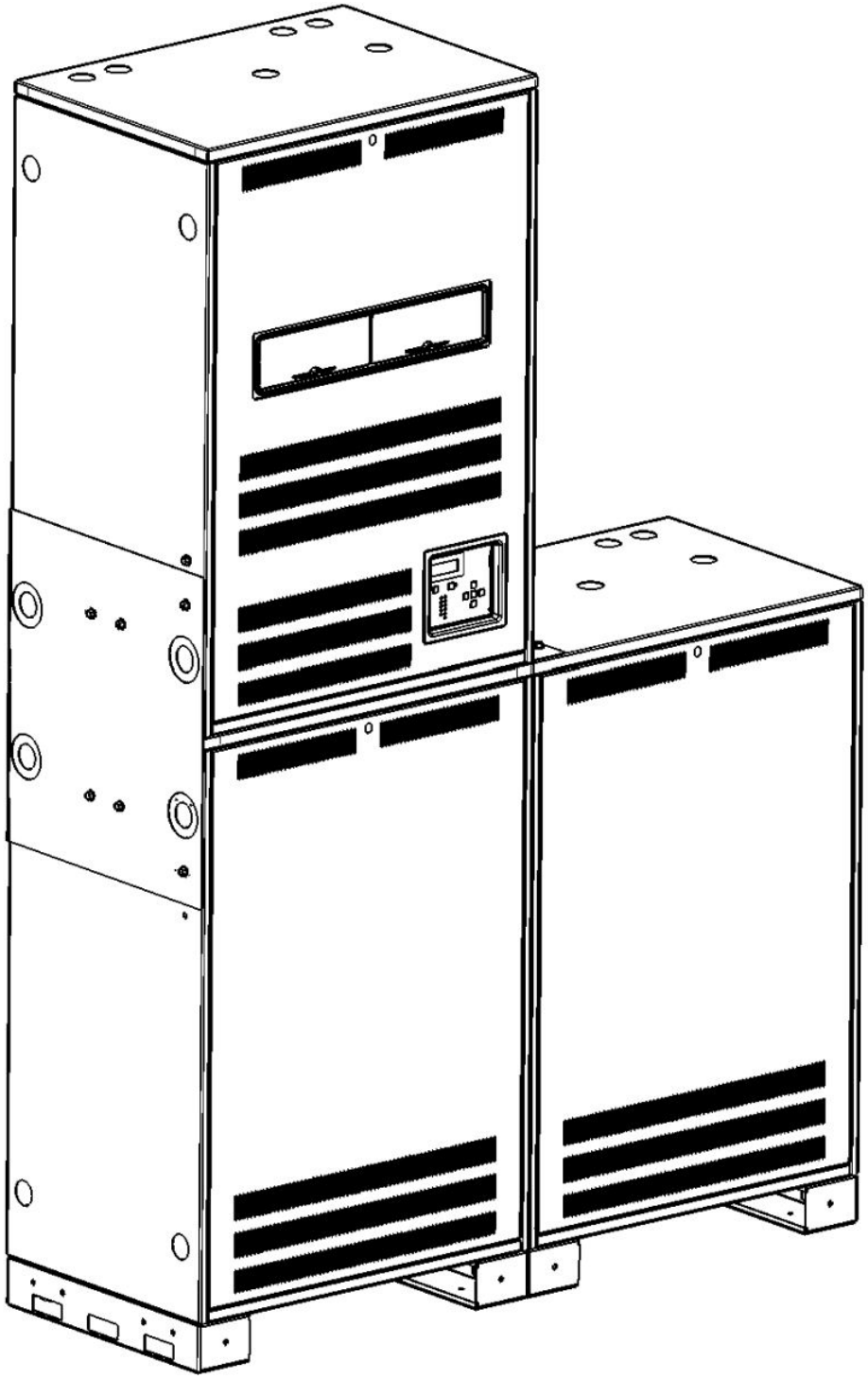
Contractors Guide

Emergency Lighting Central Inverter System

Step By Step Installation Guidelines

15,750 & 18,750 Watt/VA (Three Phase)

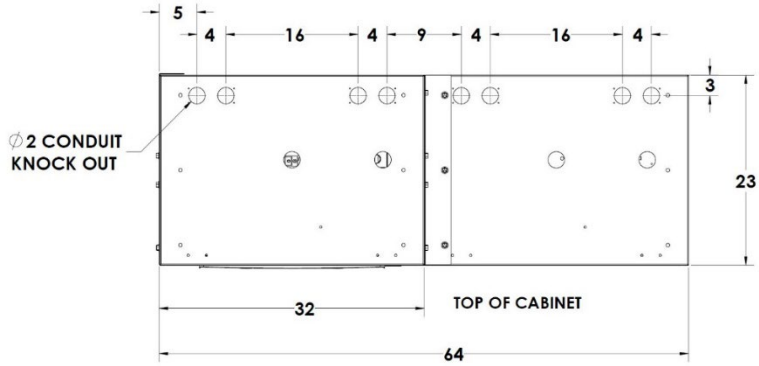


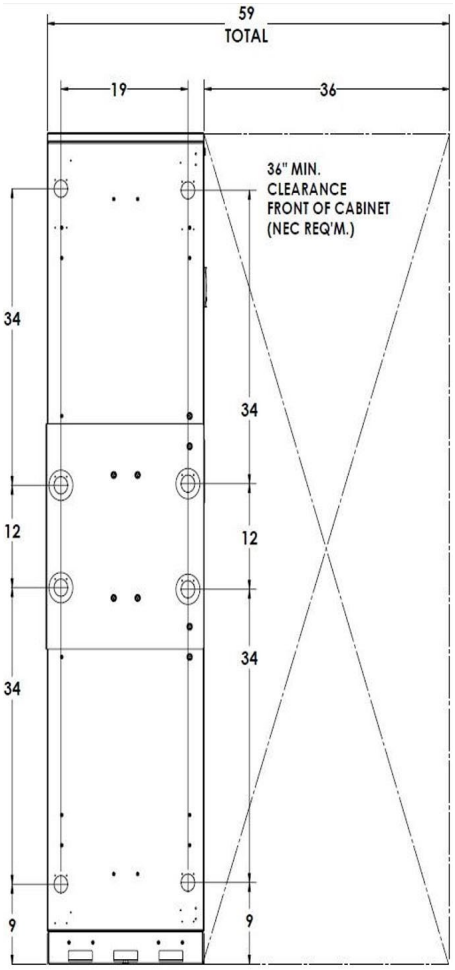
5 Step Installation

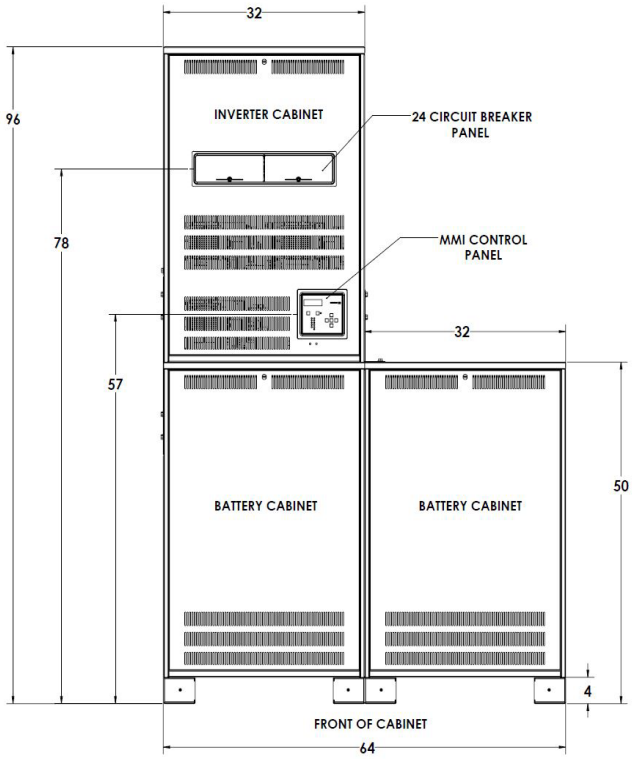
1. Mounting the Cabinets
2. Install / Connect Pathway and Batteries
3. Install Conduit
4. Install AC Wiring
5. Energize System

