GE Healthcare

OPTIMA XR646 HD (G3)
FINAL STUDY

A mandatory component of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the Pre Installation manual will result in incomplete documentation required for site design and preparation.

Pre Installation documents for GE Healthcare products can be accessed on the web at: www.gehealthcare.com/siteplanning

GE does not take responsibility for any damages resulting from changes on drawings made by others. Errors may occur by not referring to the complete set of final issue drawing. GE cannot accept responsibility for any damage due to the partial use of GE final issue drawings, however caused. All dimensions are in millimeters unless otherwise specified. Do not scale from printed pdf files. GE accepts no responsiblity or liability for defective work due to scaling from these drawings.

A03 - C1 - Cover Sheet
A02 - C2 - Disclaimer - Site Readiness
A03 - A1 - General Notes
A05 - A3 - Section Views
A06 - A4 - Equipment Details & Delivery
A07 - M1 - HVAC
A08 - S1 - Structural Notes
A09 - S2 - Structural Layout
A10 - S3 - Structural Details (1)
A11 - S4 - Structural Details (2)
A12 - E1 - Electrical Notes
A13 - E2 - Electrical Layout
A14 - E3 - Electrical Elevations
A15 - E4 - Details-Interconnections
A16 - E5 - Power Requirements

01 - C1 - Cover Sheet
02 - C2 - Disclaimer - Site Readiness
03 - A1 - General Notes
04 - A2 - Equipment Layout
05 - A3 - Section Views
06 - A4 - Equipment Details & Delivery
07 - M1 - HVAC
08 - S1 - Structural Notes
09 - S2 - Structural Layout
10 - S3 - Structural Details (1)
11 - S4 - Structural Details (2)
12 - E1 - Electrical Notes
13 - E2 - Electrical Layout
14 - E3 - Electrical Elevations
15 - E4 - Details-Interconnections
16 - E5 - Power Requirements

B 25/Oct/2019
A 06/Mar/2019

REV DATE MODIFICATIONS

Initial release per PIM revision 3
Initial release per PIM revision 2

OPTIMA XR646 HD (G3)

Typical

GE Healthcare

Drawn by
Verified by
Concession
S.O. (GON)
PIM Manual
Rev

RET
REK
-
-----
5643972-1EN
3

Format Scale File Name Date Sheet
A3 1/4"=1'-0" EN-RAD-TYP-XR_646_HD_(G3)-WEB.DWG 20/Mar/2020 01/16
GENERAL SPECIFICATIONS

- GE is not responsible for the installation of developers and associated equipment, lighting, cassette trays and protective screens or derivatives not mentioned in the order.
- The final study contains recommendations for the location of GE equipment and associated devices, electrical wiring and room arrangements. When preparing the study, every effort has been made to consider every aspect of the actual equipment expected to be installed.
- The layout of the equipment offered by GE, the dimensions given for the premises, the details provided for the pre-installation work and electrical power supply are given according to the information noted during on-site study and the wishes expressed by the customer.
- The room dimensions used to create the equipment layout may originate from a previous layout and may not be accurate as they may not have been verified on site. GE cannot take any responsibility for errors due to lack of information.
- Dimensions apply to finished surfaces of the room.
- Actual configuration may differ from options presented in some typical views or tables.
- If this set of final drawings has been approved by the customer, any subsequent modification of the site must be subject to further investigation by GE about the feasibility of installing the equipment. Any reservations must be noted.
- The equipment layout indicates the placement and interconnection of the indicated equipment components. There may be local requirements that could impact the placement of these components. It remains the customer's responsibility to ensure that the site and final equipment placement complies with all applicable local requirements.
- All work required to install GE equipment must be carried out in compliance with the building regulations and the safety standards of legal force in the country concerned.
- These drawings are not to be used for actual construction purposes. The company cannot take responsibility for any damage resulting therefrom.

