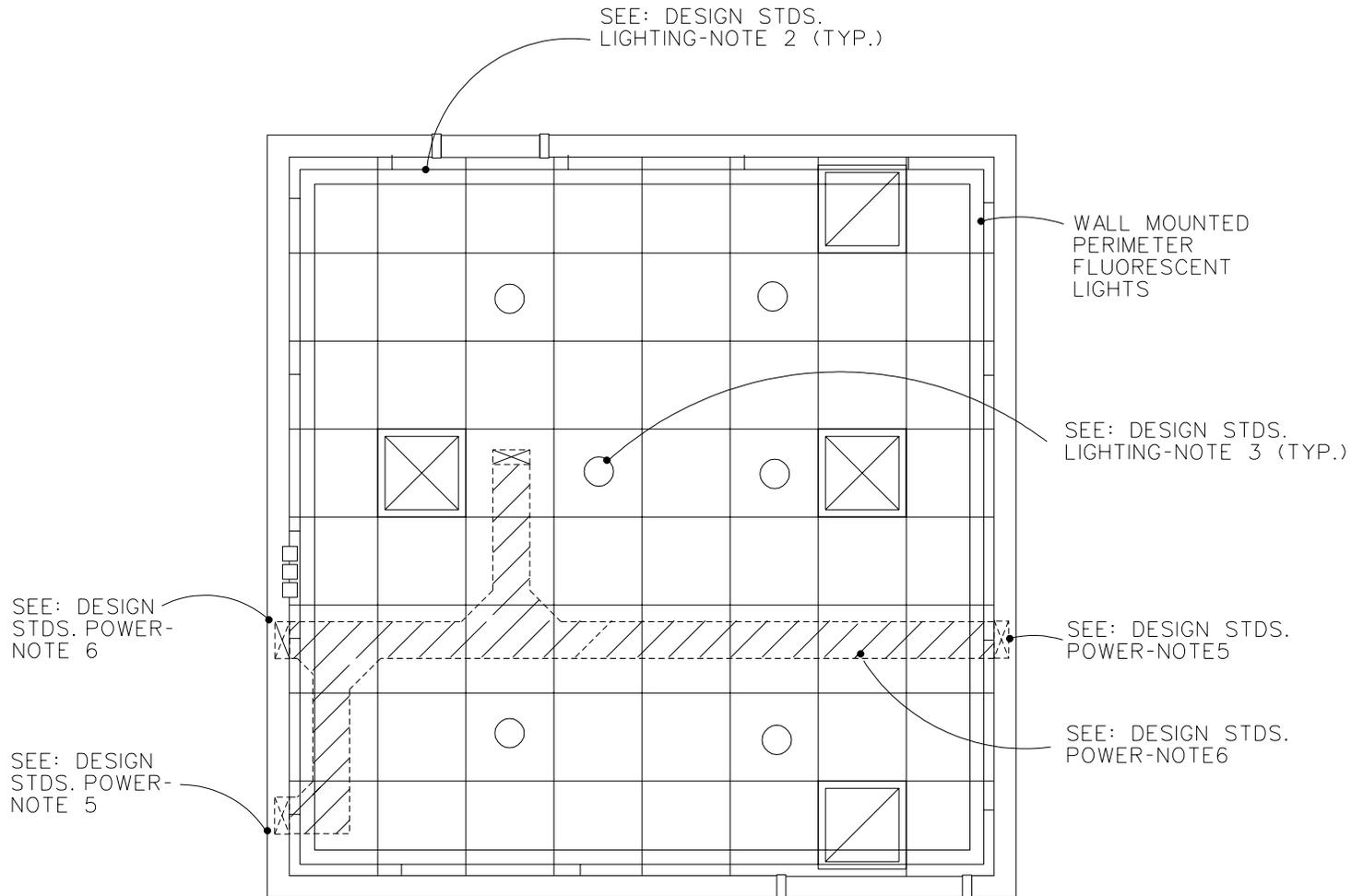
NOTE:  
PERIMETER WALLS REQUIRE LEAD SHIELDING.  
A REGISTERED HEALTH PHYSICIST SHOULD  
CHECK ADJACENT USES AND DETERMINE  
SHIELDING REQUIREMENTS.

**24.2 NSM**  
**260 NSF**

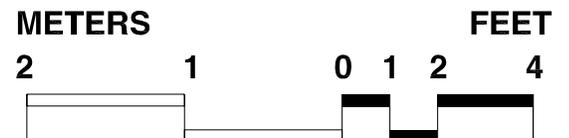


# Reflected Ceiling Plan Dedicated Chest Room

Final Draft 12-31-95  
Revised May 1997



NOTE:  
CEILING PLAN AS SHOWN IS TO BE USED AS A GUIDE ONLY. DIRECTION AND LAYOUT OF CEILING TRACK AND SUSPENSION SYSTEM VARIES WITH MANUFACTURERS. FINAL LOCATION OF DIFFUSERS, LIGHTS, ETC. HAS TO BE COORDINATED WITH EQUIPMENT MANUFACTURERS.



# Design Standards

## Dedicated Chest Room

### ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile
Ceiling Ht:	2890 mm (9'-6")
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl Composition Tile
Slab Depr:	100 mm (4")
Notes:	1. 1200 mm (4'-0") wide door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

### SPECIAL EQUIPMENT

None

### LIGHTING

General:	30 FC
Special:	--
Notes:	1. Continuous fluorescent direct/indirect wall mounted light fixture, acrylic prismatic lens on top and bottom, W/2-F32T8 lamps, 3500 deg. K, CRI=75 (min.)
	2. Recessed, lensed incandescent downlight with 100W, A-21 lamp.
	3. Down light illumination level controlled by dimmer.

### POWER

General:	1000W (Non-PBPU receptacles)
Emergency:	--
Notes:	1. The electrical plan as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements to be per the x-ray system suppliers equipment installation drawings.
	2. Electrical trades shall provide necessary conduit, openings, bushings, nipples, flexible conduit etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.

### POWER (cont.)

- Notes:
3. 480V., 3P., 150A., adjustable trip flush mounted circuit breaker with shunt trip. Run empty 50 mm (2" C.) from circuit breaker to x-ray duct above finished ceiling.
  4. 240V, 2P., 30A flush MTD. circuit breaker for film processor.
  5. 250 mm x 140 mm (10' x 5-1/2") deep flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
  6. 250 mm x 140 mm (10' x 5-1/2") deep x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.
  7. Emergency Power Off (EPO) push button station. Connect to shunt trip circuit breakers.

