

Section 4

**Design Guide Plates
and Data Sheets:
Operating Rooms**

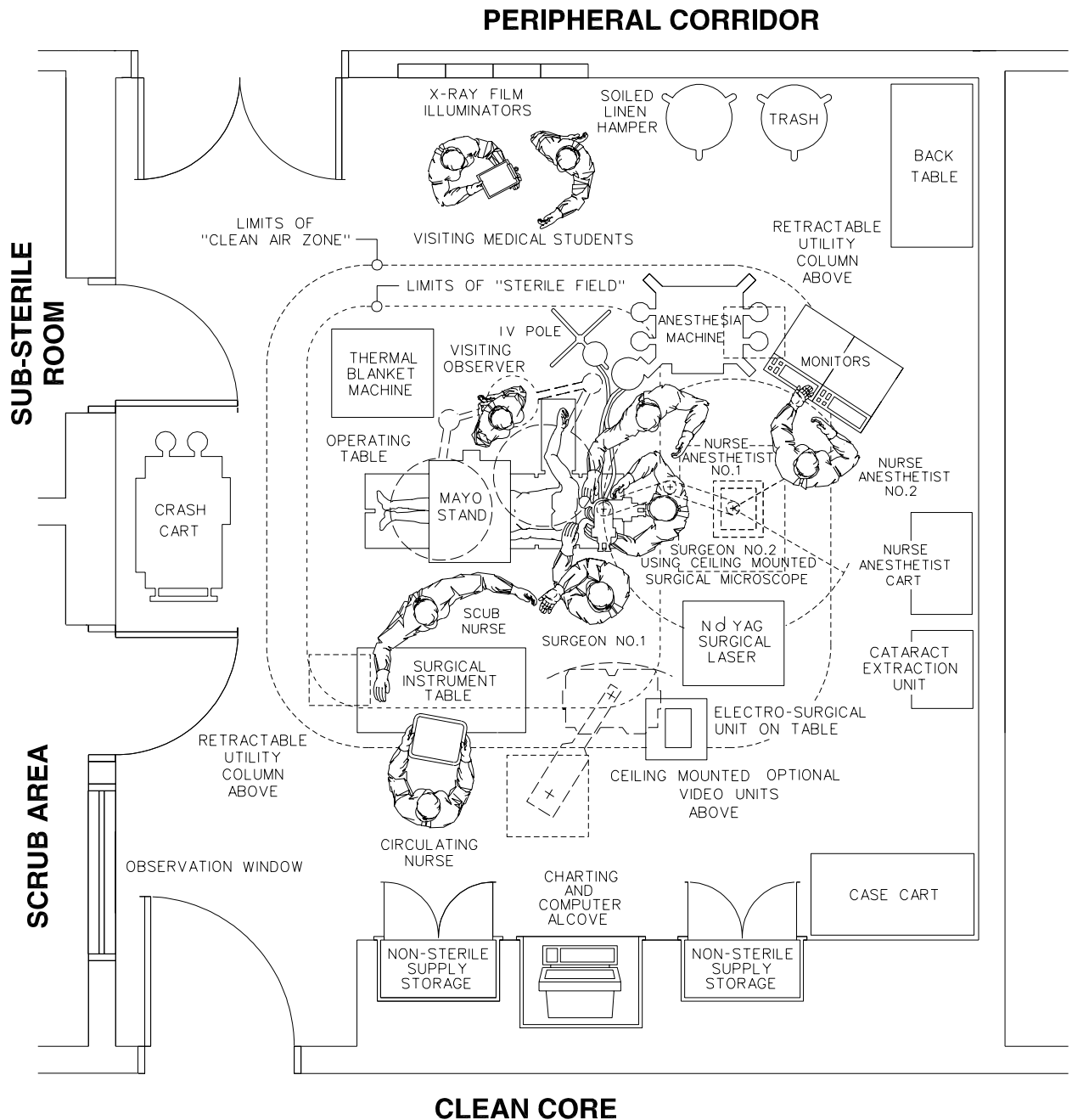
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Functional Plan

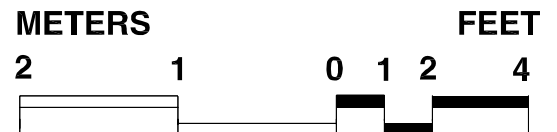
First Draft 3-15-97

Ambulatory Surgery Operating Room

(General & Topical Anesthesia)



