



# XTE 401 Series Equipment Enclosures

Description and Installation Manual

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### **Technical Support Site**

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

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## Admonishments Used in this Document



**DANGER!** Warns of a hazard the reader *will* be exposed to that will *likely* result in death or serious injury if not avoided. (ANSI, OSHA)



**WARNING!** Warns of a potential hazard the reader *may* be exposed to that *could* result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



**CAUTION!** Warns of a potential hazard the reader *may* be exposed to that *could* result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



**ALERT!** Alerts the reader to an action that *must be avoided* in order to protect equipment, software, data, or service. (ISO)



**ALERT!** Alerts the reader to an action that *must be performed* in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



**FIRE SAFETY!** Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



**SAFETY!** Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

## **Important Safety Instructions**

### **Safety Admonishments Definitions**

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page v.

### **Safety and Regulatory Statements**

Refer to Section 4154 (provided with your customer documentation) for Safety and Regulatory Statements.

### **Déclarations de Sécurité et de Réglementation**

Reportez-vous à la Section 4154 (fourni avec les documents de votre client) pour les déclarations de sécurité et de réglementation.

# 1 About this Document

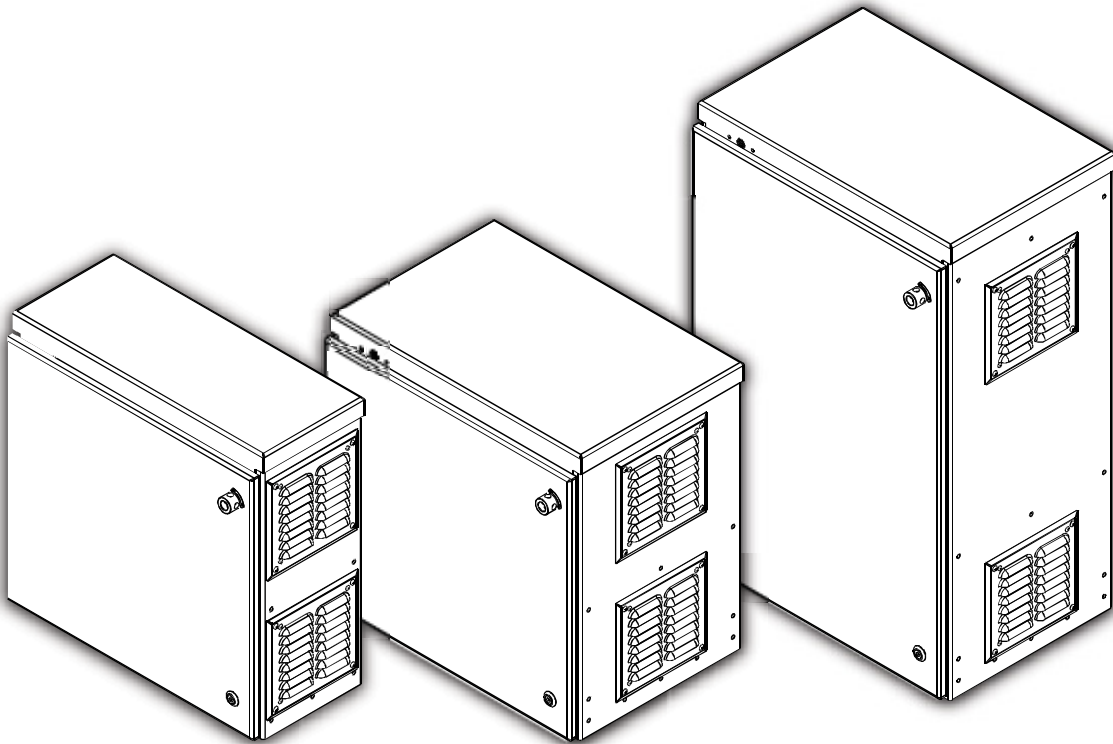
## 1.1 Purpose

This practice provides detailed description of and installation instructions for the Vertiv™ XTE 401 Series Equipment Enclosures. The Vertiv™ XTE 401 Series Equipment Enclosures is a family of three (3) small, single-sided, economical, indoor or outdoor rated, aluminum enclosures. The enclosures are ideally suited for 3G or 4G wireless nodes, DC Power Nodes (CPN), Wireless Backhaul, Fiber Node (FTTX), AMM metering, Hybrid controller system (solar, wind), and various MDU applications.

## 1.2 Additional Information

Refer to supplied documentation when installing the Vertiv™ XTE 401 Series Equipment Enclosures on a pad, pole, wall, or stake-mount application.

**Figure 1.1** Vertiv™ XTE 401 Series Equipment Enclosures



## 2 Description

### 2.1 Application

The Vertiv™ XTE 401 Series Equipment Enclosures are designed to provide secure and protected environment for sensitive equipment, power and batteries.

The Vertiv™ XTE 401 Series Equipment Enclosures use a field proven structural system, integrated mechanical components and sealing system that will protect equipment against severe weather, rain, dirt and snow.

Multiple climate control solutions are available to keep equipment operating within its optimum temperature range. Convection cooled with filter vents, fan cooled or heat exchanger with fans are available.

The Vertiv™ XTE 401 Series Equipment Enclosure can be pad, pole, wall, or stake-mounted.

### 2.2 Physical Specifications

**Standard Sizes** - The Vertiv™ XTE 401 Series Equipment Enclosures are available in three (3) sizes. See Table 2.1.

**Dimensions and Weights** - Refer to Table 2.1 and Figure 2.1 through Figure 2.3.

**Color** - Off-white.

**Finish** - Finished in multistage dry powder polyester paint for maximum durability and performance against corrosion.

### 2.1 Environmental

- Operating Ambient Temperature Range: -40 °F to +115 °F (-40 °C to +46 °C).
- Relative Humidity: Capable of operating in an ambient relative humidity range of 5% to 95%, non-condensing.

### 2.2 Standards Compliance

The Vertiv™ XTE 401 Series Equipment Enclosures are designed to meet the following standards where applicable:

- Underwriters Laboratory, UL 60950/NWIN, Type 3R.

**Table 2.1 Dimensions and Weights**

Configurations	Enclosure Size	Height [inches (mm)]	Depth [inches (mm)]	Width [inches (mm)]	Estimated Weight [lbs (kgs)]
10" Depth Enclosure	2410	24.00 (610)	10.00 (254)	24.00 (610)	35 (15.91)
16" Depth Enclosures	2416	24.00 (610)	16.00 (406)	24.00 (610)	45 (20.45)
	3816	38.00 (965)	16.00 (406)	24.00 (610)	55 (25.00)



Figure 2.1 Vertiv™ XTE 401 Series Equipment Enclosure 2410 Dimensions

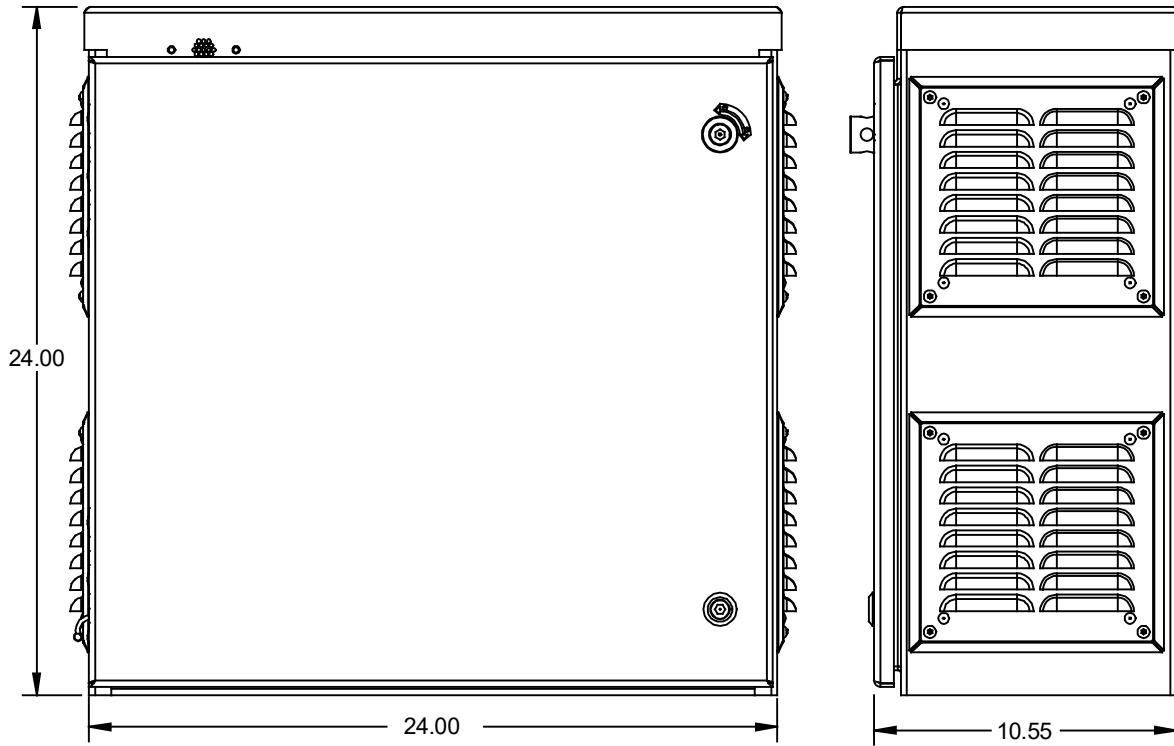
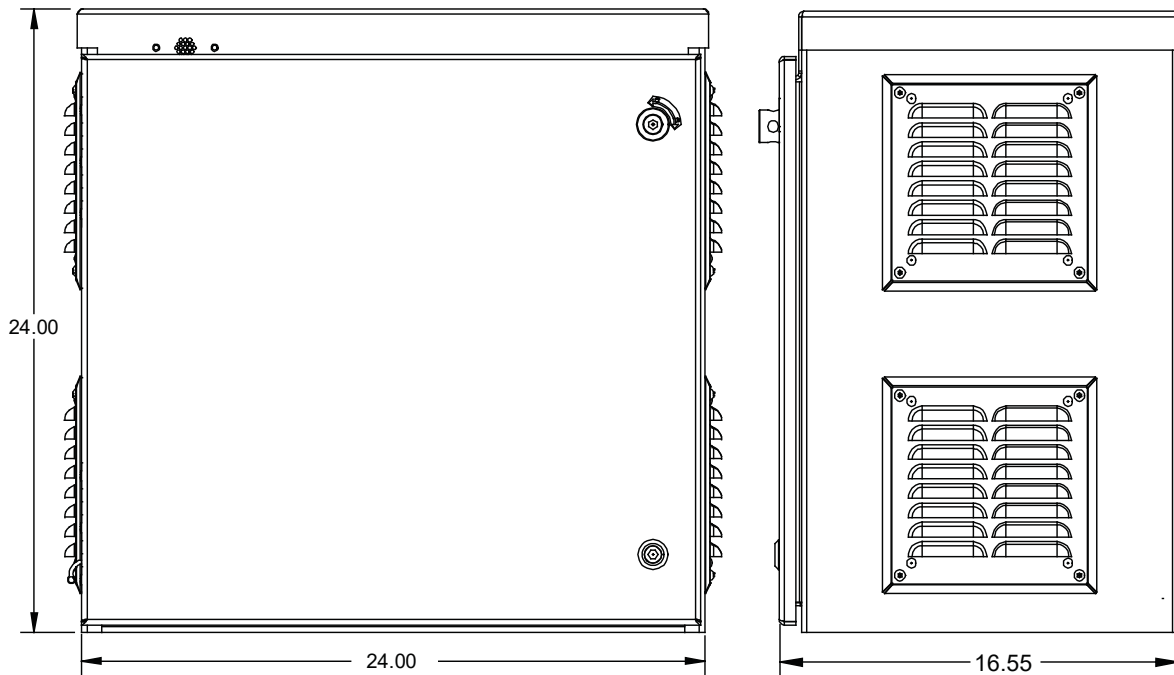
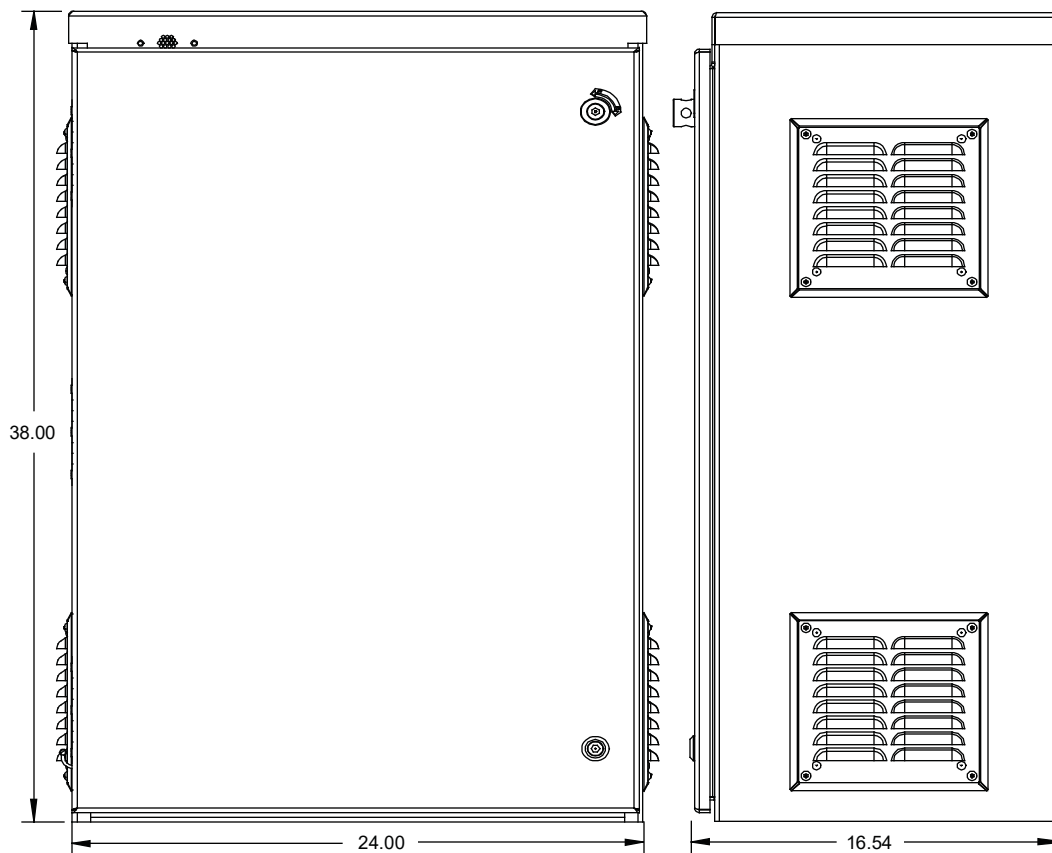


Figure 2.2 Vertiv™ XTE 401 Series Equipment Enclosure 2416 Dimensions



**Figure 2.3 Vertiv™ XTE 401 Series Equipment Enclosure 3816 Dimensions**

## 2.3 Enclosure Features and Options

### Mechanical

#### Construction

Side walls, panels, floors and front door are 0.125" (3.2mm) aluminum.

#### Ground Bar

every cabinet is equipped with a single point, screw down style 12-position ground bar. The enclosure frame ground system is factory wired. The ground bar is located on the left side wall.

#### Door

The enclosure has an environmentally sealed door. The front door provides access to the equipment chamber containing the system equipment.

- Enclosure doors are equipped with 1/4-turn security bolt locking mechanisms and one that will allow for the installation of a customer supplied padlock.
- The enclosure door is hinged and has an environmental seal gasket. EPDM rubber is used for door and seam seals.



**CAUTION!** Enclosure doors are not equipped with a wind latch system.

- **Equipment Chamber** - Standard equipment chamber is 24" (610mm) in width and are available in either 10" (254mm) or 16" (406mm) depths. See Table 2.1.

### **Optional Features**

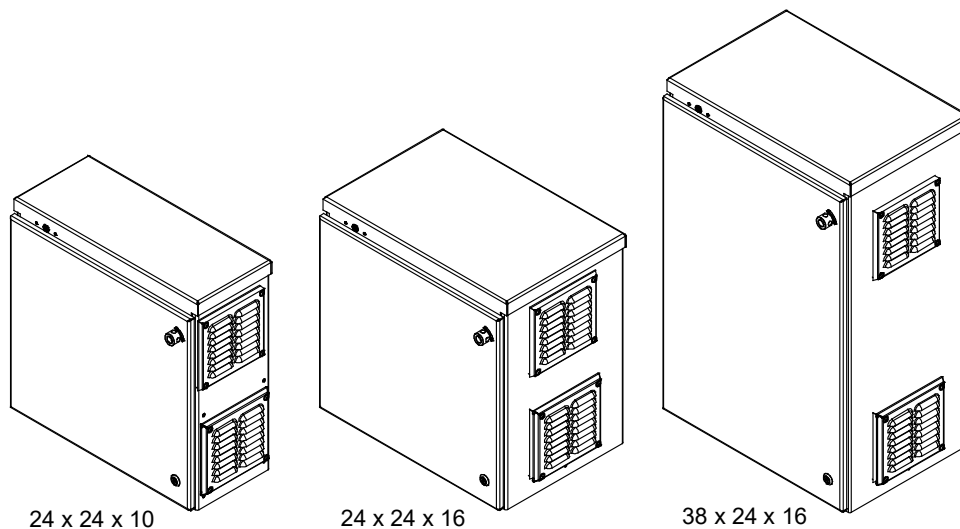
- sealed, fan or vented cooling;
- battery chamber;
- battery shelf or tray;
- battery plants;
- 19" equipment rack options;
- $\frac{5}{8}$ " plywood backboard;
- AC power and receptacles;
- +24V or -48V modular DC power system w/ distribution;
- pad, pole, wall or stake mounting;
- surge protection;
- alarm package.

### **Cooling System Options**

#### **Convection Cooled**

All Vertiv™ XTE 401 Series Equipment Enclosures come standard with four (4) filtered, louver panels for cooling. Panels are located top and bottom on each side of the enclosure.

**Figure 2.4 Vertiv™ XTE 401 Series Equipment Enclosures with Convection Vents**

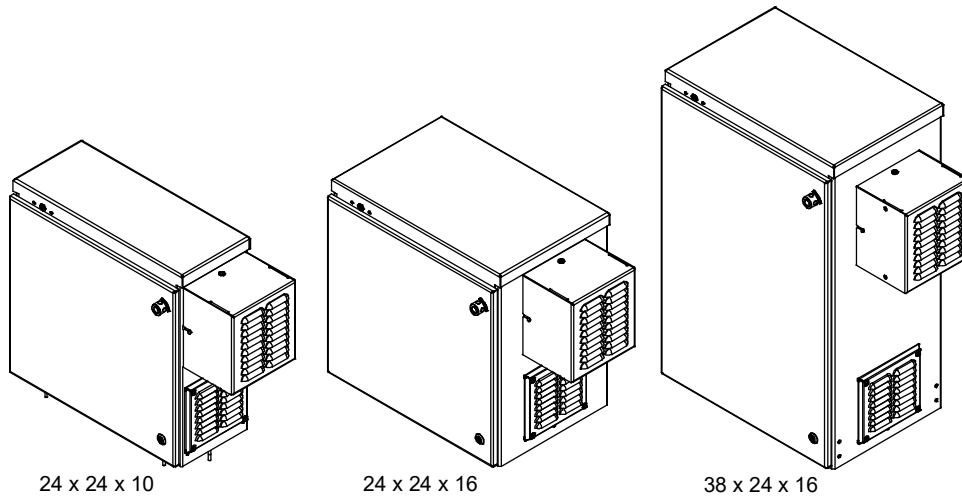


**Fan Cooled**

The fan cooling kits are optional. They are available with +24VDC or -48VDC operating voltages. The fan kit is designed to mount in place of one of the louvered panels located on the side of the enclosure. The kits consists of the following:

- power wiring and
- thermostat control.

**Figure 2.5 Vertiv™ XTE 401 Series Equipment Enclosures with Fan Coolers**



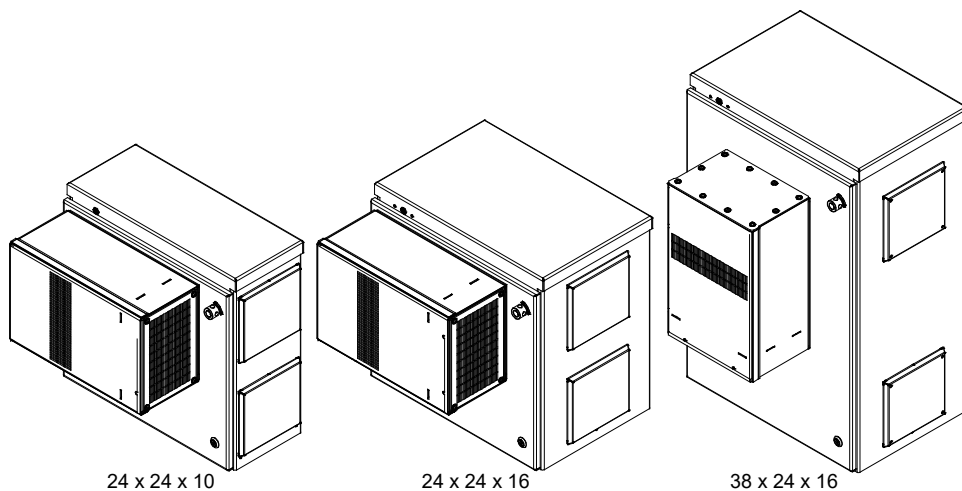
The air is drawn in through the filter assembly and blown into the enclosure. Air is exhausted from the three (3) remaining louvered side panels. By blowing air into the enclosure, the enclosure is pressurized, and this will help protect against egress of water, dirt and snow.

**Heat Exchanger**

The 500W heat exchanger cooling kits are optional. They are available with in either +24VDC or -48VDC operating voltages. The heat exchanger is designed to door mount. The kit also includes four (4) gasketed blanking plates for the side wall louver panels.

The kit consists of (1) door mounted heat exchanger, redundant internal and external fans, power wiring and thermostat control. These heat exchangers require no refrigerant, feature low-energy consumption fans, and will continue to function when AC line power is lost.

**Figure 2.6 Vertiv™ XTE 401 Series Equipment Enclosures Showing Heat Exchanger Cooling Option**



The following chart shows the maximum heat loads the Vertiv™ XTE 401 Series Equipment Enclosures will dissipate under normal operating conditions.

**Table 2.2 Cooling Limits**

Outside Air temp	COOLING TYPE		
	CONVECTION	FAN	HEAT EXCHANGER
<b>2410</b>			
26° C ambient	*220w	900w	590w
36° C ambient	*190w	900w	520w
46° C ambient	*85w	550w	460w
<b>2416</b>			
26° C ambient	*150w	900w	620w
36° C ambient	*120w	800w	560w
46° C ambient	*90w	650w	470w
<b>3816</b>			
26° C ambient	*500w	900w	750w
36° C ambient	*310w	800w	600w
46° C ambient	*120w	400w	470w



**NOTE!1.** “\*” assumes 40 cfm of air movement within the enclosure from the equipment fans, if a 40 cfm airflow is not available, please consult the factory.



**NOTE!2.** The values shown above is the combined heat generated by all of the installed equipment. If the total heat loads exceed the values shown above, the cabinet will overheat and the internal air temperature will exceed 65°C.



**NOTE!3.** Number shown includes solar loading.

### **Cooling Controller**

All Vertiv™ XTE 401 Series Equipment Enclosures have a thermostat control for all thermal systems. The thermostats are factory set to turn on the cooling system when the internal enclosure temperature reaches 50°C. They will turn off when the internal enclosure temperature reaches 21°C.

### **Battery Options**

The Vertiv™ XTE 401 Series Equipment Enclosure will accept any customer-supplied VRLA top post batteries.

