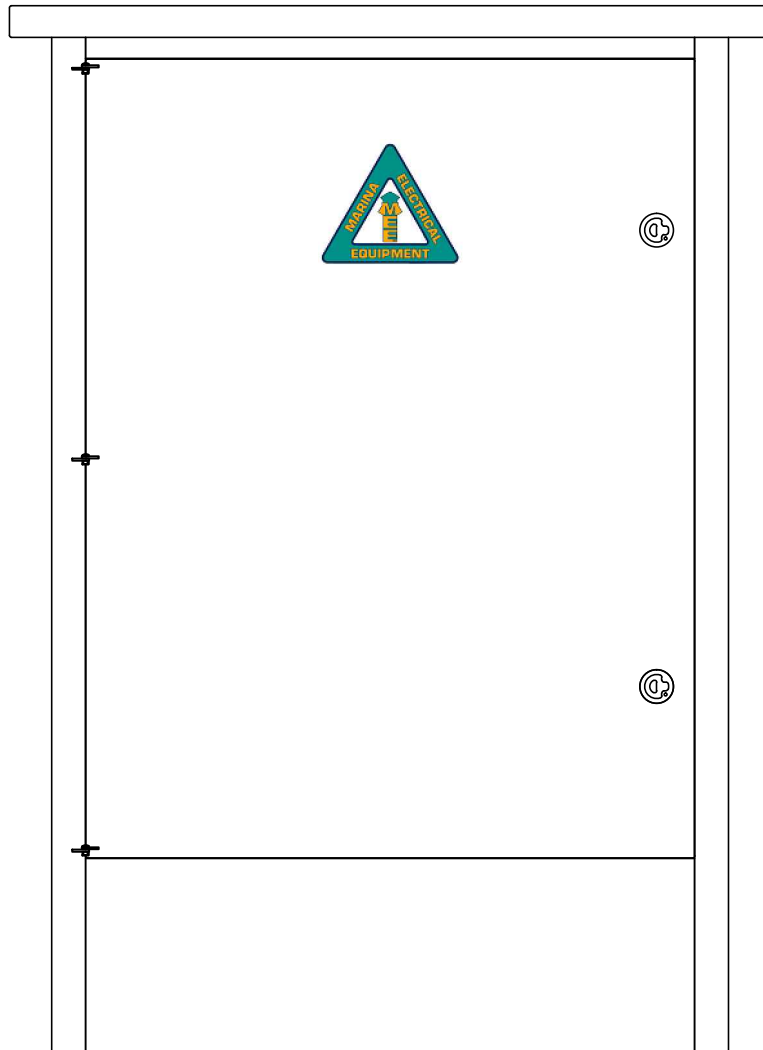




# GTX™ UNIT SUBSTATION

## General Specifications



Marina Electrical Equipment, Inc.  
100 Warwick Court  
Williamsburg, VA 23185  
Toll Free: 1-855-258-3939  
Fax: 1-757-258-3988



# General Specifications - GTX™ Unit Substation

## ALL UNIT SUBSTATIONS SHALL MEET THE FOLLOWING SPECIFICATIONS:

### SECTION A: ACCEPTABLE MANUFACTURERS:

Marina Electrical Equipment, Inc.  
100 Warwick Court  
Williamsburg, VA 23185  
Toll Free: 1-855-258-3939  
Web: [www.marinaelectricequipment.com](http://www.marinaelectricequipment.com)

### SECTION B: GENERAL REQUIREMENTS

1. Unit substations shall be listed and marked, tested and certified to conform to Standard ANSI/UL® 1062 (Unit Substations) and CAN/CSA Standard C22.2 No. 31-10.
2. Shall be compliant with all sections of the latest edition of NFPA® 303, "Fire Protection Standards for Marinas and Boatyards."
3. Shall be compliant with NEC, and NFPA 70 555.5, which states: "Transformers and enclosures shall be specifically approved for the intended location. The bottom of for transformers shall not be located below the electrical datum plane."