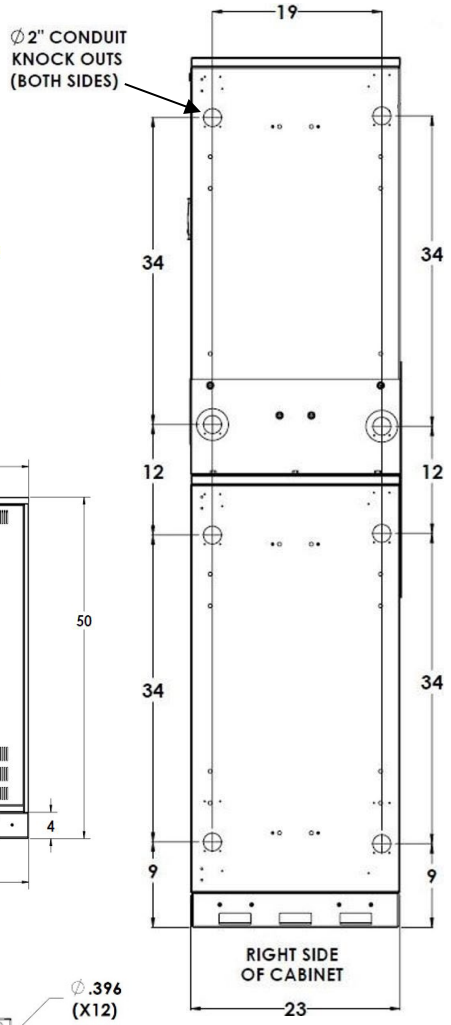
For additional information, please refer to the Installation/Operation Manual

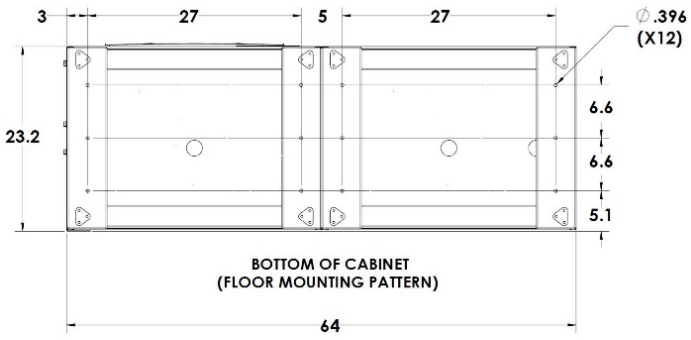
Overall Mounting Dimensions and Knockout Locations









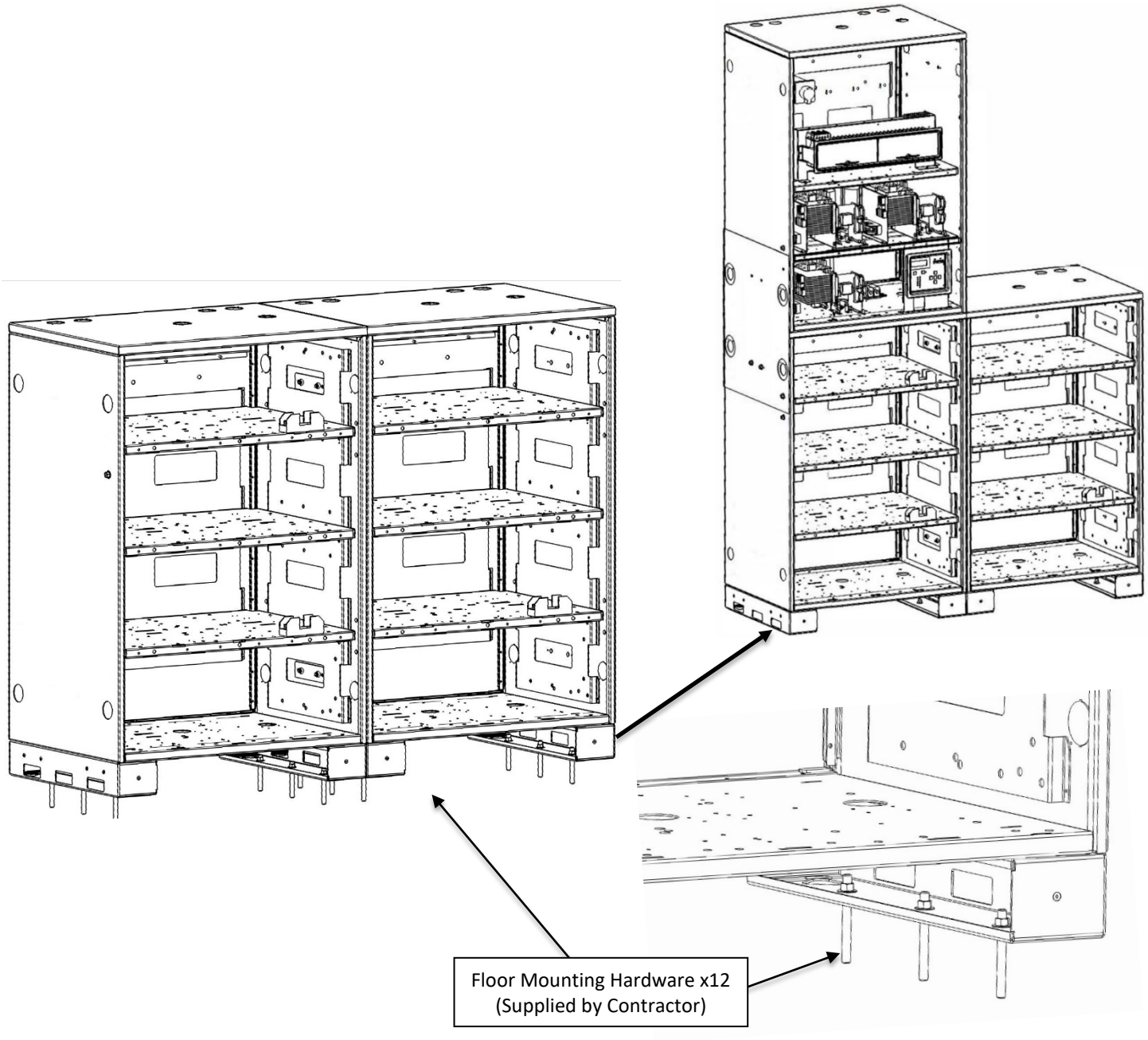


Step 1

Mounting the Cabinets

Prepare the floor so it is level and smooth. Secure the left battery cabinet to the floor using concrete wedge anchors or another suitable method, then install the right cabinet using the same approach. (Mounting hardware supplied by others)

