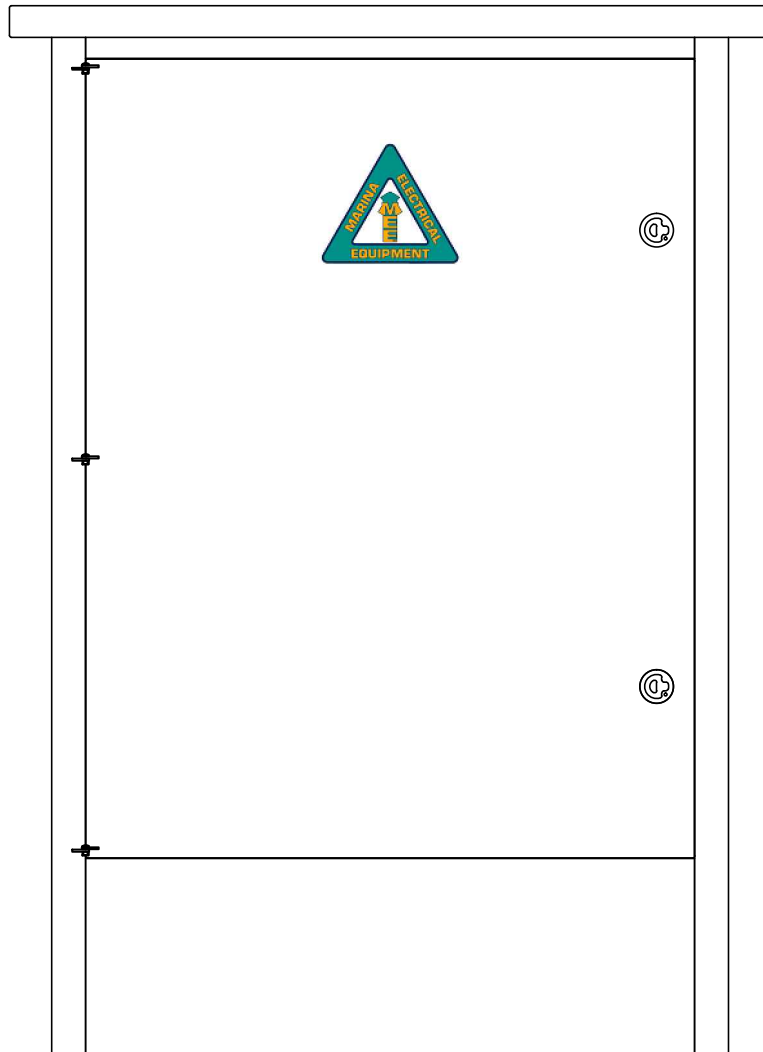




GTX™ UNIT SUBSTATION

Installation, Maintenance,
and Operation Manual



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GTX™ Unit Substation

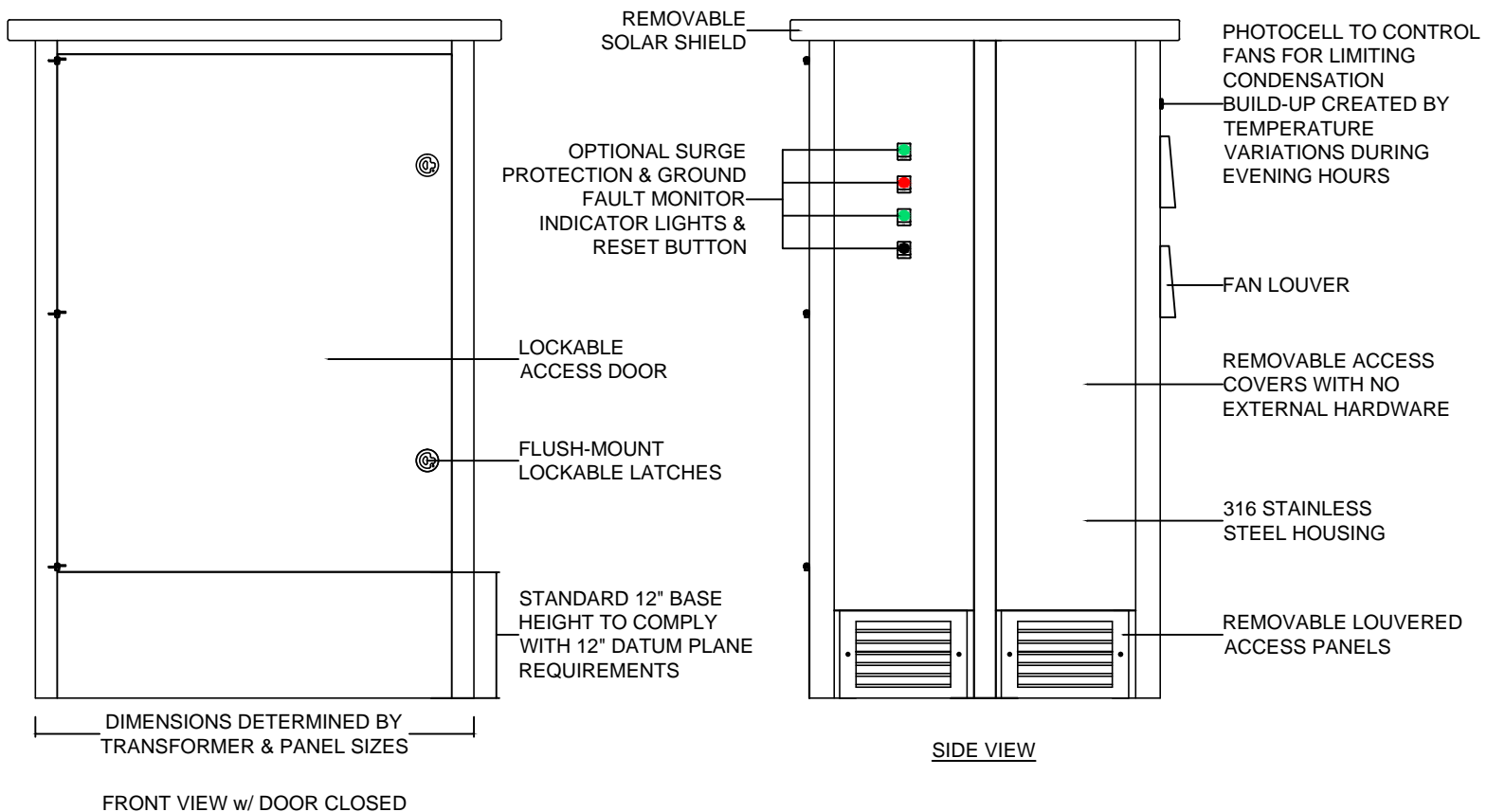
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INTRODUCTION:

PRODUCT DESCRIPTION:

GTX Substation is designed to provide a load to industrial equipment. The GTX Substation ranges from 50KVA to 300KVA, single or three phase. The GTX Substation comes with 2-6 high efficiency toroidal transformers that range from 25 kVA to 50 kVA each. The toroid transformer is rated from 480V-600V primary to 127V secondary. The Distribution panel ranges from 200A to 1000A main breaker or main lug. Branch breakers are series or fully rated up to 65 kAIC and a current rating up to main current level of the panel. GTX Unit Substation comes equipped with a primary terminal block, voltage range from 480V-600V with a current range up to 700A. GTX Substation comes with heavy duty cooling fans thermostatically controlled provided in the GTX Substation to improve cooling and reduce condensation. A solar access shield is designed to lift off to reveal the GTX Substation lifting shackles and removable side panel that provides easy access to the transformers and electrical components for field maintenance. All GTX Unit Substations use high stranded tin plated copper wire rated at 600V, 105°C wiring that is routed away from sharp or moving parts. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushing or grommets. The GTX Unit Substation Enclosure is NEMA 3RX rated, constructed of 16 gauge 316L stainless steel with a white textured powder-coat finish.