CUSTOMER RESPONSIBILITIES

- It is the responsibility of the customer to prepare the site in accordance with the specifications stated in the final study. A detailed site readiness checklist is provided by GE. It is the responsibility of the customer to ensure all requirements are fulfilled and that the site conforms to all specifications defined in the checklist and final study. The GE Project Manager of Installation (PMI) will work in cooperation with the customer to follow up and ensure that actions in the checklist are complete, and if necessary, will aid in the rescheduling of the delivery and installation date.
- Prior to installation, a structural engineer of record must ensure that the floor and ceiling is designed in such a way that the loads of the installed system can be securely borne and transferred. The layout of additional structural elements, dimensioning and the selection of appropriate installation methods are the sole responsibility of the structural engineer. Execution of load bearing structures supporting equipment on the ceiling, floor or walls are the customer’s responsibility.

RADIO-PROTECTION

- Suitable radiological protection must be determined by a qualified radiological physicist in conformance with local regulations. GE does not take responsibility for the specification or provision of radio-protection.
CUSTOMER SITE READINESS REQUIREMENTS

- Any deviation from these drawings must be communicated in writing to and reviewed by your local GE healthcare installation project manager prior to making changes.
- Make arrangements for any rigging, special handling, or facility modifications that must be made to deliver the equipment to the installation site. If desired, your local GE healthcare installation project manager can supply a reference list of rigging contractors.
- New construction requires the following:
  1. Secure area for equipment,
  2. Power for drills and other test equipment,
  3. Capability for image analysis,
  4. Restrooms.
- Provide for refuse removal and disposal (e.g. crates, cartons, packing)
- It is the customer’s responsibility to contract a vibration consultant/engineer to implement site design modifications to meet the GE vibration specification. Refer to the system preinstallation manual for the vibration specification.

ENVIRONMENTAL SPECIFICATIONS

MAGNETIC INTERFERENCE
To guarantee specified imaging performance:
X-ray tubes and control console equipment must be located in ambient static field of less than 10 Gauss.

LIGHT REQUIREMENTS
For the electronic ballast of fluorescent lamp in exam room, the operating frequency should be above 42 kHz.

ACOUSTIC OUTPUT
Measured 1 m [3.28 ft] from any point in system.
In-use: less than 60 dBA
Stand-by: less than 55 dBA
The following shots are NOT available in this layout

Rear to front cross table shot

Auto Image Pasting at Wall Stand

YES

The chart shows the application possible to perform with the present equipment positioning, however the sales contract may not include it.

Applications

*Refer to heat dissipation detail on page M1 for system heat load information

For Accessory Sales: (866) 281-7545 Options 1, 2, 2 or mail to: gehcaccessorysales@ge.com
EXAM ROOM CEILING HEIGHTS

RECOMMENDED AND MINIMUM ROOM HEIGHTS

<table>
<thead>
<tr>
<th>CONFIGURATION</th>
<th>SPECIFICATIONS</th>
<th>CEILING HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2m or 3m Bridge</td>
<td>Recommended</td>
<td>2836 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>111.6 in</td>
</tr>
<tr>
<td>2m or 3m Bridge</td>
<td>Minimum</td>
<td>2686 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>105.75 in</td>
</tr>
<tr>
<td>2m or 3m Bridge (Cable chain) with Standard or Manual Wallstand at Foot Position</td>
<td>Minimum</td>
<td>2700 mm</td>
</tr>
<tr>
<td>2m or 3m Bridge with Extended Wallstand at Foot Position</td>
<td>Minimum</td>
<td>2750 mm</td>
</tr>
</tbody>
</table>

Note: measured from the floor to the top of the longitudinal rails

CEILING HEIGHT WITH FOOTSTOOL

<table>
<thead>
<tr>
<th>CEILING HEIGHT (mm [in])</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2686 ~ 2966 [105.7 ~ 116.8]</td>
<td>Patient barrier only (197 mm [7.8 in]), no need for footstool</td>
</tr>
<tr>
<td>2966 ~ 3036 [116.8 ~ 119.5]</td>
<td>Need 267 mm [10.5 in] footstool</td>
</tr>
<tr>
<td>3036 ~ 3179 [119.5 ~ 125.2]</td>
<td>Need 410 mm [16.1 in] footstool</td>
</tr>
</tbody>
</table>

Note: measured from the floor to the top of the longitudinal rails
**GLOBAL G3 TABLE WITH STANDARD WALLSTAND**

