

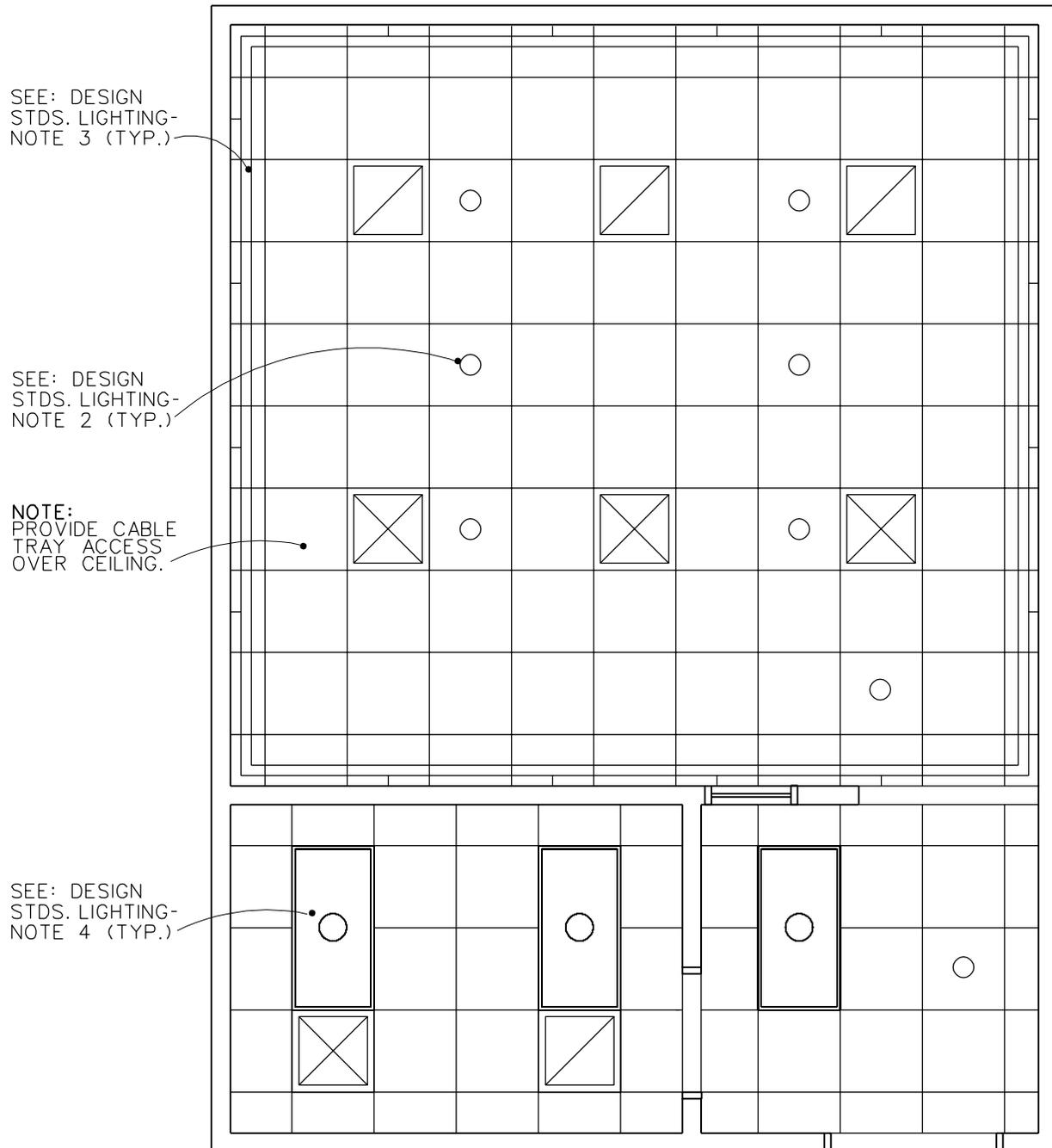
Section 4

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Treatment Planning Unit Reflected Ceiling Plan

FINAL DRAFT 2-29-96
Revised 10/96



Design Standards

Treatment Planning Unit

ARCHITECTURAL

Ceiling:	Acoustic lay-in ceiling tile
Ceiling Ht:	2895 mm (9'-6")
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl composition tile
Slab Depr:	Coordinate with equipment manufacturer
Notes:	1220mm (4'-0") wide door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

SPECIAL EQUIPMENT

None

LIGHTING

General:	Control Room: 30fc-1.6 w/sf Simulator Room: 0-30fc-3.5w/sf
Special:	--
Notes:	<ol style="list-style-type: none"> 1. "X-ray in use- Do Not Enter" warning sign fixture. 2. Recessed, lensed incandescent down light with 100w, A-21 lamp. 3. Continuous fluorescent direct/indirect wall mounted fixture, acrylic prismatic lens on top and bottom, W/2-F32T8 lamps, 4100 deg. K, CRI=85 (min.) 4. 600mm (2'-4") recessed fluorescent light fixture, acrylic lens, w/2-F32T8 lamps, 41000 deg. K, CRI=85 (minimum)

POWER

General:	1600w (receptacles)
Emergency:	--
Notes:	<ol style="list-style-type: none"> 1. 480V, 3P flush mounted circuit breaker with shunt trip for simulator system. Coordinate rating with system supplier. 2. Emergency power off (EPO) push button station connect to shunt trip circuit breakers.

COMMUNICATIONS

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	Yes
Pub. Addr:	--
Notes:	<ol style="list-style-type: none"> 1. Junction box for CCTV Camera with conduit to Control Room. 2. Junction box for CCTV Monitor cabling.

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:	Yes
Noise Criteria:	NC-40
Steam:	Yes
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	45%
Minimum Air Changes/Hr.:	8
Room Pressure:	Negative
AC Load Equipment:	4400w (15,000 Btu/hr)
Number of People:	6
Special Exhaust:	--
Notes:	1. Provide booster humidifier

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	Possible
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes
Notes:	<ol style="list-style-type: none"> 1. Verify with the equipment supplier regarding sanitary floor drain requirement. 2. Verify with the equipment supplier regarding cold water and compressed air requirements.

