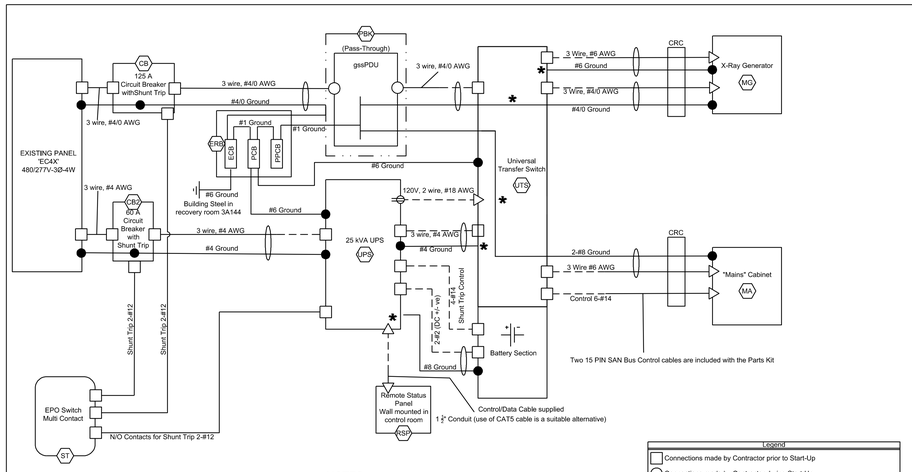


NOTES:

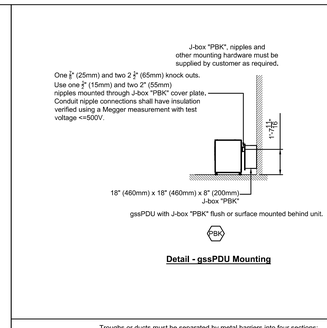
1. All wires, breakers, splitter, and shunt trips indicated in diagram above are provided by the contractor.
2. Confirm all conductors sizes with equipment manufacturer before pulling any conductors.
3. Single shunt trip shown for diagrammatical and informational purposes. See floor plan drawings for all shunt trip locations required

WIRING DIAGRAM

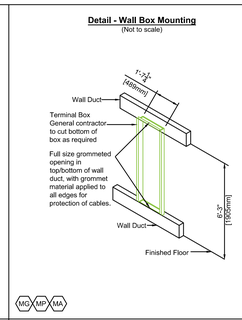
No Scale

Legend

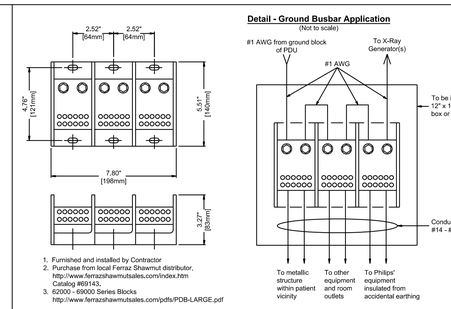
- Connections made by Contractor prior to Start-Up
- Connections made by Contractor during Start-Up
- Connections made by Philips during Start-Up
- Feed Conductors run together with Ground in conduit
- Bond Ground Here
- Do Not Bond Ground Here (For ease of installation, EC shall provide an Isolated Ground Bus is being added to the UPC to allow termination of these grounds without bonding to the chassis.
- Flex, Liquid tight, etc.
- Conduit, rigid EMT, etc.



Detail - gssPDU Mounting



Detail - Wall Box Mounting
(Not to scale)



1. Furnished and installed by Contractor
2. Purchase from local Ferraz Shawmut distributor.
   http://www.ferrazshawmutsales.com/index.htm
   Catalog #69143.
3. 62000 - 69000 Series Blocks
   http://www.ferrazshawmutsales.com/pdfs/PDB-LARGE.pdf

Detail - Ground Busbar Application
(Not to scale)

Invasive Procedures

This equipment may be used for invasive procedures; therefore, the area to be installed is classified as critical care area per NFPA-99 and NFPA-70 (NEC). These documents specify maximum touch voltages and ground impedance in these areas.