### SECTION C: CONSTRUCTION REQUIREMENTS

1. All materials and components used in the construction of the unit substation shall be listed.
2. **Main Housing:** Shall be constructed of 316L stainless steel and shall powdercoated with polyester resin and processed to withstand a saltspray without peeling or separating. The housing be listed as a NEMA® Type 3R weatherproof enclosure.
3. **Access Panels:** Shall be constructed of 316L stainless steel and be flush-mounted with minimal external mounting hardware.
4. **Top / Lifting:** Shall be constructed with a removable solar shield that conceals four (4) engineered lifting shackles that swivel and are designed / tested to lift four (4) times the static weight of the unit substation.
5. **Mounting Base:** Shall be compliant with NEC and NFPA 70 555, and meet the datum plane requirement without the addition of curbing to meet the 12" height requirement. The housing shall also have isolation pads to insure the housing does not have contact with the mounting substrate (concrete or wood).
6. **Mounting Requirements:** Mounting bolts (provided by others) for the Unit Substation shall be easy to use and consealed behind removable louvered access panels after mounting.
7. **Doors:** The housing shall have lockable doors.
8. **Fans:** Shall be equipped with thermo-statically controlled axial fans to maintain efficient operating temperature. The fans shall also be controlled by an electromechanical photocell to limit condensation build-up created by temperature variations during evening hours.
9. **Hardware:** Shall be minimal and be 316 stainless steel, Phillips® drive.

### SECTION D: TRANSFORMER

1. Transformer shall meet the requirements of NEMA TP.1 as described in the Code of Federal Regulations Section 451.196 Energy Conservation Standards.
2. Construction shall be ganged torodial transformers with copper windings and termo-statically controlled axial fans to maintain efficient operating temperature.
3. The no load core (iron) losses shall not exceed 650 watts or 0.0027%.

### SECTION E: PANELBOARD

1. The distribution panelboard shall be a Square-D I line panel.
2. The distribution panelboard shall include a surge protection device designed to contain a 100kA surge incident.
3. The distribution panelboard shall include an optional ground fault monitor tied to the main circuit breaker at the NEC 555.3 requirement that the "main overcurrent protection device that feeds the marina shall have a ground fault protection not exceeding 100mA."
4. The distribution panelboard shall include an optional ground fault monitor tied to each individual branch circuit breaker at the NEC 555.3 requirement that "ground fault protection of each individual branch or feeder circuit shall be permitted as a suitable alternative."

