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Pull Box with Cover

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Related/Referenced Documents

N/A

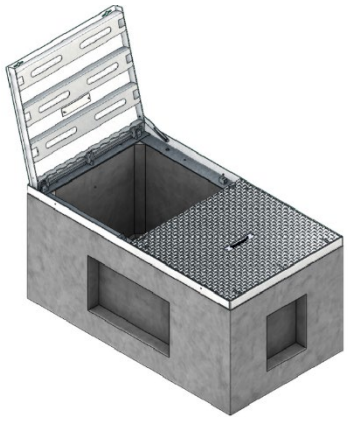
Version History

Version	Date	Revision
01	7/15/2024	Initial Release
02	10/2/2025	General modifications and addition of various sections. TOC revised. Changed Document Number (Legacy Number: 4350.273) to new Engineering Records nomenclature number 4300.50.273.

Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
038-70155	70155	02	10/2/2025
038-70165	70165	02	10/2/2025

Table of Contents



1. Introduction

This is a general specification that covers the minimum requirements for pull box with cover 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 characteristics of the equipment/material.

2. Literature

2.1. 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.**

2.2. If required by LUMA, final drawings and documentation shall be submitted by the vendor before the manufacturing and shipping process for approval.

3. Markings

3.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.

3.2. Individual package(s) shall be clearly marked with manufacturer name and item information (part number, serial number, quantity, etc.).

3.3. Packaging labels and tags shall be waterproof.

4. Packaging

4.1. 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.

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

5. Number Per Package (Logistics)

Each manufacturer should define the number of pull boxes with cover per package depending on the shipping on open platforms or closed trailers for delivery according to LUMA requirements or as requested by LUMA.

6. Acceptance Criteria

6.1. Test required: certified by external qualified laboratories.

6.2. Product shall be manufactured in accordance with the latest issue below (section 6.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.

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

ACI 318-11/318R-11	American Concrete Institute (2011), Building Code Requirements for Structural Concrete and Commentary
ASCE/SEI 7-10	American Society of Civil Engineers Structural Engineering Institute (2010), Minimum Design Loads for Buildings and Other Structures
IBC 2009	International Building Code, International Code Council, Inc. (2009)
ASTM A36/A36M	Specification for Carbon Structural Steel
ASTM A615/A615M	Specification for Deformed and Plain Carbon-Steel Bars for concrete Reinforcement
ASTM C33/C33M	Specification for Concrete Aggregates

ASTM C1611/C1611M	Standard Test Method for Slump Flow of Self-Consolidating Concrete
ASTM A706/A706M	Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
ASTM C94	Specification for Ready-Mixed Concrete
ASTM C39	Concrete Testing
ASTM C494	Chemical Admixtures
ASTM C857	Standard Practice for Minimum Structural
ASTM C858	Standard Specification for Underground Precast Concrete Utility Structures.
NEC	National Electrical Code

6.4. 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.

7. Description

7.1. The pull box shall be constructed using a reinforced concrete base and walls, and a galvanized steel or cast iron cover, ensuring structural strength and corrosion resistance. All components must comply with applicable standards for underground electrical installations and be capable of withstanding the specified loads outlined in this document.

a. Dimensions:

1. Pull Box for secondary cables with cover: **7 ft. x 4 ft.-6 in. x 4 ft. (Appendix 1-URD-30)**
2. Pull Box for primary cables with cover: **7 ft. x 4 ft.- 6 in. x 5 ft. (Appendix 2-URD-30B)**

b. Design: The supplier is responsible for the complete design of the pull box system.

The bidder must submit:

1. Final design computations.
2. All design parameters considered.
3. Program output files if a computer program was used for the design.

c. Material:

Main structure concrete shall be in accordance to American Society for Testing and Material (ASTM), and other Standards and regulations. All material used to fabricate the structure in this specification shall be properly certified by the manufacturers.

d. Design Criteria:

1. Angle of Internal Friction of Soil: 25 degrees
2. Unit weight of soil: Dry: 110 lb/ft³, Saturated: 170 lb/ft³
3. Lateral Earth Pressure Coefficient (Ka): 0.5
4. Groundwater Level Below Finish Grade: Assume 3 ft. unless otherwise specified.
5. Impact: 30%
6. Traffic Load: AASHTO HL-93 Loading (AASHTO LRFD Bridge Design Specifications).
7. Live Load: Minimum 300 lb/ft².

