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Transmission Fiberglass Crossarms

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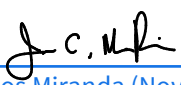
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Related/Referenced Documents

Include the applicable document, section, or reference "[add link here](#)".

Version History

Version	Date	Revision
01	Oct 15, 2024	First Issue
02	Nov 15, 2024	Added 14ft crossarm information. Changed information in table 1, description, and drawings.

1. General

1.1. Overview

- 1.1.1. This is a general specification that covers the minimum requirements for fiberglass crossarms to be used at LUMA transmission systems in Puerto Rico.
- 1.1.2. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site conditions, quantity, and other requirements.
- 1.1.3. This document includes the general electrical and mechanical characteristics of the material.

2. Specific Requirements

- 2.1. Samples shall be furnished to LUMA.
- 2.2. Vendors that have supplied this equipment/material to LUMA on previous orders, will not have to furnish samples at bid opening.
- 2.3. Shipping will include transportation and unloading at the indicated warehouse
- 2.4. LUMA requires One (1) unit properly labeled for testing and analysis.
- 2.5. Descriptive and technical literature shall be supplied to LUMA.
- 2.6. They shall be required to show evidence of LUMA's approval of the equipment.

3. Acceptance Criteria

- 3.1. Test required: certified by external qualified laboratories.
- 3.2. Product shall be manufactured in accordance with the latest issue below (section 3.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.
- 3.3. Latest applicable codes, standards, and other regulations:
 - a. ASTM 8019-15: Standard Test Methods for Determining the Full Section Flexural Modulus and Bending Strength of Fiber Reinforced Polymer Crossarms Assembled with Center Mount Brackets.
 - b. ASTM G-154: Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.
 - c. ASTM D-635: Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
 - d. ASTM D3801: Standard Test Method for Measuring the Comparative Burning Characteristics of Solid Plastics in a Vertical Position
 - e. IEEE Standard 4, and IEC 60060-1: Standard for High-Voltage Testing Techniques.
 - f. ASTM B85/B85M: Standard Specification for aluminum-alloy die castings.

- g. AISI 304: Stainless Steel Type 304.
 - h. ANSI B18.22.1 Type A: Standard for washer dimensional requirements.
 - i. ASTM F593-17: Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - j. ASTM F594-09 - Standard Specification for Stainless Steel Nuts.
- 3.4. If any other standard different from the ones indicated in this document are used, the supplier must provide information showing compatibility with the required ones.

4. Description

- 4.1. Fiberglass crossarm to be used for multiple overhead conductors' connections and equipment installation.
- 4.2. Must be made of fiberglass with high density closed cell foam core, protected by UV inhibitors and an outer veil for added UV protection.
- 4.3. Crossarm beam must be heavy duty with a single beam configuration.
- 4.4. Drill holes must be reinforced or include a reinforcing sleeve to increase crush-resistance and allow bolt tightening without damaging the crossarm walls.
- 4.5. The center mount bracket must be the heavy-duty type made of cast aluminum or galvanized steel drilled and tapped.
- 4.6. Mounting holes at mounting plate must be 13/16 in (2.06 cm) in diameter with 12 in (30.48 cm) center to center spacing.
- 4.7. Each crossarm must include bolts, nuts, and washers to attach mounting bracket to the fiberglass beam. All hardware must be hot dip galvanized steel.
- 4.8. Crossarm beams must have high strength polymer end caps bonded to the crossarm ends to fully seal the ends.
- 4.9. All crossarm assemblies shall be clearly and permanently marked with all required nameplate markings such as Manufacture's name, model, and month/year of manufactured.
- 4.10. Manufacturer shall provide spacer bracket for dual cross-arms and shall provide requirements and guidelines of installation for this item.
- 4.11. Beam must meet or exceed the mechanical properties shown on Table 1 below.