GTX Substations are ETL listed to Safety Standard for Unit Substation UL 1062 Dated January 29, 1997 Third Edition including revision through June 25, 2010.



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CAUTION

Use lockout/tag-out precautions as prescribed in OSHA, NFPA 70E and other safety manuals during maintenance shutdown of any systems or circuits.

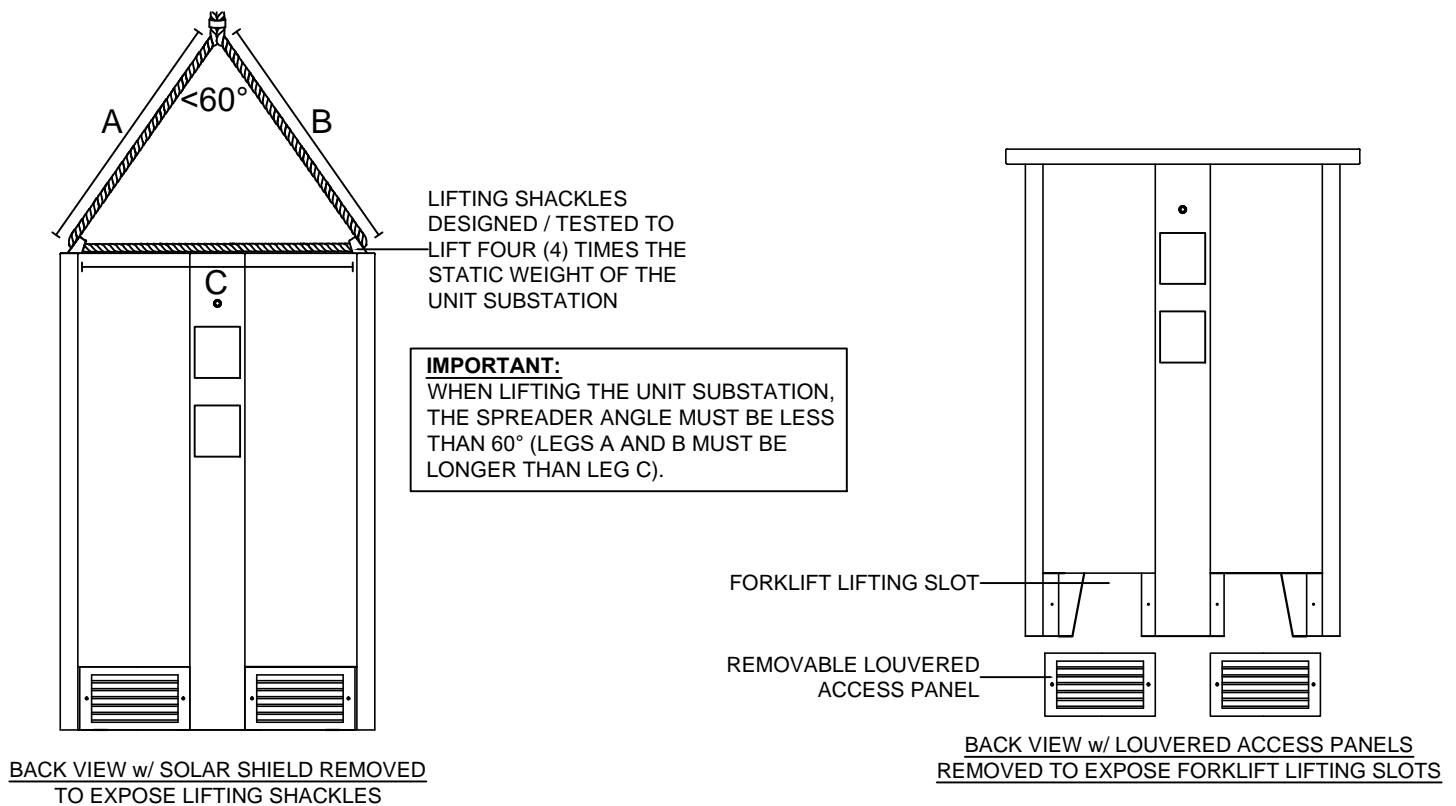
WARNING: BEFORE INSTALLING OR WORKING ON GTX SUBSTATION ELECTRICAL EQUIPMENT READ THE INSTALLATION INSTRUCTION IN ITS ENTIRETY. ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS UNIT SUBSTATION SHOULD INSTALL THIS EQUIPMENT OR ANY ELECTRICAL DEVICE. INSTALLATION SHOULD BE DONE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRIC CODES.