Equipment Guide List

Treatment Planning Unit

SYMBOL	QTY	AI	DESCRIPTION
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NOTE: THE FOLLOWING SIMULATOR EQUIPMENT TO BE DETERMINED ON A PROJECT BASIS BY VETERANS HEALTH SERVICES AND RESEARCH ADMINISTRATION

NOTE: LIGHT FIXTURE, WARNING, 120 VOLT, 20 AMP, RECESSED MOUNTED WITH 2-15 WATT, T-6, 145 VOLT (FURNISHED) AND WITH "IN USE" INSCRIPTION (H-18-4, SD E-D-1)

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

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

NOTE: OUTLET, WALL, OXYGEN, (H-18-1, MCS15491; H-18-3, CS 310-1)

NOTE: OUTLET, WALL, VACUUM, (H-18-1, MCS15491; H-18-3, CS 310-1)

NOTE: THE ABOVE OUTLETS GROUPED TOGETHER

NOTE: INTERCOM STATION (H-18-1, MCS 16760)

NOTE: OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (H-18-1, MCS 16111)

J-2	AR	CF	MODULAR CASEWORK
	1	CF	SINK, CORROSION RESISTING STEEL, WITH CENTER DRAIN OUTLET, 457 mm X 381 mm X 203 mm (18" X 15" X 8") (H-18-1 & H-18-6, MCS 11602)
	AR	VC	CONTROL CABINET
	1	VC	SIMULATOR GANTRY
	AR	VC	SIMULATOR, POSITIONING LIGHTS, LASER
	1	VC	TABLE, SIMULATOR
	1	VC	TRANSFORMER, HIGH VOLTAGE
	AR	VC	X-RAY CONTROL AND POWER UNIT
	2	VV	CAMERA, CCTV SYSTEM, WALL MTD.
	1	VV	CHAIR, PATIENT
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305 mm (12") DIAMETER

Equipment Guide List

Treatment Planning Unit - Film Processing

SYMBOL	QTY	AI	DESCRIPTION
	1	VC	PROCESSOR, FILM, AUTOMATIC, THRU-THE-WALL TYPE, CAPACITY 120 FILMS PER HOUR, 490mm W x 1035mm L x 600mm H (32"W x 35"L x 48"H)
	1	VC	TANK, REPLENISHER, 25 GAL. CAPACITY, 2 FOR EACH PROCESSOR
	1	VV	ILLUMINATOR, FILM, X-RAY 355mm x 430mm (14" x 17"), SURFACE MOUNTED, 120 VOLT, 20 AMP
	1	CC	RECEPTACLE, ELECTRICAL, DUPLEX, 120 VOLT, 20 AMP (PG-18-1, MCS 16140: PG-18-3, CS 801-3)
	1	CC	SINK, CORROSION RESISTING STEEL, SINGLE COMPARTMENT, WALL HUNG, APPROX. 760mm x 430mm x 205mm D (30" x 20" x 8"D) WITH 305mm (12") SPLASHBACK (PG-18-1, MCS 15450)
	1	CC	HOSE BIBB, COMBINATION FAUCET, WALL MOUNTED TO CONCEALED SUPPLY PIPES (PG-18-1, MCS 15450)
	1	CC	FLOOR DRAIN, NEAR FILM PROCESSING UNITS. (PLUMBING DESIGN CRITERIA AND INSTRUCTIONS)
	1	CC	FLOOR DRAIN, NEAR REPLENISHER TANK UNITS (PLUMBING DESIGN CRITERIA & INSTRUCTIONS)
AR		CC	CONNECTIONS, PLUMBING, ELECTRICAL OR MECHANICAL AS REQUIRED
AR		CF	COUNTER TOP, LENGTH AS REQUIRED x 600mmD x 940mmH (24"D x 37"H)(PG-18-1, MCS 11602, PG-18-6, ES 511)
	1	VV	DISPENSER, PAPERTWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED

Treatment Planning Unit - Dark Room

	1	CC	DARK ROOM, CASSETTE PASS BOX AS DETERMINED BY VETERANS HEALTH SERVICES AND RESEARCH ADMINISTRATION (PG-18-4, SC 24H)
	1	CC	DOORS, LIGHTPROOF OR LIGHT LOCK DOOR IF SPECIFIED (PG-18-1, MCS 11471)
	1	CC	SAFELIGHT (PG-18-4, SD E-D-4)
AR		CC	RECEPTACLE, ELECTRICAL, DUPLEX, 120 VOLT, 20 AMP (PG-18-1, MCS 16140, PG-18-3, CS 801-3)
AR		CC	ILLUMINATION, GENERAL (FOR CONTROL SEE PG-18-4, SD E-S-T)
AR		VV	UNITS, SILVER RECOVERY
AR		CC	CONNECTIONS, PLUMBING, ELECTRICAL OR MECHANICAL AS REQUIRED

Equipment Guide List

Treatment Planning Unit - Control Area, Simulator

SYMBOL	QTY	AI	DESCRIPTION
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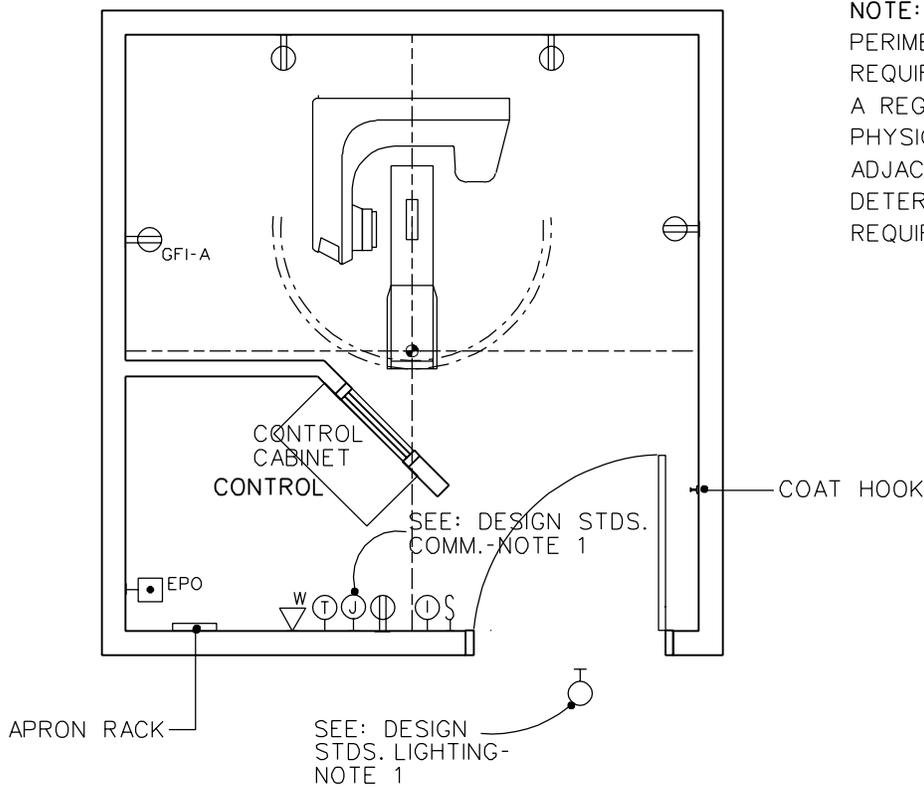
NOTE: INCANDESCENT, DIMMING SYSTEM (H-18-1, MCS 16510)

NOTE: WINDOW, LEAD GLASS, MINIMUM 457 mm X 610 mm (18" X 24") (H-18-1, MCS 13091; H-18-4, SD 24G)

1	CC		RACK, APRON AND GLOVE, WALL MTD.
1	VC		CONSOLE, CONTROL, FOR SIMULATOR UNIT (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
1	VV		CLOCK, BATTERY OPERATED
1	VV		ILLUMINATOR, 2 PANEL, SURFACE MTD.

