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 responsibility or liability for defective work due to scaling from these drawings.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>DIMENSIONS LxWxH (mm)</th>
<th>WEIGHT (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GANTRY</td>
<td>1564x2340x1930</td>
<td>3060</td>
</tr>
<tr>
<td>2</td>
<td>PATIENT TABLE</td>
<td>3454x660x1067</td>
<td>822</td>
</tr>
<tr>
<td>3</td>
<td>POWER DISTRIBUTION UNIT (PDU)</td>
<td>559x711x1067</td>
<td>370</td>
</tr>
<tr>
<td>4</td>
<td>POWER DISTRIBUTION BOX (PDB)</td>
<td>600x300x820</td>
<td>42</td>
</tr>
<tr>
<td>5</td>
<td>RECONSTRUCTION CABINET (PARC 4)</td>
<td>1358x1141x1420</td>
<td>246</td>
</tr>
<tr>
<td>6</td>
<td>ANNULUS PHANTOM SHEILD CONTAINER</td>
<td>406x406x665</td>
<td>142</td>
</tr>
<tr>
<td>7</td>
<td>INJECTOR ON PEDESTAL</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>WORKSPACE TABLE</td>
<td>1486x902x1139</td>
<td>63.6</td>
</tr>
<tr>
<td>9</td>
<td>OPEN CONSOLE</td>
<td>616x406x576</td>
<td>61</td>
</tr>
<tr>
<td>10</td>
<td>INJECTOR CONTROL</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>AW WORKSTATION</td>
<td>551x216x445</td>
<td>31.7</td>
</tr>
</tbody>
</table>

STRUCTURE - ACCORDING TO RECEIVED DRAWING
WALL - ACCORDING TO RECEIVED DRAWING

EXAM ROOM HEIGHT
FINISHED FLOOR TO SLAB HEIGHT: min. 2.29 m
FALSE CEILING HEIGHT: -
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Gantry anchoring (see Structural Details)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Table anchoring (see Structural Details)</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>200x200 opening on floor</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>200x70 flush floor duct</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>200x100 vertical duct from floor to PDB (h=1.2m)</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>200x100 opening on floor</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Power Distribution Box (PDB)</td>
</tr>
</tbody>
</table>

### Basic system
- **Electrical outlet** 10/16A 230V + G
- **RJ45 network socket**

- **System remote control (Y)**, locked when power OFF “ON” and “OFF” impulse buttons with indicator lamps red=ON / green=OFF located at 1.50m above floor
- **System emergency off (SEC)**, (recommended height 1.50m-1.85m above floor)
- **System ON light (L)** - 24V
- **X-Ray ON lamp (L1)** - 24V

### AW Option
- **Electrical outlets :** 230V 10/16A +G linked to the hospital UPS or through a dedicated UPS of 1 kVA single phase (if available)
- **RJ45 network socket**

- **Flush floor duct**
- **Wall duct**
**ANCHORING/LOADING DISTRIBUTION TO THE FLOOR**

**GE SUPPLIED GANTRY ANCHORS (2106573)**

- Anchor bolt
- Anchor washer
- Leveling screw
- Adjuster lock ring
- Gantry/Table stationary base
- Ø 63.5 (2.5 in) leveling pad
- 9.7 mm (.38 in) height for short rod
- 44.5 mm (.175 in) height for long rod

**ANCHORING AND FLOOR REQUIREMENTS**

**GE SUPPLIED GANTRY ANCHORS (2106573)**

- Anchor bolt
- Anchor washer
- Leveling screw
- Adjuster lock ring
- Gantry/Table stationary base
- Ø 63.5 (2.5 in) leveling pad
- 9.7 mm (.38 in) height for short rod
- 44.5 mm (.175 in) height for long rod

**FINISHED FLOOR REQUIREMENTS**

- Installation requires a finish floor in the scan and control rooms.
- The floor surface in the scan room directly under the gantry and table must be level.
- The floor shall be no greater than 6 mm (.25 in) out of level over a 3048 mm (120 in) range, with level defined as the horizontal surface between the highest and lowest points.
- The floor shall have a minimum concrete thickness of 127 mm (5 in).
- Shims should not be used to compensate for a floor that does not meet this requirement.
- These requirements apply to all installation types.