FOR ALL CONSTRUCTION: **WARNING HAZARDOUS VOLTAGE** CAN CAUSE SEVERE INJURY, DEATH, OR DAMAGE TO EQUIPMENT. DE-ENERGIZE UPSTREAM SOURCE BEFORE OPENING UNIT SUBSTATION. CHECK THAT ALL WIRES HAVE ZERO VOLTAGE.

INSTALLATION:

Step 1: Handling / Lifting the GTX Substation:

- **LIFTING SHACKLE METHOD:** This lifting assembly has been tested at a load of four times the static weight of the unit substation. The lifting shackles are located under the solar shield. The solar shield can be removed by removing the screws located around the lower edge of the shield.
- **FORKLIFT METHOD:** Lifting slots are provided on each end of the unit substation. Remove the louvered panels on each end of the unit. Use fork extensions so that the forks are spread to the outside of the slots, making sure that the forks extend past the end of the substation. Forks that do not extend through the complete substation could damage internal components. Forklift access can also be accomplished from the front or rear of the unit with the removal of the louvered access panels.



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Step 2: Mounting the GTX Substation:

Remove the front and rear louvered access panels on the bottom of the substation. This will expose the mounting holes at the bottom of the substation. Do not remove the neoprene pad from the bottom of the substation. The neoprene pads provide isolation from the dock surface.

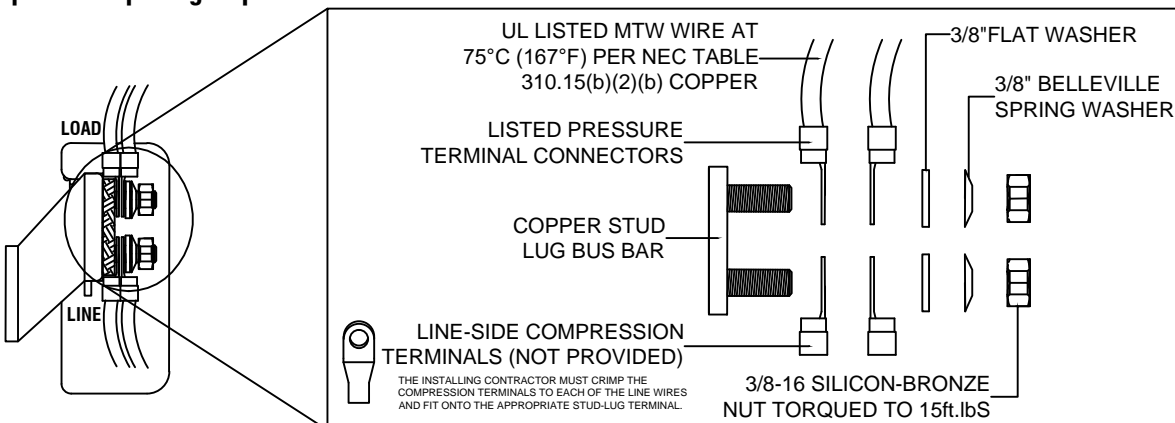
On Wooden Docks: Transfer mounting hole locations from the base of the Unit Substation to dock. Drill ½" hole for ½" through-bolt. Line the unit substation mounting holes to the holes in the dock. Feed bolts through the mounting hole and dock. Torque bolts and nuts to min. 18 ft. lbs.

