Wood Poles, Pressure-Treated, Douglas Fir, DCOI

1. Scope

This standard covers the requirements for 4,5 dichloro-2-n-octyl-4-izothiazolin-3-one (DCOI), pressure-treated, solid, Douglas fir, wood utility poles.

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

Length	Class 1	Class 3	Class H1	Class H2	Class H3	Class H4	Class H5	Class H6
30	014846	14861	–	–	–	–	–	–
40	014847	14862	–	–	–	–	–	–
45	014848	–	–	–	–	–	–	–
50	014605	14712	014713	014875	–	–	–	–
55	014849	–	014863	014876	–	–	–	–
60	014850	–	014864	014877	–	–	–	–
65	014851	–	014865	014878	–	–	–	–
70	014852	–	014866	014879	–	–	–	–
75	014853	–	014867	014880	–	–	–	–
80	014854	–	014868	014881	15125	15132	15142	15149
85	014855	–	014869	014882	15126	15133	15143	15150
90	014856	–	014870	014883	15127	15134	15144	15151
95	014857	–	014871	014884	15128	15135	15145	15152
100	014858	–	014872	014885	15129	15136	15146	15153
105	014859	–	014873	014886	15130	15140	15147	15154
110	014860	–	014874	014887	15131	15141	15148	15155

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.

3. Industry Standards

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

American Wood Protection Association (AWPA) Book of Standards, published 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 P39**; Standard for 4,5-Dichloro-2-N-Octyl-4-Isothiazolin-3-One (DCOI)
- **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 O5.1; American National Standard for Wood Products - Specifications and Dimensions

ANSI O5.1c; 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:

1. Seattle City Light purchase order (PO)
2. Seattle City Light general terms and conditions
3. This standard
4. ANSI O5.1 and AWPA standards
5. Other industry standards

5. Requirements

5.1 Quality and Dimensions

Wood pole Use Category shall be UC4C according to the requirements of AWPA U1.

Wood pole species shall be Coast 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 2-1/2 in wide by 1/2 in deep notch on the pole face 12 ft 0 in from the pole butt.
- Poles shall be burn-branded or have metal tags according to the requirements of ANSI O5.1. Burn brands or metal tags shall be located on the butt of the pole and 6 ft above the ground line as shown in Table 5.2.

5.2 Boring

Poles shall be through-bored 2 ft above and 4 ft below the ground line prior to treatment to enhance penetration of the preservative into the pole as described in Table 5.2 and figures 5.2a through 5.2e.

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 5.2.

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

All holes shall be through-bored from a single direction.

Through-boring shall be done on the face of the pole.

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

Table 5.2. Ground Line Distance from Butt (Average Soil Conditions)

Pole Class	Pole Length (L) (ft)	Ground Line Distance from Butt (G) (ft)
1 & 3	30	7
1 & 3	40	7
1	45	7
1 & 3	50	7
H1 & H2	50	8
1	55	7.5
H1 & H2	55	8.5
1	60	8
H1 & H2	60	9
1	65	8.5
H1 & H2	65	9.5
1	70	9
H1 & H2	70	10
1	75	9.5
H1 & H2	75	10.5
1	80	10
H1–H6	80	11
1	85	10.5
H1–H6	85	11.5
1	90	11
H1–H6	90	12
1	95	11.5
H1–H6	95	12.5
1	100	12
H1–H6	100	13
1	105	12.5
H1–H6	105	13.5
1	110	13
H1–H6	110	14