- **Battery Shelves** - The Vertiv™ XTE 401 Series Equipment Enclosures can be equipped with an optional floor mounted battery restraint system. There are systems available for use in any of the Vertiv™ XTE 401 Series Equipment Enclosures. One is used in the 10" deep enclosure and one is used in the 16" deep enclosures. Refer to Table 2.3 for battery mounting space available in the Vertiv™ XTE 401 Series Equipment Enclosure.

The kits will consist of a floor mounted plate and an adjustable battery restraint system. The battery restraint system can be adjusted from front to rear to assist in the placement and restraint of the battery plant used in the cabinets.

**Table 2.3 Mounting Battery Space**

Enclosure Size	Width (inch)	Height (inch)	Depth (inch)
24 X 24 X 10	22.12	8.25	6.75
24 X 24 X 16	22.12	8.25	12.70
38 X 24 X 16	22.12	9.31	12.70



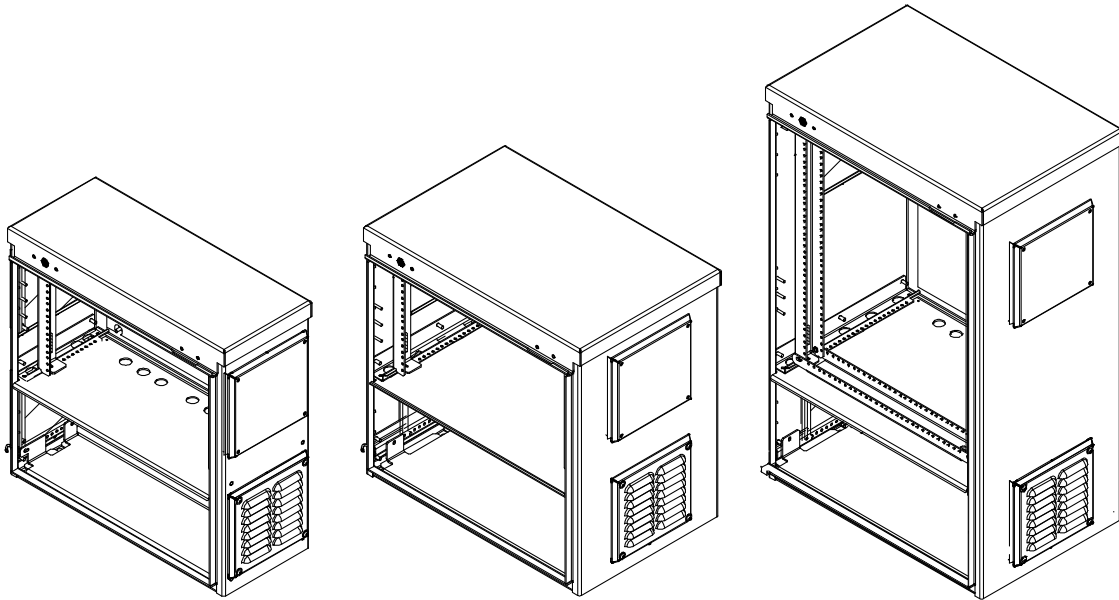
**NOTE!** The height shown is the maximum space available when the optional battery chamber divider plate is installed in the enclosure. If the enclosure is not equipped with the divider plate, this height can be increased.



**NOTE!** The battery tray can only be used with the 1/2 height 19" rack systems. They cannot be installed in the enclosure if the full length rack system is specified. Refer to "Rack Unit Options" on page 11 for rack system details.

### **Battery Chamber**

If any cabinet is equipped with a battery restraint system, the battery mounting area can be isolated from the equipment chamber by means of an optional lexan divider plate assembly. The divider plate is designed to provide separation between the two chambers per the requirements of GR-487. This option is recommended for use in any system where the batteries will be installed inside the cabinet and a heat exchanger cooling system is installed on the cabinet.

**Figure 2.7 Vertiv™ XTE 401 Series Equipment Enclosures Showing Divider Plate Assembly**

### **Battery Heater Pad**

Any cabinet can be equipped with an optional battery heater pad. The heater pads are 120VAC powered and requires an optional AC receptacle. The battery heater pads will operate when the battery module temperature drops below 5°C. The heater pad is designed to warm the battery modules and keep them from freezing. It will not heat the battery chamber. The heater pad will mount into the bottom of the cabinets on the floor. Two heater pad sizes are available.

One heater pad is designed to mount into the 2410 footprint Vertiv™ XTE 401 Series Equipment Enclosure. The heater pad measures 22" w x 7" d. The small heater pad will provide 75W of heat.

One heater pad is designed to mount into the 2416 or 3816 footprint Vertiv™ XTE 401 Series Equipment Enclosure. The heater pad measures 22" w x 13" d. The large heater pad will provide 100W of heat.

Figure 2.8 Battery Heater Pad Kit

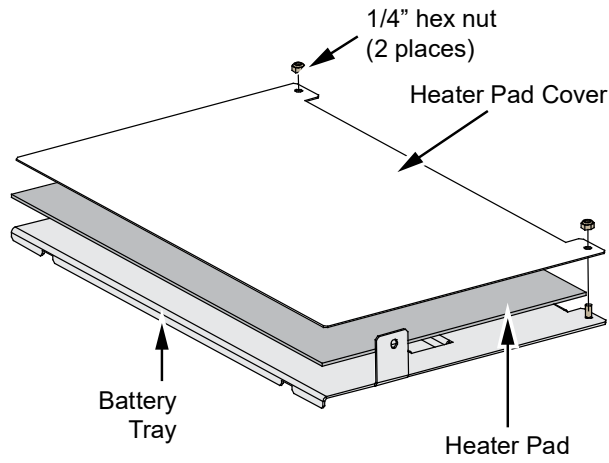


Figure 2.9 Installing Battery Heater Pad to Cabinet

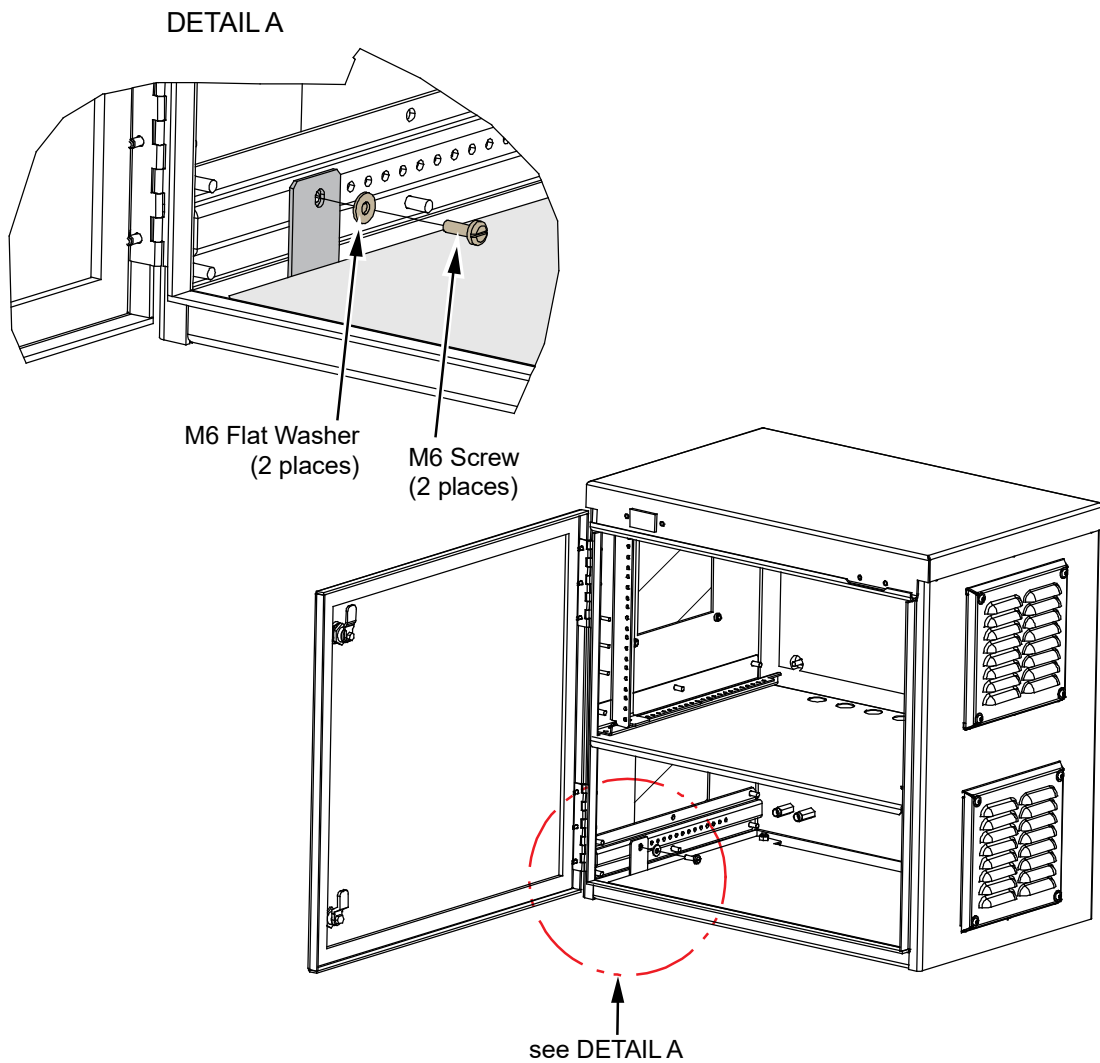


Figure 2.10 Installing Battery Retainer to Cabinet

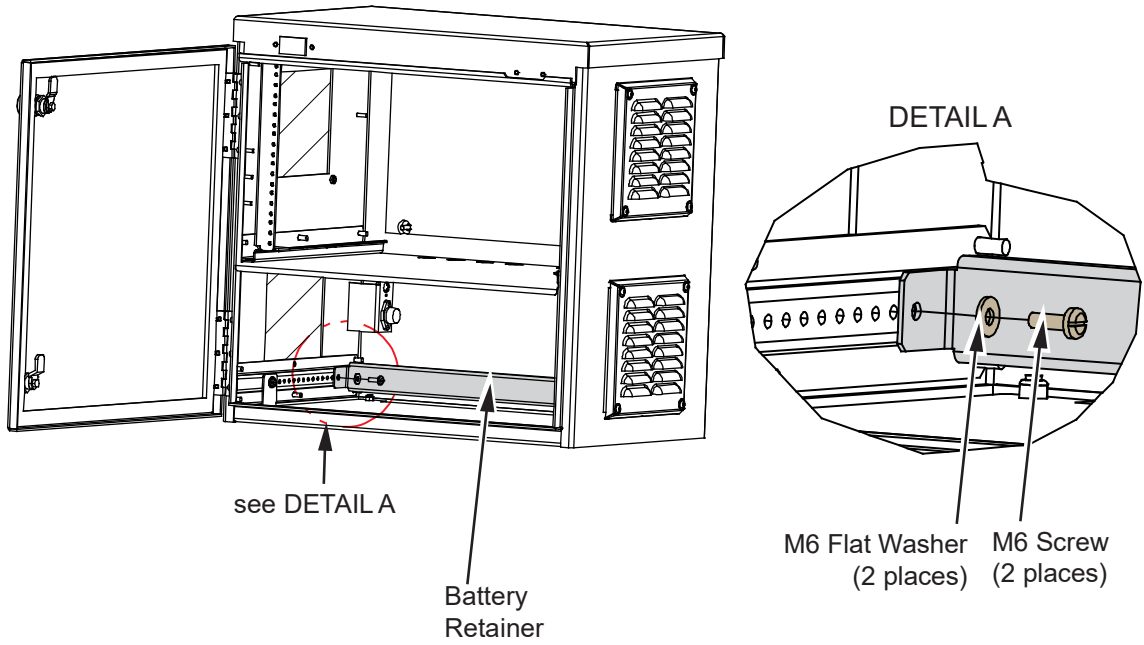
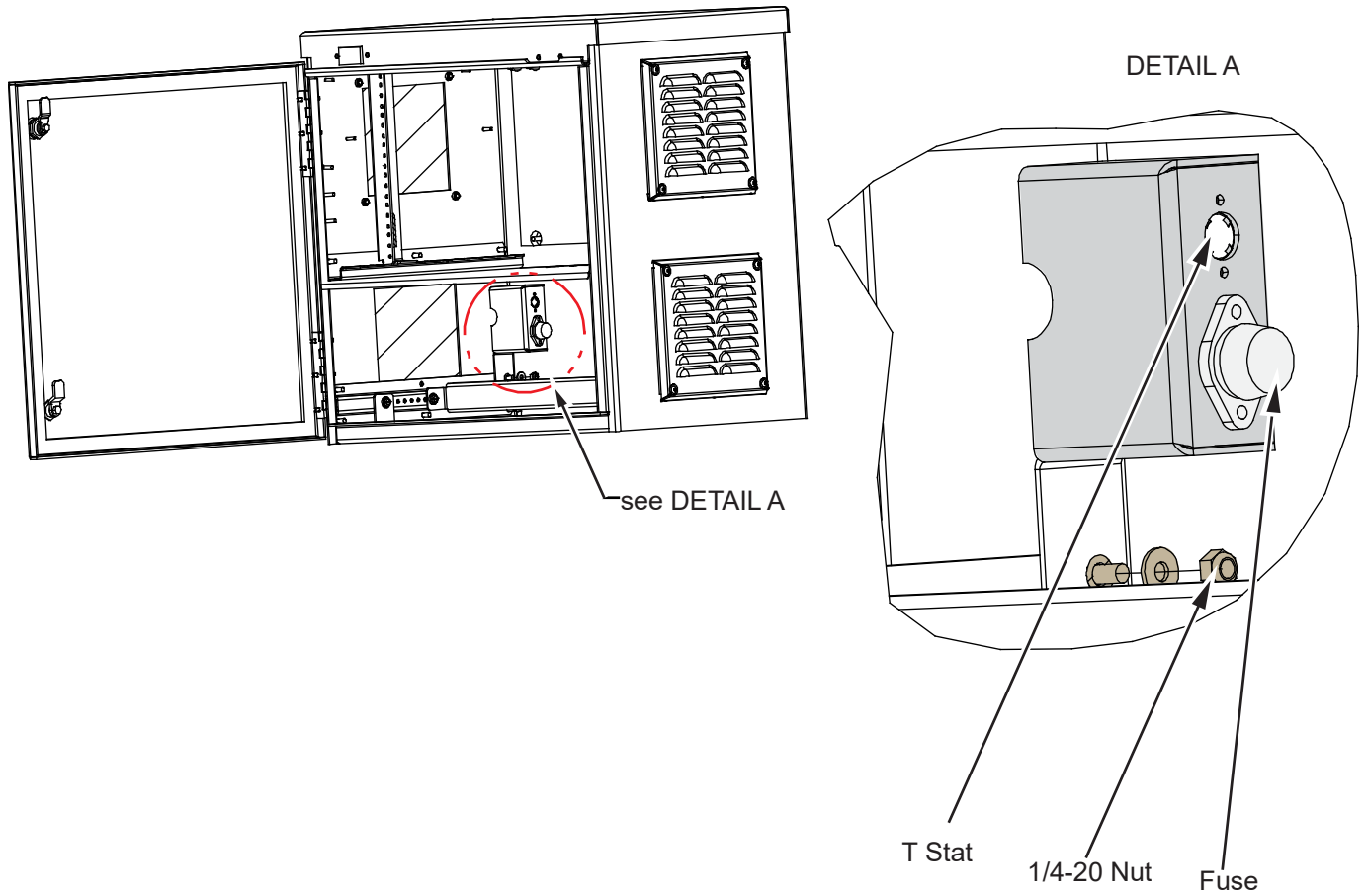


Figure 2.11 Battery Thermostat and Fuse to Cabinet





## Battery Plant Options

Any of the cabinet can be equipped with an optional +24VDC or -48VDC VRLA style battery plants. Any manufacturer's batteries can be used, as long as they fit in the area provided. Refer to Table 2.3 on page 8 for the available battery mounting space in each size cabinet.

For convenience, Vertiv offers (3) different sized +24 VDC VRLA battery plants and (3) different sized -48VDC VRLA battery plants for use in the Vertiv™ XTE 401 Series Equipment Enclosures. In each case, the batteries plants are top post style batteries.

Vertiv offers either a +24VDC or -48VDC batteries in the following capacities: 12Ah, 30 Ah and 45Ah capacities.

Should the user decide to purchase batteries from Vertiv, please refer to “Installing and Connecting Batteries” on page 46 for proper installation and wiring details for the batteries shown.

## Rack Unit Options

The Vertiv™ XTE 401 Series Equipment Enclosures can be equipped with optional 19" rack systems. Each enclosure can be equipped with a full length 19" rack system or for applications where the battery tray and batteries will be installed inside the enclosure, there is a 1/2 height rack system available. Refer to Table 2.4 for equipment mounting space available in each enclosure size.

**Table 2.4 Rack Mounting Options**

Rack Enclosure Length	24" High Enclosures	38" High Enclosures
half length	6RU = 10.5"	13RU = 19.25"
full length	11RU = 19.25"	17RU = 29.75"



**NOTE!** The Vertiv™ XTE 401 Series Equipment Enclosure 3816 footprint cabinet can also be equipped with an optional 23" wide vertical mounting rack system. This system will allow standard 23" wide equipment to be mounted vertically inside the enclosure. This option is only available in the larger 3816 footprint enclosure. When equipped, there are 10 x 1.75" equipment mounting spaces available.



**NOTE!** The battery tray can only be used with the 1/2 height 19" rack systems. They cannot be installed in the enclosure if the full length rack system is specified. Refer to “Battery Options” on page 7 for battery tray details.

## Backboard Options

Any of the cabinets can be equipped with an optional backboard for mounting equipment on. The backboard is 5/8" plywood. Each cabinet can be equipped with a full length backboard which will cover the entire back wall of the cabinet. An optional 1/2 height backboard is also available for use in any cabinet. The 1/2 height backboard is to be used in applications were a battery restraint system is to be mounted in the cabinet.

The available space for equipment mounting on the back board will be:

**Table 2.5 Available Space for Equipment Mounting on the Back Board**

2410 or 2416	Size
1/2 back board	12.5" x 20"
full back board	20" x 20"
3816	Size
1/2 back board	22.75" x 20"
full back board	32" x 20"

Figure 2.12 Vertiv™ XTE 401 Series Equipment Enclosures Showing Backboard Options

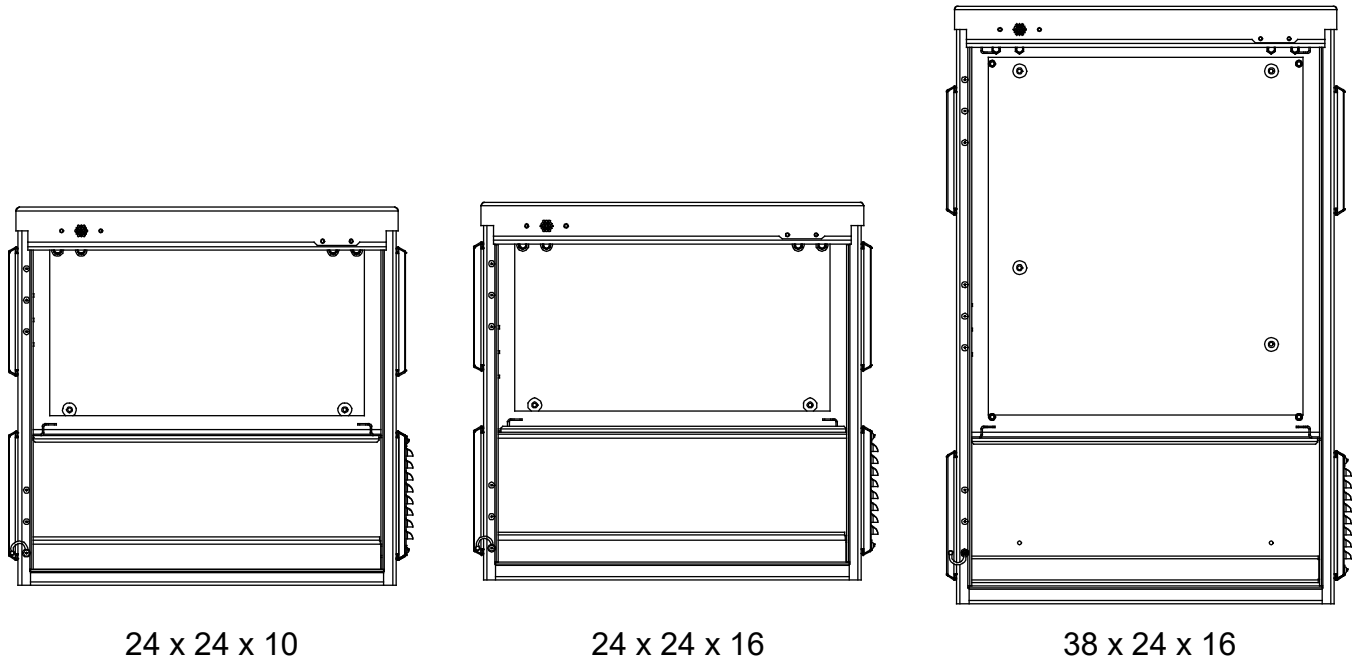
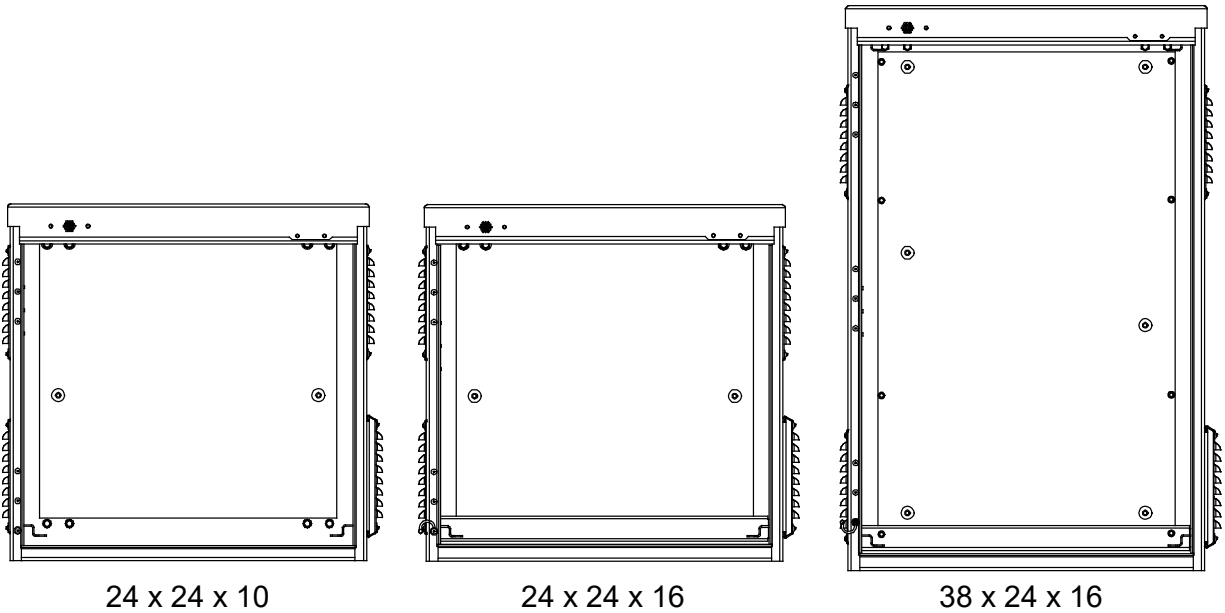


Figure 2.13 Vertiv™ XTE 401 Series Equipment Enclosures Showing Full Backboard Options



### AC Power Options

All AC components used in the Vertiv™ XTE 401 Series Equipment Enclosures are optional and must be specified when ordering. There are two styles of internal AC distribution available for use in the Vertiv™ XTE 401 Series Equipment Enclosures. This includes standard NEC components as well as DIN rail components.