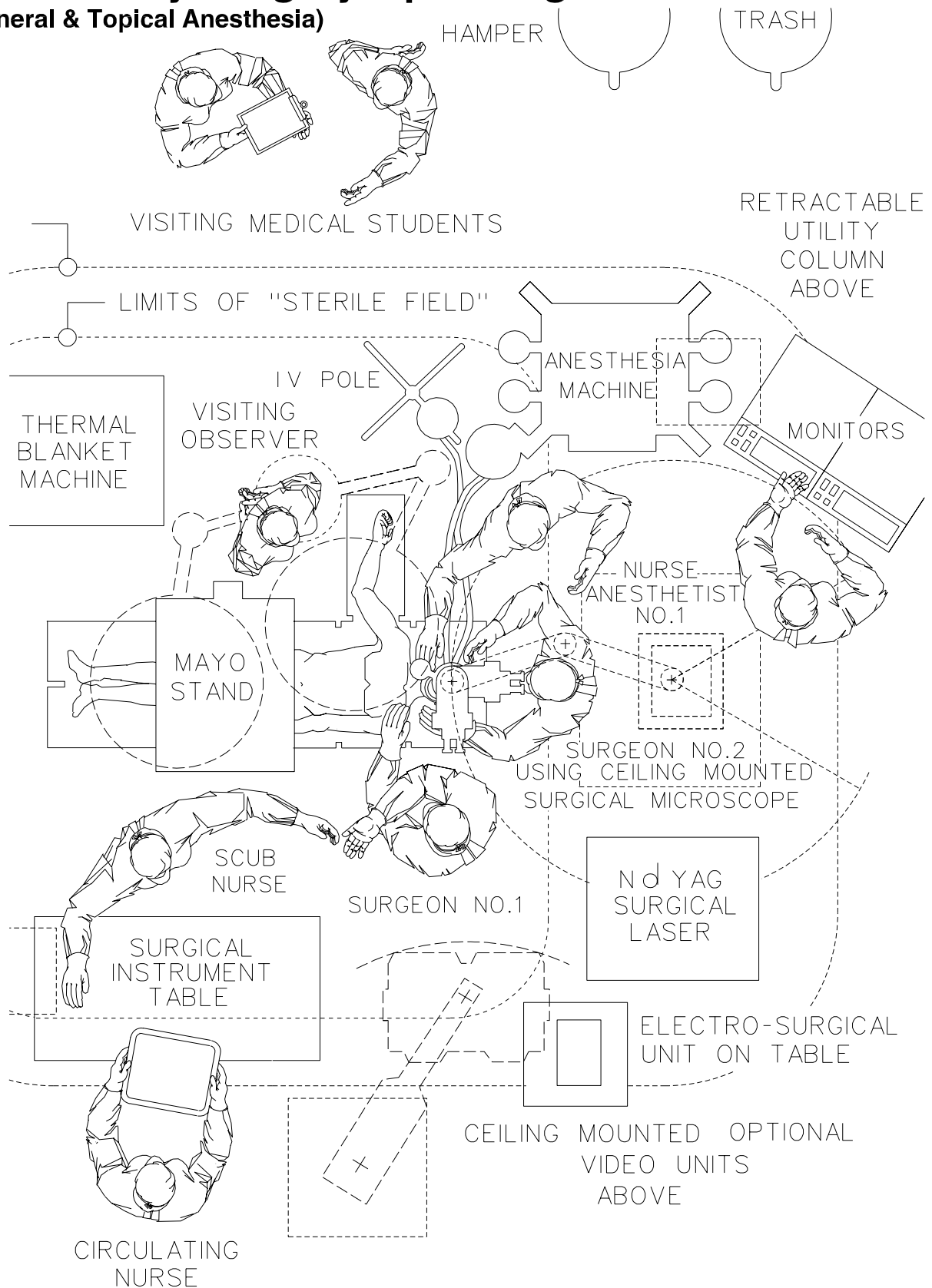
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Enlarged Functional Plan Ambulatory Surgery Operating Room

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(General & Topical Anesthesia)

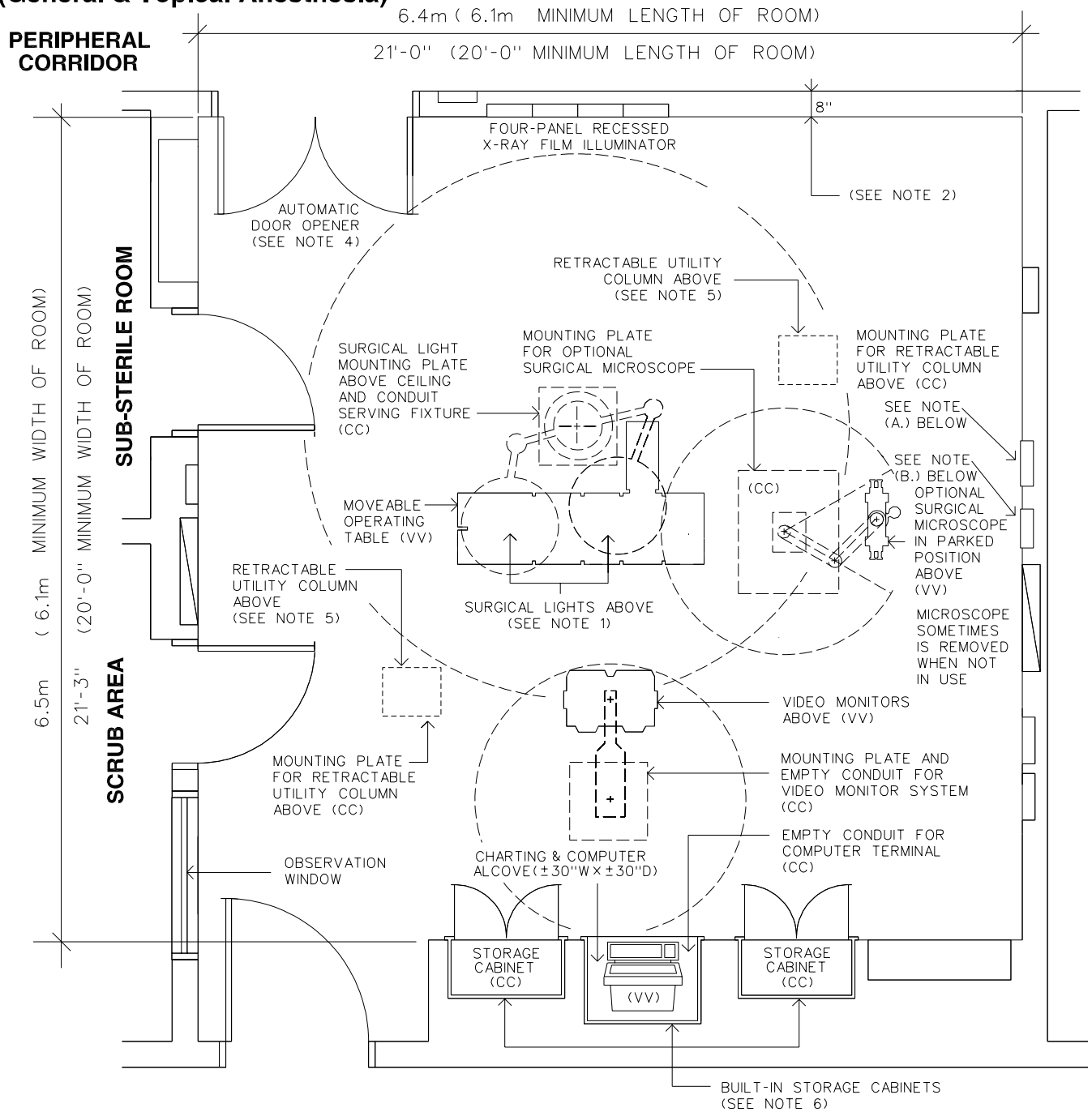


Equipment Plan

Ambulatory Surgery Operating Room

(General & Topical Anesthesia)