On Concrete Docks: Transfer mounting hole locations from the base of the Unit Substation to dock. Follow manufacturer's instructions for installation of ½" expansion bolts. Line unit substation mounting holes with the holes on the dock. Thread ½" bolt into the expansion nuts to the manufacturer's recommended torque value.

Step 3: Connecting the Power Lines to the Terminal Block and Branch Breaker Installation:

- Open the main door of the GTX Unit Substation to remove the panel dead front and gutter trim rails to expose the panel interior. The 600V-rated main supply terminal block is typically located on the bottom right of the opening. *Note: location of terminal block can vary based on customer requirements.*
- Remove gland plate from top of GTX Unit Substation frame. Punch or cut the desired hole(s) in the gland plate. Install appropriate fittings in the gland plate.
- Feed all branch circuit and primary circuit wires through the gland plate to the 600V-rated main terminal block and to each branch breaker.
- Secure the gland plate back in place to the GTX Unit Substation base.
- Install all branch circuit wires to each breaker following the torque value label marked on each breaker.
- Install the 480V/600V feeder circuit to the 600V-rated supply terminal block and torque all terminations to **180 in.-lbs. minimum.**
- **IMPORTANT:** This terminal block is designed for **COPPER** compression-type lugs **ONLY**. The installing contractor must crimp each of the **LINE** terminations and place on the appropriate stud-lug. These terminals are **NOT** provided by the factory. Use of any other terminal/lug will **VOID THE MANUFACTURER'S WARRANTY.**

IMPORTANT: Contractor shall mount line side feeders identical to load side of stud lug assembly, heat shrink tubing shall be used when uninsulated copper terminal extend below bus bar insulation divider to keep proper spacing between live and grounded conductors, per NEC spacing requirements.



USE ONLY 75°C (167°F) COPPER CONDUCTORS ONLY ON ALL FIELD INSTALLED LINE, LOAD TERMINATIONS INTENDED FOR USE WITH TERMINATED CONDUCTORS.

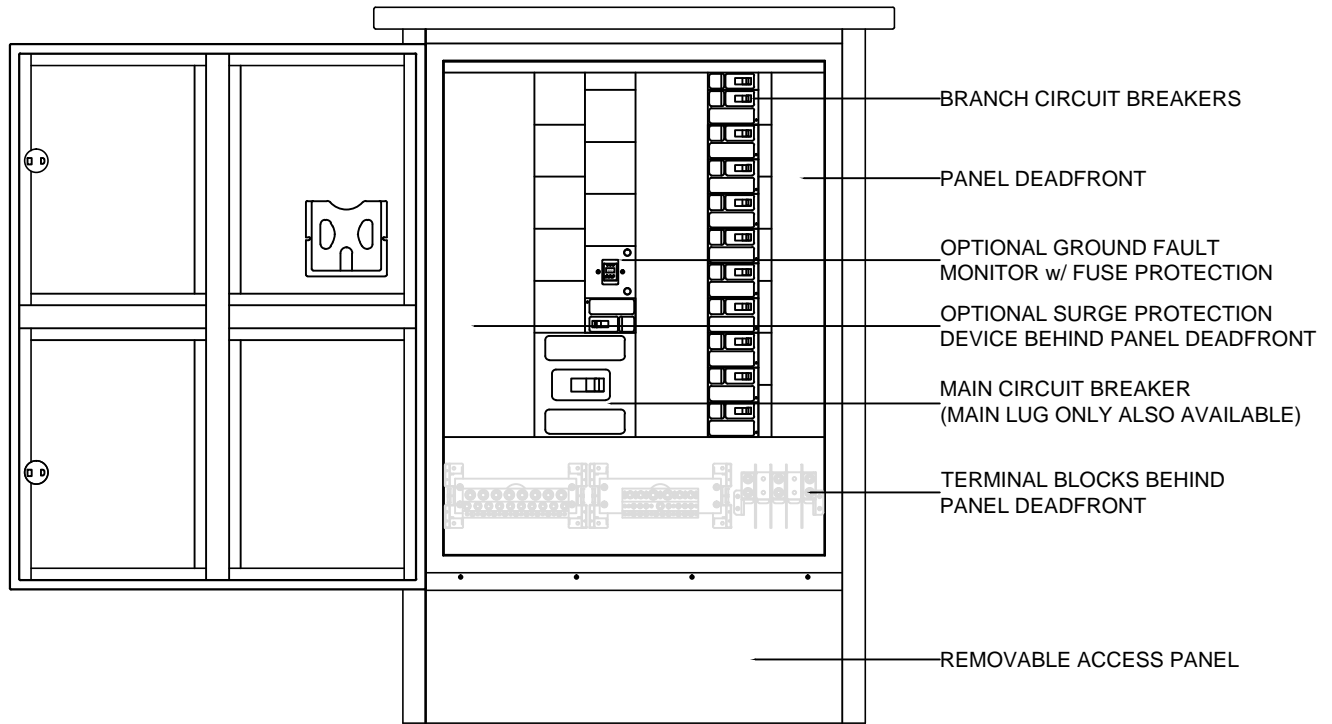
CAUTION: BONDING BETWEEN CONDUIT CONNECTIONS IS NOT AUTOMATIC AND MUST BE PROVIDED AS PART OF THE INSTALLATION.

