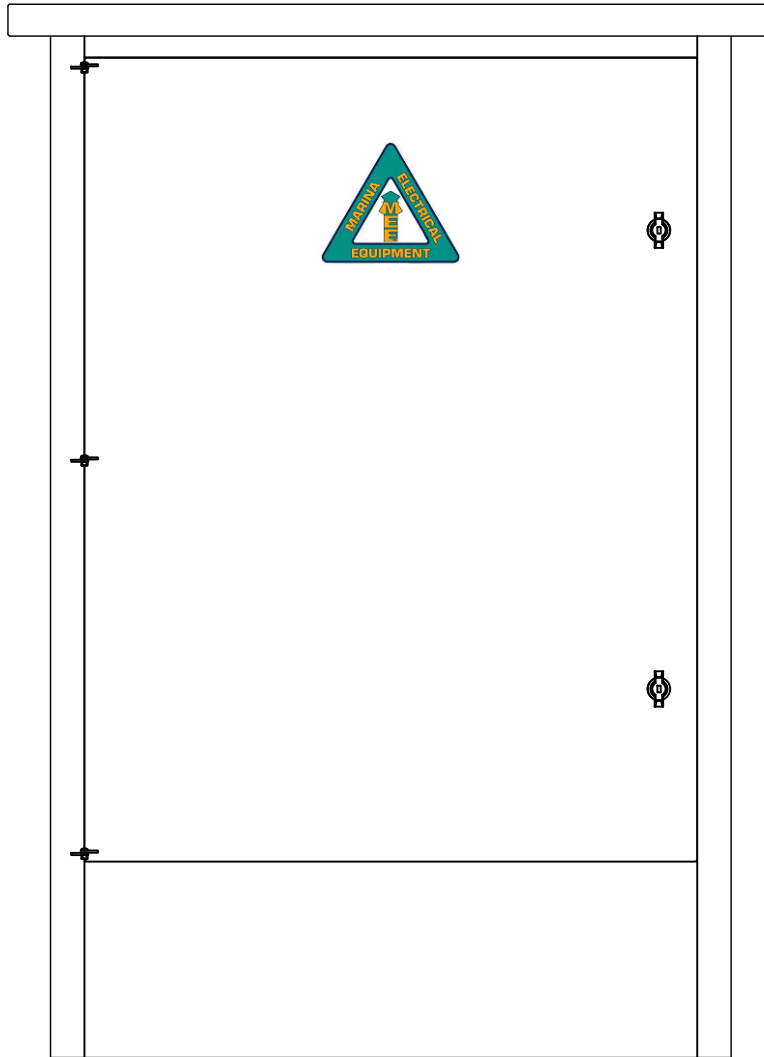


GTX™ UNIT SUBSTATION

General Specifications



Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg, VA 23185
Toll Free: 1-855-258-3939
Fax: 1-757-258-3988



Intertek
4005786

CONFORMS TO STD. ANSI/UL1062

General Specifications - GTX™ Unit Substation

ALL GTX UNIT SUBSTATIONS SHALL MEET THE FOLLOWING SPECIFICATIONS:

SECTION A: ACCEPTABLE MANUFACTURERS:

Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg, VA 23185
Toll Free: 1-855-258-3939
Web: www.marinaee.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 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 "take-apart" construction utilizing 316L stainless steel and shall be powdercoated with polyester resin and processed to withstand a salt spray without peeling or separating. The housing be listed as a NEMA® Type 3RX weatherproof enclosure and contain removable "lift-off panels" to provide 360-degree access to the interior components.
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 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.

SECTION D: TRANSFORMER

1. Transformer shall meet the requirements of NEMA TP.1/DOE2016 as described in the Code of Federal Regulations Section 451.196 Energy Conservation Standards.
2. Construction shall be dry-type isolation transformers with copper windings and thermo-statically controlled axial fans to maintain efficient operating temperatures.

SECTION E: PANELBOARD

1. The distribution panelboard(s) shall be main circuit breaker (main lug only available by request) and manufactured by listed panelboard manufacturers.
2. The distribution panelboard(s) shall include surge protection device designed to contain a 130kA/phase surge incident (optional, other ratings available by request).
3. The distribution panelboard(s) shall include ground fault monitor relay(s) to monitor and/or interrupt the main circuit breaker and/or branch circuit breakers to comply with NEC 555 requirements (optional).
4. Standard panelboard(s) bussing shall be 1000A PSI copper, unless otherwise noted/requested.
5. The standard panelboard(s) short-circuit current rating (SCCR) shall be 10 kAIC and be fully-rated unless otherwise noted/requested (SCCR are available from 10 kAIC - 200 kAIC, fully or series-rated).
6. Primary main circuit breakers and panelboards are optional.

