

Wood Poles, Pressure-Treated, Douglas Fir



1. Scope

This standard covers the requirements for pressure-treated, solid, Douglas fir, wood utility poles.

This standard applies to Douglas fir poles up to 110 ft in length.

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

Length (ft)	Class 1	Class H1	Class H2	Class 3
30	012904	–	–	012910
40	012906	–	–	012912
45	014534	–	–	–
50	012907	012436	012449	012913
55	012908	012437	012450	–
60	012909	012438	012451	–
65	531065	012439	012452	–
70	531070	012440	012454	–
75	531075	012441	012455	–
80	531080	012442	012456	–
85	531085	012443	012458	–
90	531090	012444	012459	–
95	531095	012445	012460	–
100	531100	012446	012462	–
105	531105	012447	012463	–
110	531110	012448	012464	–

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2. Application

Wood poles are used in single-pole utility structures. The poles described herein are considered to be simple cantilever members subject to transverse 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 single-phase, secondary, streetlight and guy pole construction. Other pole classes may be required when a pole loading analysis determines a higher class of pole is needed.

Stock Number 014534, 45 ft Class 1 pole will primarily be used for Joint Use construction.

Each pole requires a pole liner. Refer to SCL 5092.00.

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

Class 2 poles have been determined to be redundant with Class 1 poles and are therefore no longer necessary.

Length (ft)	Class 2	Length (ft)	Class 2
65	531065	90	531090
70	531070	95	531095
75	531075	100	531100
80	531080	105	531105
85	531085		

Also, with the availability of 30-ft and 40-ft poles, 35-ft poles have been determined to be redundant and are therefore no longer necessary.

Length (ft)	Class 1	Class 3
35	012905	012911

3. Industry Standards

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

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

AWPA A9; Standard Methods for Analysis of Treated Wood and Solutions by X-Ray Spectroscopy.

AWPA A71- Standard Methods for Determining Penetration of Solvent Used with Oil-Soluble Preservatives

AWPA A76- Standard Methods for Determining Penetration of Copper-Containing Preservatives

AWPA M1; Standard for the purchase of Treated Wood Products

AWPA M4; Standard for the care of Preservative-treated Wood Products

AWPA P36; Standard for Copper Naphthenate (CuN)

APWA HSA; Standards for Hydrocarbon Solvent Type A

AWPA T1; Use Category System: Processing and Treatment Standard

AWPA U1; Use Category System: User Specification for Treated Wood

ANSI 05.1; American National Standard for Wood Products - Specifications and Dimensions

ANSI 05.1c; 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; Standard Terminology Relating to Wood

4. Conflict

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

- Seattle City Light purchase order (PO)
 - Seattle City Light general terms and conditions
 - This standard
 - ANSI O5.1 and AWPA standards
 - Other industry standards
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5. Quality and Dimensions

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

Wood pole species shall be Coastal Douglas fir.

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

- All wood shall be cut from live trees.
 - Poles shall be flat-roofed.
 - Poles shall have a two-inch wide by 1/2-inch deep notch on the pole face 12 ft 0 in from the pole butt.
 - Poles 50 ft or less shall be burn-branded according to the requirements of ANSI O5.1 at 10 ft \pm 2 in from the pole butt.
 - Poles 55 feet or more shall be burn-branded according to the requirements of ANSI O5.1 at 14 ft \pm 2 in from the pole butt
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6. Preservative Treatment

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

6.1 Incising

Poles shall be incised full-length after shaving but before seasoning. Minimum incising depth shall be 1/2 in.

6.2 Boring

Poles shall be through-bored 2 ft above and 4 ft below the ground line (G) prior to treatment to enhance penetration of the preservative into the pole according to Figures 6.2a through 6.2e and Table 6.2.

All through-bored holes shall have a nominal diameter of 7/16 in or 1/2 in.

Ground Line (G) also known as Pole Setting Depth, shall be in accordance with Table 6.2.

Through-boring shall be done without charring or glazing the inner surfaces.

All holes shall be through-bored from one direction.

The through-bore zone shall be located on the north face of the pole.

