

Site Planning and Base Installation Guidelines for PortalTI

Unitec Electronics

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SITE PLANNING AND BASE INSTALLATION GUIDELINES FOR PORTAL TI

This manual provides comprehensive site planning and base installation procedures for the Portal TI.

If further assistance is needed, please contact the distributor from which the Portal TI was purchased.

When calling for assistance, you must have the following information available:

Portal TI Serial Number: _____

Distributor Name: _____

DECLARATION OF COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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1 Site Planning

1.1 Determine the Site Layout

You have three primary concerns when determining the site layout for the Portal TI. They are:

- Positioning the Portal TI unit.
- Designing the conduit runs.
- Determining which base you will install the Portal TI unit on.

The following sections provide guidelines for determining the position of the unit. They also provide general information that should be taken into account when designing your site's layout.

1.1.1 Positioning the Portal TI Unit

By determining the position of the unit first, you will have all the necessary information you will need to install the conduit runs where they are required. You will also be able to determine the installation requirements for the unit base.

The Portal TI unit should be placed 10'-14' from the wash entrance to ensure the proper timing and flow of customers. The front edge of the Portal TI case should be positioned 18" from the centerline of the vehicles Driver-side tire. This centerline should also be aligned with the treadle switch (in automatic bay washes) or conveyor (in conveyORIZED tunnel washes), as shown in the following figure.

A concrete post can be positioned just to the front and left corner of the unit, to act as a protective buffer. A typical size for this post is between 30" and 35" tall, and 4" in diameter.

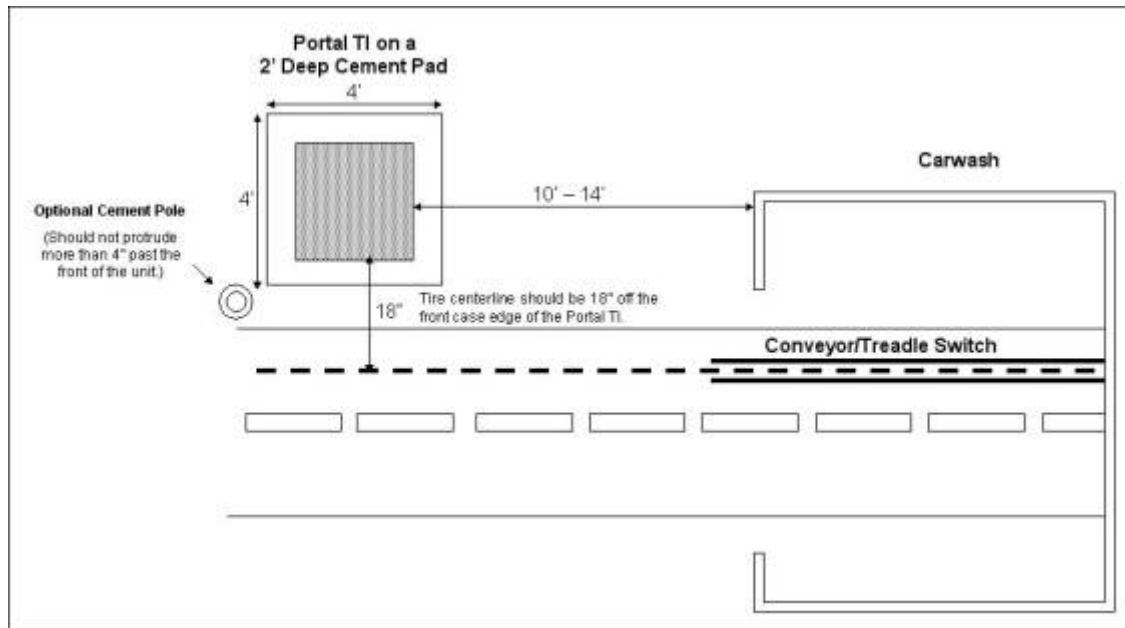


Figure 1. Positioning the Portal TI Unit

1.1.2 Conduit Run Considerations

1.1.2.1 Floor Heat

Many sites contain **Floor Heat**, an under-concrete heat exchanger system consisting of an elaborate network of plumbing through which anti-freeze circulates. Review any site floor heat diagrams before marking and drilling into any area.

1.1.2.2 Conduit Size

When installing the conduit, conduit containing AC power wiring should be a minimum of $\frac{3}{4}$ " diameter, and conduit containing CAT 6 cable, telephone lines, and Intercom wiring should be a minimum of 1" in diameter. All conduits should be metal rather than PVC.

The Portal TI has three cable entrance ports located on the bottom on the right side of the unit. When installing the conduit, position the ends of the run so that they will be easy to line up with these cable entrance ports.

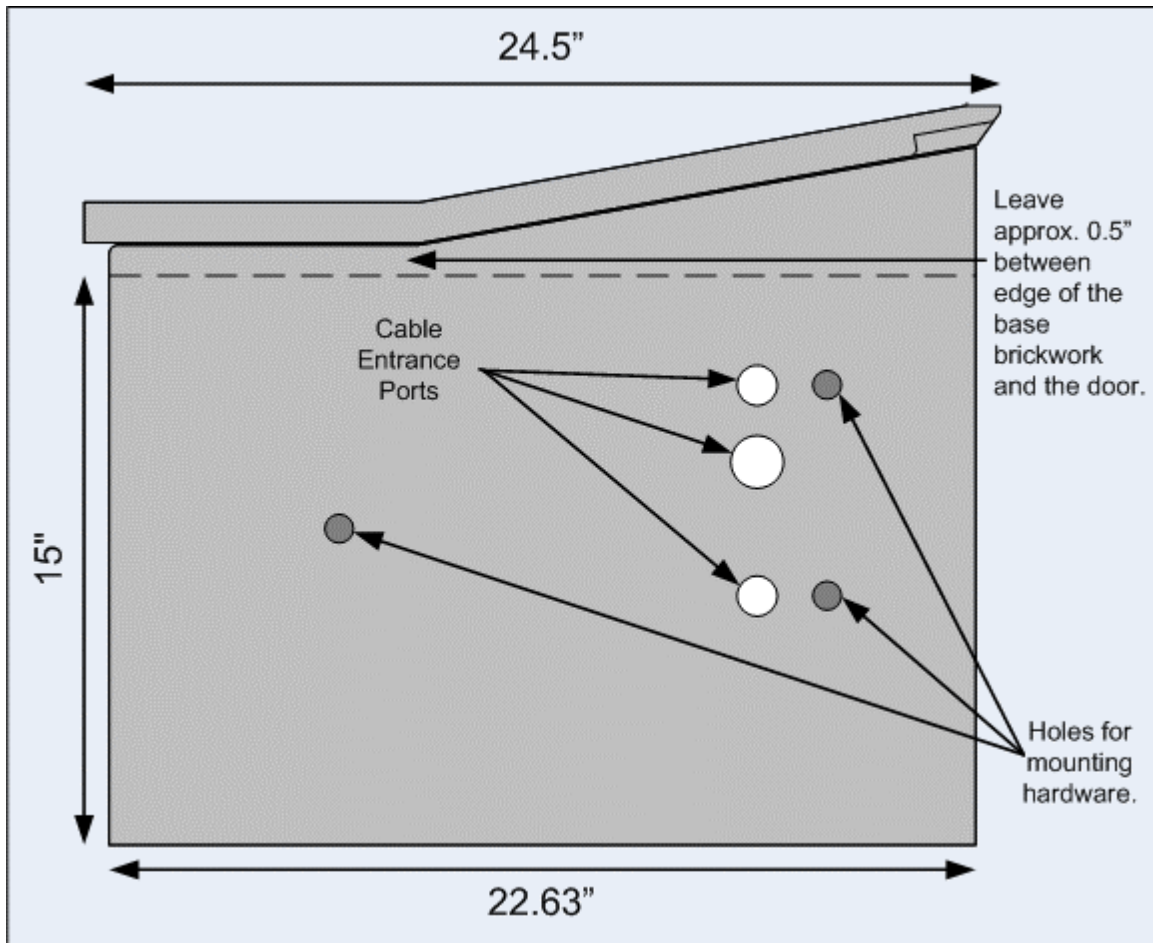


Figure 2. Bottom View of Portal TI



Note: Never run cabling to the Portal TI outside of a conduit.

