

COMMERCIAL STANDARD **CS249-62**

Pressure-Treated Douglas Fir Marine Piles

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A recorded
voluntary standard of the
trade published by
the U.S. Department
of Commerce



For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington 25, D.C. Price 10 cents

U.S. DEPARTMENT OF COMMERCE

OFFICE OF TECHNICAL SERVICES

Commodity Standards Division

With the cooperation of the
Forest Products Laboratory
Forest Service
U.S. Department of Agriculture

EFFECTIVE DATE

Having been passed through the regular procedures of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this Commercial Standard is issued by the U.S. Department of Commerce, effective December 3, 1962.

LUTHER H. HODGES, *Secretary.*

COMMERCIAL STANDARDS

Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services and with the National Bureau of Standards. Their purpose is to establish quality criteria, standard methods of test, rating, certification, and labeling of manufactured commodities, and to provide uniform bases for fair competition.

The adoption and use of a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices; or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

Commercial Standards originate with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The division by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the division assures continuous servicing of each Commercial Standard through review and revision whenever, in the opinion of the industry, changing conditions warrant such action.

SIMPLIFIED PRACTICE RECOMMENDATIONS

Under a similar procedure the Commodity Standards Division cooperates with industries in the establishment of Simplified Practice Recommendations. Their purpose is to eliminate avoidable waste through the establishment of standards of practice for sizes, dimensions, varieties, or other characteristics of specific products; to simplify packaging practices; and to establish simplified methods of performing specific tasks.

The initial printing of this Commercial Standard was made possible through the cooperation of the American Wood Preservers Institute in ordering advance copies for its members.

Pressure-Treated Douglas Fir Marine Piles

[Effective December 3, 1962]

1. PURPOSE

1.1 The purpose of this commercial standard is to establish a nationally recognized standard of quality for Douglas fir marine piles that are treated with creosote or creosote-coal tar solution by the pressure process to protect them against attack by marine borers, and against damage by fungi and insects. It is intended to provide an effective voluntary basis of common understanding between producers and users. General adoption of this standard will facilitate the procurement and use of properly treated marine piles.

2. SCOPE, CLASSIFICATION AND DEFINITIONS

2.1 **Scope.**—This commercial standard covers the most common sizes and classes and one grade of pressure treated Douglas fir marine piles. It provides a table of standard circumferences and

diameters for three classes of piles according to their intended use and load bearing capacities. The grading requirements for the timbers, as well as the straightness, seasoning, and manufacturing practices are specified. The requirements are also given for the wood preservative, and for the penetration and retention of the preservative in the treated piles. Branding of each pile for purposes of identification is provided and information on after-treatment care is included.

2.2 **Classification.**—The commercial standard classes, and sizes of pressure treated Douglas fir marine piles, which are generally available, are given in table 1 (see par. 3.5 for tolerances). Other sizes are available, usually on special order, and these sizes may be considered as complying with this standard provided they meet all applicable requirements and the special size is clearly indicated.

TABLE 1.—Standard classes, and sizes of Douglas fir marine piles¹

Lengths ¹	3 feet from butt				At tip, Min.	
	Min.	Min.	Max.	Max.	Circumference	Diameter (approx.)
	Circumference	Diameter (approx.)	Circumference	Diameter (approx.)		
ft.	in.	in.	in.	in.	in.	in.
<i>Class A</i>						
Under 40.....	44	14	57	18	28	9
40 to 50 incl.....	44	14	57	18	28	9
55 to 70 incl.....	44	14	57	18	25	8
75 to 90 incl.....	44	14	63	20	22	7
Over 90.....	44	14	63	20	19	6
<i>Class B</i>						
Under 40.....	² 38	² 12	63	20	25	8
40 to 50 incl.....	38	12	63	20	22	7
55 to 70 incl.....	41	13	63	20	22	7
75 to 90 incl.....	41	13	63	20	19	6
Over 90.....	41	13	63	20	16	5
<i>Class C</i>						
Under 40.....	³ 38	³ 12	63	20	25	8
40 to 50 incl.....	38	12	63	20	19	6
55 to 70 incl.....	38	12	63	20	19	6
75 to 90 incl.....	38	12	63	20	19	6
Over 90.....	38	12	63	20	16	5

¹ Lengths 16 to 40 ft. are in multiples of 2 ft., and lengths over 40 ft. are in multiples of 5 ft.

