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**Polymer Concrete Underground Enclosure**

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**Version History**

| Version | Date          | Revision Comments  |
|---------|---------------|--|
| 01      | Jul. 13, 2022 | PREPA to LUMA format for Items 038-01976, 038-01954 & 038-01992.   |
| 02      | Mar. 20, 2025 | General format modifications. Sections 3, 4, 5, 8, and 9 modified. Table of Compliance updated. Document name was changed. |



## Item Version History

| Warehouse Catalog # | Asset Suite # | Version | Date       |
|---------------------|---------------|---------|------------|
| 038-01962           | 58492         | 5       | 03/20/2025 |
| 038-01947           | 58490         | 5       | 03/20/2025 |
| 038-01984           | 58494         | 5       | 03/20/2025 |



## 1. Introduction

This is a general specification that covers the minimum requirements for polymer concrete underground enclosures to be used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the equipment/material.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this equipment/material to LUMA in previous orders will not have to furnish samples at bid opening. The equipment/material will be received at LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

- 3.1. Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature must include, but is not limited to, details of material, drawings, documented testing, and instructions for use and installation. **The literature must be an official document from and certified by the manufacturer.** Failure to submit documents on time and duly certified by the manufacturer will cause bidder disqualification.
- 3.2. If required by LUMA, final drawings and documentation shall be submitted by the vendor before the manufacturing and shipping process for approval.

## 4. Compatible with

For compatible manufacturer and model see Table 1. These models are examples of the equipment/material described in this document and do not represent a preference. LUMA will evaluate equally any model not listed here during any acquisition event.

## 5. Markings

- 5.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.
- 5.2. Individual package(s) shall be clearly marked with manufacturer name and item information (part number, serial number, quantity, etc.).

5.3. Packaging labels and tags shall be waterproof.

## **6. Packaging**

6.1. All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.

6.2. A list of all parts included in the container and/or package must be provided at the time of delivery so that the receiving personnel can verify that everything requested is present, avoiding any delay in the receiving process.

## **7. Number Per Package (Logistics)**

7.1. Standard unit of purchase: Each

7.2. Standard package as per Table 2 or as required by LUMA.

## **8. Acceptance Criteria**

8.1. Test required: Certified by qualified external laboratories.

8.2. Product shall be manufactured in accordance with the latest issue below (section 8.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.

8.3. Latest applicable codes, standards, and other regulations:

a. ANSI/SCTE 77: Underground enclosure integrity. Must meet TIER 15

b. ASTM D-543: Standard practices for evaluating the resistance of plastics to chemical reagents.

c. ASTM D-570: Standard test method for water absorption of plastics.

d. ASTM D2444: Standard practice for determination of the impact resistance of thermoplastic pipe and fittings by means of a tup (Falling Weight).

e. ASTM G-154: Standard practice for operating fluorescent ultraviolet (UV) lamp apparatus for exposure of nonmetallic materials.

f. UL 94: Test for flammability of plastic materials for parts in devices and appliances.

g. UL 746A: Polymeric material short term property evaluation

8.4. If any other standard different from the ones indicated in this document is used, the supplier must provide information showing compatibility with the required ones.

## **9. Description**

9.1. Underground enclosures to be used on non-deliberate traffic applications like green areas, and sidewalks.

- 9.2. The enclosure must be made of precast polymer concrete reinforced with fiberglass.
- 9.3. Each enclosure must include the box and the appropriate cover coming from the same manufacturer having a perfect fit. See Table 1 as reference.
- 9.4. For the enclosure box and cover dimensions and weight, see Tables 2 and 3.
- 9.5. The enclosure box must have two (2) floating nuts in opposite corners to secure the cover with penta-head bolts.
- 9.6. The color for the box and the cover must be Munsell green, permanently impregnated on the concrete polymer.
- 9.7. The surface of the enclosure box and the bottom of the cover must have a smooth finish and be free from imperfections and deformations.
- 9.8. The cover top must have skid resistance surface.
- 9.9. The vendor must submit the lateral load capacity and vertical side wall test for the enclosure box and the vertical load test for the cover. Everything must be as per ANSI/SCTE 77 latest issue. The results must exceed TIER 15 load requirements.
- 9.10. The enclosure wall and cover must meet specified loads with a deflection not exceeding 0.5" (12.7 mm).
- 9.11. The enclosure box and cover must be resistant to acids, alkaline, fertilizers, and most chemicals.
- 9.12. The cover must include two (2) 3/8" - 16 TPI full thread, tamper resistant, stainless steel, penta-head bolts with two (2) 3/8" stainless steel flat washer to secure the cover into the box. The bolt length will depend on the type of box.
- 9.13. The cover must have pull slots with a center pin. See Table 3 for slot quantity and bolt diameter.
- 9.14. The cover must have permanently stamped "ELECTRIC" logo and TIER number on top side.

## **10. Inspection**

- 10.1. Upon inspection of incoming equipment/material, the purchaser reserves the right to refuse product shipments and to determine the acceptability or rejection of the product received. The supplier shall be liable for all costs incurred for a product that is rejected.
- 10.2. The acceptance of any equipment/material shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such equipment/materials were found later to be defective.

## **11. Proposal Information**

- 11.1. Submitted proposals must include:
  - a. Technical information, drawings, and tests.



b. Table of Compliance completed by the bidder with reference (see Appendix 1).