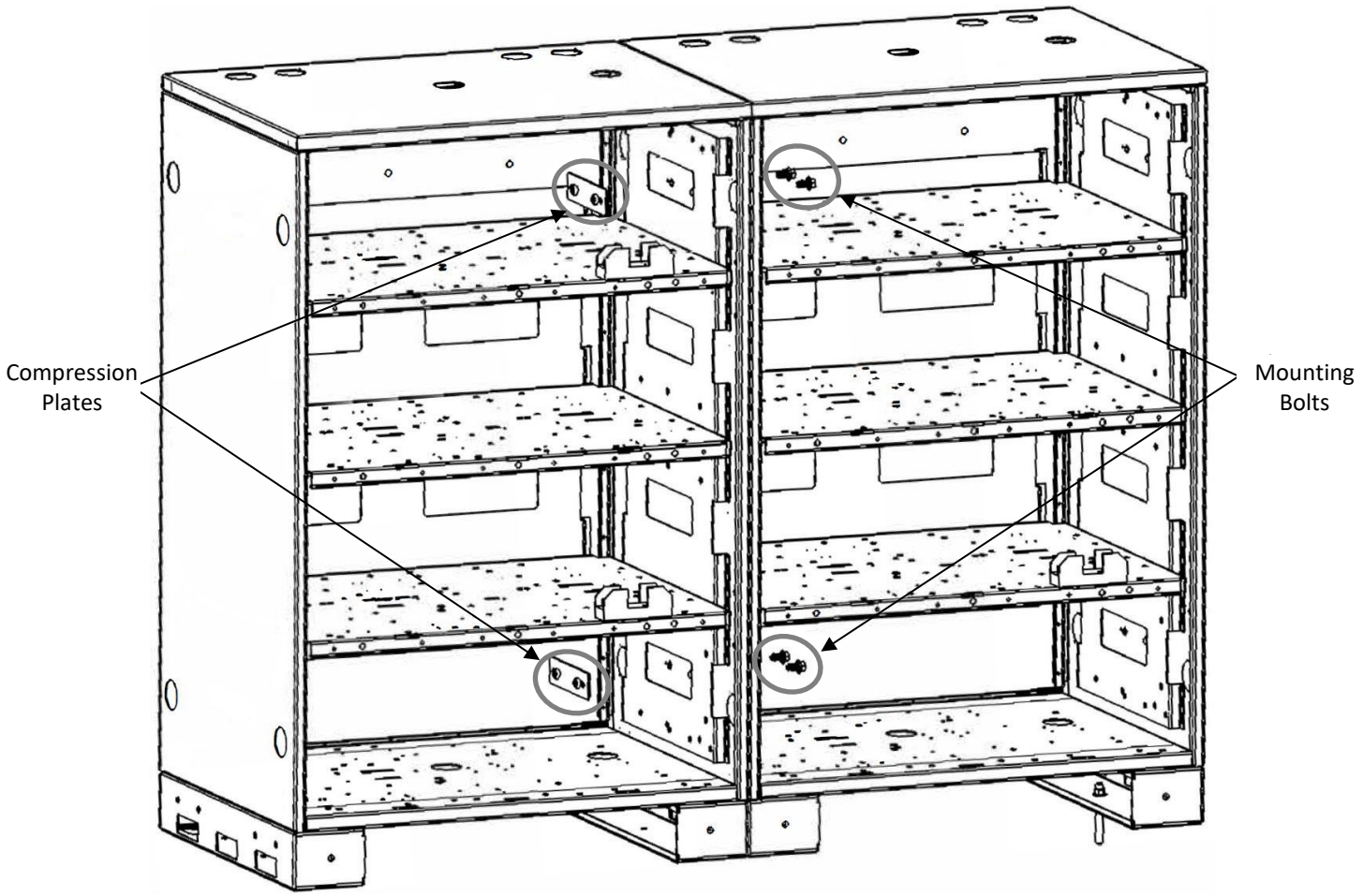
Note - Uneven surfaces may interfere with front cover installation or removal.



Step 1

Connecting the Cabinets

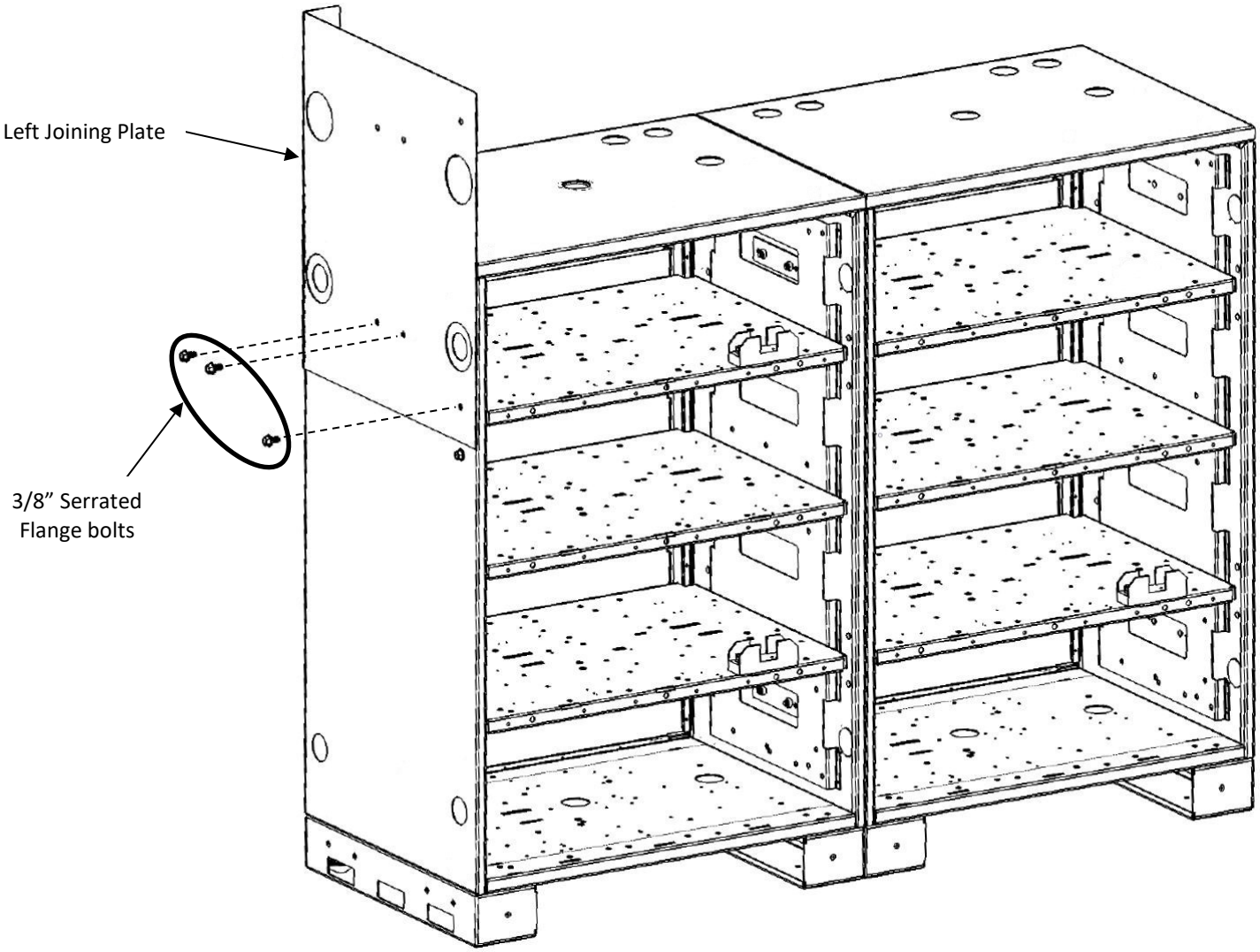
Connect the left battery cabinet to the right battery cabinet using the supplied hardware. Ensure all fasteners are securely tightened to maintain proper alignment and stability



Step 1

Connecting the Cabinets

Install the left joining plate to the left battery cabinet using the supplied bracket and hardware. This ensures proper positioning and a secure connection to the electronics cabinet.