Edge Distance (ED) shall be 2 \pm 1/2 in.

Figure 6.2a. Pole Section

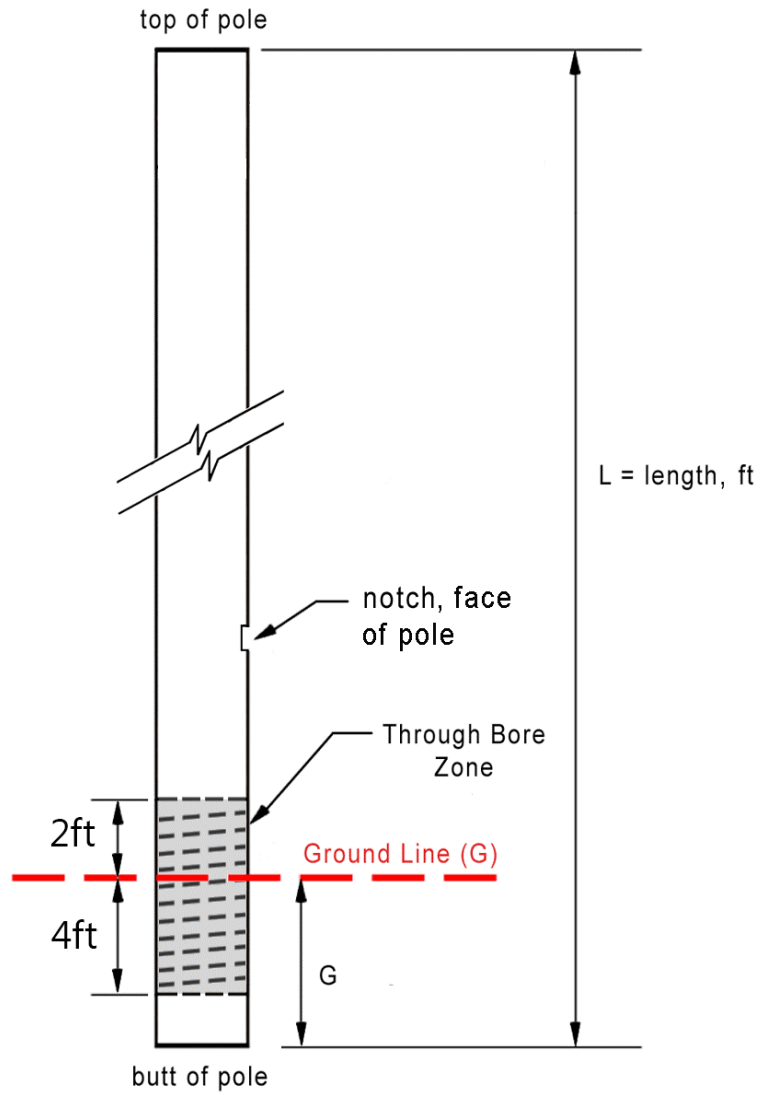


Table 6.2. Ground Line Distance from Butt

Pole Length (L) (ft)	Ground Line Distance from Butt (G) (ft)
30	5.5
40	6
45	6.5
50	7
55	7.5
60	8
65	8.5
70	9
75	9.5
80	10
85	10.5
90	11
95	11
100	11
105	12
110	12