## NEC AC Components

- **AC LOAD CENTER** - load centers available for use in the Vertiv™ XTE 401 Series Equipment Enclosures are optional. There are 2 styles of load center available for use in the Vertiv™ XTE 401 Series Equipment Enclosures. There may be space and equipment mounting limitations when using these optional load centers.
  - **Indoor Load Center** - this system consists of a Square D, 2 position, 120/240VAC, 1ph, 60 Hz, 60 Amp load center. The load center is designed to mount inside any of the Vertiv™ XTE 401 Series Equipment Enclosures on an optional backboard, which is mounted on the rear wall of the cabinet. The load center will accommodate up to (2) single pole AC load breakers or up to (1) one pole AC load breaker.



**NOTE!** Per the requirements of the NEC, additional equipment cannot be mounted in front of this device.



**NOTE!** Tandem AC breakers can be used to increase the number of available breaker positions.

- **Outdoor Load Center** - this system consists of a Square D, 6 position, 120/240VAC, 1ph, 60 Hz, 60 Amp load center. The load center is designed to mount on the outside of a Vertiv™ XTE 401 Series Equipment Enclosure 3816 footprint cabinet only. It will mount on the left hand sidewall only. The load center will accommodate up to (6) single pole AC load breakers or up to (3) two pole AC load breakers.

### **Application Notes:**

- Tandem AC breakers can be used to increase the number of available breaker positions.
- This device is NEMA3R rated and is pad lockable.
- This device will not fit on either the 2410 or 2416 footprint cabinets.
- **AC RECEPTACLES** - all receptacles available for use in the Vertiv™ XTE 401 Series Equipment Enclosures are optional. There may be wiring, fusing and other equipment mounting limitations when using these optional receptacles.
  - **Ground Fault Circuit Interrupter (GFCI) Convenience Receptacle** - an optional 15 Amp, 120VAC GFCI protected, duplex, convenience receptacle is available for use in the Vertiv™ XTE 401 Series Equipment Enclosures. This receptacle can be mounted to an optional backboard, which is mounted on the rear wall of the cabinet or it can be mounted to the optional P/N 553464 19" w, 1RU, rack mounted, receptacle mounting panel. Up to (3) receptacles can be mounted to this optional receptacle mounting panel. The 1 RU panel will mount into the equipment chamber 19" rack system.

### **Application Notes:**

- When deployed without an AC load center, this GFCI receptacle will require an externally fused AC source.
- When deployed without an AC load center, the customer must wire all AC feeds to this point in the cabinet.
- This device protects against possible ground faults and is intended for craft use only. It is not recommended that cabinet equipment be plugged into this receptacle.
- **Equipment Receptacle** - an optional 20 Amp, 120VAC duplex equipment receptacle is available for use in the Vertiv™ XTE 401 Series Equipment Enclosures. This receptacle can be mounted to an optional backboard, which is mounted on the rear wall of the cabinet or it can be mounted to the optional P/N 553464 19" w, 1RU, rack mounted, receptacle mounting panel. Up to (3) receptacles can be mounted to this optional receptacle mounting panel. The 1 RU panel will mount into the equipment chamber 19" rack system.

### **Application Notes:**

- When deployed without an AC load center, this equipment receptacle will require an externally fused AC source.
- When deployed without an AC load center, the customer must wire all AC feeds to this point in the cabinet.
- This device is intended for plugging cabinet equipment into this receptacle.

- **AC SURGE PROTECTION** - all surge protection available for use in the Vertiv™ XTE 401 Series Equipment Enclosures is optional. There may be wiring, fusing and other equipment mounting limitations when using these optional AC surge protectors.

A wall mounted, or panel mounted, 120VAC AC surge protector system is available for use in any of the Vertiv™ XTE 401 Series Equipment Enclosures. This device can be factory wired, if ordered. It will be wired to the AC load center or receptacles specified for use in the cabinet. This unit will provide protection against incoming AC surge on the utility feeds.



**NOTE!** For 240VAC DIN rail breakers or AC surge protection options, please consult the factory.

- **DIN RAIL AC COMPONENTS-** DIN rail mounted equipment is designed to mount to either the optional plywood backboard or the optional 553464 19" w, 1RU, rack mounted, receptacle mounting panel. There may be space, wiring and equipment mounting limitations when using these DIN rail mounted components. There are 2 basic DIN rail mounted AC kit available for use in the Vertiv™ XTE 401 Series Equipment Enclosures. One is for 120VAC operation and one is for 240 VAC operation of the cabinet.
  - **120VAC Input Kit** - this kits includes a DIN rail mounted system with (1) Square D type QO® 15A single pole and (1) Square D type QO® 20A single pole DIN rail mounted AC breakers and wiring. They can be wired to optional AC receptacles or directly to the AC input of the power systems or other equipment.
  - **240VAC Input Kit** - this kits includes a DIN rail mounted system with (2) Square D type QO® 15A single pole and (2) Square D type QO® 20A two pole, DIN rail mounted AC breakers and wiring. They can be wired to optional AC receptacles or directly to the AC input of the power systems or other equipment.
  - **AC Surge Protection** - is optional when ordered. Both 120VAC and 240VAC surge protector assemblies are available.

**Application Notes:**

- All AC kits will include Phoenix connector blocks for termination of ground and neutral cables.
- When mounting the DIN Rail AC kits to the optional P/N 553464 19" w, 1RU, rack mounted, A/C receptacle mounting panel, space is provided for the breakers and a single receptacle only. When using this panel with either breaker kit, space must be left above and below the 1 RU panel for cable management.
- This assembly will consume (3) x 1.75" of equipment rack space.

## **DIN Rail-Mounted DC Power Systems**

These optional AC to DC power systems are provided as a low cost, low feature DC power system for use in any of the Vertiv™ XTE 401 Series Equipment Enclosures. The DIN rail mounted systems will mount to the optional plywood back board only. They cannot be mounted into the equipment rack system. They will operate from an AC input voltage of 90-276VAC. They will provide a regulated DC output voltage and a single rectifier fail alarm. Each system is capable of charging an optional battery plant and can be equipped with optional DIN rail mounted DC distribution fusing assemblies. The DC distribution fusing assemblies provide (5) 5x20 mm type fuse positions for DC loads. If additional DC fusing is needed, additional DC distribution fusing assemblies can be added as required.

- **+24VDC DIN Rail Mounted Power Systems**

Option 1 consists of:

- (1) 360w Power Supply
- (1) battery charge control module
- (1) 5 position DC distribution fusing assemblies
- (1) lot of wiring

Option 2 consists of:

- (1) 600w Power Supply
- (1) battery charge control module

- (1) 5 position DC distribution fusing assemblies
- (1) lot of wiring

- **-48VDC DIN Rail Mounted Power Systems**

Option 1 consists of:

- (1) 360w Power Supply
- (1) battery charge control module
- (1) 5 position DC distribution fusing assemblies
- (1) lot of wiring

Option 2 consists of:

- (1) 600w Power Supply
- (1) battery charge control module
- (1) 5 position DC distribution fusing assemblies
- (1) lot of wiring

### **19" Vertiv™ NetSure™ 211, Rack Mounted DC Power Systems**

The optional Vertiv™ NetSure™ 211 48VDC power systems will provide a low cost, feature rich DC power system for use in any of the Vertiv™ XTE 401 Series Equipment Enclosures. The rectifier system is only available in 48VDC outputs. It is designed to be mounted into the 19" equipment rack system. The system is a complete integrated power system containing redundant rectifiers, intelligent control, metering, monitoring, and distribution. This power system consists of either a 1RU or 2RU high by 19" wide shelf.

Option 1 consists of:

- (1) 1RU, 19" w, 1000w, Vertiv™ NetSure™ 211 Power System
- (1) SCU+ control module
- (10) DC distribution fuse positions (up to 15a GMT fuses)
- (0) 500w, 48VDC rectifier modules (to be ordered separately)
- (1) AC input line cord

Option 2 consists of:

- (1) 2RU, 19" w, 2000w, Vertiv™ NetSure™ 211 Power System
- (1) SCU+ control module
- (4) DC load breaker positions (up to 100a breakers)
- (5) DC distribution fuse positions (up to 15a GMT fuses)
- (1) battery temperature compensation probe
- (0) 500w, 48VDC rectifier modules (to be ordered separately)
- (2) AC input line cords

#### ***Application Notes:***

- The Vertiv™ NetSure™ 211 power systems shown are designed to operate from 120VAC input only. If 240VAC input is required, please contact the factory.
- The 1RU NS211 power system will accept up to (2) of the 1R48500, 48VDC, 500w rectifier modules. Order as required.
- The 2RU NS211 power system will accept up to (4) of the 1R48500, 48VDC, 500w rectifier modules. Order as required.
- Operation of this rectifier will require the use of an optional AC load center or either (1) or (2) optional equipment receptacle(s).



**NOTE!** All rectifier and cabinet alarms can be back hauled via the Vertiv™ NetSure™ 211 rectifier. Consult the factory if this option is required.

## Grounding

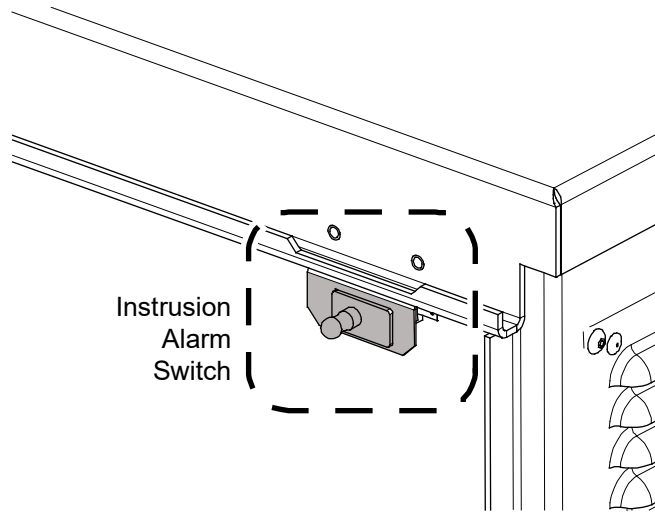
- **12-Position Screw-Down Style Ground Bar.** Refer to Figure 2.11.

## Cabinet Alarms

The Vertiv™ XTE 401 Series Equipment Enclosures can be equipped with different alarms to monitor the cabinet and system operation and report abnormalities as needed. All alarm wiring can be factory terminated to an optional screw down, alarm termination strip. The termination strip will either be mounted to the right side cabinet wall or to the plywood back board if ordered. The following is a list of optional alarms available to be installed in the cabinets.

- **Door Intrusion Alarm** - Doors can be equipped with optional intrusion alarm switches that, when connected to an alarm sending device, can send an alarm where a door is ajar or opened. See Figure 2.14.

**Figure 2.14 Door Intrusion Switch (typical view)**



This switch assembly will monitor the front door. When the door is opened and alarm will be activated. During normal access to the cabinet, the door alarm can be cancelled while the door is open. Pull the door switch plunger out to cancel the door alarm. The switch will automatically reset when the door is closed.

- **Cabinet Environmental Alarm** - This optional alarm consists of both a high and low temperature alarm sensor. The alarm provides 2 separate functions. It will monitor the internal cabinet air temperature and report alarms should the air temperature exceed factory set thresholds. It is also used to monitor the cabinet cooling and heating functioning correctly. Alarms may be the result of a failed cooling or heating fan.

Factory Set Points:

High temperature alarm = 55°C (131°F)

Low temperature alarm = 0°C (32°F)

For rectifier or power supply alarms, refer to the Power System Manual.

Figure 2.15 High & Low Temp Thermostat Assembly in 10" Depth Cabinet

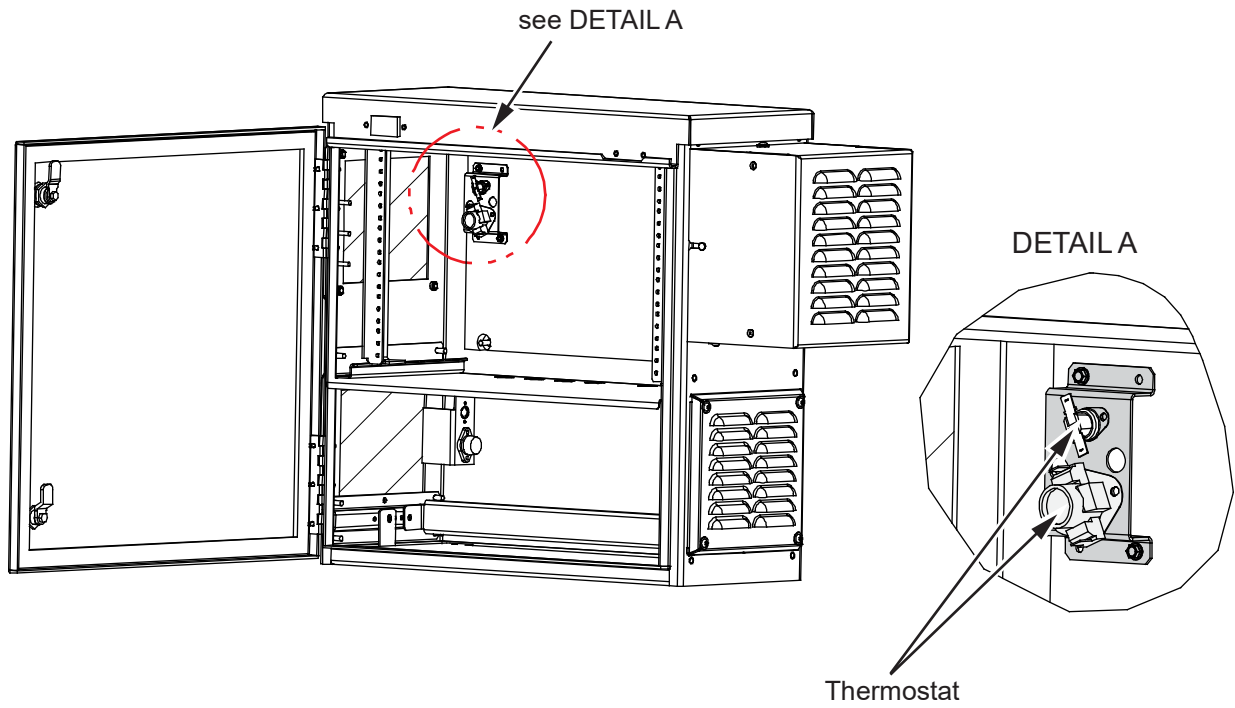
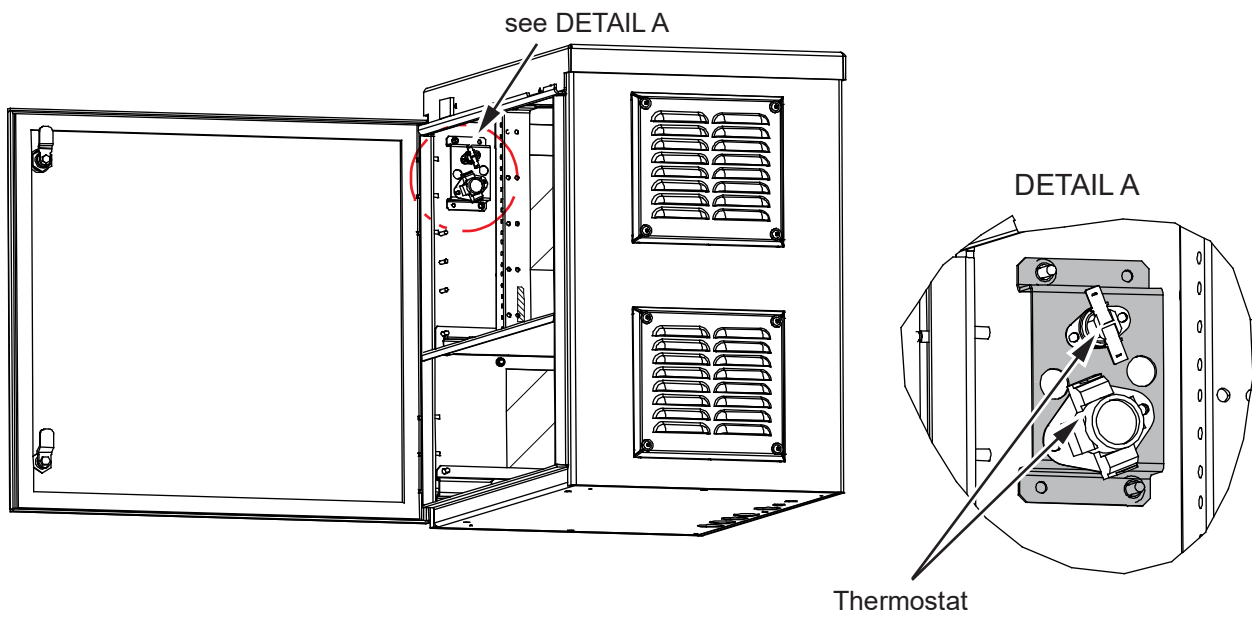


Figure 2.16 High & Low Temp Thermostat Assembly in 16" Depth Cabinet



## Mounting Options

All mounting kits are optional and must be ordered and installed separately at the site, by the installer.

- **Pad-Mounting** - A 6.83" high pad-mount base assembly is available for all enclosure sizes. The base assembly mounts under the main enclosure and will raise the enclosure 6.83" off the ground. The base is equipped with a removable front panel for access under the enclosure. This space is ideal for cable storage. Each base assembly comes with a rubber mat. The mat is placed under the base to help prevent corrosion due to the contact with the concrete pad. There are (2) different sized bases available. One is 24" wide x 10" deep, the second is 24" wide x 16" deep.
  - Vertiv™ XTE 401 Series Equipment Enclosure Pad-Mount Kit for 10" Enclosure: F1010410 (Refer to Figure 7.1 for the illustration);
  - Vertiv™ XTE 401 Series Equipment Enclosure Pad-Mount Kit for 16" Enclosure: F1010411 (Refer to Figure 7.2 for the illustration).

There are also optional "Pour in Place" pad-mount templates available to assist the installer in mounting either base assembly. The templates are designed to be mounted into the concrete before pouring. They include all anchor points and enclosure mounting hardware.

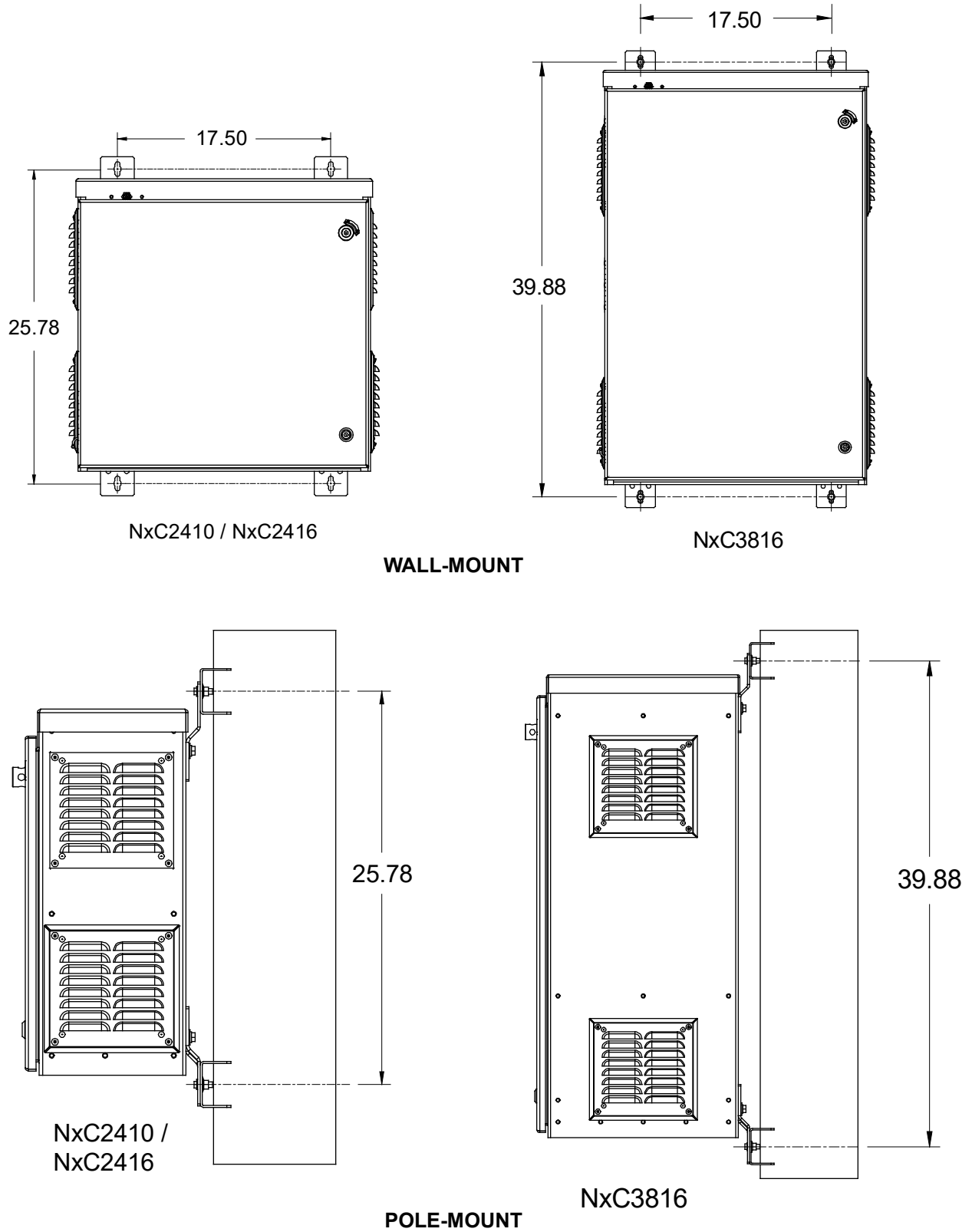
- F1010459 "Pour in Place" Pad Mount Template for a 10" deep enclosure. Refer to Figure 6.1.
- F1010460 "Pour in Place" Pad Mount Template for a 16" deep enclosure. Refer to Figure 6.2.
- **Pole-Mount Kits** - A pole-mount kit is available for use with any of the Vertiv™ XTE 401 Series Equipment Enclosures. When using this kit, the total enclosure weight, including batteries should not exceed the maximum safe weight limit of 300lbs.
  - Vertiv™ XTE 401 Series Equipment Enclosure Pole Mount Kits: F1010409. Refer to "Pole-Mounting" on page 34 and to Figure 8.2 for installation details on this option.
- **Wall-Mount Kits** - A wall-mount kit is available for use with any of the Vertiv™ XTE 401 Series Equipment Enclosures. When using this kit, the total enclosure weight, including batteries, should not exceed the maximum safe weight limit of 300lbs.
  - Vertiv™ XTE 401 Series Equipment Enclosure Wall-Mount Kit: F1010408. Refer to "Wall-Mounting" on page 36 and to Figure 9.1 for installation details on this option.
- **Stake-Mount Kits** - The optional stake-mounting kits will allow any of the Vertiv™ XTE 401 Series Equipment Enclosures to be ground mounted without pouring a concrete pad. Each kit consists of a 6" high base assembly, (2) 42" long, galvanized steel stakes and hardware. Refer to "Stake-Mounting" and to Figure 10.1 for installation details on this option.

There are (2) different sized kits available. One is 24" wide x 10" deep, the second is 24" wide x 16" deep.

- F1010505 Vertiv™ XTE 401 Series Equipment Enclosure Stake Mount Kit for 10" Enclosure
- F1010506 Vertiv™ XTE 401 Series Equipment Enclosure Stake Mount Kit for 16" Enclosure.