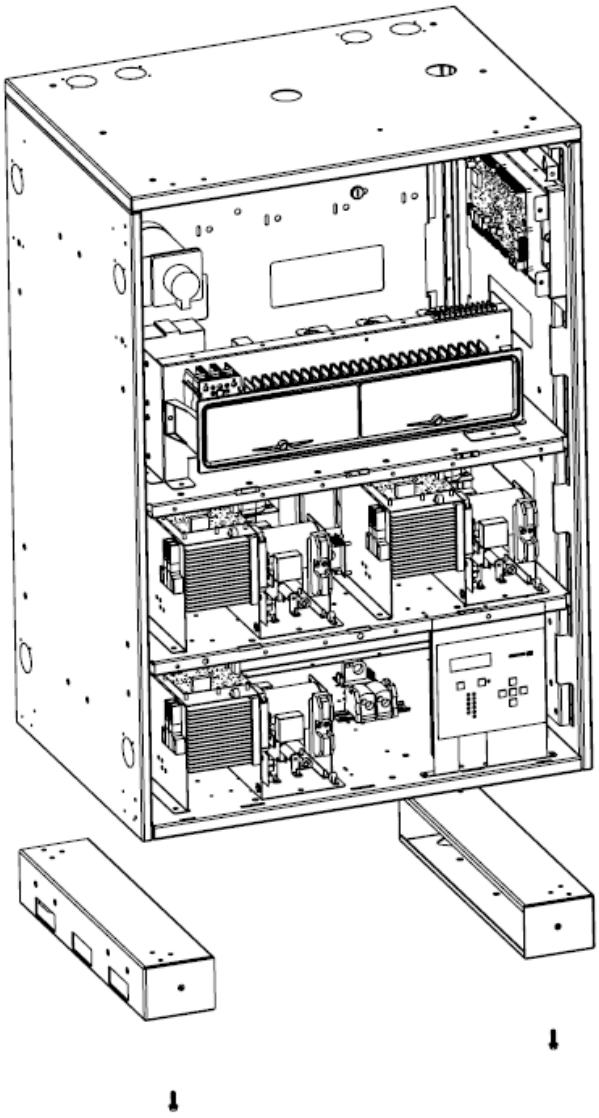


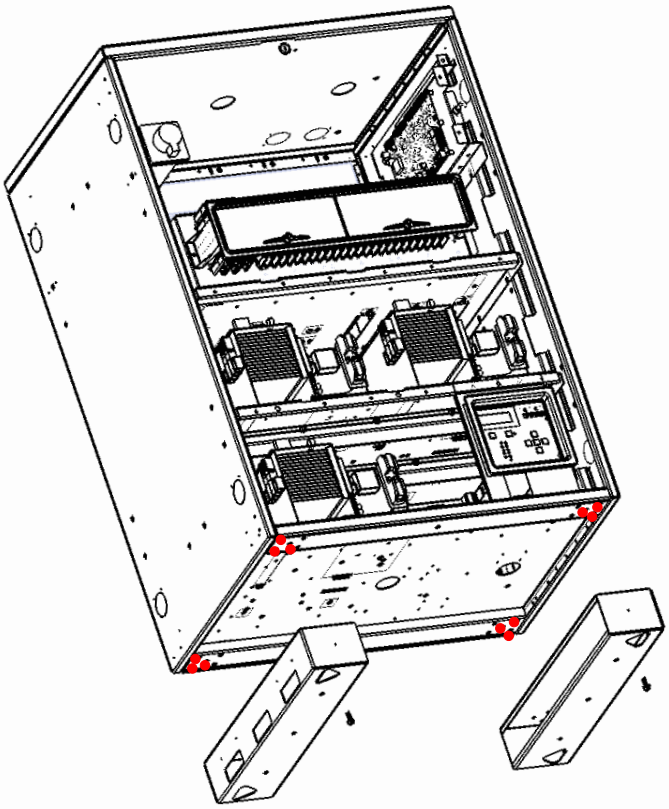
Step 1

Connecting the Cabinets

Lift inverter cabinet and remove 12x ¼-20 bolts to detach the feet.

Note: Feet must be removed for proper alignment with side-mount brackets when stacking

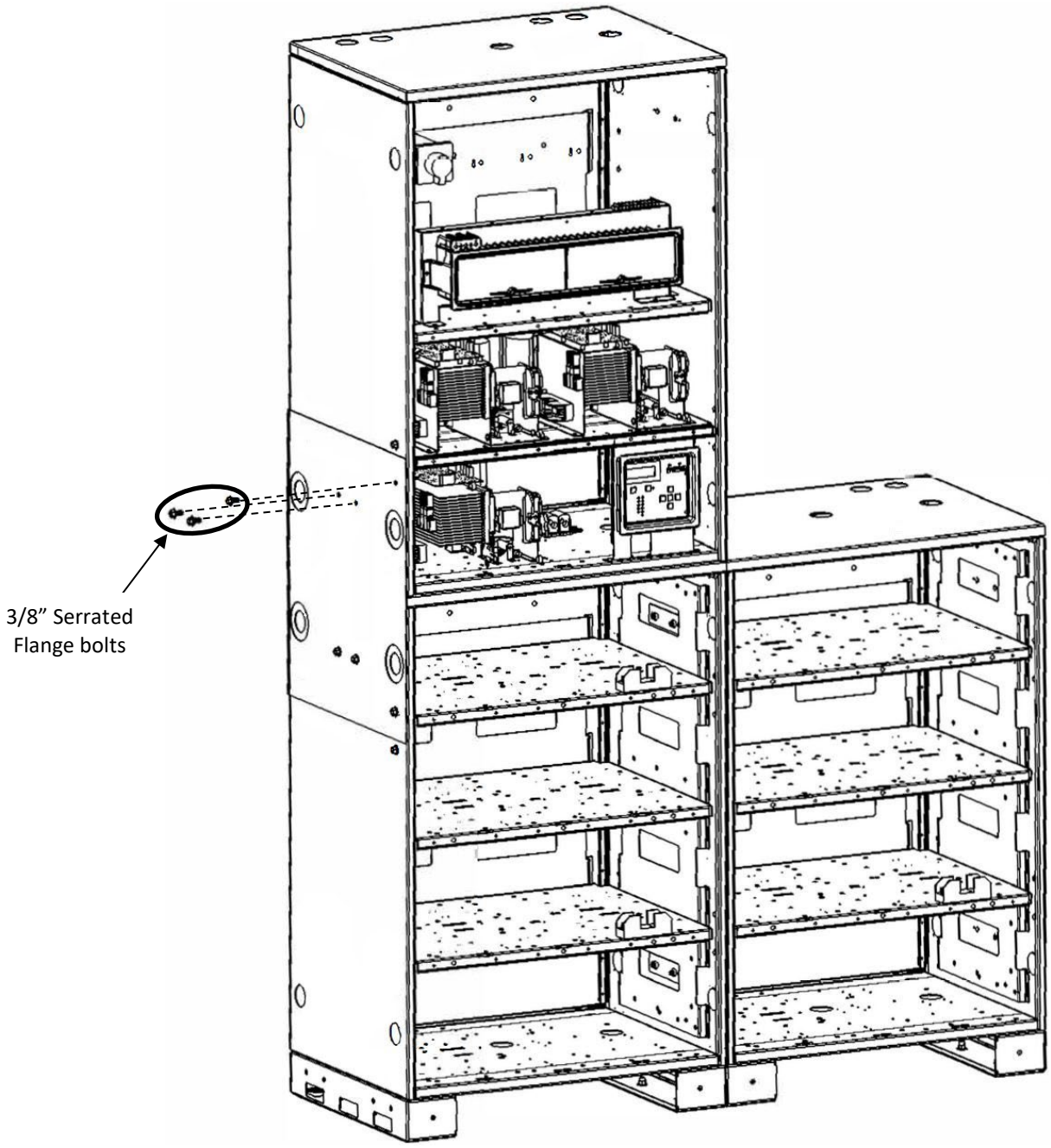




Step 1

Connecting the Cabinets

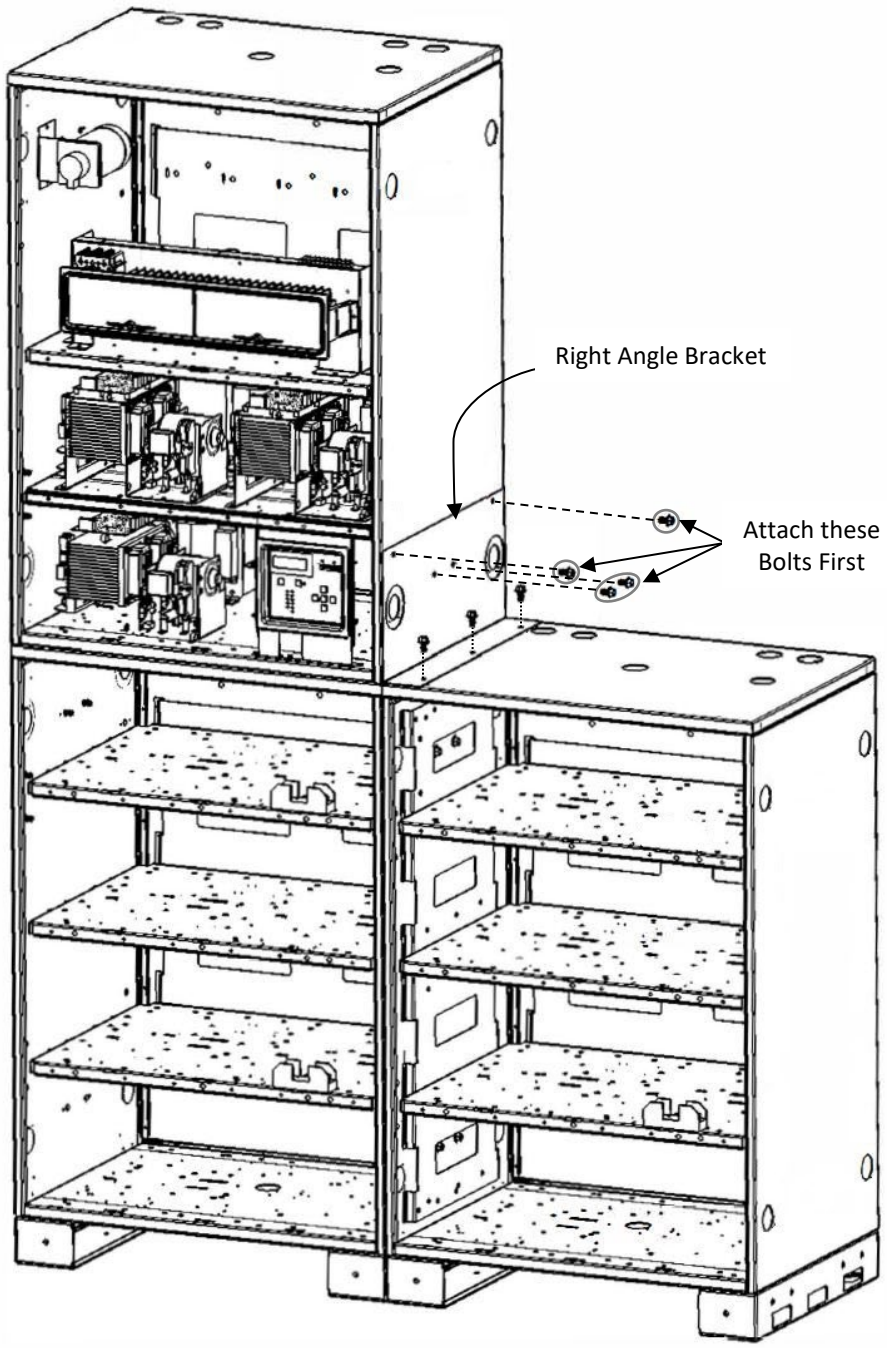
Slide the inverter cabinet onto the left battery cabinet and secure it to the left-side joining plate using the supplied hardware, ensuring proper alignment and a secure connection.