You will need at least three separate conduit runs, one $\frac{3}{4}$ " diameter for the AC power wiring, and two $\frac{3}{4}$ "-1" diameter for the wash interface and communication line wiring. AC power lines must have a dedicated conduit run to avoid communication errors.

Some sites may have an equipment room with a printer, Console, or POS Interface. These sites will require a local area network (LAN) installation. At these sites, Ethernet cable (CAT 5 or 6) will be pulled in the same conduit as the telephone line and wash interface wires. The following figure provides a sample conduit run layout.



Note: If Wash Equipment uses high voltage WIU (110 VAC), it must be run in a conduit separate from phone/LAN cables.

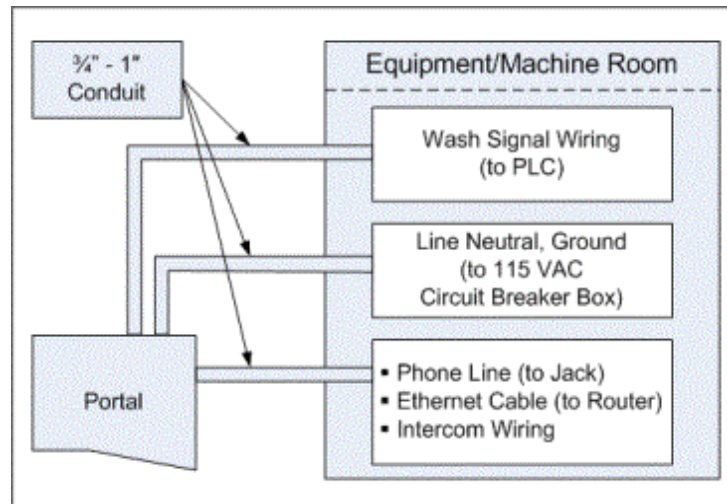


Figure 3. Basic Conduit Run Plan

If the site includes a C-Store, you will need a third conduit run, $\frac{3}{4}$ "-1" diameter to accommodate a telephone line, an Ethernet cable, and intercom cables.

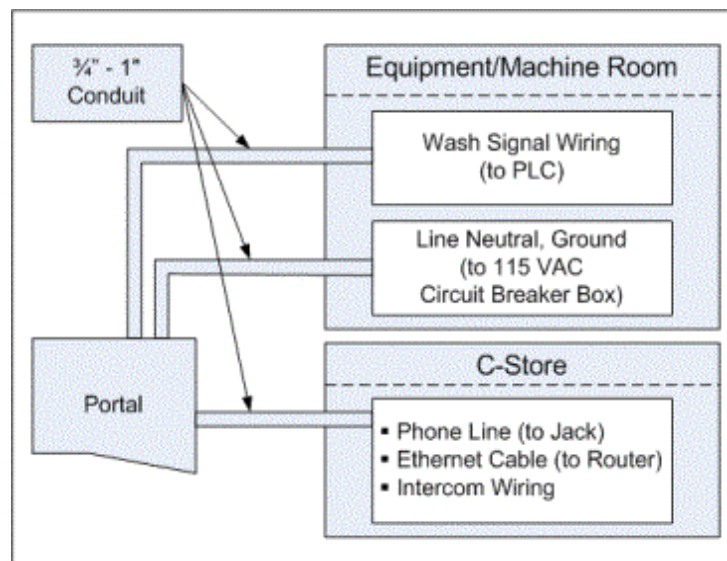


Figure 4. C-Store Site Conduit Plan

1.1.1.2.3 Portal TI Base Considerations

The primary concern in determining what type of base to install for the Portal TI is security. The most secure method of installing the Portal TI is to build a brick enclosure around the unit, mounting it on a concrete base. **Unitec highly recommends bricking in the Portal TI for maximum security.**

It is ultimately the responsibility of individual distributors to make this decision, and if the decision is made that bricking in the Portal TI will not be possible, Unitec offers a standard base in full height or curb height.

The standard base consists of a steel frame mounted 6" deep into a 1' to 2' deep concrete slab measuring 4' wide by 4' long. Unitec recommends the concrete pad be 2' deep. A polyethylene sheath covers the steel frame, giving it an attractive cover that matches the Portal TI case. The sheath can also be filled with concrete, which offers an additional level of security.

1.1.2.4 Bricking in the Portal TI

For security reasons, we strongly recommend bricking in your Portal TI when installing it at an un-attended location or in any high crime areas. The following guidelines are provided to help you design the base.

Unitec provides a brick in adaptor plate designed to make bricking-in the Portal unit easier. This adaptor plate provides the proper air circulation required for the heat exchanger air intake and exhaust. It also offers you the choice of mounting the Portal with the front edge of the door flush with the front face of the brick or recessed into the brick enclosure.

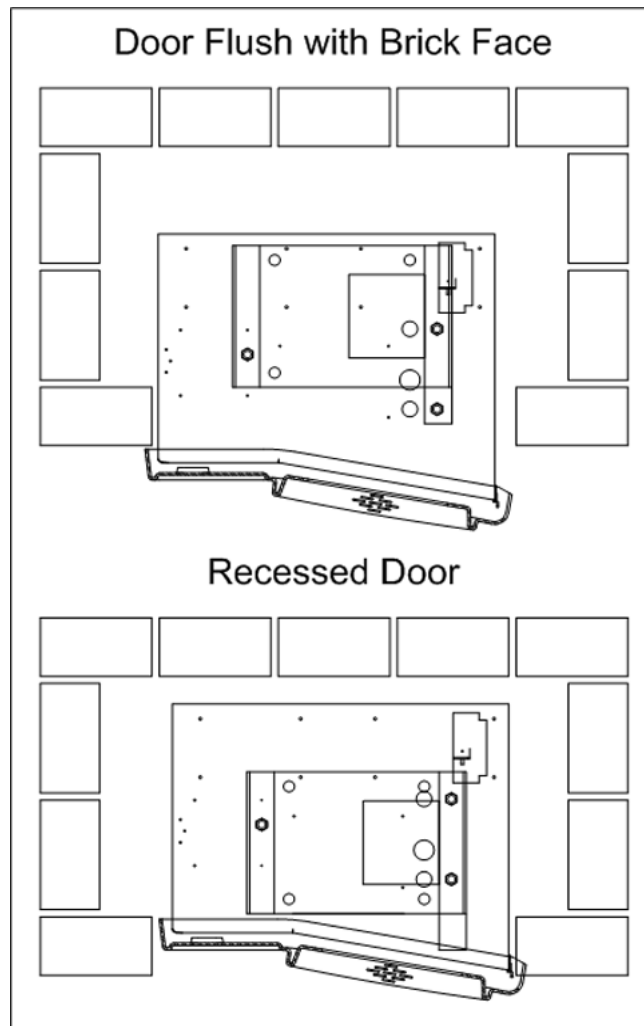


Figure 5. Bricked-in Portal Configuration

1.1.3 Portal TI Dimensions

In addition to the case measurements, you will need to leave a minimum of 1½” of air space along the bottom of the unit and the rear of the unit for the heat exchange air intake and exhaust if you are not using the adaptor plate. Use shims to raise the Portal TI to the appropriate height above the foundation.