Table 1: Minimum Required Mechanical Properties

Item Description	LUMA Warehouse No.	Ultimate Longitudinal Capacity per Wire (lbs/end)	Quantity of Horizontal Drillings	Crossarm Drilling Pattern
12ft Heavy Duty-Braceless-Fiberglass Crossarm	008-86573	11,000	4	Custom
14ft Heavy Duty-Braceless-Fiberglass Crossarm	008-86702	11,000	4	Custom

5. Markings and Packaging

- 5.1. Containers/pallets or package shall be marked outside with LUMA’S purchase order number and code number.
- 5.2. Vendor shall prepare material and equipment for shipment in such manner as to facilitate handling and protection for damage.
- 5.3. All material should be packaged and marked in such a way that the receiving warehouse can readily identify and send in one (1) complete unit to a field location without opening crates or boxes to sort items and/or parts.
- 5.4. Standard Package: As per LUMA’s request.

6. Proposal Information

- 6.1. Submitted proposals must include:
 - a. Technical Information
 - b. Table of Compliance completed by the bidder with reference

7. Drawings

Figure 1: 12ft Crossarm Drawings

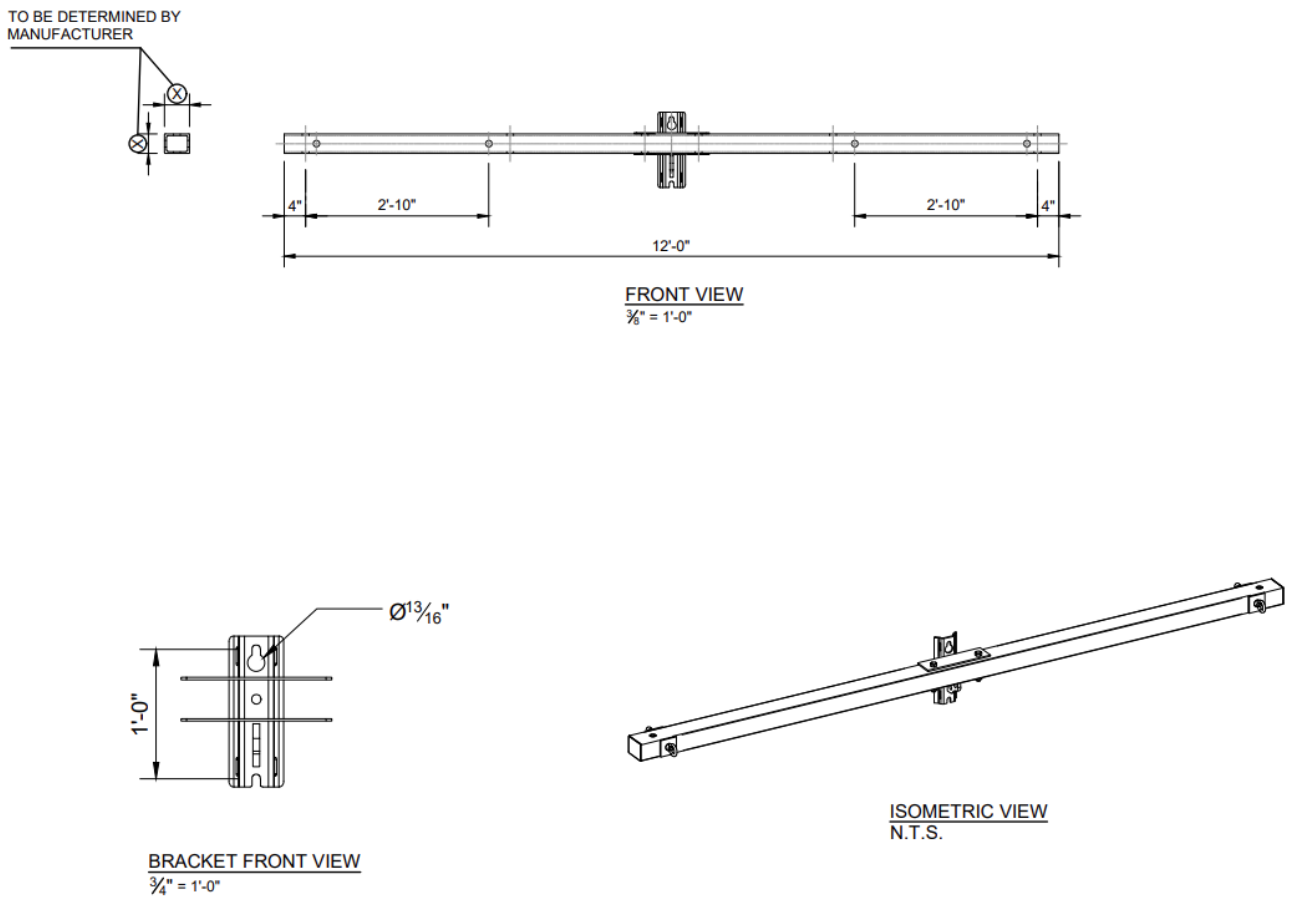


Figure 2: 12 ft Crossarm Plan View

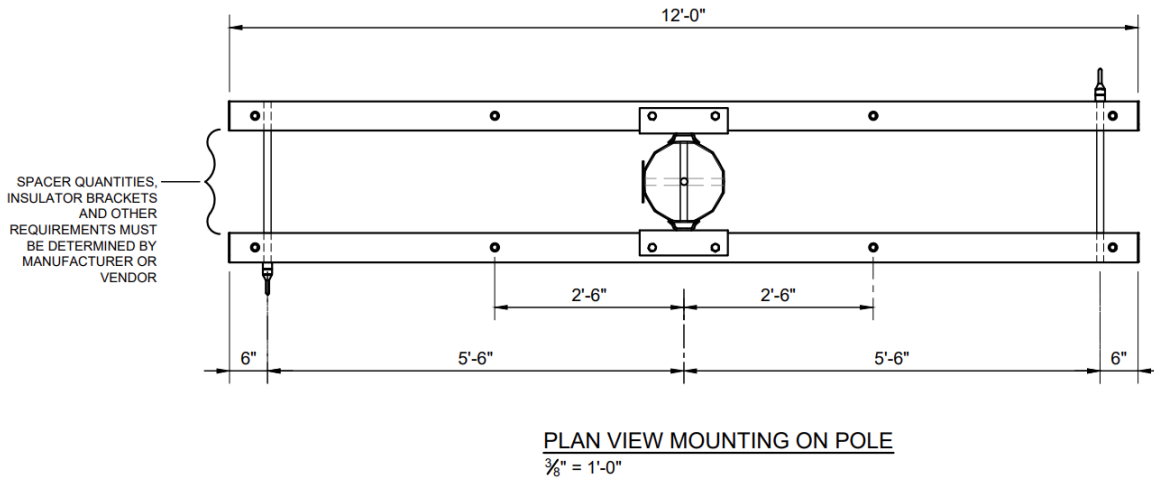
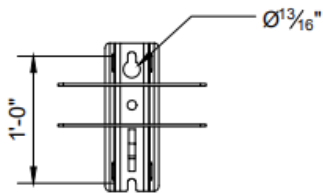
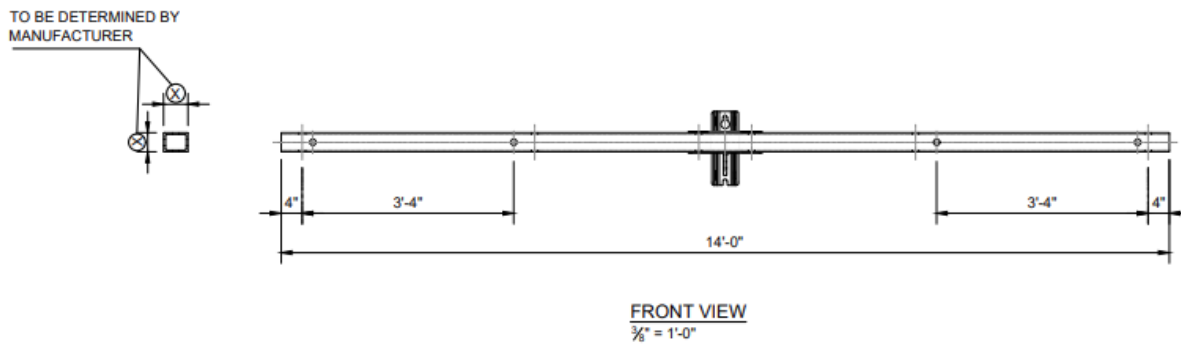
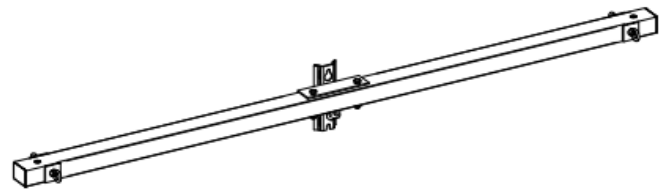


