AMST
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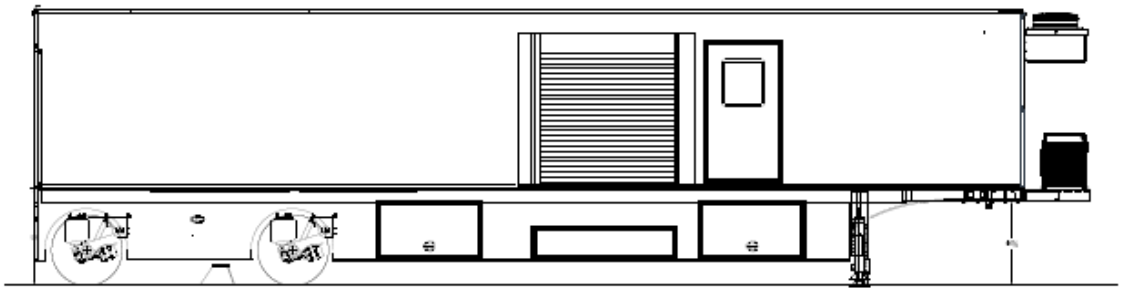
Custom Specialty Solutions

An ISO9001:2015 Certified Company

Site Planning Guide

MRI SYSTEMS

13’-6” H x 8’-6” W x 48’-0” L USA UNIT



As part of AMST on-going program to improve its products and service, AMST reserves the right to implement product changes and disseminate changes in design and service information without notice or recourse.

For questions regarding the Operation or Service of this unit, please call AMST at 800.839.0630

List of Revisions

Date	Revision Number	Revised by	Description
1/07/22	00	Chirag Patel	Initial Release

Notice

In accordance with our policy of product development, AMST reserves the right to make changes in the equipment, design, specifications, and materials of the product described herein. If there are any inconsistencies between this manual and the mobile unit that inhibit serviceability, please contact AMST for assistance.

This manual is provided in the mobile unit. The documentation package should be kept in the mobile unit at all times.

Any problems or questions related to the components or systems covered in this manual please direct to:

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http://www.amstcorp.com

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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 AMST.

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 patient lift, entry stairs, and optional platform require additional space on the passenger side of the mobile unit. Refer to the drawings provided for actual locations of doors, platform lift, and stair sizes and locations.

WARNING This type of notice indicates a potentially hazardous situation, which if not avoided, could result in injury or death to the operator of the mobile unit.

CAUTION This type of notice indicates a potentially hazardous situation, which if not avoided, could result in irreparable damage to the mobile unit.

IMPORTANT This type of notice is meant to inform the operator of useful information.

Support Pad Requirements

IMPORTANT It is recommended that non- ferrous reinforcement materials be used for pad reinforcement.

IMPORTANT Philips 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 60,000 lbs. The weight on the rear axles is approximately 40,000 lbs. The weight on the King Pin is approximately 20,000 lbs.

Recommended Service Pad and Support Pad Requirements

A service pad is recommended to provide adequate service access. The recommended size of the pad is 60’ x 18’, For details please see Figure 1 Plan View and Pad Layout.

Support Pad Depth

Recommendations for the width and length of the pad are given above. Based upon existing site conditions, the depth should be determined by a local contractor. It is recommended that non-ferrous reinforcement materials be used for pad reinforcement. Philips must approve plans for pad construction.

Support Pad Levelness

The support pad must be level to ensure proper operation of the MRI system. The pad must not exceed .125” deviation in 10’-0”. If the minimum support pads are selected, rather than the recommended single pad, they must also meet this specification.

Vehicle Access

A firm, level surface is required around the mobile unit to provide access to the tractor/trailer, aid with patient handling, servicing the unit, and delivering of cryogens.

Steel Reinforced Concrete Pad

Nonferrous reinforcement materials are recommended. If ferrous materials are used, contact the OEM of the scan equipment for the maximum weight allowed per foot.

Recommended Attachment to 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 AMST or the local Philips representative prior to construction if the proposed connection varies from the recommended.

Exclusion Zone

The helium gas must be allowed to vent, unrestricted, to a non-accessible area, allowing the helium gas to dissipate.