	Height	Width	Depth
Case Only:	25.73”	22.63”	15.66”
Door Only:	27.42”	24.50”	3.46”

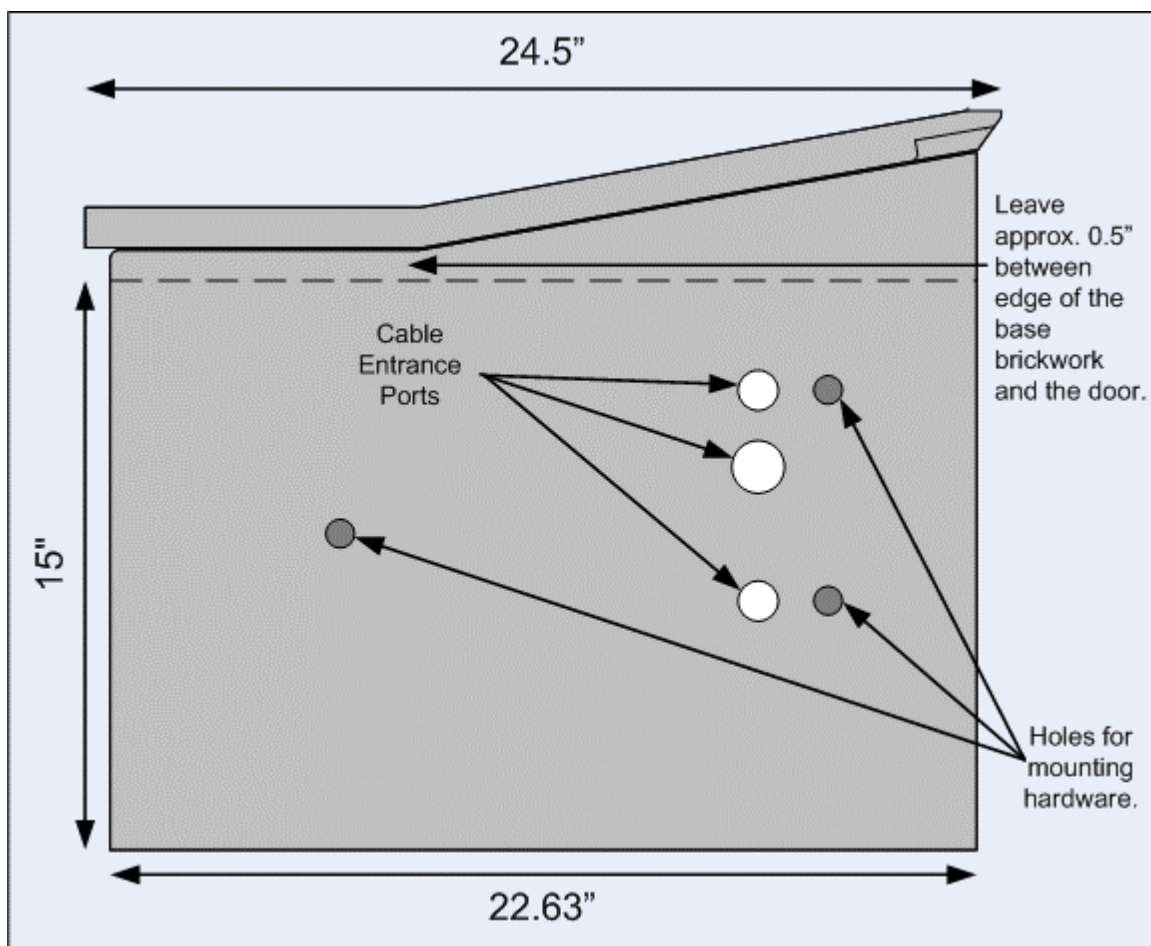


Figure 6. Bottom View of Portal TI

1.2 Electrical Planning

After determining the positioning of the unit and the base you will be using, you will need to verify the electrical requirements of the Portal TI are met.

1.2.1 Site Grounding Considerations

Ensure the protective earth ground wire does not carry any motor return current. Only the neutral wire should carry return current.



Note: Follow local electrical code when wiring the Portal TI.

1.2.2 Required Electrical Wiring

You will be connecting the main power wiring, the wash interface wiring, an optional Ethernet connection, and a telephone line to the Portal TI. In addition you may need to install intercom wiring, camera communication wiring, or other wires depending on your installation options. Do not run communication wiring in the same conduit as the AC Power wiring.



Note: Each Portal TI unit at the site requires a separate dedicated phone line.

1.2.2.1 Pulling Wires

There should be at least 6' of wire between the ground-level conduit and the wire terminations. Refer to the following Wire Pull Chart for details.

Wire Pull Chart

Wires	Wire Gauge/Spec	Wire Description	Wire Color
3	16AWG or greater	115-120 VAC Hot, Neutral, Earth Ground. Must have a dedicated conduit run.	Black, White, Green
~	~	Wash equipment PLC wiring.	See Wash Equipment Manufacturer Documentation
1	2 Pair / 4 Conductor Telephone Cable	Provides modem connectivity. Can be run with C-Store communications line or with wash equipment interface wiring. Unitec does not supply RJ11 connectors.	Any Color (Standard is Red, Yellow, Green, Black)
1	600Mhz Cat 6 4Pair, 23AWG. CANNOT BE GREATER THAN 295 FEET in LENGTH.	C-Store Interface Communications line. RJ45 Connectors are included in the Network Installation Kit, an option that must be purchased in addition to the Portal TI	Any Color (Standard Pair Colors are Blue/BW, Orange/OW, Green/GW and Brown/BrW)
4	22AWG	Provides communications to C-Store Intercom. Can be run with C-Store communications line.	Any Color

Wires	Wire Gauge/Spec	Wire Description	Wire Color
Camera Comm Wire	Usually RG59/U; see camera recording system requirements	Provides communications to camera. Type of wire depends on the camera recording system requirements.	Any color

1.3 Mechanical Installation Tools

The following tools are recommended for the typical mechanical installation of this Portal TI unit and base:

- ¾" deep well socket and socket wrench
- Open end 9/16" wrench
- Small, thin blade, flat-tip screwdriver
- Hammer
- Dual-plane Level
- 50' foot tape measure

The following items are required only when installing the Portal TI into an existing slab:

- Hammer drill
- 2.5" Concrete hammer drill bit

1.4 Electrical Installation Tools

In addition to the mechanical mounting of the Portal TI unit to the base (and the base to the concrete), there will be a number of electrical connections that must be made. These connections will require the use of the following common electrical tools:

- Small, thin tipped, straight screwdriver (1/8" tip, for green Phoenix connectors)
- Wire strippers (capable of handling 10-23 AWG wire)
- Cable or wire tie wraps
- Diagonal cutters
- Needle nose pliers

1.5 Part Verification

Prior to beginning the installation, take the time to verify that all the following required parts are present and accounted for.