e. Manufacturing:

1. Cover:
    a. The access cover shall provide a safe, durable, and low-maintenance solution to protect the designated area from the intrusion of external elements and to allow controlled access to the interior of the system. This cover shall be an integral part of the protection system and must comply with the project's requirements for functionality, durability, and safety.
    b. The cover shall be manufactured according to the dimensions specified in the attached appendix. The material may be galvanized steel or cast iron, provided it ensures safe conditions for personnel during operation, inspection, and maintenance.
2. Pulling Iron:
    a. Metallic component embedded in the inner wall of the pull box, used as an anchor point for pulling electrical cables:
        1. Material: Hot-dip galvanized steel or stainless steel.
        2. Ring Diameter: Minimum 1 in.
        3. Load Capacity: Minimum 5,000 pounds.
        4. Installation: Embedded in concrete during casting, with structural anchoring.

5. Location: On opposite walls of the box, at an accessible height from the cover.
6. Minimum quantity: Six (6) per box.

3. End Bells:

The pull box shall include provisions for the installation of end bells. Upon contract award, LUMA will supply the required quantity of end bells specific to the needs of the assigned project.

f. Concrete Mixes:

1. Concrete Mixes shall be proportioned to produce the strength, durability and workability required by the approved mix design. The manufacturer shall submit his proposed mix designs to LUMA for approval at least six weeks before manufacturer is due to commence. LUMA may direct the manufacturer to undertake trial mixes and strength, durability, and workability tests to prove that the proposed mixes are acceptable. Such trial mixes and tests shall be carried out prior to placement of concrete in the works and their costs shall be borne by the manufacturer. Unless otherwise specified or approved by LUMA, concrete shall have the following properties:
   a. Maximum Water Cement Ratio by Weight: 0.53
   b. The minimum characteristic compressive strength for Prestressed F ’c at 28 days shall be equal to all bases 4,500 psi.
2. The manufacturer shall keep at the mixing site, records showing for each batch of concrete produced, the time and date of water addition, the weight of cement, weight of each grade of aggregate, weight of added water, results of tests made to determine the water contained in the aggregate, the results of any strength tests and the location of concrete in the works. These records shall be made available to LUMA.
3. The proportions of aggregate and cement for any concrete shall be such as to produce a mix which will work readily into corners and angles of the forms and around tendons and reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or water to collect on the surface.
4. Water shall be accurately measured by a calibrated tank or by an approved type of calibrated water meter attached to the mixer. Certification of water meter calibration shall be supplied to LUMA upon request.

5. Mixing shall be by an efficient type of batch mixer operated at the speeds recommended by the manufacturer with particular regard to the use of low slump concrete. All concrete shall be mixed for a period of not less than 2 minutes after all materials including water are placed in the mixer.
6. No concrete that has reached its initial set (partially hardened) or that has left the mixer or agitator for more than 30 minutes shall be placed in the structure. Remixing shall not be permitted.
7. Ready-mixed concrete complying with ASTM C94 - Ready Mixed Concrete and the requirements of this Specification, whether manufactured in a plant operated by the manufacturer or approved Subcontractors, may be used.

g. Formwork:

1. All forms shall be built mortar-tight, of sufficient rigidity and adequately supported to prevent distortion or displacement due to the pressure of the concrete and other incidental loads to the construction operations. Forms shall be constructed and maintained to prevent warping and the opening of joints due to shrinkage of the timber.
2. Forms shall be built with provision for easy inspection and cleaning out immediately before concrete is placed.
3. A high standard of finish is required, and surfaces of precast, spun, and prestressed concrete members shall be true, hard, smooth, and free from any defects due to leakage of mortar from the molds.
4. Molds should preferably be made of steel.
5. Every care shall be taken to ensure that no marks or fins appear on the finished surface.
6. The inside of forms shall be thoroughly wetted or coated with non-staining form release oil or other approved material. Where oil or surfacing material is used, it shall be applied before the reinforcement is placed.
7. When forms and warped, damaged, or burred so that in the opinion of the Superintendent the surface or dimensional tolerances of the concrete will not be satisfactory, the manufacturer shall, when so directed by LUMA, remove such forms, and replace them with forms or form panels satisfactory in all respects.