### COMMUNICATION

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	--
Pub. Addr:	--
Notes:	1. Nurse Call

## Design Standards Dedicated Chest Room

### HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	24°C (76°F)
Dry Bulb Temp Heating:	25°C (78°F)
Minimum % Outside Air:	15
100% Exhaust Air:	--
Noise Criteria:	NC-35
Steam:	--
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	30%
Minimum Air Changes/Hr.:	4
Room Pressure:	0
AC Load Lighting:	43 W/m ( 4 W/sf)
AC Load-Equipment:	65 W/m (6 W/sf)
Number of People:	6
Special Exhaust:	--

Notes: 1. See HVAC Design Manual for  
Hospital Projects for lead wrapping of  
ductwork penetrating lead lined walls.

### PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes
Notes:	--

# Equipment Guide List

## Dedicated Chest Room

SYMBOL	QTY	AI	DESCRIPTION
			<i>NOTE: PROVIDE PIPING CONNECTION FROM PROCESSORS TO SILVER RECOVERY SYSTEM, IF REQUIRED.</i>
			<i>NOTE: SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.</i>
			<i>NOTE: PROVIDE ONLY WHEN APPROVED FOR A SPECIFIC PROJECT (OXYGEN, AIR, VACUUM OUTLET AND BRACKET).</i>
			<i>NOTE: OUTLET, WALL, MEDICAL AIR (PG-18-1, MCS 15491; H-18-3, CS 310-1)</i>
			<i>NOTE: OUTLET, WALL, OXYGEN (PG-18-1, MCS 15491; H-18-3, CS 310-1)</i>
			<i>NOTE: OUTLET, WALL, VACUUM (PG-18-1, MCS 15491; H-18-3, CS 310-1)</i>
			<i>NOTE: CONNECTIONS, PLUMBING, ELECTRICAL OR MECHANICAL AS REQUIRED</i>
			<i>NOTE: FLOOR DRAIN, NEAR FILM PROCESSING UNITS (PLUMBING DESIGN CRITERIA AND INSTRUCTIONS)</i>
			<i>NOTE: FLOOR DRAIN, NEAR REPLENISHER TANK UNITS (PLUMBING DESIGN CRITERIA &amp; INSTRUCTIONS)</i>
			<i>NOTE: SHIELDING, RADIATION, FOR ROOMS WITH FIXED X-RAY EQUIPMENT, IN ACCORDANCE WITH (PG-18-1, MCS 13091; H-18-3, CS 64-1; PG-18-4, SD 24 THRU 24K AND NCRP REPORT NO. 33, 35 AND 49)</i>
			<i>NOTE: LOW LEVEL DIMMED INCANDESCENT LIGHTING SYSTEM IN ADDITION TO GENERAL FLUORESCENT ILLUMINATION SYSTEM (PG-18-1, MCS 16510)</i>
	1	CC	DISPENSER, SOAP, WALL MOUNTED WITH FOOT CONTROL (PG-18-1, MCS 10800)
P-802	1	CC	HOSE BIBB, COMBINATION FAUCET, WALL MOUNTED, CONCEALED SUPPLY PIPES (PG-18-1, MCS 15450; PG-18-4, SD 4.2)
	1	CC	FLOOR DRAIN, NEAR FILM PROCESSOR
P-418	1	CC	LAVATORY, STRAIGHT BACK, SENSOR CONTROL (PG-18-1, MCS 15450 VOL3, STD 380)
	1	VC	AUTOMATED CHEST UNIT - CONSISTS OF THE FOLLOWING COMPONENTS:
	1	VC	CABINET, RACK
	1	VC	CALCULATOR, HEAT ANODE
	1	VC	MODULE, POWER
	1	VC	PROCESSOR, FILM, AUTOMATED (TYPE OF FILM PROCESSOR-TOP OR END FILM DISCHARGE TO BE DETERMINED ON PROJECT BASIS)
	1	VC	RAILS, TUBE, CEILING MOUNTED
	1	VC	STAND, TUBE, CEILING MOUNTED
	1	VC	STAND, UNIT, CHEST
	1	VC	STARTER, TUBE, HIGH SPEED

## Equipment Guide List

### Dedicated Chest Room (cont'd)

SYMBOL	QTY	AI	DESCRIPTION
	1	VC	TANK, REPLENISHER, 95 L (25 GAL.) CAPACITY AND CURBING, 2 FOR EACH PROCESSOR
	1	VC	TRANSFORMER, HIGH TENSION, X-RAY
	1	VC	UNIT, CHEST, LESS TUBE STAND
	1	VC	UNIT, FORCED EXTINCTION
	1	VC	UNIT, TRANSPORT, FILM
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPOSAL, NEEDLES, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	RACK, GLOVE/APRON, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305mm (12") DIAMETER