² In Class B piles, a minimum circumference of 34 in. or diameter of 11 in. at a point 3 ft. from the butt may be specified for lengths of 25 ft. and under. Smaller sizes than those stipulated above for Class B may be specified where piles of Class B quality are desired for use with light bearing values or in special cases, as for use with concrete caps.

³ In Class C piles, a minimum circumference of 31 in. or diameter of 10 in. at a point 3 ft. from the butt may be specified for lengths of 25 ft. and under.

⁴ Liberal use of ASTM D25, Standard Specifications for Round Timber Piles, is acknowledged. Copies of ASTM standards may be obtained from the American Society for Testing and Materials, 1916 Race St., Philadelphia 3, Pa.

2.3 Definitions: For purposes of this standard, Douglas fir marine piles are classified under three general divisions according to their intended use, as follows:

Class A—Piles suitable for use in extra heavy framed construction. The minimum diameter of butt permits the use of load-bearing timber caps 14 inches in width.

Class B—Piles most commonly used for docks, wharves, bridges, or foundations, and general construction. The minimum diameter of butt permits the use of load-bearing timber caps 12 inches in width. (See also table 1)

Class C—Piles suitable for use in marinas and other light construction.

3. REQUIREMENTS

3.1 General.—All Douglas fir marine piles labeled, branded, or otherwise marked or represented as complying with this commercial standard shall meet or exceed all of the following requirements.

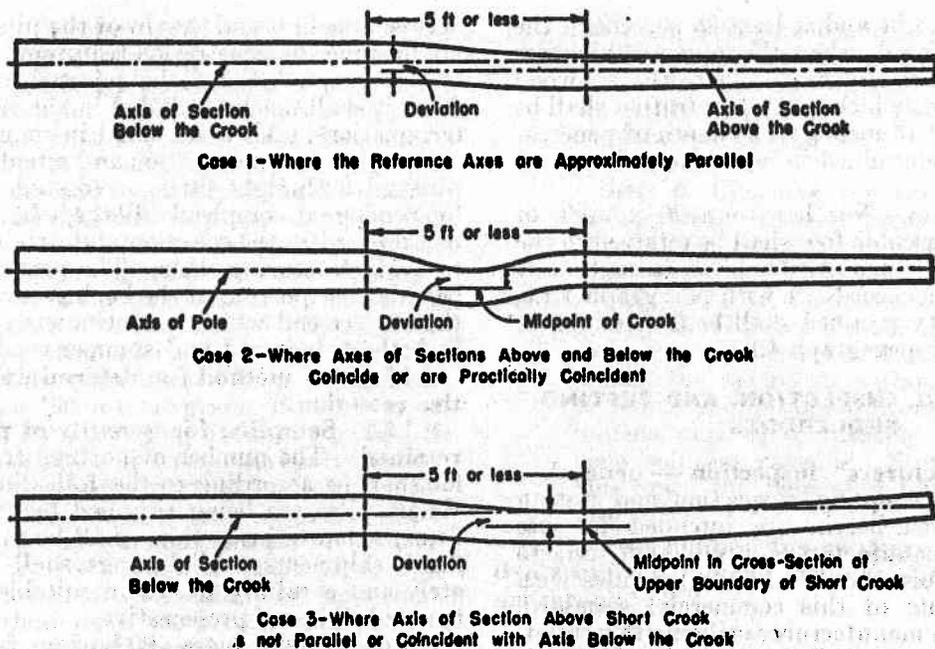
3.2 Grade.—Piles shall be of Douglas fir. The wood shall be sound, free from decay, red heart, or insect attack, except as herein provided. Timber shall be cut above the ground swell, and shall have a continuous taper from the point of butt measurement to the tip. Each pile shall have not less than 1.0 inches of sapwood when ready for treatment. Spiral grain shall not exceed one-half of a complete twist in any 20 feet of length. Holes less than one-half inch in average diameter will be permitted in all piles, provided the sum of the average diameters of all holes in any square foot of pile surface does not exceed $1\frac{1}{2}$ inches. Splits shall be no longer than the butt diameter. The length of any shake or combination of shakes in the outer half of the radius of the butt of the pile, when measured along the curve of the annual ring, shall not exceed one-third of the circumference of the butt of the pile.