Superficial Therapy Unit Equipment & Utility Plan

FINAL DRAFT 2-29-96
Revised 10/96



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

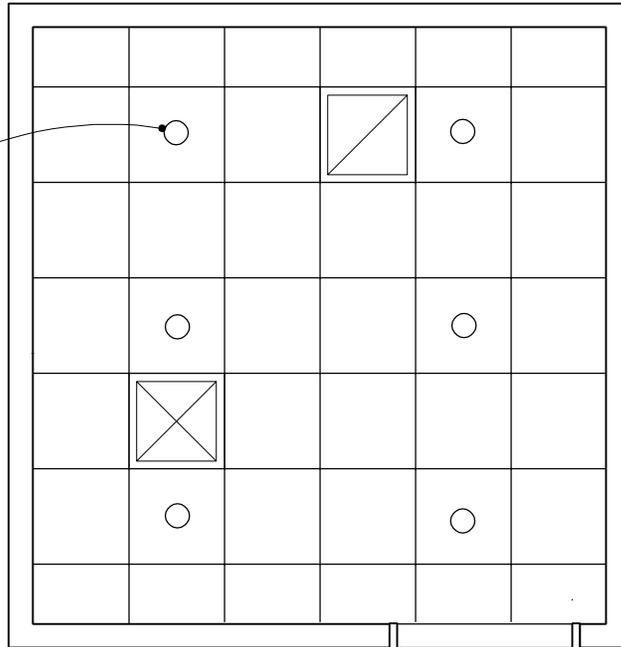
13.9 NSM
150 NSF



Superficial Therapy Unit Reflected Ceiling Plan

FINAL DRAFT 2-29-96
Revised 10/96

SEE: DESIGN
STDS. LIGHTING-
NOTE 2 (TYP.)



Design Standards

Superficial Therapy Unit

ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile
Ceiling Ht:	2745 mm (9'-0")
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl Composition Tile or Carpet
Slab Depr:	Coordinate with equipment manufacturer

- Notes: 1. 1200 mm (4'-0") wide automatic door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

SPECIAL EQUIPMENT

None

LIGHTING

General:	0-30 fc - 1.3 w/sf
Special:	---

- Notes: 1. "Beam On" and "Beam Ready" warning sign fixture.
2. Recessed, lensed incandescent downlight with 100W, A-21 lamp.

POWER

General:	1800W (receptacles)
Emergency:	

- Notes: 1. 480V, 3P flush mounted circuit breaker with shunt trip for linear accelerator system. Coordinate rating with system supplier.
2. Emergency power off (EPO) push button station. Connect to shunt trip circuit breaker.

COMMUNICATION

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

- Notes: 1. Junction box for CCTV camera with conduit to control room.
2. Junction box for CCTV monitor cabling.

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:	Yes
Noise Criteria:	NC-40
Steam:	Yes
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	45%
Minimum Air Changes/Hr.:	8
Room Pressure:	Negative
AC Load Lighting: Therapy:	14 w/sm (1.3 w/sf)
Control:	28w/sm (2.6w/sf)

AC Load-Equipment:

Therapy: 12,505w (42,675 Btu/hr)
Control: 2,520w (8,600 Btu/hr)

Number of People:	6
Special Exhaust:	Yes

- Notes: 1. Route all ductwork over door to avoid radiation scatter.
2. Coordinate coolant water requirement with equipment supplier. The use of city water is not permitted.

PLUMBING AND MEDICAL GASES

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

- Notes: 1. Provide a line of compressed air capable of providing minimum of 1 CFM at 5 psig.
2. Dry preaction system is recommended for fire protection system.
3. Some local potable water supplies could cause excessive corrosion and frequent replacement of the internal equipment heat exchange. Consult equipment manufacturer regarding water treatment requirements.

Equipment Guide List

Superficial Therapy Unit

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

1	VC		THERAPY UNIT, X-RAY, HIGH FREQUENCY
1	VC		POWER UNIT DEVICE
2	VC		COOLER, WATER
1	VC		STABILIZER
			INSTALL POWER UNIT DEVICE, WATER COOLER AND STABILIZER IN AN ENCLOSED SPACE NOT LESS THAN, 154mm x 3048mm (5'-0" x 10'-0") WITH VENTILATION TO DISSIPATE HEAT GENERATED, AMOUNT OF EQUIPMENT VARIES WITH MANUFACTURER.
			NOTE: SERVICES, ELECTRICAL & PLUMBING, AS REQUIRED FOR EQUIPMENT.
1	VV		TABLE, THERAPY, HYDRAULIC, MOBILE
1	CC		DOOR, POWER OPERATED, WITH ELECTRIC SAFETY INTERLOCK TIED INTO CONTROL PANEL WITH LEAD GLASS WINDOW (PG-18-1, MCS 13091; PG18-4, SD 24G)
1	CC		WINDOW, VIEWING, LEAD GLASS, FOR PATIENT OBSERVATION (PG-18-1, MCS 13091; PG-18-4, SD 25G)
AR	CC		SHIELDING, RADIATION, FOR ROOMS WITH FIXED X-RAY EQUIPMENT, IN ACCORDANCE WITH (PG-18-1, MSC 13091, H-18-3, CS 64-1; PG-18-4, SD 24 THRU 24K AND NCRP REPORT NO. 33, 35 AND 49)
1	CC		SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (PG-18-1, MCS 16771)