WARNING To avoid the risk of injury and cold burns and the possibility of asphyxiation, access to the quench tube must be restricted by 10’ to each side and below, and 20’ vertically above the exit vent. Failure to do so could result in severe personal injury or death.

Vehicle Movement

The MRI is very sensitive to vibration and moving metal. Consequently, all vehicle traffic shall be kept as far away as possible from the pad. Moving ferrous materials having the listed masses should be limited to areas as described in Philips site planning publication. Contact Philips to obtain the latest version.

Vibration / Foundation Design

Please contact Philips for the latest system specific vibration requirements.

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 7 Turning Requirements for proper tractor sizing information.

Customer Power Requirements

WARNING It is the operators' responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by AMST. 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 #DS2504 MP000/DF2504FRAB0. If an existing site currently implements a different connector or connector configuration, please contact AMST 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

One electrical power source receptacle is required for operation of the MRI system. It must be capable of providing 480 Volt A.C., 3 Phase, 112.5 KVA, fused at 150 Amps or 207.6 KVA, fused at 200 Amps (depending on modality's specifications). One source provides power to the medical system and the trailer systems, such as lighting and air conditioning.

Manufacturer	System	Power	Amps	Neutral Required	Connection Type
Philips	Ingenia	480	150	No	4-Wire w/Ground Wye

Configuration

The connector is wired for three phase, five wire, Wye connection, with ground/neutral dependent on system (not less than AWG #1/0).

Frequency

60 Hz ±1.0%

Phase Balance

The phase balance is + 2% maximum phase-to-phase line voltage difference lowest phase.

Maximum voltage variation

The maximum voltage variation is ± 10% from nominal steady state (under the worst case conditions of line voltage)

Connector Type

The unit is supplied with a 50-foot cable and male connector. The connector is a Russellstoll 200 Amp plug #DS2504MP000/DF2504FRAB0.

Customer Facility

The facility must have the matching receptacle as specified in Figure 5: Russellstoll Service Outlet. The receptacle is a Russellstoll #DF2504FRAB0.

Voltage Surges

Transient voltage variations caused by external loads must not:

- Exceed + 5%
- Exceed five cycles duration
- Occur more than ten times an hour.

Power Source Monitoring (Facility Only)

NOTE: Perform a power audit first.

A power analyzer should be used to check the proposed Mobile MRI 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

Ground Conductor

An insulated ground conductor sized in accordance with National, State, and local codes shall be installed between the facility vault and the MRI System ground bus location in the power distribution unit.

Magnetic Shielding

The MRI unit is equipped with magnetic shielding. The exclusion zone for cardiac pacemakers, neurostimulators, and other biostimulation devices is recommended at 5 gauss (0.5mT). Signs provided by Philips, must be posted to alert all who approach the unit of this requirement. The appropriate warning signs are permanently attached to the scan room doors.

The 1.0T and 1.5T magnet systems exclusion zone (5) gauss is restricted to within 6” of the exterior walls of the mobile unit.

R.F. Shielding

The R.F. shield is included with the MRI system and will provide minimum level of attenuation:

- 15Mhz – 128Mhz, 90db.

Mobile Grounding Requirements

Special Grounding Note:

It is recommended that the unit have an earth driven ground rod within five (5) feet of the facility power receptacle. A grounding cable of a minimum of #3/0 AWG is recommended to 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 Incoming Power Distribution Panel and an earth driven ground rod. A separate grounding conductor is highly recommended to be ran with the phase conductors to the source of power from the grounding pin of the facility power receptacle in accordance with NEC 2017 Article 250-24.

Telephone and Data Service Requirements

Telephone Service

The mobile unit may or may not be supplied with telephone connections as this is dependent on the requirement of the customer.

If equipped the connector type that is used and supplied by AMST is an all-weather Hubbell PH-6595 (inlet) with a model PH-6624 connector body.

If equipped the customer should purchase and install at least the number of connections that were specified with all-weather Hubbell PH-6597 phone outlets for use at the site.

If equipped two all-weather Hubbell PH-6599, 50’-0” telephone connecting cables are included with the unit. If additional cables are required, the customer must purchase them.

Data Service

The mobile unit is supplied with data line connections that utilize RJ-45 outlets. The number of outlets are dependent on customer requirements.

