
Requirements for Pad Mounted Termination Enclosure Installations

1. Scope

This standard covers the requirements for the installation of a pad mounted termination enclosure. A pad mounted terminal enclosure is an option that may be used when any of the following conditions apply:

- The number of customer secondary cables exceeds the termination positions of the transformer.
- The pad mounted terminal enclosure reduces the footprint of the secondary termination facility.
- The customer's electrical switchgear is located at a lower elevation than the transformer and may allow for water intrusion.

2. Application

This standard provides direction to Seattle City Light (SCL) engineers, crews, reviewers and customers for the minimum requirements for a pad mounted termination enclosure. These requirements ensure that the enclosure can be used as an approved termination facility.

3. Requirements

The installation of the enclosure, secondary conductors, and any civil work are performed by the customer. SCL will only pull and terminate the utility secondary cable(s) from the transformer.

Any design that does not meet the following requirements shall be submitted to SCL engineering for further review and approval.

3.1 Enclosure

The enclosure shall have front and back openings with double doors.

The enclosure being installed:

- Shall be UL Listed.
- Shall be NEMA 3R rated.
- Shall have lockable doors.
- Shall be mounted on a 4" to 6" tall concrete pad or pedestal.
- No mullion is allowed between the doors. The doors shall meet up when shut, such that they are lockable with only one utility padlock.



3.2 Bus Bars

The termination enclosure shall have four bus bars located at the top of the enclosure. Three for the phases and one for the neutral.

The bus bars shall be spaced 12 in apart from one another.

The bus bars shall be oriented parallel to the enclosure openings as shown in Figure 3.2a, or oriented perpendicular to the enclosure openings as shown in Figure 3.2d.

The bus bars shall have a minimum clearance of 60 in from the bottom of the bus bars down to the top of the pad, and a minimum clearance of 12 in from the enclosure.

See figures 3.2a through 3.2f for layout, orientation, spacing, and clearances.

