

Wood Poles, Butt-Treated, Western Redcedar



1. Scope

This material standard covers the requirements for butt-treated, solid, western redcedar, wood utility poles.

This material standard applies to poles up to 60 feet in length.

This material standard applies to the following Seattle City Light Stock Numbers:

Length, ft	Class 1	Class 3
30	501030	503030
40	501040	503040
50	501050	-
55	501055	-
60	501060	-

2. Application

Wood poles are used in single-pole utility structures. The poles described herein are considered to be simple cantilever members subject to traverse loads only.

In general, Class 1 poles should be used for any 3-phase construction regardless of wire size and Class 3 poles should be used for 1-phase, secondary, streetlight and guy pole construction. Other pole classes may be required when a pole loading analysis using O-Calc or similar pole loading programs determines a higher class of pole is needed.

The poles cited below are given for historical purposes only and should not be ordered.

Class 2 and Class 4 poles have been determined to be redundant with Class 1 and Class 3 poles respectively, and therefore no longer necessary.

Length, ft	Class 2	Class 4
30	502030	504030
35	502035	504035
40	011958	-
50	502050	-
55	502055	-
60	502060	-

Thirty-five-foot poles have been determined to be redundant with the availability of the thirty-foot and forty-foot pole, and are therefore no longer necessary.

Length, ft	Class 1	Class 3
35	501035	503035

Each pole requires a pole liner. Refer to Material Standard 5092.00.

3. Industry Standards

Wood poles shall meet the applicable requirements of the following industry standards:

American Wood Protection Association (AWPA) Book of Standards, published 2008, including, but not limited to:

AWPA A3-08 - Standard Methods for Determining Penetration of Preservatives and Fire Retardants

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3. Industry Standards, continued

AWPA A5-05 - Standard Methods for Analysis of Oil-Borne Preservatives

AWPA P8-08 - Standard for Oil-Borne Preservatives

APWA P9-06 - Standards for Solvents and Formulations for Organic Preservative Systems

AWPA T1-08 - Use Category System: Processing and Treatment Standard

AWPA U1-08 - Use Category System: User Specification for Treated Wood

ANSI O5.1-2002 - American National Standard for Wood Products - Specifications and Dimensions [Note: This ANSI standard number contains a leading letter "O" not zero, typical]

ANSI O5.1c-2004 - American National Standard for Wood Products - Supplement to ANSI O5.1-2002 (and Consolidation of ANSI O5.1a-2003 and ANSI O5.1b-2003)

ASTM D9-87 (Re-approved 1992) - Standard Terminology Relating to Wood

4. Conflict

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

- 4.1 Seattle City Light Purchase Order (PO)
- 4.2 Seattle City Light General Terms and Conditions
- 4.3 This Material Standard
- 4.4 ANSI O5.1 and AWPA Standards
- 4.5 Other industry standards

5. Quality and Dimensions

Wood pole Use Category shall be UC4B according to the requirements of AWPA U1.

Wood pole species shall be western redcedar.

Wood pole quality and dimensions shall meet the requirements of ANSI O5.1 with the following clarifications:

- 5.1 All wood shall be cut from live trees.
- 5.2 Poles shall be shaved according to the requirements of ANSI O5.1, Section 7.4.
- 5.3 The tops of all poles shall be roofed at an angle of approximately 15 degrees, from the face of the pole to the back of the pole.
- 5.4 Poles shall have a two-inch wide by 1/2-inch deep notch on the pole face 12' - 0" from the pole butt.

5.5 Poles 50 feet or less shall be burn-branded according to the requirements of ANSI O5.1 at $10' \pm 2''$ from the pole butt.

5.6 Poles 55 feet or more shall be burn-branded according to the requirements of ANSI O5.1 at $14' \pm 2''$ from the pole butt

