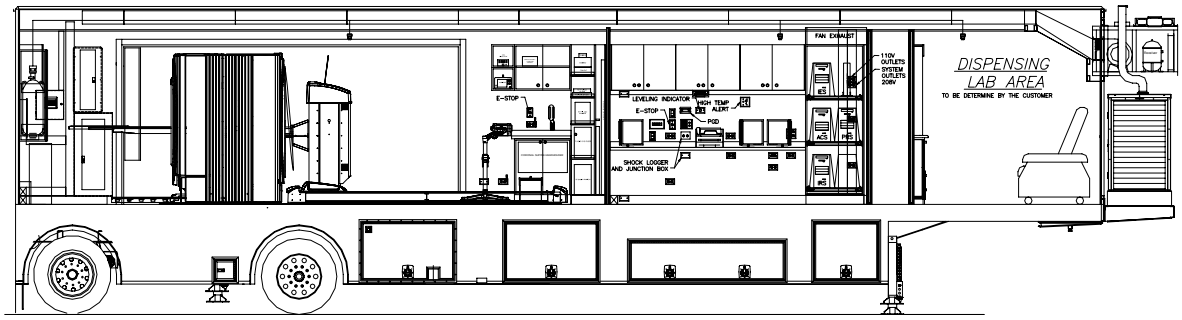
OSHKOSH SPECIALTY VEHICLES

Site Planning Guide

SIEMENS TRUE POINT
MOBILE PET/CT SYSTEM
48’ L x 8’-6” W x 13’-6” H USA Unit



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List of Revisions

Revisions

00	Initial release	March 2008

Notice

In accordance with our policy of continued product improvement, Oshkosh Specialty Vehicles reserves the right to make changes in the equipment, design, specifications, and materials of the product described herein. Any problems or questions related to the components or systems covered in this booklet may be directed to:

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OSHKOSH | OSHKOSH SPECIALTY VEHICLES

Table of Contents

Table of Figures

OSHKOSH SPECIALTY VEHICLES

Introduction

The purpose of this document is to provide the basic information needed for site planning. For specific information not contained in this document, please contact Oshkosh Specialty Vehicles.

The mobile unit requires sufficient room to be maneuvered and positioned for setup and takedown. The mobile unit has many storage compartments and service doors that require access during these procedures as well as during operation. The wheel chair lift, entry stair and optional platform require additional space on each side of the mobile self-propelled unit. Refer to the drawings provided for actual locations of doors, wheel chair lift, and stair sizes and locations.

Warnings & Safety Alert Conventions

The following terms define the various precautions and notices used in this manual:

NOTE: **Whenever information exists that requires additional emphasis beyond the standard textual information, the term "NOTE" is used.**

IMPORTANT — The term "IMPORTANT" is used whenever information exists that requires special attention to procedures to ensure proper operation of the equipment or to prevent its possible failure.

CAUTION — The term "CAUTION" is used whenever potential damage to equipment exists, requiring correct procedures / practices for prevention.

WARNING — The term "WARNING" is used whenever potential personal injury or death situations exist, requiring correct procedures / practices for prevention.

DANGER — The term "DANGER" is used whenever immediate hazards exist that could result in personal injury or death that cannot be eliminated by design safeguards.

⚠ — This safety alert symbol indicates important safety messages in the manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

WARNING — Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative.

If a malfunction of any safety device is discovered to exist, DO NOT operate the vehicle, but immediately notify appropriate maintenance personnel.

Oshkosh Specialty vehicles shall have no liability with respect to: . . . . . REPAIRS IMPROPERLY PERFORMED OR REPLACEMENTS IMPROPERLY INSTALLED (or) USE OF REPLACEMENT PARTS OR ACCESSORIES NOT CONFORMING TO Oshkosh SPECIALTY VEHICLE'S SPECIFICATIONS, WHICH ADVERSELY AFFECT PERFORMANCE OR DURABILITY (or) ALTERATIONS OR MODIFICATIONS NOT RECOMMENDED OR APPROVED IN WRITING BY Oshkosh SPECIALTY VEHICLES (or) FOR EQUIPMENT DAMAGE OR PERSONAL INJURY OR DEATH AS A RESULT OF RENDERING ANY SAFETY DEVICE INOPERABLE.

Certain inherent risks are associated with heavy trailers due to the nature of their use. Personnel working in the area of these trailers are subject to certain hazards that cannot be met by mechanical means but only by the exercise of intelligence, care, and common sense. It is therefore essential for the owner of this equipment to have personnel involved in the use and operation of these trailers who are competent, careful, physically and mentally qualified, and trained in the safe operation of this equipment.

OSHKOSH SPECIALTY VEHICLES

Support Pad Requirements

IMPORTANT If other modalities utilize the same support pad, it is recommended that non-ferrous reinforcement materials be used for pad reinforcement.

IMPORTANT Siemens must approve plans for pad construction.

The following is a list of recommendations and requirements for a concrete support pad. However, due to varying site conditions, the actual pad design should be prepared by an appropriately licensed structural or architectural engineer.

Trailer Weight

The weight of the trailer should be considered in the design of the support and service pads. The overall weight of the trailer is approximately 57,660 lbs. The weight on the rear axles is approximately 35,580 lbs. The weight on the King Pin is approximately 22,080 lbs.