Figure 5.2a. Pole Section

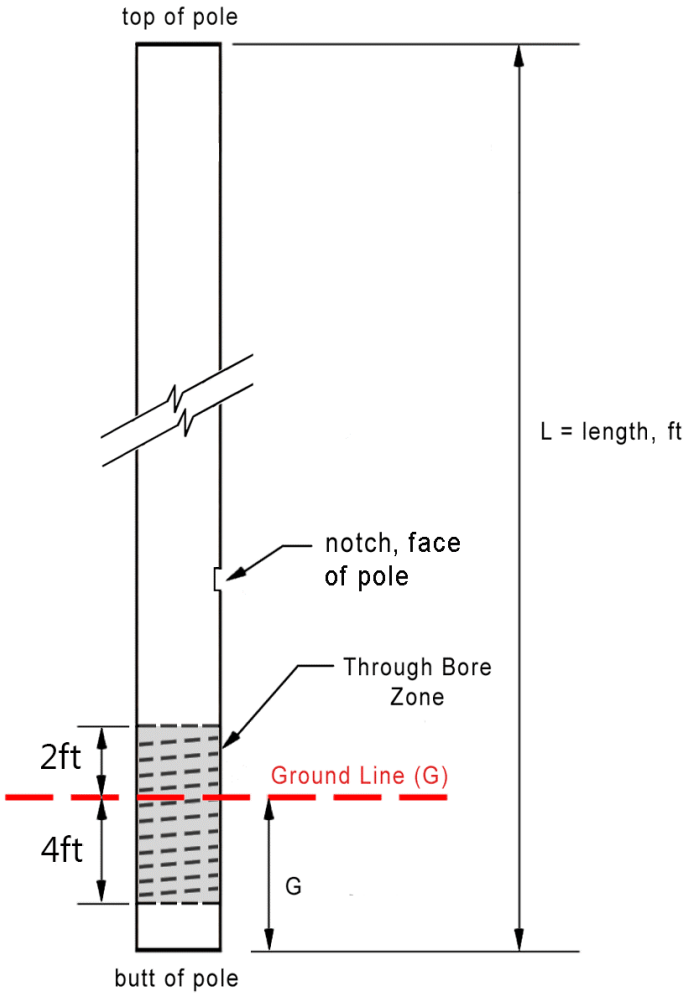


Figure 5.2b. Pattern for Through-Boring Template

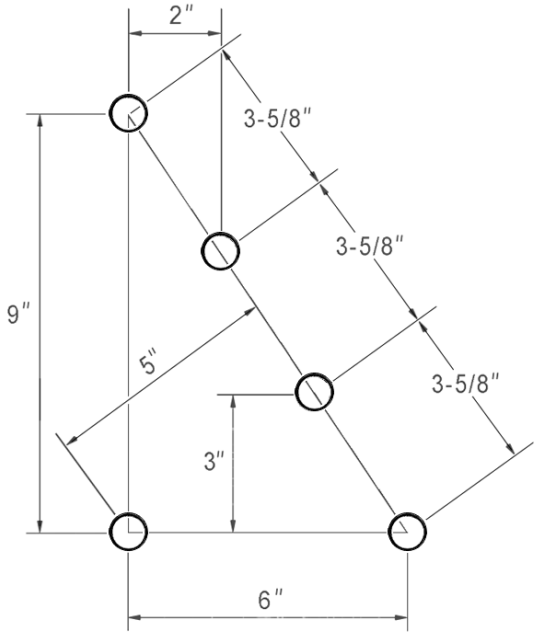


Figure 5.2c. Through-Bore Zone

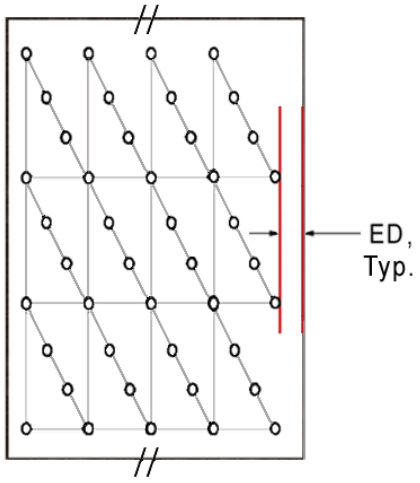


Figure 5.2d. Through-Bore Zone, Side View

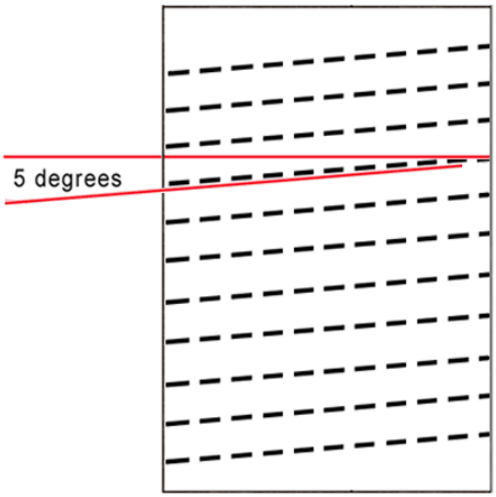
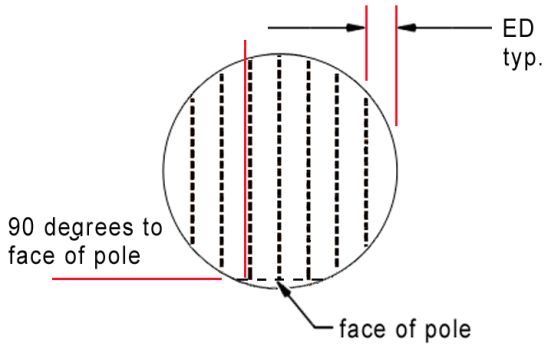


Figure 5.2e. Through-Bore Zone, Section



5.3 Preservative

5.3.1. Treatment

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

Wood poles shall be treated full length with DCOI meeting the requirements of AWPA P39, 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.

5.3.2. Retention and Penetration

Net retention of DCOI preservative in poles after treatment shall be not less than 0.20 pounds per cubic foot (UC4C), in accordance with AWPA U1.

The depth of preservative penetration shall be not 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-bored zone except that in the inner most third of the core (3/3) up to three consecutive annual rings of skip are allowed.

5.4 Sterilization

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

6. Testing and Test Methods

Test data that establishes compliance with the requirements of AWPA A9, AWPA A71, and this standard shall be provided upon request.

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

DCOI penetration in wood shall be determined according to the requirements of AWPA A71.

7. Documentation

7.1 General

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

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

7.2 Technical Information

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

- Manufacturer 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.

7.3 Plant QA Process

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

8. 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.

9. Issuance

EA

10. Approved Manufacturers

Stella-Jones Corporation, Arlington, WA

11. Sources

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

Kim, Sunny; SCL Standards Engineer and subject matter expert for 5082.05

SCL Material Standard 5082.00; "Wood Poles, Pressure-Treated, Douglas Fir"

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 5082.05

www.ldm.com

www.stella-jones.com

www.treatedwood.com