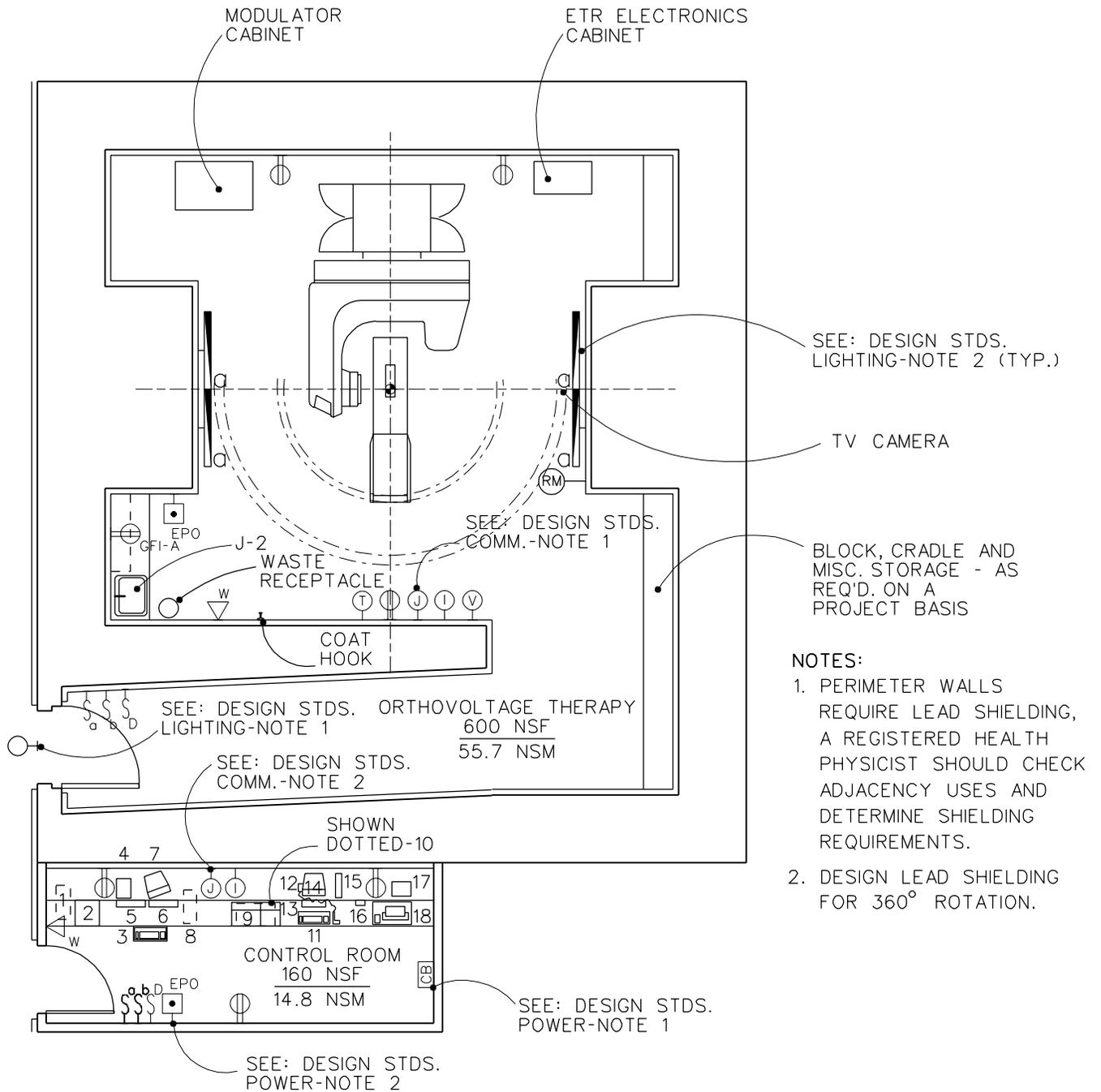
Equipment Guide List

Superficial Therapy Unit, Control Area

SYMBOL	QTY	AI	DESCRIPTION
	1	VV	CABINET, CONTROL FOR THERAPY UNIT (LOCATE ON SHELF DIRECTLY BELOW DIRECTLY BELOW LEAD GLASS VIEWING WINDOW) (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
AR		CC	INCANDESCENT, DIMMING SYSTEM (PG-18-1, MCS 16510)
1		CC	INTERCOM, STATION (PG-18-1, MCS 16760)
1		CC	OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (PG-18-1, MCS 16111)

Orthovoltage Therapy Unit Equipment & Utility Plan

FINAL DRAFT 2-29-96
Revised 10/96



SCHEDULE

1 CCX INTERFACE	13 RMS WORKSTATION COMPUTER
2 PIVIDEO IMAGER	14 RMS VIDEO MONITOR
3 PIDEDICATED KEYBOARD	15 RMS TAPE DRIVE
4 PIVOPTICAL STO. DEVICE	16 RMS POWER SUPPLY
5 PIMAGE DETECTOR INTERFACE	17 RMS LOG PRINTER - MAY BE REMOTELY LOCATED
6 PIVIRTUAL IMAGING COMPUTER	18 RMS CHART PRINTER
7 PIVIDEO MONITOR	
8 CARD RACK	
9 LIN. ACC. CONTROL CONSOLE	ABBREVIATIONS
10 LIN. ACC. CONTROL CONSOLE	PI - PORTAL IMAGING
11 RMS DEDICATED KEYBOARD	RMS - RADIOTHERAPY MANAGEMENT SYSTEM
12 RMS BAR CODE READER	

70.6 NSM
760 NSF

METERS

FEET



Design Standards

Orthovoltage Therapy Unit

ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile
Ceiling Ht:	2895 mm (9'-6")
Wall Finish:	Painted Concrete
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl Composition Tile or Carpet
Slab Depr:	Coordinated with equipment manufacturer
Notes:	1200mm (4'-0") wide automatic door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

SPECIAL EQUIPMENT

None

LIGHTING

General:	30 FC - 3.2 W/SF
Special:	--
Notes:	<ol style="list-style-type: none"> 1. "Beam On" and "Beam Ready" warning sign fixture. 2. Continuous fluorescent direct/indirect fixture, acrylic prismatic lens on top and bottom, with 2-F32T8 lamps, 4100 deg. K CRI=85. 3. 600mm x 1200mm (2'x4') recessed fluorescent light fixtures, acrylic prismatic lens, w/2-F32T8 lamps, 4100 deg. K, CRI-85 (minimum). 4. 600mm x 600mm (2'x2') recessed fluorescent light fixture, acrylic prismatic lens, w/2 FB31 lamps, 4100 deg. K, CRI-85 5. Recessed, lensed incandescent downlight with 100W, A-21 lamp.

POWER

General:	1000W (Receptacles)
Emergency:	--
Notes:	<ol style="list-style-type: none"> 1. 480V, 3P flush mounted circuit breaker with shunt trip for linear accelerator system. Coordinate rating with system supplier. 2. Emergency power off (EPO) push button station. Connect to shunt trip circuit breaker.