Recommended Support Pad Requirements

The measurements for the recommended support pad are as follows, 10'-11" x 40'-11". The cross hatching as shown on **Figure 2: Plan Layout** and **Figure 3: Right Side Elevation** represents the recommended support pad.

Minimum Support Pad Requirements

The measurements for the minimum support pad are as follows, 10'-11" x 15'-8" for the rear pad and 10'-11" x 4'-6" for the front pad. The double cross hatching as shown on **Figure 2: Plan Layout** and **Figure 3: Right Side Elevation** represents the minimum support pad.

Support Pad Depth

Recommendations for the width and length of the pad are given above. Based upon the existing site conditions, the depth should be determined by a local contractor.

Support Pad Levelness

In order to ensure proper operation of the PET/CT system, the support pad(s) must be level and the deviation must not exceed .125" in 10'-0.

Recommended Service Pad

The measurements for the recommended service pad are as follows, 19'-2" x 54'-3". This will allow full service access to the mobile unit. The recommended service pad is shown on **Figure 2: Plan Layout** and **Figure 3: Right Side Elevation**.

Electro Magnetic Interference

The ambient static magnetic field within the region of the gantry should not exceed 1 Gauss (10^{-4} Tesla) peak at the detector.

Vehicle Access

A firm, level surface is required around the mobile unit in order to provide access to the site, patient access to the mobile unit, and servicing of the mobile unit.

Recommended Attachment to the Facility

An inflatable air bag or soft seal is recommended at the point of connection from the unit to the facility. Fixed or solid connections may hinder imaging quality. Contact Oshkosh Specialty Vehicles or the local Siemens representative prior to construction if the proposed connection varies from the recommended.

Swing Clearance Note

Please verify the actual dimensions of the rearmost projections on the cab of your tractor to the centerline of tandem suspension or centerline of the fifth wheel plate on your tractor. Refer to **Figure 9: Turning Requirements** for proper tractor sizing information.

Air Conditioning Air Flow Clearance

The following clearances for acceptable air conditioning condenser air flow have been established between wall-mounted equipment and opposing units or surfaces for maximum capacity, lowest operating cost, satisfactory operation of ventilation packages, and longest service life

- Unit discharging against opposing (facing) unit – 20 feet from coil grill to coil grill
- Unit discharging against a wall or essentially solid barrier – 15 feet from coil grill to wall. See **Figure 2: Plan Layout**.

Radiation Shielding Requirements

Radiation Shielding

IMPORTANT Radiation exposure limits must be in accordance with all local, state, and federal requirements. It is the responsibility of the customer to perform a proper radiation survey in order to determine the exclusion zone.

Care should be taken when determining a site location. Factors such as shielding design, proximity to buildings, and occupancy of the surrounding areas must be considered. An exclusion zone around the mobile unit may be necessary. Refer to **Figure 5: Radiation Shielding Plan View** for additional information.

Radiation Field Information

It is the responsibility of the customer to ensure a safe environment with respect to the radiation field. Due to radioactivity levels associated with pet patient handling and diagnostic procedures used in PET/CT scanning, an exclusion zone must be maintained while in use.

Customer must contact their local Radiation Safety Operation Official for the federal, state, and local guidelines and must comply with these safety requirements.

Operator needs to make their own exposure dose measurements to include radiation from patients when determining the outside “Keep Away Zone” (chained-off area).

OSHKOSH SPECIALTY VEHICLES

Customer Power Requirements

WARNING

It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Oshkosh Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.

CAUTION

The standard connector for the unit is a Russellstoll DS2504MP000/DF2032, 480V 200A Plug. If an existing site currently implements a different connector or connector configuration, please contact Oshkosh Specialty Vehicles in order to arrange for a compatible power connector before the unit leaves the facility.

Lockout/Tagout

A Lockout/Tagout provision in accordance with OSHA Standard 1910.147 is required. The facility shore power disconnect device must be located within 40'- 0" of the unit and must provide for an effective lockout/tagout to facilitate safe service and maintenance of the unit.

Electrical Service

A single electrical power source is required for operation of the PET/CT system. 3/N/PE AC 480V service fused at 150 amperes.

Configuration

Three phase, five wire, wye connection, with neutral and ground. (5 wire 3/N/PE AC 480V)

Load Regulation at Line Frequency

Wires are to be sized such that the line voltage drops from the power source to the mobile unit is less then 2.5% of the nominal voltage for the rated load of the mobile unit.

Frequency

60Hz ±2.0Hz.

Phase Balance

The phase balance is 3% maximum of lowest phase-to-phase voltage.

Maximum Voltage Variation

The maximum voltage variation is +11% / -4% from a nominal steady state (under the worst case conditions of line voltage).

Connector Type

The mobile unit is supplied with a 35'-0" useable power cable and male conductor. Unless otherwise specified, the connector type is a Russellstoll DS2504MP000/DF2032, 480V 200A rated plug.

Customer Facility

The customer facility must have the matching receptacle as specified in **Figure 7: Russellstoll Receptacle, Service Disconnect** and **Figure 8: Russellstoll Receptacle Chart**. Unless otherwise specified, the receptacle type to be used must be a Russellstoll DF2504FRAB0 female connector.