1.5.1 Brick In Installation (Optional)

- Brick in Bracket
- 4 J Bolts
- 4 Nuts (to attach the Brick in Bracket to the concrete base)

- 4 Mounting Bolts (to attach the Portal TI to the Brick in Bracket)

1.5.2 Portal TI Base (Optional)

If the owner has chosen not to brick in the Portal TI, verify you have received the following parts:

- Base Frame
- Plastic sheath for Base Frame
- 3 large washers (1.06" Min O.D. X 0.12" thick 3PL)
- 3 mounting nuts (½ -13)

2 Base Installation

2.1 Brick In Base Installation

You have the following options when installing a bricked-in base:

- Build the brick enclosure, fill it with concrete, sink the Adaptor Plate with Mounting Bolts into the wet concrete, let the concrete cure, mount the Portal TI unit, and then finish bricking in the unit.
- Install the Curb-Height Steel Frame, attach the Adaptor Plate, build the brick enclosure around the frame, mount the Portal TI unit, and finish bricking in the unit. For added security, you can fill the brick enclosure with concrete prior to mounting the Portal TI unit.
- In addition, the Adaptor Plate can be attached to the Portal TI stainless steel base when used as a brick-in core on a swap-out.

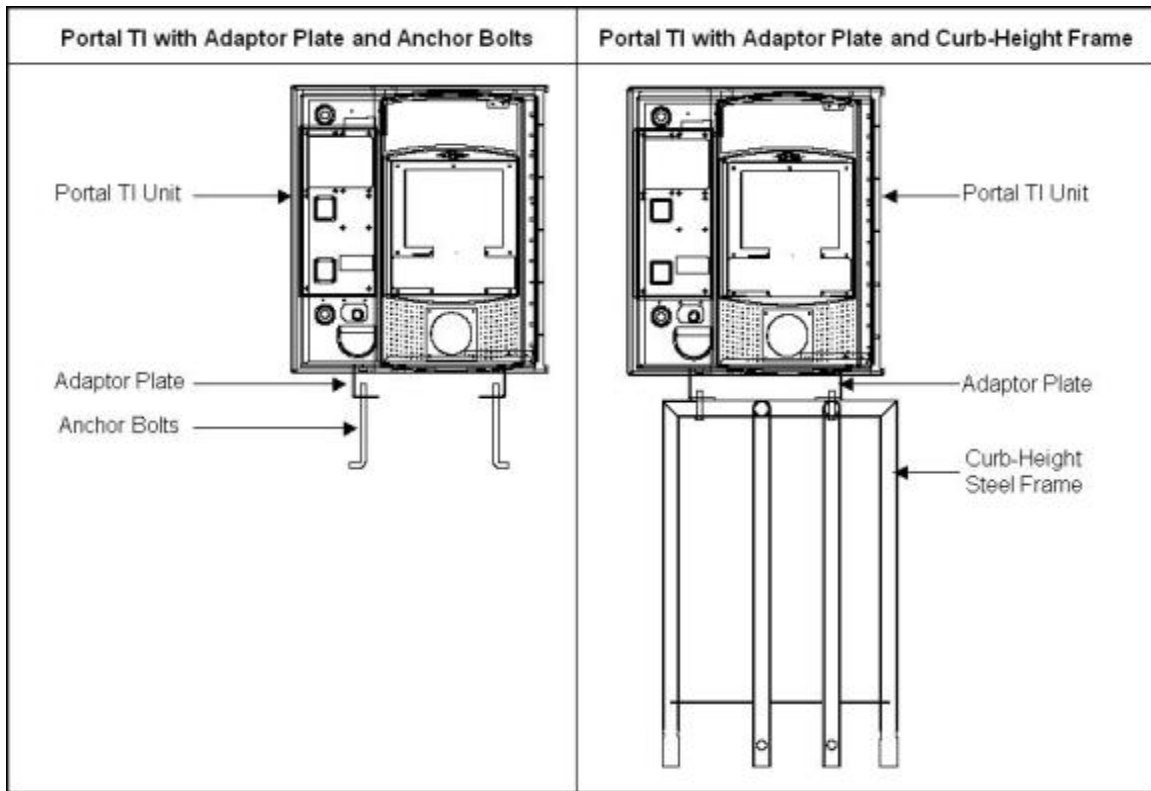


Figure 7. Bricked-In Base Options

2.1.1 Adaptor Plate and Mounting Bolts

The following diagram illustrates the Portal TI bricked in using the Adaptor Plate and the Mounting Bolts:

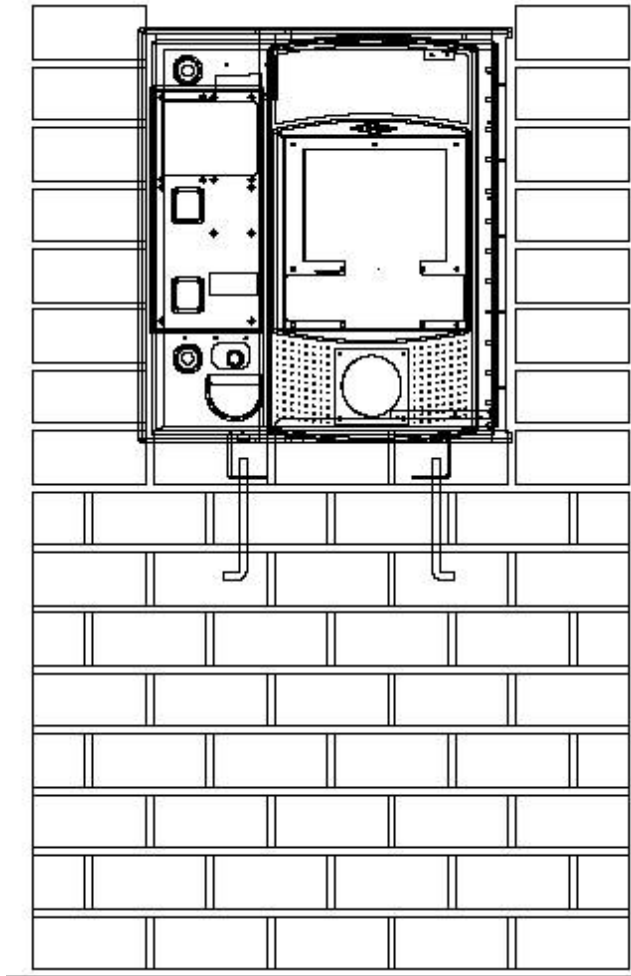


Figure 8. Bricked-In Portal TI with Adaptor Plate and Mounting Bolts

Use the following procedures when bricking in the unit using the Adaptor Plate and Mounting Bolts:

1. Build the brick enclosure up to 36" high (8 rows of bricks) from the pavement.
2. Fill the enclosure with concrete.
3. Sink the Adaptor Plate with Mounting Bolts into the wet concrete. Position the Adaptor Plate 4 ½" back from the front edge of the brick. Level the Adaptor Plate while the concrete is still wet.