**NOTES:**

If the concrete floor has a floor covering installed over it (such as floor tile), 17 or more openings 101.6 mm in (4 in) diameter will be cut into the floor covering to ensure the table and gantry rest on the concrete. (Openings are cut during installation.)

**CABLE MANAGEMENT**

**FLUSH FLOOR DUCT**

- Waterproof joint
- Removable cover

**DUCT ON THE WALL**

- Removable coverplate

**SCALE 1:25**

---

**ANCHORING/LOADING DISTRIBUTION TO THE FLOOR**

- PT 1049 kg (2308 lbs) with 227 kg (500 lbs) patient
- G1 (PET-25 cm FOV)
- PT 1049 kg (2308 lbs) with 227 kg (500 lbs) patient

**SCALE 1:25**

---

**DISCOVERY PET/CT IQ**

- EN-PET-TYP-DISCOVERY_IQ.DWG
- Rev A | Date 10/Jan/2020 | Floor structural details | 04/13
SHIELDING REQUIREMENTS:

Engage a qualified radiological health physicist to review your scan room shielding requirements, taking into consideration:

- Scatter radiation levels within the scanning room.
- Equipment placement.
- Weekly projected work-loads (number of patients/day technique (kVp*mA)).
- Materials used for construction of walls, floors, ceiling, doors, and windows.
- Activities in surrounding scan room areas.
- Equipment in surrounding scan room areas (e.g., film developer, film storage).
- For small and medium filter survey, the 20 cm water phantom should be placed on the phantom headholder inserted into the end of the patient table.

The four scatter surveys depict measured radiation levels within the scanning room at the indicated distances, while scanning a 16 cm CTDI phantom for the Head Scan mode and 32 cm CTDI phantom for the Body Scan Mode. Use the mAs, kV and aperture scaling factors in the table shown here to adjust exposure levels to the scan technique used at the site.

For example: The exposure level for a 120 kV, 800 mA, 1 sec scan at 50" (127 cm) away from the scan plane is: $10.4 \times 0.71 \times \frac{800}{100} = 59.1 \mu G y$

**NOTE:** Actual measurements can vary. Expected deviations equals ±15%, expect for the 5 mA and 1.25mm techniques, where variations may be greater (up to a factor of 2), due to the inherent deviation in small values. The maximum deviation anticipated for tube output equals ±40%.
**POWER REQUIREMENTS**

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
<th>3 PHASES+G</th>
</tr>
</thead>
<tbody>
<tr>
<td>200/220/240/380/400/420/440/460/480 V ± 10%</td>
<td></td>
</tr>
</tbody>
</table>

| FREQUENCIES | 50/60Hz ± 3Hz |

| MAXIMUM POWER DEMAND | 90 kVA |

| AVERAGE (CONTINUOUS) POWER DEMAND | 10 kVA |

| POWER FACTOR | 0.85 |

- Power supply should come into a main disconnect panel (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 device at the beginning of the installation (main low-voltage transformer side) and the protective devices in the MDP.

**SUPPLY CHARACTERISTICS**

- Power input must be separate 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.
- Phase imbalance 2% maximum.
- Maximum voltage variation at 100kVA = 5% (Including line impedance.)
- Transients must be less than 1500V peak. (on a 400V line)

**GROUND SYSTEM**

- System of equipotential grounding.
- 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 system units are located.

**CABLES**

- Power and cable installation must comply with the distribution diagram.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (Y, SEO, L...) will go to MDP with a pigtail length of 1.5m, 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.