# General Specifications - GTX™ Unit Substation

## **SECTION F: WIRING & TERMINAL BLOCK**

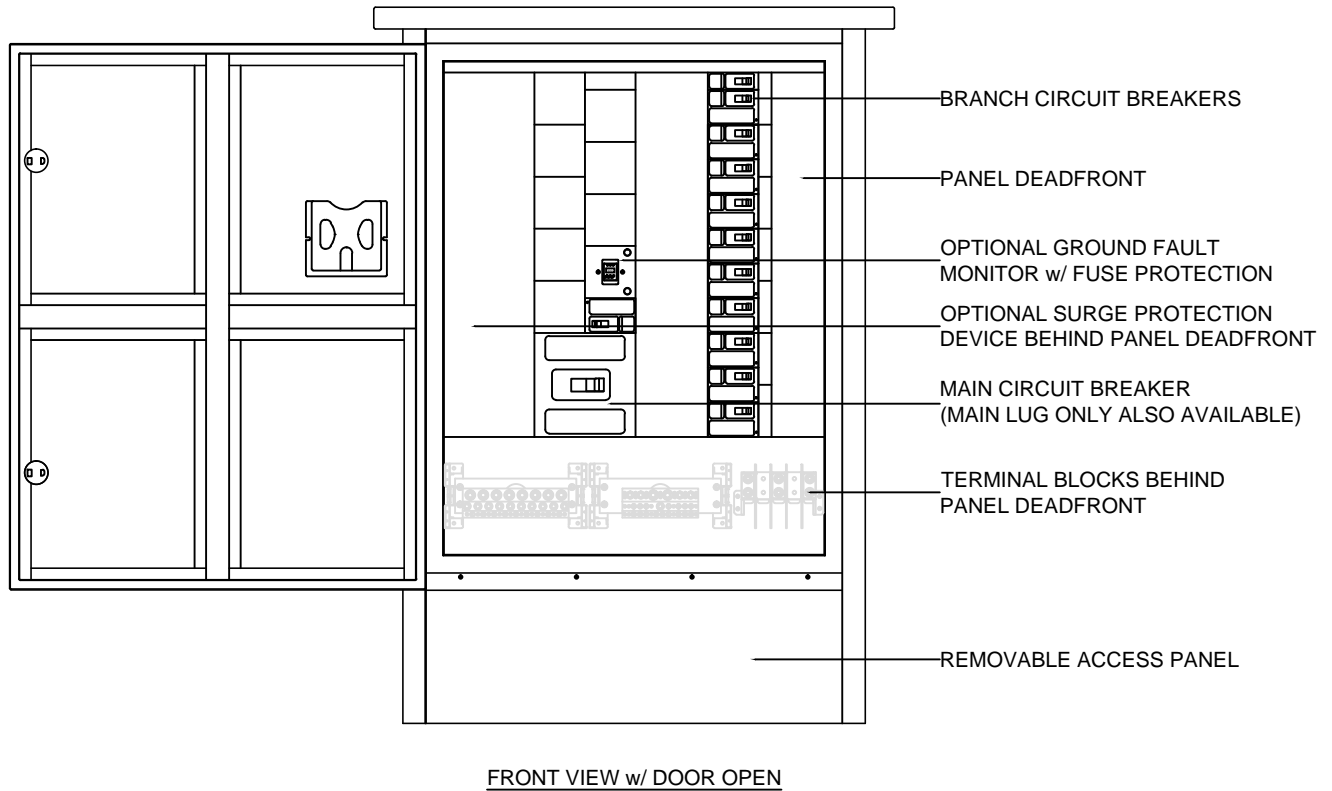
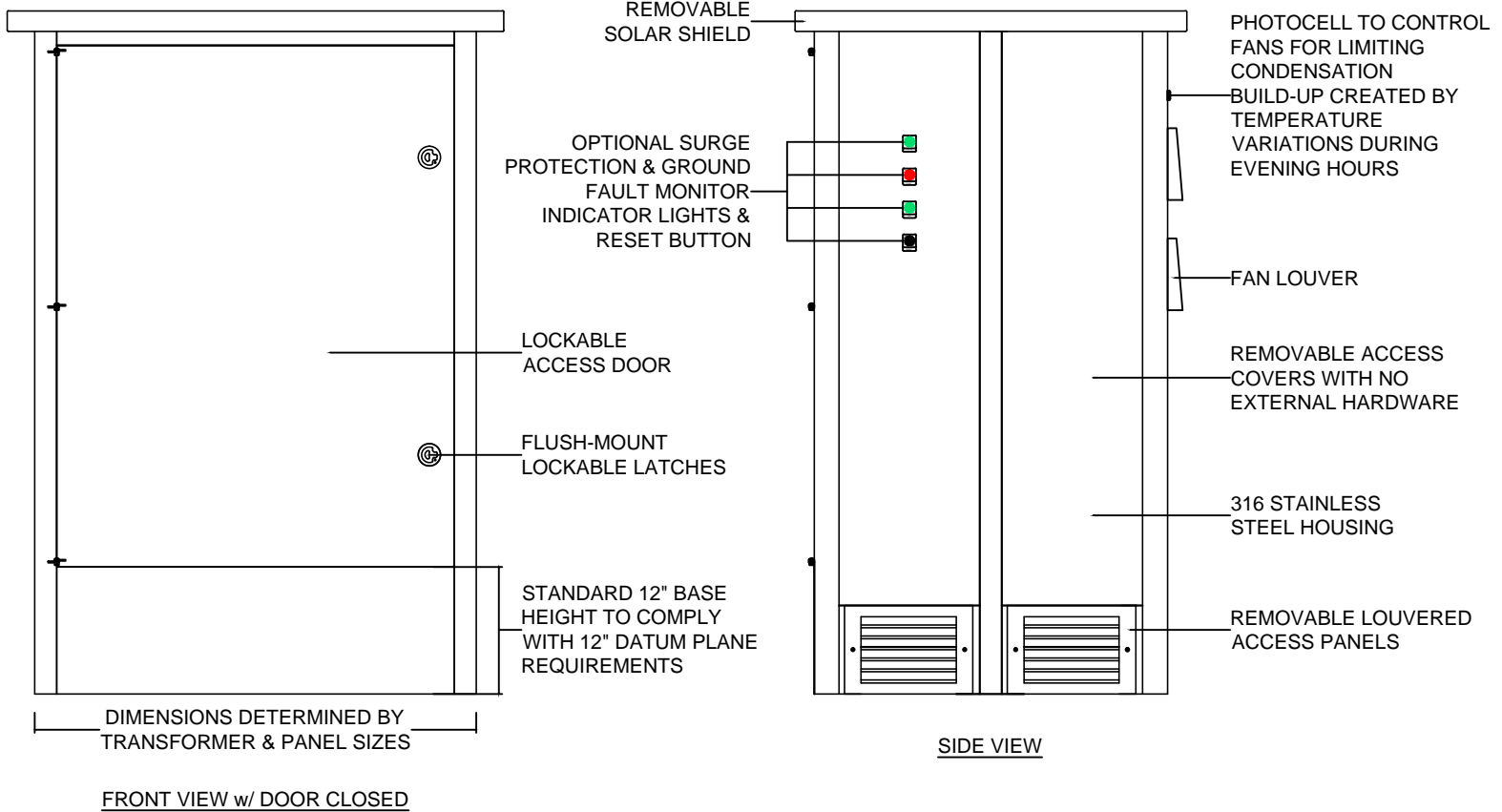
1. Unit substations shall be completely factory pre-wired to the load side of the copper 3/8" stud lug compression terminal block assembly.
2. Electrical wiring shall be high-stranding tin-plated copper THHW/MTW VW-1 Boat Cable rated for 105°C.
3. LINE and LOAD side terminations to the copper bus bar shall be made by compression-type ring terminals on 3/8"-16 stainless steel stud with stainless steel 3/8" x 3/4" O.D. flat washer, 3/8" stainless steel Belleville captive spring washer and 3/8"-16 silicone-bronze hex nut, torqued to 180 inch-pounds.
4. All electrical components shall be located above the electrical datum plane set forth by the NEC.
5. All exposed metallic parts shall be grounded as part of the integral equipment ground.