3.2.1 Knots.—Sound knots in all piles 50 feet or less in length, and in three-quarters of the length from the butt of Class A or B piles longer than 50 feet, shall be no larger than 4 inches or one-third of the diameter of the pile at the point where they occur, whichever is the smaller. Sound knots in the remaining one-quarter of the length of piles longer than 50 feet shall be no larger than 5 inches or one-half of the diameter of the pile at the point where they occur, whichever is the smaller. Sound knots in Class C piles shall be no larger than 5 inches, or one-half of the diameter of the pile at the point where they occur, whichever is the smaller. The size of a knot shall be its diameter measured at right angles to the length of the pile. Cluster knots are prohibited.¹ The sum of sizes of all knots in any foot of length of the pile shall not exceed twice the size of the largest permitted single knots. Requirements for spacing of knots shall be applied at the centers of the knots considered.

3.2.2 Straightness.—A straight line from the center of the butt to the center of the tip of Class A, B and C piles shall lie entirely within the body of the pile. All piles shall be free from short crooks in which the deviation from straightness in any 5 feet of length anywhere exceeds $2\frac{1}{2}$ inches measured as shown in Figure 1. Short crooks shall also comply with the above requirements for sweep.

3.2.2.1 Special long piles for driving to lighter bearing values may be ordered under a more liberal alternative specification as follows: "A straight line from the center of the butt to the center of the tip may lie partly outside the body of the pile, but the maximum distance between the line and the pile shall not exceed one-half percent of the length of the pile or 3 inches, whichever is smaller."

¹ For purpose of this standard, a knot cluster is two or more knots grouped together, the fibers of the wood being deflected around the entire unit. A group of single knots, with fibers deflected around each knot separately, is not considered a cluster even though the knots may be in close proximity.



The three cases shown are typical, and are intended to establish the principle of measuring short crooks. There may be other cases not exactly like those illustrated.

FIG. 1.—Measurement of Short Crook.

3.3 Manufacture.—Piles may be machine peeled and full-length incised. Butts and tips of piles shall be sawed square with the axis of the pile. All knots and limbs shall be trimmed or smoothly cut flush with the surface of the pile, except that knots may be hand-trimmed flush with the surface of the swell surrounding the knot. Insofar as practicable, all adzing, boring, chamfering, framing, gaining, incising, surfacing, trimming, seasoning, etc., shall be done prior to treatment.

3.4 Seasoning.—Seasoning (conditioning) is necessary to attain the required retentions. The piles for any one charge shall be seasoned or conditioned to the same degree to insure uniformity of moisture distribution and uniformity of treating results.

3.5 Tolerances

3.5.1 Circumference and diameter.—The circumferences of treated piles shall have minimum and maximum values as given in table 1, except that not more than 10 percent of the piles in any shipment may have circumferences 2 inches less than the tabulated minimum circumference values. Requirements for tip circumference of piles that are longer than the required length may be applied at the tip end of the required length. The ratio of the maximum to the minimum diameter at the butt of any pile shall not exceed 1.2.

3.5.2 Length.—Individual treated piles may vary from the length specified by as much as plus or minus 1 foot for piles shorter than 40 feet and plus or minus 2 feet for piles 40 feet or longer. However, the average length of all piles of a speci-

fied length in each shipment shall be not less than the length specified.

3.6 Preservative.—The preservative used shall be creosote-coal tar solution meeting the requirements for Class V in accordance with the latest revision of Federal Specification TT-C-650 or creosote meeting the requirements for Type III in accordance with the latest revision of Federal Specification TT-C-645, Creosote; Technical,² at the option of the manufacturer. The conformance of the preservative to the specification prior to use in the treating process shall be determined in accordance with paragraph 4.1.3.