---

**POWER DISTRIBUTION**

- **Main supply**: 3 phases 380/410 V
- **Ground cable (PE)**

---

**Notes:**

1. Two dry contacts: "System ON" and "X-Ray ON", both released by PDU.
   - Max. voltage = 30 V
   - If length < 10 m
     - Cable with 2m extra length on the floor behind the back of PDU
   - Cable with 2m extra length on the floor behind of PDU
   - Cable delivered with partial UPS installed by GE (Option)

PDB SCHEMATICS AND DETAILS THAT APPEAR ON THIS PAGE ARE THE PROPERTY OF "GE MEDICAL SYSTEMS FRANCE" AND COMPLY WITH FRENCH ELECTRICAL CODE NFC 15-100
3 x 400V
3 PHASE MAIN SUPPLY FROM
GENERAL ELECTRIC BOARD

PE
L1 L2 L3

MBD1
3x125A
Type D
300mA

B1
2x3A
Type D

C1
3x125A

400VAC

0
24VAC

MBD1

SYSTEM

ON

400V

24VAC

0

400/24V

24VAC

24VAC

2x3A

Type D

2x10A

2x6A

MBD1:
D type magnetic breaker
C1: 24 VAC 50 Hz contactor
B1/B2/B3: Circuit breaker
R1/R2/R3: 24 VAC 50 Hz relay

2x3A

Type C

2x10A

2x6A

R1

R1

R2

R3

CONTROL

PARTIAL UPS (OPTION)
EMERGENCY CUT-OFF

R1

C1

R2

R3

X-Ray ON

System ON

H1: On the door of PDB unit
SEO1: Emergency OFF button in exam room
SEO2: Emergency OFF button in control room
SEO3: Emergency OFF button in technical room (shunt is installed by default)
Y: System remote control in control room

PDB SCHEMATICS AND DETAILS THAT APPEAR ON THIS PAGE ARE THE PROPERTY OF "GE MEDICAL SYSTEMS FRANCE" AND COMPLY WITH FRENCH ELECTRICAL CODE NF C 15-100
## Temperature and Humidity Specifications

### In-Use Conditions

<table>
<thead>
<tr>
<th>Room</th>
<th>Temperature</th>
<th>Temperature gradient</th>
<th>Relative humidity</th>
<th>Humidity gradient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam Room</td>
<td>Min 18°C</td>
<td>≤ 3°C/h</td>
<td>30% to 60%</td>
<td>≤ 5%/h</td>
</tr>
<tr>
<td></td>
<td>Max 26°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Room</td>
<td>Min 18°C</td>
<td>≤ 3°C/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 26°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Room</td>
<td>Min 18°C</td>
<td>≤ 3°C/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 26°C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Storage Conditions

<table>
<thead>
<tr>
<th>Room</th>
<th>Temperature</th>
<th>Temperature gradient</th>
<th>Relative humidity</th>
<th>Humidity gradient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam Room</td>
<td>Min 0°C</td>
<td>≤ 5°C/h</td>
<td></td>
<td>≤ 5%/h</td>
</tr>
<tr>
<td></td>
<td>Max 30°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Room</td>
<td>Min 4°C</td>
<td>≤ 5°C/h</td>
<td></td>
<td>≤ 5%/h</td>
</tr>
<tr>
<td></td>
<td>Max 32°F</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Connectivty Requirements

Broadband Connections are necessary between customer’s imaging devices and the GE Support Center, starting from the installation process to ensure full support from the Engineering Teams. GE provides remote maintenance and maximum availability for the customer’s system, during the equipment’s full lifetime. GE guarantees to keep the equipment at a maximum performance level.

Proactive and reactive maintenance are available through utilizing a wide range of digital tools.

You may choose from 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).
RADIOACTIVE ISOTOPES AND RADIOPROTECTION

Since the system produces X-ray radiation and involves the use of radioactive isotopes, compliance with Nuclear Regulatory Commission regulations (or country similar regulatory requirements), must be adhered to and all permissions obtained well in advance.

It is Customer’s responsibility consult a qualified radiological health physicist for radiation protection requirements for the walls, floor, ceiling, doors, window glass, etc. (lead content and thickness) and warning lights and signs, in accordance with local requirements.

It is essential that regulatory compliance and preparations are completed early so that required source materials can be obtained prior to installation, including calibration sources and isotopes. These sources and isotopes may have fairly long delivery lead times and a short half-life, so that it may not be advisable to store them over long periods of time.

RADIOACTIVE SOURCE - ISOTOPE

<table>
<thead>
<tr>
<th>Isotope</th>
<th>Activity level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ge-68</td>
<td>55 MBq ± 20%</td>
</tr>
</tbody>
</table>

Typical Positron Emitting Isotopes include
- Fluorine 18
- Carbon 11
- Nitrogen 13
- Oxygen 15

It is customer’s responsibility provide isotopes for system calibration and prepare the required doses.

