

PHILIPS

Project: Allura Biplane FD10/10
Maine Medical Center
Portland, ME
Room 5

Philips Contacts:
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Drawing Number: 8502010
N-E-5091441 F
Date Drawn: 05/20/10
Quoted: 1-PHITSZ Rev. 11
Order: 65020101791.001000

Drawn By: Jennifer Milne

THIS SHEET IS PART OF THE DOCUMENT SET LISTED ON SHEET C1 AND SHOULD NOT BE SEPARATED.

Electrical Legend

Item Number	Description	Detail Sheet
B	480V, 3 phase 125 AMP circuit breaker with shunt trip. Run power from breaker to "PBK", leaving an 8' tail at "PBK", and from "PBK" to "MG", leaving an 8' tail at each end. See Sheet "ED1" for power quality requirements. Location per local code or owner requirements. (Not shown on plan)	ED1
B	Shunt Trip (emergency off) - Large mushroom-head button on remote control station with contacts to operate feature of "CB" (required by local code or owner, and mandatory for VA and D.O.D installations). (Not shown on plan)	ED1
B	Ground electrode per N.E.C. 250-26, building steel preferred. (Not shown on plan)	ED2
B	Central ground busbar mounted in a 12"W x 12"H x 4"D pull box with hinged cover, surface mounted to the bottom of "WR2" when possible.	ED1
B	18"W x 18"H x 6"D flanged-edge terminal wall box with removable screw-type cover plate, surface mounted 22" A.F.F. to bottom of box, provide (1) 1 1/2" and (2) 2" conduits through "PBK" cover plate to PDU cabinet.	ED1
B	19 1/4"W x 6 7/8" x 4"D flanged-edge terminal wall box, surface mounted 75" A.F.F. to top of box. General contractor to cut out and/or bottom of box as required.	ED2
B	Grommet opening on "WR1". Approximate location shown is recommended and may be changed - verify relocation with local Philips Service.	ED3
B	10"W x 10"L x 6"D floor box, under the floor with a 5" core drill up to the underside of AD7 universal floorplate.	ED3
B	12"W x 12"L x 4"D floor box, under the floor with a 8" core drill up to the underside of Poly G floorplate. See "Detail - Poly G Floorplate Cable Entrance" on Sheet "ED3" for cable routing methods.	ED3
B	18"W x 18"L x 6"D ceiling box, flush mounted with removable screw-type cover plate. Provide one 3" diameter knockout.	ED3
B	18"W x 18"L x 6"D ceiling box, flush mounted with removable screw-type cover plate. Provide a 2 1/2" round outlet (Two 2 1/2" round outlets are required for systems with two monitor cartridges - verify with local Philips Service).	ED3
B	10"W x 4"D wall raceway, surface mounted with removable screw-type cover plate. "WR1" is at finished floor. "WR2" is at 75" A.F.F. to bottom of raceway. "WR1" may need to be cut at the location of the "CY" connection box.	ED3
B	10"W x 4"D riser duct with removable screw-type cover plate, surface mounted from wall raceway to wall box.	ED3
B	Stub up point for physiological monitoring cables. Run conduit to customer's physiological console location. Contact manufacturer for power requirements, etc.	ED3
B	Auxiliary Box - 6"W x 6"H x 4"D wall box, flush mounted 70" A.F.F. to the bottom of the box with removable screw-type cover plate. Location shown is recommended and may be changed - verify relocation with local Philips Service.	ED3
B	(Customer's) Hard Copy Unit - Contact manufacturer for power requirements. (Not shown on plan)	ED3