Input Power

- Frequency: 60Hz ±2.0Hz
- Regulation: Load regulation must not exceed 2.5%.
- Phase Imbalance: The difference between the highest line-to-line voltage and lowest line-to-line voltage must not exceed 3% of the lowest line-to-line voltage.

Power Source Monitoring (Facility Only)

NOTE: Perform a power audit first.

A power analyzer should be used to check the proposed Mobile Siemens PET/CT Series facility site power for average line voltage, surges, sags, reclosures, impulses, frequency and microcuts. A period that includes two weekends should be used to simulate several days of normal use. Analysis of the data and site history of any previous power problems with other X-ray systems or computer installations should be reviewed with your power and ground representative. Verify “brown-out” (low voltage) conditions, which may occur during summer months, will not exceed the allowable range.

Some analyzer models that are suitable for power monitoring are:

- Dranetz Model 658
- Dranetz Model 656A
- BMI 3630
- RPM

OSHKOSH SPECIALTY VEHICLES

Mobile Grounding Requirements

Special Ground Note

The mobile unit must have an earth driven ground rod within 5'-0" of the facility power receptacle. A grounding cable of a minimum #1/0 AWG must be connected between the grounding rod and the grounding pin of the facility power receptacle. Another cable to be kept as short as possible may also be connected between the ground stud on the Automatic Transfer Switch and an earth driven ground rod. See **Figure 1: Ground Connection** below. A separate grounding conductor must still be run with the phase conductors to the source of the power from the grounding pin of the hospital power receptacle in accordance with NEC 2002 Article 250-24.

Figure 1: Ground Connection

OSHKOSH SPECIALTY VEHICLES

Telephone and Data Service Requirements

Telephone Service

The mobile unit is supplied with three (3) telephone connections. The connector type that is used is a Hubbell model PH-6595 (inlet) with a model PH-6624 connector body.

The customer is required to purchase and install three (3) Hubbell all weather telephone connections, model PH-6597 for use at the site.

Three Hubbell model PH-6599 telephone-connecting cables are included with the mobile unit. The cables measure 50’-0” in length.

Data Service

The mobile unit is supplied with two (2) data line connections that utilize RJ-45 outlets.

The customer is required to purchase the data connection cables for use with the data line connections. The data line connections require a 50’-0” CAT-5E cable with RJ-45 connections.

Water Requirements

IMPORTANT During winter conditions, provisions must be made to ensure that water lines do not freeze because of weather conditions.

Water Supply Tank

A 35-gallon water supply tank is located on the left side of the mobile unit in the underbody compartments, which supplies the HVAC system.

The water supply tank can be filled from within the compartment by using the supplied adapter, or from the exterior of the mobile unit by using the connection on the underbody compartment door and the supplied hose.

The drain for the water supply tank is located below the underbody compartment door. The drain valve is located in the underbody compartment.

Portable Sink (optional)

An optional portable self-contained sink is available. Within the portable sink assembly is the water supply and wastewater tank.