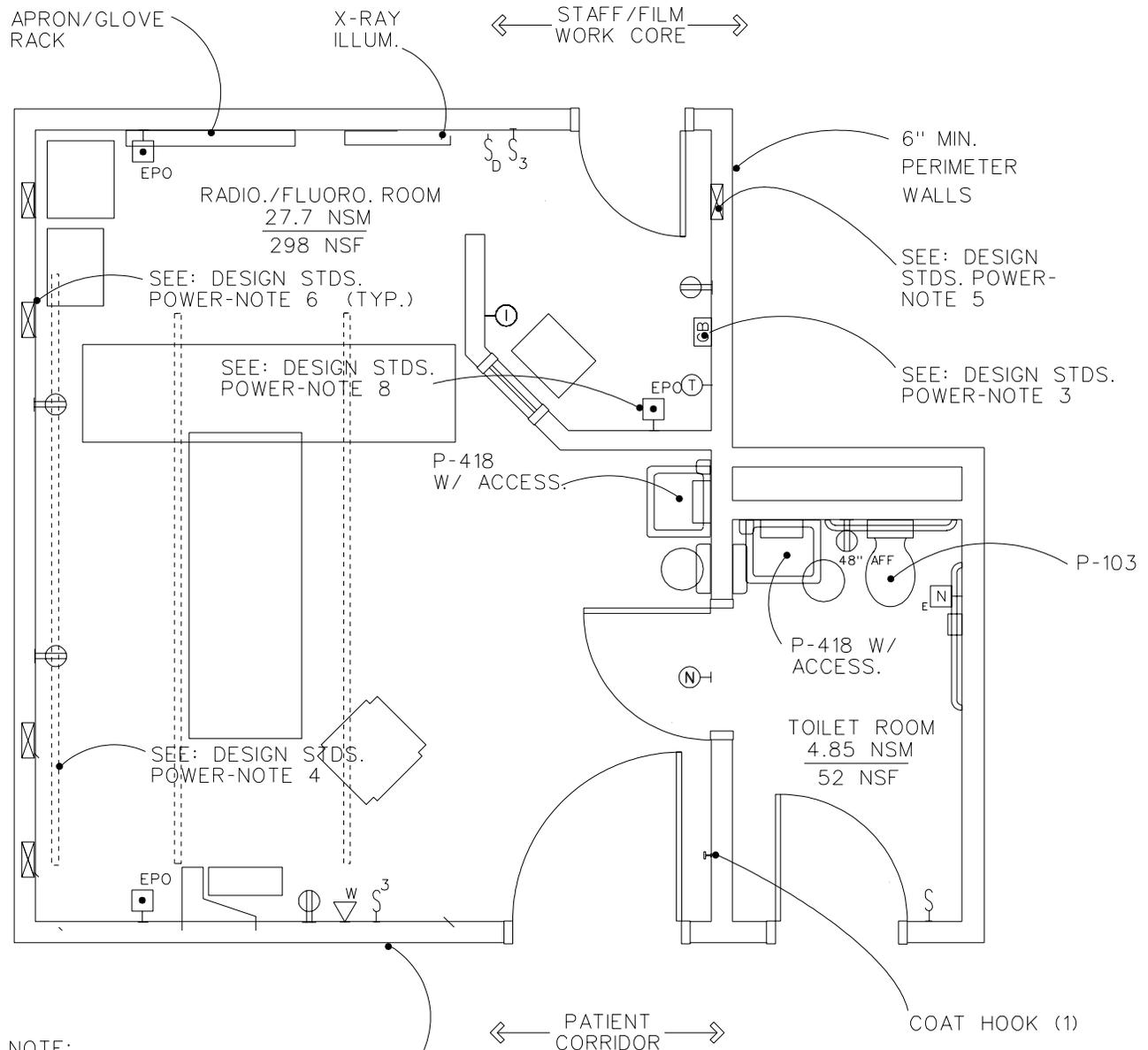
### Dedicated Chest Room - Control Area

SYMBOL	QTY	AI	DESCRIPTION
			<i>NOTE: INCANDESCENT, DIMMING SYSTEM (PG-18-1, MCS 16510)</i>
			<i>NOTE: WINDOW, LEAD GLASS, MINIMUM 457mm x 610mm (18" x 24") (PG-18-1, MCS 13091; PG-18-4,)</i>
	1	VC	CONSOLE, CONTROL, X-RAY, FOR AUTOMATED CHEST UNIT (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
	1	VV	ILLUMINATOR, X-RAY, 120 VOLT, 20 AMP, WALL MOUNTED, APPROX., 508mm x 787mm (20" x 31"), 2 IN 1

# Equipment & Utility Plan Radiographic Fluoroscopic Room w/ Control

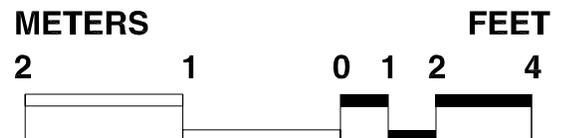
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NOTE:  
PERIMETER WALLS REQUIRE LEAD SHIELDING, A REGISTERED HEALTH PHYSICIST SHOULD CHECK ADJACENCY USES AND DETERMINE SHIELDING REQUIREMENTS.