COMMUNICATION

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	Yes
Pub. Addr	Yes
Notes:	<ol style="list-style-type: none"> 1. Route all ductwork in vault down maze and over door to avoid radiation scatter. 2. Coordinate coolant water requirement with equipment supplier. The use of city water is not permitted. 3. Provide dedicated exhaust system to biological safety cabinet (if required).

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:	Yes
Noise Criteria:	NC-40
Steam:	Yes
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	45%
Minimum Air Changes/Hr.:	8
Room Pressure:	negative
AC Load-Equipment:	
Therapy Room:	12,505 w (42,675 Btu/hr)
Control Room:	2,520 w (8,600 Btu/hr)
AC Load Lighting:	
Therapy Room:	14 w/sm (1.3 w/sf)
Control Room:	28 w/sm (2.6 w/sf)
Number of People:	6
Special Exhaust:	Yes
Notes:	--

Design Standards

Orthovoltage Therapy Unit

PLUMBING AND MEDICAL GASES

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

- Notes:
1. Provide a line of compressed air capable of providing minimum of 1 CFM at 5 psig.
 2. Dry preaction system is recommended for fire protection system.
 3. Some local potable water supplies could cause excessive corrosion and frequent replacement of the internal equipment heat exchange. consult equipment manufacturer regarding water treatment requirements.

Equipment Guide List

Orthovoltage Therapy Unit

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

NOTE: SERVICES, ELECTRICAL & PLUMBING, AS REQUIRED FOR EQUIPMENT.

NOTE: THE FOLLOWING ORTHOVOLTAGE EQUIPMENT TO BE DETERMINED ON PROJECT BASIS BY VETERANS HEALTH ADMINISTRATION (VHA).

NOTE: DOOR, POWER OPERATED, WITH ELECTRIC SAFETY INTERLOCK TIED INTO CONTROL PANEL WITH LEAD GLASS WINDOW (H-18-1, MCS 08721)

NOTE: LIGHT FIXTURE, WARNING, 120 VOLT, 20 AMP, RECESSED MOUNTED WITH 2-15 WATT, T-6, 145 VOLT (FURNISHED) AND WITH "IN USE" INSCRIPTION (H-18-4, SD E-D-1)

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

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

NOTE: SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (H-18-1, MCS 16771)

J-2	AR	CF	MODULAR CASEWORK
	AR	CF	SINK, CORROSION RESISTING STEEL, WITH CENTER DRAIN OUTLET, 457 mm X 381 mm X 203 mm (18" X 15" X 8") (H-18-1 & H-18-6, MCS 11602)
	AR	VC	CAMERA, TV, CLOSED CIRCUIT (FOR PATIENT OBSERVATION)
	1	VC	THERAPY UNIT
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	MONITOR, RADIATION, BATTERY POWERED, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305 mm (12") DIAMETER

Equipment Guide List

Control Area, Orthovoltage Therapy Unit

SYMBOL	QTY	AI	DESCRIPTION
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NOTE: PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN THERAPY ROOM, WHEN CONTROL BOOTH IS SEPARATED FROM THERAPY ROOM.

NOTE: INTERCOM, STATION (H-18-1, MCS 16760)

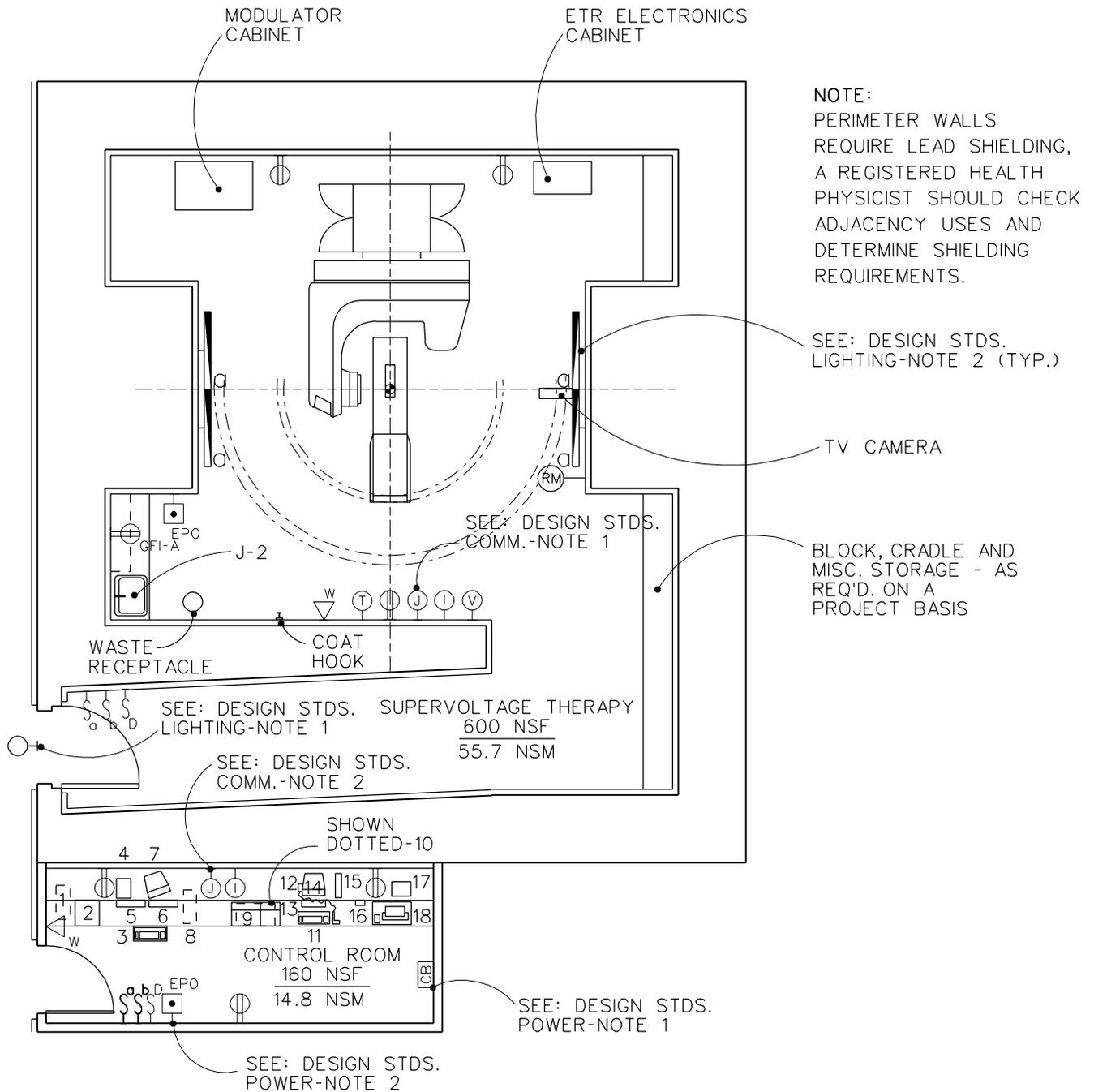
NOTE: OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (H-18-1, MCS 16111)