## **SECTION G: WARRANTY**

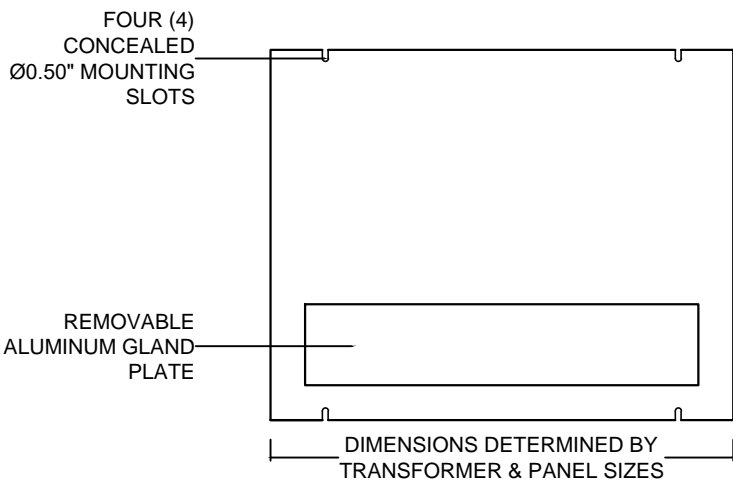
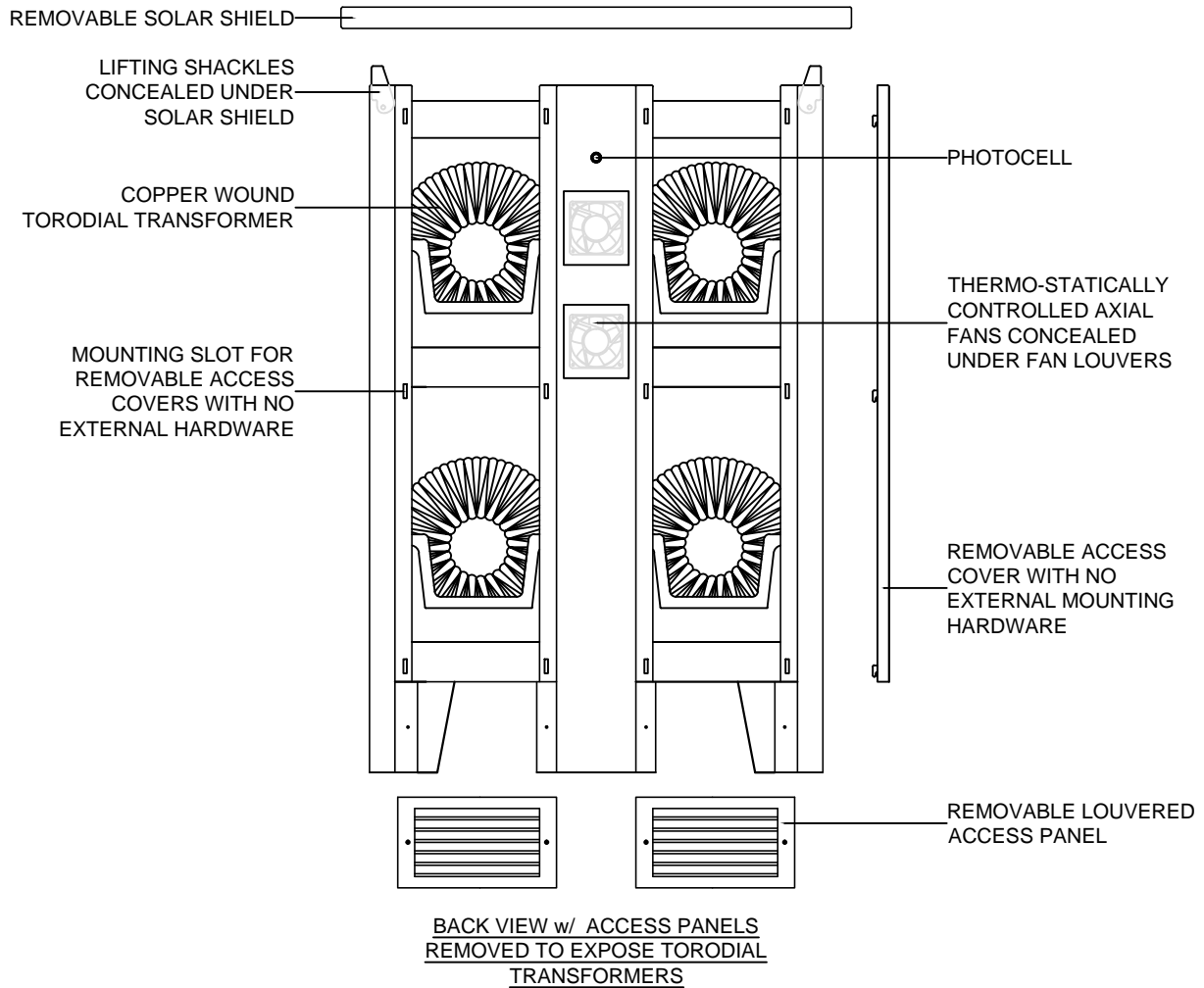
1. The main housing and attached parts (main housing, access panels, and solar shield) will be free from failure resulting from defects in material and/or workmanship, and are covered by a limited lifetime warranty of one (1) year.
2. Internal electrical components shall be covered by the same warranty offered by the component manufacturer. Items covered include: torodial transformers, panelboards, fans, and wiring.

END OF SECTION

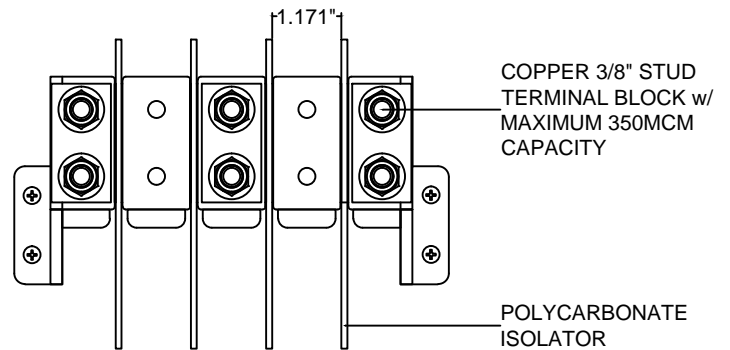
# General Specifications - GTX™ Unit Substation



# General Specifications - GTX™ Unit Substation



MOUNTING FOOTPRINT



PRIMARY TERMINAL BLOCK

# General Specifications - GTX™ Unit Substation

## IMPORTANT: HANDLING / LIFTING

- 1. 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.
- 2. 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.

## MOUNTING

1. 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.