Figure 3.2a Enclosure with Bus Bars Parallel to the Openings, Top View

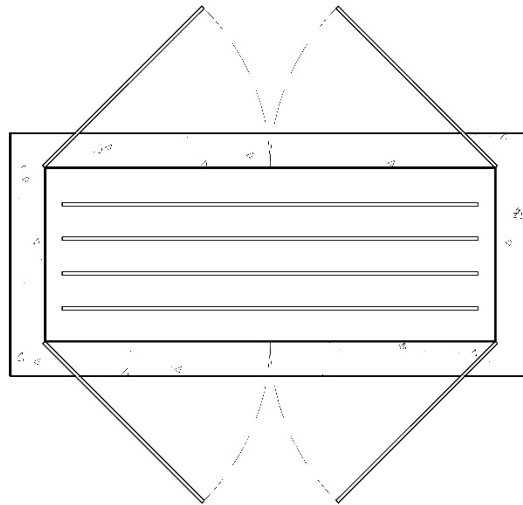


Figure 3.2b Enclosure with Bus Bars Parallel to the Openings, Front View

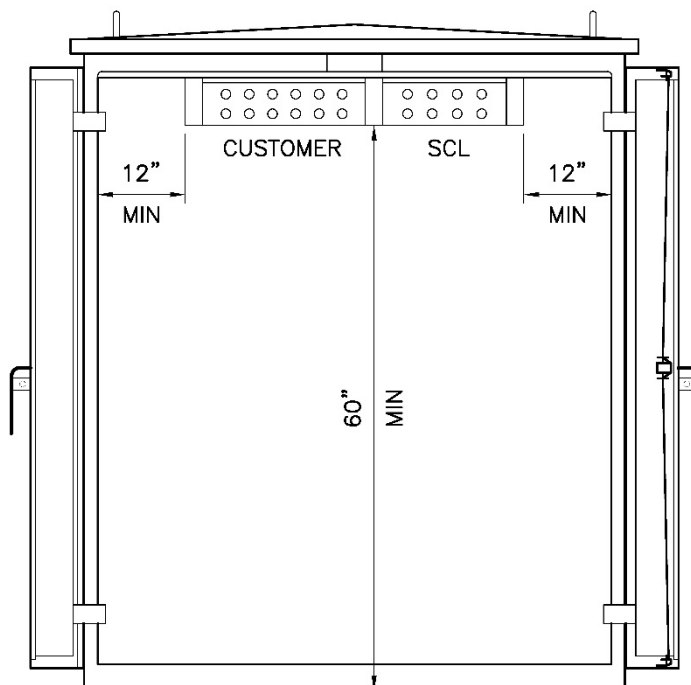


Figure 3.2e Enclosure with Bus Bars Perpendicular to the Openings, Front View

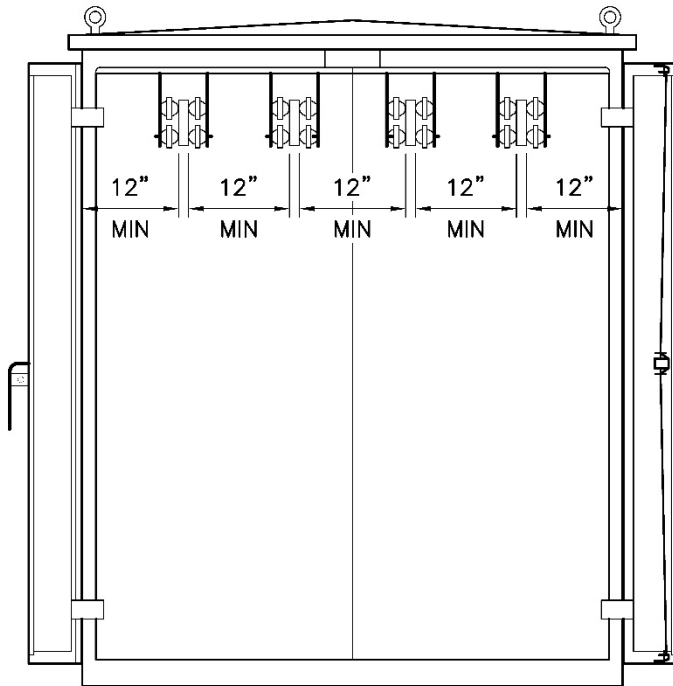
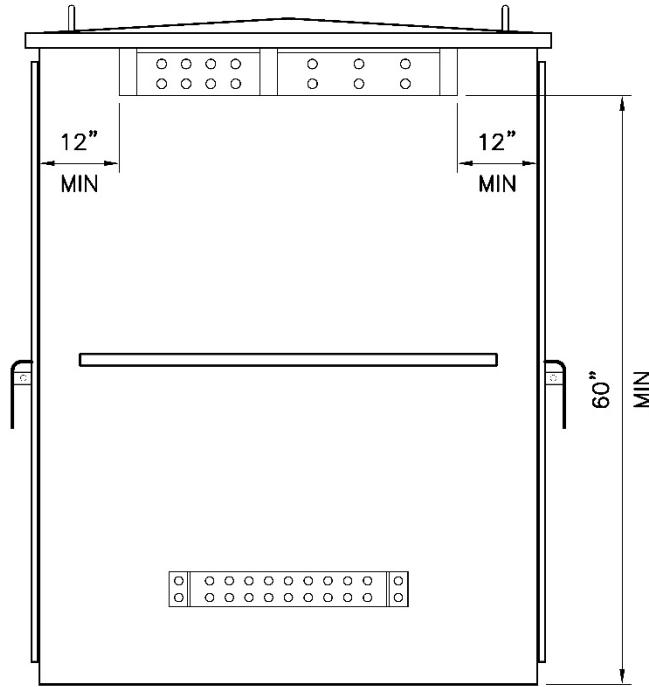


Figure 3.2f Enclosure with Bus Bars Perpendicular to the Openings, Side View

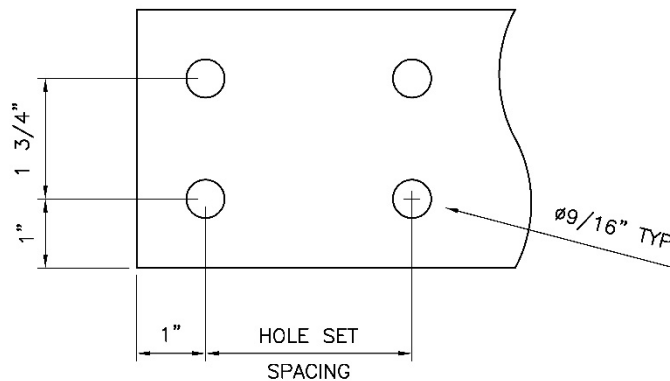


3.3 Utility Hole Sets

The number of hole sets reserved for utility use shall be equivalent to the number of utility secondary conduits entering the enclosure.

The bus bars shall be drilled to accept NEMA two-hole connectors. Each hole set on the plate shall be drilled with two 9/16-in holes, spaced 1-3/4 in on center as shown in figure 3.3.

Figure 3.3. Bus Bar Drill Spacing



Each hole set shall be offset from adjacent hole sets by the spacing listed in Table 3.3. The hole set spacing is determined by the size of the conduits entering the enclosure and shall be located above the corresponding conduits.

Table 3.3. Hole Set Spacing

Conduit Size (in)	Hole Set Spacing (in)
2	2-1/4
3	2-1/4
4	3
5	3-1/2

3.4 Conduit Layout

Conduits shall be located a minimum of 6 in from the sides of the enclosure and a minimum of 1-5/8 in from other conduits.

The conduits shall extend approximately 3 in above the concrete pad.