8. Forms should be removed so as not to damage the concrete.

h. Placing of Reinforcement:

1. Steel shall be free from all loose rust, grease, tar, paint, oil, mud, mill scale or other coating which would tend to destroy its bond with the concrete. All reinforcing bars shall be bent and shall be placed accurately and be well secured by tie wiring or welding were permitted so that no displacement can occur during placing of concrete. The specified clear cover shall be maintained. Tie wire of at least 18 s.w.g. soft iron wire shall be bent inwards or cut off.
2. Care shall be taken to ensure that the cage is correctly aligned and positioned inside the form.
3. Bending and splicing of reinforcing shall be carried out as required by ASTM. Splices shall be of length sufficient to fully develop the capacity of the bars.

i. Storage:

1. When storing pull boxes, the aim is to minimize any deleterious effects to maintain the integrity of the pull boxes as best as possible. If pull boxes are stored outside, follow the indications noted below:
    a. Storage Location:
        1. Flat, firm, and stable ground: The surface must be level and free of rocks or debris to prevent cracking due to uneven settling.
        2. Close to the installation site: Whenever possible, store the boxes near where they will be installed to reduce unnecessary handling.
    b. Stacking Method: Stack only if approved by the manufacturer. If stacking is allowed:
        1. Place on a flat, debris-free surface.
        2. Use wooden blocks or spacers between layers.
        3. Do not exceed two levels in height to avoid overloading.
    c. Handling and Transport:
        1. Use appropriate mechanical equipment: cranes, forklifts, or boom trucks.
        2. Do not drag the boxes across the ground.
        3. Use manufacturer-approved lifting devices to avoid chipping or cracking.

d. Periodic Inspection, Check for:
    1. Visible cracks
    2. Impact damage
    3. Deformation at support points

j. Drawing for the bid proposal at PDF format shall include with the following information:
    1. General dimensions of all the structural components.
    2. Weight for each pull box.
    3. A bill of materials.
    4. Details of all accessories.

k. Final approval before manufacturing:
    1. Final design calculations shall be submitted before fabrication commences together with the shop drawing for LUMA approval.
    2. After approval, one final set of drawings and design calculations in PDF format plus, a digital copy of drawings in AutoCAD 3D (DWG) shall be sent for our files.
    3. All drawings shall include our purchase order number.

l. Labels and markings:
    1. Each pull box should have waterproof and legible identification labels.
    2. The labels shall be 4 in. x 2 ½ in. approx. in dimension, stamped with letters.
    3. The labels shall contain the following minimum information:
        a. Owner's name
        b. Warehouse Number
        c. Fabrication Date: MM/YY
        d. Batch Number
        e. RFQ Number or PO Number
        f. Model
        g. Dimension (L x W x H)
        h. Weight
        i. Manufacturer's Name

8. Delivery of Material

8.1. The pull box will be delivered at the LUMA General Warehouse in Palo Seco (011), Puerto Rico, unless otherwise indicated and coordinated with another area provided by the LUMA.

8.2. Shipping will include transportation at the indicated warehouse.

8.3. Pull Box shall be delivered on open platforms or closed trailers. Proponents shall present a proposal for both alternatives at the time of bidding. This requirement will be discussed upon the award of the bid in accordance with the terms and conditions of the contract as required by LUMA.

8.4. All pull boxes shall be spaced to avoid damage to the surface.

8.5. The underside shall be adequately covered to ensure that it is not affected during delivery.

8.6. LUMA will provide all the labor, equipment, and materials to unload the pull box at the designated warehouse or at the location indicated by LUMA.

9. Inspection

9.1. 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.

9.2. 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.

10. Proposal Information

10.1. Submitted proposals must include:

a. Technical information, drawings, and tests.