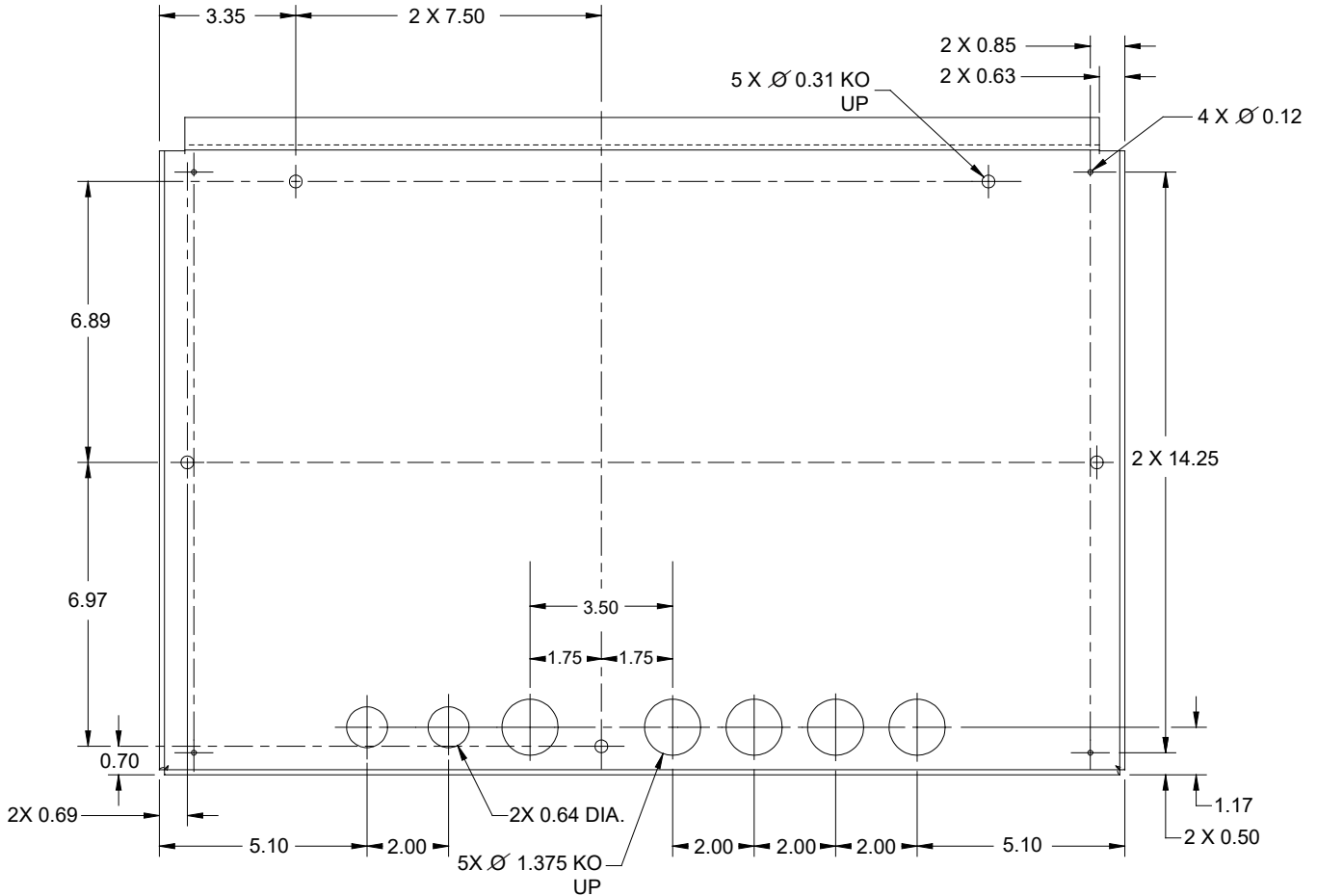
Figure 2.17 Pole- and Wall- Mount Dimensions



### Cable Entry

- Knockouts** - The Vertiv™ XTE 401 Series Equipment Enclosures have a total of seven knockouts on the bottom of the enclosure along the back wall. The knockouts are provided for cable entry. Two knockouts are 0.64" (16.28mm) in diameter and five which are 1.38" (34.93mm) in diameter. The knockouts are spaced to allow the installation of standard conduit and conduit locking rings.

**Figure 2.18 Knockouts Dimensions**

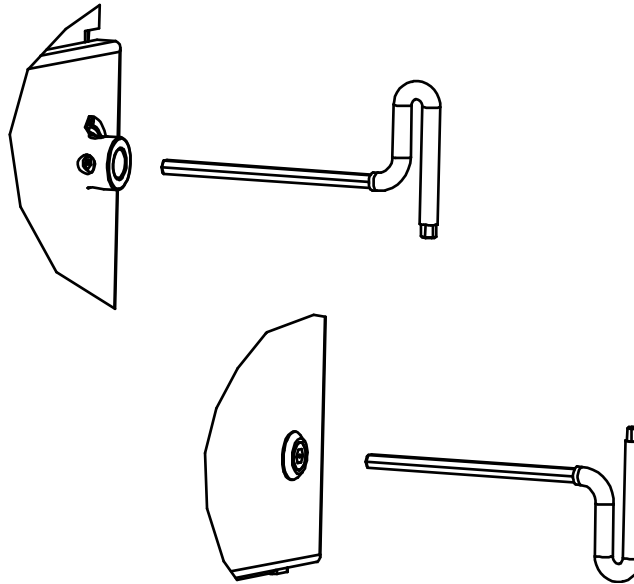


### 3 Opening and Closing the Enclosure Doors

This section describes the locking mechanisms on the doors of the enclosure and explains how to open and close the doors. Refer to this section whenever instructed to open or close enclosure doors.

**Available Latch Types** - Vertiv™ XTE 401 Series Equipment Enclosures are equipped with one 1/4-turn security latch locking mechanism (Figure 3.1). When 1/4-turn security latches are specified, one latch per door will be equipped with a bracket for customer-supplied padlock.

**Figure 3.1** 1/4-Turn Security Latches



**Opening a Door** - Perform the following steps to open a door:

**Procedure**

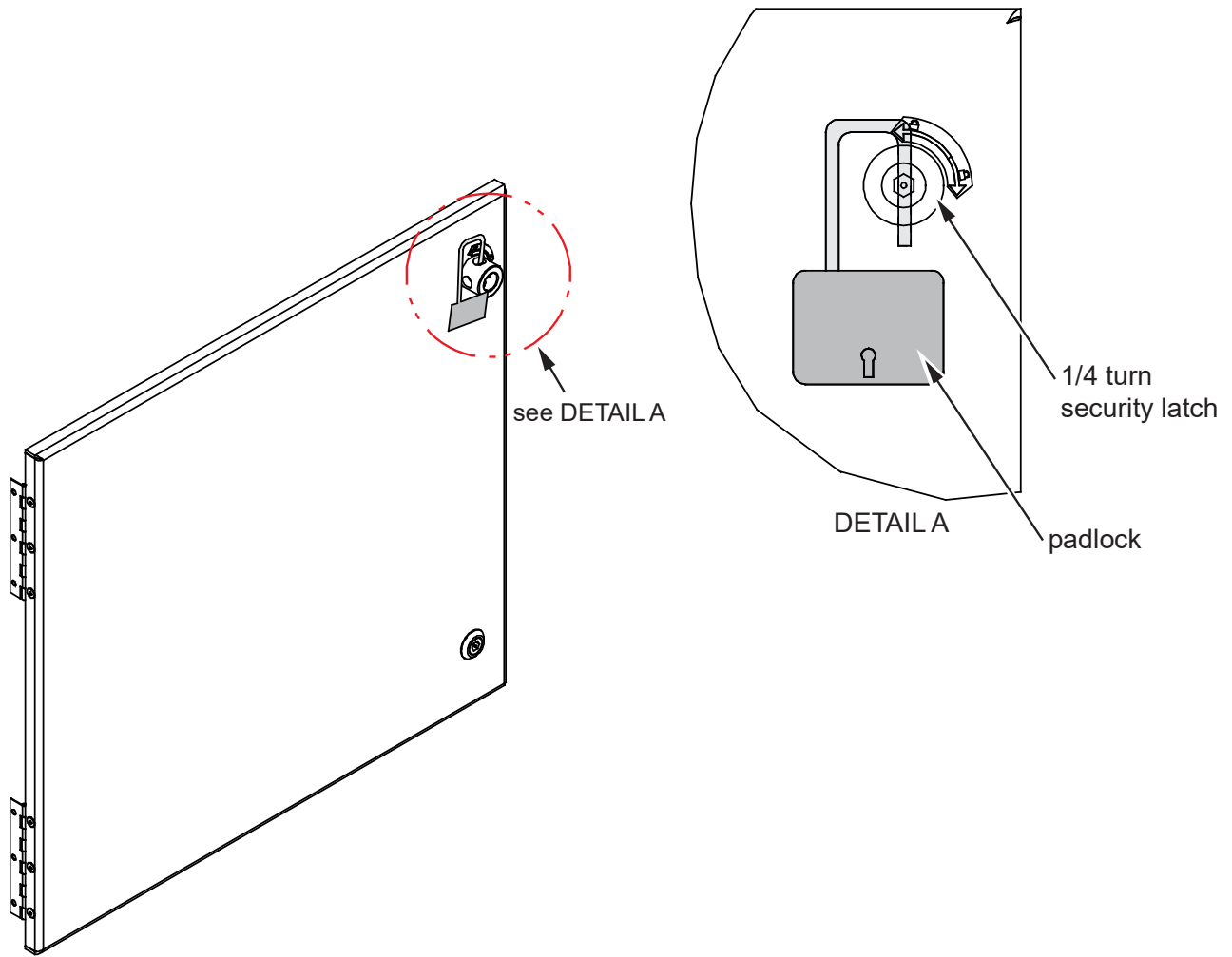
1. If required, unlock and remove the padlock from the front door latch.
2. Use the appropriate tamper-resistant wrench and turn the bolt a few degrees counter-clockwise to release the latch.
3. If using the swing handle latch, lift the latch to open the door.

**Closing a Door** - Perform the following steps to close the door:

**Procedure**

1. Close the door.
2. While holding the door closed, rotate the 1/4-turn security bolt one-quarter turn (90 degrees) toward top or bottom of the enclosure and lower the door latch into the lock bed (swing handle only).
3. Lock the door as required.
4. If required, replace padlock. Refer to Figure 3.2.

**Figure 3.2** 1/4-Turn Security Latch and Padlock



## 4 Site Selection

Consider the following when selecting an existing pad, pole, wall or stake for enclosure placement:

- The enclosure may be installed on a new or existing concrete pad, pole, wall or stake. Obtain rights-of-way and other permits (building permit, electrical permit, etc.), depending on local codes and authorities, prior to installing the enclosure.
- The mounting pad, pole, wall or stake must be installed (according to local practices) before the enclosure can be installed.

Consider the following when deciding on the location for the rooftop site:

- Obtain all necessary building permits and other local approvals as necessary.
- Select locations that will provide enough space to place any mounting equipment and enclosure, and provide safe working conditions.
- Select locations where there are no electrical lines that could touch the enclosure and energize it.

Consider the following when deciding on the location for the concrete pad:

- Place the enclosure on servitudes, on dedicated (recorded) easements, or on property owned by the company. Avoid any unrecorded easements.
- Use public safety road and street rights of way only where there is enough space to place the enclosure and provide safe working conditions. The enclosure should be easily accessible with adequate parking to ensure safety for people and vehicles. Place the enclosure where it will not create a visual or physical obstruction to either vehicles or pedestrians.
- Select locations that will minimize accidental or intentional vandalism. Consider the use of protective posts when the enclosure is located near parking areas where vehicles could back into it. Do not place the enclosure in ditches or areas subject to flooding. Do not place the enclosure in an area where the pad is subject to vehicle loads.
- Place the enclosure away from any obstruction, fence, hedge, etc. Include adequate area for craft personnel to perform maintenance procedures.
- If an area is subject to frost, choose a site free of heaving.
- When mounting the enclosure using the 42" long galvanized steel mounting stakes, caution should be taken to ensure underground utilities are located before installation begins.



**CAUTION!** When installing the enclosure using the enclosure base and stakes, ensure the site is free of any buried utilities. Call 811 before installation. Severe damage, serious injury or death can occur if buried utilities are not identified prior to installation.



**ALERT!** All enclosure grounding and ground ring must be installed prior to turn up of enclosure.

## 5 Transportation and Storage



**WARNING!** UNSECURED ENCLOSURES CAN TIP OVER PRESENTING A RISK OF INJURY OR EQUIPMENT DAMAGE.

Follow all appropriate local safety and handling practices when transporting the enclosure to a staging or installation site, or when storing it.



**ALERT!** To avoid possible damage to the enclosure, do **not** remove the packaging or pallet from the enclosure until it is delivered to the installation or staging site. Do **not** stack units for transportation or during storage.



**ALERT!** Do **not** stack enclosures while in transportation or storage as damage may result.



**ALERT!** If the covering on the package appears excessively damaged, do **not** accept the enclosure from the shipper. The damaged packaging may be an indicator that the interior of enclosure is damaged even though the exterior may seem fine.



**NOTE!** *The enclosure is shipped in protective packaging on a wooden pallet. If ordered, batteries will be shipped on a separate pallet.*

## 6 Enclosure Placement

### 6.1 Installing a Concrete Pad



**WARNING!** When pad-mounting, the compression strength of the concrete pad used must be a minimum of 4000 psi as determined by ASTM C39 test of compression strength of concrete cylinders.



**ALERT!** Due to varying enclosure sizes, before pouring concrete, confirm the pad template is properly sized for the enclosure that will be installed.

The Vertiv™ XTE 401 Series Equipment Enclosure can be installed on a concrete foundation pad, which is either pour-in-place or precast. Use concrete only for the foundation pad as substitute materials, such as reinforced plastics lack the rigidity required for enclosure placement.

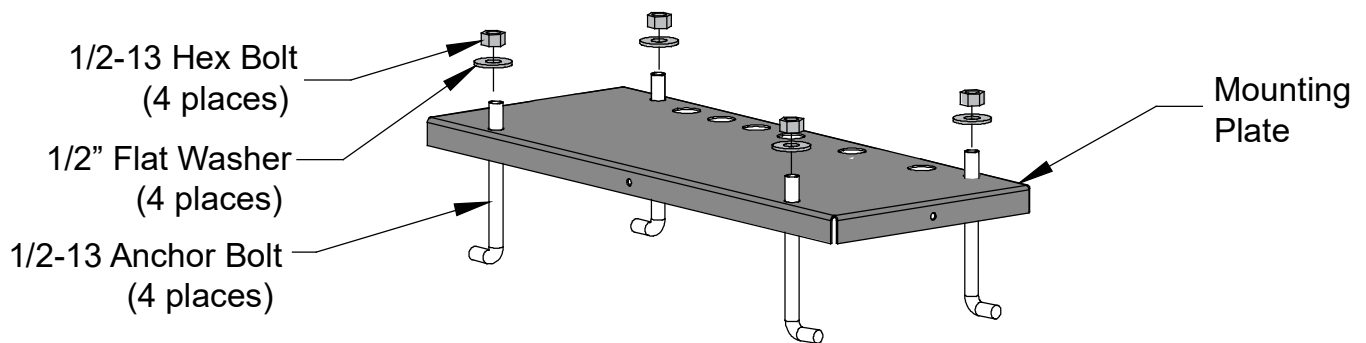
Referring to Figure 2.8 and Figure 7.2, determine the proper pad size for your application and space available. The MINIMUM recommended pad size extends 18" (457.2mm) past all sides of the enclosure. If space permits and it is desired, a larger pad can be constructed thus providing area to walk around the installed enclosure.

Referring to Figure 7.1 through Figure 7.2 as appropriate for your application, note conduit and mounting locations.

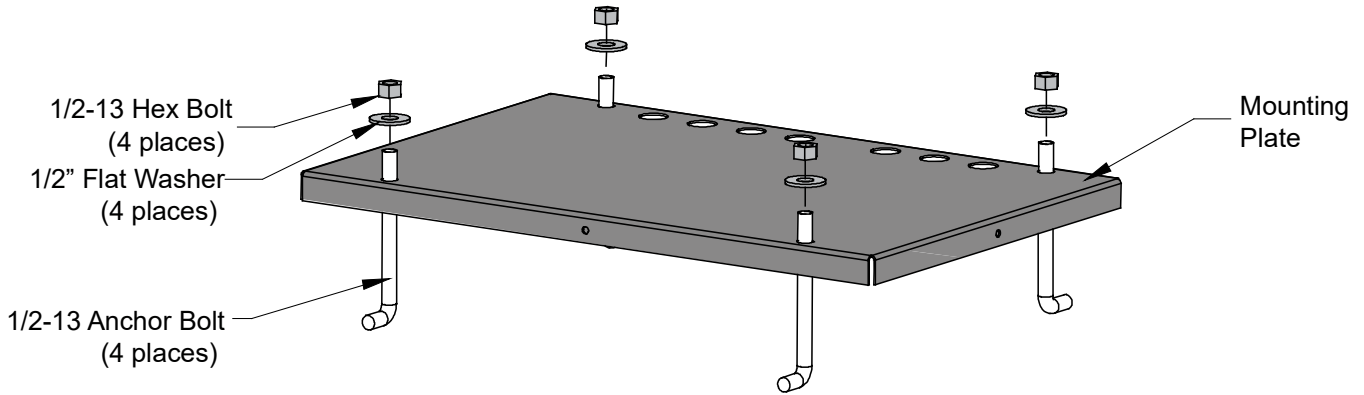
The Vertiv™ XTE 401 Series Equipment Enclosures also have optional concrete template kits available to assist in the placement of the enclosures when pouring and mounting to a concrete pad. There are (2) different "Pour in Place" pad-mount templates available to assist in the placement of conduits, ground cables, anchors and installation of the pad-mount base and enclosure.

If you are installing a 10" deep enclosure, you will require (1) F1010459 Pour in Place Pad-Mount Template Kit (see Figure 6.1). If you are installing a 16" deep enclosure, you will require (1) F1010460 Pour in Place Pad-Mount Template Kit (see Figure 6.2). These should be ordered separately. They will ship separate from the enclosure. It is recommended that the template assemblies be ordered and installed 28 days before the enclosure is to be placed. This will provide sufficient time for the concrete to harden.

**Figure 6.1 F1010459 Pour in Place Pad-Mount Template Kit**



**Figure 6.2 F1010460 Pour in Place Pad-Mount Template Kit**



Referring to Figure 6.3, prepare a form per the following steps. Follow local practices or building codes if different than the information included in this section:

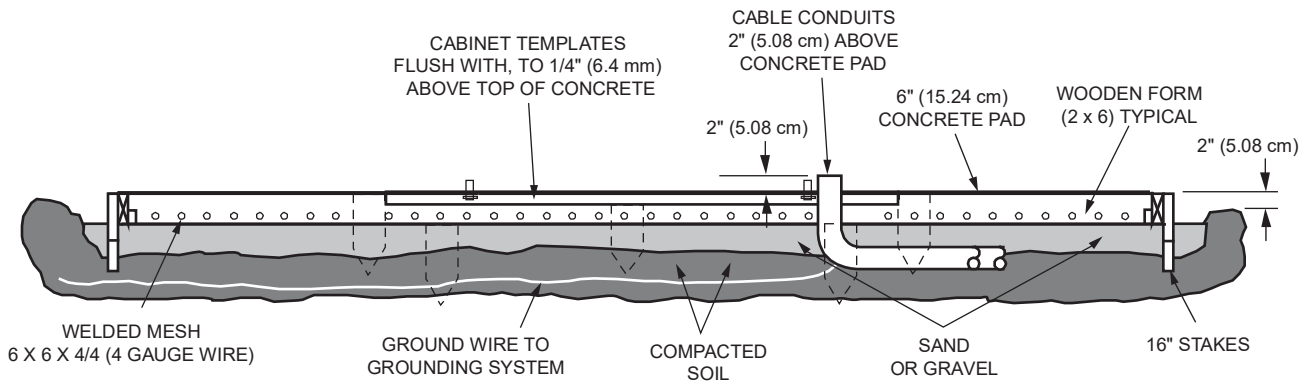
**Procedure**

1. If the soil is not firm, compact it per local practices. For a typical installation, excavate the foundation hole to a depth of 12" to 15" (30.48 to 38.1 cm).
2. Construct a level base for the pad, using a minimum of 6" (15.24 cm) of sand or gravel. The pad should be level to within 1/4" (6.35 mm) over the entire length and width.

**NOTE!** Square and level the mounting template on 4 installer supplied wooden stakes. The template should be placed with the J bolts pointing down. When in place, the top of the pad-mount templates should be flush with, and/or no more than 0.25" (1/4" in, or 6 mm) above, the top of the surrounding concrete cribbing.

The mounting template and J bolts are designed to remain in the concrete after it has cured. It will provide a flat platform for the enclosure to sit on. Ensure no concrete cures on top of the template or J bolt threads.

**Figure 6.3 Ground Level View of Typical Pad Construction**



3. Dig a trench where the cable and electrical conduit will rise into the enclosure. Excavate trenches to a depth of 30" (76.2 cm) for a standard installation, and 60" (152.4 cm) for areas where there is heavy frost.
4. Install a ring ground system around the proposed foundation pad in accordance with local practices and safety codes.



5. Place the wire mesh (5 x 4, 4 gauge) in the form according to local codes. Be sure the wire mesh is centered vertically.



**NOTE!** No. 3 ( $\frac{3}{8}$ " or 9 mm) or larger reinforcing rod, placed on 15" (38.1 cm) centers may be used in place of wire mesh.



**NOTE!** Before pouring the concrete, be sure that all the wire mesh or reinforcing bars are set approximately 2" (5.08 cm) off the bottom of the form.

6. If required per local codes, treat the area below the pad and for two feet (60.96 cm) around the perimeter against insect infestation.
7. Pour the concrete.
  - Use a high-early strength concrete mix so the enclosure may be placed three days following concrete pouring.
  - Coarse aggregate used in the concrete shall be graded from  $\frac{3}{4}$ " (1.9 cm) to No. 4 only.
  - The compression strength of the concrete must be a minimum of 4000 psi as determined by ASTM C39 test of compressions strength of concrete cylinders.
8. Cure the pad in a moist environment for a minimum of three days before enclosure installation, or according to the type of concrete used, and/or local practices. After the second day, the forms may be removed.

## 6.2 Unpacking the Enclosure

Inspect the outside of the enclosure to be sure there is no shipping damage. If there is damage, note where the damage is and how much damage there is. Follow local practices for reporting and handling damaged goods. Do not proceed with the installation. If the enclosure appears undamaged, go on to unpack and install the enclosure.

Don't remove the enclosure from the cardboard box. Dispose of the packaging according to local practices. **DO NOT REMOVE THE ENCLOSURE FROM THE PACKAGING UNTIL IT IS READY TO BE MOUNTED.**



**NOTE!** Do not install the enclosure or support any significant load before the pad is completely cured.

## 6.3 Lifting Preparation



### CAUTION!

- Follow all local safety practices while lifting the enclosure. Wear all locally approved safety gear.
- Keep bystanders away from work operations at all times.
- Do not lift the enclosure over people. Do not let anyone work, stand, or pass under a lifted enclosure.
- RISK OF ELECTROCUTION. Do not allow the lifting equipment or enclosure to touch any electrical wiring or equipment.