CAUTION: NONMETALLIC ENCLOSURE DOES NOT PROVIDE GROUNDING BETWEEN CONDUIT CONNECTIONS, USE GROUNDING TYPE BUSHINGS AND JUMPER WIRES.

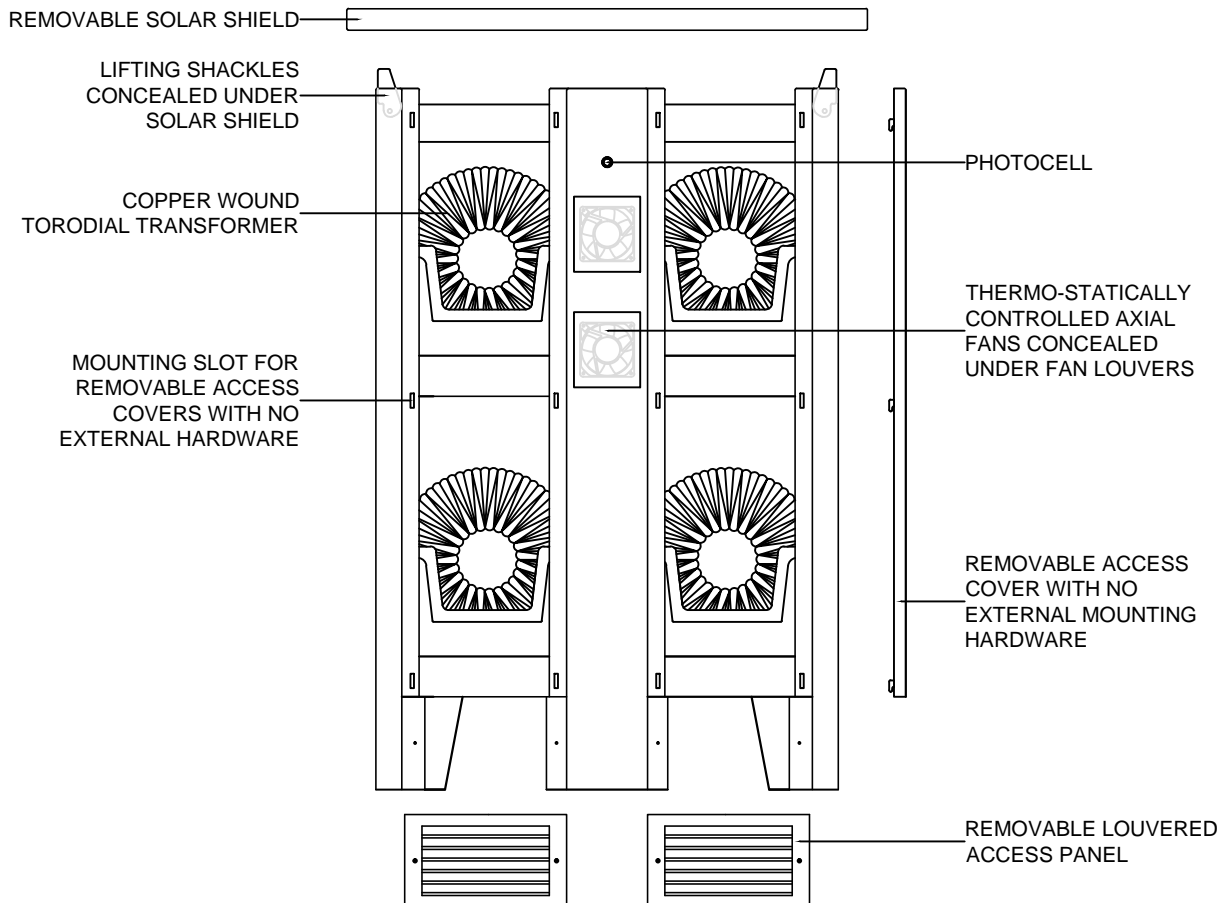
BUS BAR ASSEMBLY - EXPLODED VIEW

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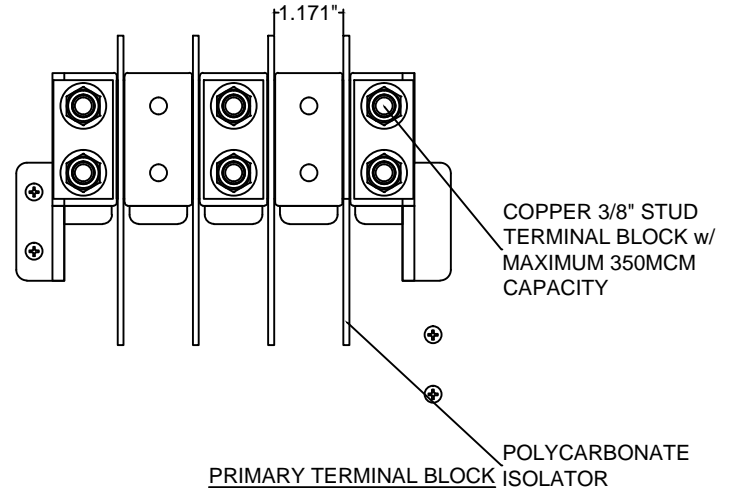
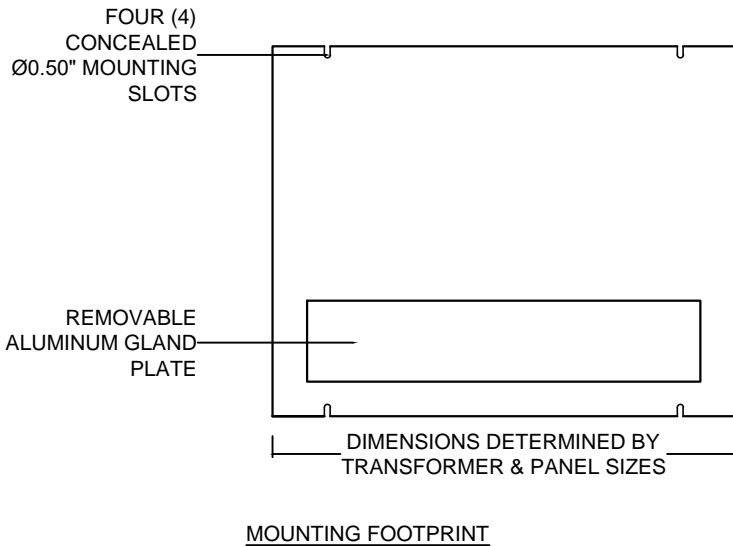
FRONT VIEW w/ DOOR OPEN



BACK VIEW w/ ACCESS PANELS REMOVED TO EXPOSE TORODIAL TRANSFORMERS

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Note: Test and inspect all connections, main feed and branch feeds using a multi meter, high-pot tester, and/or any other test required by the local jurisdiction in the area.