<table>
<thead>
<tr>
<th><strong>EQUIPMENT</strong></th>
<th><strong>DIMENSIONS</strong></th>
<th><strong>WEIGHT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD WALLSTAND</td>
<td>LENGTH 2111 mm 83.1 in</td>
<td>260 kg + dolly 573 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>WIDTH 911 mm 35.9 in</td>
<td>380 kg + dolly 838 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>HEIGHT 1860 mm 73.2 in</td>
<td>62.6 kg+ fixture 138 lbs+ fixture</td>
</tr>
<tr>
<td>GLOBAL G3 TABLE</td>
<td>LENGTH 2350 mm 93 in</td>
<td>380 kg + dolly 838 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>WIDTH 940 mm 37 in</td>
<td>62.6 kg+ fixture 138 lbs+ fixture</td>
</tr>
<tr>
<td></td>
<td>HEIGHT 800 mm 31.5 in</td>
<td></td>
</tr>
<tr>
<td>STATIONARY RAILS (5.79 m) (set of 2 rails)</td>
<td>LENGTH 5920 mm 233 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WIDTH 178 mm 7 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEIGHT 76 mm 3 in</td>
<td></td>
</tr>
<tr>
<td>OTS</td>
<td>LENGTH 900 mm 35.4 in</td>
<td>217 kg 478 lbs</td>
</tr>
<tr>
<td></td>
<td>WIDTH 940 mm 37 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEIGHT 1020 mm 40 in</td>
<td></td>
</tr>
</tbody>
</table>

*Recommended service access clearance is 915 mm [3 ft].

**SCALE 1:50**

**ACCESS POINT POSITION**

**AP Wall-mounting position:**
- There are 6 different positions available for AP wall-mounting.
- Install at more than 2.5 m [8.2 ft] height from floor level to avoid potential blocking from human or other obstacles.
- One Ethernet cable to Magic PC and one power cable to system cabinet are connected on the back of the AP.
- Use wall mount adapter included with AP.
- AP is only provided for wireless system, it is not included in Non Wireless Configuration system.

**THE CUSTOMER/CONTRACTOR SHOULD:**
- Provide an area adjacent to the installation site for delivery and unloading of the GE equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GE equipment from the delivery area into the definitive installation room.
- Ensure that access routes for equipment will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- Ensure that all necessary arrangements for stopping and unloading on public or private property not belonging to the customer have been made.

**DELIVERY DIMENSIONS OF DELIVERY WITH DOLLY TRANSPORT EQUIPMENT**

<table>
<thead>
<tr>
<th><strong>EQUIPMENT</strong></th>
<th><strong>DIMENSIONS</strong></th>
<th><strong>WEIGHT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD WALLSTAND</td>
<td>LENGTH 2111 mm 83.1 in</td>
<td>260 kg + dolly 573 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>WIDTH 911 mm 35.9 in</td>
<td>380 kg + dolly 838 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>HEIGHT 1860 mm 73.2 in</td>
<td>62.6 kg+ fixture 138 lbs+ fixture</td>
</tr>
<tr>
<td>GLOBAL G3 TABLE</td>
<td>LENGTH 2350 mm 93 in</td>
<td>380 kg + dolly 838 lbs + dolly</td>
</tr>
<tr>
<td></td>
<td>WIDTH 940 mm 37 in</td>
<td>62.6 kg+ fixture 138 lbs+ fixture</td>
</tr>
<tr>
<td></td>
<td>HEIGHT 800 mm 31.5 in</td>
<td></td>
</tr>
<tr>
<td>STATIONARY RAILS (5.79 m) (set of 2 rails)</td>
<td>LENGTH 5920 mm 233 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WIDTH 178 mm 7 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEIGHT 76 mm 3 in</td>
<td></td>
</tr>
<tr>
<td>OTS</td>
<td>LENGTH 900 mm 35.4 in</td>
<td>217 kg 478 lbs</td>
</tr>
<tr>
<td></td>
<td>WIDTH 940 mm 37 in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEIGHT 1020 mm 40 in</td>
<td></td>
</tr>
</tbody>
</table>
TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