**CAUTION!** Two persons are needed to lift the enclosure.

## 7 Pad-Mounting

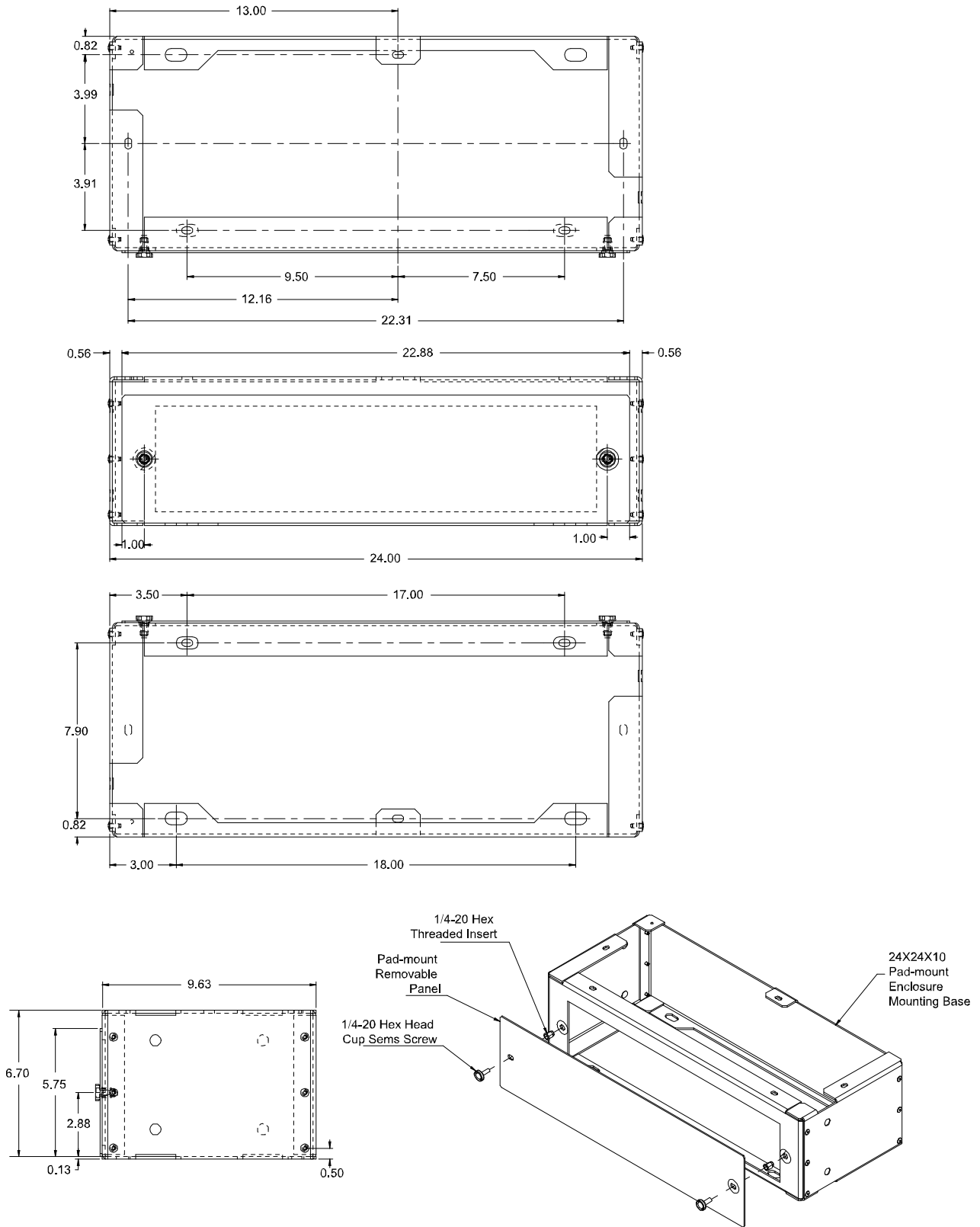
### 7.1 Pad-Mount Kit Components

There are (2) different kits available for pad-mounting the Vertiv™ XTE 401 Series Equipment Enclosures. These include either the F1010410 10" deep pad-mount kit or the F1010411 16" deep pad-mount kit. The kit required is based on the depth of the enclosure to be mounted.

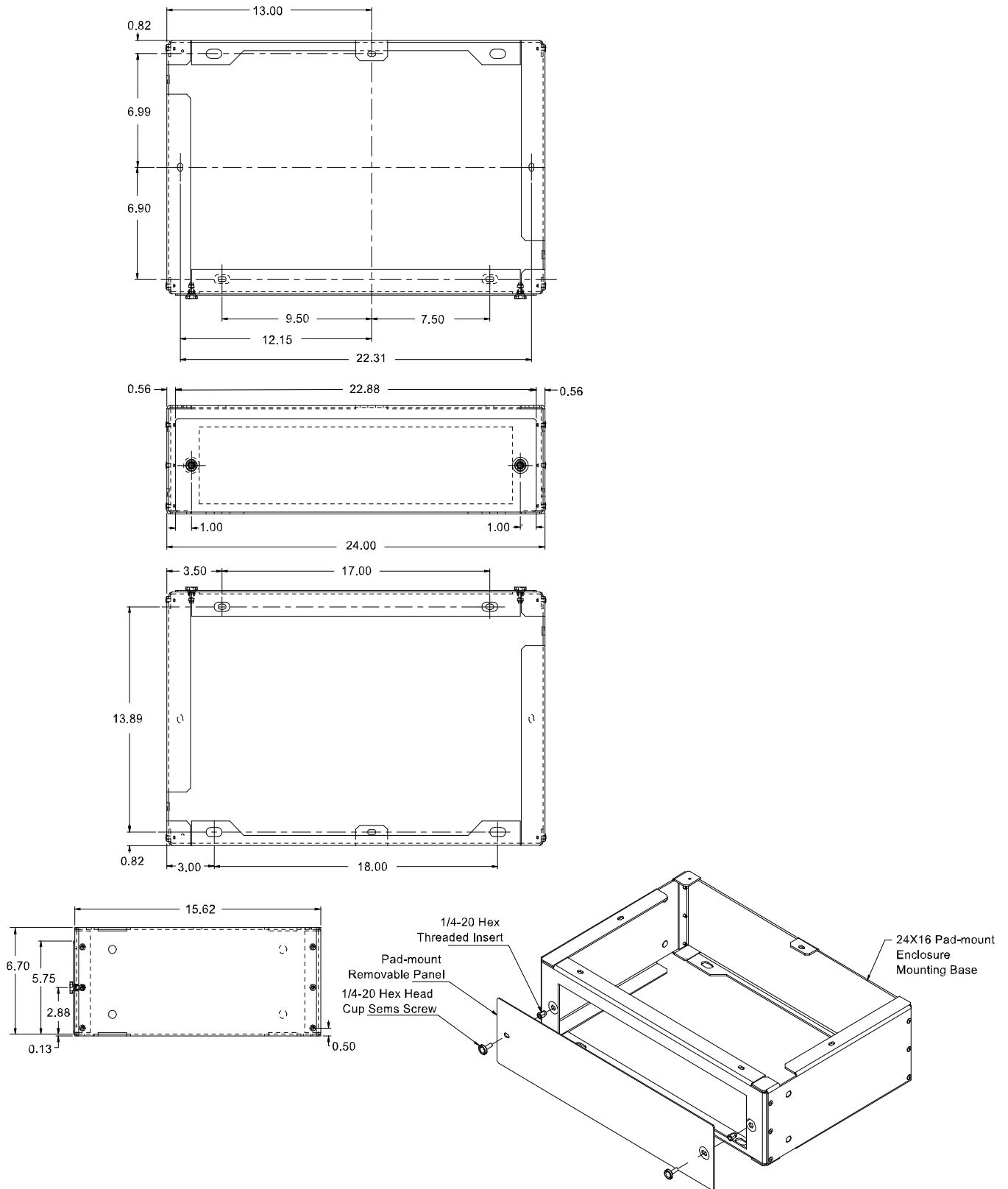
Before proceeding, verify that your kit contains all of the required components and hardware:

- **F1010410** - 10" deep pad-mount kit should include:
  - (1) 553028 6.83" h x 10.75" d aluminum pad-mount base assembly;
  - (5) 1/4" flat washers;
  - (5) 1/4-20 hex lock nuts;
  - (5) 1/4-20x.75 machine screws;
  - (1) rubber isolation mat.
  
- **F1010411** - 16" deep pad-mount kit should include:
  - 553029 6.83" h x 15.75" d aluminum pad-mount base assembly;
  - (5) 1/4" flat washers;
  - (5) 1/4-20 hex lock nuts;
  - (5) 1/4-20x.75 machine screws;
  - (1) rubber isolation mat.

Figure 7.1 Ground Level View of Typical Pad Construction



**Figure 7.2 Pad-Mount Kit Detail for 2416 Footprint Cabinet and 3816 Footprint Cabinet**



## 7.2 Pad-Mount Kit Installation Procedure

This process assumes that the Vertiv™ XTE 401 Series Equipment Enclosure "Pour in Place" pad-mount template has NOT been used or previously installed into the concrete pad.

Perform the following procedure to pad-mount the Vertiv™ XTE 401 Series Equipment Enclosure.

1. Clean all litter from the pad surface and working area.
2. Dress the cable/conduit so that it is safe from a tripping hazard and will easily enter the enclosure as it is being lowered onto the pad.
3. Using the pad-mount base as a drilling template, locate and mark the (4) mounting bolt holes. Remove the base and then drill and install (4)  $\frac{1}{2}$ " anchors per local install practices.
4. Once again ensure the pad is cleaned, then remove the (4) sets of  $\frac{1}{2}$ " mounting hardware from the anchors and set them aside for use later in this process.
5. Place the rubber isolation mat over the (4)  $\frac{1}{2}$ " studs.
6. Remove the front panel and the (2) security mounting screws from the pad-mount base assembly. Set it aside, along with (5) sets of  $\frac{1}{4}$ " enclosure mounting hardware for later use in this process.
7. Using the  $\frac{1}{2}$ " hardware removed in step 4 of this process, install the base assembly onto the isolation mat and pad. Ensure the base is level and plumb. Shim as necessary. Then tighten all  $\frac{1}{2}$ " hardware securely.
8. Lay the Vertiv™ XTE 401 Series Equipment Enclosure on its back directly behind the installed base. Existing enclosure packing material can be used to protect the finish of the enclosure during this operation. Open the front door and using proper tools, remove the cable entry and enclosure mounting knockouts to be used in this application.
9. Dress all cables up and out of the base and into the cable knockouts in the bottom rear of the enclosure. Pull all extra cable out the front door of the Vertiv™ XTE 401 Series Equipment Enclosure.
10. Slowly lift the enclosure up and on to the pad-mount base assembly. Install all (5) sets of  $\frac{1}{4}$ " enclosure mounting hardware, set aside in step 6 of this process, into the holes provided. Ensure that the pad is level and plumb and then tighten all  $\frac{1}{4}$ " hardware securely.



**CAUTION!** It is recommended that (2) people be used to place this enclosure. Caution should be taken during the cabinet lift. Once the cabinet is in place and secure, ensure that all packing material is cleared from the site.

11. Once the enclosure is installed and secure on the base, all cables should be dressed and stored inside the enclosure. All entry ports should be sealed using customer-supplied sealant or tape.
12. Close and lock the front door.
13. Re-install the base front panel using the hardware previously removed in step 6 of this process. This process is now complete.

This process assumes that the Vertiv™ XTE 401 Series Equipment Enclosure "Pour in Place" pad-mount template has been used and was previously installed into the concrete pad.

Perform the following procedure to pad-mount the Vertiv™ XTE 401 Series Equipment Enclosure.

1. Refer to "Installing a Concrete Pad" on page 25 for recommended concrete pad construction.
2. Clean all litter from the pad surface.
3. Dress the cable/conduit so that it is safe from a tripping hazard and will easily enter the enclosure as it is being installed onto the pad.
4. Remove the 1/2-13 nut and flat washers from the (4) mounting anchors cast into the concrete pad. Set the hardware aside for re-use later in this process.
5. Place the rubber isolation mat over the (4) 1/2" pad-mount template studs.
6. Remove the front panel and the (2) security mounting screws from the pad-mount base assembly. Set it aside, along with (5) sets of 1/4" enclosure mounting hardware, for later use in this process.
7. Using the 1/2-13 hardware removed in step 4 of this process, install the base assembly onto the isolation mat and pad. Ensure the base is level and plumb. Shim as necessary then tighten all 1/2 -13 nuts securely.
8. Lay the Vertiv™ XTE 401 Series Equipment Enclosure on its back directly behind the installed base. Existing enclosure packing material can be used to protect the finish of the enclosure during this operation. Open the front door and using proper tools, remove the cable entry and enclosure mounting knockouts to be used in this application.
9. Dress up all cables, pull out of the base and insert into the cable knockouts in the bottom rear of the enclosure. Pull out all extra cable from the front door of the Vertiv™ XTE 401 Series Equipment Enclosure.
10. Slowly lift up the enclosure on to the pad-mount base assembly. Install all (5) sets of 1/4" enclosure mounting hardware, that were set aside in step 6 of this process, into the holes provided. Ensure that the pad is level and plumb and then tighten all 1/4" hardware securely.



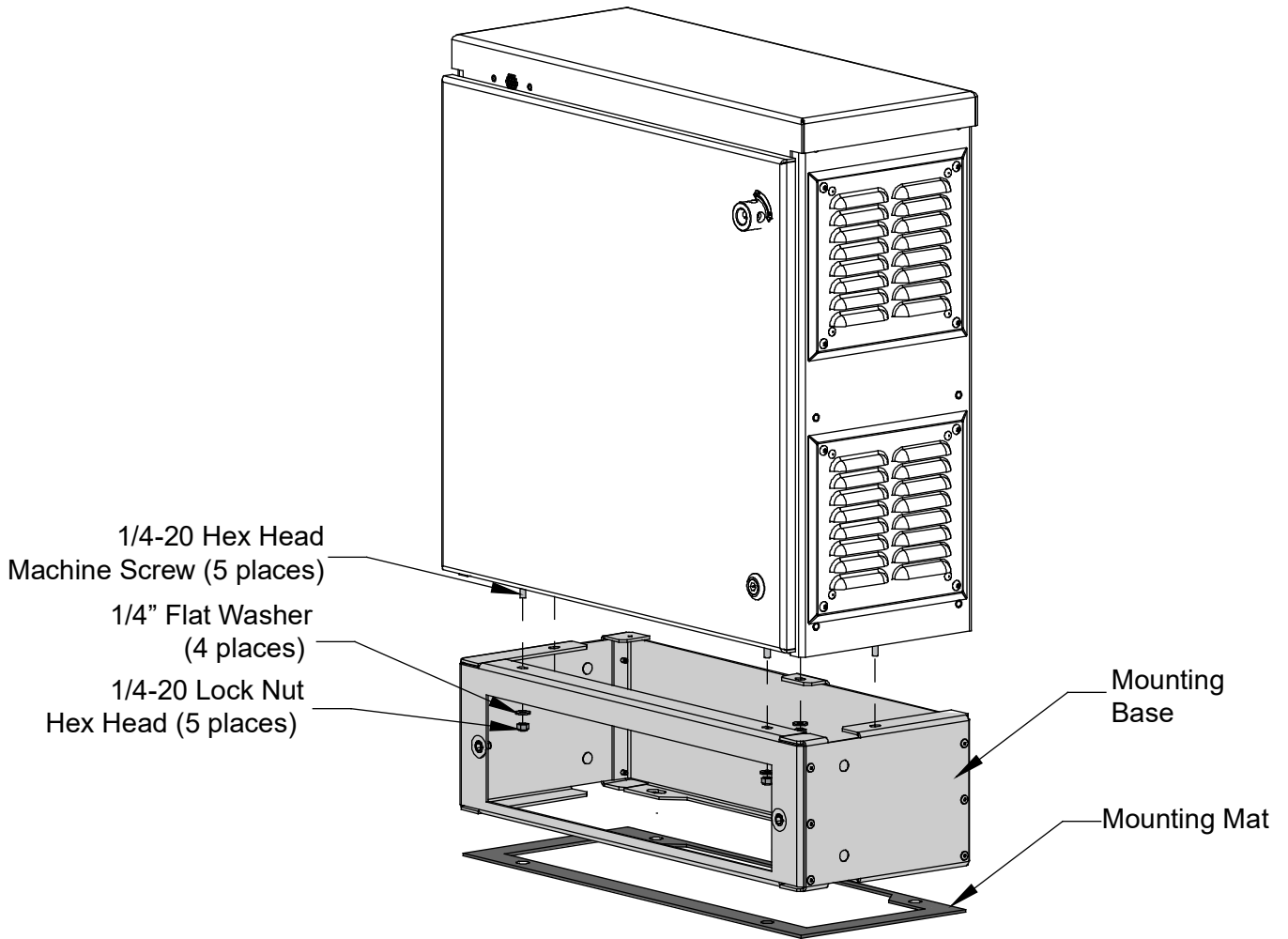
**CAUTION!** Caution should be taken during the enclosure lift. Once the enclosure is in place and secure, ensure that all packing materials are cleared from the site.

11. Once the enclosure is installed and secure on the base, all cables should be dressed and stored inside the enclosure. All entry ports should be sealed using customer-supplied sealant or tape.
12. Close and lock the front door.
13. Re-install the base front panel using the hardware previously removed in step 6 of this process. This process is now complete.



**ALERT!** If the enclosure will not be powered up for an extended period, place a heat source, such as one 150W light bulb wired in parallel inside the enclosure to prevent condensation.

Figure 7.3 Pad-Mount Assembly



## 8 Pole-Mounting

### 8.1 Pole-Mount Kit Components

Verify that the kit contains all of the required components and hardware:

- (1) F1010409 pole-mount kit assembly
- (2) off-white pole mount brackets;
- (4) wall-mount brackets;
- (4)  $\frac{3}{8}$ -16x1 machine screws;
- (4) whiz lock nuts;
- (8)  $\frac{3}{8}$ -16x1.25 hex cap screws;
- (8)  $\frac{3}{8}$ " split lock washers;
- (8)  $\frac{3}{8}$ " flat washers.

### 8.2 Pole-Mount Kit Installation

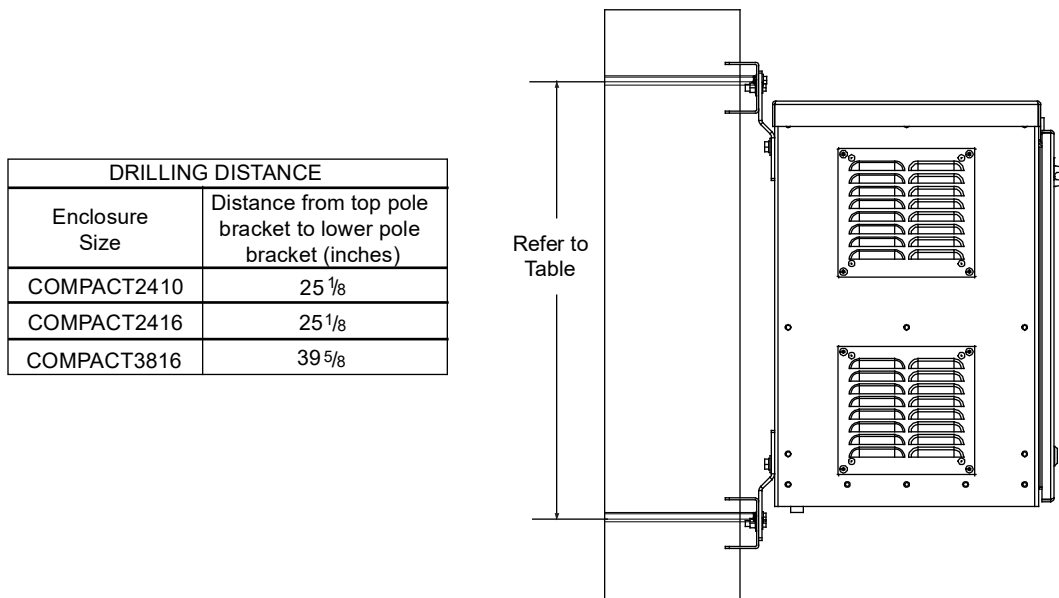
Perform the following steps when installing the Vertiv™ XTE 401 Series Equipment Enclosure on a pole:



**DANGER!** Two persons are needed to perform the pole-mount installation.

1. At the locations you have marked on the pole, drill two 0.562" diameter holes from the front of the pole through the back. Make sure that the holes are level. Refer to the drilling distance chart as shown in Figure 8.1.

**Figure 8.1 Mounting Bracket Hole Distances and Drilling Chart**

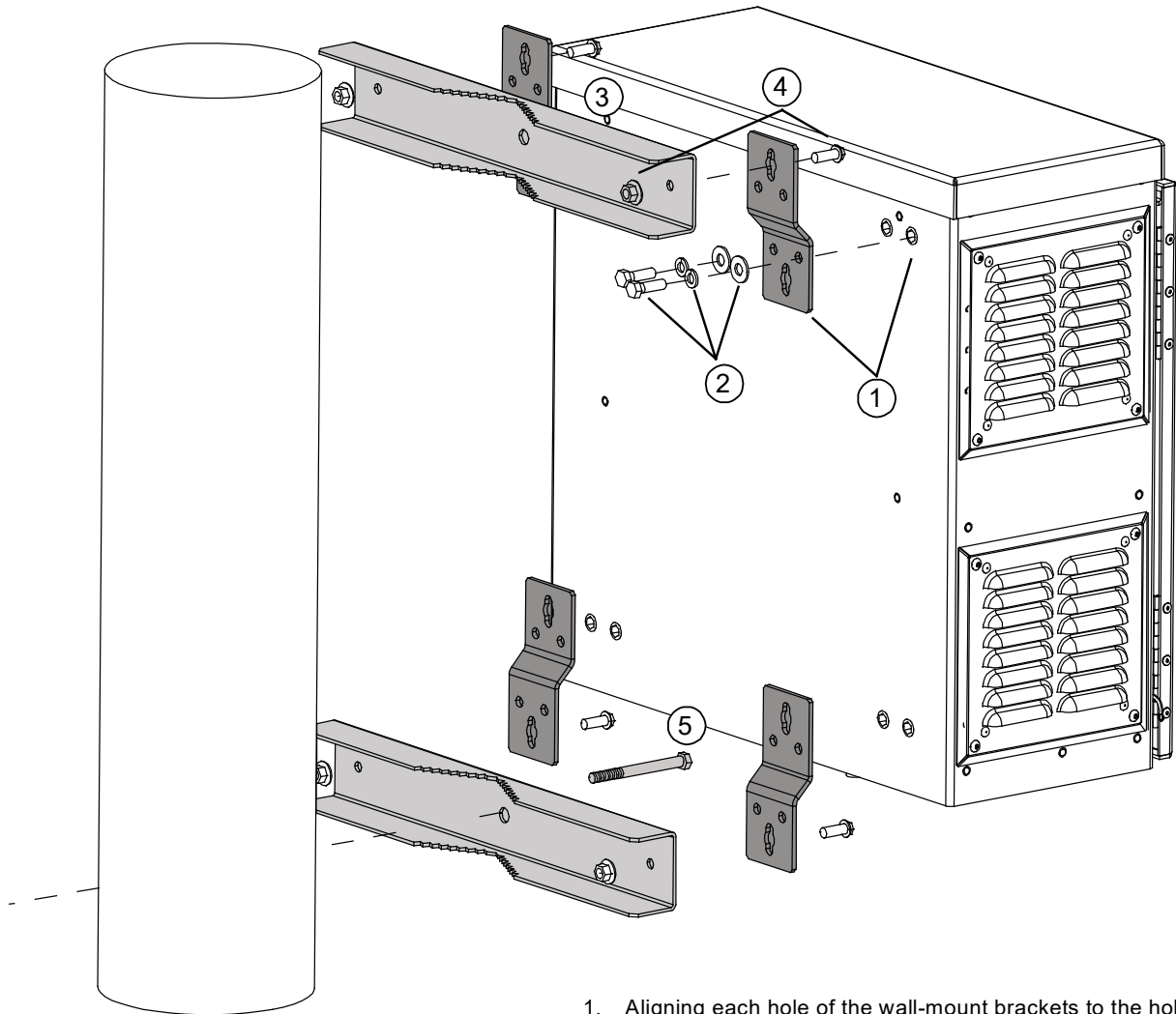


2. Align each of the four wall-mount brackets on the holes, with hexagonal inserts, at the back of the enclosure.
3. Secure each bracket with eight (8) sets of  $\frac{3}{8}$ -16x1.25 hex cap screws,  $\frac{3}{8}$ " split lock washers and  $\frac{3}{8}$ " flat washers.
4. Attach the upper wall-mount bracket to the pole-mount bracket by aligning the two holes on the pole-mount bracket to that of the wall-mount bracket, and secure each bracket with one set of  $\frac{3}{8}$ -16x1 machine screw and whiz lock nut on each side.
5. To attach the lower wall-mount bracket to the lower pole-mount bracket, follow step 4.