Electrical Legend

Item Number	Description	Detail Sheet
B	Warning Light - Provide a surface or flush mounted light fixture above door to indicate when X-ray is on, if required by local code or physicist of record. See Sheet "ED2" diagram for connection details. (Not shown on plan)	ED2
B	Door Switch - 120V/5A switch limited to open when door is open. Mount in upper corner on strike side of main entry door(s) (Cooper no. 1855 or equivalent), if required by local code or physicist of record. See Sheet "ED2" diagram for connection details. (Not shown on plan)	ED2
B	Analog phone line for service (convenience). (Not shown on plan)	N1
B	RJ45 type Ethernet 10/100/1000 Mbit network connector with access to customer's network. Locate within 10' of network card. Network fiber optic and Ethernet cabling, connectors, wall boxes, patch panels, etc. are the responsibility of the purchaser. Philips assumes no responsibility for procurement, installation, or maintenance of these components.	ED4
B	RJ45 type Ethernet 10/100/1000 Mbit network connector. Access to customer's network via their remote access server is needed for Remote Service Network (RSN) connectivity.	ED4
B	120V/20A dedicated duplex outlet for service in the equipment rooms. (Not shown on plan)	ED4
B	480V, 3 phase 80 AMP circuit breaker. (Not shown on plan)	ED4
B	480V, 3 phase 50 AMP circuit breaker. (Not shown on plan)	ED4
D	Universal Transfer Switch.	ED4
D	Battery Cabinet.	ED4
A	50 KVA UPS.	ED4
G	Remote Status Monitor, wall mounted in the control area. (Not shown on plan)	ED4
B	6"W x 6"H x 4"D pull box with removable screw-type cover plate, flush mounted 8" above finished floor to bottom of the box. Location shown is recommended and may be changed - verify relocation with local Philips Service.	ED4

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Emergency Power

Philips does not require equipment to be an emergency power. If the customer deems it necessary for the equipment to be supplied with emergency power, the following specifications must be applied:

The circuit protection for emergency power should be capable of handling a high initial surge of approximately 40 amps.

The transfer switch must be double actuator type with a minimum time delay of 400 milliseconds in both directions (ability to emergency - emergency to utility). This time is required to allow filters to dissipate their stored energy before a different mains voltage is applied. Russelectric RMTD, Asco Series 7000 delayed transition transfer switch or equivalent is recommended.

To reduce the emergency power generator load demand, Philips equipment can be put into a lower power mode (5.5kVA fluorescent + 4kVA geometry) of operation by the connection of a potential free closure from the transfer switch. This potential free, normally open contact, has to be rated for 24VDC/1000mA. For Philips cardiovascular integrative equipment, the two wires from this contact have to be routed to the equipment area and connected to the System Coordinator cabinet (MA).

Electrical Requirement Notes for Systems with PDU

Electrical power distribution at the facility shall comply with:

Utilization voltages per ANSI C84.1 - 1982 range A.

Voltage to be supplied is 3 phase, delta or wye.

Phase conductors to be sized for instantaneous voltage drop per NEC 517 - 73 and Philips recommendations.

On systems with a PDU, the ground conductor for the power feeder shall never be less than 1/2 the cross-sectional area of the phase conductors and never smaller than #6 AWG.

Metal conduit shall not be used as the equipment ground conductor.

ANSI / NFPA 70 - National Electrical Code
Article 250 - Grounding
Article 517 - Healthcare Facilities
ANSI / NFPA 99 - Healthcare Facilities
NEMA standards XRB - Power Supply Guideline for X-ray Machines

Power Quality Guidelines

- Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality imaging.
- Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
- The following devices provide a high impedance, nonlinear voltage source, which may affect image quality:
Static UPS systems, Series filters, Power conditioners, and Voltage regulators.
Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.
- Line impedance is the combined resistance and inductance of the electrical system and includes the impedance of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.

General Electrical Information

- General**
The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.
- Materials and Labor**
The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc. As separately specified herein.
- Electrical Ducts and Boxes**
Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group A: power wiring and/or cables. Group B: signal and/or data and protective ground wiring and/or cables. Group C: x-ray high voltage cables. The use of 90 deg. elbows is not acceptable. On ceiling duct and wall duct use 45 deg. bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.
- Conduit**
Conduit point - to - point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Conduit with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or conduit supplied and installed by contractor from entrance into duct to exit from duct. Do not use flex conduit unless approved by Philips Service.
- Conductors**
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.
- Disconnecting Means**
A disconnecting means shall be provided as separately specified.
- Warning Lights and Door Switches**
"X-ray on" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.
- Dimmer Switches**
X-ray room lights should be provided with dimmer switches.