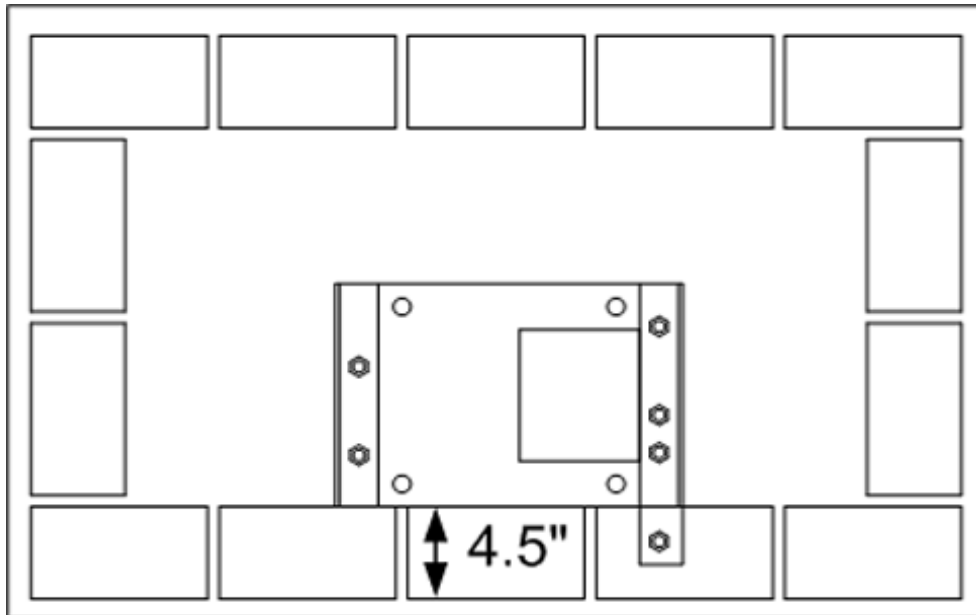


Figure 9. Positioning the Adaptor Plate

4. Allow the concrete to cure for a minimum of 24 hours.
5. Mount the Portal TI unit to the Adaptor Plate by inserting and tightening three bolts through mounting holes.

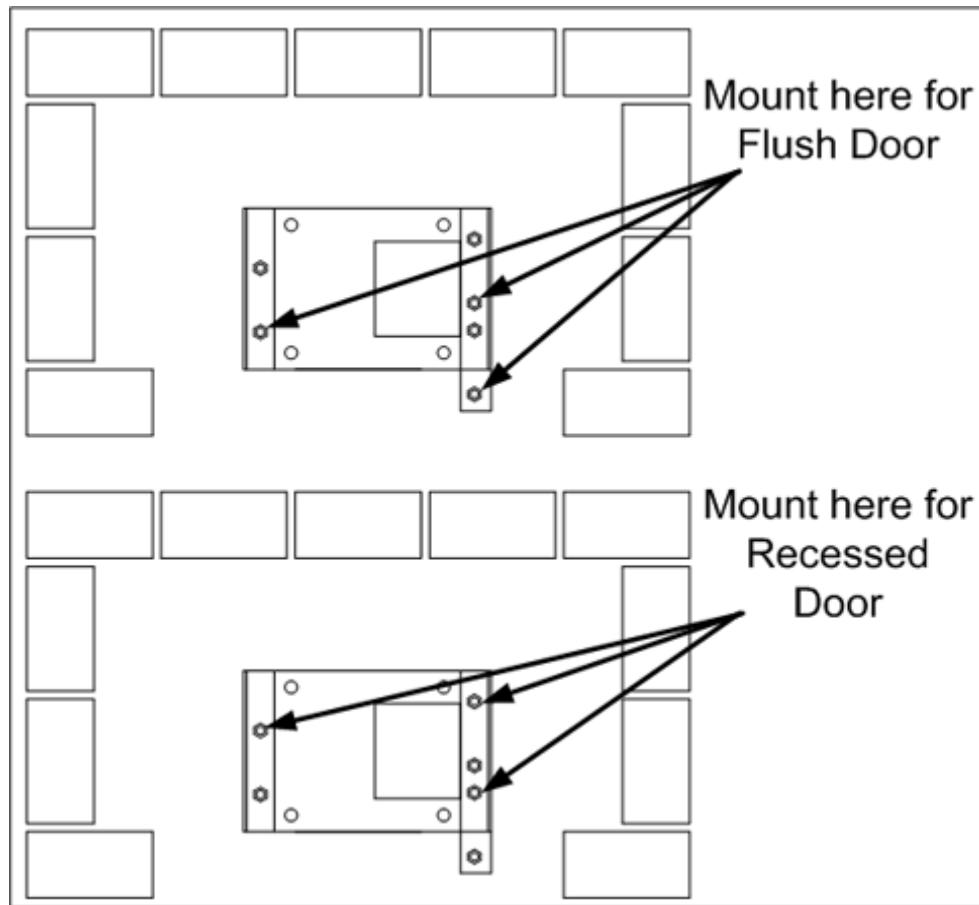


Figure 10. Portal Mounting for Bricked-In Installation

6. Finish bricking in the unit.

2.1.2 Adaptor Plate with Curb-Height Steel Frame

The following diagram illustrates the Portal TI bricked in using the Adaptor Plate and the Curb-Height steel frame:

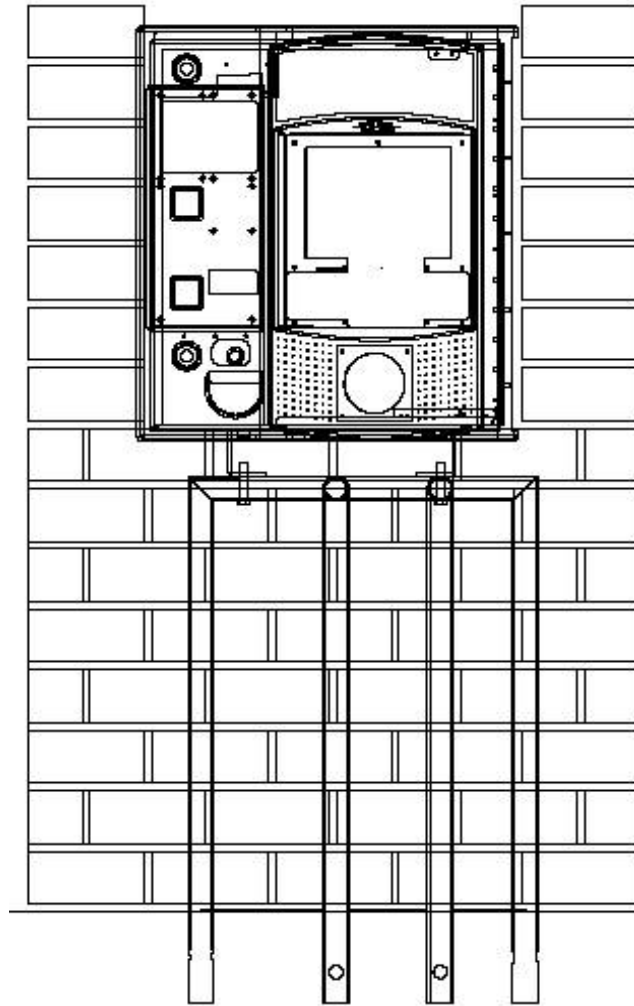


Figure 11. Bricked-In Portal TI with Adaptor Plate and Steel Frame

Use the following procedures when bricking in the Portal TI using the Adaptor Plate and the Curb-Height Steel Frame:

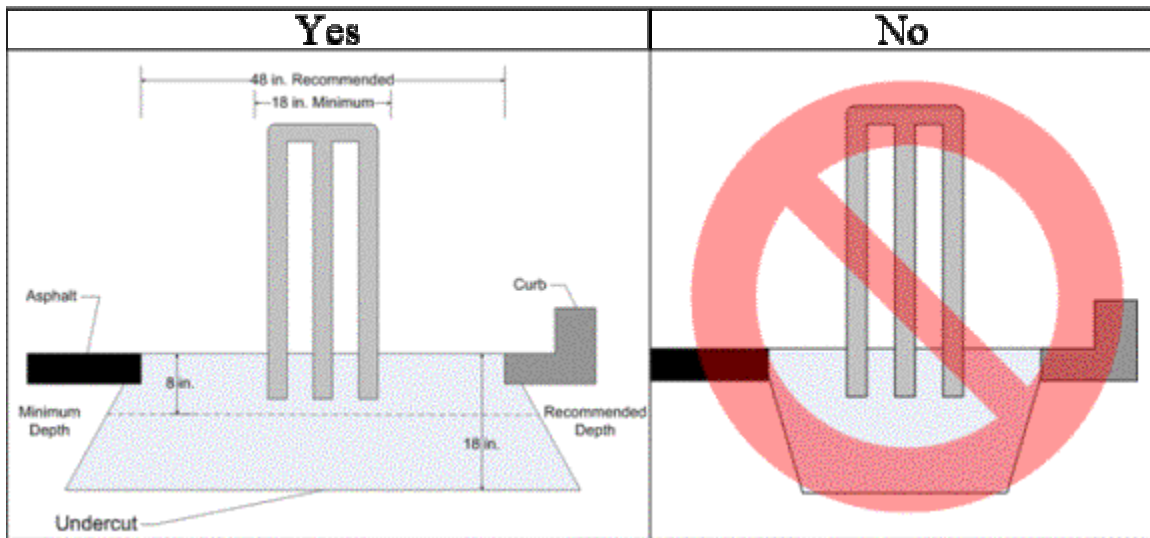


Figure 12. Concrete Pad Dimensions

When installing the base, you will first sink the steel frame a minimum of 6" into concrete. We recommend the slab be 48" by 48", with a minimum depth of 8", and a recommended depth of 24". If you are pouring a new slab, you will be able to immerse the frame into the freshly poured concrete, make sure it is level, and allow it to set with the frame in place at the proper depth.

If you already have a slab that meets the dimensional requirements, you may drill into the concrete, fill the holes with epoxy or cement, and immerse the frame into the wet epoxy or cement, make sure it is level, and let it dry. The following procedures walk you through each scenario.

2.1.2.1 New Slab

1. Pour a slab 48" by 48" with a minimum depth of 8" (24" depth recommended), making sure you leave a minimum of 3" of conduit above the surface to keep standing water from getting into the conduit.
2. Position the Portal TI base frame so that the right front leg of the frame is 26¼" away from the tire centerline.

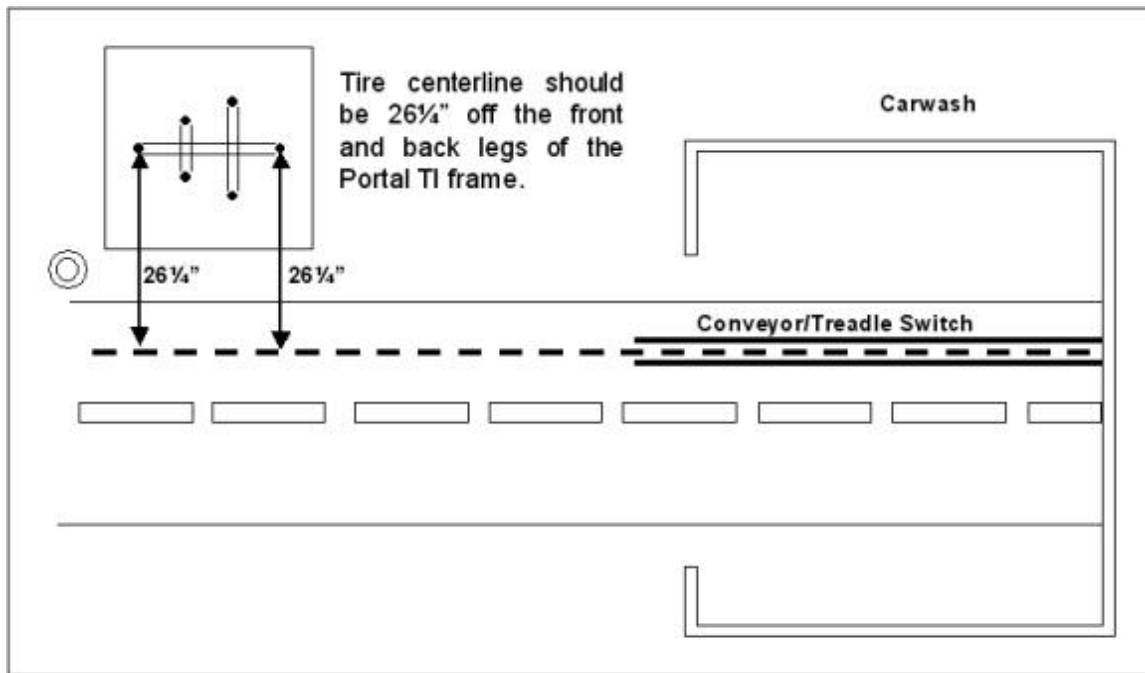


Figure 13. Positioning the Frame - Brick-in Installation, New Slab



Note: For additional security, rebar can be inserted into the holes in the bottom of the frame prior to inserting it into the concrete.

3. Immerse the base frame into the freshly poured concrete to a depth of 6". The reinforcement crosspieces are welded 6" above the bottom of the frame. They should be resting on the surface of the concrete when you have inserted the frame.
4. Ensure the frame is level by resting a dual-plane level across the top of the frame. Do not let the concrete dry with the frame unlevelled. If the frame is not level, make the necessary adjustments before the concrete sets.