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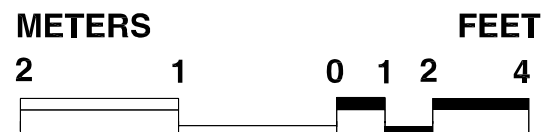


NOTES:

- A. ELAPSED TIME CLOCK ON WALL ABOVE WITH ACCESSIBLE CONTROLS ON WALL BELOW IT (CC) (SEE NOTE 7)
- B. CLOCK WITH SWEEP SECOND HAND ON WALL ABOVE WITH ACCESSIBLE CONTROLS ON WALL BELOW IT (CC) (SEE NOTE 7)

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Equipment Plan Notes

Ambulatory Surgery Operating Room (General & Topical Anesthesia)

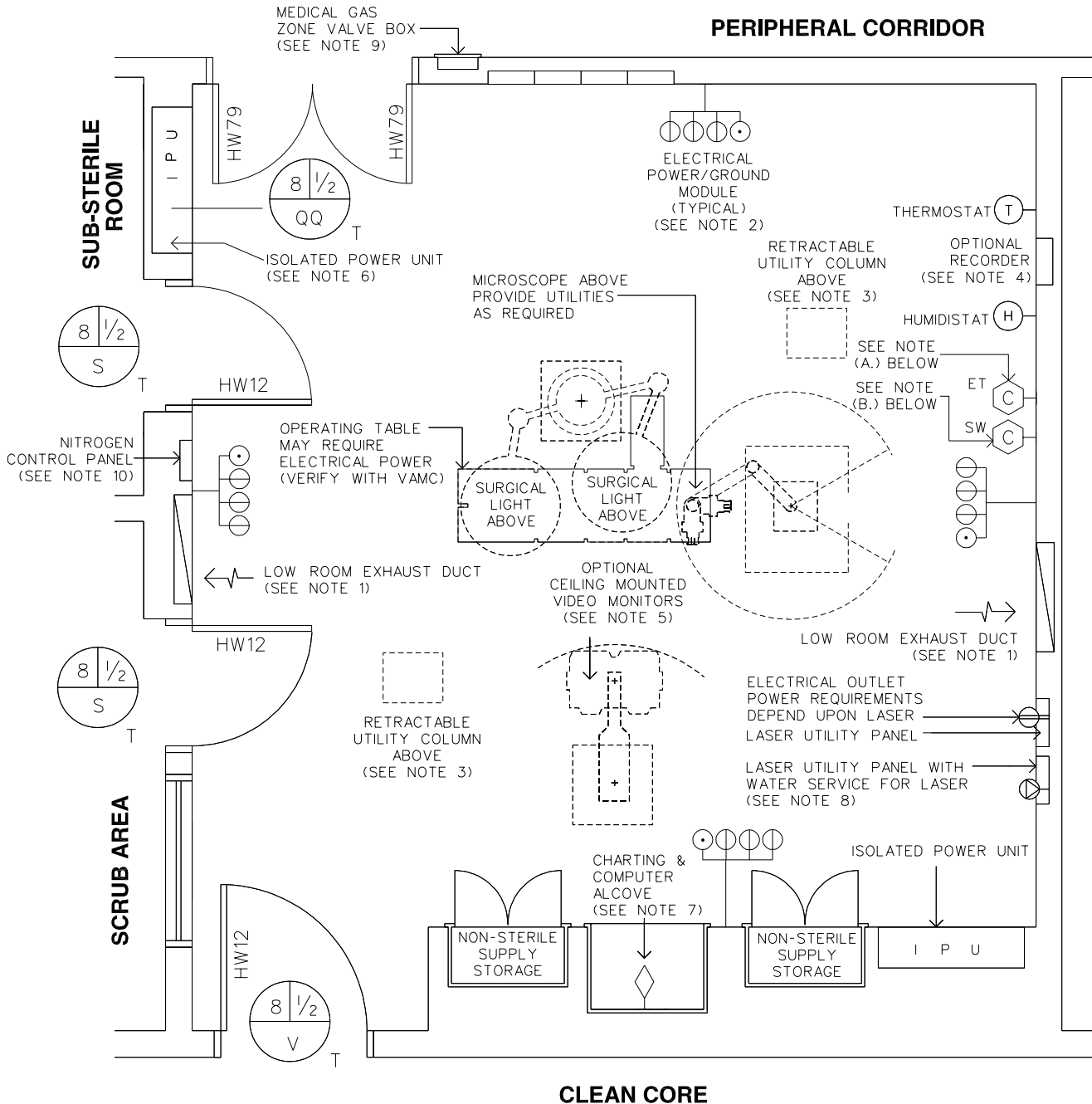
- Note 1 The surgical light fixtures are (CC) unless the VAMC chooses to select a specific surgical light fixture during design development. If the VAMC chooses the fixtures, they should be either (VV) or (CF). Coordination involving structural support, utility connections, and other details are the responsibility of the designer.
- Note 2 Nominal thickness of walls should be shown as 8 inches through design development. This is based upon the need to accommodate a variety of panel boards, exhaust air ducts, and miscellaneous elements of construction that require a thicker partition than in other areas of a clinic or hospital building. Partitions other than the operating room enclosure should be shown nominally as 6 inches through design development unless a special requirement dictates otherwise.
- Note 3 Inclusion of x-ray shielding, consisting of a lead membrane in the partition, lead lined doors, and leaded glass observation windows, is determined on a project basis. The need for radiation protection is based upon the degree to which portable x-ray equipment is to be used in each of the operating rooms, and continuous occupancy of adjacent spaces. Once it is determined that a lead membrane is required, the exact location of that membrane and details related to it are the designer's responsibility.
- Note 4 An automatic door opener is to be provided in the corridor at the doors between the operating room and the peripheral corridor. A tread type of opener is permitted; however, a wall-mounted type of automatic door opener is preferred.
- Note 5 The ceiling mounted utility columns may be one of two types: articulating (as indicated on this guide plate series), or retractable (telescoping). (See guide plate series Ambulatory Surgery Operating Room for a graphic representation of retractable utility columns used in a 450 square foot operating room.) The VAMC must decide which type of utility column to use during the design development phase of the project. If a choice is made at this point, the utility columns may be (VV), (CF) or (CC). If the VAMC declines to make a timely decision, then the utility columns will be (CC). Coordination involving structural support, utility connections, and other details is the responsibility of the designer.
- Note 6 Modular Casework - The VAMC has the option of choosing modular casework in lieu of built-in casework. However, this decision must be made during the design development phase of the project. If modular casework that is wall mounted is selected by the VAMC, the partitions must be designed to support the casework. It should be noted that the standard studs found in the master specifications are insufficient to carry this added weight; therefore, the equipment manufacturer's recommendations for supporting partitions should be followed where appropriate.
- Note 7 Clocks - For more information regarding clocks in the operating room see MCS, Division 16.
- Note 8 See VA Handbook 7610 Chapter 286 of the Equipment Guide List for additional equipment not shown.