VIBRATION SPECIFICATIONS

- Shock Restrictions: The system cannot tolerate shock or vibration. System components cannot be tipped, dropped, or hoisted.
- The scanning facility shall be isolated from vibration such as: hospital power plants, pumps, motors, air handling equipment, air conditioning units, nearby rooms with exercise equipment or where exercise occurs, hallway foot traffic, elevators, parking lots, roads, subways, trains, and heliports; otherwise, vibration will affect the image quality of the scanner.
- CT systems are sensitive to vibration and may display limited performance if exceeding the vibration limits listed below. The band of frequencies in which systems exhibit the most sensitivity appears at or near the resonant frequencies of the gantry and the patient table, the latter of which varies depending on patient mass and location. These frequencies fall within the following ranges:
  - Patient Table: 2 – 10 Hz
  - Gantry: 8 – 14 Hz
- It is the customer’s responsibility to contract a vibration consultant or qualified engineer to verify that these specifications are met and implement an appropriate solution.
- The maximum steady state vibration transmitted through the floor should not exceed 2.5 mm/s² RMS maximum single frequency above ambient baseline from 0.5 to 80 Hz (measured in any 1 hour during a normal operating period).
**DELIVERY**

The customer/contractor must:

- Provide an area, adjacent to the PET/CT suite, 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 to the specific rooms of the site.
- Ensure that the access route will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- If the parking and dock facilities are on property which does not belong to the customer, ensure that all necessary steps have been taken to ensure their temporary use by GE.

**DIMENSIONS OF DELIVERY WITH DOLLY TRANSPORT EQUIPMENT**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Gantry</td>
<td>2810</td>
<td>1290</td>
<td>1982</td>
<td>4370</td>
<td></td>
</tr>
<tr>
<td>PET Gantry (Weldment)</td>
<td>2794</td>
<td>1118</td>
<td>1262</td>
<td>2782</td>
<td></td>
</tr>
<tr>
<td>Patient Table</td>
<td>3836</td>
<td>864</td>
<td>1241</td>
<td>2736</td>
<td></td>
</tr>
</tbody>
</table>

Above dimensions shown with side rails on. The minimum unobstructed hallway width is 1803 mm, the minimum clear doorway openings is 1067 mm to accommodate delivery of the system.

**MAXIMUM USABLE CABLES LENGTH**

- **Technical Room / Exam Room**
  - Control Room: 16.60 m [54 ft]
  - Exam Room: 21.20 m [69 ft]
  - PARC4: 6.80 m [22.3 ft]

- **Exam Room**
  - Control Room: 9.60 m [32 ft]
  - Exam Room: 21.90 m [72 ft]

- **Control Room**
  - Exam Room: 4.30 m [14 ft]
  - Control Room: 10.10 m [33 ft]

- **PDU**
  - Control Room: 9.10 m [30 ft]
  - Exam Room: 15.10 m [50 ft]

- **PDB**
  - Control Room: 15.80 m [52 ft]
  - Exam Room: 21.80 m [71.5 ft]

- **Customer Supplied**
  - Partial UPS (option): 5.00 m [16 ft]

- **Operator's Console**
  - Control Room: 6.80 m [22.3 ft]
  - Exam Room: 13.70 m [45 ft]

- **Patient Table**
  - Length: 3836 mm [151 in]
  - Width: 864 mm [34 in]
  - Height: 1410 mm [55.5 in]
  - Weight with dollies and side rails: 1241 kg [2736 lb]

- **PET Gantry**
  - Length: 2794 mm [110 in]
  - Width: 1118 mm [44 in]
  - Height: 1880 mm [74 in]
  - Weight with dollies and side rails: 1262 kg [2782 lb]

- **CT Gantry**
  - Length: 2810 mm [111 in]
  - Width: 1290 mm [51 in]
  - Height: 2000 mm [79 in]
  - Weight with dollies and side rails: 1982 kg [4370 lb]
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 conformation with local regulations. GE does not take responsibility for the specification or provision of radio-protection.

### DISCLAIMER

**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.

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