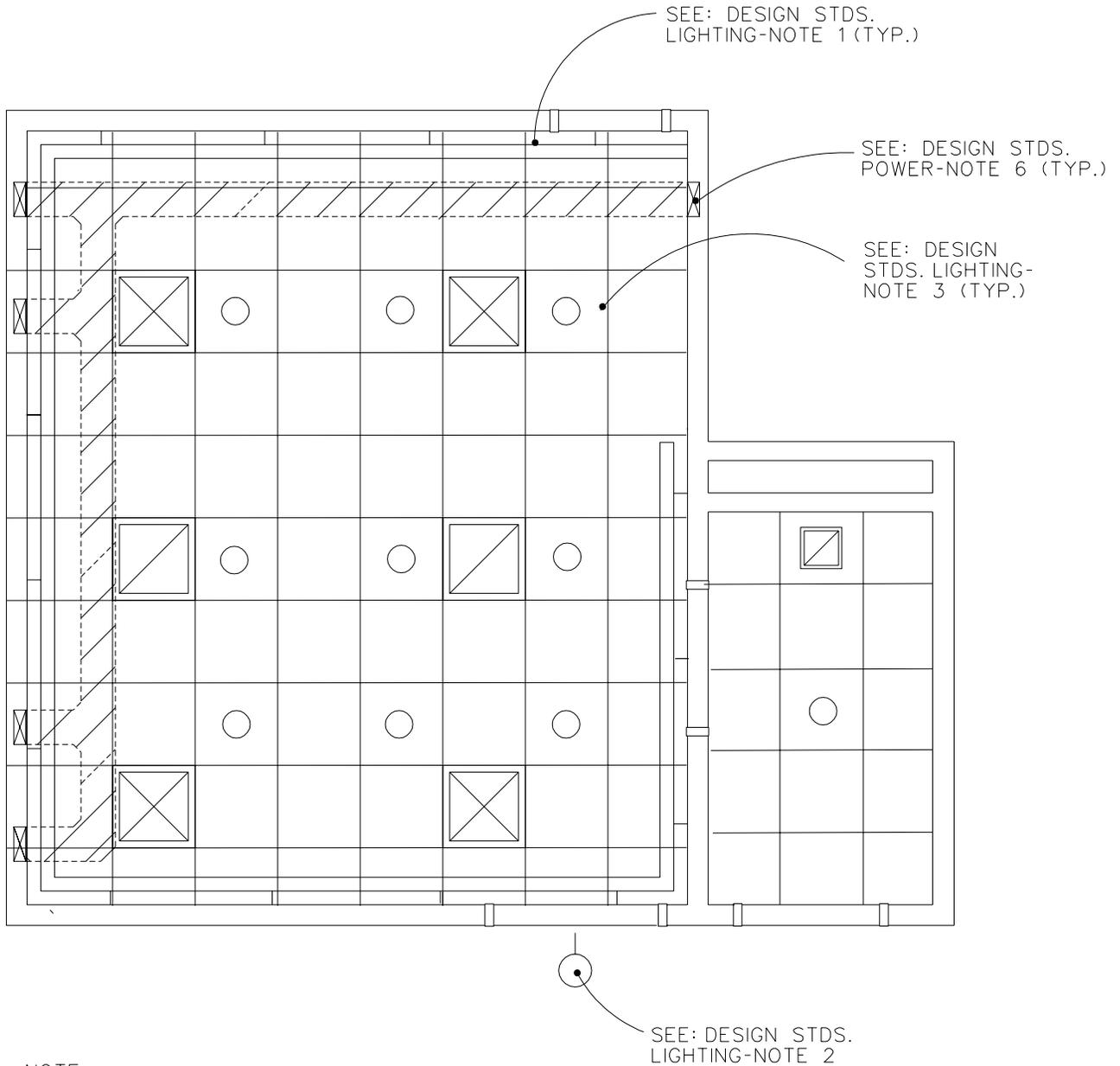
**27.8 NSM**  
**300 NSF**



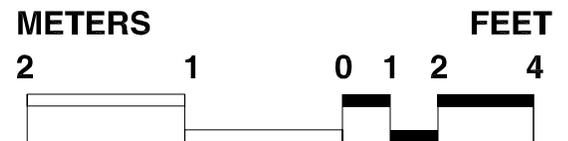
# Reflected Ceiling Plan Radiographic Fluoroscopic Room w/ Control

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NOTE:  
 CEILING PLAN AS SHOWN IS TO BE USED  
 AS A GUIDE ONLY. DIRECTION AND LAYOUT  
 OF CEILING TRACK AND SUSPENSION SYSTEM  
 VARIES WITH MANUFACTURERS. FINAL LOCATION  
 OF DIFFUSERS, LIGHTS, ETC. HAS TO BE COORDINATED  
 WITH EQUIPMENT MANUFACTURERS.



# Design Standards

## Radiographic Fluoroscopic Room w/Control

### ARCHITECTURAL

Ceiling: Acoustic Ceiling Tile  
 Ceiling Ht: 2890 mm (9'-6")  
 Wall Finish: Paint  
 Wainscot: --  
 Base: Resilient base  
 Floor Finish: Vinyl Composition Tile  
 Slab Depr: 100 mm (4")  
 Notes: 1200 mm (4'-0") wide door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

### SPECIAL EQUIPMENT

None

### LIGHTING

General: 30 FC - 2.0W/sf  
 Special: 10FC - 3.0W/sf-  
 Notes: 1. Continuous fluorescent direct/indirect wall mounted fixture, acrylic prismatic lens on top and bottom, W/1-F32T8 lamp 3500 deg. K, CRI=75 (min.)  
 2. "X-ray in use DO NOT ENTER" sign fixture.  
 3. Recessed, lensed incandescent downlight with 100W, A-21 lamp.  
 4. Provide dimmers for down light illumination.

### POWER

General: 1000W (Receptacles)  
 Emergency: --  
 Notes: 1.The electrical plan as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements to be per the x-ray system suppliers equipment installation drawings.  
 2.Electrical trades shall provide necessary conduit, openings, bushings, nipples, flexible conduit etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.

### POWER (cont.)

Notes: 3. 480V., 3P., 150A., adjustable trip flush mounted circuit breaker with shunt trip. Run empty 600 mm (2') C. from circuit breaker to x-ray duct above finished ceiling.  
 4. 240V, 2P., 30A flush MTD. circuit breaker for film processor.  
 5. 250 mm x 140 mm (10" x 5-1/2") deep flush vertical wall duct with 300mm (12") wide screw-on cover. Connect to floor duct and to x-ray duct above finished ceiling.  
 6. 250 mm x 140 mm (10" x 5-1/2") deep flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.  
 7. 250 mm x 140 mm (10" x 5-1/2") deep x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.  
 8. Emergency Power Off (EPO) push button station. Connect to shunt trip breakers.

### COMMUNICATION

ADP: --  
 Radio: --  
 Telephone: Yes  
 Intercom: Yes  
 Pub. Addr: --  
 Notes: 1. Nurse Call in toilet room to annunciate at reception desk.

# Design Standards

## Radiographic Fluoroscopic Room w/Control

### HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	24°C (75°F)
Dry Bulb Temp Heating:	22°C (72°F)
Minimum % Outside Air:	15%
100% Exhaust Air:	Yes
Noise Criteria:	NC-40
Steam:	--
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	30%
Minimum Air Changes/Hr.:	radiographic supply: 6 Toilet exhaust: 10
Room Pressure:	negative for radiographic: Toilet: negative
AC Load Lighting:	35 W/m <sup>2</sup> (3.2 W/sf)
AC Load-Equipment:	Radiographic: 97 W/sm (9 W/sf)
Number of People:	6
Special Exhaust:	--
Notes:	1. See HVAC Design Manual for Hospital Projects for lead wrapping of ductwork penetrating lead lined walls.

### PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes
Notes:	--

# Equipment Guide List

## Radiographic Fluoroscopic Room w/Control

SYMBOL	QTY	AI	DESCRIPTION
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**NOTE:** PROVIDE PIPING CONNECTION FROM PROCESSORS TO SILVER RECOVERY SYSTEM, IF REQUIRED.

**NOTE:** SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.

**NOTE:** PROVIDE ONLY WHEN APPROVED FOR A SPECIFIC PROJECT (OXYGEN, AIR, VACUUM OUTLET AND BRACKET)

**NOTE:** OUTLETS TO BE ON THE WALL, NEAR HEAD END OF X-RAY TABLE, 1524mm (60") ABOVE THE FLOOR.

**NOTE:** OUTLET, WALL, MEDICAL AIR (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, OXYGEN (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, VACUUM (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** CONNECTIONS, PLUMBING, ELECTRICAL OR MECHANICAL AS REQUIRED

**NOTE:** LOW LEVEL DIMMED INCANDESCENT LIGHTING SYSTEM IN ADDITION TO GENERAL FLUORESCENT ILLUMINATION SYSTEM (PG-18-1, MCS 16510)