3.7 Treatment.—In addition to meeting the preceding physical requirements for each class, piles shall be pressure-treated using creosote or creosote-coal tar solution specified and shall meet the following requirements for penetration and retention.³ The requirements for quality preservative in the treated piles at destination are provided for under paragraph 4.2. Compliance with these treatment requirements shall be determined in accordance with the test methods described under each applicable requirement, and under the inspection provisions of this standard. It is to be specially noted that compliance is subject to verification by re-inspection for 30 days after delivery.

3.8 Penetration.—The preservative shall penetrate at least the outer 1.0 inches of the wood

² Copies of Federal Specifications can be procured from the Business Service Center, GSA Regional Office, 7th & D Sts. SW., Washington 25, D.C.

³ For a description of pressure-treatment see American Wood-Preservers' Assn. (AWPA) Manual of Recommended Practice, especially C-3. Copies of the Manual and the standards may be obtained from the Assn. office at 839 Seventeenth St. NW., Washington 6, D.C.

surface of each pile and at least 85 percent of the sapwood of each pile where the sapwood thickness is between 1 and 2 inches. Where the sapwood thickness exceeds 2 inches, the penetration shall be a minimum of 1.75 inches. The depth of penetration shall be determined in accordance with paragraph 4.1.4.

3.9 Retention.—Not less than 20 pounds of preservative per cubic foot shall be retained in the outer 2 inches of each pile based on extraction of borings taken in accordance with paragraph 4.1.5, and the quantity retained shall be determined in accordance with paragraph 4.1.5.

4. SAMPLING, INSPECTION, AND TESTING PROCEDURES

4.1 Manufacturers' inspection — general.—The following sampling, inspection and testing procedures given herein are intended for use primarily as manufacturers' production tests to determine conformance of the treated piles with the requirements of this commercial standard. Therefore, each manufacturer utilizing this standard in the treatment of piles and labeling or branding his products accordingly, shall regularly conduct these tests (plus any others) during production in order to assure such conformance.

4.1.1 30-day contingency.—Each shipment of piles conforming to this standard is also subject to inspection at destination by the purchaser or by an independent inspection agency for 30 days after delivery in accordance with paragraph 4.2. Inspection of piles in shipments with destinations outside the continental USA are specifically provided for in paragraph 4.2.

4.1.2 Visual examination.—All piles shall be carefully examined for compliance with all of the physical requirements of this standard, including, size, class, grade, straightness, and manufacturing. Any pile found not to comply with any of the physical requirements shall be rejected.

4.1.3 Test method for determining quality of preservative before treatment.—Properties of the creosote or the creosote-coal tar solution prior to use in the treating process shall be determined in accordance with American Wood-Preservers' Association (AWPA) Standard A1, Standard Methods for Analysis of Creosote and Oil Type Preservatives. Sampling shall be conducted in accordance with AWPA Standard A4, Standard Methods for Sampling Wood Preservatives.³

4.1.3.1 The method of testing the quality of the preservative in the finished treated piles at destination or job site shall be in accordance with paragraph 4.2.1.

4.1.4 Test method for determining preservative penetration.—The depth of penetration shall be determined on each pile by examination of a boring taken from the surface with an increment core borer that is directed toward the pith, and is at right angles to it, and is also at a point midway

between the butt and the tip of the pile. Any pile not meeting the penetration requirements specified in paragraph 3.8 shall be rejected, and borings from it shall not be included in the retention determinations. All holes bored in connection with measurement of penetration and retention shall be plugged with tight fitting creosoted wood plugs long enough to completely fill the holes. Care shall be exercised in the selection and driving of plugs to avoid fracturing them. The penetration shall be only that portion of the boring measured from the surface end which is continuously solid black in both springwood and summerwood.

4.1.5 Test method for determining preservative retention.

4.1.5.1 Sampling for quantity of preservative retained.—The number of borings from any one lot shall be according to the following schedule. Where piles are being supplied by two or more firms, separate inspections shall be made of each firm's shipments. All borings shall be immediately and carefully placed in suitable containers to avoid all loss of preservative.