6. Lift the Vertiv™ XTE 401 Series Equipment Enclosure and hold it in position against the pole with the mounting holes lined up with the holes in the pole.
7. With one person supporting the Vertiv™ XTE 401 Series Equipment Enclosure, use two sets of customer-supplied 3/8" mounting hardware (two lag bolts, two nuts and two washer plates) to attach the enclosure to the pole.
8. Bring cable conduits or cable and conduits up to or into the enclosure's bottom plate using the knockouts provided. Use locally approved practices to enter this cabinet through the knockouts.

**Figure 8.2 Installing Vertiv™ XTE 401 Series Equipment Enclosure to Pole**



1. Aligning each hole of the wall-mount brackets to the holes of the enclosure, 4 places.
2. Securing wall-mount brackets to the enclosure, 8 places.
- 3-4. Attaching pole-mount brackets to wall-mount brackets, 4 places.
5. Installing enclosure to pole, 2 places.

## 9 Wall-Mounting

### 9.1 Wall-Mount Kit Components

Verify that the kit contains all of the required components and hardware:

- (1) F1010408 wall-mount kit assembly
- (4) wall-mount brackets;
- (4)  $\frac{3}{8}$ -16x1 machine screws;
- (4) whiz lock nuts;
- (8)  $\frac{3}{8}$ -16x1.25 hex cap screws;
- (8)  $\frac{3}{8}$ " split lock washers;
- (8)  $\frac{3}{8}$ " flat washers.

### 9.2 Wall-Mount Kit Installation

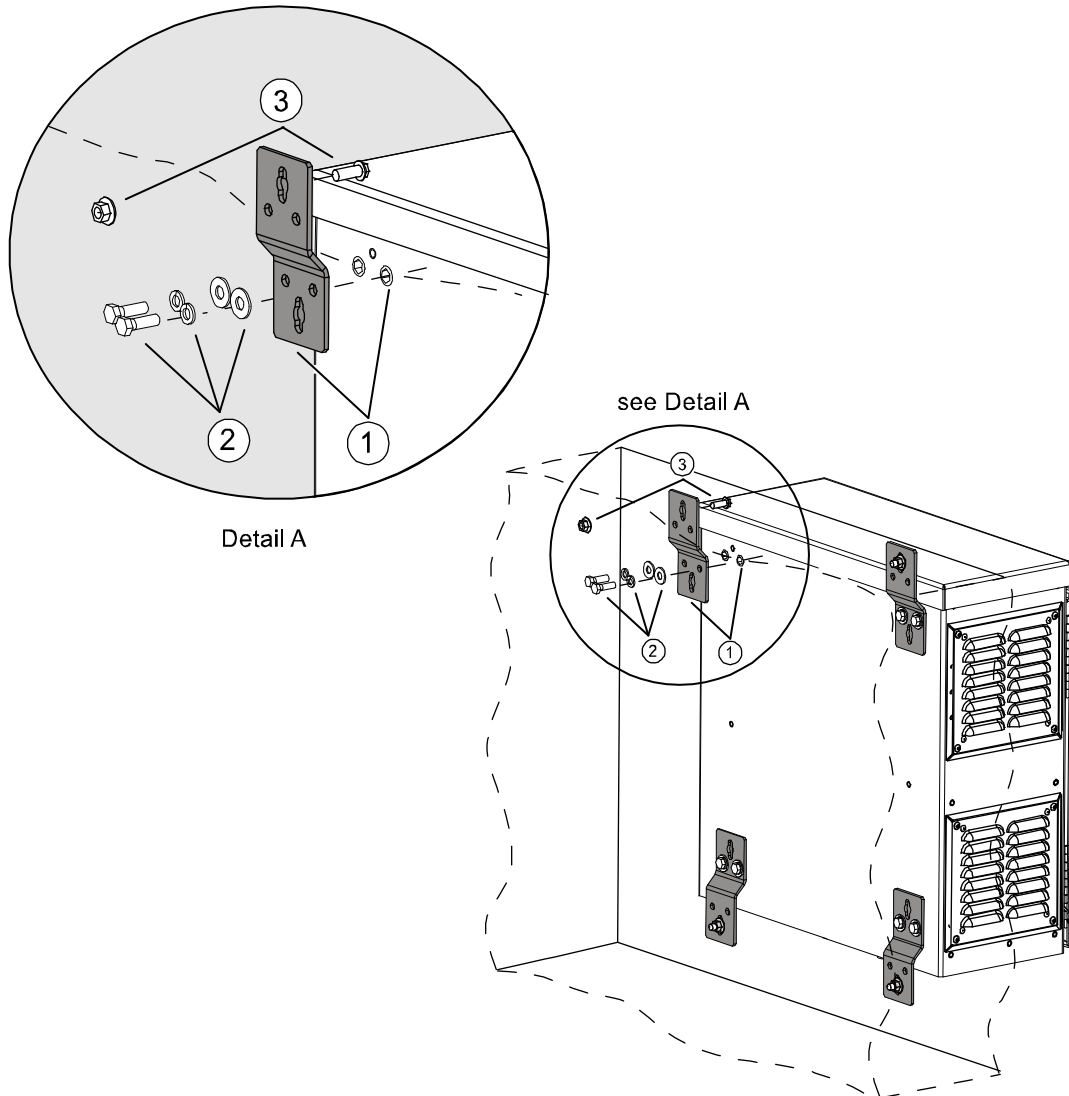
Perform the following steps when installing the Vertiv™ XTE 401 Series Equipment Enclosure on a wall:



**DANGER!** Two persons are needed to perform the wall-mount installation.

1. Drill four 0.562" holes from the front of the wall. Make sure that the holes are level.
2. Align each of the four wall-mount brackets on the holes, with hexagonal inserts, at the back of the enclosure.
3. Secure each bracket with eight (8) sets of  $\frac{3}{8}$ -16x1.25 hex cap screws,  $\frac{3}{8}$ " split lock washers and  $\frac{3}{8}$ " flat washers.
4. Lift the Vertiv™ XTE 401 Series Equipment Enclosure and hold it in position against the wall with the mounting holes lined up with the holes in the wall.
5. Attach the upper wall-mount bracket to the wall by aligning the two holes on the wall-mount bracket to those of the wall, and secure each bracket with two sets of  $\frac{3}{8}$ -16x1 machine screw and whiz lock nut on each side.
6. To attach the lower wall-mount bracket to the wall, follow step 5.
7. Bring cable conduits or cable and conduits up to or into the enclosure's bottom plate using the knockouts provided. Use locally approved practices to enter this cabinet through the knockouts.

**Figure 9.1** Installing Vertiv™ XTE 401 Series Equipment Enclosure to Wall



1. Aligning each hole of the wall-mount brackets to the holes of the enclosure, 4 places.
2. Securing wall-mount brackets to the enclosure, 8 places.
3. Attaching wall-mount brackets to wall, 4 places.

## 10 Stake-Mounting

There are (2) different kits available for stake-mounting the Vertiv™ XTE 401 Series Equipment Enclosures. These include either the F1010505 10" deep stake-mount kit or the F1010506 16" deep stake-mount kit. The kit required is based on the depth of the enclosure to be mounted.

### 10.1 Stake-Mount Kit Components

Before proceeding, verify that your kit contains all of the required components and hardware:

- **F1010505**- 10" deep stake-mount kit should include:
  - (1) 553028 6.83" h x 10.75" d aluminum pad-mount base assembly;
  - (5) 1/4" flat washers;
  - (5) 1/4"-20 hex lock nuts;
  - (5) 1/4"-20 x.75 machine screws;
  - (2) P35208 42" galvanized steel stakes;
  - (4) 3/8" lock washers;
  - (4) 3/8"-16 nuts;
  - (4) 3/8"-16 x 1.75" bolts.
- **F1010506**- 16" deep stake-mount kit should include:
  - (1) 553029 6.83" h x 15.75" d aluminum pad-mount base assembly;
  - (5) 1/4" flat washers;
  - (5) 1/4"-20 hex lock nuts;
  - (5) 1/4"-20 x.75 machine screws;
  - (2) P35208 42" galvanized steel stakes;
  - (4) 3/8" lock washers;
  - (4) 3/8"-16 nuts;
  - (4) 3/8"-16 x 1.75" bolts.



**NOTE!** Mounting on a pad offers the greatest stability for the enclosure. If you are stake-mounting the enclosure, exercise care and extra attention when levelling the enclosure.

### 10.2 Installation Tools

- equipment to dig a trench;
- 216-type tool or a 3/8" thin-walled socket driver or wrench;
- crescent wrench;
- 9/16" wrench and 9/16" socket and ratchet;
- sledge hammer and stake pounder.

## 10.3 Stake-Mount Kit Installation

Perform the following steps when installing the Vertiv™ XTE 401 Series Equipment Enclosure on a stake:

1. Dig a rectangular hole with approximately the dimensions listed in Table 10.1.

**Table 10.1 Hole Dimensions**

length:	40 inches (102 cm)
width:	18 inches (46 cm)
depth:	1.50 inches (3.8 cm) or less



**ALERT!** There should be about 5" (13 cm) between the bottom of the doors and the finished grade level.

2. Place the cabinet base over the cable loop or cable ends that extend from the ground.
3. Mark the approximate locations on the ground where the stakes would mount on the inside of each side of the enclosure (as shown in Figure 10.1), and lift the enclosure out and away from the hole.
4. Pound the mounting stakes into the ground. In the locations indicated by the marks you have made, so that the stakes will protrude at least 4" (10 cm) above the finished grade. Take special care to drive the stakes straight into the ground.



**WARNING!** When stake-mounting the enclosure, be careful not to damage the cable when driving the stakes into the ground.

5. If local bonding and grounding practices require a ground rod, install it and attach a sufficient length of 6 AWG copper wire to the ground rod with a ground rod clamp, per local practices.
6. Place the enclosure over the cable loop that extends from the ground, and align the mounting locations on the side of the enclosure with the mounting holes provided on the mounting stakes.



**NOTE!** It may be necessary to adjust the mounting stakes slightly to align the holes properly.

7. Use four (4) sets each of 3/8-16 hex head screws and 3/8-16 hex nuts, 3/8-16 split lock washer and 3/8-16 flat washers to secure the stakes to the pad-mount assembly. Refer to Figure 7.3.
8. Route all cables into the appropriate enclosure knockout and place the enclosure on top of the mounting base. Align the base and enclosure and tighten all mounting hardware.
9. Secure all cables inside the enclosure. (One cable tie-down bracket is provided in the center of the enclosure. Another cable tie-down bracket is provided in the base.)
10. Use five (5) sets each of 1/4-20 machine screws, 1/4" flat washers and 1/4-20 hex lock nuts to secure the pad-mount assembly to the enclosure. Refer to Fig. 14.
11. Backfill around the outside of the enclosure with soil. At final grade, the top 5" (13 cm) of the pad-mount assembly should be above ground, and the bottom 1.50" (3.8 cm) or less should be below ground.
12. Place gravel inside the enclosure or as local practices apply.



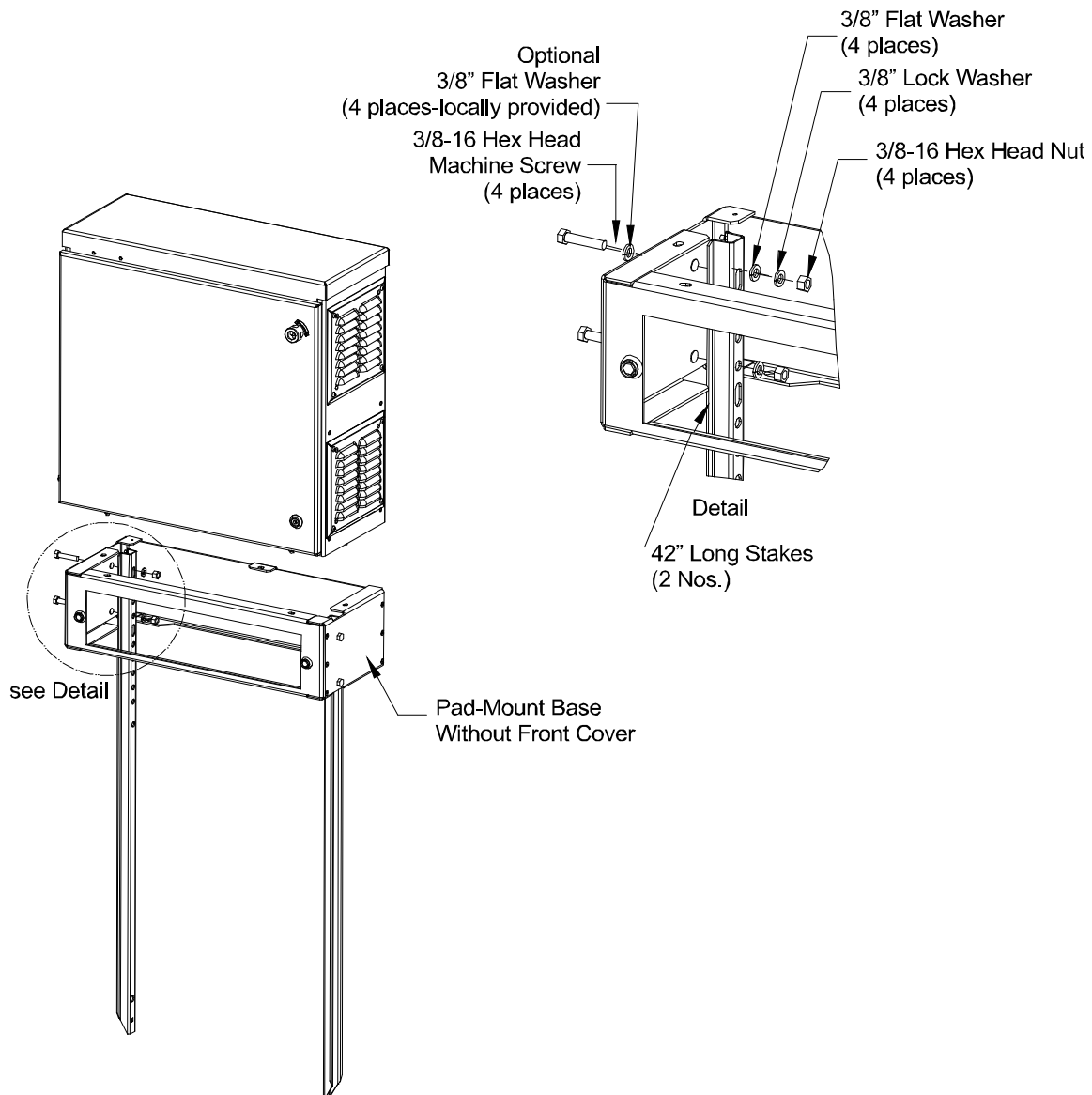
**NOTE!** If desired, add a fill to the mounting base per local practices that apply. Several inches of gravel is common.

## 10.4 Cable Preparation, Grounding and Splicing

Perform the following steps to complete the installation of the enclosure:

1. Prepare the cables according to local practices.
2. Perform all remaining bonding and grounding procedures according to local practices. A ground bar is provided at the base of the enclosure.
3. Perform all splicing operations as applicable according to local practices.

**Figure 10.1** Installing Vertiv™ XTE 401 Series Equipment Enclosure to Stake-Mount Assembly



# 11 AC Power

## 11.1 Safety Precautions



### **DANGER! Risk of Electrical Shock, General**

- All ground connections must be installed and verified, prior to connecting any power cables (AC or DC) and turning-up of enclosure.
- Before installation, the AC grounding electrode system must be bonded to an AC main service power neutral/ground bus. Contact your local power company or local practices for information about codes or restrictions for your installation.
- When connecting any discrete power connection, make the connection first with the ground/return and break last with ground/return.
- Remove rings, metallic wrist bands, or bracelets, etc.



### **DANGER! Risk of Electrical Shock, AC**

- Proper actions, include, but not limited to:
  - Verify before contacting the enclosure that no current leakage or ground fault condition is present.
  - Verify a proper ground is in place.
  - Verify for AC hook-up, all enclosure circuit breakers are OFF and the utility incoming feed is OFF.
- Use a trained licensed electrician.



### **DANGER! Electrical Hazard**

Observe all safety precautions as specified by local building codes and the National Electrical Code (NEC). All procedures should be performed by a licensed electrician. If local building codes specify procedures different from those in this section, follow local codes.

## 11.2 Enclosure AC Schematic

The complete system schematics are included with each enclosure.

## 11.3 Grounding the Enclosure



**ALERT!** Grounding should be accomplished according to local practices and in accordance with the latest NEC codes.

All enclosure grounding and ground ring must be installed prior to turn up of enclosure.

The enclosure should be grounded to an external ground ring.



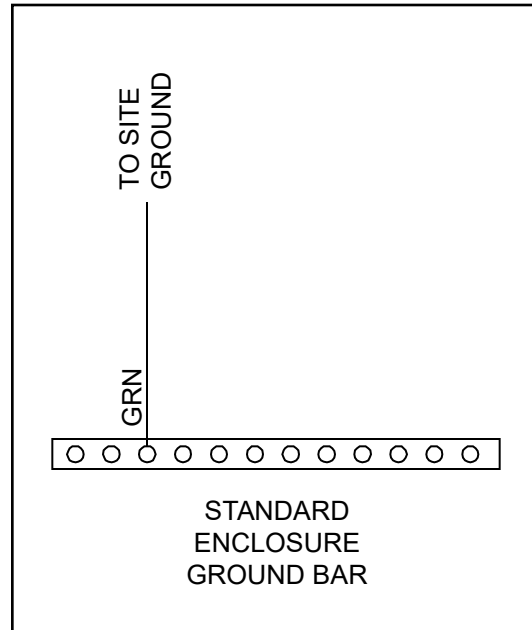
**NOTE!** *The internal frame and external enclosure are factory grounded to a ground bar located inside the enclosure. Refer to Figure 11.1.*

### **Ground Bar Locations**

Enclosures are equipped with a ground bar located at the side of the enclosure. This ground bar may be designated as the enclosure's Master Ground Bar (MGB) (depending on local practices).

### **Procedure**

For enclosures with one 12-position ground bar, the ground bar is to be connected to the ground ring.

**Figure 11.1 Typical Enclosure Grounding**

## 11.4 AC Input Connections



**DANGER!** Adhere to Safety Precautions” on page 41.

### **General**

Various AC input configurations and kits are available. Illustrations are provided for typical AC input configuration options. Select the proper illustration from those presented in this section for the AC input configuration furnished in your enclosure. Refer also to the schematic drawings shipped with your enclosure for a detailed AC wiring diagram.

Refer to Figure 11.2 for AC input cable entry into the various enclosure configurations. Refer also to the pad template illustrations in “Installing a Concrete Pad” on page 25.

Make connections per the current edition of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC), and applicable local codes.

The following procedure shall be performed by a trained licensed electrician.

### **General Procedure**

1. Use a non-contact voltage detector to verify the enclosure is safe.
2. Verify that the enclosure is properly grounded.
3. Verify that all breakers feeding the enclosure and all breakers within the enclosure are in the OFF position.
4. Refer to the schematic drawings shipped with your enclosure for a detailed AC wiring diagram. See also the typical illustrations provided after this general procedure.
5. Determine the AC cabling route into the enclosure for your installation site. Remove access panels as required to access the AC input routing and connection points.

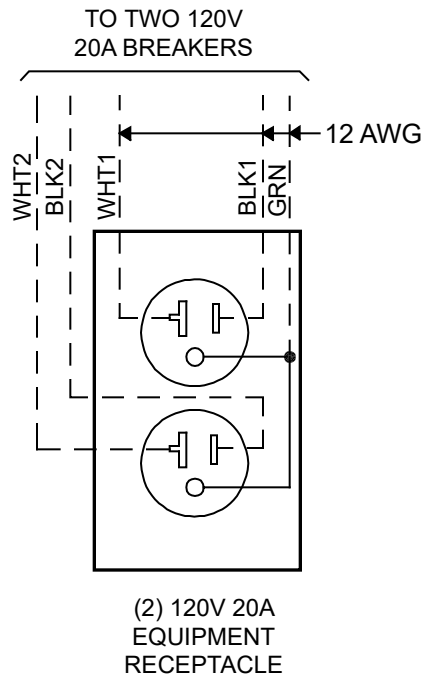


6. Pull the AC Power and Ground Cables into the enclosure.
7. Connect the required feeds per the schematic drawings shipped with your enclosure and the typical illustrations provided after this general procedure.

### **AC Input Junction Box - Typical Wiring (120VAC/15A)**

Customer AC input connections are made in the equipment receptacle box (120VAC, 60 Hz, 20A services). See Figure 11.2.

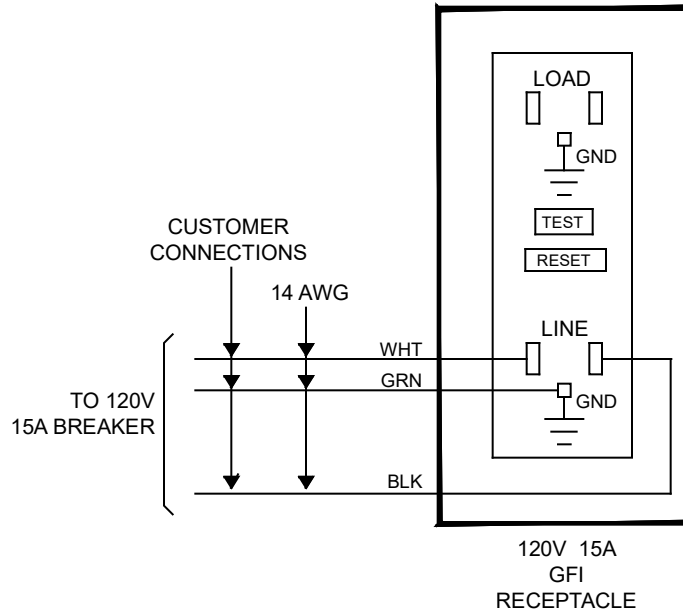
**Figure 11.2 AC Input Junction Box - Typical Wiring Single Feed (120VAC/20A)**



### GFI Receptacle Kit - Typical Wiring (120VAC/15A)

Customer GFI receptacle connections are made in the GFI box (120VAC, 60 Hz, 15A service). See Figure 11.3.

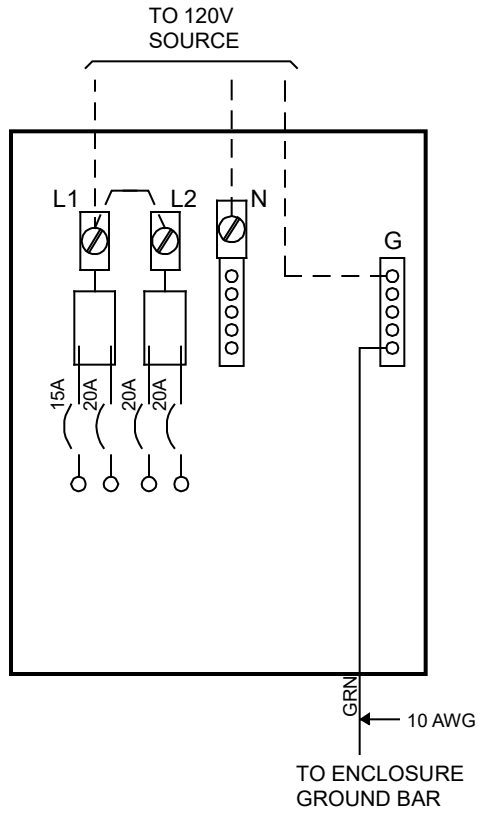
**Figure 11.3** GFI Receptacle Kit - Typical Wiring (Single Feed)



### 2-4 Position Load Center Kit - Typical Wiring

Provides a 120VAC, 60 Hz, 70A, 2-4 position load center. Depending on enclosure configuration, the load center may be located in the Equipment Compartment. See Figure 11.4.