WARNING:

UNITS EQUIPPED WITH GROUND-FAULT MONITORING DEVICES: REMOVE PROTECTIVE FUSE ON POWER CIRCUIT PRIOR TO PERFORMING HI-POT TEST TO AVOID DAMAGING THE DEVICE. SUCH FAILURES ARE NOT COVERED BY THE MANUFACTURER'S WARRANTY.

UNITS EQUIPPED WITH SURGE-PROTECTIVE DEVICES (SPDs): TURN THE LABELED CIRCUIT BREAKER PROTECTING THIS DEVICE TO THE "OFF" POSITION PRIOR TO PERFORMING HI-POT TEST TO AVOID DAMAGING THE DEVICE. SUCH FAILURES ARE NOT COVERED BY THE MANUFACTURER'S WARRANTY.

EXTERIOR MAINTENANCE:

Dirt, grime, bird droppings and insect residue can be removed by use of a mild degreasing solution mixture of one teaspoon per gallon of warm water. Gently scrub the housing exterior and rinse clean. Spiders and other insects can be controlled by use of a **WATER-BASED** insect spray.

WARNING: DO NOT use any petroleum or solvent-based insect spray or corrosion inhibiting products on any part of the power pedestal. These solvents will compromise the structural integrity of the polycarbonate material and cause stress cracking and material failure. Use of any such solvents will void the manufacturer's warranty.

INTERIOR MAINTENANCE:

WARNING: Turn off or disconnect the power supplying this equipment before beginning work. This might require you to contact your local utility to disconnect the power to an existing panel board or disconnect. The line side of the main breaker in a panel board is energized unless power is disconnected upstream. Marina Electrical Equipment, Inc. will not assume any responsibility for property damage or personal injury resulting from misuse of the information in this manual.

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Annual Terminal Block Maintenance:

Open the main door and remove the gutter rails and dead front to expose the **de-energized** supply terminal block and panel board. The terminal block and each circuit breaker lug should then be thoroughly examined for signs of excessive heating, loose and/or corroded connections, and any other sign of damage or wear. All loose or damaged connections need to be tightened or replaced.

Thoroughly examine any copper wire to aluminum lug connections for signs of corrosion. If any corrosion is found, simply remove the copper wire, clean the wire, coat with **synthetic** anti-corrosion grease and reinstall the wire.

WARRANTY POLICY

Housings:

Marina Electrical Equipment, Inc. (MEE) warrants the GTX Unit Substation main housing and attached parts (solar shield, door, drop panels, kick plates, etc.) will be free from failure resulting from defects in material and/or workmanship, and or covered by a limited warranty of one (1) year. Should any of the above parts fail to comply with the above--mentioned warranty, MEE will either repair or replace the defective part(s), or credit the purchaser for the purchase price of the part. This warranty is voided if any of the above mentioned parts are field-modified without written consent of MEE.

Internal Components:

MEE warrants that all internal electrical components shall be covered by the same warranty offered of the component manufacturer. Items covered include: panelboard interior, circuit breakers, transformers, ground fault monitor relays, terminal blocks, fuses and wiring harnesses. Should any of the above parts fail to comply with this warranty policy, MEE will coordinate the repair or replacement of the defective part(s) with the respective supplier.

This warranty policy does not cover damage or failure resulting from abuse, misuse, negligence or Force Majeure. All warranty claims must be made in writing and all defective products shall be returned to MEE for evaluation unless stated otherwise by MEE. MEE will not be responsible for reimbursing the purchaser for any sort of expense incurred by the purchaser as a result of the repair or replacement of a warranty claim.

Send all warranty claims to:

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