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

11. Table 1: Warehouse and Asset Suite Identification Number

Item	Pull Box Description	Warehouse Number	Asset Suite
1	Pull Box for **secondary** cables with cover 7 ft. x 4 ft.-6 in. x 4 ft.	038-70155	70155
2	Pull Box for **primary** cables with cover 7 ft. x 4 ft.- 6 in. x 5 ft.	038-70165	70165

- End of Specification -

Appendix

Appendix 1: Table of Compliance

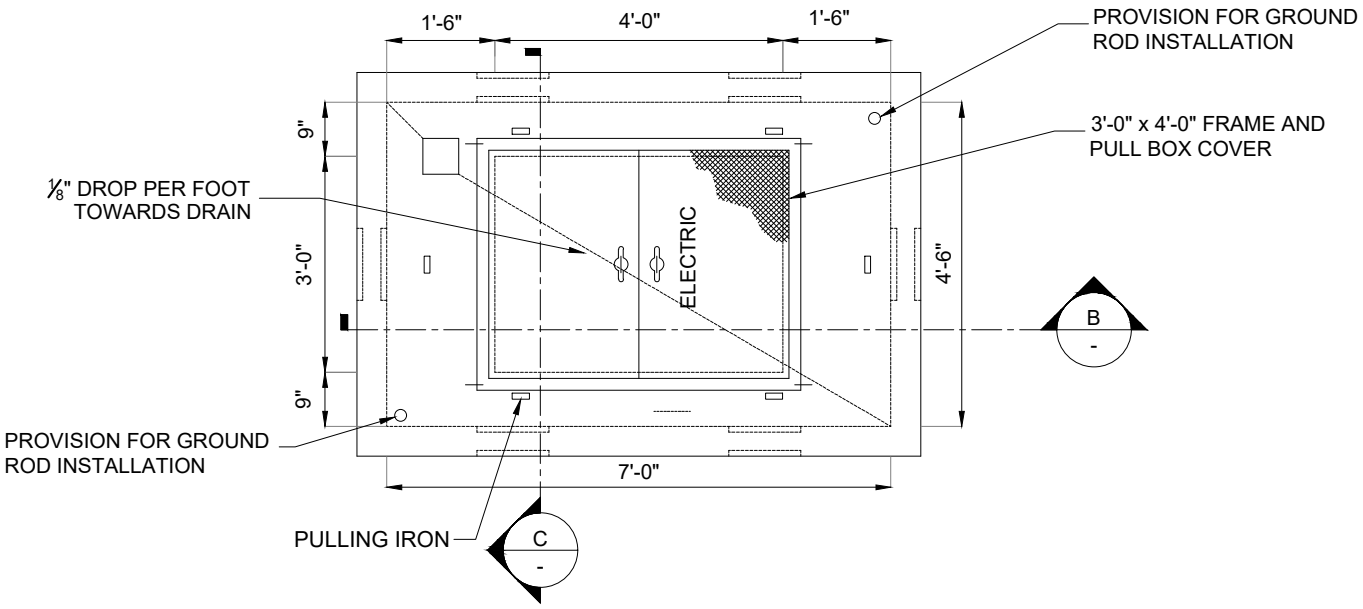
Line	Criteria	Description	Pass/Fail (P/F)	Comments
1	Industry Standards	The Proponent complies with the industry standards established in the specification document. (ASTM, ANSI, ASTM, ASCE)		
2	Dimensions Pull Box	7 ft. x 4 ft.-6 in. x 4 in.		
		7 ft. x 4 ft. -6 in. x 5 in.		
3	Dimensions Cover	3 ft. x 4 ft. (Boths)		
4	Material Rectangular Cover	The cover shall be manufactured according to the dimensions specified in the attached appendix. The material may be galvanized steel or cast iron, provided it ensures safe conditions for personnel during operation, inspection, and maintenance.		
5	Pulling Iron	Material: Hot-dip galvanized steel or stainless steel.		
		Ring Diameter: Minimum 1 in.		
		Load Capacity: Minimum 5,000 pounds		
		Recommended Quantity: Minimum of six (6) per box.		
6	Min. Strength for Prestressed	4,500 psi		
Conclusion: Comply with Specification Document Num: 4300.50.273				

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.