Electrical Notes

- The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
- The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.
- All pre-terminated, cut to length cables, will be supplied and installed by Philips. All cables to the breakers, will be supplied and installed by the contractor, subject to local arrangements.
- Provide and install 4 - 2" (50 mm) diameter, Chase nipples between adjacent wall boxes. (not required if raceway installed above and below wall boxes)
- Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non-accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above ceiling must be kept as near to finished ceiling as possible.
- Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever govern.
- Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.
- Electrical contractor shall install ground bond wires at conduit openings within wall boxes as required by national and local electrical codes. Ground bond wires and lugs shall be installed in such a way to prevent the inadvertent contact with the installed Philips equipment to maintain the Philips Equipotential Grounding Configuration and maintain patient safety. Install a #6 AWG stranded ground wire in the conduits from the Main Disconnect (CB) to the PDU and from the PDU to the MG wall box.
- If the Philips system includes a PDU, the PDU is a "Separately Derived Source" by NEC standards, and must be ground according to NEC article 250-30.
- Philips equipment must be electrically isolated from conduits, raceways, ducts, etc.

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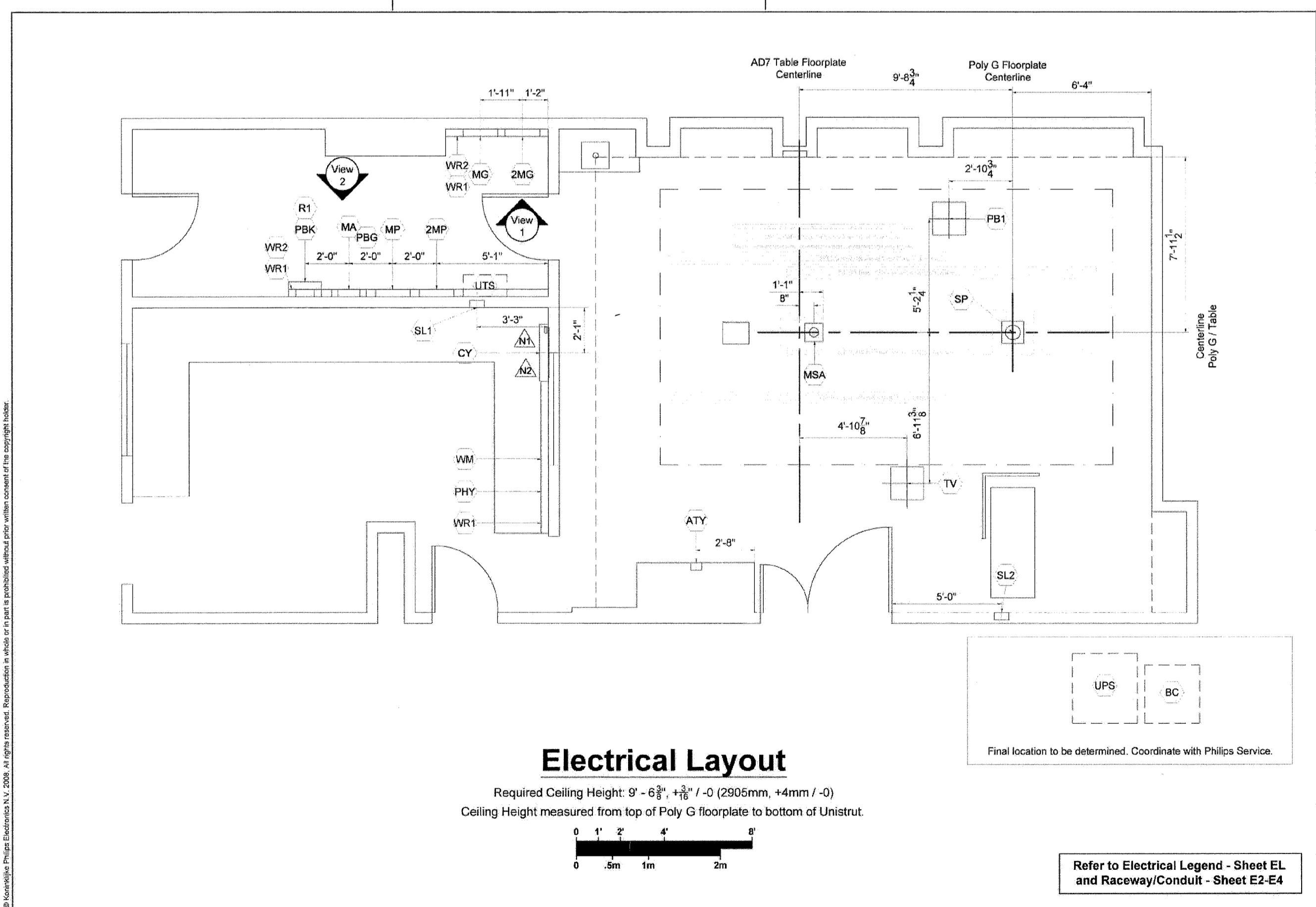
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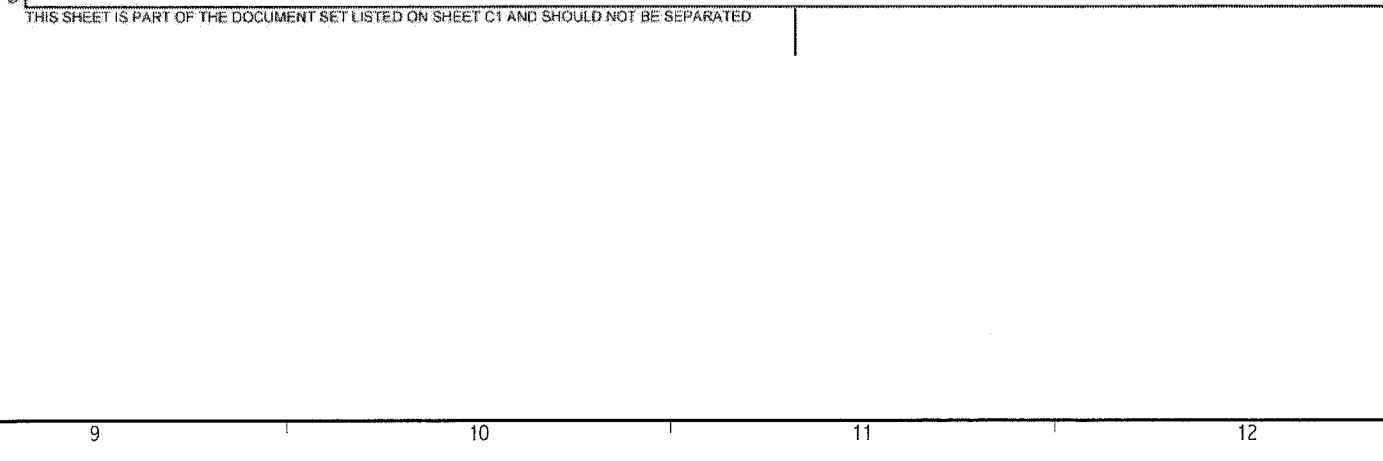
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ARCHITECTURE
ENGINEERING
PLANNING
INTERIOR DESIGN
COMMISSIONING

SMART

PROJECT NORTH

MAINE MEDICAL CENTER CATH. LAB #5
PORTLAND, ME

ISSUED FOR CONSTRUCTION
9.3.10

REV	DESCRIPTION	DATE	CURRENT ISSUE STATUS
0	ISSUED FOR CONSTRUCTION	9.3.10	

GRAPHIC SCALE:
0' 1'

SCALE:
PROJECT MANAGER: KO
DRAWN BY:
A/E OF RECORD:
PROJECT NO.: 10006-00
DATE: 9.3.10

SHEET TITLE:
VENDOR EQUIPMENT
DRAWINGS, SHEET 5

SHEET No. Q-005

NOTE: THIS DRAWING WAS NOT PREPARED BY SMRT. IT IS PROVIDED FOR COORDINATION AND REFERENCE PURPOSES ONLY