General Specifications - GTX™ Unit Substation

SECTION F: WIRING & TERMINAL BLOCK

1. GTX unit substations shall be completely factory pre-wired to the load side of the copper 3/8" stud lug compression terminal block assembly (or other various incoming terminals - i.e. molded case switch, circuit breaker, main lugs, etc).
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 split-ring 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 POLICY:

Housings:

Marina Electrical Equipment, Inc. (MEE) warrants that the main housing and attached parts (top, lens, doors, receptacle faceplates, circuit breaker plates, and mounting base plate) will be free from failure resulting from defects in material and/or workmanship, and are 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 petroleum-based solvent is used anywhere on or near any of the polycarbonate parts. These parts include, but may not be limited to: the top, lens, doors, receptacle faceplates, circuit breaker plates, terminal block, and the mounting base plate.

Internal Components:

MEE warrants that all internal electrical components shall be covered by a limited warranty of one (1) year. Items covered include but are not limited to: transformers, panelboards, ground fault monitor relays, surge protective devices, receptacles, circuit breakers, photocells, lamp holders, coil transformers, counters 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.

Solid-State Electric kWh Monitors:

MEE warrants that the International Intelligent Meter (IIM) solid-state electric kWh monitors will be free from failure resulting from defects in material and/or workmanship, and are covered for one (1) year. Although the IIM meters contain integrated surge protection, MEE and IIM will not warrant the product against severe over-voltage conditions such as lightning strikes or abnormal utility surges. Should an electric monitor fail to comply with the above-mentioned warranty, MEE will either repair or replace the defective part(s)/components, or credit the purchaser for the purchase price of the part. This warranty is voided if the damage to any or all of the components is the result of abuse, misuse, or Force Majeure. This warranty is voided if the factory seal is broken or manipulated.

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.

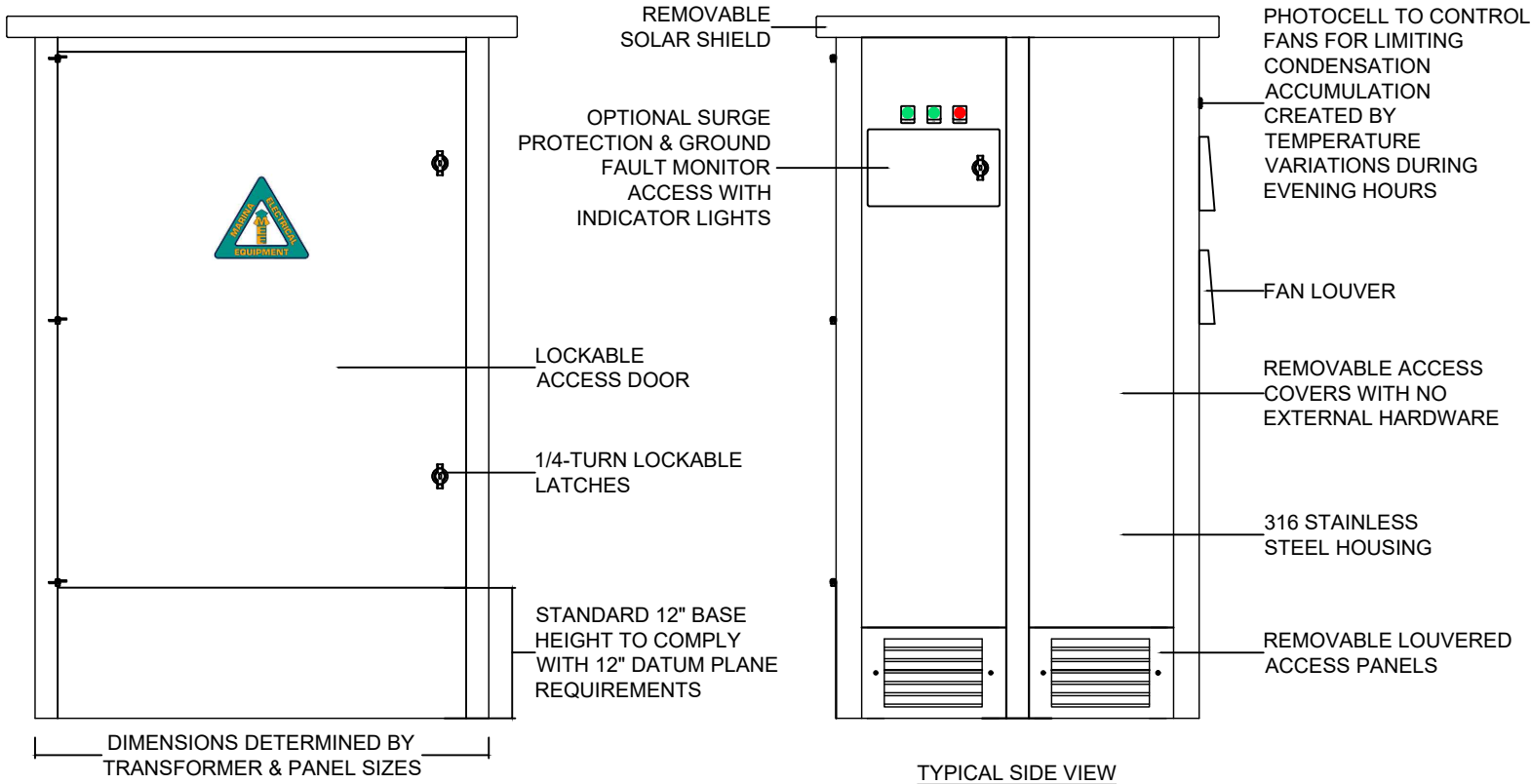
Send all warranty claims to:

Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg, VA 23185
Toll Free: 1-855-258-3939
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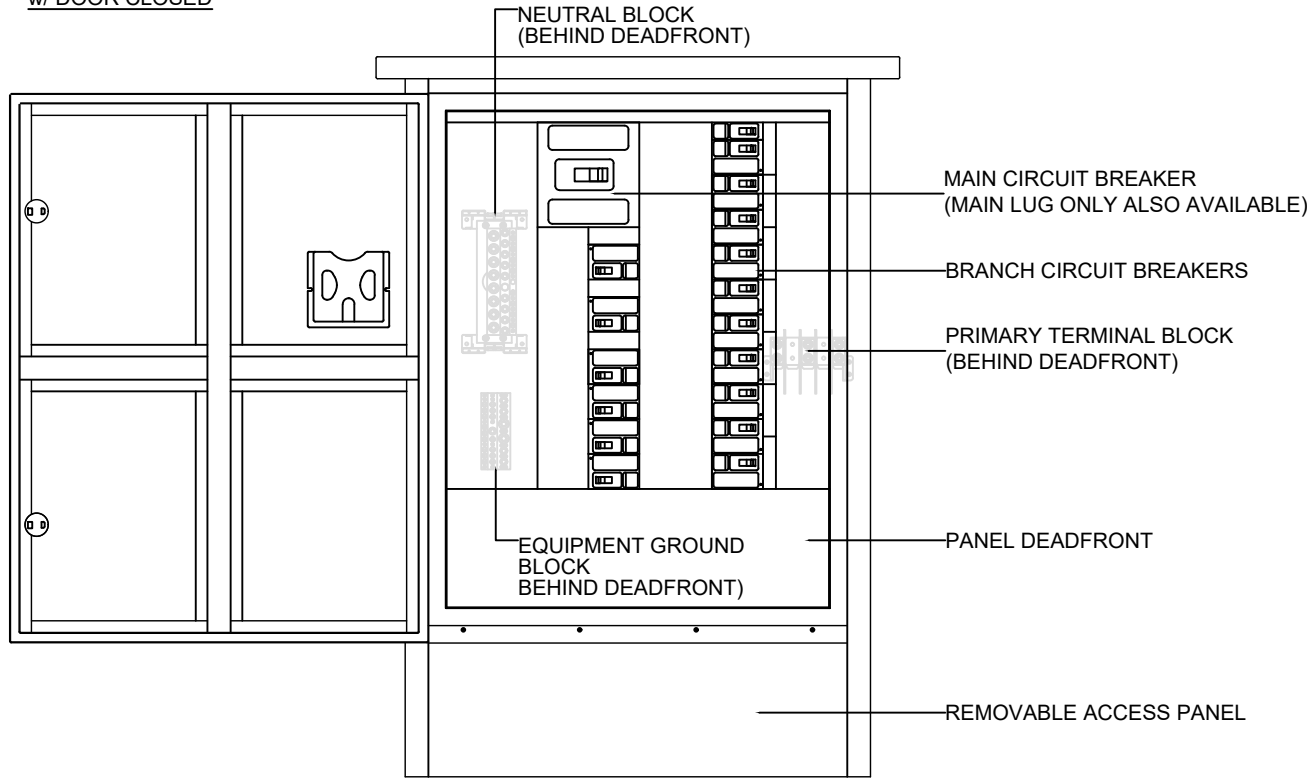
Specifications Subject to Change Without Notice