TITLE:

7' X 4'-6" X 4' UNDERGROUND PULL BOX FOR SECONDARY CABLES WITH COVER
MAXIMUM VOLTAGE: 240 V

Appendix 1-URB-30



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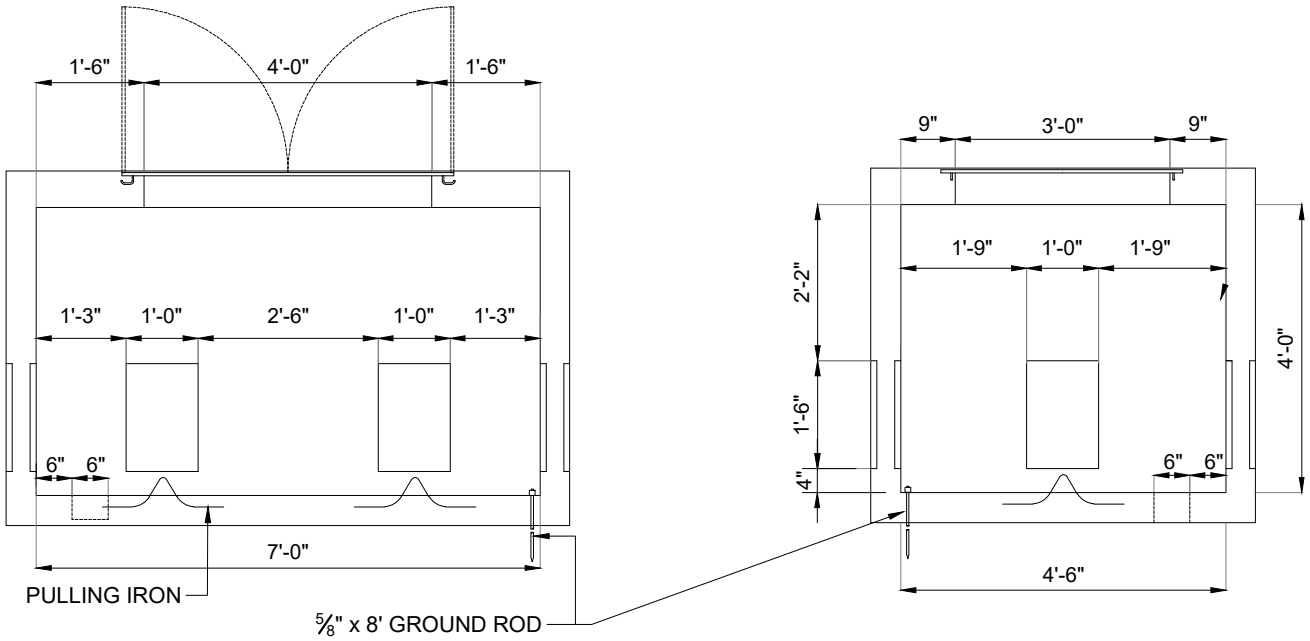