<table>
<thead>
<tr>
<th></th>
<th>EXAM ROOM</th>
<th>CONTROL ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>15°C (59°F)</td>
<td>32°C (90°F)</td>
</tr>
<tr>
<td>Temperature gradient</td>
<td>&lt; 10°C/h (≤ 50°F/h)</td>
<td>&lt; 10°C/h (≤ 50°F/h)</td>
</tr>
<tr>
<td>Relative humidity (1)</td>
<td>20% to 75%</td>
<td>20% to 75%</td>
</tr>
<tr>
<td>Humidity gradient</td>
<td>&lt; 30%/h</td>
<td>&lt; 30%/h</td>
</tr>
</tbody>
</table>

STORAGE CONDITIONS

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>-5°C (23°F) to +50°C (122°F)</td>
<td></td>
</tr>
<tr>
<td>Temperature gradient</td>
<td>&lt; 20°C/h (≤ 68°F/h)</td>
<td></td>
</tr>
<tr>
<td>Relative humidity (1)</td>
<td>10% to 85%</td>
<td></td>
</tr>
<tr>
<td>Humidity gradient</td>
<td>&lt; 30%/h</td>
<td></td>
</tr>
</tbody>
</table>

Storage longer than 90 days is not recommended.
(1) Non-condensing

AIR RENEWAL
According to local standards.

NOTE
In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

HEAT DISSIPATION DETAILS

<table>
<thead>
<tr>
<th>SYSTEM POWER CONSUMPTION</th>
<th>HEAT OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STANDBY</td>
</tr>
<tr>
<td>Standby Power</td>
<td>1.0 kW</td>
</tr>
<tr>
<td>Standby Current</td>
<td>2.0 A</td>
</tr>
<tr>
<td>Continuous Power</td>
<td>2.2 kW</td>
</tr>
<tr>
<td>Continuous Current</td>
<td>4.5 A</td>
</tr>
</tbody>
</table>
STRUCTURAL NOTES

- Methods of support for the steelwork that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use concrete or masonry anchors in direct tension.
- All units that are wall mounted or wall supported are to be provided with supports where necessary. Wall supports are to be supplied and installed by the customer or his contractors. See plan for suggested locations.
- Control walls shall be constructed to minimum 2130mm (7'-0") high.
- Dimensions are to finished surfaces of room.
- Customers contractor must provide all penetrations in post tension floors.
- Customers contractor must provide and install any non-standard anchoring. Documents for standard anchoring methods are included with GE equipment drawings for geographic areas that require such documentation.
- Customers contractor must provide and install hardware for "through the floor" anchoring and/or any bracing under access floors. This contractor must also provide floor drilling that cannot be completed because of an obstruction encountered while drilling by the GE installer such as rebar etc.
- It is the customer's responsibility to perform any floor or wall penetrations that may be required. The customer is also responsible for ensuring that no subsurface utilities (e.g., electrical or any other form of wiring, conduits, piping, duct work or structural supports (i.e. post tension cables or rebar)) will interfere or come in contact with subsurface penetration operations (e.g. drilling and installation of anchors/screws) performed during the installation process. To ensure worker safety, GE installers will perform surface penetration operations only after the customer's validation and completion of the "GE surface penetration permit".
- Different anchor types are used to install the components of the system. Refer to Structural Requirements Section(s) of the Pre-Installation Manual for each anchor requirement.
- Refer to the Structural Requirements Section for the required minimum embedment.
- The ground surface must be flat and leveled, maximum tolerance for leveling is ±1.5 mm per 1 m (0.2 in per 10 feet). A grout pad provided by the contractor is required to meet this specification. The maximum pad thickness is 6.3 mm (0.25 in).

CEILING REQUIREMENTS

To allow installation of the stationary rail cross-members, clearance is required between the ends of the stationary rails and the walls.

It is recommended that sprinkler heads not be placed between the stationary rails. All sprinkler heads should be mounted so they do not extend downward more than 6.35 mm [1/4 in] from the ceiling while in the 'resting' position.