**NOTE:** SHADES, EXTERIOR WINDOWS (PG-18-1, MCS 12513)

**NOTE:** SHIELDING, RADIATION, FOR ROOMS WITH FIXED X-RAY EQUIPMENT, IN ACCORDANCE WITH (PG-18-1, MCS 13091; H-18-3, CS 64-1; PG-18-4, SD 24 THRU 24K AND NCRP REPORT NO. 33, 35 AND 49)

	1	CC	DISPENSER, SOAP, WALL MOUNTED WITH FOOT CONTROL (PG-18-1, MCS 10800)
P-418	1	CC	LAVATORY, SENSOR CONTROL (PG-18-1, MCS 15450, VOL. 3 SD 380)
	1	CF	CABINET, STORAGE, WALL MOUNTED, 254mm (10") ABOVE FINISHED FLOOR, 5 SHELVES AND FOLDING DOOR, APPROX., 610mm x 406mm x 1575mm (24" x 16" x 62")
	1	VC	X-RAY UNIT, RADIOGRAPHIC AND FLUOROSCOPIC CONSISTS OF THE FOLLOWING COMPONENTS:
	1	VC	BUCKY, TILT, WALL MOUNTED (USE IN TYPE R-F #2 AND TYPE R-F #3)
	1	VC	CAMERA UNIT, CINE, FOR USE WITH IMAGE INTENSIFIER (OPTIONAL)
	1	VC	CAMERA, SPOT, 100mm OR 105mm (USE IN TYPE R-F #3)
	1	VC	CAMERA, TV (FOR USE WITH IMAGE INTENSIFIER) (OPTIONAL)
	1	VC	CHANGER, CASSETTE
	1	VC	CONTROL, CINE CAMERA
	1	VC	IMAGE INTENSIFIER 152mm, 229mm (6", 9"), OR DUAL TYPE TO BE DETERMINED ON PROJECT BASIS

# Equipment Guide List

## Radiographic Fluoroscopic Room w/Control

SYMBOL	QTY	AI	DESCRIPTION
	1	VC	MODULE, POWER
	AR	VC	MONITOR, FOR USE WITH IMAGE INTENSIFIER
	1	VC	RAILS, CEILING FOR TUBE CARRIAGE, UNIVERSAL MOUNT
	1	VC	RECORDER, TV TAPE
	1	VC	STARTER, TUBE, HIGH SPEED
	1	VC	TABLE, 90 DEGREE - 15 DEGREE TRENDELENBURG R&F, WITH SPOT FILM DEVICE (TWO-WAY OR FOUR WAY TABLE TOP AND SIZE OF SPOT FILM TO BE DETERMINED ON PROJECT BASIS)
	1	VC	TABLE, TILT, 90 DEGREE - 90 DEGREE R&F, WITH SPOT FILM DEVICE (TWO-WAY OR FOUR WAY TABLE TOP AND SIZE OF SPOT FILM TO BE DETERMINED ON PROJECT BASIS)
	1	VC	TRANSFORMER, HIGH TENSION, X-RAY
	1	VC	TUBE CARRIAGE, CEILING MOUNTED
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPOSAL, NEEDLES, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	ILLUMINATOR, X-RAY, 120 VOLT, 20 AMP, WALL MOUNTED, APPROX., 508mm x 790mm (20" x 31"), 2 IN 1
	1	VV	RACK, GLOVE/APRON, WALL MOUNTED

## Radiographic Fluoroscopic Room - Control Area

SYMBOL	QTY	AI	DESCRIPTION
			<i>NOTE: PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN X-RAY ROOM, WHEN CONTROL BOOTH IS SEPERATED FROM X-RAY ROOM.</i>
			<i>NOTE: INCANDESCENT, DIMMING SYSTEM (PG-18-1, MCS 16510)</i>
			<i>NOTE: INTERCOM, STATION (PG-18-1, MCS 16510)</i>
			<i>NOTE: OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (PG-18-1, MCS 16111)</i>
			<i>NOTE: WINDOW, LEAD GLASS, MINIMUM 457mm x 610mm (18" x 24") (PG-18-1, MCS 13091; PG-18-4, SD 24G)</i>
	1	VC	CONSOLE, CONTROL, X-RAY, FOR X-RAYUNIT (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)