Lots of 30 or more—20 borings from 20 representative piles.

Lots of 15 to 30—1 boring from each pile.

Less than 15—Not less than 20 borings with an equal number from each pile.

4.1.5.2 Retention test procedure.—The quantity of preservative retained shall be determined by taking the required number of increment core borings from the midpoints of the selected piles in accordance with the American Wood-Preservers' Association Standard M2, Standard Instructions for the Inspection of Preservative Treatment of Wood, and extracting the preservative from the borings in accordance with AWPA Standard A6, Method for the Determination of Water and Oil-Type Preservatives in Wood.³ All borings shall be accurately cut at 2.0 inches measuring from the outside surface of the pile. On charges treated with creosote-coal tar solution the final retention figure shall be arrived at by multiplying the calculated retention in pounds per cubic foot by 1.06 to correct for the toluene-insoluble portion of the creosote-coal tar solution remaining in the wood.

4.2 Purchaser's or independent inspector's sampling and testing.—In addition to the visual examination, the test method for preservative quality before treatment, and the tests for preservative penetration and retention given for manufacturers in the preceding paragraphs, the following test for quality of preservative in the treated piles may also be conducted by the purchaser or by an independent inspection agency within 30 days after delivery of the piling to each destination. Failure of the recovered preservative to meet the quality requirements specified in paragraph 4.2.4 will be considered sufficient cause for rejection of the entire shipment. Complaints must be mailed within the 30-day period, and no piles should be returned to the seller for any reason without his prior

notification and receipt of shipping instructions. Piles for locations outside the continental U.S.A., including Alaska and Hawaii, shall be subject to final acceptance prior to the shipment leaving port of embarkation. Piles at job site should be stacked in such a manner to prevent excessive bending.

4.2.1 Test method for determining the quality of preservative in the treated piles.—Marine piles meeting this commercial standard usually contain 35 to 40 percent by weight of creosote or creosote-coal tar solution in the treated zone. The quality of the preservative in the treated pile shall be determined by cutting a 3-inch-thick disk from the butt of one of the piles in each shipment and extracting from it 100 or more grams of preservative for analysis. By separating about 350 grams of the treated zone of the disk from the heartwood by use of a large chisel or saw and extracting the preservative with toluene, well over 100 grams of oil will be obtained. This amount is sufficient to carry out all necessary tests required under paragraph 4.2.4. Small losses of whole oil are not important since the method does not become quantitative until the toluene-free oil stage is reached.

CAUTION: Due to the flammable and explosive nature of toluene liquid and vapor, every precautionary measure should be taken. Post "NO SMOKING" signs at the entrances of the laboratory.

4.2.2 Test method for extraction of creosote-coal tar solution from treated piles.

Extraction apparatus:

- 1 Soxhlet-type extractor, large
- 1 Wire basket, large enough to hold 350 gram wood chips
- 4 Barrett distilling tube receivers, 20 ml (with stopcock)
- 4 Allihn condensers, 250 mm
Rubber tubing, graduate cylinder beakers, etc.
- 1 Electric heater with rheostat control
- 1 Erlenmeyer flask, 2 liters

Extraction procedure:

Step 1. Chip the treated zone sample with hatchet or chisel into small slivers $\frac{1}{8} \times \frac{1}{4} \times 1\frac{1}{2}$ inches maximum size.

Step 2. Place the chips in the wire extraction basket.

Step 3. Make certain the extractor is clean (rinse with toluene if necessary) and fill the base of the extractor with 2.5 liters of toluene.

Step 4. Assemble the extractor, water traps, condensers, etc. Apply a few drops of flexible collodion around the cork and tube entrances. Also place *one drop* of aerosol solution in each condenser to prevent water adhesion to the glass wall. At various intervals throughout the distillation aerosol solution (one drop) may be added if necessary.

Step 5. Apply heat to the Soxhlet extractor and control with a rheostat so that

the toluene vapors condense in the lower third of the condensers. During the extraction, maintain a flow of cool water through the Allihn condensers so that the effluent temperature of the water never exceeds 30° C.