6. Preservative Treatment

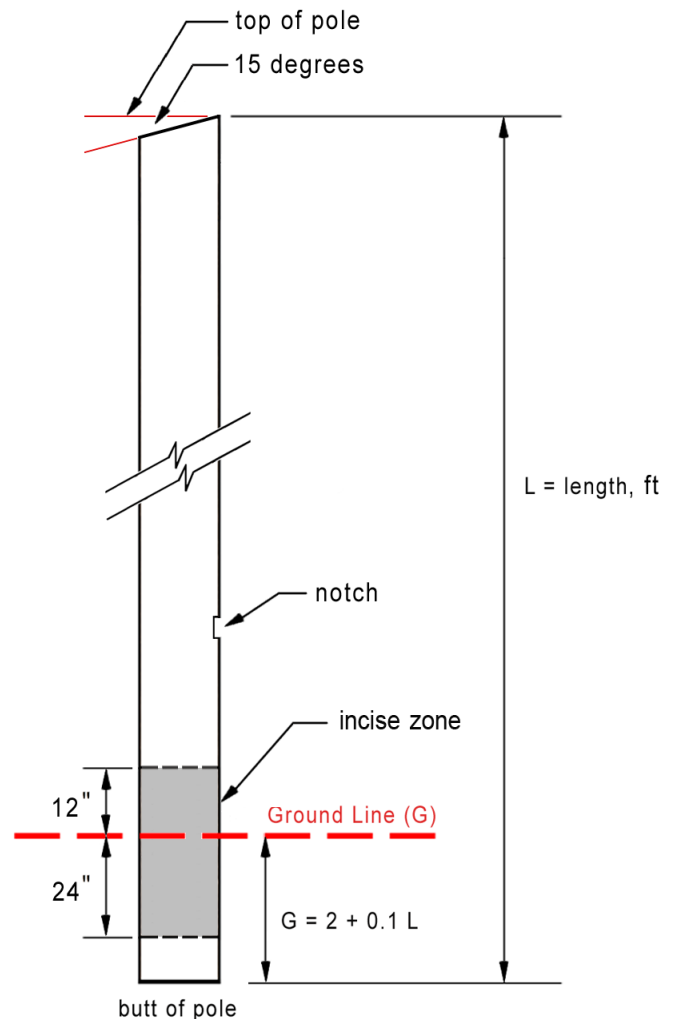
Wood poles shall be processed and treated according to the requirements of AWPA T1.

6.1 Incising

Poles shall be deep incised in accordance with AWPA T1 to a depth of at least 5/8 inch.

Incising shall extend 12 inches above and 24 inches below the ground line.

Figure 6, Pole Section



6. Preservative Treatment, continued

Table 6, Ground Line Distance from Butt

Pole Length (L) ft	Ground Line Distance from Butt (G) ft
30	5.5
35	6
40	6
50	7
55	7.5
60	8

6.2 Treatment

Wood poles shall be butt-treated with copper naphthenate meeting the requirements of AWPA P8 compounded with hydrocarbon solvent, Type A, carrier meeting the requirements of AWPA P9.

Carrier and co-solvent shall not contain greater than 15% bio-fuel product. Any deviation from this requirement shall have the prior written approval of Seattle City Light.

The carrier shall be free of polycyclic aromatic hydrocarbons (PAH), and contain no chlorinated co-solvent.

Poles shall be treated from butt of pole to the top of incise zone.

6.3 Preservative Retention and Penetration

Net retention of copper naphthenate preservative in poles after treatment shall be not less than 0.120 pounds per cubic foot (UC4B), in accordance to AWPA U1.

The depth of preservative penetration shall be not less than 3/4-inch, in accordance with AWPA T1.

7. Testing and Test Methods

Test data that establishes compliance with the requirements of AWPA A5, AWPA A3 and this Material Standard shall be provided upon request.

Copper naphthenate concentration in wood shall be determined according to the requirements of AWPA A5.

Copper naphthenate penetration in wood shall be determined according to the requirements of AWPA A3.

8. Documentation

8.1 General

Documentation shall be in English and use customary inch-pound units.

Documentation shall utilize common industry terminology and well-understood abbreviations.

8.2 Bidder's Data

Bidder shall return the following technical information with the bid:

- Manufacturer's name
- Manufacturing plant location(s) (all possible)
- Material Safety Data Sheet (MSDS) for the preservative used in the treatment process
- Material Safety Data Sheet (MSDS) for the solvent used in the treatment process
- All exceptions to Seattle City Light requirements with reference to the requirement to which exception is taken; indicate if no exceptions taken

Bid information shall be presented in a clear and consolidated manner for ease of review.

8.3 Plant QA Process

Upon request, supplier shall provide information describing the manufacturing plant's quality assurance processes.

9. Shipping and Handling

Poles shall be delivered by trucks with "self loading" capability.

Poles shall be handled according to AWPA M4 and ANSI O5.1.

10. Issuance

EA

11. Approved Manufacturer

Stella-Jones Corporation

12. References

5092.00; "Pole Liner"; Material Standard; SCL

Combs, Brad; SCL Strategic Advisor and subject matter expert

Crume, Stephen; SCL Joint Use Manager and subject matter expert (stephen.crume@seattle.gov)

IEEE 1217-2001, *Guide for Preservative Treatment of Wood Distribution and Transmission Line Structures*; IEEE

Shipek, John; SCL Standards Engineer; subject matter expert and co-originator of 5072.00

Standards Engineering Directive No. 07-001; dated October 10, 2007, SCL; author, Chris Detter

Wang, Quan; SCL Standards Engineer; subject matter expert and co-originator of 5072.00