END OF SECTION

General Specifications - GTX™ Unit Substation



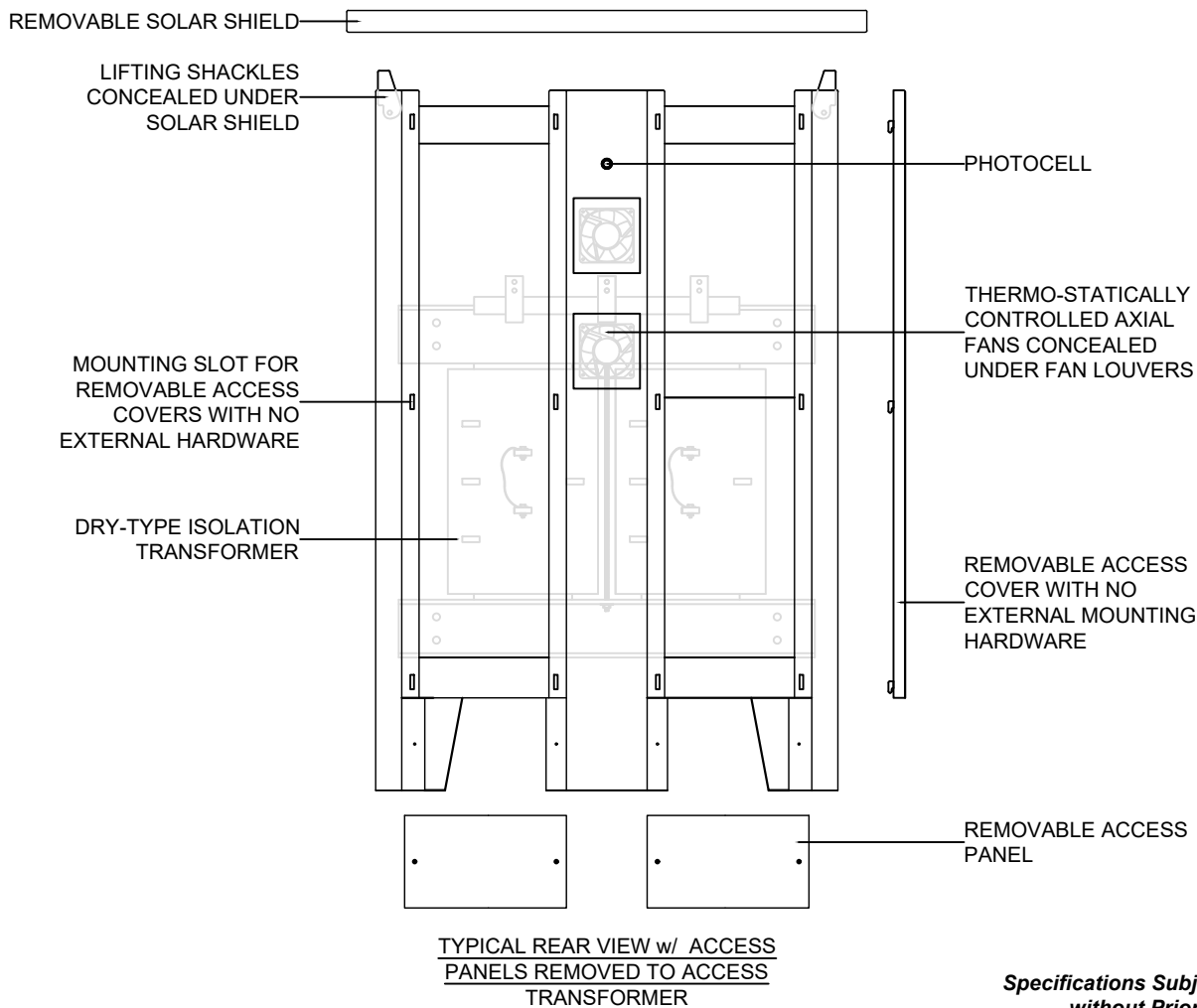
TYPICAL FRONT VIEW w/ DOOR CLOSED



TYPICAL FRONT VIEW w/ DOOR OPEN

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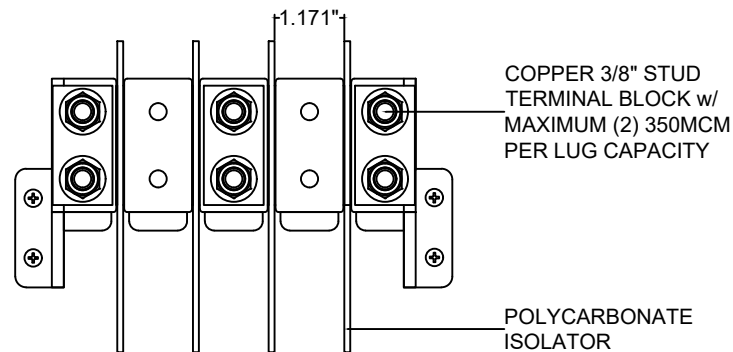