In addition, there should not be anything mounted in the ceiling (i.e. lights, A/C returns, etc) between the stationary rails. This is because the OTS longitudinal drive belt assembly is located on the movable bridge, approximately centered between the two stationary rails, and may come into contact with those ceiling-mounted items during normal use.

Stationary rails are designed for top (ceiling) mounting. Rails can be ordered and are supplied in the following sizes:

- 4115 mm [13 ft 6 in]
- 4420 mm [14 ft 6 in]
- 4724 mm [15 ft 6 in]
- 5030 mm [16 ft 6 in]
- 5334 mm [17 ft 6 in]
- 5640 mm [18 ft 6 in]
- 5791 mm [19 ft]

The choice of length depends on room size, configuration and the possible presence of obstructions.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area occupied by GE supplied table baseplate</td>
</tr>
<tr>
<td>2</td>
<td>Area occupied by GE supplied wall stand baseplate</td>
</tr>
<tr>
<td>3</td>
<td>Support backing, locate as shown.</td>
</tr>
<tr>
<td>4</td>
<td>Structural support in ceiling for fastening ceiling supported equipment. Supports to run continuous with no fittings extending below face of channel, run wall to wall, be parallel, square, and in the same horizontal plane, flush with the finished ceiling. Rails are mounted to these supports every 2'-2&quot; and require 350 lbs. (597 lbs. In seismic regions) per bolt load. Methods of support that permit attachment to structural steel or through bolts in concrete should be favored. Do not use screw anchors in direct tension.</td>
</tr>
<tr>
<td>5</td>
<td>Structural support in ceiling for fastening cable drape rail. Supports to run continuous with no fittings extending below face of channel, run wall to wall, be parallel, square, and in the same horizontal plane, flush with the finished ceiling. Rails are mounted to these supports every 2'-2&quot; and require 50 lbs. Per bolt load. Methods of support that permit attachment to structural steel or through bolts in concrete should be favored. Do not use screw anchors in direct tension.</td>
</tr>
</tbody>
</table>
### WALLSTAND ANCHORING

**WALLSTAND BASE**

Concrete area for wall stand installation should be 1 m² [39.37 ft²].

- Cable inlet area
- Anchors M10x150 supplied by GE

**SCALE 1:10**

### TABLE ANCHORING

**GLOBAL G3 TABLE STAND**

- Cable inlet area
- Anchors M8x190 supplied by GE

The floor bearing the system is recommended to be concrete and the thickness to be determined by a Structural Engineer to properly support the equipment loads. The supplied anchors require a minimum embedment of 90 mm [3.5 in] into the concrete. If the floor thickness is less than 95 mm [3.7 in], it is recommended that the unit be secured using a through-bolt method with a reinforcement plate on the back side.

**SCALE 1:20**

### OTS SUSPENSION RAILS MOUNTING SPECIFICATIONS

**3 m BRIDGE**

- When a 22.7 kg [50 lb] force is applied vertically upward, downward or horizontally at any support rail mounting point, the attachment interface must not deflect more than 1.5 mm [1/16 in]
- When a 136 kg [330 lb] load is applied vertically downward or horizontally at any stationary rail mounting point, the attachment interface must not deflect more than 1.5 mm [1/16 in]
- When a 660.4 ±1.5 mm [26 ±1/16 in] cable takeup support rail mounting point, Stationary rail mounting points must be parallel within ±3 mm [±1/8 in]
- Diagonals must be equal within ±6.5 mm [±1/4 in]
- All mounting points must be located on a common centerline within ±1.5 mm [±1/16 in]
- All mounting points must be in the same horizontal plane within ±2.4 mm [±3/32 in]

- Distance between holes axis 660.4 mm [26 in], Maximum load per screw is 160 kg [353 lb], however each mounting screw must not “PULL OUT” or otherwise fail under a vertically downward dead load of 635 kg [1400 lb]. Bolts for mounting stationary rails on Unistrut or equivalent supplied by GE (1/2” - 13 headed bolts)

**SCALE 1:10**

**FOCAL SPOT TRAVEL WITH 3M BRIDGE**

- 3 m BRIDGE
- Focal Spot Travel depends on the length of the bridge and rails.