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

Water and Chiller Requirements

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

Humidifier Fresh Water Direct Connection

The unit contains a fresh water Direct Connection for the humidifier. The direct connection is located at the forward left side of the trailer. Fresh water mist is injected into the return air plenum through a spray nozzle that is controlled by a Humidistat through an automatic supply on demand valve. Any excess water is drained from the bottom of the plenum to the outside of the unit.

The direct connect utilizes a ¾” garden hose male threaded hose coupling.

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Figure 1: Plan View and Pad Layout

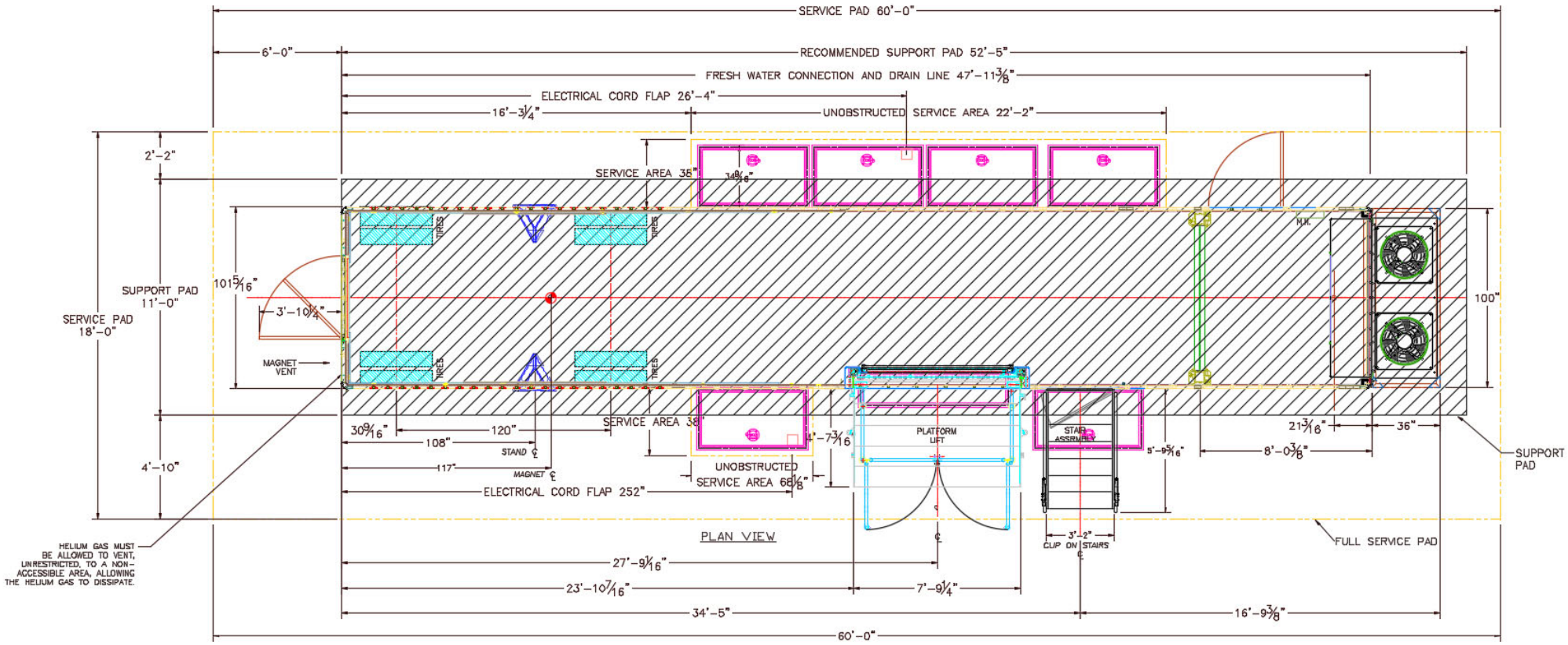
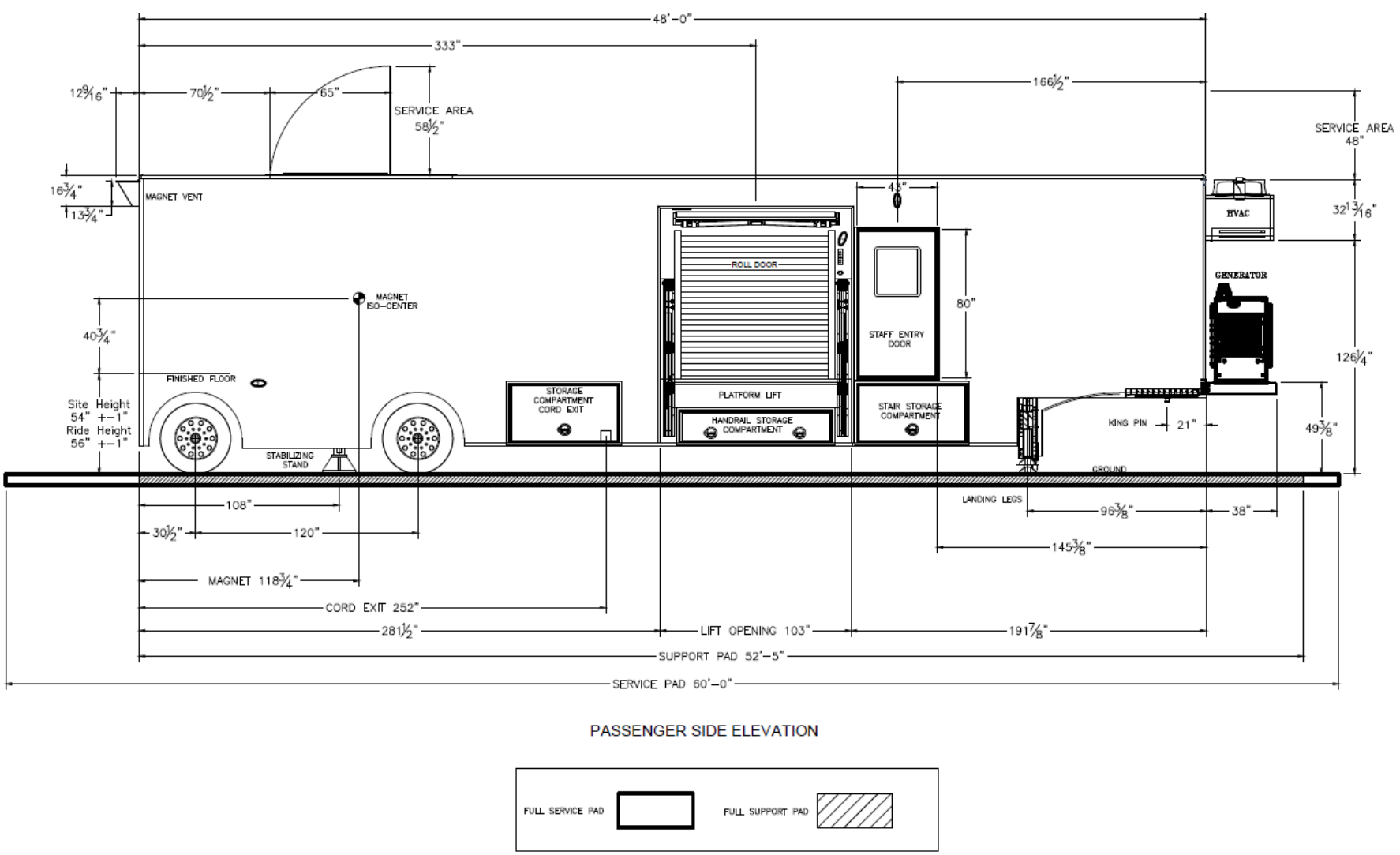