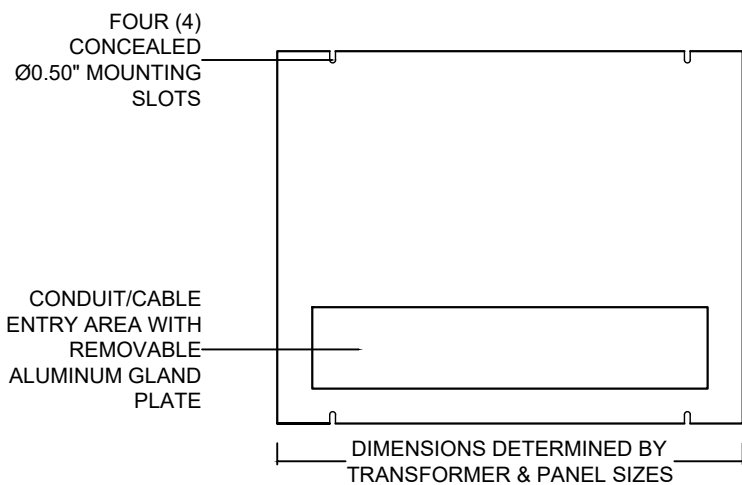
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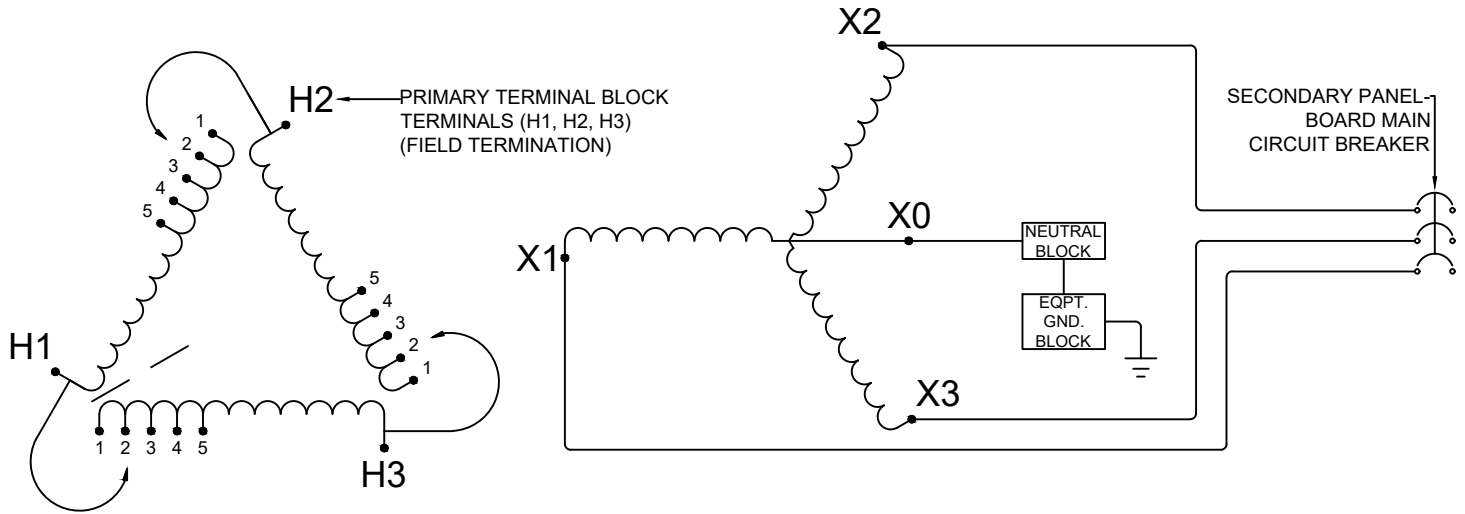
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General Specifications - GTX™ Unit Substation