Utility Plan

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Ambulatory Surgery Operating Room

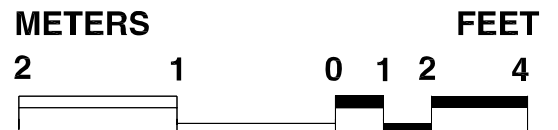
(General & Topical Anesthesia)



NOTES:

- A. PROVIDE POWER AND JUNCTION BOX FOR RECESSED ELAPSED TIME CLOCK
- B. PROVIDE POWER AND JUNCTION BOX FOR ELECTRIC CLOCK WITH SWEEP SECOND HAND

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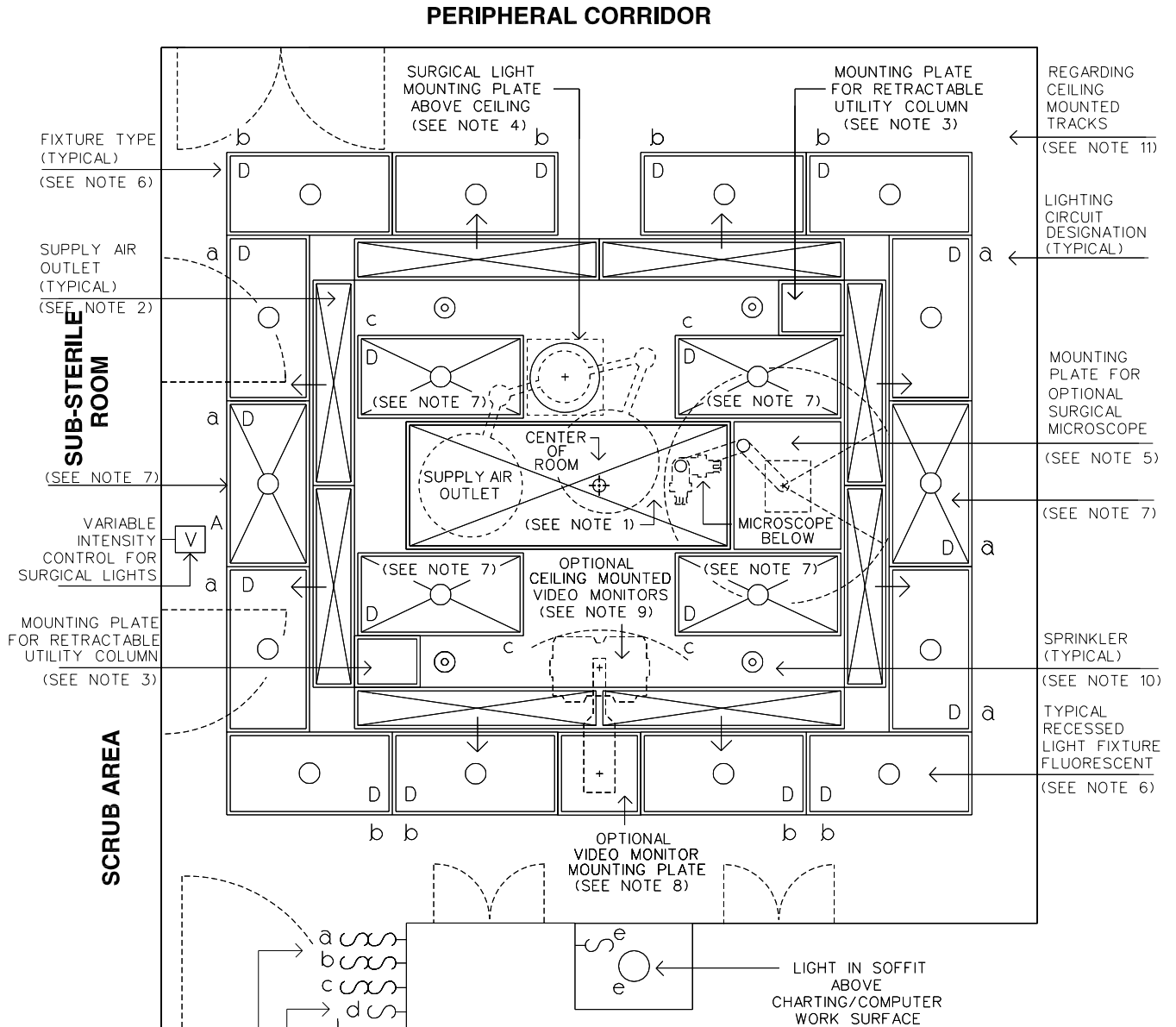
Utility Plan Notes