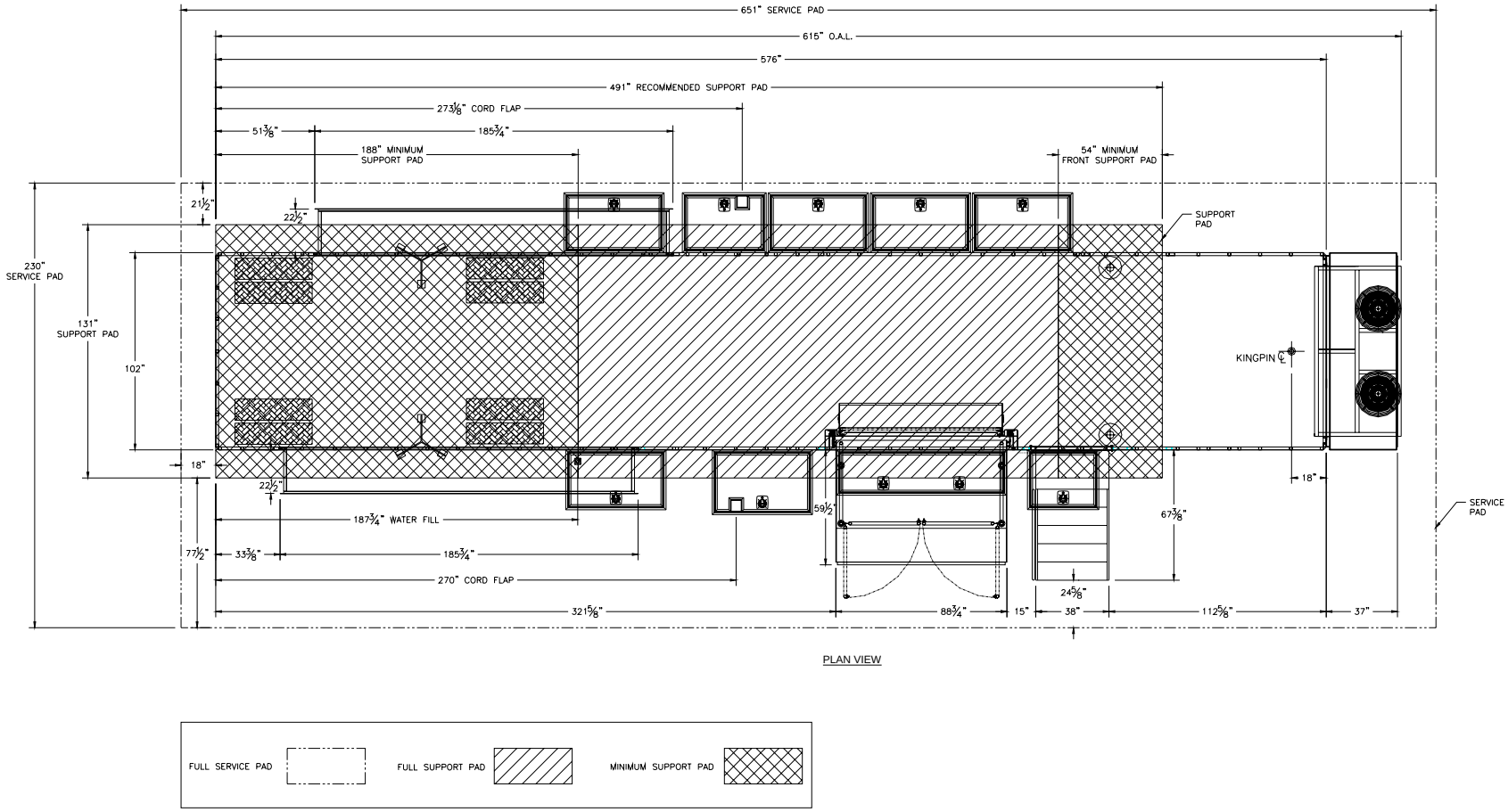
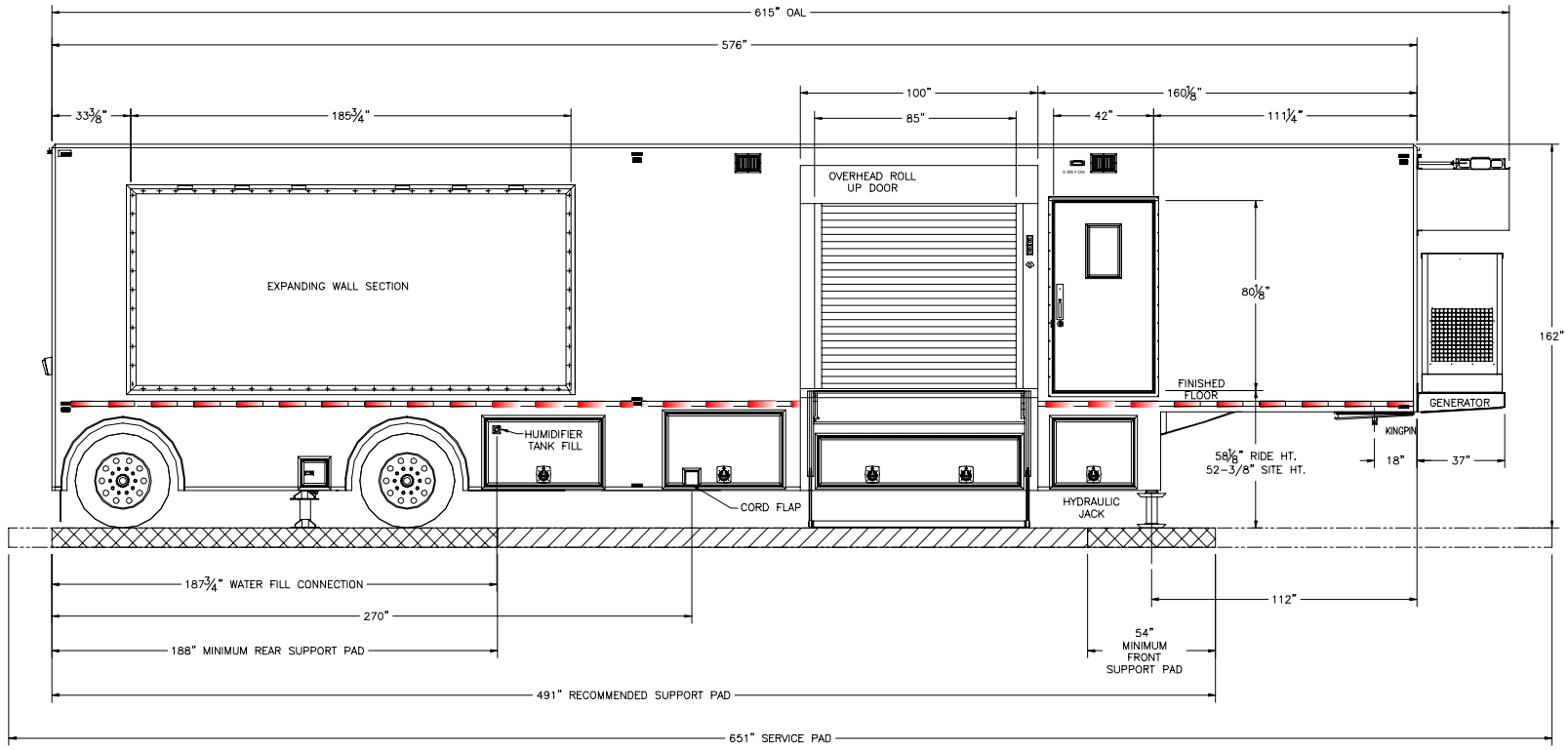