TYPICAL THREE PHASE WIRING DIAGRAM

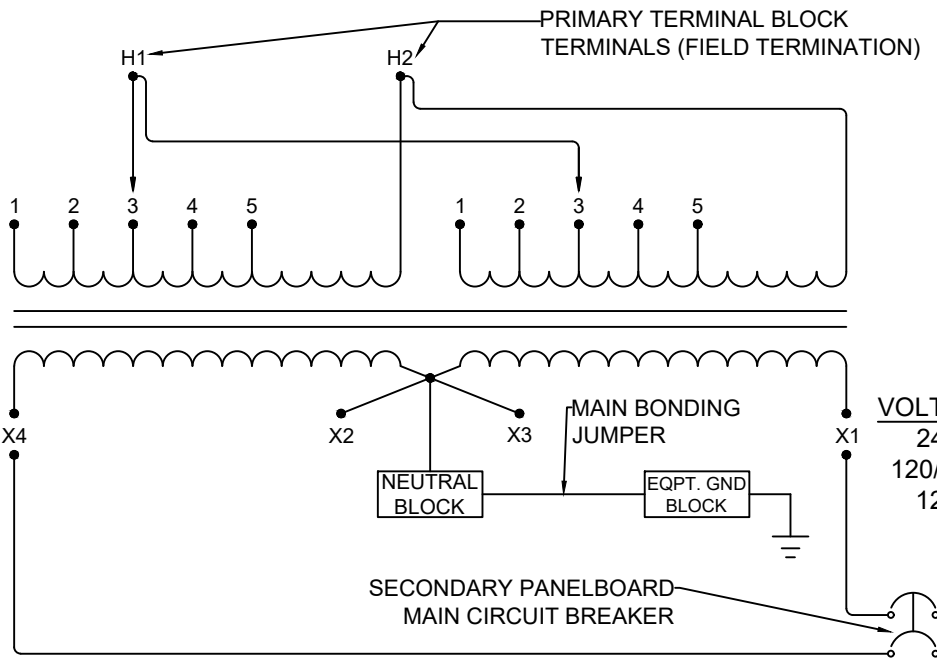


PRIMARY: H1-H2-H3

SECONDARY: X0,X1,X2,X3

<u>VOLTAGE</u>	<u>% TAP</u>	<u>LINKS</u>	<u>VOLTAGE</u>	<u>CONNECT LOADS TO:</u>
504	105.0%	1-1-1	208	X1-X2-X3
492	102.5%	2-2-2	120	X0-X1, X0-X2 and/or X0-X3
480	100.0%	3-3-3		
468	97.5%	4-4-4		
456	95.0%	5-5-5		

TYPICAL SINGLE PHASE WIRING DIAGRAM



PRIMARY: H1 - H2

<u>VOLTAGE</u>	<u>% TAP</u>	<u>LINKS</u>
504	105.0%	1-1
492	102.5%	2-2
480	100.0%	3-3
468	97.5%	4-4
456	95.0%	5-5

SECONDARY: X1, X2, X3, X4

<u>VOLTAGE</u>	<u>INTERCONNECT</u>	<u>CONNECT LOAD TO</u>
240	X2-X3	X1-X4
120/240	X2-X3	X1-X2-X4
120	X1-X3 & X2-X4	(X2 is a Neutral) X1/X3-X2/X4