NOTE: SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (H-18-1, MCS 16771)

1	VC	CONTROL UNIT, FOR THERAPY UNIT, LOCATED ON COUNTER (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
1	VC	MONITOR, CLOSED CIRCUIT TV - FOR PATIENT OBSERVATION

Supervoltage - Unit / Control - Cobalt 60 Equipment & Utility Plan

FINAL DRAFT 2-29-96
Revised 10/96



SCHEDULE

1 CCX INTERFACE	13 RMS WORKSTATION COMPUTER
2 PIVIDEO IMAGER	14 RMS VIDEO MONITOR
3 PDEDICATED KEYBOARD	15 RMS TAPE DRIVE
4 PIVOPTICAL STO. DEVICE	16 RMS POWER SUPPLY
5 PIMAGE DETECTOR INTERFACE	17 RMS LOG PRINTER - MAY BE REMOTELY LOCATED
6 PIVIRTUAL IMAGING COMPUTER	18 RMS CHART PRINTER
7 PVIDEO MONITOR	
8 CARD RACK	
9 LIN. ACC. CONTROL CONSOLE	ABBREVIATIONS
10 LIN. ACC. CONTROL CONSOLE	PI - PORTAL IMAGING
11 RMS DEDICATED KEYBOARD	RMS - RADIOTHERAPY MANAGEMENT SYSTEM
12 RMS BAR CODE READER	

70.6 NSM
760 NSF

METERS

FEET



Design Standards

Supervoltage Unit

ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile Lay-In
Ceiling Ht:	2895 mm (9'-6")
Wall Finish:	Painted Concrete
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl Composition Tile or Carpet
Slab Depr:	Coordinate with equipment manufacturer
Notes:	1200mm (4'-0") wide automatic neutron shielded door. See VA Construction Standard 64-1, "X-Ray Radiation Shielding and special Control".

SPECIAL EQUIPMENT

None

LIGHTING

General:	
Megavoltage Rm:	0-30 fc = 1.3 w/sf
Control Room:	0-30fc=2.6 w/sf
Special:	--
Notes:	<ol style="list-style-type: none"> 1. "Beam On" and "Beam Ready" warning sign fixture. 2. Continuous fluorescent direct/indirect fixture, acrylic prismatic lens on top and bottom, with 2-F32T8 lamps, 4100 deg. K CRI=85. 3. 600mm x 1200mm (2'x4') recessed fluorescent light fixtures, acrylic prismatic lens, w/2-F32T8 lamps, 4100 deg. K, CRI-85 (minimum). 4. 600mm x 600mm (2'x2') recessed fluorescent light fixture, acrylic prismatic lens, w/2 FB31 lamps, 4100 deg. K, CRI-85 5. Recessed, lensed incandescent downlight with 100W, A-21 lamp

POWER

General:	1000W (Receptacles)
Emergency:	--
Notes:	1. 480V, 3P flush mounted circuit breaker with shunt trip for linear accelerator system. Coordinate rating with system supplier.

POWER (cont.)

2. Emergency power off (EPO) push button station. Connect to shunt trip circuit breaker.

COMMUNICATION

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	Yes
Public Addr:	Yes
Notes:	<ol style="list-style-type: none"> 1. Junction box for CCTV camera with conduit to control room. 2. Junction box for CCTV monitor cabling.

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:	Yes
Noise Criteria:	NC-40
Steam:	Yes
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	45%
Minimum Air Changes/Hr.:	8
Room Pressure:	Negative
AC Load-Equipment:	
Therapy Rm:	12,505 w (42,675 Btu/hr)
Control Room:	2,520 w (8,600 Btu/hr)
AC Load Lighting:	
Therapy Rm:	14 w/sm (1.3 w/sf)
Control Room:	28 w/sm (2.6 w/sf)
Number of People:	6
Special Exhaust:	Yes
Notes:	<ol style="list-style-type: none"> 1. Route all ductwork in vault down maze and over door to avoid radiation scatter. 2. Coordinate coolant water requirement with equipment supplier. The use of city water is not permitted. 3. Provide dedicated exhaust system to biological safety cabinet (if required).

Design Standards

Supervoltage Unit

PLUMBING AND MEDICAL GASES

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

- Notes:
1. Provide a line of compressed air capable of providing minimum of 1 CFM at 5 psig.
 2. Dry preaction system is recommended for fire protection system.
 3. Some local potable water supplies could cause excessive corrosion and frequent replacement of the internal equipment heat exchange. consult equipment manufacturer regarding water treatment requirements.

Equipment Guide List

Supervoltage Unit

SYMBOL	QTY	AI	DESCRIPTION
			NOTE: PROVIDE ONLY WHEN APPROVED FOR A SPECIFIC PROJECT (AIR, OXYGEN, VACUUM OUTLET AND BRACKET).
			NOTE: SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.
			NOTE: STATIONARY THERAPY UNIT MAY BE SUBSTITUTED IF APPROVED FOR A SPECIFIC PROJECT.
			NOTE: THE FOLLOWING X-RAY EQUIPMENT TO BE DETERMINED ON PROJECT BASIS BY VETERANS HEALTH ADMINISTRATION.
			NOTE: DOOR, POWER OPERATED, WITH ELECTRIC SAFETY INTERLOCK TIED INTO CONTROL PANEL WITH LEAD GLASS WINDOW (H-18-1, MCS 08721)
			NOTE: LIGHT FIXTURE, WARNING, 120 VOLT, 20 AMP, RECESSED MOUNTED WITH 2-15 WATT, T-6, 145 VOLT (FURNISHED) AND WITH "IN USE" INSCRIPTION (H-18-4, SD E-D-1)
			NOTE: LOW LEVEL DIMMED INCANDESCENT LIGHTING SYSTEM IN ADDITION TO GENERAL FLUORESCENT ILLUMINATION SYSTEM (H-18-1, MCS 16510)
			NOTE: PROTECTION, RADIATION - TO BE PRESCRIBED BY A REGISTERED RADIOLOGICAL PHYSICIST APPROVED BY THE AMERICAN BOARD OF RADIOLOGY IN ACCORDANCE WITH STANDARDS AND REGULATIONS OF NCRP REPORT 49 AND 50 AS APPROPRIATE
			NOTE: SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (H-18-1, MCS 16771)
J-2	AR	CF	MODULAR CASEWORK
	AR	CF	SINK, CORROSION RESISTING STEEL, WITH CENTER DRAIN OUTLET, 457 mm X 381 mm X 203 mm (18" X 15" X 8") (H-18-1 & H-18-6, MCS 11602)
	1	VC	CAMERA, TV, CLOSED CIRCUIT (FOR PATIENT OBSERVATION)
	1	VC	SUPERVOLTAGE THERAPY UNIT
	AR	VC	POSITIONING LIGHTS, LASER
	1	VC	TABLE, THERAPY, HYDRAULIC, MOBILE
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	MONITOR, RADIATION, BATTERY POWERED, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305 mm (12") DIAMETER