Figure 2: Right/Passenger Side Elevation



PASSENGER SIDE ELEVATION

Figure 3: Left/Driver Side Elevation

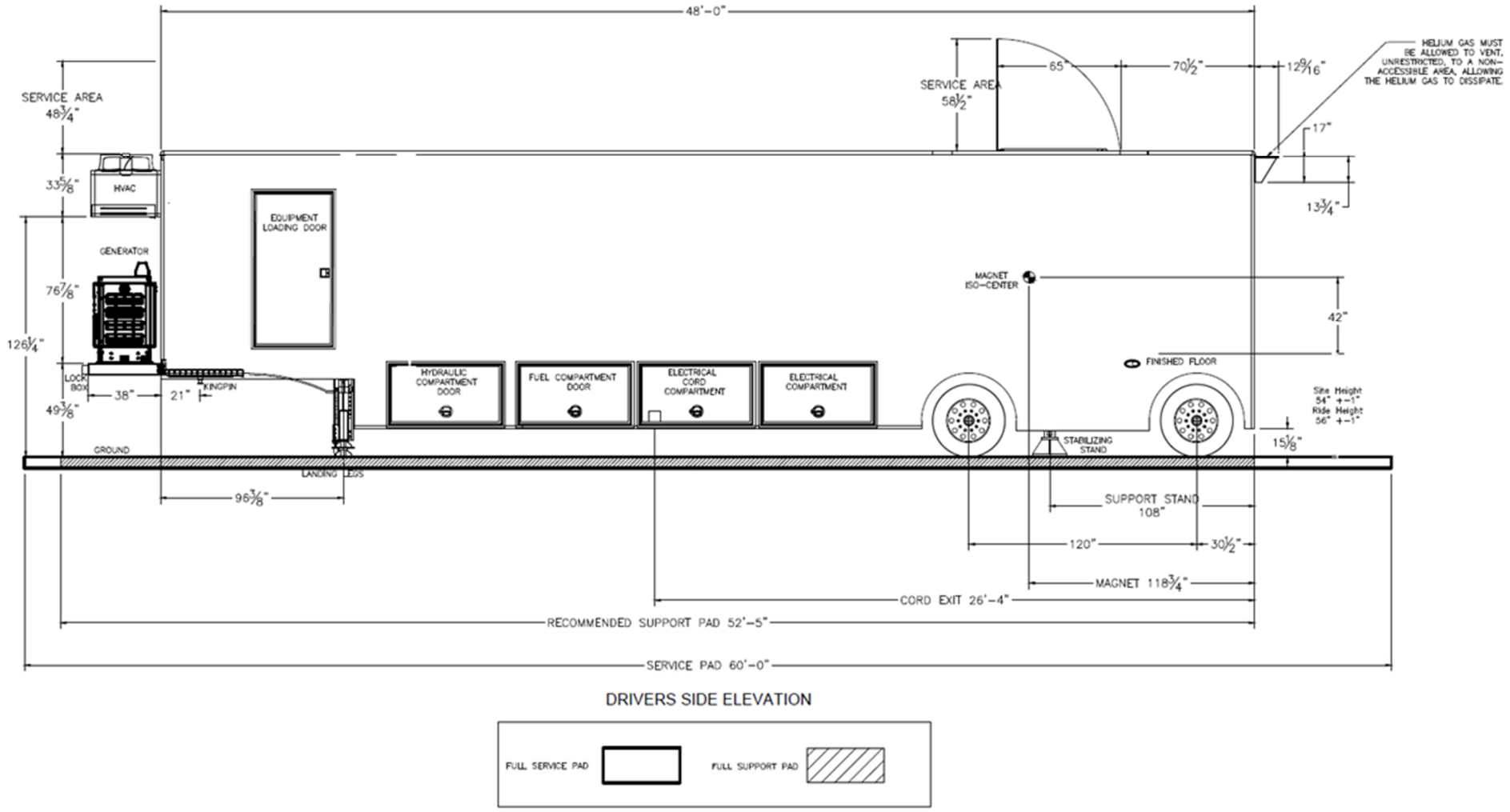