Ambulatory Surgery Operating Room (General & Topical Anesthesia)

- Note 1 Exhaust Air Grilles - Provide a minimum of two exhaust air grilles in this operating room. If only two grilles are provided, locate them opposite from each other. Where there are more than two exhaust grilles, center them on each of the walls of the operating room. The bottom of each exhaust air grille is to be seven inches above finished floor. See the HVAC Design Manual for additional information.
- Note 2 Electrical Power/Ground Module - Place a separate power/ground module near the center of each wall of the operating room. Each power/ground module is to have 3 duplex power receptacles and 1 grounding receptacles. These power/ground receptacles are to be located 18 inches above finished floor. See the Electrical Design Manual for additional information.
- Note 3 Articulating Utility Column - Provide connections on each utility column as delineated in Chapter 286, Equipment Guide List.
- Note 4 HVAC Controllers - Provide one of the two following systems for controlling room temperature and humidity in the design of the mechanical system. The first system is indicated on the utility plan .It involves locating a thermostat, a humidistat, and a recorder in the operating room. The second system involves temperature and humidity sensors located in the operating room, with a recorder located remotely. See the HVAC Design Manual for Hospital Projects and MCS, Division 15 for additional information.
- Note 5 Video Monitors - The increasing use of fluoroscopy in surgical procedures has increased the need for video monitors located in the vicinity of the "sterile field". With x-ray film soon to be replaced by digitized images displayed on a video screen, the use of these monitors in surgery will increase even further. This emerging technology is called "PACS" (Picture Archiving and Communications System). The VAMC has a choice to make regarding these monitors. A set of video monitors can be mounted on a cart, or the set of video monitors can be mounted on an articulating arm that is suspended from the ceiling. The latter concept is shown on these guideplates. In either case, the A/E is to determine utility requirements for the video system selected by the VAMC and the VHA program official. These requirements include: power supply; provisions for grounding of the monitors; communications linkage to other areas of the clinic. See Reflected Ceiling Plan Note 9 for a concept that links the Frozen Section area of the clinical laboratory with the video monitors in each of the operating rooms.
- Note 6 Isolated Power Unit - Each of the isolated power units is to serve two adjacent walls. For this reason the units are to be located near the corners of the room and diagonally opposite from each other. See Electrical Design Manual for Hospital Projects, Chapter 11, for more information regarding isolated power.
- Note 7 Computer Terminal - Utility requirements for the in-room computer terminal are to be determined by the VAMC based upon the computer system to be used. This information is to be given to the A/E for incorporation into the construction documents. The printer for the in-room computer terminals is to be located remotely.
- Note 8 Laser Panel - It is understood that air cooled lasers are soon to replace water cooled lasers. For this reason, the future impact of air cooled lasers on the design of the HVAC system must be considered by the designer. In spite of this anticipated change, water and drainage should be provided in operating rooms where existing water cooled lasers are to be continued in use.
- Note 9 Zone Valve Box - Provide a separate medical gas zone valve box for each operating room in accordance with NFPA 99, Chapter 4. Locate this cabinet in the peripheral corridor near the door to the operating room it serves. See MCS, Division 15 for a description.
- Note 10 Nitrogen Control Panel - See NFPA 99, Chapter 4 and MCS, Division 15 for information regarding this panel.

Reflected Ceiling Plan Ambulatory Surgery Operating Room (General & Topical Anesthesia)

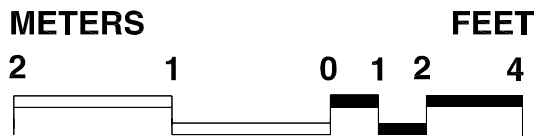
First Draft 3-15-97



EACH LIGHTING CIRCUIT IN THIS ROOM IS TO BE CONTROLLED BY SPECIAL SWITCHES THAT PROVIDE THREE DIFFERENT LEVELS OF ILLUMINATION- DO NOT USE RHEOSTATS TO CONTROL LIGHTING LEVELS

OCCUPIED/UNOCCUPIED SWITCH FOR HVAC SYSTEM IN THIS OPERATING ROOM

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Reflected Ceiling Plan Notes

Ambulatory Surgery Operating Room (General & Topical Anesthesia)