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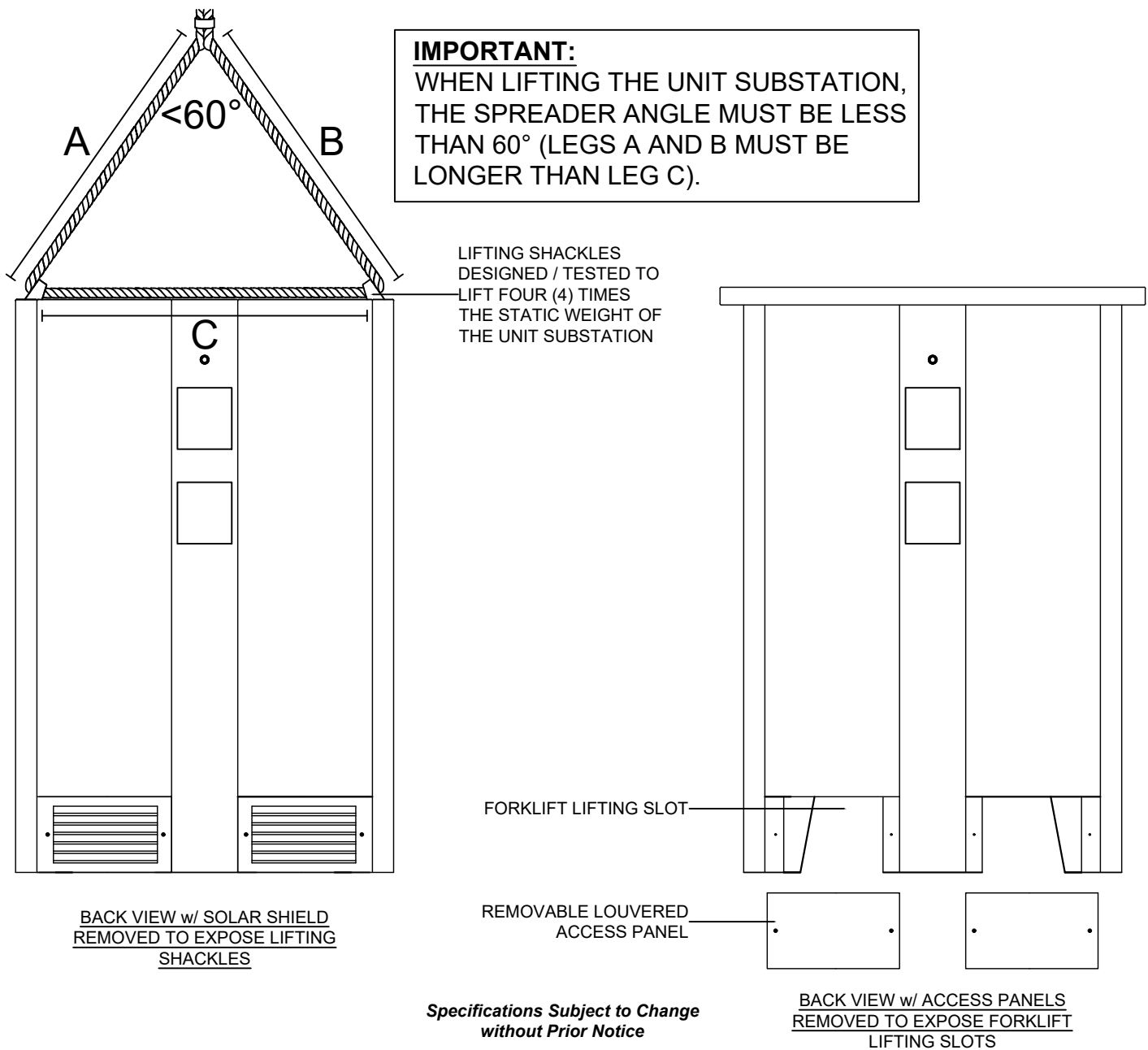
General Specifications - GTX™ Unit Substation

IMPORTANT: HANDLING / LIFTING

- 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 and side of the unit substation (front/back or side/side). Remove the access panels on each side 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

- Remove the front and rear 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.



BACK VIEW w/ SOLAR SHIELD
REMOVED TO EXPOSE LIFTING
SHACKLES

FORKLIFT LIFTING SLOT

REMOVABLE LOUVERED
ACCESS PANEL

BACK VIEW w/ ACCESS PANELS
REMOVED TO EXPOSE FORKLIFT
LIFTING SLOTS

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without Prior Notice*