**Figure 11.4** 2-4 Position Load Center Kit - Typical Wiring



## 12 Installing and Connecting Batteries

### 12.1 Safety Precautions



**DANGER! ELECTRICAL HAZARD. Risk of serious injury and/or equipment damage.**

- Exercise extreme care when handling the batteries and connecting them to the string. Two people are recommended for lifting and placing batteries. Wear heavy gloves and safety glasses while lifting the batteries. Handle each battery ONLY by its lifting slot. Keep hands well away from the connector posts.
- Arcing is possible during battery connection procedures. Use heavy gloves during all procedures involving the batteries to avoid potential injury. Do not wear rings, metallic wrist bands or bracelets when working on batteries. Do not allow metal objects to rest on the batteries or to fall across the terminals.
- If equipped, make sure that any battery disconnect breaker is set in the “OFF” position or that any battery disconnect connector has been plugged from the rectifier.



**DANGER! Electrical and Explosion Hazard.**

Batteries can be a lethal source of electrical power under certain conditions. Batteries are electrically live at all times.

Although the voltages are not hazardous, the batteries can deliver large amounts of current. Even if the case is damaged, the battery is capable of supplying high short-circuit current.

### 12.2 General

Vertiv™ XTE 401 Series Equipment Enclosures can accommodate either -48VDC or +24VDC battery plants. Batteries can be installed directly on the enclosure floor or in an optional floor mounted battery tray assembly. The Vertiv™ XTE 401 Series Equipment Enclosures are capable of venting 21 ml/min of hydrogen to maintain a maximum concentration of 1% or less per the requirements of Telecordia GR-487 CORE Issue3. Any installed battery plant must not exceed a total of 21 ml/min of hydrogen generation, otherwise there is risk of exceeding 1% safe concentration level in the battery compartment and or enclosure.

Vertiv does offer (3) standard battery plants for use in these enclosures that have been tested and will meet the outgassing requirements mentioned above. These include a 12Ah, a 30Ah and a 45Ah battery plant. These are available in either +24VDC or -48VDC. However the enclosure can accommodate any customer-supplied battery system as long as it will fit and meet the outgassing requirements.

Before installing batteries, refer to:

- The schematic drawings shipped with your enclosure for a wiring diagram.
- The battery vendor’s documentation set for installation and testing instructions.
- Battery vendor’s documentation set for battery safety precautions and notices.

### 12.3 Installing Batteries

The 12VDC top post batteries are installed on the floor of the enclosure. Refer to Figure 12.1.



**NOTE!** The enclosure is not shipped with batteries installed. The batteries are to be installed in the field.



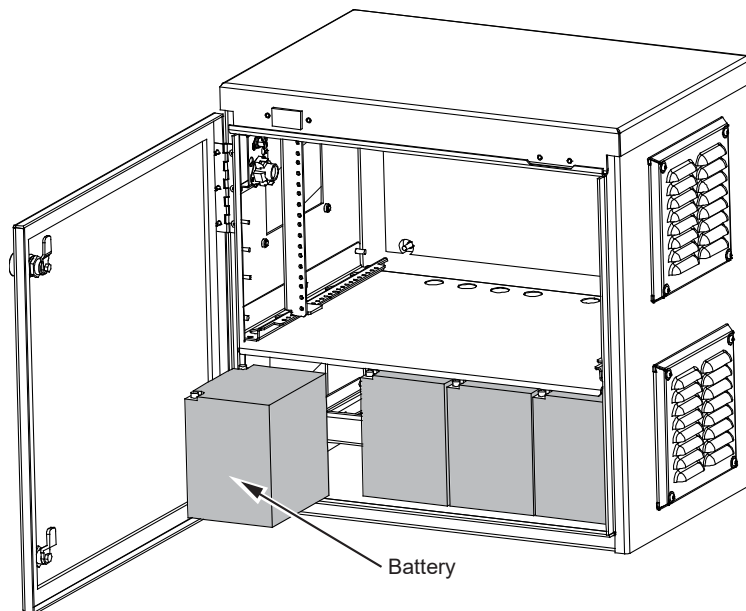
**NOTE!** The maximum battery rating and weight that the system has been designed and tested to is a 45Ah battery weighing 160lbs.

#### **Procedure**

1. Open the enclosure’s door.

2. Ensure all battery intercell cables, lugs, rectifier cables and hardware are disconnected from each battery module.
3. Ensure that all the intercell cables, lugs and hardware are insulated to ensure the battery terminals cannot be shorted during the battery installation.
4. Using a Digital Multimeter (DMM), measure the battery voltages to make sure all batteries are in good condition. A good battery will indicate approximately 12.5VDC. Per internal battery procedures, replace any battery measured at less than 11.0VDC.
5. Coat all battery terminals with an anti-oxidation compound (NO-OX-ID® "A Special").
6. Re-install the battery intercell cables, lugs and hardware to the post of each battery module that will be mounted towards the rear of the cabinet. Leave the opposite end of the intercell cable hanging loose for connection once the modules are slid into the battery chamber.
7. Ensure all rectifier cables and battery intercell cables will be accessible from the front of the enclosure after all the batteries modules are positioned.
8. Install the batteries modules one at a time into the battery chamber.
9. When installed connect all intercell cables and rectifier cables per the enclosure schematic diagram.

**Figure 12.1 Battery Placement in Battery Tray(s) on the Floor of the Enclosure**



**NOTE!** GNB Marathon M12V30 batteries are used for presentation.

## 12.4 Wiring Batteries

### **-48VDC Systems**

**ENCLOSURE IS PRE-WIRED FOR -48VDC BATTERY STRING INSTALLATION ONLY.**

Refer to Figure 6.3 as this procedure is performed.



**NOTE!** Refer to the documentation provided with the Power System and install the Battery Charge Temperature Compensation Probe (if furnished) as the batteries are being cabled.

#### **Procedure**



**CAUTION!** To prevent arcing, the positive (+) battery cables must be connected to the positive (+) battery terminals and the negative (-) battery cables must be connected to the negative (-) battery terminals.

1. For each battery string, locate the pre-wired positive (+) battery cable. Connect this cable to the positive (+) battery terminal of the fourth battery (right most). See Figure 6.3.
2. Before performing the next step, ensure the battery connector is disconnected from the power system.
3. Strap batteries together and locate the pre-wired negative (-) battery cable. Connect this cable to the negative (-) battery terminal of the first battery (left most). See Figure 6.3.
4. Using a torque wrench, tighten all battery hardware per manufacturer's specifications.
5. For each string, verify the connections for proper polarity.
6. Install the covers on the batteries.
7. Reinstall any braces and/or covers removed to install the batteries.
8. If installed, connect battery connector to power system.
9. Close and secure the front door.

### **+24VDC Systems**

**ENCLOSURE IS PRE-WIRED FOR +24VDC BATTERY STRING INSTALLATION ONLY.**

Refer to Figure 12.2 as this procedure is performed.



**NOTE!** Refer to the documentation provided with the Power System and install the Battery Charge Temperature Compensation Probe (if furnished) as the batteries are being cabled.

#### **Procedure**

1. For the first battery string, connect a battery interconnect busbar between the left two batteries as shown in Figure 12.2.
2. For the second battery string, connect a battery interconnect cable between the right two batteries as shown in Figure 12.2.



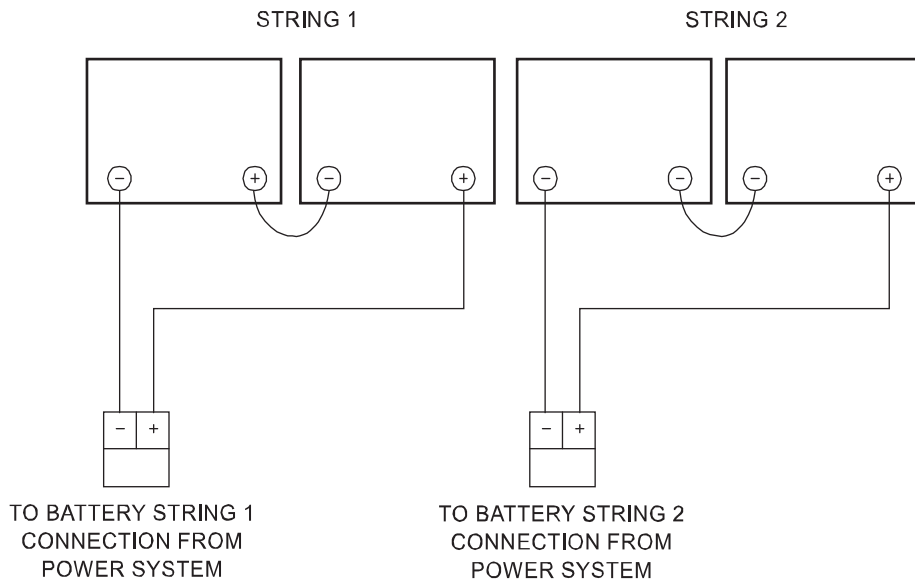
**CAUTION!** To prevent arcing, the positive (+) battery cables must be connected to the positive (+) battery terminals and the negative (-) battery cables must be connected to the negative (-) battery terminals.

3. For the entire battery string (string 1 and string 2), locate the two pre-wired negative (-) battery cables. Connect one negative (-) battery cable to the negative (-) battery terminal of the first battery. Connect the remaining negative (-) battery cable to the negative (-) battery terminal of the third battery. See Figure 12.2.
4. For each battery, ensure the battery connector is disconnected before performing the next step.

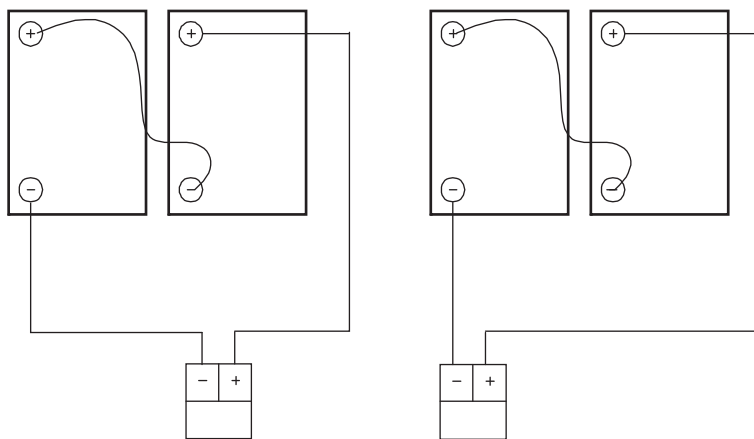
5. For the entire battery string (string 1 and string 2), locate the two pre-wired positive (+) battery cables. Connect one positive (+) battery cable to the positive (+) battery terminal of the second battery. Connect the remaining positive (+) battery cable to the positive (+) battery terminal of the fourth battery. See Figure 12.2.
6. Using a torque wrench, tighten all battery hardware per manufacturer's specifications.
7. For each string, verify the connections for proper polarity.
8. Reinstall any braces and/or covers removed to install the batteries.
9. Close and secure the front door.

**Figure 12.2 +24VDC Battery String Wiring Diagram Options**

(TOP VIEW)



**OPTION 1  
BATTERIES**



**OPTION 2  
BATTERIES**



## 13 Maintenance and Replacement Procedures

### 13.1 Field Replacement Parts

**Table 13.1 Field Replacement Parts**

Part Number	Description
129831	1/4-turn door actuator, hex/pin, black
129832	1/4-turn door actuator, hex/pin, black, with pad lock bracket
123834	1/4-turn door actuator, 7/16" can wrench, black
123833	1/4-turn door actuator, 7/16" can wrench, black, with pad lock bracket
P92538	door intrusion alarm micro switch
145219	Heat Exchanger Replacement Fan, External, 24VDC
145220	Heat Exchanger Replacement Fan, Internal, 24VDC
145221	Heat Exchanger Replacement Fan, External, 48VDC
145222	Heat Exchanger Replacement Fan, Internal, 48VDC
145255	Fan Cooling System Replacement Fan, 24VDC
145254	Fan Cooling System Replacement Fan, 48VDC
144585	Replacement Fan Air Filter for any fan cooling system
144596	Replacement Air Filter for louvered vents
146949	Battery Heater Pad - 10" deep cab
146960	Battery Heater Pad - 16" deep cab
556186	Battery Heater Pad 5Amp Fuse
111062	Battery Heater Pad T'Stat
P61030	High Temp T'stat
120317	Low Temp T'Stat
145047	120V AC Surge Protector
140669	Phoenix Dual Surge Protector
143266	Coax Protector

### 13.2 Battery Maintenance (+24VDC and -48VDC Enclosures)

#### **Procedure**

1. Make sure that the batteries and battery area are clean and dry.
2. Inspect the battery terminals. Make sure that the battery terminals are clean and the connections are tight. If necessary, clean and tighten the terminals in accordance with local practices, using approved cleaning solution. Reapply antioxidant compound (NO-OX-ID™ or equivalent).
3. In high discharge rate applications, or in areas subject to high vibration, periodically check battery terminal tightness.



**NOTE!** Tighten all battery terminal adapter post nuts to the torque specifications specified by the battery manufacturer only.

4. Keep records of battery and cell voltages as required by battery manufacturer and local practices to monitor long-term changes in battery condition. To ensure battery warranty protection, keep any additional records as required by the battery manufacturer. Refer to the Battery Installation and Maintenance Record supplied with the batteries.

## 13.3 Filter Maintenance and/or Replacement

When the Vertiv™ XTE 401 Series Equipment Enclosure is equipped with either vented or fan cooling systems, the enclosure will be equipped with filters. The filters should be cleaned on a regular basis in accordance with standard company operating procedures.

### **Filter Cleaning**

#### **You Will Need**

To clean the filter, you will need the following tools:

- Flat screwdriver (0.13 dia. approx.) to remove louvered side plate assembly tamper-resistant screws.
- Compressed air, or a soft brush, or water and detergent or a vacuum cleaner.

#### **Procedure**

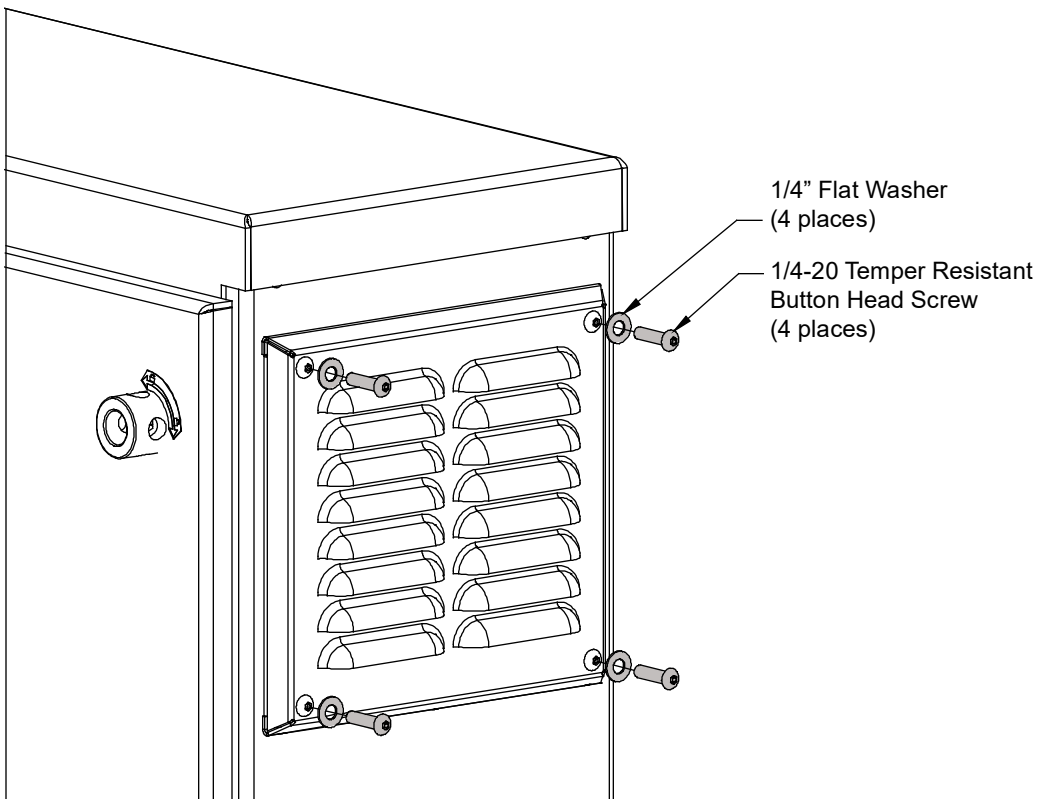
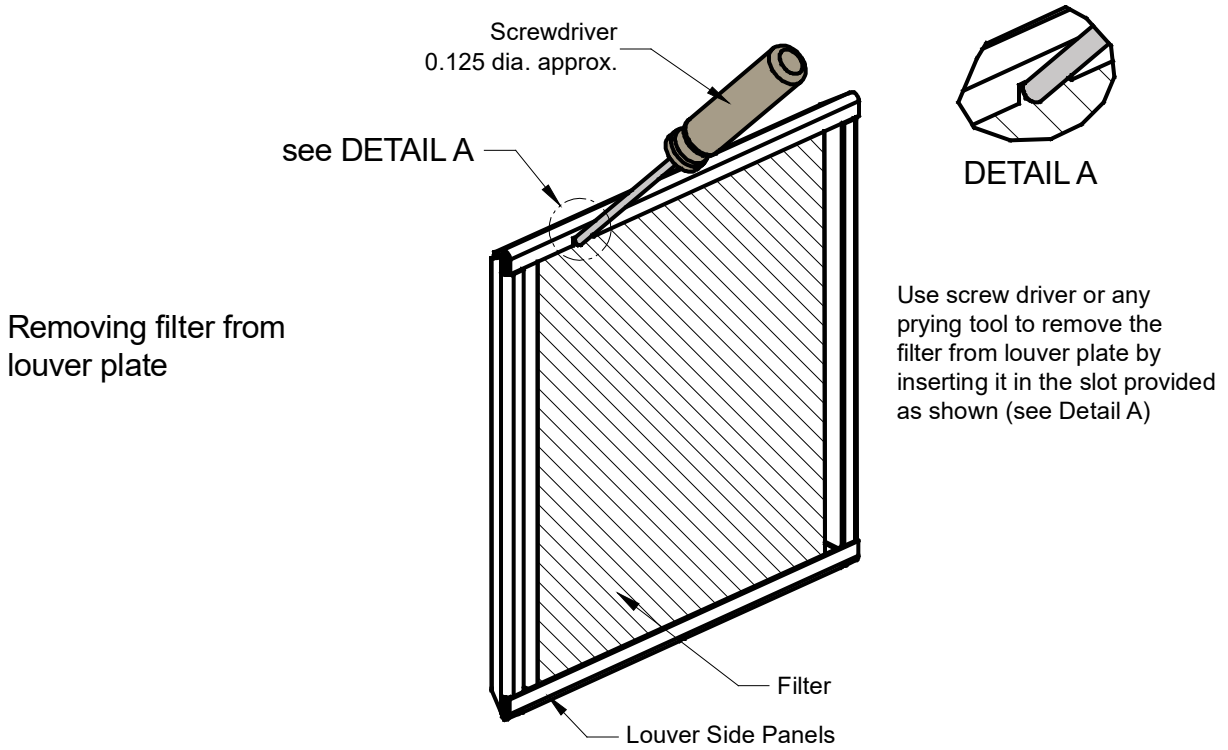
1. The enclosure filters are located behind the louvered side panels (see Figure 13.1). All enclosure filters should be removed from their mounting by removing the (4) tamper-resistant screws holding the louver to the side of the enclosure.
2. The filters can then be removed from the louver plate assembly and cleaned using the compressed air, or a soft brush, or water and detergent or a vacuum cleaner.



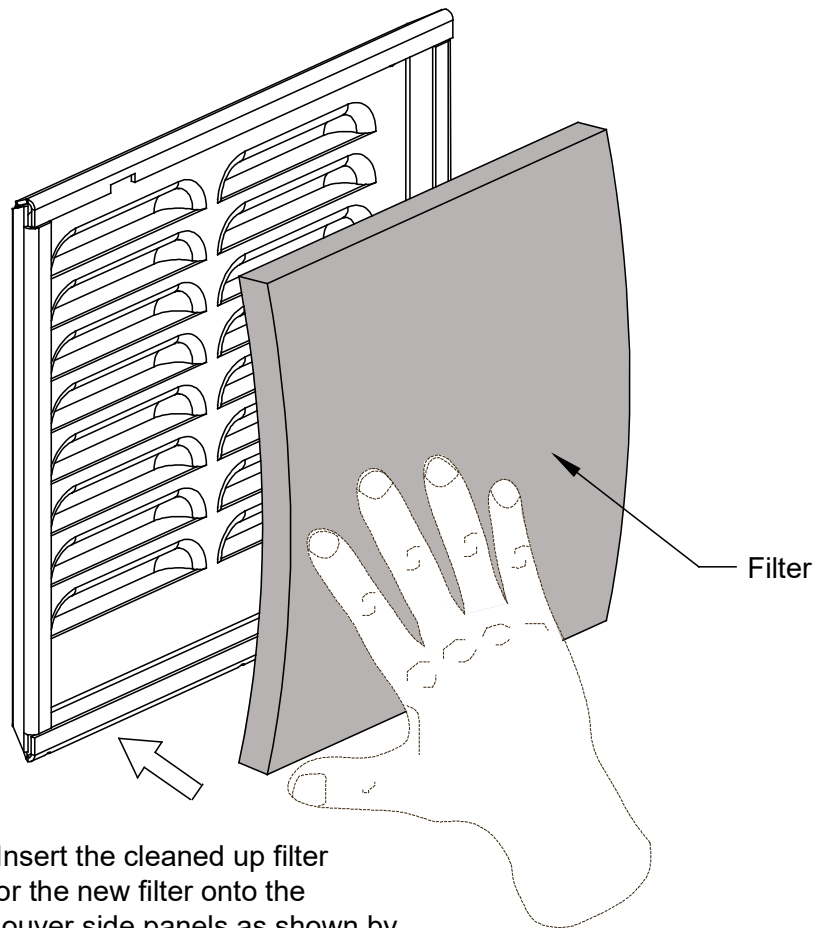
**ALERT!** Do **not** use solvents as it will damage the filter media.

3. Once clean, re-install the filters into the louver assembly and re-install the louver assembly to the side of the enclosure.

Figure 13.1 Filter Maintenance/Replacement (con't on next page)



**Figure 38 Filter Maintenance/Replacement (con't from previous page)**



Insert the cleaned up filter or the new filter onto the louver side panels as shown by gently bending along the vertical direction such that the filter fits inside the louver slot perfectly

## **Replacing a Filter**

### **You Will Need**

To replace the filter, you will need the following tools:

- Flat screwdriver (0.13 dia. approx.) to remove louvered side plate assembly tamper-resistant screws.
- Replacement filter (see Table 13.1).

### **Procedure**

1. The enclosure filters are located behind the louvered side panels (see Figure 13.1). All enclosure filters can be removed from their mounting by removing the (4) tamper-resistant screws holding the louver plates to the side of the enclosure.
2. The filters can then be replaced and the louver plate assembly re-installed on the enclosure.

## 13.4 Fan Filter Maintenance and/or Replacement

When the Vertiv™ XTE 401 Series Equipment Enclosure is equipped with a fan cooling system, the enclosure will be equipped with a single fan filter. This filter should be cleaned on a regular basis in accordance with standard company operating procedures.

### Cleaning the Fan Filter

#### You Will Need

To clean the fan filter, you will need the following tools:

- Flat screwdriver (0.13 dia. approx.) to remove fan filter shroud assembly tamper-resistant screws;
- Compressed air, or a soft brush, or water and detergent or a vacuum cleaner.