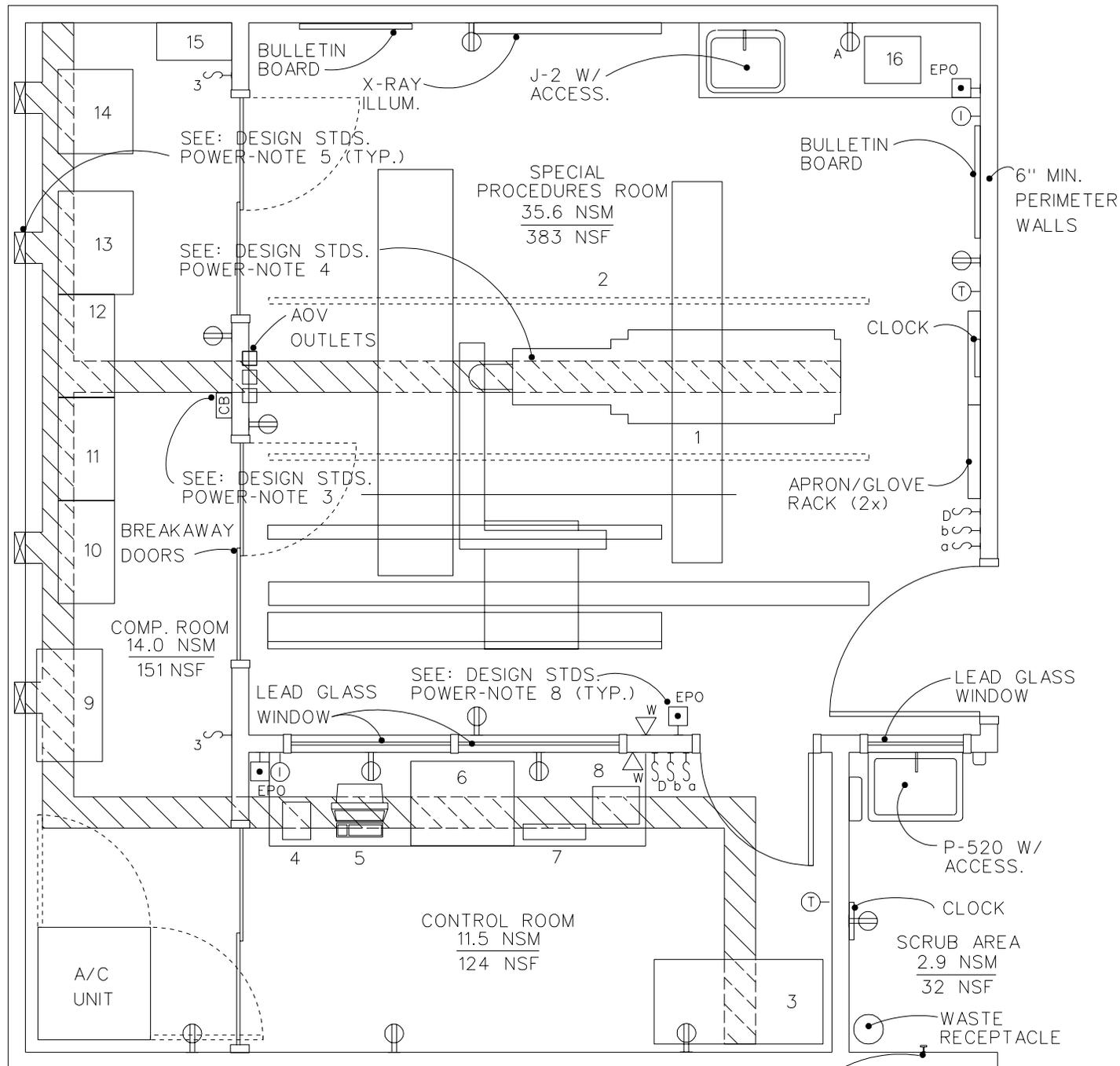
## Equipment Guide List

### Radiographic Fluoroscopic Room - Toilet Room

SYMBOL	QTY	AI	DESCRIPTION
	AR	CC	BAR, GRAB FOR WATER CLOSET (PG-18-1, MCS 10800; PG-18-4, SD 12)
	1	CC	DISPENSER, TOILET TISSUE, DOUBLE ROLL (PG-18-1, MCS 10800; PG-18-4, SD 12)
P-418	1	CC	LAVATORY, SENSOR CONTROL (PG-18-1, MCS 15450; VOL. 3 SD380)
	1	CC	MIRROR, 600mm x 910mm (24" x 36") OVER WHEELCHAIR LAVATORY (PG-18-1, MCS 10800; PG-18-4, SD 15)
P-103	1	CC	WATER CLOSET, WALL HUNG (PG-08-1, MCS 15450)
	1	VV	DISPENSER, BI-FOLD PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE 330mm (13") DIAMETER

# Equipment & Utility Plan Special Procedure Rm (non-affiliated Control Rm)

Final Draft 12-31-95  
Revised May 1997



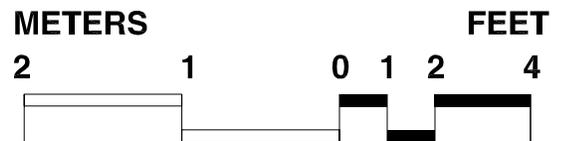
**SCHEDULE**

- |                          |                            |
|--------------------------|----------------------------|
| 1 PATIENT TABLE          | 9 ELECTRONICS CABINET      |
| 2 CEILING-MTD. TRACKS    | 10 POSITIONER CABINET      |
| 3 LASER IMAGER SYSTEM    | 11 SYSTEMS CABINET         |
| 4 DIGITAL TAPE ARCHIVE   | 12 POWER CABINET           |
| 5 DX MONITOR             | 13 TRANSFORM. CONTROL CAB. |
| 6 DX DIG. MONITOR/KEYBD. | 14 CAPAC. PULSE BIAS TANK  |
| 7 OPERATOR'S CONSOLE     | 15 SUPPRESSOR/FILTER       |
| 8 PROGR. CONTROL CONSOLE | 16 VIDEO TAPE RECORDER     |

NOTE:  
PERIMETER WALLS REQUIRE LEAD SHIELDING, A REGISTERED HEALTH PHYSICIST SHOULD CHECK ADJACENCY USES AND DETERMINE SHIELDING REQUIREMENTS.