**12. Table 1: Warehouse and Asset Suite Identification Number**

| Warehouse Catalog # | Asset Suite # | Item Description   | Compatible Manufacturer | Box Model  | Cover Model   |
|---------------------|---------------|--|-------------------------|------------|---------------|
| 038-01962           | 58492         | 13" W X 24" L X 18" D standard open bottom, Tier 22 underground rectangular enclosure with Tier 15 cover made of precast polymer concrete. | Hubbell-Quazite         | PG132GBA18 | PG132GHA0017P |
| 038-01947           | 58490         | 24" W X 36" L X 30" D standard open bottom, Tier 22 underground rectangular enclosure with Tier 15 cover made of precast polymer concrete. | Hubbell-Quazite         | PG243GBA30 | PG243GHA0017P |
| 038-01984           | 58494         | 12" W X 12" L X 12" D standard open bottom, Tier 15 underground square enclosure with Tier 15 cover made of precast polymer concrete.      | Hubbell-Quazite         | PC121GBA12 | PC121GHA0017P |

**13. Table 2: Box Characteristics**

| Box Model  | Outside Box Width   | Outside Box Length   | Outside Box Depth | Box Weight             | Standard Package (Qty/Pallet) | Bolt Slot Quantity |
|------------|---------------------|----------------------|-------------------|------------------------|-------------------------------|--------------------|
| PG132GBA18 | 15.5"<br>(39.4 cm)  | 25"<br>(63.5 cm)     | 18"<br>(45.7 cm)  | 72 lbs.<br>(24.04 kg)  | 16                            | 2                  |
| PG243GBA30 | 26"<br>(66.0 cm)    | 37.625"<br>(95.6 cm) | 30"<br>(76.2 cm)  | 196 lbs.<br>(88.90 kg) | 2                             | 2                  |
| PC121GBA12 | 14.75"<br>(37.5 cm) | 14.75"<br>(37.5 cm)  | 12"<br>(30.5 cm)  | 36 lbs.<br>(16.33 kg)  | 30                            | 2                  |

**14. Table 3: Cover Characteristics**

| Cover Model   | Length               | Width                | Thick             | Weight                 | Slots Qty & (Dimensions)                  |
|---------------|----------------------|----------------------|-------------------|------------------------|---|
| PG132GHA0017P | 23.25"<br>(59.1 cm)  | 13.75"<br>(34.9 cm)  | 2"<br>(5.08) cm   | 51 lbs.<br>(23.13 kg)  | 2 ea.<br>(0.5" x 4")<br>(1.27 x 10.16) cm |
| PG243GHA0017P | 35.625"<br>(90.5 cm) | 24"<br>(61.0 cm)     | 3"<br>(7.62) cm   | 115 lbs.<br>(52.16 kg) | 2 ea.<br>(0.5" x 4")<br>(1.27 x 10.16) cm |
| PC121GHA0017P | 12.875"<br>(32.7 cm) | 12.875"<br>(32.7 cm) | 3/4"<br>(1.91) cm | 12 lbs.<br>(5.44 kg)   | 1 ea.<br>(0.5" x 2")<br>(1.27 x 5.08) cm  |

— End of Specification —



## Appendix



## Appendix 1: Table of Compliance

| Line | Description  | Pass/Fail<br>(P / F) | Comments |
|------|--|----------------------|----------|
| 1    | Complies with document 4350.186.   |                      |          |
| 2    | Industry Standards: ANSI/SCTE 77, ASTM (D543, D570, D2444 & G154), and UL (94 & 746A).   |                      |          |
| 3    | Tech. info., drawings, and tests provided.   |                      |          |
| 4    | Box and cover included with perfect fit and coming from the same manufacturer.   |                      |          |
| 5    | Precast polymer concrete reinforced with fiberglass for box and cover.   |                      |          |
| 6    | Two floating nuts in opposite corners of the box to secure the cover.  |                      |          |
| 7    | Two SS, 3/8", 16 TPU, Penta Head Bolts included with two SS flat washers.  |                      |          |
| 8    | Smooth finish for the box and the bottom of the cover without imperfections nor deformation.   |                      |          |
| 9    | Skid resistance for the top surface of the cover.  |                      |          |
| 10   | Pull slots in the cover with a center pin as per Table 3.  |                      |          |
| 11   | Box and cover shall be resistant to acids, alkaline, fertilizers, and most chemicals.  |                      |          |
| 12   | Color: Munsell green permanently impregnated on the concrete polymer for the box and cover.  |                      |          |
| 13   | "ELECTRIC" logo and TIER number permanently stamped on the top side of the cover.  |                      |          |
| 14   | Lateral load capacity and vertical side wall test for the enclosure box and the vertical load test for the cover as per ANSI/SCTE 77 provided. |                      |          |
| 15   | TIER 15 load requirements exceed for box and cover.  |                      |          |
| 16   | Dimensions and weight as per Table 2 and 3 respectively.   |                      |          |

**NOTE: This table is only a checklist for reference. The compliance must be with the complete document. Filling out the table with "PASS" won't be accepted as a compliance without the technical information required to certify it.**













# 4350.186 Polymer Concrete UG Enclosure (3-20-25)

Final Audit Report

2025-03-20

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