Figure 2: Plan Layout

OSHKOSH SPECIALTY VEHICLES



RIGHT SIDE ELEVATION

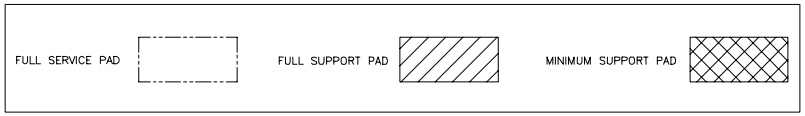


Figure 3: Right Side Elevation

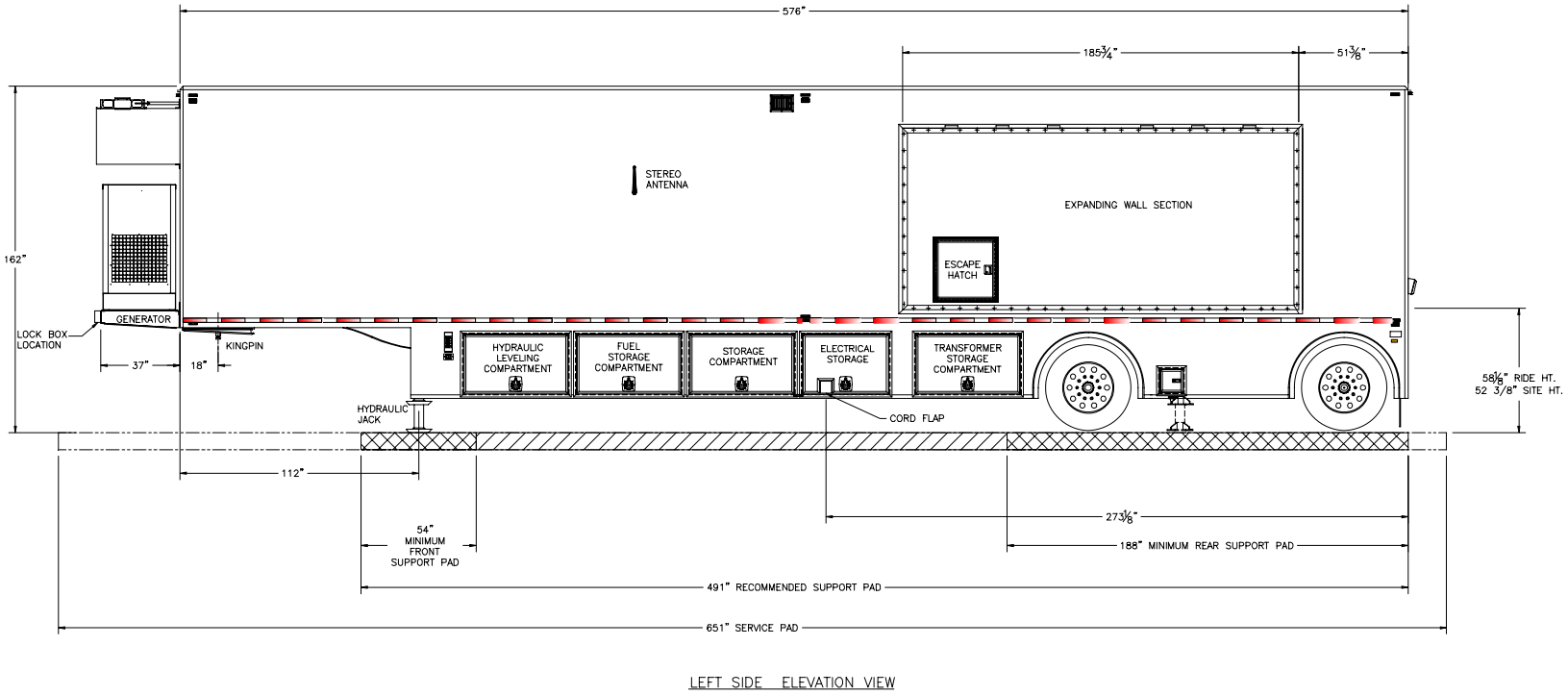
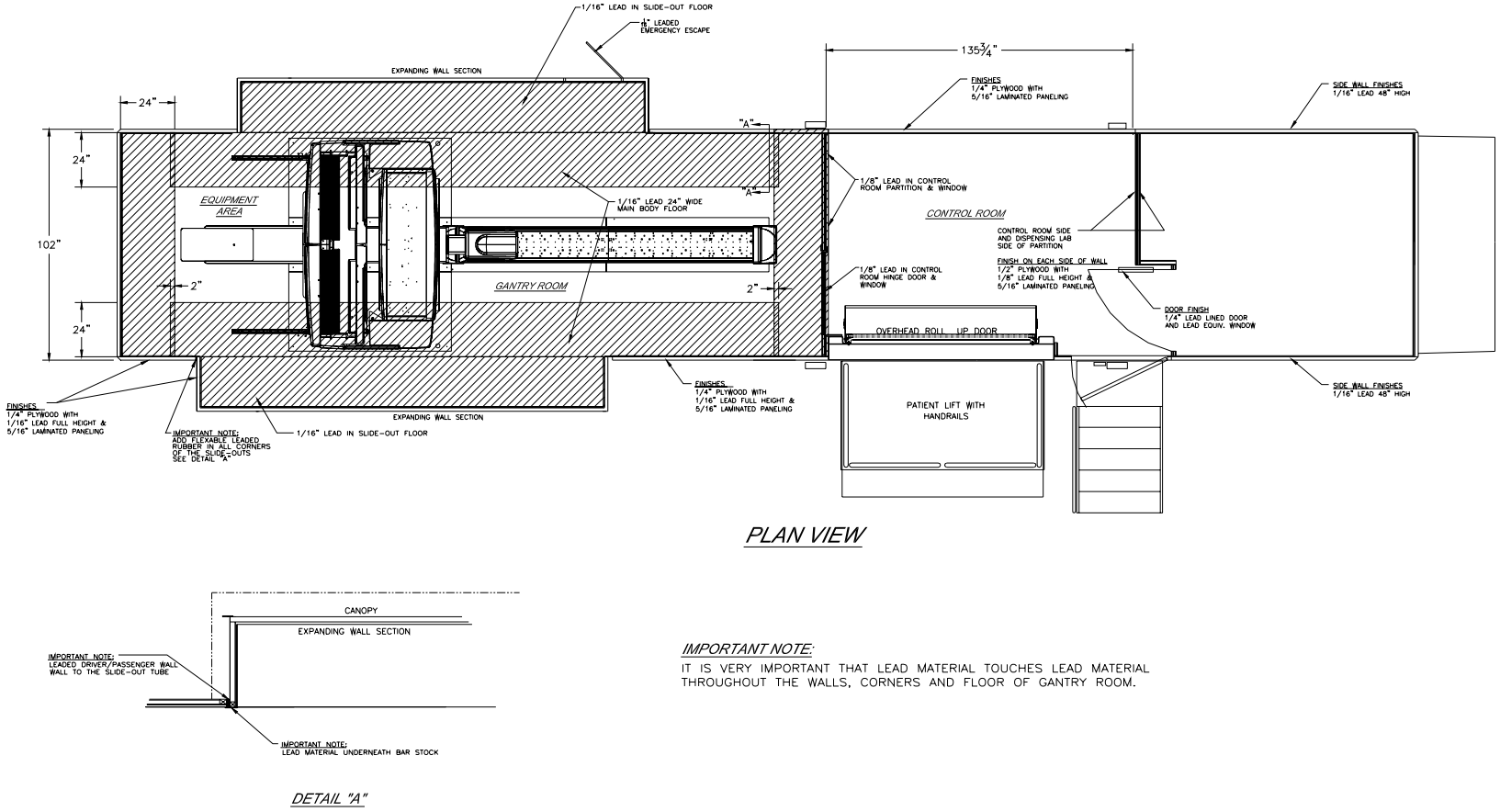