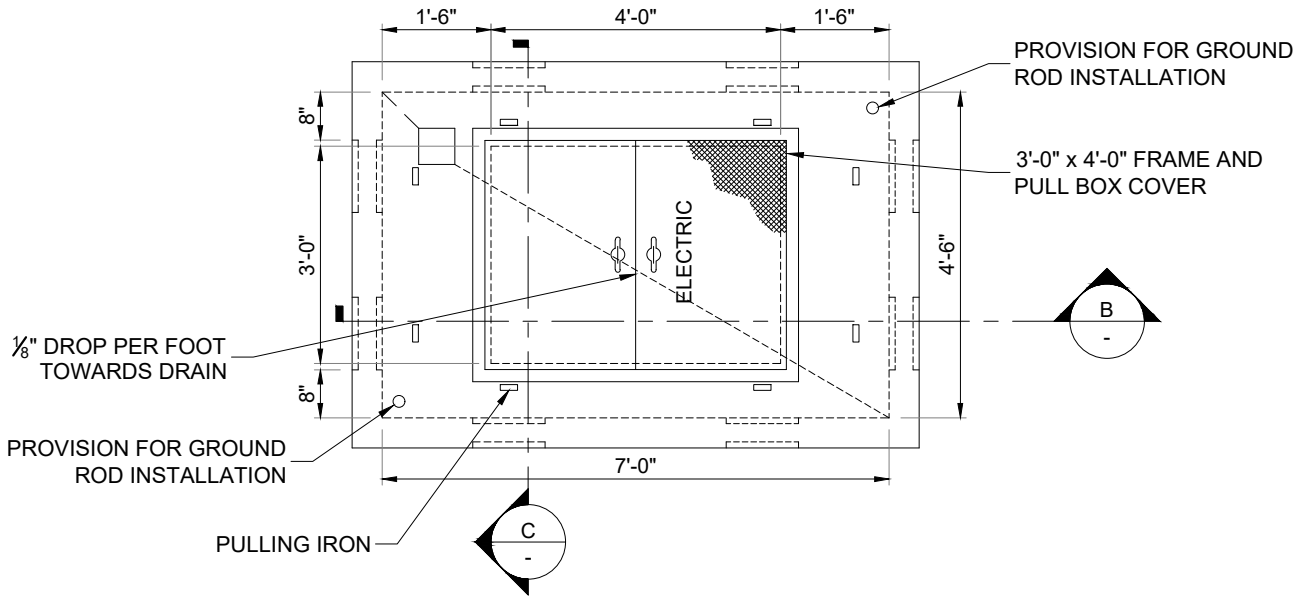
SECTION B

SECTION C

TITLE:

7' X 4'-6" X 5' PULL BOX FOR PRIMARY CABLES WITH COVER
MAXIMUM VOLTAGE: 13.2 KV

Appendix 2-URB-30B



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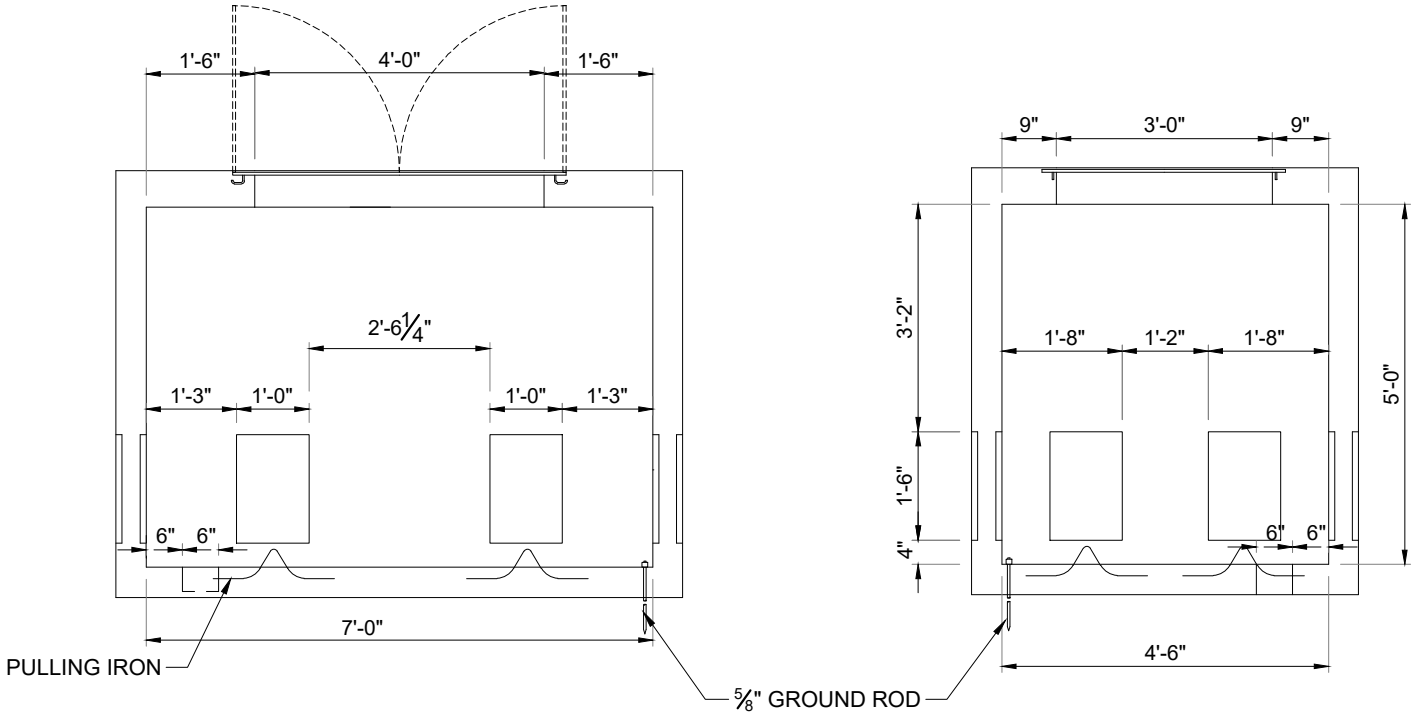

SECTION B

SECTION C

Binder4

Final Audit Report 2025-10-02

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