**VA DESIGN GUIDE  
RADIOLOGY SERVICE**

**64.0 NSM  
690 NSF**

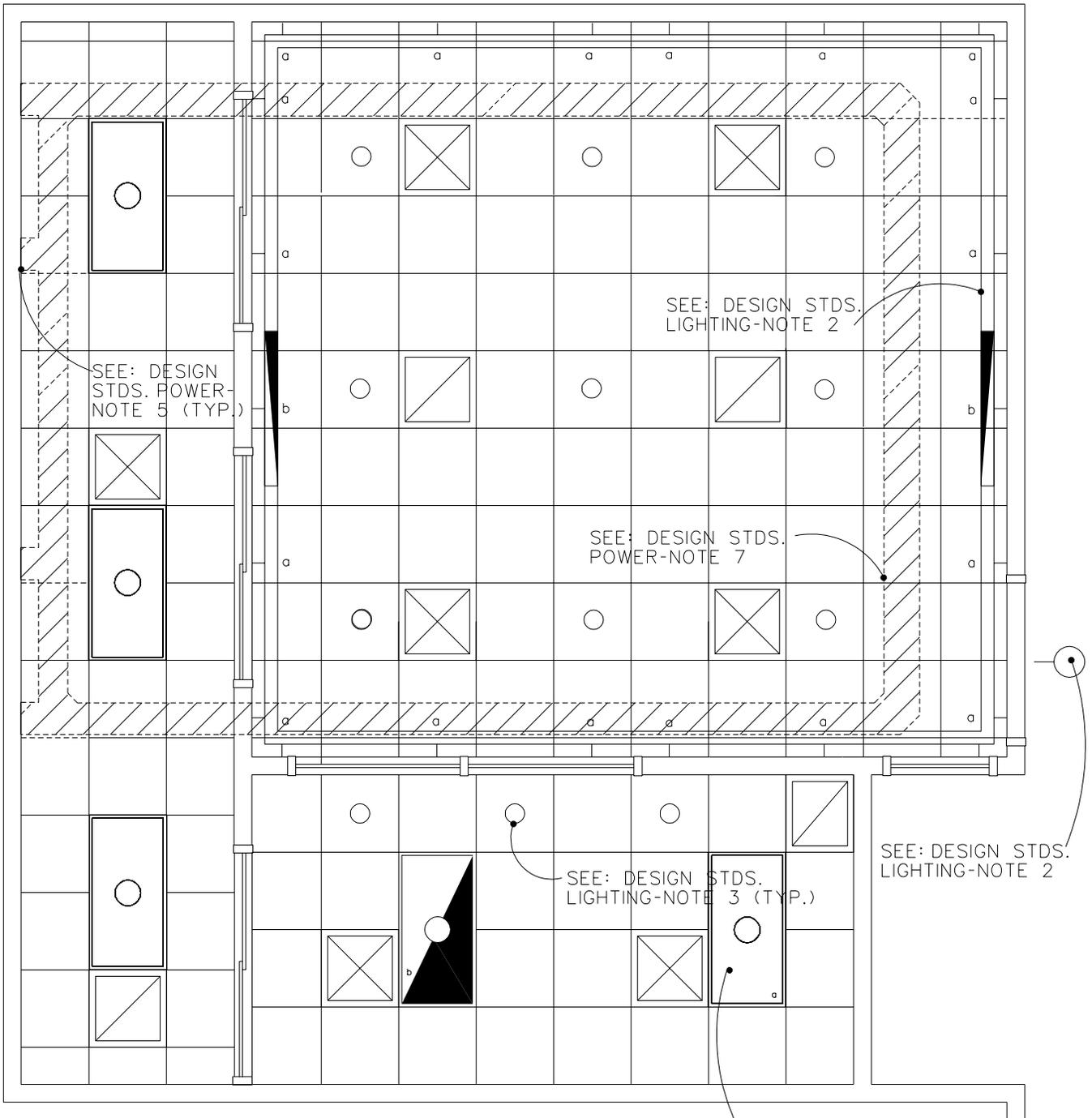


GUIDE PLATE 4-4

# Reflected Ceiling Plan Special Procedure Rm (non-affiliated Control Rm)

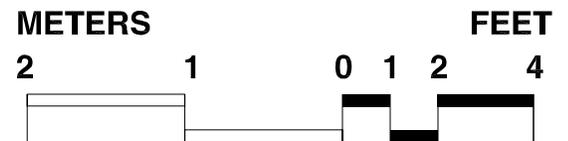
Final Draft 12-31-95

Revised May 1997



NOTE:  
CEILING PLAN AS SHOWN IS TO BE USED AS A GUIDE ONLY. DIRECTION AND LAYOUT OF CEILING TRACK AND SUSPENSION SYSTEM VARIES WITH MANUFACTURERS. FINAL LOCATION OF DIFFUSERS, LIGHTS, ETC. HAS TO BE COORDINATED WITH EQUIPMENT MANUFACTURERS.

SEE: DESIGN STDS. LIGHTING-NOTE 3 (TYP.)



## Design Standards

### Special Procedures (non-affiliated Control Room)

#### ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile
Ceiling Ht:	Coordinate/ with equipment Manufacturer
Wall Finish:	Painted veneer plaster
Wainscot:	--
Base:	Integral welded seam sheet flooring base
Floor Finish:	Welded seam sheet flooring
Slab Depr:	100 mm (4")
Notes:	1. 1200 mm (4'-0") wide door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

#### SPECIAL EQUIPMENT

None

#### LIGHTING

General:	50 FC (Procedure)
Special:	10 FC (Control)
Notes:	1. X-ray in use DO NOT ENTER sign fixture 2. Continuous fluorescent direct/indirect wall mounted light fixture, acrylic prismatic lens on top and bottom, W/2-F32T8 lamps, 3500 deg. K, CRI=75 (minimum.) 3. Recessed, lensed incandescent downlight with 100W, A-21 lamp. 4. 600 mm x 1200 mm (2'x4') recessed fluorescent light fixture, acrylic prismatic lens, W/3-F32T8 lamps, 3500 deg. K, CRI-75 (minimum). 5. Down light illumination level controlled by dimmers.

#### POWER

General:	1000W (Receptacles)
Emergency:	--
Notes:	1. The electrical plan as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements to be per the x-ray system suppliers equipment installation drawings.

#### POWER (cont.)

- Notes:
2. Electrical trades shall provide necessary conduit, openings, bushings, nipples, flexible conduit etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.
  3. 480V., 3P., 150A., adjustable trip flush mounted circuit breaker with shunt trip. Run empty 50mm (2") C. from circuit breaker to x-ray duct above finished ceiling.
  4. 300 mm x 140 mm (12' x 5-1/2") deep flush floor duct with screw-on cover. Connect to x-ray wall duct.
  5. 250 mm x 140 mm (10" x 5-1/2") deep flush vertical wall duct with 305mm (12") wide screw-on cover. Connect to floor duct and to x-ray duct above finished ceiling.
  6. 250 mm x 140 mm (10" x 5-1/2") deep flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
  7. 250 mm x 140 mm (10" x 5-1/2") deep x-ray duct above finished ceiling with 255mm (10") wide screw-on cover. Connect to vertical wall duct.
  8. Emergency Power Off (EPO) push button station. Connect to shunt trip circuit breakers.

# Design Standards

## Special Procedures (non-affiliated Control Room)

### COMMUNICATION

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	Yes
Pub. Addr:	--
Notes:	1. Nurse Call in toilet room to annunciate at reception desk.

### PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes
Notes:	--

### HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	25°C (78°F)
Dry Bulb Temp Heating:	22°C (72°F)
Minimum % Outside Air:	15%
100% Exhaust Air:	Yes
Noise Criteria:	--
Steam:	--
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	30%
Minimum Air Changes/Hr.:	

Special Procedures: 8  
Control Room: 4

Room Pressure: Special Procedures: Negative  
All Others: 0

AC Load Lighting: for  
Special Procedures: 39 W/sm (3.6 W/sf)  
Control Room: 26 W/sm (2.4 W/sf)

AC Load-Equipment:  
Special Procedures: 65 W/sm (6W/sf)  
Control Room: 13,000 Btu/hr - 3752W

Number of People: 6 for Procedure;  
All Others: 3

Special Exhaust: --

Notes: 1. Provide a dedicated AC unit for  
computer room sized to handle a  
minimum of 3 tons of cooling. Verify  
cooling capacity and other specific  
requirements with the equipment  
manufacturer on a specific project.

# Equipment Guide List

## Special Procedure Room (non-affiliated Control Room)

SYMBOL	QTY	AI	DESCRIPTION
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**NOTE:** THE FOLLOWING X-RAY EQUIPMENT TO BE DETERMINED ON PROJECT BASIS BY VETERANS HEALTH ADMINISTRATION.