**NOT TO SCALE**
XT RADIOGRAPHIC SUSPENSION, INBOARD MOUNTING

Structural Supports

Supports to slab as required

Reference Structural Layout for these dimensions

Reference Structural Layout for these dimensions

Structural Supports

Stationary Rail

Contractor supplied and installed structural supports flush with finished ceiling

Contractor supplied and installed finished ceiling (ceiling & supports must not extend below face of structural supports)

GE supplied spring nuts with bolts

GE supplied self-tapping screws

GE supplied cable drape support

GE supplied cable drape rail

GE supplied cable drape rail

Structural Support system is not supplied or installed by GE Healthcare

DETAIL 1

Contractor supplied and installed structural supports flush with finished ceiling

Contractor supplied and installed finished ceiling (ceiling & supports must not extend below face of structural supports)

GE supplied spring nuts with bolts

NOT TO SCALE

GE supplied longitudinal stationary rail

OPTIMA XR646 HD (G3) Typical

DETAIL 2

Contractor supplied and installed structural supports flush with finished ceiling

Contractor supplied and installed finished ceiling (ceiling & supports must not extend below face of structural supports)

GE supplied spring nuts with bolts

GE supplied cable drape rail

GE supplied cable drape support

NOT TO SCALE

GE supplied self-tapping screws

Date

Rev B Date 20/Mar/2020

EN-RAD-TYP-XR_646_HD_(G3)-WEB.DWG

11/16
Broadband connections are necessary during the installation process and going forward to ensure full support from the Engineering Teams for the customers' system. Maximum performance and availability for the customers' system is maintained and closely monitored during the lifetime of the system. Proactive and reactive maintenance is available utilizing the wide range of digital tools using the connectivity solutions listed below:

- Site-to-Site VPN/GE Solution
- Site-to-Site VPN/Customer Solution
- Connection through Dedicated Service Network
- Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).

---

## ELECTRICAL NOTES

1. All wires specified shall be copper stranded, flexible, thermo-plastic, color-coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.
   1.1. Aluminum or solid wires are not allowed.
   2. Wire sizes given are for use of equipment. Larger sizes may be required by local codes.
   3. It is recommended that all wires be color coded, as required in accordance with national and local electrical codes.
   4. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or national codes.

2. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distribution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.

3. General room illumination is not illustrated. Caution should be taken to avoid excessive heat from overhead spotlights. Damage can occur to ceiling mounting components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls (except MR). Do not mount lights directly above areas where ceiling mounted accessories will be parked.

4. Routing of cable ductwork, conduits, etc., must run direct as possible otherwise may result in the need for greater than standard cable lengths (refer to the interconnection diagram for maximum usable lengths point to point).

5. Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.

6. A special grounding system is required in all procedure rooms by some national and local codes. It is recommended in areas where patients might be examined or treated under present, future, or emergency conditions. Consult the governing electrical code and confer with appropriate customer administrative personnel to determine the areas requiring this type of grounding system.

7. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distribution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.

8. General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.

9. The maximum point to point distances illustrated on this drawing must not be exceeded.

10. Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.

11. GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

---

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor.
- Conduit and duct runs shall have sweep radius bends
- Conduits and duct above ceiling or below finished floor must be installed as near to ceiling or floor as possible to reduce run length.
- Ceiling mounted junction boxes illustrated on this plan must be installed flush with finished ceiling.
- All ductwork must meet the following requirements:
  1. Ductwork shall be metal with dividers and have removable, accessible covers.
  2. Ductwork shall be certified/rated for electrical power purposes.
  3. Ductwork shall be electrically and mechanically bonded together in an approved manner.
- PVC as a substitute must be used in accordance with all local and national codes.
- All openings in access flooring are to be cut out and finished off with grommet material by the customers contractor.
- General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.
- 10 foot pigtails at all junction points.
- Grounding is critical to equipment function and patient safety. Site must conform to wiring specifications shown on this plan.
**ELECTRICAL LAYOUT ITEM LIST**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Outlet Legend for GE Equipment</th>
<th>Additional Conduit Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>One 3&quot; stubbed conduit</td>
<td>From 3 phase power</td>
</tr>
<tr>
<td>2</td>
<td>Flush 12&quot;x6&quot;x4&quot; box for Control</td>
<td>To Main disconnect</td>
</tr>
<tr>
<td>3</td>
<td>Flush 3-box for Chest Unit - size per local code</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>4</td>
<td>Flush 3-box for Access Point - size per local code</td>
<td>Size AS REQ'D</td>
</tr>
<tr>
<td>5</td>
<td>Flush 3-box for TIB - size per local code</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>6</td>
<td>Flush 3-box for Generator - size per local code</td>
<td>Size AS REQ'D</td>
</tr>
<tr>
<td>7</td>
<td>18&quot; x 3 1/2&quot; [450mm x 100mm] Flush vertical wall duct with minimum 2 dividers</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>8</td>
<td>Box above ceiling size per local code</td>
<td>Size AS REQ'D</td>
</tr>
<tr>
<td>9</td>
<td>Box below floor size per local code</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>10</td>
<td>One 1&quot; cnd</td>
<td>Size AS REQ'D</td>
</tr>
<tr>
<td>11</td>
<td>One 1 1/2&quot; cnd</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>12</td>
<td>One 2&quot; cnd</td>
<td>Size AS REQ'D</td>
</tr>
<tr>
<td>13</td>
<td>One 2 1/2&quot; cnd</td>
<td>Qty 1 AS REQ'D</td>
</tr>
<tr>
<td>14</td>
<td>Main Disconnect Panel</td>
<td>Size AS REQ'D</td>
</tr>
</tbody>
</table>

**Conduit Legend**

- Above Ceiling
- Below Floor

**System emergency off (SEO), (recommended height 1.2m [48"] above floor)**

**X-Ray room warning light control panel**

**X-Ray ON lamp (L1) - 24V**

**Door interlock switch (needed only if required by state/local codes)**

**Duplex hospital grade, dedicated wall outlet 120 v, single phase power**

**Dedicated telephone line(s)**

**Network outlet**

---

**ELECTRICAL LAYOUT**

- **EXAM ROOM**
  - 7'-4"
  - 5'-2"
  - 10'-5"

- **CONTROL ROOM**
  - 3'-0"
  - 4'-4"
  - 8'-0"
  - 1'-10"
  - 5'-2"
  - 12'-8"

---

**Conduit Legend**

- Above Ceiling
- Below Floor

---

**ITEM**

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

---

**Conduit Runs**

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Qty</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 phase power</td>
<td>Main disconnect</td>
<td>1</td>
<td>AS REQ'D</td>
</tr>
<tr>
<td>Main disconnect</td>
<td>Emergency off</td>
<td>1</td>
<td>1/2</td>
</tr>
<tr>
<td></td>
<td>Systems Cabinet</td>
<td>1</td>
<td>AS REQ'D</td>
</tr>
<tr>
<td>Warning light</td>
<td>Warning light control</td>
<td>1</td>
<td>1/2</td>
</tr>
<tr>
<td>1 phase power</td>
<td>Warning light control</td>
<td>1</td>
<td>1/2</td>
</tr>
<tr>
<td>Systems Cabinet</td>
<td>Door Switch</td>
<td>1</td>
<td>1/2</td>
</tr>
<tr>
<td></td>
<td>Tether Interface Box</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Access Point</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Operators Console</td>
<td>Tether Interface Box</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Access Point</td>
<td>1</td>
<td>27</td>
</tr>
</tbody>
</table>

---

**CONSTRUCTION DRAWING**

- **DRAWING NO.**
- **DATE**
- **SHEET NO.**
### INTERCONNECTIONS

**System Cabinet**

- **EXAM ROOM**
  - Measured from the front of the bridge:
    - 19.5 m [63.98 ft]
    - 15.5 m [50.85 ft]
    - 20.5 m [67.26 ft]

- **BRIDGE**
  - 19.5 m [63.98 ft]
  - 14.5 m [47.57 ft]
  - 20.5 m [67.26 ft]
  - 15.5 m [50.85 ft]

- **TABLE**
  - Ethernet 29.5 m [96.7 ft]