Step 6. Continue the extraction until the recycling toluene remains colorless for at least three returns after the last drop of water is collected in the traps.

Step 7. Allow the extractor to cool.

Step 8. Disassemble the extractor, remove the wire basket and chips, and reassemble the apparatus without the basket. Continue distillation, draining the traps of toluene, until approximately 1 liter of toluene solution remains. Stop distillation and drain the remaining toluene solution into a flask.

4.2.3 Test method for recovery of preservative from the toluene solution obtained under paragraph 4.2.2.

Recovery apparatus:

- 1 Buchner funnel, 11 cm (4.3 in.)
- 1 Filter flask, 1 liter
Filter paper, 11 cm, coarse
- 2 Squibbs or Glove-shaped separatory funnel, 2 liter and 1 liter
- 1 Five-ball column and distilling flask
- 1 Liebig condenser, 400 mm (15 in.)
- 1 A.S.T.M. high distillation thermometer, range 0–400° C
- 1 Electric heater, rheostat controlled
Rubber tubing, cork stopper, breakers, etc.
- 1 Engler distilling flask, 1 liter

Recovery procedure:

Step 1. Assemble the apparatus for filtration. Moisten a piece of filter paper with toluene and center in Buchner funnel. Apply vacuum to set paper properly.

Step 2. Filter the toluene solution by means of a vacuum.

Step 3. Prepare 750 ml of a 5-percent sodium carbonate water solution.

Step 4. Pour the liter of filtered solution into a 2 liter separatory funnel.

Step 5. Add 100 ml of the 5-percent carbonate solution to the toluene solution in the separatory funnel. Stopper the funnel and shake vigorously. Allow the water solution and toluene solution to separate distinctly and draw off the lower (water) layer. Repeat at least twice with 100 ml portions of fresh 5 percent solution. (Note: Also draw into a separate flask that intermediate layer which appears as a brown emulsion. Allow that solution to separate, and return any toluene solution to funnel).

Step 6. Add 100 ml of distilled water to the separatory funnel. Stopper the funnel and shake vigorously. Allow the water and

toluene solution to separate completely and discard the lower (water) layer. Repeat twice with 100 ml of distilled water. (See note in No. 5.)

Step 7. Transfer the washed toluene solution to a 1-liter Engler distilling flask. Assemble the apparatus for distillation, using an electric heater. The centigrade thermometer should be placed so that the mercury bulb is at the side outlet in the neck of the flask. Pass cold water through the condenser jacket at a rate to completely condense the toluene vapors.

Step 8. Distill off toluene until only 300 ml of toluene solution remains. Allow contents to cool.

Step 9. Transfer the toluene solution to the five-ball column distilling flask.

Step 10. Assemble the five-ball column apparatus using an electric heater and Liebig condenser. Insert a centigrade thermometer in the top of the five-ball column so that the mercury bulb is at the side outlet in the neck of the column.

Step 11. Distill off the remaining toluene at 110° C. Discontinue the distillation at that point at which a white mist is formed in the flask with a corresponding decline in temperature.

Step 12. Allow the contents to cool and proceed with the analysis of the recovered preservative as described in paragraph 4.2.4.

4.2.4 Test method for analysis of recovered preservative.—The analysis shall be performed as outlined for creosote and solution in the AWWA Manual of Recommended Practice, and the methods of test shall be in accordance with latest revision of AWWA Standard A1, Standard Methods for Analysis of Creosote and Oil-Type Preservatives.³ The recovered preservative shall be considered of satisfactory quality if it meets the applicable requirements given in table 2.