- Note 1 Supply Air Outlet - Perforated panel centered over operating table with no obstructions. A/E is to design it. (Do not scale.) This outlet is to provide 30 percent of supply air for the operating room. Air distribution is to be in a downward vertical direction. See the HVAC Design Manual for Hospital Projects.
- Note 2 Supply Air Outlets - Stainless steel multiple slot panel diffusers to be located above the perimeter of the "clean air zone". (See Functional Plan.) A/E is to design them. (Do not scale.) These outlets are to provide 70 percent of supply air for the operating room. This air is to be discharged in a vertical air stream inclined at an outward angle of fifteen degrees from the center of the room. See the HVAC Design Manual for Hospital Projects.
- Note 3 Mounting Plate for Articulating Utility Column - (Do not scale.) Size of mounting plate varies with manufacturer. Exact size, type, and location are to be determined by the A/E in coordination with the VAMC and Central Office program officials.
- Note 4 Surgical Light Fixture - Note that the location of the mounting plate is not to be placed directly over the operating table. That zone must be kept unobstructed for the supply air outlet and the plenum serving it above the ceiling. See the Electrical Design Manual, Chapter 6.
- Note 5 Surgical Microscope - If VAMC chooses a ceiling-mounted microscope in lieu of a floor-mounted microscope, it must be supported by a fixed mounting plate. A ceiling track-mounted system is not to be used for the microscope due to concerns regarding asepsis. The exact size of the mounting plate depends upon the microscope selection. (Do not scale the guideplate.) Coordinate details and utilities requirements with the VAMC.
- Note 6 Fluorescent Light Fixtures - General illumination. Only 2 x 4 recessed fixtures are to be used in the operating room due to the fact that this size of fixture (with 6 lamps - Type D) is required in order to deliver enough ambient illumination while also producing color corrected light in the operating room. The design is not to include 1 x 4 fluorescent fixtures. For more information see Electrical SD F-27.
- Note 7 General Illumination on Emergency Power - 50 percent of the fluorescent light fixtures above the operating table are to be provided emergency power with battery backup. The fluorescent fixtures above the head of the patient (where the nurse anesthetist administers anesthesia and monitors the patient's vital signs) are to be provided emergency power. (See CS 800-3.) Since the "head of the table" may be reversed on occasions when the ceiling-mounted microscope is in use, fluorescent fixtures above both ends of the table are to be put on emergency power.
- Note 8 Mounting Plate for Video Monitors - If the VAMC chooses a suspended video system instead of a cart-mounted system, the mounting plate must be integrated into the ceiling layout. The exact size and location of this plate must be determined. The equipment shown is similar to that found in a cardiac cath procedure room; however, the mounting plate for the video monitors is not to be supported on tracks due to asepsis considerations.
- Note 9 Video Monitors - A proposal to be considered is to provide a fiber-optic connection (enclosed in conduit) from the video monitors in the operating room to the microscope in the frozen section area of the clinical laboratory. This would permit the surgical team in the operating room to see what the pathologist is talking about over the intercom while examining the biopsy specimen. This installation would reduce the need for anatomical pathologist to leave a contaminated area. Also, the surgical team would not have to wait for the pathologist to clean up, gown, and come to the operating suite to examine the tissue specimen.
- Note 10 Sprinkler System - Coordinate the location of the sprinklers with other ceiling systems in accordance with MCS, Division 15 and Plumbing Design Manual, Medical Centers.
- Note 11 Provide no ceiling tracks for intravenous solutions in the design. This restriction is based upon concerns for asepsis in the operating room.

Design Standards

Ambulatory Surgery Operating Room (General & Topical Anesthesia)

ARCHITECTURAL

Ceiling:	Plaster
Ceiling Ht:	2895 mm (9'-6")*
Wall Finish:	Plaster (SC) Paint
Wainscot:	--
Base:	Welded Seamless Flooring
Floor Finish:	Welded Seamless Flooring
Slab Depr:	
Notes:	Additional 8" accessible space above ceiling for microscope or 10"- 2".

SPECIAL EQUIPMENT

None

LIGHTING

General:	200 FC, (see Note 1)
Special:	Surgical Light (see Note 2)
Emergency:	50% Gen Fluorescent (see Note 3)
Notes:	<ol style="list-style-type: none"> 1. Color improved lamps matching color temperature of surgical light. 2. (1) TYPE 840A, 1500 W 3. Battery backup in (4) fixtures.

POWER

General:	(1) Module each wall
Special:	(2) 7-1/2 KVA 12-Circuit IPU
Emergency:	Each IPU & X-Ray unit
	(1) Film Processor per Suite

COMMUNICATIONS

Patient Monitor:	Yes
Nurse Call:	--
Code One:	--
CCTV:	Empty Conduit
Telephone:	Wall Mounted Hand Free
Intercom:	Part of Telephone
Pub. Addr:	Empty Conduit
ADP:	--
Radio:	Empty Conduit

HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	190 C(68°F)
Dry Bulb Temp Heating:	230C(75°F)
Minimum % Outside Air:	100
100% Exhaust Air:	Yes
Noise Criteria:	NC-40
Steam:	--
Relative Humidity/Cooling:	55%
Relative Humidity/Heating:	50%
Minimum Air Changes/Hr.:	15 Occupied 8 Unoccupied
Room Pressure:	Positive
AC Load Lights:	91W/m 2 (8.5W/SF)
AC Load Equipment:1	19W/m 2 (11.1W/SF)
Number of People:	12
Special Exhaust:	--

PLUMBING AND MEDICAL GASES

Cold Water:	--
Hot Water:	--
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes
Nitrogen Oxide:	Yes
Nitrogen:	Yes
Anesthesia Evac:	Yes

Equipment Guide List

Ambulatory Surgery Operating Room (General & Topical Anesthesia)

