

600 V, Copper, Underground, Single-Conductor Cable



1. Scope

This standard covers the requirements for 600 V, copper, cross-linked polyethylene (XLPE) insulated, single conductor cable used for the distribution of electric energy.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Size	Packaging	Type
613730	#2 AWG	Reel	1/C
613732	1/0 AWG	Reel	1/C
613733	2/0 AWG	Reel	1/C
613734	3/0 AWG	Reel	1/C
613735	4/0 AWG	Reel	1/C
613736	250 kcmil	Reel	1/C
613738	350 kcmil	Reel	1/C
613740	500 kcmil	Reel	1/C
613743	750 kcmil	Reel	1/C

2. Application

Cable is for Looped Radial or Network secondary systems nominally rated up to 480 V phase-to-phase, 60 Hz.

Cable may be installed in single or parallel conductor runs.

Cable is suitable for installation in ducts and direct burial in wet or dry locations.

Smaller AWG sizes are also used to make up secondary leads for overhead transformers (bug legs).

Standard Coordinator
Chad Rehahn

Standards Engineering Supervisor
Brett Hanson

Division Director
Bob Risch

3. Industry Standards

Cable shall meet the applicable requirements of the following industry standards:

ICEA S-95-658-1999 — Standard for Nonshielded Power Cable Rated 2000 Volts or Less for the Distribution of Electrical Energy

UL Standard 44 — Underwriters Laboratories Inc. Standard for Safety — Thermoset-Insulated Wires and Cables

UL Standard 854 — Underwriters Laboratories Inc. Standard for Safety — Service-Entrance Cables

NEMA WC-26-2000 — Binational Wire and Cable Packaging Standard

4. Guidance in Case of Conflict

Where conflict exists, the following order of precedence shall apply:

1. This standard
2. UL standards
3. ICEA standards
4. Other industry standards.

5. Construction

5.1 General

Cable shall meet the requirements of UL Standard 44 for type RHH-RHW-2 and UL Standard 854 for type USE-2.

5.2 Conductor

Conductor shall meet the requirements of ICEA S-95-658, Section 2 and Table 2-3, with the following clarifications:

Conductor alloy shall be soft or annealed, uncoated copper.

5.3 Insulation

Insulation shall meet the requirements of ICEA S-95-658, Section 3 and Tables 3-1, 3-4, and 3-7, with the following clarifications:

Insulation shall be cross-linked polyethylene.

Insulation level shall be 100%.

Maximum conductor operating temperatures shall be according to Table A.

Table A. Operating Temperatures

Insulation Type	Normal Service	Emergency Overload	Short Circuit
XLPE	90°C	130°C	250°C

Insulation shall comply with Class X-1, X-2, or X-3.

Minimum and nominal insulation thickness values shall meet the requirements of Table B.

Table B. Insulation Thicknesses

Conductor Size	Minimum Thickness (mils)	Nominal Thickness (mils)
#2 AWG	54	60
1/0 AWG	72	80
2/0 AWG	72	80
3/0 AWG	72	80
4/0 AWG	72	80
250 kcmil	86	95
350 kcmil	86	95
500 kcmil	86	95
750 kcmil	99	110

Insulation shall be free stripping from the conductor. This may be accomplished by the manufacturing processes or by the addition of a Mylar separator.

5.4 Assembly and Identification

The cable's outer surface shall be black. The outer surface shall be durably and legibly marked with a print legend throughout its length at a maximum interval of 1 meter.

The print legend shall include, but not be limited to, the following information:

- Conductor size
- Conductor metal (if other than copper)
- Rated voltage
- Type USE-2 or RHH or RHW-2
- Manufacturer's identification (see the next paragraph)

Manufacturer identification may consist of a written out name or UL Certification Number. UL Certification Numbers, appearing in the form E123456, can be deciphered by calling Underwriters Laboratories Inc. at 877-854-3577 or by going to www.ul.com and following the path to Certifications.

6. Testing

Cable shall be tested according to the requirements of UL 44.

Test results shall be provided upon request.

7. Packaging

7.1 Detailed Requirements

Cable shall be packaged according to the requirements of NEMA WC-26 and Table C.

Table C. Packaging

Stock No.	Phase Conductor Size	Packaging	Length per Reel, $\pm 10\%$ (ft)	Outside Flange Diameter, Maximum (in)	Inside Traverse Width, Maximum (in)	Weight per 100 ft., approx., (lb)	Weight per reel, approx., (lb)	Type
613730	#2 AWG	Reel	5,000	36	24	24	1,215	1/C
613732	1/0 AWG	Reel	3,000	32	24	39	1,161	1/C
613733	2/0 AWG	Reel	3,000	36	24	49	1,475	1/C
613734	3/0 AWG	Reel	2,000	32	24	61	1,222	1/C
613735	4/0 AWG	Reel	2,000	36	24	74	1,480	1/C
613736	250 kcmil	Reel	1,000	32	24	88	1,882	1/C
613738	350 kcmil	Reel	1,000	40	24	121	1,213	1/C
613740	500 kcmil	Reel	1,000	45	28	170	1,702	1/C
613743	750 kcmil	Reel	1,000	45	28	254	2,536	1/C

7.2 Quantity

Actual quantity per reel may vary from the standard package quantity stated on the purchase order by plus or minus 10%.

7.3 Reels

Reels shall be reusable wood type, Class 1 or 2.

Reels may be new or recycled.

Recycled reels (when provided) shall have the surface of both outside flanges painted over with a solid color.

Recycled reels (when provided) shall be equivalent to new in quality and strength.

Reels shall be protected for shipment with coverings consistent with the recommendations of NEMA WC-26, Section 4.

Reels shall be provided with metal bushings if the gross weight of the reel exceeds 1,000 pounds.

7.4 Marking

Each reel shall be legibly marked with the following information:

- Manufacturer identification
- Product description
- Shipping length of cable on reel
- Gross weight
- Tare weight
- Net weight
- Date of manufacture
- Reel identification according to NEMA WC-26, Section 5
- Seattle City Light purchase order number
- Seattle City Light stock number

8. Shipping

8.1 Cable

Cable shall be dry when shipped.

Cable ends shall be sealed to prevent the entrance of moisture.

The inner end of the cable shall be brought to the outside of the reel flange and securely fastened with appropriately sized steel staples.

The inner end shall not be brought out through the reel arbor.

The outer end shall be securely fastened with appropriately sized steel staples to the inner side of the flange.

8.2 Reels

Reels shall be shipped and delivered in the upright position (on the flange edges) on open flatbed trucks suitable for side unloading by forklift.

Reels shall not be strapped or palleted.

Cable shall be shipped to the address specified on the purchase order.

9. Issuance

Stock Unit: FT

10. Approved Manufacturers

Digital Cable

Encore Wire

General Cable, BICC Brand

Nehring Electrical Works Company

Nexans

Phoenix Wire and Cable Corp.

Prysmian

Service Wire Company

Southwire Company