Customer cables shall proceed directly from the entrance conduit to the bus bars with shortest distance such that no excessive slack is stored within the cabinet.

Conduits entering the enclosure shall be arranged as shown in Figure 3.4a and 3.4b.

Figure 3.4a. Conduit Layout for Enclosures with Bus Bars Parallel to the Openings

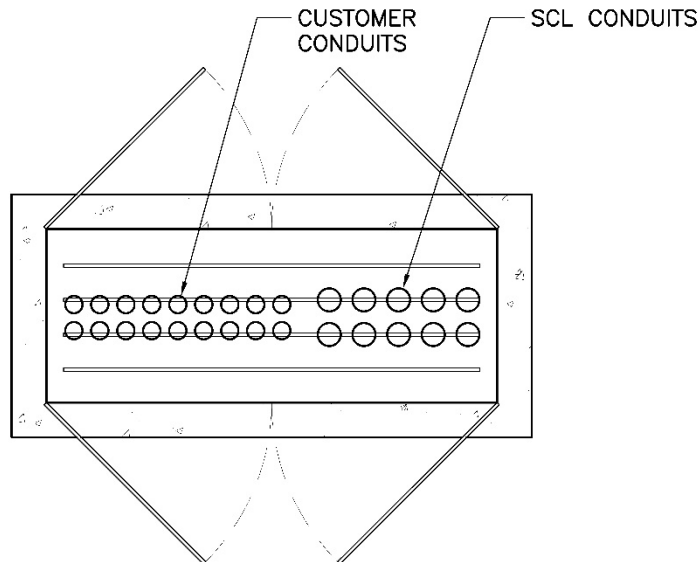
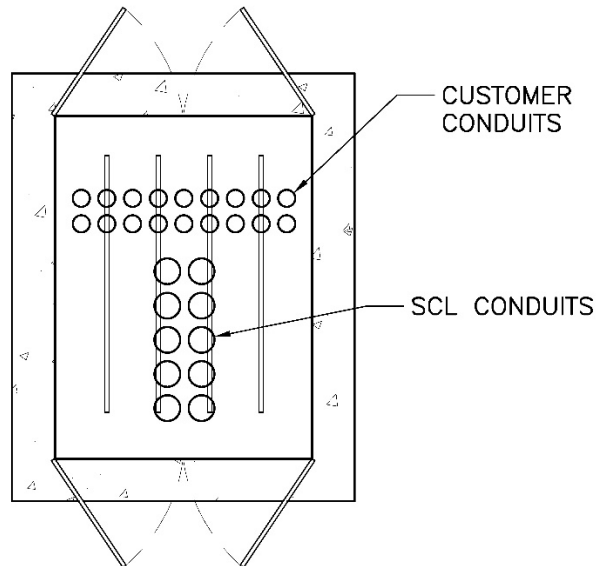


Figure 3.4b. Conduit Layout for Enclosures with Bus Bars Perpendicular to the Openings



3.5 Access

The enclosure shall be installed in a location free from obstruction so that it is accessible by truck.

The required working clearance is a minimum of 10 ft in front of the opening closest to the utility conduits to allow for vehicle access, a minimum of 4 ft in front of the other opening, and 3 ft on the sides. All working clearance areas shall be level and free from obstruction.

3.6 Protection

Protective devices such as bollards or curbs shall be installed when the enclosure is located near vehicular traffic such as a parking lot, loading dock or driveway.

Bollards shall be highly visible, non-conductive rigid posts with a minimum diameter of 8 in and a length of 8 ft (Ceme-Tube Bollard or structural equivalent). Posts shall be inserted to a depth of 4 ft and filled with concrete.

Bollards shall be located a minimum of 4 ft away from the enclosure door side of the pad so that the doors will open 180 degrees. Bollards shall be located a minimum of 3 ft away from all other sides of the enclosure.

The protective devices shall be installed in a location that will protect the enclosure while still meeting the required clearances and allowing for truck access.

3.7 Grounding and Bonding

Customer shall be responsible for designing, furnishing, and installing the grounding and bonding system for the termination enclosure per the Authority Having Jurisdiction (AHJ).

If the exposed conduit in the enclosure is conductive, the conduit shall be bonded and grounded per NEC 250.

4. References

NFPA 70, National Electrical Code (NEC); 2023 Edition; National Fire Protection Association

SCL Construction Standard 0474.08; “Looped Radial and Network Dry Vault Service Entrance Bus Duct for Underground Primary Service”

SCL Material Standard 7050.05; “Zinc-Coated Steel Conduit and Fittings”

5. Sources

Ho, Kyle; SCL Electrical Power System Engineer and subject matter expert for 0230.03

Lin, Chung-I; SCL Electrical Power Systems Engineer and subject matter expert for 0230.03

Lu, Curtis; SCL Standards Engineer and originator of 0230.03