2.1.2.2 Pre-existing Slab

1. Position the Portal TI base frame so that the right front leg of the frame is 26 1/4" away from the tire centerline.

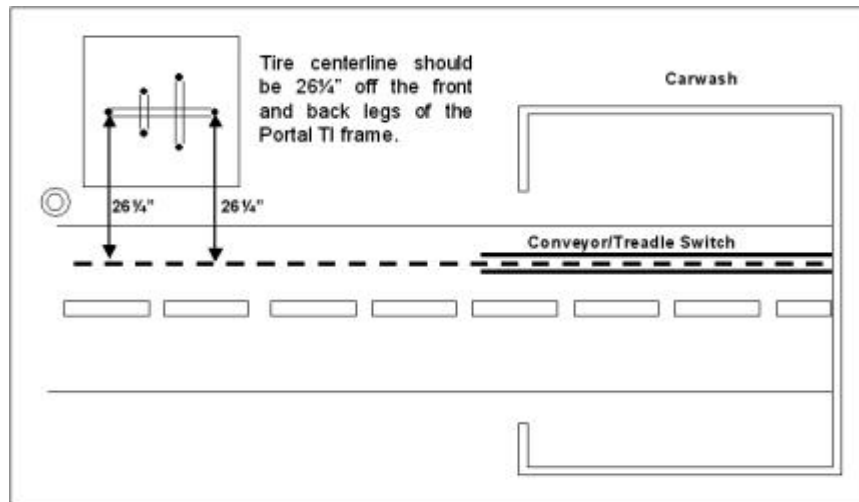


Figure 14. Positioning the Frame – Brick-in Installation, Pre-existing Slab

2. Mark on the cement where the six legs of the stand will be inserted into the slab.
3. Using a hammer drill with a minimum 2.5" bit, drill the six holes where you marked them.
4. Fill each of the six holes with either an epoxy solution or wet cement.
5. Insert the steel frame into the drilled and filled holes.
6. Ensure frame is level by placing a dual-plane level across the top of the frame.

2.1.3 Pouring the Slab

- The bottom of the Portal TI case should be 32" from the road surface.
- Conduit should be placed so that the wiring can be fed into the service entrance port located on the bottom-right side of the Portal TI.

2.1.4 Mounting the Portal TI

The exact mounting procedures will vary depending on the design of your enclosure. The following guidelines will remain consistent regardless of your design.

- Unitec does not provide anchoring hardware for bricked-in units. The anchoring hardware should be 0.5" diameter minimum.
- Make sure the conduit positioning allows the wiring to enter the Portal TI through the cable entrance ports.
- Pull all wires through conduits before mounting the unit. See Electrical Planning for wiring requirements.
- Bear in mind that the conduit run should protrude at least 3" to avoid standing water accumulating in the conduit.
- Feed the wires up through the cable entrance ports and out the front of the unit while mounting the unit to the adaptor plate.

- Allow 6' of wire (measured from the ground level) to extend through the conduit.
- Level the unit using washers, bolts, or shims prior to tightening the mounting bolts.

2.2 Portal TI Standard Base Installation



Note: Pull all wires through conduits before mounting the base. See Electrical Planning for wiring requirements.

The standard base consists of a metal tube frame, which must be mounted to a concrete slab, and a molded plastic sheath that slides over the frame. For additional security, the plastic sheath may be filled with concrete after sliding it over the frame.

2.2.1 Frame

The standard base consists of a molded polyethylene case over heavy-gauge steel frame. The steel frame can be ordered in either the standard height (for installations at road surface level) or the curb-height frame (for installations with a curb).

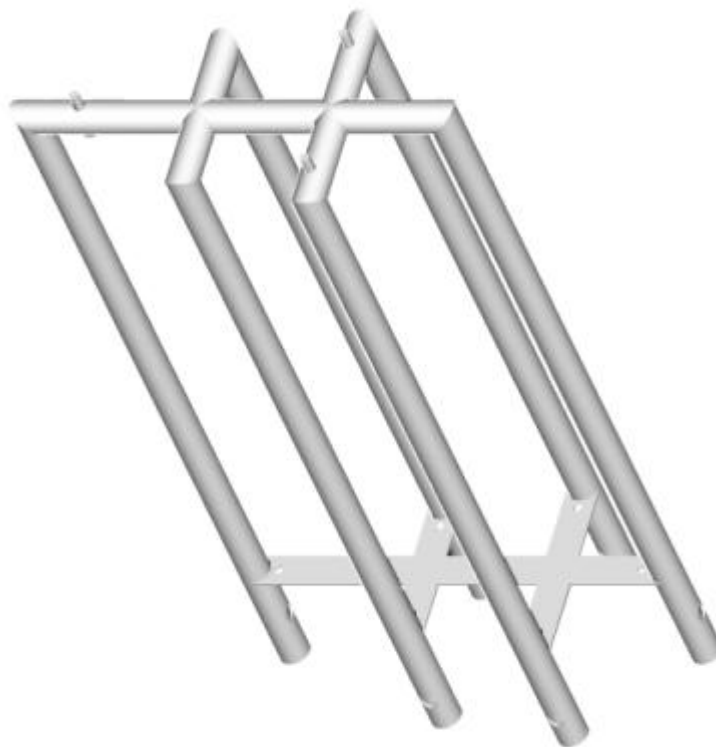


Figure 15. Standard Base Frame

When installing the Portal TI frame, it is recommended that the concrete pad be undercut, as illustrated in the figure below. This type of installation provides greater security.

The undercut pad size should have the following dimensions:

Pad Dimension Requirements

	Minimum	Recommended
Surface Width	18"	48"
Undercut Depth	8"	24"

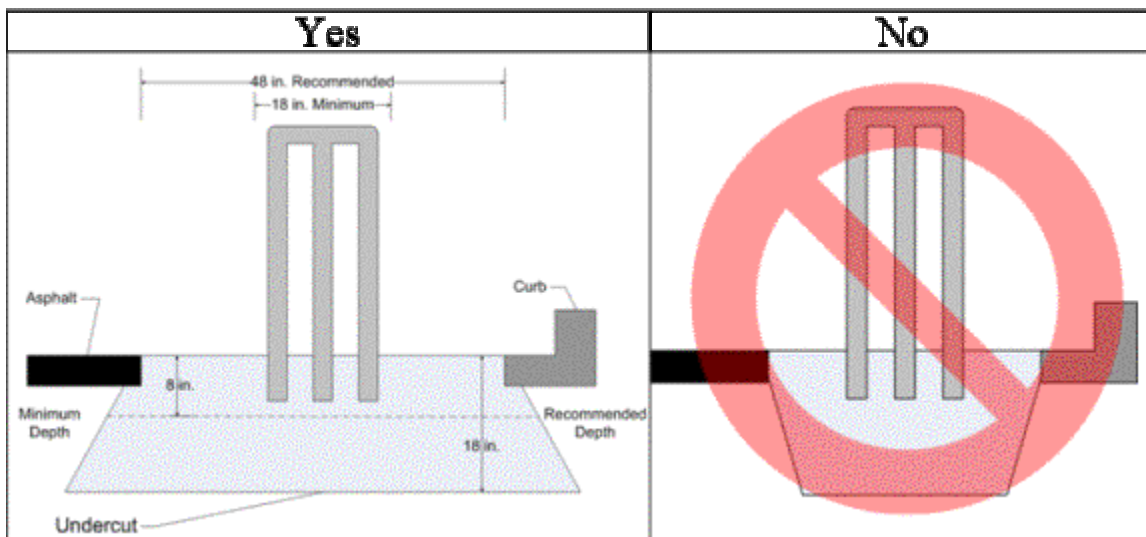


Figure 16. Base Installed in Concrete Pad

When installing the base, you will first sink the steel frame a minimum of 6" into concrete. We recommend the slab be 48" by 48", with a minimum depth of 8", and a recommended depth of 24". If you are pouring a new slab, you will be able to immerse the frame into the freshly poured concrete, make sure it is level, and allow it to set with the frame in place at the proper depth.