Figure 6.2b. Through-Boring Template

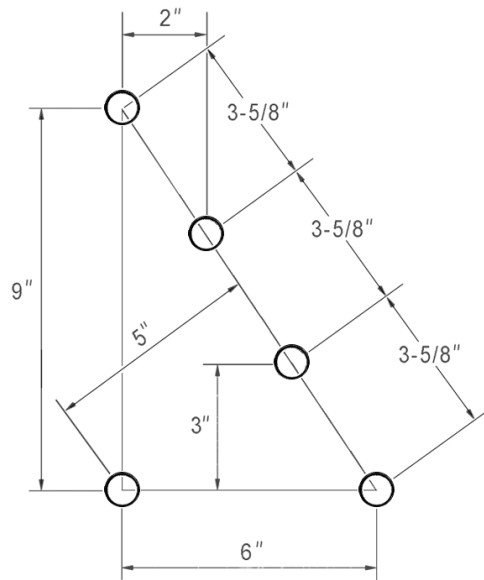


Figure 6.2c. Through-Bore Zone

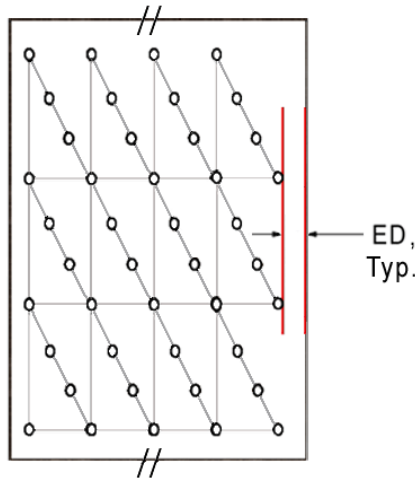


Figure 6.2d. Through-Bore Zone, Side View

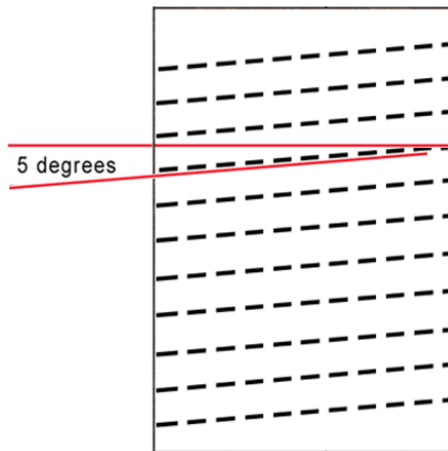
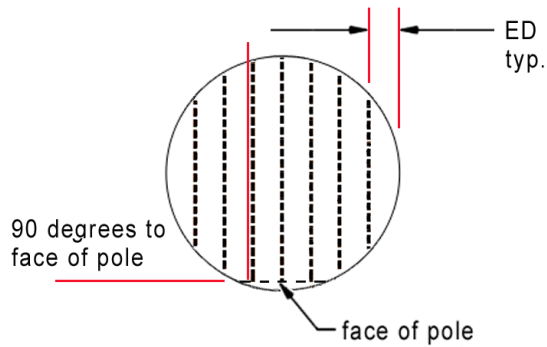


Figure 6.2e. Through-Bore Zone, Section



6.3 Treatment

Wood poles shall be treated full length with copper naphthenate meeting the requirements of AWPA P36 compounded with hydrocarbon solvent, Type A, carrier meeting the requirements of AWPA HSA.

Carrier and co-solvent shall be 100 percent pure diesel product. The carrier shall be free of polycyclic aromatic hydrocarbons (PAH), and contain no chlorinated co-solvent.

6.4 Preservative Retention and Penetration

Net retention of copper naphthenate preservative in poles after treatment shall be not less than 0.095 pounds per cubic foot (UC4B), in accordance with AWPA U1.

The depth of preservative penetration shall be no less than 3/4 inch and 85% of the sapwood at the tagline of the pole as specified under AWPA T1, and 100% in the through-bore zone. Exception: in the innermost third of the core (3/3), up to two rings in the remaining core may be untreated.

6.5 Sterilization

Poles shall be sterilized according to the requirements of AWPA M1.

7. Testing and Test Methods

Test data that establishes compliance with the requirements of AWPA A9, AWPA A76, and this Material Standard shall be provided upon request.

Copper naphthenate concentration in wood shall be determined according to the requirements of AWPA A9.

Copper naphthenate penetration in wood shall be determined according to the requirements of AWPA A76.

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 Technical Information

Upon request, the supplier shall provide the following technical information:

- 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
- Pole treatment report, including preservative charge, penetration, and retention.

Technical 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

SCL Material Standard 5092.00; “Pole Liners”

13. Sources

IEEE 1217-2001, Guide for Preservative Treatment of Wood Distribution and Transmission Line Structures; IEEE Power Engineering Society, New York, NY

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

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