SYMBOL	QTY	AI	DESCRIPTION
	1	CC	WINDOW, VIEWING, LEAD GLASS, FOR PATIENT OBSERVATION (PG-18-1, MCS 13091; PG-18-4, SD 24G)
	20	CC	RECEPTACLE, ELECTRICAL, SIMPLEX, 120 VOLT, 20 AMP, ONE GROUNDING JACK PER MODULE AND FOUR SIMPLEX STRAIGHT BLADE, HOSPITAL GRADE RECEPTACLES AND TWO GROUNDING RECEPTACLES IN EACH SURGICAL COLUMN (PG-18-1, MCS 16140; H-18-3, CS 801-3)
	4	CC	ILLUMINATOR, FILM, X-RAY, RECESSED, 120 VOLT, 20 AMP, 356 mm X 432 mm (14" X 17") (INSTALLATION NOT TO BE COMBINED WITH IPU'S OR OTHER ELECTRICAL DEVICES) (PG-18-1, MCS 16510)
AR	CC		ILLUMINATION, GENERAL, RECESSED, WITH THREE LEVEL CONTROL (PG-18-1, MCS 16510)
	2	CC	COLUMN, TELESCOPING OR ARTICULATING, CEILING MOUNTED (PG-18-1, MCS 15491)
			COLUMN A: LOCATE AT HEAD OF TABLE, 1200 mm TO 1800 mm (48" TO 72") FROM THE CENTERLINE AND 600 mm TO 1200 mm (24" TO 48") TO THE LEFT OF THE CENTERLINE OF THE TABLE
			COLUMN B: LOCATE AT THE FOOT OF THE TABLE, 1200 mm TO 1800 mm (48" TO 72") FROM THE CENTERLINE AND 600mm TO 1200mm (24" TO 48") TO THE RIGHT OF THE CENTERLINE OF THE TABLE. EACH COLUMN CONTAINS THE FOLLOWING: 2 INLETS, VACUUM (PG-18-1, MCS 15491) 1 OUTLET, NITROUS OXIDE (PG-18-1, MCS 15491) 2 OUTLET, OXYGEN (PG-18-1, MCS 15491) 1 OUTLET, MEDICAL AIR (PG-18-1, MCS 15491) 1 OUTLET, NITROGEN (PG-18-1, MCS 15491) 1 INLET, VACUUM, DEDICATED ANESTHESIA GAS EVACUATION (PG-18-1, MCS 15491) 1 INLET, MASS SPECTROMETER (BLANK OUTLET)
	2	CC	ISOLATED POWER UNIT PROVIDES ISOLATED ELECTRICAL POWER, INCLUDES LINE ISOLATION MONITOR, ISOLATION TRANSFORMER AND CIRCUIT BREAKERS (DETAILS AVAILABLE FROM ELECTRICAL SERVICE)
	1	CF	LIGHT, MAJOR, SURGICAL WITH VARIABLE INTENSITY CONTROL, SINGLE POINT SUSPENSION, CEILING MOUNTED (LOCATION INSTRUCTIONS AVAILABLE FROM ELECTRICAL SERVICE) (PG-18-1, MCS 16515)
AR	VV		TABLE, OPERATING, MOBILE
	1	CC	CLOCK, ELECTRIC WITH SWEEP SECOND HAND, RECESSED (PG-18-1, MCS 10360)

Equipment Guide List

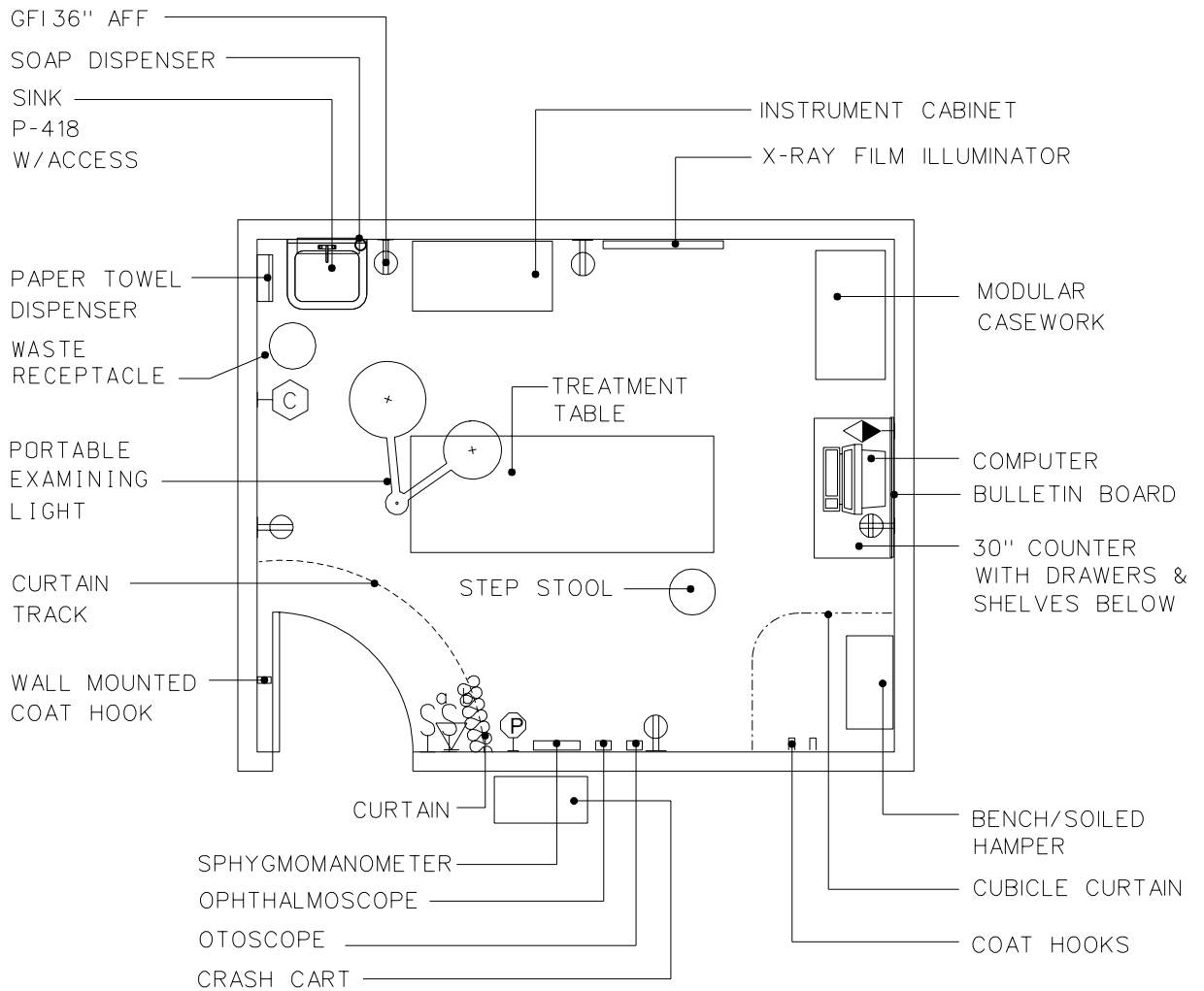
Ambulatory Surgery Operating Room (cont.) (General & Topical Anesthesia)