Equipment Guide List

Control Area, Supervoltage Therapy Unit

SYMBOL	QTY	AI	DESCRIPTION
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NOTE: PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN COBALT ROOM WHEN CONTROL BOOTH IS SEPARATED FROM COBALT ROOM.

NOTE: INTERCOM, STATION (H-18-1, MCS 16760)

NOTE: OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (H-18-1, MCS 16111)

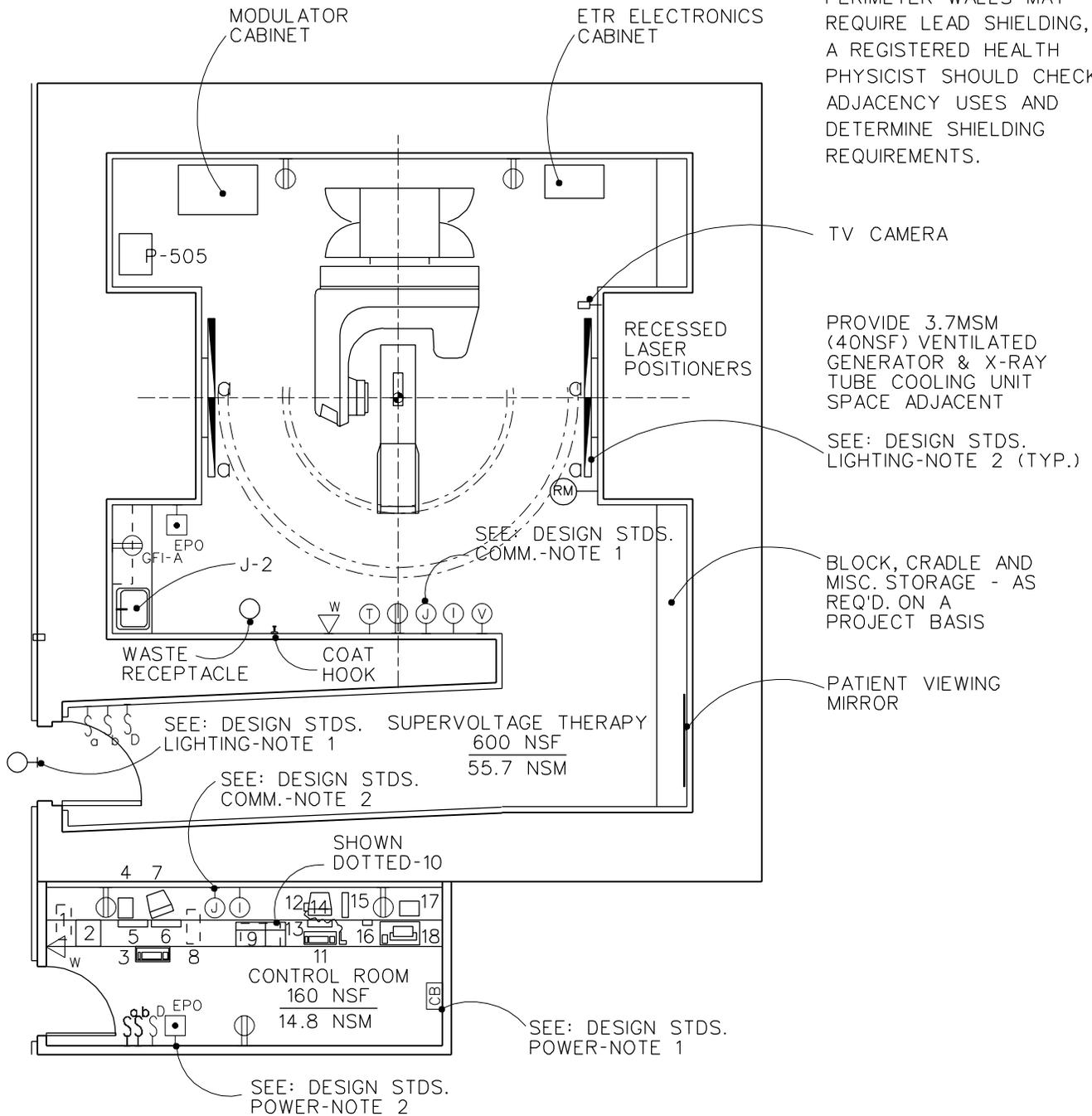
NOTE: SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (H-18-1, MCS 16771)

1	VC	CABINET, CONTROL FOR THERAPY UNIT, LOCATE ON COUNTER (CAPACITY OF GENERATOR TO BE DETERMINED ON PROJECT BASIS)
1	VC	MONITOR, CLOSED CIRCUIT TV - FOR PATIENT OBSERVATION

Megavoltage Unit /Control > 10 MeV Equipment & Utility Plan

FINAL DRAFT 2-29-96
Revised 10/96

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



SCHEDULE

1 CCX INTERFACE	13 RMS WORKSTATION COMPUTER
2 PI VIDEO IMAGER	14 RMS VIDEO MONITOR
3 PIDEDICATED KEYBOARD	15 RMS TAPE DRIVE
4 PIOPTICAL STO. DEVICE	16 RMS POWER SUPPLY
5 PIIMAGE DETECTOR INTERFACE	17 RMS LOG PRINTER - MAY BE REMOTELY LOCATED
6 PIVIRTUAL IMAGING COMPUTER	18 RMS CHART PRINTER
7 PIVIDEO MONITOR	
8 CARD RACK	
9 LIN. ACC. CONTROL CONSOLE	ABBREVIATIONS
10 LIN. ACC. CONTROL CONSOLE	PI - PORTAL IMAGING
11 RMS DEDICATED KEYBOARD	RMS - RADIOTHERAPY MANAGEMENT SYSTEM
12 RMS BAR CODE READER	

70.6 NSM
760 NSF



Design Standards

Megavoltage Unit

ARCHITECTURAL

Ceiling:	Acoustic Ceiling Tile
Ceiling Ht:	2895 mm (9'-6")
Wall Finish:	
Painted	
Wainscot:	--
Base:	Resilient base
Floor Finish:	Vinyl Composition Tile or Carpet
Slab Depr:	Coordinate with equipment manufacturer
Notes:	1200mm (4'-0") wide automatic door. See VA Construction Standard 64-1, X-Ray Radiation Shielding and Special Control".

