
Looped Radial and Network Service Entrance Cables in Conduit for Underground Primary Service

1. Scope

This standard covers the requirements for a customer service provided by NEC-sized cables routed in conduit to the point of termination located in the Seattle City Light (SCL) Looped Radial or Network System.

An underground secondary service from an overhead transformer or underground transformer located in the right-of-way is outside the scope of this standard. See SCL 0224.01.

2. Application

This standard provides direction to customers about how to select cable in conduit systems to meet SCL requirements. The goal is to inform the customer of the requirements and available options as well as giving the crews defined requirements to reference.

Vault requirements are outside the scope of this standard. See SCL 0732.50 and 0751.60.

3. Requirements

Customers are responsible for providing National Electrical Code (NEC)-sized service conduits and cables from the service termination point to the customer's switchgear. Tables 3a. and 3b. show allowable conductor sizes.

Route cable through the incoming conduit and coil excess cable equal to the sum of the length and width of the vault. In the case of a padmount transformer, provide 8 feet. The additional cable will insure SCL crews can arrange equipment where it is most practical for installation and maintenance. The additional cable may be cut at any point, so it shall not be used as additional impedance for the customer switchgear fault current calculation. Visibly mark each cable indicating phase and service being fed.



Table 3a. Allowed Cables in Looped Radial System

	Copper	Aluminum	
	Concentric Round Stranded	Concentric Round Stranded & Compressed Stranded	Compact Stranded
#2 AWG	OK	OK	–
#1 AWG	–	OK	OK
1/0 AWG	OK	OK	OK
2/0 AWG	OK	OK	OK
3/0 AWG	OK	OK	OK
4/0 AWG	OK	OK	OK
250 kcmil	OK	OK	OK
300 kcmil	OK	OK	OK
350 kcmil	OK	OK	OK
400 kcmil	–	OK	OK
500 kcmil	OK	OK	OK
600 kcmil	OK	OK	OK
700 kcmil	–	OK	OK
750 kcmil	OK	OK	OK
800 kcmil	–	OK	OK

Note: 600-800 kcmil cables are only allowed on large projects with prior SCL approval.

Table 3b. Allowed Cables in Network System

	Copper (Stranded)	Aluminum (Stranded)
#4 AWG	OK	–
#2 AWG	OK	–
#2/0 AWG	OK	–
#4/0 AWG	OK	OK
250 kcmil	OK	–
350 kcmil	OK	OK
500 kcmil	OK	OK
750 kcmil	–	OK

Note: No compact sector cables are allowed.

4. References

SCL Construction Standard 0224.01; “Customer Requirements for Underground Secondary Service, Looped Radial System”

SCL Construction Standard 0732.50; “Customer Requirements for Below-Grade Transformer Service Vaults, Looped Radial System”

SCL Construction Standard 0751.60; “Concurrent Customer Requirements, In-Building Transformer Vaults”

5. Sources

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