Figure 4: Front and Rear Elevation

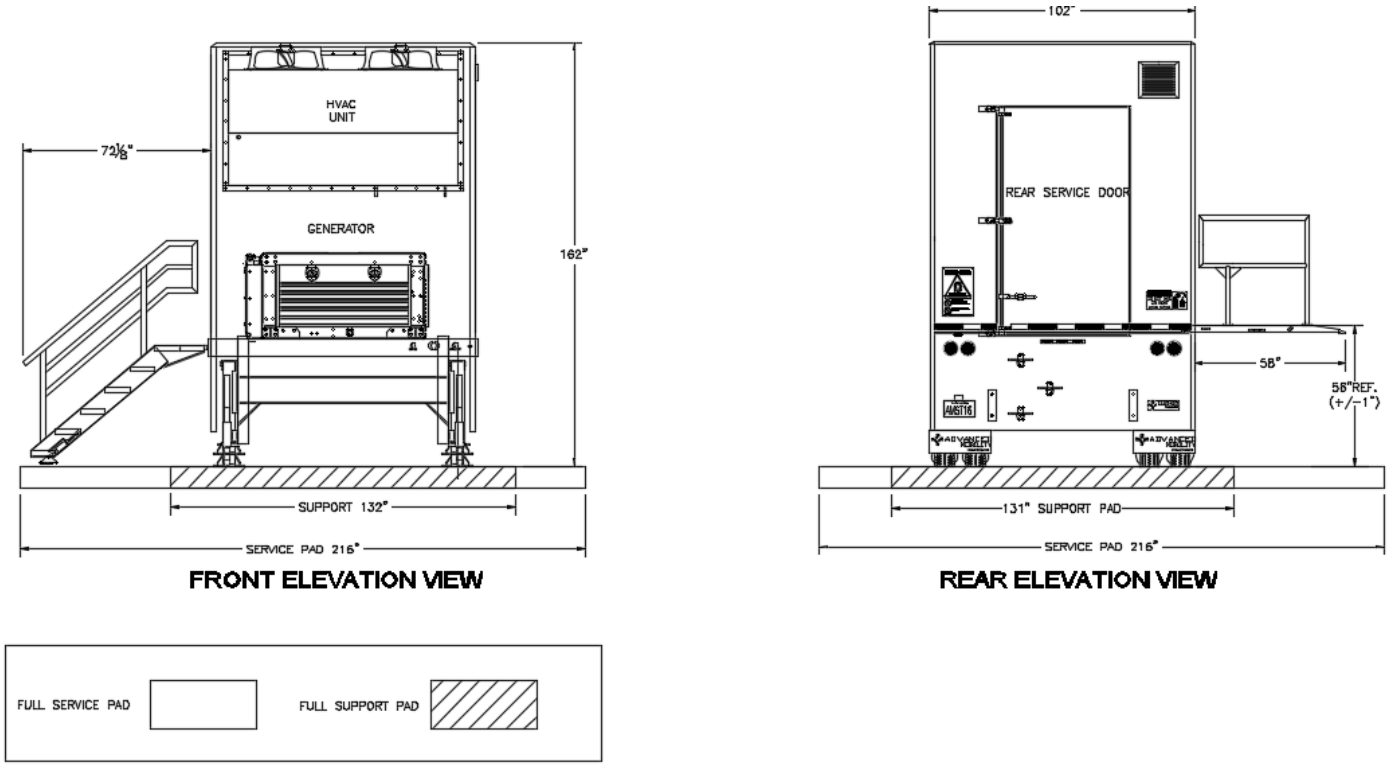


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Figure 5: Russellstoll Service Outlet