TABLE 2.—Requirements for recovered preservatives

Quality characteristics	Creosote coal-tar solution		Creosote	
	Not less than	Not more than	Not less than	Not more than
1) Distillation: percent by wgt. on water-free basis off at:				
270° C.-----	15.0	-----	15.0	-----
355° C.-----	-----	75.0	-----	77.0
2) Specific Gravity at 38° C/15.5° C distillation fraction requirements:				
235-315° C.-----	1.025	-----	1.025	-----
315-355° C.-----	1.090	-----	1.090	-----
Residue above 355° C.-----	1.180	-----	1.150	-----

4.3 Re-Inspection.—Re-inspection privileges shall be granted either purchaser or producer upon request. If the physical requirements or treatment

of any pile shipment is in dispute the shipment shall be settled for on the basis of the re-inspection report and if more than 3 percent of the items in the shipment are below grade in penetration or retention the cost of such reinspection shall be borne by seller. The buyer need not accept those piles established as below grade, but shall accept the balance of the shipment as invoiced. If the reinspection establishes that 3 percent or less of the items in each shipment are below grade, the buyer pays the cost of reinspection and pays for the shipment as invoiced.

Failure to comply with any requirement, particularly for preservative quality, as determined in accordance with paragraph 4.2.4 shall be cause for rejection of the entire lot. No piles shall be returned to the seller for any reason without prior notification to the seller and receipt of shipping instructions.

5. MARKING AND CERTIFICATION

5.1 Branding of each pile. Each pile marketed as complying with this commercial standard shall be clearly and permanently branded by means of a burn brand at two places, approximately 5 feet and 10 feet from the butt, the brand shall show:

1. Supplier's brand
2. Plant designation, month and year of manufacture
3. Species of timber and preservative
4. Class and length of piling
5. Full symbol of this commercial standard

5.2 Producer's self-certification of shipments.—In order to indicate to the purchaser specific data concerning the treated piles, it is recommended that the producer reproduce the information given in the burn brand on the invoice for shipment.

5.3 Independent recertification.—Producers of commercial standard pressure-treated piles may, individually as above, or in concert with an independent testing or inspection facility or the facilities of a trade association, adopt certificates or labels or brands of their own design provided that the conformance to the requirements of this standard is clearly indicated along with the producer's name or brand or that of the testing facility.

5.4 Construction engineers, contractors, or dock owners who desire assurance of standard treatment may include in their specifications a requirement that all marine piles shall be treated in accordance with this commercial standard, and that they shall be certified as described above.

5.5 Cutting or boring.—Marine piles consist of an untreated but sterile heartwood center protected by a thick heavily creosoted shell of sapwood. Where the outer shell is cut or bored during construction exposing the unprotected heartwood, the pile may render only limited service life. For details of proper handling of piles that must be cut or bored see appendix to this standard.

APPENDIX

RECOMMENDED CARE OF PRESSURE-TREATED WOOD AFTER TREATMENT

(Reference—AWPA Standard M4—Standard Instructions for the Care of Pressure-Treated Wood after Treatment)³

1. General Requirements

1.1 Insofar as practicable, all adzing, boring, chamfering, framing, gaining, incising, surfacing, trimming, etc., should be done prior to treatment. (See paragraph 3.3.)

1.2 To prevent damage to the treated portions, cant hooks, peavies, pickaroons, and end hooks should not be used on the side surfaces of treated material. All handling of treated piles, poles, ties, lumber, or timbers with pointed tools should be confined to the ends only.

1.3 When pressure-treated materials have been accidentally damaged, or when it has been absolutely necessary to cut or bore into them after treatment, in such a way as to expose, or nearly expose, the untreated wood, such injuries, cuts or holes should be carefully field-treated with hot creosote by brushing, spraying, or dipping, in the manner described below, so as to minimize, as far as possible, the danger of decay, insect or borer attack.

1.3.1 Holes bored in pressure-treated material should be poured full of hot creosote. Horizontal holes, such as those for sway brace bolts may be filled by pouring creosote into them through a bent funnel. The use of equipment to apply creosote under pressure in holes bored in the field is recommended. Holes should not be bored or spikes driven into piles to support scaffolding and such holes and spikes in lumber or timbers for temporary use should be held to a minimum. Holes bored in treated material and not used for bolts should not be left open, but should be poured full of hot preservative and plugged with tight-fitting treated plugs.

1.3.2 All pressure-treated material that has been damaged or cut into after treatment, should have the exposed surfaces covered with at least two coats of hot creosote immediately after cutting, followed by a heavy application of coal tar pitch, flashing cement, or other sealers.