If you already have a slab that meets the dimensional requirements, you may drill into the concrete, fill the holes with epoxy or cement, immerse the frame into the wet epoxy or cement, make sure it is level, and let it dry. The following procedures walk you through each scenario.

2.2.1.1 New Slab

1. Pour a slab 48" by 48" with a minimum depth of 8" (24" depth recommended), making sure you leave a minimum of 3" of conduit above the surface to keep standing water from getting into the conduit.
2. Position the Portal TI base frame so that the right front leg of the frame is 26¼" away from the tire centerline.

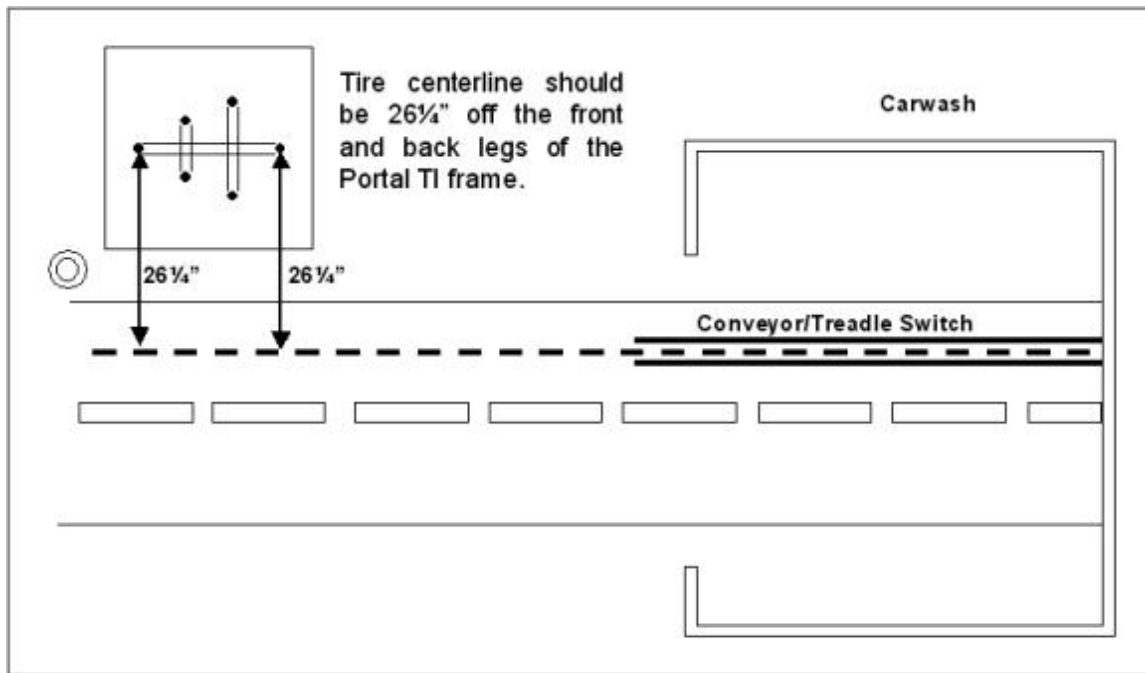


Figure 17. Positioning the Frame – Standard Installation, New Slab



Note:

For additional security, rebar can be inserted into the holes in the bottom of the frame prior to inserting it into the concrete.

3. Immerse the base frame into the freshly poured concrete to a depth of 6". The reinforcement crosspieces are welded 6" above the bottom of the frame and should be resting on the surface of the concrete.
4. Ensure the frame is level by resting a dual-plane level across the top of the frame. Do not let the concrete dry with the frame unlevelled. If the frame is not level, make the necessary adjustments before the concrete sets.

2.2.1.2 Pre-existing slab

1. Position the Portal TI base frame so that the right front leg of the frame is 26 1/4" away from the tire centerline.

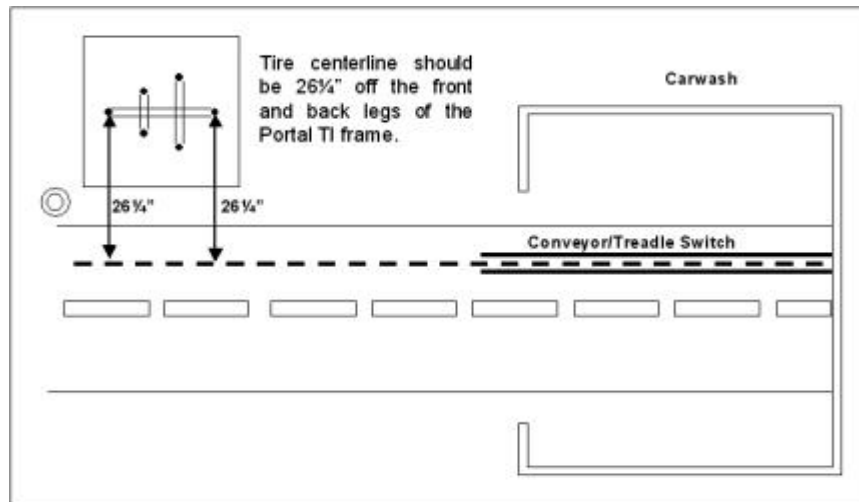


Figure 18. Positioning the Frame – Standard Installation, Pre-existing Slab

2. Mark on the cement where the six legs of the stand will be inserted into the slab.
3. Using a hammer drill with a minimum 2.5" bit, drill the six holes where you marked them.
4. Fill each of the six holes with either an epoxy solution or wet cement.
5. Insert the steel frame into the drilled and filled holes.
6. Ensure frame is level by placing a dual-plane level across the top of the frame.

2.2.2 Molded Polyethylene Case


When the concrete or epoxy solution has dried completely, slide the molded polyethylene case over the steel frame.

2.2.3 Additional Security

At this stage you have the option of adding an extra level of security to the Portal TI by filling the base with concrete.

1. Extend the conduit to the top of the frame.
2. Tie a rope around the plastic case to provide additional stability to the sheath while the concrete sets.
3. Fill the case with concrete.
4. When the concrete dries, remove the rope.

2.2.4 Mount Unit to Frame

	<p>Note: Allow the Concrete/Epoxy to cure for at least 24 hours before mounting the unit to the frame.</p>
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1. Locate the three large washers.
 2. Using two people to lift the unit, slide the unit down over the mounting bolts while feeding the wire runs up through the service entrance port and out the door of the unit. If the correct lengths of wire were pulled, you should have approximately 3' of wire hanging down in front of the unit.
 3. Place one large washer on each of the mounting bolts and hand-tighten the mounting nuts.
 4. Verify the unit's final position. Use the dual-plane level to verify the unit is level. Make appropriate adjustments if necessary.
 5. Tighten the 3 nuts with the socket wrench. When this has been successfully completed, there should be no movement of the case whatsoever.