SPECIAL EQUIPMENT

None

LIGHTING

General:	Control Rm:	0-30fc=1.3w/sf
	Megavoltage Rm:	0-30fc=2.6w/sf
Special:		--
Notes:	<ol style="list-style-type: none"> 1. "Beam On" and "Beam Ready" warning sign fixture. 2. Continuous fluorescent direct/indirect fixture, acrylic prismatic lens on top and bottom, with 2-F32T8 lamps, 4100 deg. K CRI=85. 3. 600mm x 1200mm (2'x4') recessed fluorescent light fixtures, acrylic prismatic lens, w/2-F32T8 lamps, 4100 deg. K, CRI-85 (minimum). 4. 600mm x 600mm (2'x2') recessed fluorescent light fixture, acrylic prismatic lens, w/2 FB31 lamps, 4100 deg. K, CRI-85 5. Recessed, lensed incandescent downlight with 100W, A-21 lamp 	

POWER

General:	1800w (Receptacles)
Emergency:	--
Notes:	<ol style="list-style-type: none"> 1. 480V, 3P flush mounted circuit breaker with shunt trip for linear accelerator system. Coordinate rating with system supplier. 2. Emergency power off (EPO) push button station. Connect to shunt trip circuit breaker.

COMMUNICATION

ADP:	--
Radio:	--
Telephone:	Yes
Intercom:	Yes
Public Addr:	Yes
Notes:	<ol style="list-style-type: none"> 1. Junction box for CCTV camera with conduit to control room. 2. Junction box for CCTV monitor cabling.

Design Standards

Megavoltage Unit

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:	Yes
Noise Criteria:	NC-40
Steam:	Yes
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	45%
Minimum Air Changes/Hr.:	8
Room Pressure:	Negative
AC Load-Equipment:	
Therapy Rm:	12,505w (42,675 Btu/hr)
Control Room:	2,520w (8,600 Btu/hr)
AC Load Lighting:	
Therapy Rm:	14w/sm (1.3 w/sf)
Control Rm:	28 w/sm (2.6w/sf)
Number of People:	6
Special Exhaust:	Yes
Notes:	<ol style="list-style-type: none"> 1. Route all ductwork in vault down maze and over door to avoid radiation scatter. 2. Coordinate coolant water requirement with equipment supplier. The use of city water is not permitted. 3. Provide dedicated exhaust system to biological safety cabinet (if required).

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent Grade Water:	As Required
Medical Air:	--
Medical Vacuum:	--
Oxygen:	--
Notes:	<ol style="list-style-type: none"> 1. Provide a line of compressed air capable of providing minimum of 1 CFM at 5 psig. 2. Dry preaction system is recommended for fire protection system. 3. Some local potable water supplies could cause excessive corrosion and frequent replacement of the internal equipment heat exchange. consult equipment manufacturer regarding water treatment requirements.

Equipment Guide List

Megavoltage Unit

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

NOTE: SERVICES, ELECTRICAL, AS REQUIRED FOR EQUIPMENT.

NOTE: THE FOLLOWING X-RAY EQUIPMENT TO BE DETERMINED ON PROJECT BASIS BY VETERANS HEALTH ADMINISTRATION.

NOTE: DOOR, POWER OPERATED, WITH ELECTRIC SAFETY INTERLOCK TIED INTO CONTROL PANEL WITH LEAD GLASS WINDOW (H-18-1, MCS 08721)

NOTE: INDIRECT, FLUORESCENT, DIMMED LIGHTING SYSTEM (H-18-1, MCS 16510)

NOTE: LIGHT FIXTURE, WARNING, 120 VOLT, 20 AMP, RECESSED MOUNTED WITH 2-15 WATT, T-6, 145 VOLT (FURNISHED) AND WITH "IN USE" INSCRIPTION (H-18-4, SD E-D-1)

NOTE: PROTECTION, RADIATION - TO BE PRESCRIBED BY A REGISTERED RADIOLOGICAL PHYSICIST APPROVED BY THE AMERICAN BOARD OF RADIOLOGY IN ACCORDANCE WITH STANDARDS AND REGULATIONS OF NCRP REPORT 49 AND 50 AS APPROPRIATE

NOTE: SPEAKER, WITH CHANNEL SELECTOR AND VOLUME CONTROL, HOSPITAL RADIO SYSTEM (H-18-1, MCS 16771)

	AR	CC	CUSTOM STORAGE CASEWORK
	AR	CF	MODULAR CASEWORK
J-2	AR	CF	SINK, CORROSION RESISTING STEEL, WITH CENTER DRAIN OUTLET, 457 mm X 381 mm X 203 mm (18" X 15" X 8") (H-18-1 & H-18-6, MCS 11602)
	AR	VC	ACCELERATOR POSITIONING LIGHTS, LASER
	1	VC	ACCELERATOR, LINEAR
	2	VC	CAMERA, TV, CLOSED CIRCUIT (FOR PATIENT OBSERVATION)
	1	VV	MONITOR, RADIATION, BATTERY POWERED, WALL MOUNTED
	1	VV	TABLE, THERAPY, HYDRAULIC, MOBILE
	1	VV	CLOCK, BATTERY OPERATED
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	1	VV	HOOK, COAT, WALL MOUNTED
	1	VV	RECEPTACLE, WASTE, STEP ON TYPE, APPROX., 305 mm (12") DIAMETER

Equipment Guide List

Control Area, Megavoltage Unit

SYMBOL	QTY	AI	DESCRIPTION
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NOTE: PROVIDE INTERCOM STATION IN CONTROL BOOTH CONNECTED TO REMOTE STATION IN THERAPY ROOM, WHEN CONTROL BOOTH IS SEPARATED FROM THERAPY ROOM.

NOTE: INTERCOM, STATION (H-18-1, MCS 16760)

NOTE: OUTLET, INTERCOM (EMPTY CONDUIT SYSTEM) (H-18-1, MCS 16111)

1	VC		CABINET, CONTROL, FOR LINEAR ACCELERATOR (CAPACITY OF)
1	VC		MONITOR, CLOSED CIRCUIT TV - FOR PATIENT OBSERVATION