Step 1

Connecting the Cabinets

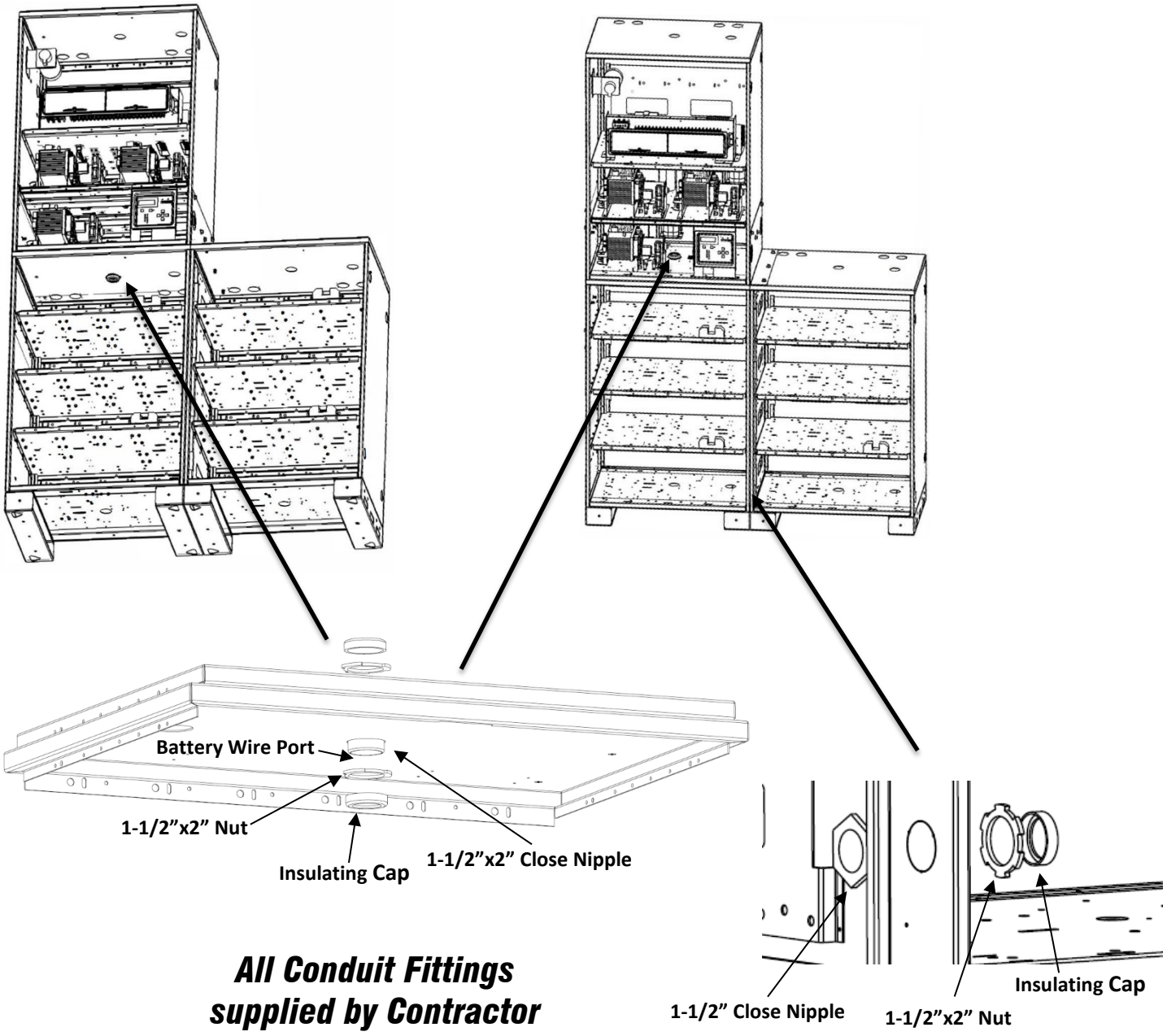
Attach the supplied right-angle bracket to the inverter cabinet using the provided hardware (3/8” serrated flange bolts). Then, secure the bracket to the top of the right battery cabinet to complete the connection.



Step 2

Install Cable Pathways

Install contractor-supplied conduit fittings between the inverter and battery cabinets to provide a secure and code compliant pathway for wiring.



All Conduit Fittings supplied by Contractor

Step 2

Installing and Wiring the Batteries

Check List

Ensure that all the factory provided items are present and ready:
Batteries – Inspect each battery to ensure no shipping damages have occurred.
Battery Interconnect wires (pre-lugged) and String connection wires (black for negative, red for positive)
Battery Fuses
Busbars with hardware (bolt, flat washer, lock washer)
Temperature Sensor busbar
Tools required – Insulated torque wrench w/10mm socket, 3 mm Allen for power distribution blocks

Battery Loading and Connection Procedure

Important Note: This procedure provides step-by-step instructions for safely connecting batteries. It is crucial to follow these instructions carefully to ensure safety and correct installation.

Caution: Each battery can weigh up to 80 lbs. (36 kg). Exercise caution when lifting and handling batteries. Short-circuit current ratings of these batteries can reach several thousand amps. Always use extreme electrical safeguards to ensure proper handling and installation. Ensure proper PPE is worn when installing.

Note: These batteries are of the front access type. Each 12V battery has a positive terminal on the right and a negative terminal on the left. Each Busbar connects the positive terminal of one battery to the negative terminal of the other battery directly next to each other to form a series connection.
Ensure that all bolts are torqued to the correct setting (**100in-lb**). Do not over-torque the bolts, as it may lead to damage or complications.

Pro-Tip **-** *It is essential to secure the connections as you progress with the installation and not leave it until the end. This technique reduces the risk of forgetting or missing a bolt. As the number of connected batteries increases, the string voltage rises. Therefore, securing connections promptly is safer.*

Step 2

Installing and Wiring the Batteries

2.1. Loading the Batteries - Load all the batteries into the cabinet such that 6 batteries are on each shelf.

2.2. Spacing the Batteries - Space the batteries equally and centered in the middle. Ensure proper alignment (front to back and side to side) for the bus bars to fit between the batteries on the battery terminals. Note - It is best to pre-fit the busbar between the batteries without installing the hardware to gauge the proper distance required between the batteries. Reposition batteries as necessary to ensure perfect alignment.

2.3. Measuring the Batteries - Measure the DC voltage of all the batteries. Each battery should measure at least 12.6-12.9 VDC. Please contact the factory immediately if any batteries measure below 12.6VDC.

Pro-Tip: *It is beneficial to pre-make all bolt assemblies (flat-washer/lock-washer/bolt) and place two of these directly in front of each battery along with the busbar for easy access. Properly spacing the batteries for busbar fit and bolt preparation will be of great safety and time benefit!*

Wiring the Batteries

Note - Please reference wiring diagram mounted on the battery cabinet door and on pg. 15 in this guide.