- **CONTROL ROOM**
  - 25.5 m [83.66 ft]
  - 2.8 m [9.19 ft]
  - 19.5 m [63.98 ft]

**Hospital 110/220 VAC**

- **Detector bin**
  - Ethernet 24.5 m [80.38 ft]

- **AP Ethernet**
  - 24.5 m [80.38 ft]
  - 29.5 m [96.7 ft]

**...m [..... ft] - Long usable length**

**...m [..... ft] - Standard usable length**

### CABLE MANAGEMENT

**CONDUIT IN THE FLOOR**

**VERTICAL DUCT ON WALL**

- **Removable coverplate**

- **Not to scale**
### POWER REQUIREMENTS

**POWER SUPPLY**
- 380/400/415/440/460/480V ±10%, THREE-PHASE + G

**FREQUENCIES**
- 50/60Hz ± 3Hz

**POWER DEMAND**
- 979kVA

**MAXIMUM LINE RESISTANCE PER 2 PHASES (Ohm)**
- 380V: 0.118 / 400V: 0.131 / 415V: 0.138
- 440V: 0.154 / 480V: 0.185

- Power supply should come into a power distribution box (MDP) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum permissible voltage drops.
- There must be discrimination between supply cable protective material at the beginning of the installation (main low-voltage transformer side) and the protective devices in the MDP.

**SUPPLY CHARACTERISTICS**
- Power input must be separated from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers...)
- All equipment (lighting, power outlets, etc...) installed with GE system components must be powered separately.

**GROUND SYSTEM**
- Equipotential: the equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non GE cableways and to additional equipotential connections linking up all the conducting units in the rooms where GE units are located.

**CABLES**
- Power and cable installation must comply with the distribution diagram below.
- All cables must be isolated and flexible.
- Cable color codes must comply with standards for electrical installation.
- Case PDB furnished by GE: The cables for signals and remote control (DLK1, SEO, XRL1...) will go to MDP with a pigtail length of 1.5m [4.9 ft], and will be connected during installation. Each conductor will be identified and isolated (screw connector).

**CABLEWAYS**
- The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to:
  - Protecting cables against water (cableways should be waterproof)
  - Protecting cables against abnormal temperatures (proximity to heating pipes or ducts)
  - Protecting cables against temperature shocks
  - Replacing cables (cableways should be large enough for cables to be replaced) metal cableways should be grounded.

### FEEDER TABLE

<table>
<thead>
<tr>
<th>MIN. FEEDER WIRE SIZE, AWG OR MCM (sq. mm)/KCM</th>
<th>MINIMUM FEEDER WIRE LENGTH - ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (15)</td>
<td>100 (30)</td>
</tr>
<tr>
<td>480 VAC</td>
<td>4 (12)</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**
- In all cases qualified personnel must verify that the feeder (at the point of take-off) and the run to the GE system meet all the requirements stated in the PIM.
- For a single unit installation, the minimum transformer size is 112.5 kVA. Synthesized power feed is not acceptable.
- Grounding conductor will be of the same size as the feeder. This ground will run from the equipment back to the power source/main grounding point and always travel in the same conduit with the feeders.

### POWER DISTRIBUTION

- **Main 480 V**
  - Three Phase Supply
  - Ground cable (PE)

- **SEO**
  - 1 phase power
  - 14 Black
  - 14 White
  - 14 Green

- **MDP**
  - 80 A

- **SKL**
  - Generator (System Cabinet)
  - Emergency OFF button (Control Room), located 1.50m (4.9') above floor
  - Warning Light Control
  - Warning Light
  - Door Interlock Switch (needed only if required by state/local codes)

**Cable SUPPLIED BY GE**

- **XRL1**
  - 14 Black
  - 14 White
  - 14 Green

- **XRLC**
  - 14 Black
  - 14 White
  - 14 Green

- **DLK1**
  - 14 Black
  - 14 White
  - 14 Green

- **Cable SUPPLIED BY CUSTOMER**
  - Green (1)
  - Black (3)
  - Red (4)

- **Equipment SUPPLIED BY GE**
  - Door Interlock Switch (needed only if required by state/local codes)