#### Procedure

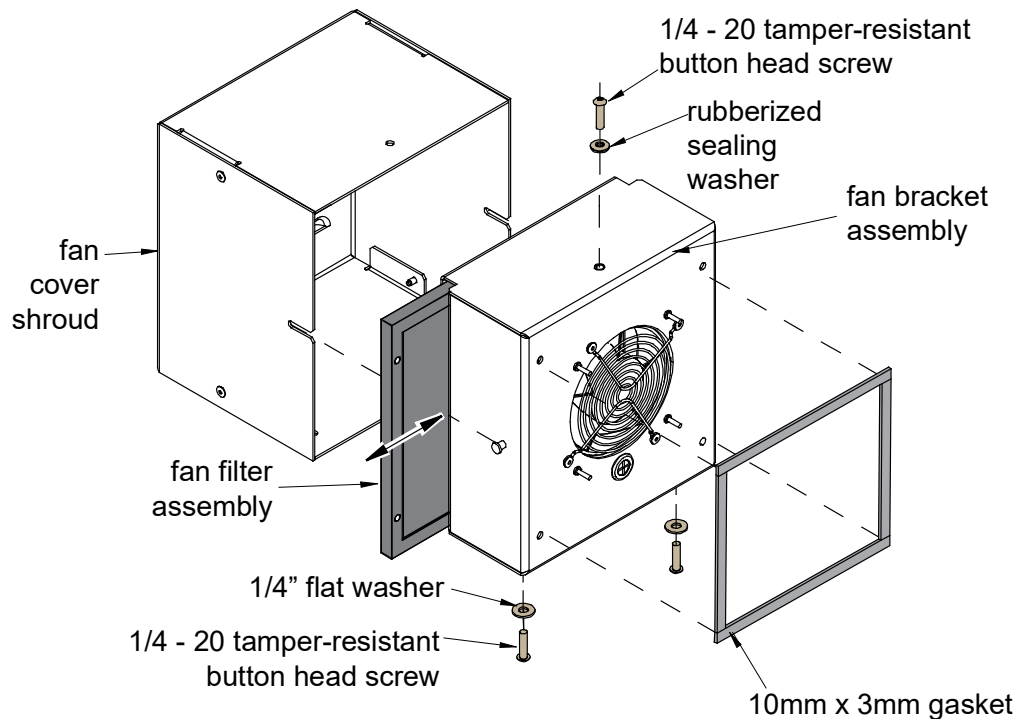
1. The enclosure fan filter is located inside the fan filter housing assembly (see Figure 13.2). The filter can be removed from its mounting by removing the (3) tamper-resistant screws holding the fan shroud assembly to the fan housing assembly on the side of the enclosure.
2. The fan filter can then be removed from the front of fan housing assembly and cleaned using the compressed air, or a soft brush, or water and detergent or a vacuum cleaner.



**ALERT!** Do **not** use solvents as it will damage the filter media.

3. Once clean, re-install the filter into the fan housing, and re-install the fan shroud on to the side of the enclosure.

**Figure 13.2 Fan Filter Assembly - Standard Filter Replacement**



## Replacing a Fan Filter

Perform the following steps to replace the fan filter. See Figure 13.2.

### You Will Need

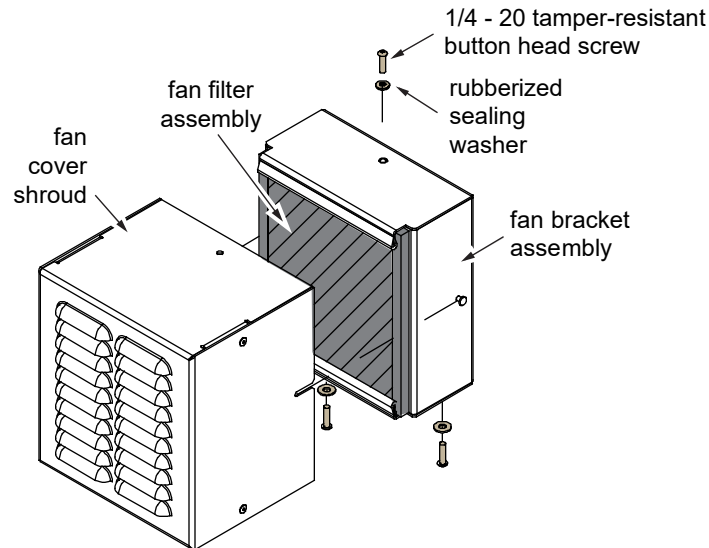
To clean the fan filter, you will need the following tools:

- Flat Screwdriver (0.13 dia. approx.) to remove fan filter shroud assembly tamper-resistant screws;
- Replacement filter (see Table 13.1).

### Procedure

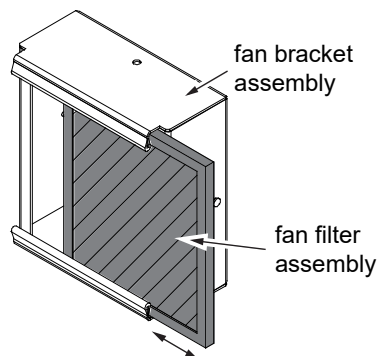
1. The enclosure fan filter is located inside the fan filter housing assembly (see Figure 13.3). Remove the fan filter from its mounting by removing three (3) sets each of tamper-resistant screws and washers holding the fan shroud assembly to the fan housing assembly on the side of the enclosure.

**Figure 13.3 Fan Filter Assembly - Removing Fan Filter Assembly**

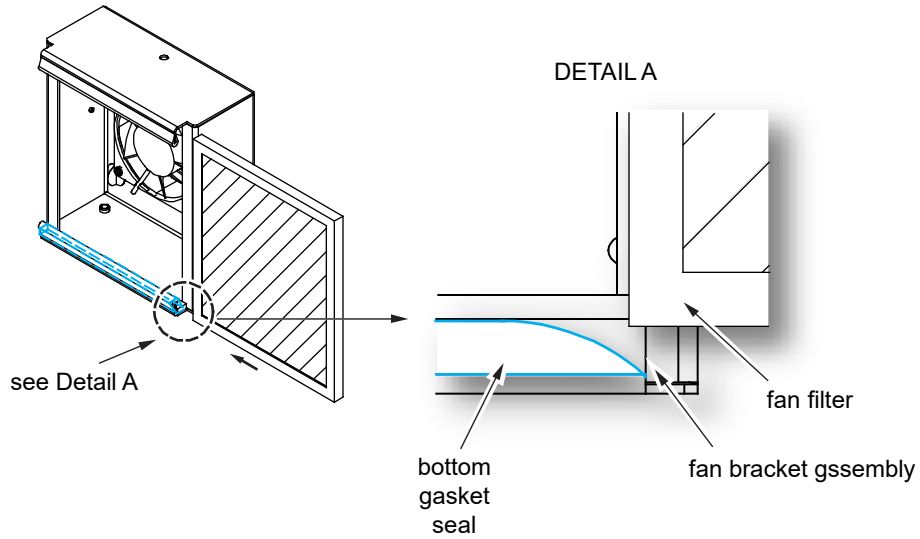


2. The fan filter can then be removed from the fan bracket assembly by gently sliding it in either direction (see Figure 13.4).

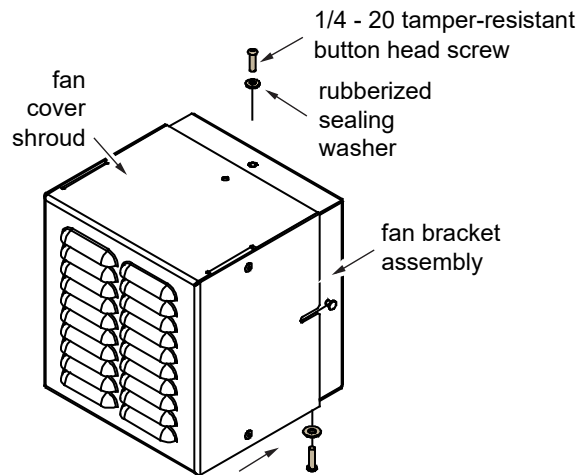
**Figure 13.4 Fan Filter Assembly - Sliding Fan Filter Assembly**



3. While replacing the fan filter, ensure to carefully press the bottom gasket seal at the initial entry point (see Figure 13.5) and slide in the fan filter gently such that the bottom gasket seals the gap once the fan filter is replaced in position.

**Figure 13.5 Fan Filter Assembly - Inserting Fan Filter to the Fan Bracket Assembly**

4. After placing the fan filter assembly back in position, place the fan shroud back and secure and tighten the fan shroud by using three (3) sets of 1/4-20 tamper-resistant screws and washers. Refer to Figure 13.6.

**Figure 13.6 Fan Filter Assembly - Securing Fan Bracket Assembly to Fan Cover Shroud**

## 13.5 Heat Exchanger - Fan Replacement

### **You Will Need**

To replace the External Heat Exchanger Fan, you will need the following tools.

- Tool for removing 1/4-20 hex head bolt to take out the external fan mount plate.
- Screwdriver for removing #4-40 pan head Phillips screw for removing 2 external fans.

To replace the Internal Heat Exchanger Fan, you will need the following tools.

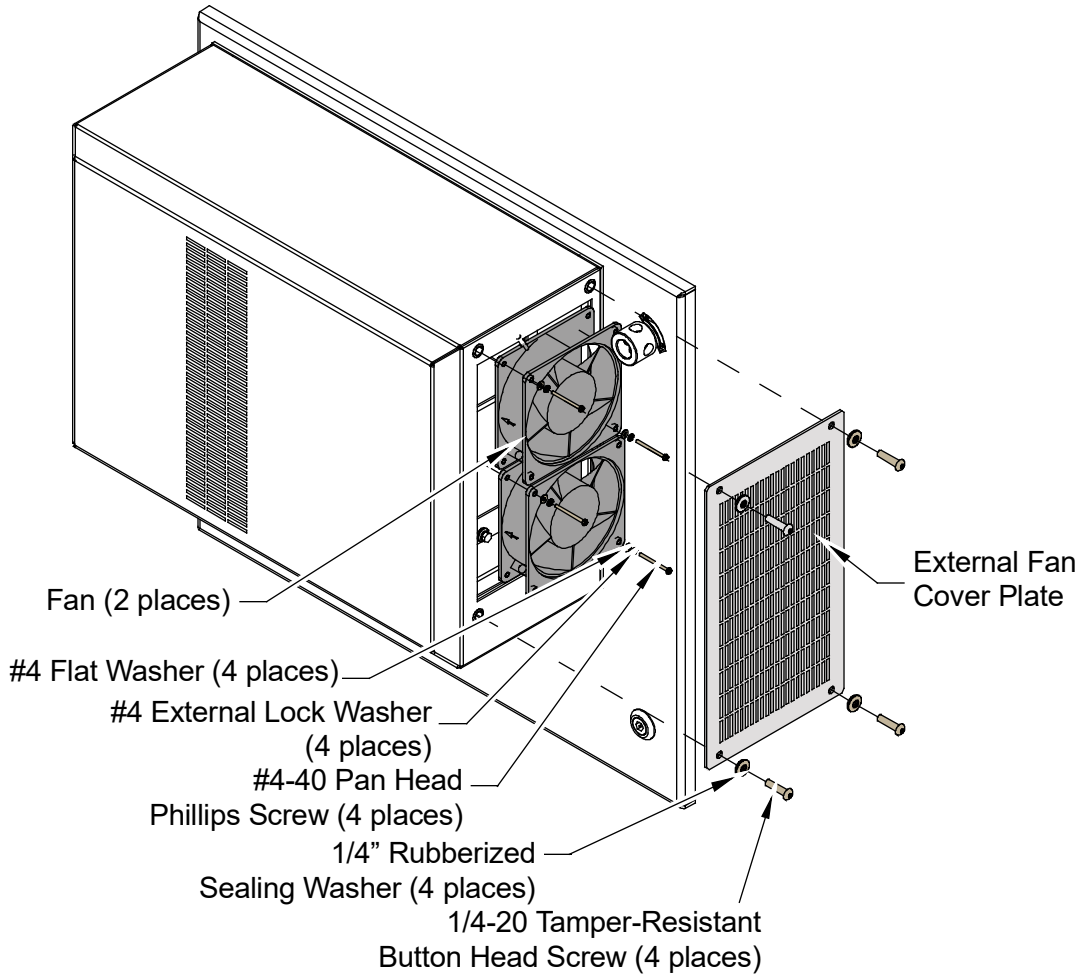
- Tool for removing 1/4-20 temp-resistant button head screw, for taking out the internal fan cover plate.
- Screwdriver for removing #4-40 pan head Phillips screw for removing 2 internal fans.

### **Replacing the External Heat Exchanger Fan**

Perform the following steps to replace the external heat exchanger fan (refer to Figure 13.7):

1. Using a connection point, fuse or breaker, disconnect the power source to the enclosure fans being replaced.
2. Unscrew four sets of 1/4-20 tamper-resistant button head screws and 1/4" rubberized sealing washer to remove the external fan cover plate. Safely set aside the hardware.
3. Verify that the replacement fan is of the appropriate model.
4. Disconnect the defective fan's power lead connector.
5. Unscrew four sets of #4-40 pan head Phillips screws and #4 external lock washers to remove the fans (2 places). Safely set aside the hardware.
6. Install the replacement fan and secure it in place using the hardware removed above.
7. Reconnect the fan's power lead connector.
8. Replace the external fan cover plate.



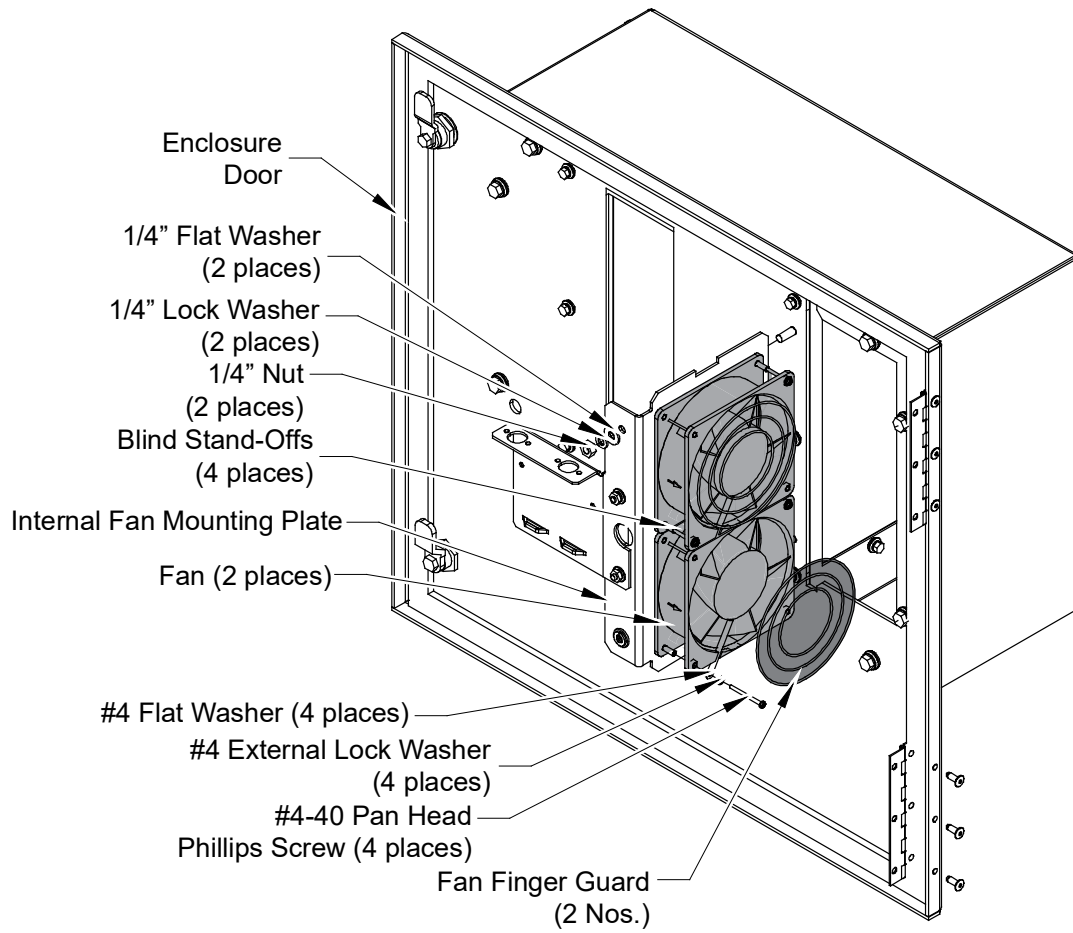
**Figure 13.7 Replacing External Heat Exchanger Fan****Replacing The Internal Heat Exchanger Fan**

Perform the following steps to replace the internal heat exchanger fan. Refer to Figure 13.8:

1. Remove the padlock from the enclosure door on which the heat exchanger is mounted, if present.
2. Open the enclosure door.
3. Using a connector, fuse or breaker, disconnect the power source to the enclosure fans being replaced.
4. Remove two (2) sets each of 1/4-20 hex nuts, 1/4" lock washers and 1/4" flat washers securing the internal fan mount plate. Set the hardware safely aside.
5. Verify that the replacement fan is of the appropriate model.
6. Disconnect the defective fan's power lead connector.
7. Remove the four (4) sets of #4-40 pan head machine screws and #4 flat washers securing the defective fan in place. Remove the fan and discard. Save the fan mounting hardware for re-use.
8. Install the replacement fan and secure it in place using the hardware removed above.

9. Reconnect the fan's power lead connector.
10. Replace the internal mounting plate.
11. Close the enclosure door on which the heat exchanger is mounted.
12. Replace the door padlock, if required.

**Figure 13.8 Replacing Internal Heat Exchanger Fan**



## 14 Optional Equipment Ordering Guide

### 14.1 Mounting Kit Ordering Guide

All mounting kits must be ordered separately as required. All mounting kits will be shipped separately.

- F1010408 - wall-mount kit for any Vertiv™ XTE 401 Series Equipment Enclosure
- F1010409 - pole-mount kit for any Vertiv™ XTE 401 Series Equipment Enclosure
- F1010410 - pad-mount kit for a 10" deep Vertiv™ XTE 401 Series Equipment Enclosure
- F1010411 - pad-mount kit for a 16" deep Vertiv™ XTE 401 Series Equipment Enclosure
- F1010459 - "Pour in Place" pad-mount template for a 10" deep Vertiv™ XTE 401 Series Equipment Enclosure
- F1010460 - "Pour in Place" pad-mount template for a 16" deep Vertiv™ XTE 401 Series Equipment Enclosure

### 14.2 Stake-Mounting

Any of the Vertiv™ XTE 401 Series Equipment Enclosures can also be stake-mounted. Depending on the size of the enclosure, the installer must order one of the two pad mount kits shown above. The installer must also order (2) F604080 42" long, galvanized steel stakes, green. The stakes come with the mounting hardware required to mate to the enclosure base.

### 14.3 Battery Systems

All battery part number shown are for an individual 12VDC battery modules. For a +24VDC system, (2) battery modules must be ordered along with (1) intercell connector cable. For a -48VDC system, (4) battery modules must be ordered along with (3) intercell connector cables.

#### 14.3.1 +24VDC Battery Systems

##### **12.7Ah, Eagle Picher HE-12V12.7FR, VRLA, top post battery system**

###### **Features**

- Provides a 1 hour back up for a 275W load
- Provide an 8 hour back up for a 35W load

###### **Ordering Notes**

- Order (2) of part number 139093 HE-12V12.7FR battery modules
- Order (1) of part number 541424 4" long intercell connector

##### **30Ah, GNB M12V30T, VRLA, top post battery system**

###### **Features**

- Provides a 1 hour back up for a 675w load
- Provide an 8 hour back up for a 85w load

###### **Ordering Notes**

- Order (2) of part number 524855 GNB M12V30T battery modules
- Order (1) of part number 541420 10" long intercell connector

**45Ah, C&D TEL12-45, VRLA, top post battery system****Features**

- Provides a 1 hour back up for a 2200W load
- Provides an 8 hour back up for a 280W load

**Ordering Notes**

- Order (4) of part number 140454 C&D TEL12-45 battery modules
- Order (3) of part number 541420 10" long intercell connector

**Table 14.1 Vertiv™ XTE 401 Series Equipment Enclosure Configuration Options Ordering Guide**

Part Number	Description
551297	Kit, Load center, 2 pos, NEC
551298	Kit, Load center, 2 pos, CSA
555769	Kit, GFI outlet, 15A
551300	Kit, GFI, 15A, Backboard
551301	Kit, Equip Outlet, 20A
551302	Kit, Equip Outlet, 20A, Backboard
553464	Kit, 19", rack mounted, outlet panel
551303	Kit, AC Breaker, 120VAC, DIN rail
551304	Kit, AC Surge Prot, 120VAC
552908	Kit, Vertiv™ NetSure™ 211, 1U, 10 GMT, 19"
552909	Kit, Vertiv™ NetSure™ 211, 2U, 4CB, 5GMT, 19"
554679	Cable Assy, Battery, 12 AWG, 12.7AH, 48V
554699	Kit, Battery Connection Side, 12 AWG
553007	Kit, 360W, 24V Power Supply, DIN Rail
553013	Kit, 600W, 24V Power Supply, DIN Rail
553612	Kit, 360W, 48V Power Supply, DIN Rail
553136	Kit, 600W, 48V Power Supply, DIN Rail
553347	Kit, 24v, 360w Battery Control, DIN Rail
553014	Kit, 24v, 600w Battery Control, DIN Rail
554062	Kit, 48v, 360w Battery Control, DIN Rail
554063	Kit, Battery Charger, DIN, 600W, 48V, TRACO
554677	Cable Assembly, Battery, 12 AWG, 12.7AH, 24V
554678	Cable Assembly, Battery, 12 AWG, 30 AH, 24V
554679	Cable Assembly, Battery, 12 AWG, 12.7AH, 48V
554680	Cable Assembly, Battery, 12 AWG, 30 AH, 48V
553015	Kit, DC Dist, 5 Fuses, Phoenix, DIN Rail
551305	Kit, DC Surge Protector, DIN Rail
551306	Kit, RF Coax Protector (One per kit)
552899	Kit, 12 Fiber Splice Tray and Mounting
551307	Kit, Cable Dressing Routing
552898	Kit, Intrusion Switch
554894	Kit, Hi/Lo Temp Alarms

Part Number	Description
554665	Kit, 10 position, Alarm Termination Block
552926	Kit, 24" h cabinet, half Backboard, 12"h x 20"w
552927	Kit, 24" h cabinet, full Backboard, 20"h x 20"w
552928	Kit, 38" h cabinet, half Backboard, 23"h x 20"w
552929	Kit, 38" h cabinet, full Backboard, 32"h x 20"w
553464	Kit, Outlet panel (no backboard)
552941	Kit, 24"h x 10" d cabinet, 19" rack system, 6 RU
552942	Kit, 24"h x 10" d cabinet, 19" rack system, 11 RU
552943	Kit, 38"h cabinet, 19" rack system, 11 RU
552944	Kit, 38"h cabinet, 19" rack system, 17 RU
552945	Kit, 38"h cabinet, 23" rack system, 10 RU
551252	Kit, Battery Tray Assembly for 10" deep cabinet
551253	Kit, Battery Tray Assembly for 16" deep cabinet
556186	Kit, Battery Heater Pad w/ batt tray assm - 10" deep cabinet
556187	Kit, Battery Heater Pad w/ batt tray assm - 16" deep cabinet
551210	Kit, battery Chamber Divider Plate – 10" d
551211	Kit, battery Chamber Divider Plate – 16" d
554362	Kit, 24" h x 16" d cabinet, 19" rack system, 6 RU
554363	Kit, 24" h x 16" d cabinet, 19" rack system, 11 RU

## **15 DC Power, Outdoor Enclosure & Service Contacts**

Refer to Section 4.15.4 (provided with your customer documentation) for support contact information.

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