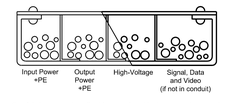
Test performed by GSSNA service ensure that these specifications are met by the GSSNA equipment. It is the facility's responsibility to ensure that these specifications are met by the wall outlet, facility structure, and other equipment not installed by GSSNA.

The GSSNA specified "Central Ground Busbar" serves as a ground reference for GSSNA equipment. It may also serve as the "Reference Grounding Point" of the room as defined in NFPA-99 (3-5.2.1.2) for non-PMSNA equipment.

PBK

Troughs or ducts must be separated by metal barriers into four sections:

1. Input Power wires and associated PE.
2. Output Power wires and associated PE.
3. High-Voltage wires to X-Ray stands.
4. Signal, data and video cables.

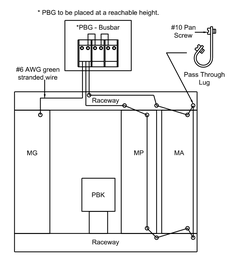


5. It is important that all cables are placed in the appropriate trough and at not given point do any cables from one division cross cables from another. Trough separation must be continuous from the beginning.
6. Trough or ducts: steel with steel dividers grounded to building ground.
7. Contractor is provided cable ladders in all troughs.
8. All steel raceways must be galvanized and shall have a minimum thickness of 0.0785"

1

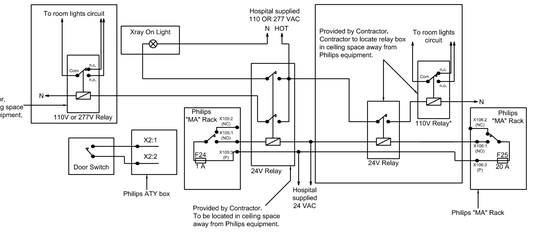
WR WR WR R1 R2 R3 CR FB

Detail - Cable Trough Divisions
(Not to scale)



Detail - Grounding
(Not to scale)

WL DS



NOTES:

1. The 110V or 277V relay should have heavy-duty contacts to handle the room lights current.
2. All items shown (except Philips items) to be provided by Contractor.
3. Power for relays shall be derived from the associated lighting circuit

Diagram - Typical Connection of X-Ray On Light, Door Switch, & Room Lights

General Electrical Information

1. General
The contractor 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 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.

2. Materials and Labor
The contractor 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.

3. 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. ells 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.

4. 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. Consult 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.

5. Conductors
All conductors, separately specified, shall be 75°C stranded copper, rung out and marked.

Electrical Notes

1. 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.

2. 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.

3. 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.

4. Provide and install 4 - 2" (50 mm) diameter. Chase nipples between adjacent wall boxes.

5. 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.

6. 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.

7. The PDU is a "Separately Derived Source" by NEC standards, and must be ground according to NEC article 250-30.

8. Philips equipment must be electrically isolated from conduits, raceways, ducts, etc.

9. Acceptable cross-overs: Walker DuctCat. #RPD10-TUN-3C /, Square D Cat. #RSV122ST

Revisions:	Date
1 ADDENDUM #1	5/7/14

CONSULTANTS

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1407 Scalp Avenue |
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814.269.9300

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Westerville, Ohio 43081 |
614.818.5200

ENGINEER
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
TIMOTHY M. EARHART
No. 041297-E

PRIME CONTRACTOR
The Trident GROUP
985 Schrock Road | Suite 100 |
Columbus, Ohio 43229 |
614.985.1191 | 614.985.1194

Drawing Title: INTERVENTIONAL RADIOLOGY EQUIPMENT DETAILS

Approved:

Project Title: Interventional Radiology Upgrades

Location: Philadelphia, Pennsylvania

Date: Dec. 13, 2013 | Checked By: TME | Drawn By: RJD

Project Number: 642-13-130

Building Number: 2

Drawing Number: ES303

Dwg. 43 of 48

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231