Figure 4: Left Side Elevation

OSHKOSH SPECIALTY VEHICLES

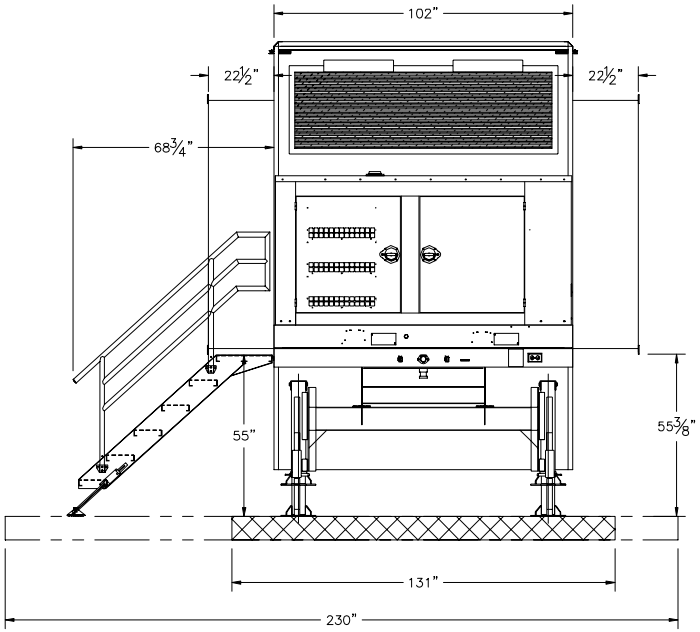


PLAN VIEW

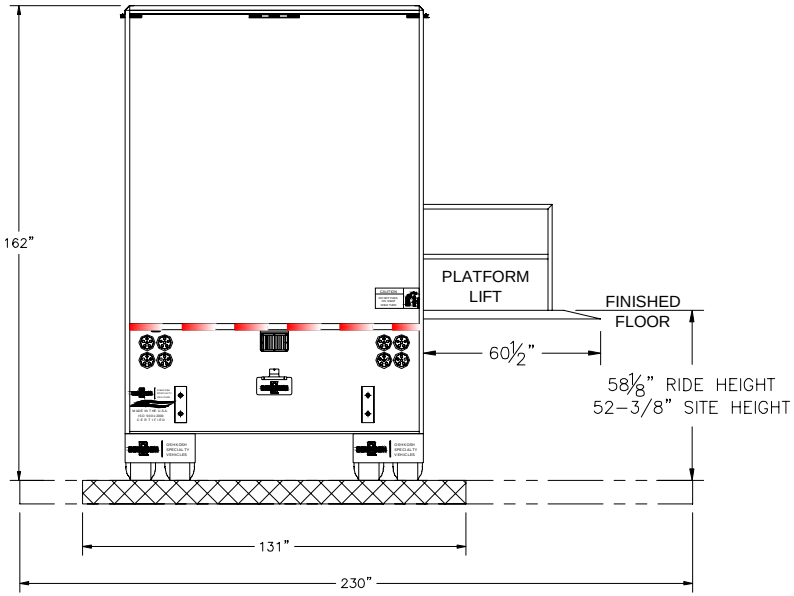
DETAIL "A"

IMPORTANT NOTE:
IT IS VERY IMPORTANT THAT LEAD MATERIAL TOUCHES LEAD MATERIAL THROUGHOUT THE WALLS, CORNERS AND FLOOR OF GANTRY ROOM.

Figure 5: Radiation Shielding Plan View



FRONT ELEVATION VIEW



REAR ELEVATION VIEW

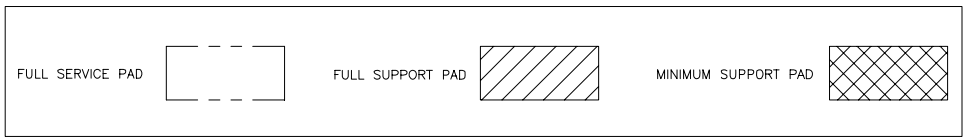


Figure 6: Stair / Lift / Wall Elevation

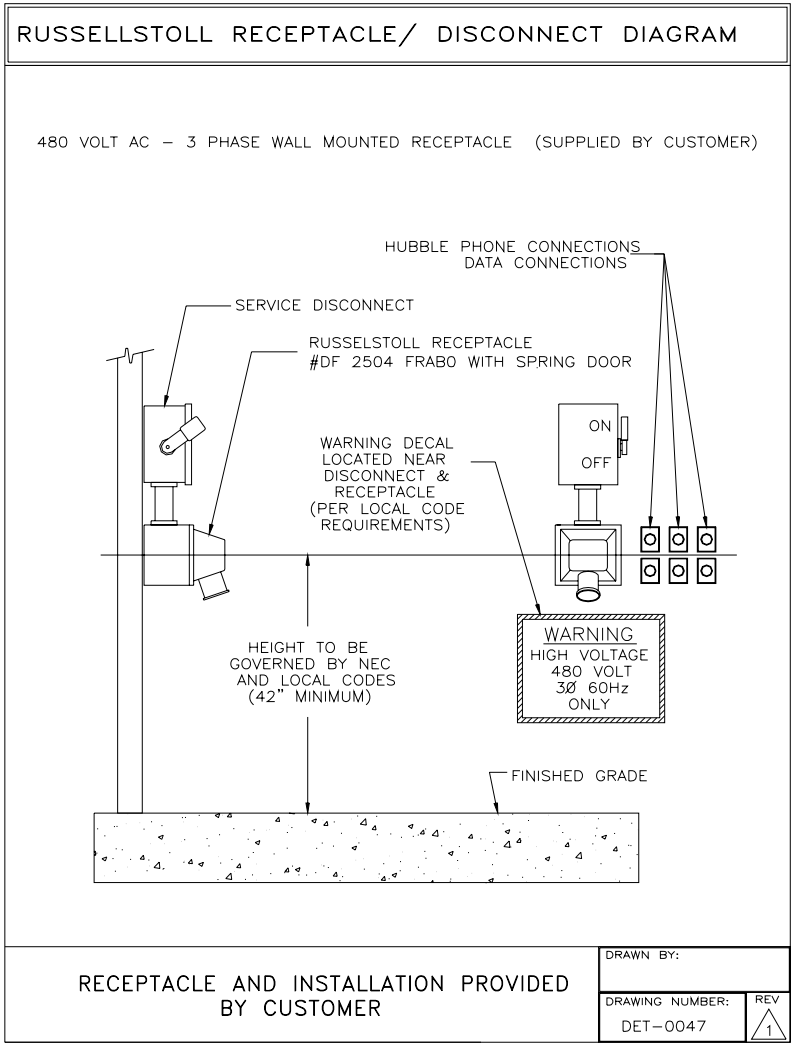
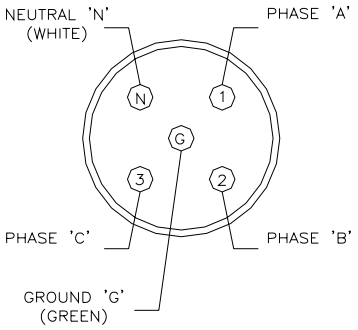