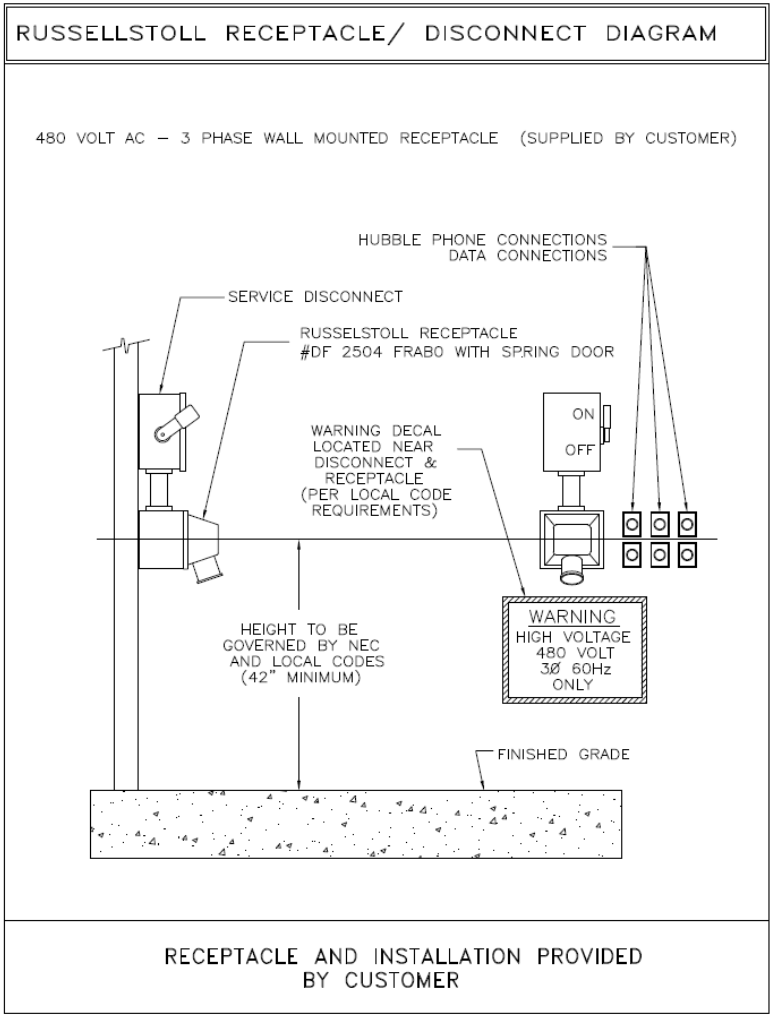

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Figure 6: Russellstoll Chart

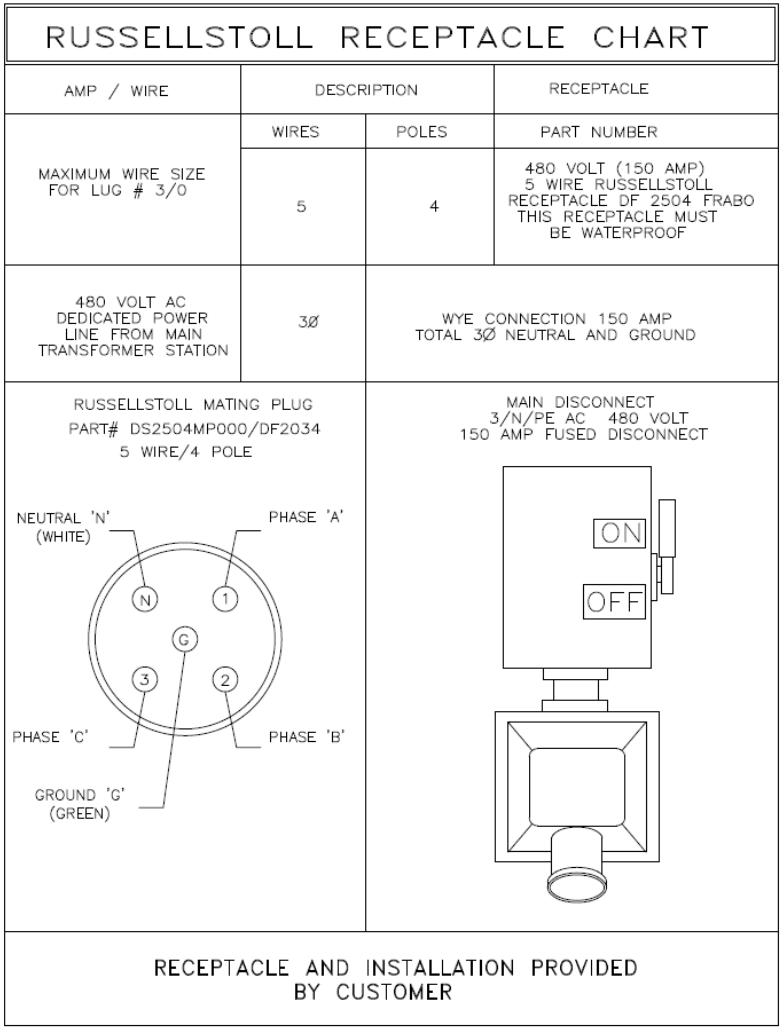

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Figure 7: Turning Requirements

A minimum dimension of 79” is required from rearmost projection to centerline of kingpin. This provides swing clearance for generator set which is mounted on the front of the trailer. Hospital is responsible to ensure the access route is clear of obstructions when the trailer is scheduled to arrive or depart. The 50’ minimum outside turning radius shown here has been calculated using an international harvester (Navistar) tractor Model COF-9670 with a 161” wheelbase. Turning radius will vary with towing tractor. Customer must confirm the turning radius on their tractor and prepare each site with adequate space to accommodate it.