2.4 String Positive and Negative Connection - Connect the factory-provided Red String connection wire (string positive) between the Inverter cabinet positive terminal and the battery cabinet fuse block. Connect the jumper wire from the fuse block to the positive terminal of the top right battery of each string. Connect the Black String connection wire (string negative) between the Inverter cabinet negative terminal to the negative terminal of the bottom left battery of each string (string negative point).

2.5. Battery-to-Battery Wire Connections - Connect the battery-to-battery Interconnect wires between shelves. Start with the positive terminal of the right battery on the bottom shelf and connect it to the negative terminal of the left battery on the shelf directly above. Repeat this process for all provided battery-to-battery Interconnect wires.

Caution – each time a busbar is connected in the next steps, the battery string voltages get higher. Please exercise extreme caution and safety since the final string voltages are lethal.

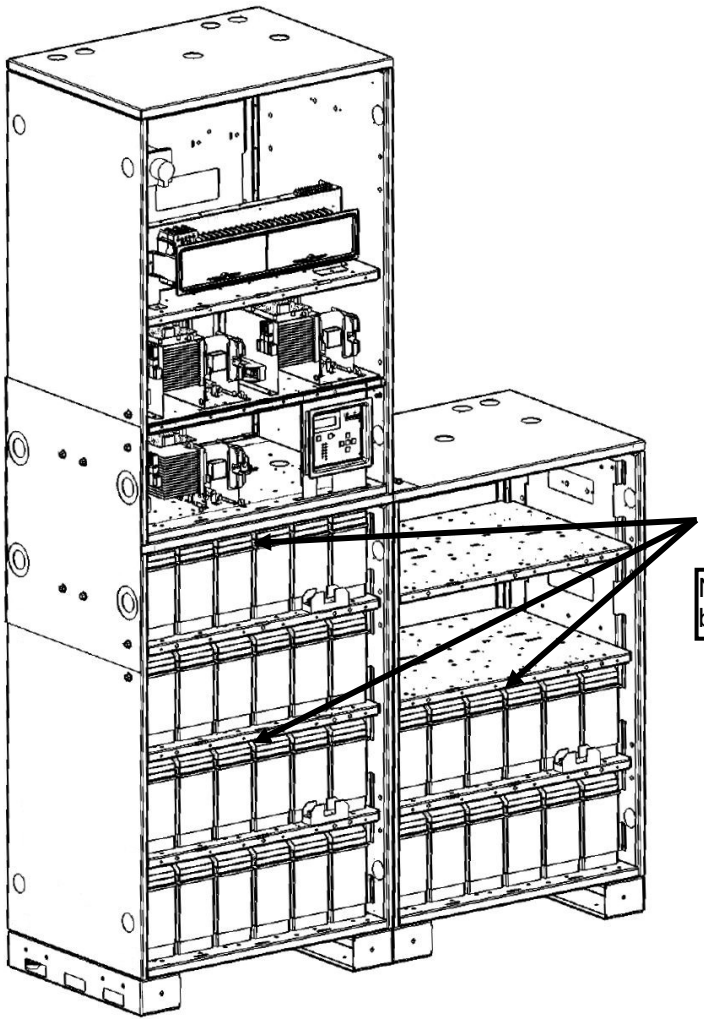
Step 2

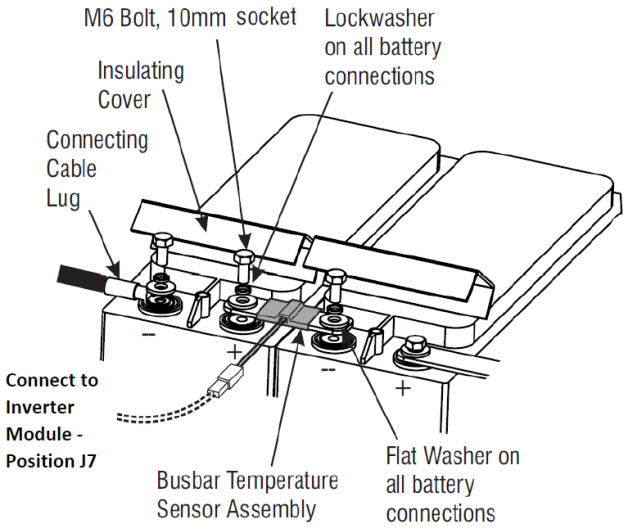
Installing and Wiring the Batteries

Installation of interconnection busbars

2.6. Outside Battery Busbar Connections – At this time, only install four busbars per shelf which connects the outside left three batteries and the outside right three batteries. Note – Leaving the middle connection open at this time will keep the DC voltage to a maximum of 72VDC at any point in the cabinet. Repeat this operation for all the batteries on all battery shelves.

2.7. Temperature Sensor - Connect the middle Temperature Sensor busbar to the top battery shelf of each string.





Note: The illustration provided is shown as top mount busbar. Front access is simply rotated 90 degrees.

Step 2

Installing and Wiring the Batteries

2.8. Remaining Busbars - Connect the bottom bus bar. At this Stage, all interconnections should be fully terminated including the Temperature Sensor busbar and torqued to 100 in-lbs.

Finalizing the Installation

2.1.1 Measuring DC Voltages - Measure the string voltage and ensure it meets the system requirements. String negative is on the far-left battery on the bottom shelf, string positive is on the far-right battery on the top shelf.

NOTE: For 10 batteries, the string voltage should measure at least 120 volts DC. For 12 batteries, the string voltage should measure at least 144 volts DC.

2.1.2 Temperature Senor connection - Install the temperature sense cables between the Temperature Sensor busbar and the inverter modules.

Note: The factory has pre-installed the sense wires into the inverter modules. Simply route each cable to the appropriate Temperature Sensor busbar connection as follows:

- **Phase A inverter module** → Connect to **Battery String 2**
- **Phase B inverter module** → Connect to **Battery String 1**
- **Phase C inverter module** → Connect to **Battery String 3**

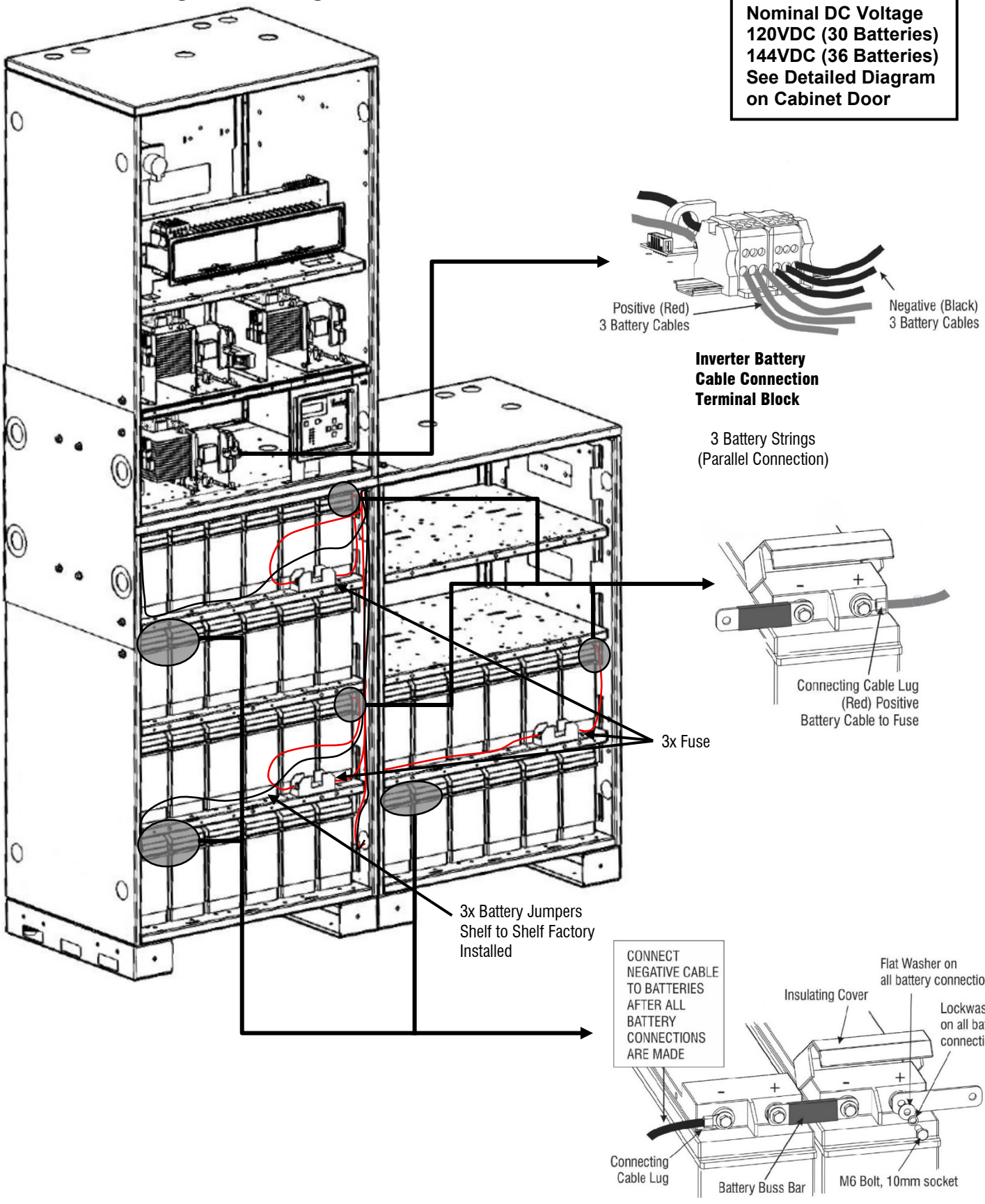
Ensure cables are properly secured and routed to avoid strain or interference.