Figure 7: Russellstoll Receptacle, Service Disconnect

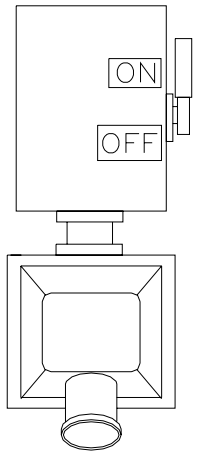
RUSSELLSTOLL RECEPTACLE CHART

AMP / WIRE	DESCRIPTION		RECEPTACLE
	WIRES	POLES	PART NUMBER
MAXIMUM WIRE SIZE FOR LUG # 1/0	5	4	480 VOLT (200 AMP) 5 WIRE RUSSELLSTOLL RECEPTACLE DF 2504 FRABO THIS RECEPTACLE MUST BE WATERPROOF
480 VOLT AC DEDICATED POWER LINE FROM MAIN TRANSFORMER STATION	3Ø	WYE CONNECTION 150 AMP TOTAL 3Ø NEUTRAL AND GROUND	

RUSSELLSTOLL MATING PLUG
PART# DS2504MP000/DF2032
5 WIRE/4 POLE



MAIN DISCONNECT
3/N/PE AC 480 VOLT
150 AMP FUSED DISCONNECT



RECEPTACLE AND INSTALLATION PROVIDED BY CUSTOMER

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Figure 8: Russellstoll Receptacle Chart

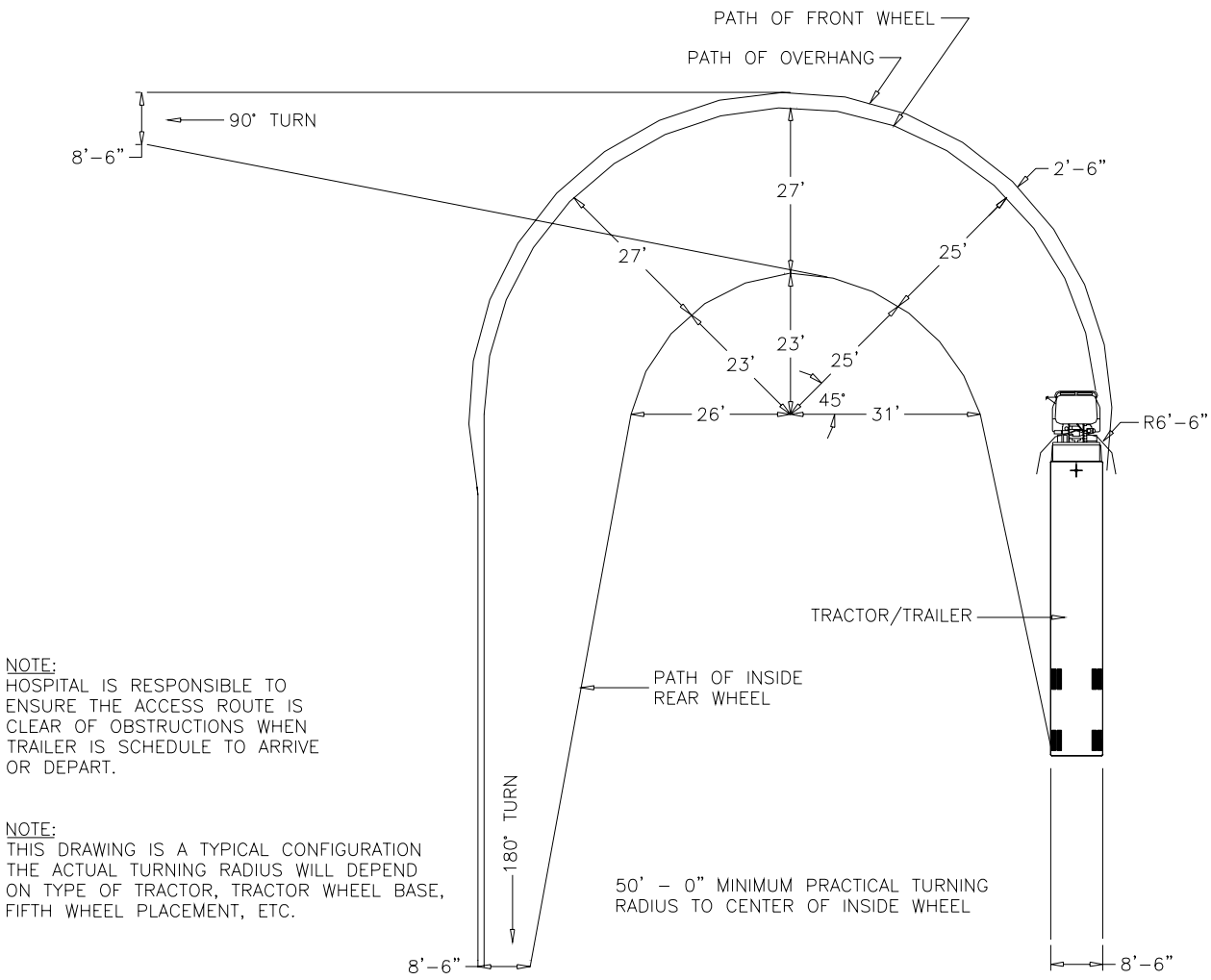

Figure 9: Turning Requirements