**NOTE:** SHOULD VETERANS HEALTH ADMINISTRATION INDICATE A SINGLE PLANE ANGIOGRAPHIC FILM CHANGER, THE RADIOGRAPHIC UNIT FOR THE SECOND PLANE WILL BE OMITTED.

**NOTE:** OPTIONAL COMPONENTS TO BE DETERMINED BY VETERANS HEALTH ADMINISTRATION.

**NOTE:** OUTLET, WALL, EVACUATION (PG-18-1, MCS 15491; H-18-3, CS 310-1))

**NOTE:** OUTLET, WALL, MEDICAL AIR (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, NITROUS OXIDE (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, OXYGEN (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLET, WALL, VACUUM (PG-18-1, MCS 15491; H-18-3, CS 310-1)

**NOTE:** OUTLETS TO BE ON THE WALL, NEAR HEAD END AND OPPOSITE END OF X-RAY TABLE, 1524mm (60") ABOVE THE FLOOR.

**NOTE:** SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.

**NOTE:** ISOLATED POWER UNIT PROVIDES ISOLATED ELECTRICAL POWER, INCLUDES LINE ISOLATION MONITOR, ISOLATION TRANSFORMER AND CIRCUIT BREAKERS (DETAILS AVAILABLE FROM ELECTRICAL SERVICE)

**NOTE:** LOW LEVEL DIMMED INCANDESCENT LIGHTING SYSTEM IN ADDITION TO GENERAL FLUORESCENT ILLUMINATION SYSTEM (PG-18-1, MCS 16510)

**NOTE:** SHIELDING, RADIATION, FOR ROOMS WITH FIXED X-RAY EQUIPMENT, IN ACCORDANCE WITH (PG-18-1, MCS 13091; H-18-3, CS 64-1; PG-18-4, SD 24 THRU 24K AND NCRP REPORT NO. 33, 35 AND 49)

J-2	AR	CF	MODULAR CASEWORK
	1	CF	SINK, CORROSION RESISTING STEEL, WITH CENTER DRAIN OUTLET, 457mm x 381mm 203mm (18" x 15" x 8") (PG-18-1 & PG-18-6, MCS 11602)
	1	VC	X-RAY UNIT, RADIOGRAPHIC AND FLUOROSCOPIC CONSISTS OF THE FOLLOWING COMPONENTS:
	1	VC	CAMERA, 35/100 OR 105mm, USE WITH IMAGE INTENSIFIER (OPTIONAL)
	1	VC	CAMERA, TV (FOR USE WITH IMAGE INTENSIFIER) (OPTIONAL)
	1	VC	CARRIAGE, TUBE, CEILING MOUNTED, WITH TWO TUBE CRANES
	1	VC	CHANGER, FILM, ANGIOGRAPHIC, BI-PLANE
	1	VC	CHANGER, FILM, DUAL RAPID
	1	VC	CONTROL, CINE CAMERA

## Equipment Guide List

### Special Procedure Room (non-affiliated Control Room) (cont.)

SYMBOL	QTY	AI	DESCRIPTION
	1	VC	IMAGE INTENSIFIER, 152mm, 229mm (6", 9"), OR DUAL TYPE TO BE DETERMINED ON PROJECT BASIS
	1	VC	MODULE, POWER
	1	VC	MONITOR, FOR USE WITH IMAGE INTENSIFIER
	1	VC	RECORDER, TV TAPE
	1	VC	STARTER, TUBE, HIGH SPEED
	1	VC	SYRINGE, ANGIOGRAPHIC, AUTOMATIC, MOBILE
	1	VC	TABLE, TILT, 90 DEGREE - 90 DEGREE R&F, WITH SPOT FILM DEVICE (TWO-WAY OR FOUR WAY TABLE TOP AND SIZE OF SPOT FILM DEVICE TO BE DETERMINED ON PROJECT BASIS)
	1	VC	TRANSFORMER, HIGH TENSION, X-RAY
	1	VC	TRANSFORMER, HIGH TENSION, X-RAY
	1	VC	X-RAY UNIT, RADIOGRAPHIC, FOR SECOND PLANE OF ANGIOGRAPHIC FILM CHANGER, 480 VOLT, 3 PHASE 60 CYCLE
	1	VV	BULLETIN BOARD, 914mm x 610mm (36" x 24")
AR		VV	CART, MOBILE, 610mm x 1219mm x 914mm (24" x 48" x 36")
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPOSAL, NEEDLES, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	ILLUMINATOR, 4 PANEL, SURFACE MTD.
	2	VV	RACK, APRON, WALL MOUNTED
	2	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305mm (12") DIAMETER

### Special Procedure Rm (non-affiliated Control Rm)- Control Area

SYMBOL	QTY	AI	DESCRIPTION
			<i>NOTE: PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN X-RAY ROOM, WHEN CONTROL BOOTH IS SEPARATED FROM X-RAY ROOM.</i>
			<i>NOTE: INCANDESCENT, DIMMING SYSTEM (PG-18-1, MCS 16510)</i>
			<i>NOTE: INTERCOM, STATION (PG-18-1, MCS 16760)</i>
			<i>NOTE: LIGHT, WARNING (DO NOT ENTER) OVER DOOR (PG-18-4, SD E-D-2)</i>
			<i>NOTE: WINDOW, LEAD GLASS, 1397mm x 1219mm (55" x 48") (PG-18-1, MCS 13091)</i>
	1	VC	CONSOLE, CONTROL, X-RAY, FOR X-RAY UNIT (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
	1	VC	SELECTOR, PROGRAM, ANGIOGRAPHIC, FOR FILM CHANGER

# Equipment Guide List Special Procedure Rm (non-affiliated Control Rm) - Scrub Room

SYMBOL	QTY	AI	DESCRIPTION
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*NOTE: WINDOW, LEAD GLASS, 760mm X 1200mm (30" X 48"; PG-18-1, MCS-13)*

	AR	CC	DISPENSER, SOAP, WITH FOOT CONTROL, WALL MOUNTED OVER SINK (PG-18-1, MCS 10800)
P-520	AR	CC	SINK, SURGEONS, SCRUB-UP, SENSOR CONTROL (PG-18-1, MCS 15450; PG-18-4,)
	1	VV	CLOCK, BATTERY OPERATED
	AR	VV	DISPENSER, BRUSH, SCRUB
	AR	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, 330mm (13") DIAMETER