2.1.3 Multi Battery Cabinet Configuration - If multiple cabinets and Battery Strings are used, repeat this process. Once finalized, install the 60Amp DC Fuse into its fuse block located on the top shelf of each string.

Step 2

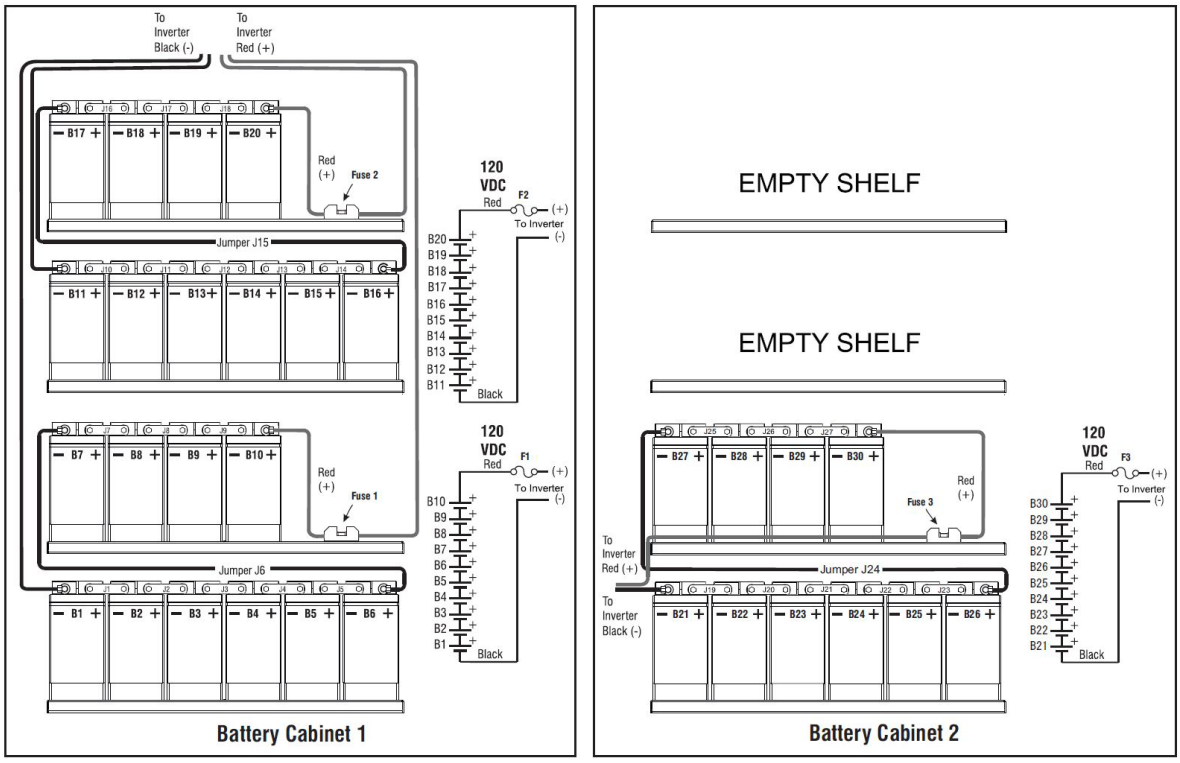
Installing and Wiring the Batteries

Nominal DC Voltage
120VDC (30 Batteries)
144VDC (36 Batteries)
See Detailed Diagram on Cabinet Door

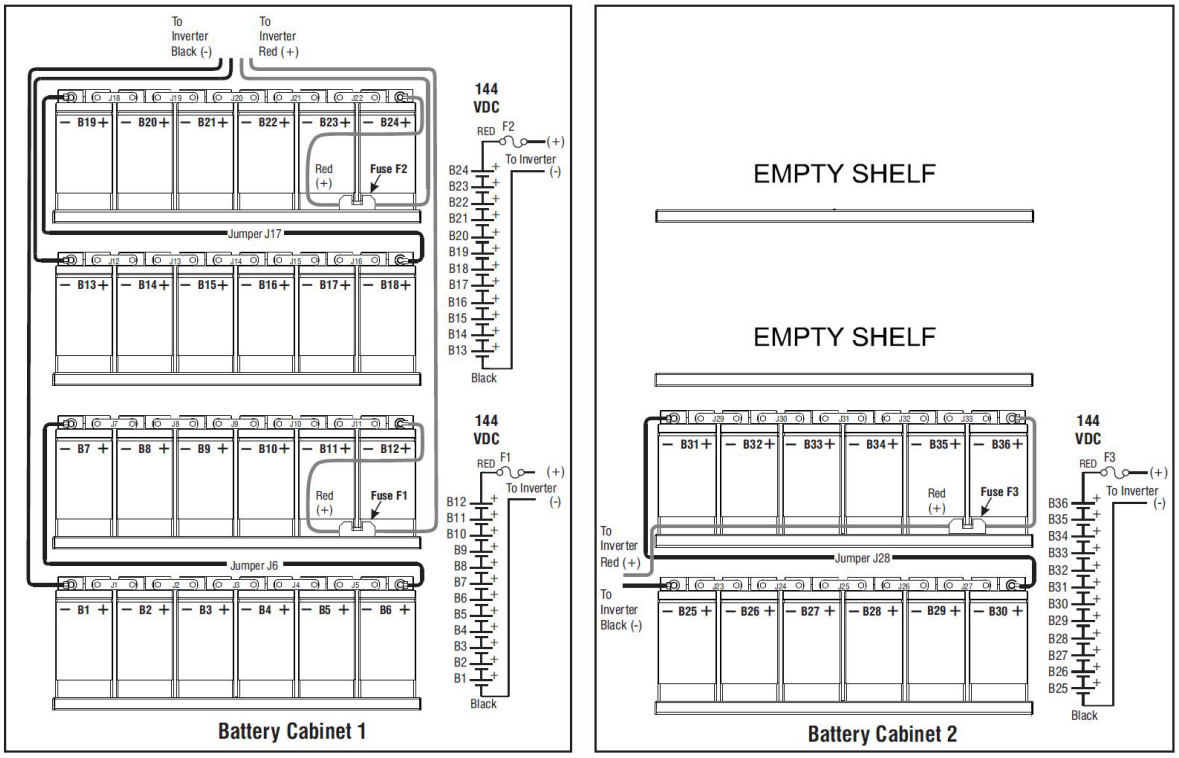


Step 2

Installing and Wiring the Batteries



Three String Battery Connection - 120 VDC 3 Phase Systems



Three String Battery Connection - 144 VDC 3 Phase Systems

Step 3

Installing the AC Conduit

See Illustration on page 2

Use only the provided knock-outs located on the top and sides of the inverter cabinet. Do not drill into the cabinet, as this may **VOID** the warranty. Drilling can also produce metal shavings that pose a risk of short-circuiting internal electronic components.