Figure 3: 14ft Crossarm Drawings

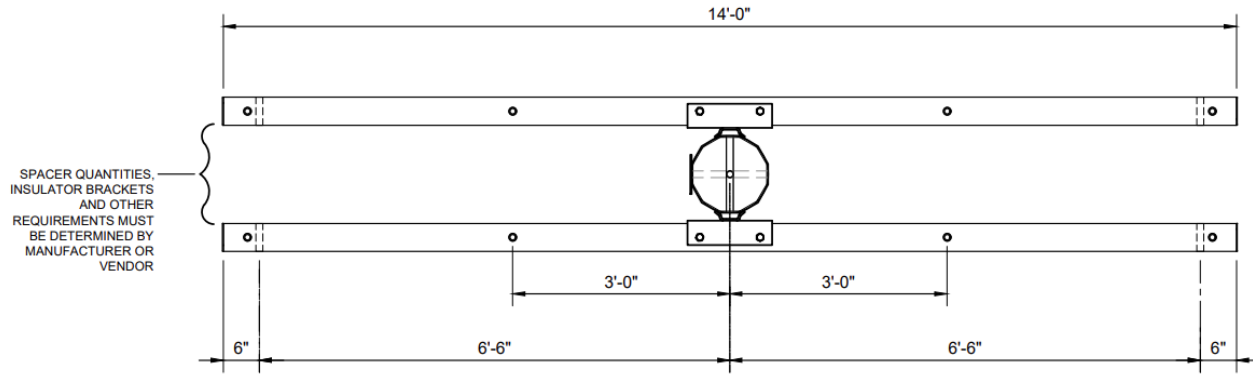


BRACKET FRONT VIEW
 $\frac{3}{4}" = 1'-0"$



ISOMETRIC VIEW
 N.T.S.

Figure 4: 14ft Crossarm Plan View



PLAN VIEW MOUNTING ON POLE
 $\frac{3}{8}" = 1'-0"$

— End of Specification —

Appendix

Appendix 1. Table of Compliance

Line	Description	Pass/Fail (P/F)	Comments
1	The Proponent complies with the corresponding specification document 4752.343.		
2	The Proponent complies with the industry standards established in the specification document (ANSI, ASTM & IEEE).		
3	Tech. info., tests & drawings provided.		
4	Heavy Duty, Fiberglass Crossarm, Braceless.		
5	UV stabilized fiberglass beam, cast aluminum center mount, hot dip galvanized hardware.		
6	Each crossarm must include: <ul style="list-style-type: none"> • 1-heavy duty fiberglass beam • 1-cast aluminum center mount drilled and tapped • 2 sets of 3/4" hex head bolt, lock washer, 4"x4" square washer, and sleeve. 		
7	Must be heavy duty, made of fiberglass with high density closed cell foam core, protected by UV inhibitors and an outer veil for added UV protection. Beam must have high strength polymer end caps bonded to the crossarm ends to fully seal the ends.		
8	Drill holes must be reinforced or include a reinforcing sleeve to increase crush resistance and allow bolt tightening without damage to the crossarm walls.		
9	Must be heavy duty type made of cast aluminum drilled and tapped.		
10	Mounting holes at mounting plate must be 13/16 in. (2.06 cm) in. diameter with 12 in. (30.48 cm) center to center spacing.		
11	Each crossarm beam must be clearly and permanently marked with all required nameplate information including: <ul style="list-style-type: none"> • Manufacture's name • Model • Month/year of manufacture 		

NOTE: This table is only a check list for reference. The compliance shall be with the complete document. Marking a PASS in the table won't be accepted as a compliance without the technical information required to certify it.












4752.343 Transmission Fiberglass Crossarms


Final Audit Report

2024-11-15


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