SYMBOL	QTY	AI	DESCRIPTION
	1	CC	CLOCK, ELECTRIC TIME ELAPSED, RECESSED (PG-18-1, MCS 10360)
AR	CC	CC	OUTLET, ELECTRICAL, 120 VOLT, 20 AMP, RECESSED FOR CLOCK
	1	VV	X-RAY, MOBILE UNIT, C-ARM
AR	CC	CC	SERVICE, ELECTRICAL, SPECIAL, AS REQUIRED FOR X-RAY EQUIPMENT
AR	CC	CC	OUTLET BOX, LASER
	1	CC	RECEPTACLE, ELECTRICAL, 208 VOLT, 30 AMP, SINGLE PHASE, FOR LASERS (PG-18-1, MCS 16140; H-18-3, CS 801-3)
AR	VV	VV	MICROSCOPE, CEILING MOUNTED
AR	VV	VV	MONITOR, VIDEO

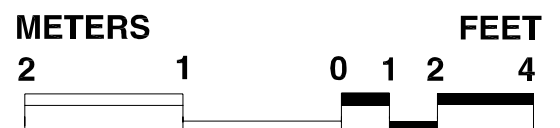
Equipment & Utility Plan

Ambulatory Surgery Operating Room (Typical Anesthesia)

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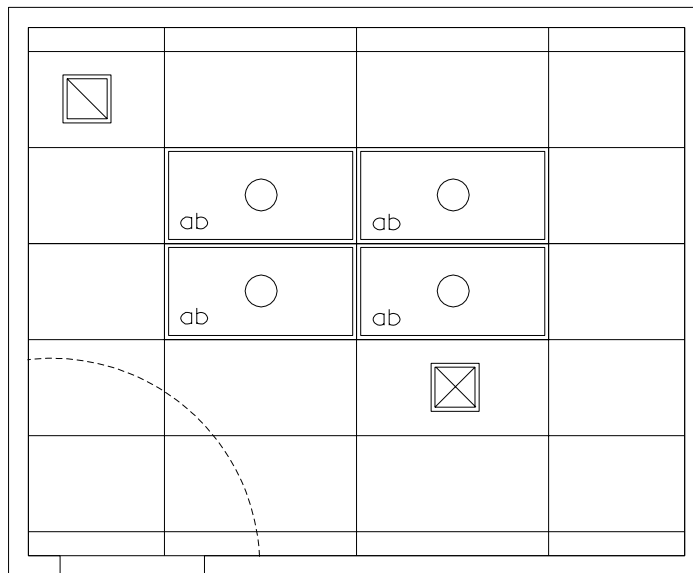


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Reflected Ceiling Plan Ambulatory Surgery Operating Room (Topical Anesthesia)

First Draft 3-15-97



Design Standards

Ambulatory Surgery Operating Room (Topical Anesthesia)

ARCHITECTURAL

Ceiling:	Gypsum Wall Bd SC
Ceiling Ht:	2900 mm (9'-6")*
Wall Finish:	SC
Wainscot:	--
Base:	Resilient sheet flooring intergral base
Floor Finish:	Resilient sheet flooring
Slab Depr:	--
Notes:	--

SPECIAL EQUIPMENT

None

LIGHTING

General:	100 FC
Special:	Portable examining light
Notes:	1. 600mm x 1200mm (2'x4') recessed fluorescent light fixture, acrylic prismatic lens, W/3-F32T8 lamps, 4100°K CRI=85 (Minimum)

POWER

General:	(540 W (receptacles)
Special:	--
Emergency:	--

COMMUNICATIONS

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

HEATING, VENTILATING AND AIR CONDITIONING

Dry Bulb Temp Cooling:	25°C(78°F)
Dry Bulb Temp Heating:	22°C(72°F)
Minimum % Outside Air:	100
100% Exhaust Air:	Yes
Noise Criteria:	NC-40
Steam:	--
Relative Humidity/Cooling:	50%
Relative Humidity/Heating:	30%
Minimum Air Changes/Hr.:	6
Room Pressure:	SA + 15%
AC Load Lights:	--
AC Load Equipment:1	--
Number of People:	3
Special Exhaust:	--

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

Equipment Guide List

Ambulatory Surgery Operating Room (Topical Anesthesia)

SYMBOL	QTY	AI	DESCRIPTION
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NOTE: BRACKET, VACUUM BOTTLE SLIDE, (PG-18-1, MCS 15991; PG-18-4, SD 336)

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

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

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: ELECTRICAL RECEPTACLES FOR CRASH CART TO BE ON EMERGENCY POWER.

	1	VV	BLOOD PRESSURE MONITOR
	1	VV	CABINET, INSTRUMENTS, 900mm x 406mm x 1829mm (36" x 16" x 72") WITH GLAZED DOORS, SLOPING TOP
	1	VV	CART, EMERGENCY, "CRASH CART" APROX. 914mm x 533mm (36" x 21")
	1	VV	DISPENSER, PAPER TOWEL, SURFACE MOUNTED
	1	VV	DISPENSER, SOAP, LIQUID, WALL MOUNTED
	AR	VV	ILLUMINATORS, FILM, X-RAY, 120 VOLT, 20 AMP, WALL MOUNTED (1 BANK OF 3)
	1	CC	PORTABLE EXAM LIGHT, 120 VOLTS, 20 AMPS, W/VARIABLE INTENSITY CONTROLS APPROX. 455mm DIA. X 1905mm H (18"DIA x 75"H)
	AR	CF	MODULAR CASEWORK
	1	VV	MONITOR, CARDIAC - ON CART (FLOOR UNIT)
	1	VV	MONITOR, EAR OXIMETER
P-418	1	CC	LAVATORY, SENSOR CONTROL (PG-18-1, MCS 15450; VOL. 3 SD 380)
	1	VV	BENCH, SOILED HAMPER
	2	VV	STOOL, STEP, APPROX. 508mm x 406mm (20" x 16")
	1	VV	TABLE, TREATMENT