Input and output wires must be routed in separate conduits in accordance with the National Electrical Code (NEC). The knock-outs are sized for 1-1/2" conduit and include optional dual-size knock-outs for 7/8" and 1-1/8" conduit fittings.

All conduit installations must comply with applicable local and national electrical codes (NEC).

Step 4

Installing the AC Wiring

See illustration on page 17

Ensure that the AC Input Breaker (CB1) is in the **OFF (Down)** position before beginning any wiring. Refer to the Installation/Operating Manual (Section 8) for AC input and output ratings.

Remove the plastic AC circuit breaker cover, which is secured with two ¼-20 bolts. Connect the AC input wiring directly to the **top side of the input breaker**, located on the left side of the unit.

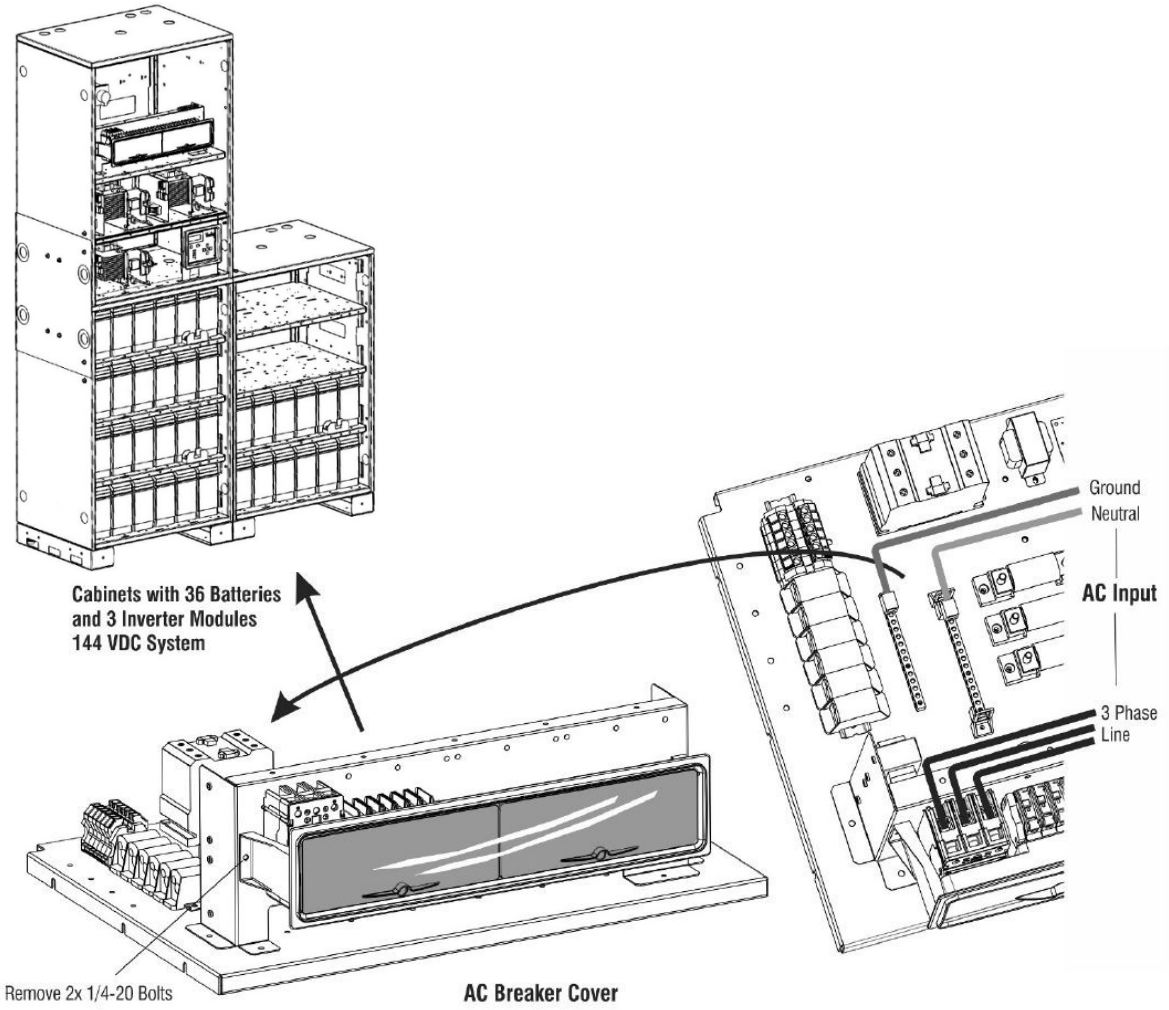
Connect the input **neutral** and **ground** wires to their respective neutral and ground bars. **Do not share neutral conductors** between emergency and non-emergency loads.

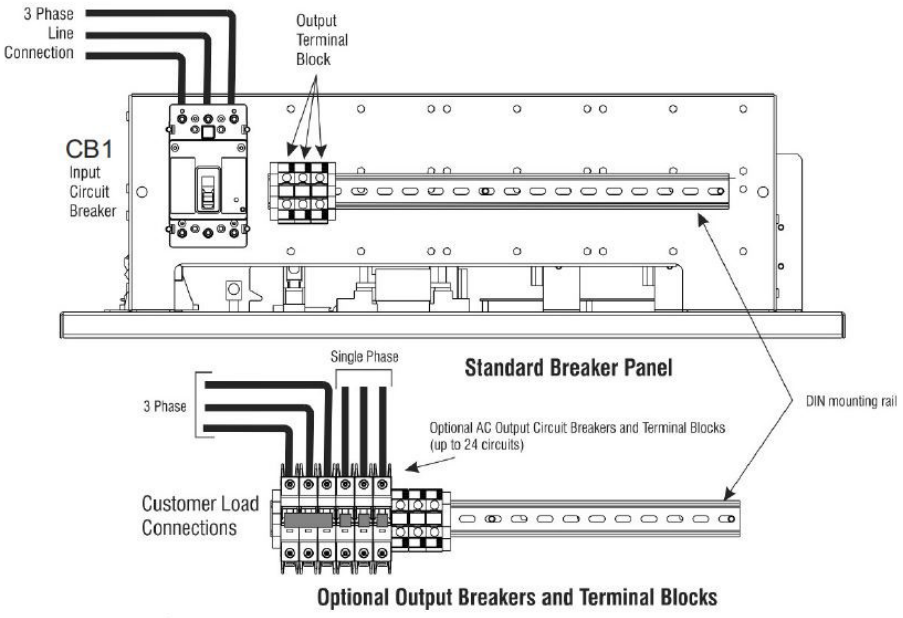
Connect AC output wires to the **top side of the Normally-On terminal block**, or to output circuit breakers if provided. All standard units include a Normally-On terminal block for output wire connections. AC output breakers are optional.

All wiring must comply with applicable local and national electrical codes (NEC).

Step 4

Installing the AC Wiring





Step 5

Starting Up/Energizing the Unit

Ensure batteries are installed and wiring is verified per Step 2. Confirm AC power is present, and lighting loads are connected as described in Step 4.

Turn **ON** the Input Circuit Breaker (CB1), then flip the **System On/Off Switch** located to the right of the Interface Panel. The system will perform startup diagnostics and enter charge mode if no errors are present.

Press the **System Test** button or momentarily interrupt AC power to verify the inverter can support lighting loads without fault. Once verified, reinstall and secure the AC Breaker Cover with its clear access window and locking screw, then reinstall the front covers on all cabinets.

Included with Shipment (15.75 kW – 18.75 kW Models)

- **Floor mounting brackets (pre-installed)**
- **Batteries: 30 pcs (15.75 kW) or 36 pcs (18.75 kW)**
- **Battery cable kit**
- **Installation/Operation manual**

Tools Required for Installation

- 3/8" Nut Driver and or 3/8" Socket and Ratchet
- Straight Blade Screwdriver(s)
- Square Head (Robertson) Screwdriver
- Phillips Head Screwdriver
- 10MM Socket and Ratchet – or – 10MM Wrench (Torque set to 100 in-lbs.)
- 3MM Allen Head
- Hardware for securing cabinet to floor – i.e. Hilti Kwik Bolt or equivalent
- All conduit fittings for wire pathway between cabinets
- Multi-Meter capable of DC and AC Measurements