1.3.3 Preservative solution for field applications should be obtained from the treating plant at the time the treated wood is purchased. Coal tar pitch or other sealers must be purchased elsewhere.

1.3.4 Creosote or creosote solutions should be heated to temperatures from 150° F to 200° F before application. Coal tar pitch should be heated as necessary for ease in applying. Proprietary sealers should be applied in accordance with the manufacturers' recommendations.

2. Specific Requirements

2.1 Piles.—Immediately after making the final cutoff, the cut area should be given two applications of hot creosote followed by a heavy application of coal tar pitch, flashing cement, or other sealer. Piles should be cut square except in the case of piles to be capped with masonry. Cutoffs should be further protected by the application of two thicknesses of tar-saturated fabric over the cutoff, and overlapping the sides of the pile at least two inches. The overlap should be folded down along the sides and glued in place with coal tar pitch, flashing cement, or other sealer. The fabric should then be coated with one coat of coal tar pitch, flashing cement, or other sealer. Pressure-treated piles should not be capped in the field for sway bracing; (all sway bracing timber should be pressure creosoted) piles of uniform size should be selected for each bent and where necessary, pressure-treated filler blocks used to fill in between piles or caps and sway bracing. A satisfactory plastic compound for the protection of piles at cutoff can be made with 10 to 20 percent of creosote and 90 to 80 percent pitch. All framing including boring of holes in the tidal zone should be avoided. This is essential in tropical and semitropical waters.

2.1.1 Pile cutoff protection.—A sheet metal ring of 12-gauge metal 4 inches in height should be lightly driven into the pile at final cutoff to an oil-tight seat. The diameters of the rings should be slightly less than that of the pile, so that the untreated center of the pile is enclosed by the ring. The ring should then be filled to a depth of at least 2 inches with hot creosote and left in place until the creosote has been absorbed by the pile through end penetration. After use the ring should be removed for reuse.

2.1.2 An alternate method consists of encircling the pile at final cutoff with roofing felt, or thin metal tightly banded to the pile forming a cup extending 3 inches above the point of cutoff. This cup is filled with hot creosote to a depth of 2 inches and left in place until the oil has been absorbed through end penetration.

3. Use

3.1 It is recommended that treated piles be driven within 6 months of receipt so that best advantage may be taken of the full preservative content.

HISTORY OF PROJECT

The American Wood Preservers Institute, in a letter dated January 22, 1962, requested the Commodity Standards Division, U.S. Department of

Commerce to establish two Commercial Standards for pressure-treated marine piles, one for Douglas fir and the other for Southern pine. Drafts of the two proposals which were submitted by AWPI were edited and referred to the Forest Products Laboratory for review. Minor adjustments were made and on June 18, 1962, proposed Commercial Standards TS-5587 and TS-5588 were circularized to the trade for preliminary comment. Some additional adjustments were made and on September 5, 1962, Recommended Commercial Standards TS-5587A and TS-5588A were widely circulated to the industry for consideration. Endorsements in the form of signed acceptances from individual producers, distributors, and users of marine piling were considered sufficiently representative of the industry to insure successful application of the standards. Accordingly, on November 1, 1962, the establishment of the new Commercial Standards was announced and they were to become effective for new production on December 3, 1962. CS249-62 covers Pressure-Treated Douglas Fir Marine Piles, and CS250-62 covers Pressure-Treated Southern Pine Marine Piles.

Project Manager: Wm. H. Furcolow, Commodity Standards Division, Office of Technical Services, U.S. Department of Commerce.

Technical Adviser: Dr. R. H. Baechler, Forest Products Laboratory, Forest Service, U.S. Department of Agriculture.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Technical Services, U.S. Department of Commerce which acts as secretary for the committee.

Representing manufacturers:

Dr. James N. Roche, Tar Products Division, Koppers Co., Inc., Pittsburgh 19, Pa. (Chairman)
 Mr. C. A. Burdell, Southern Wood Preserving Co., P.O. Box 10798, Sta. A., Atlanta, Ga.
 Mr. C. W. Best, J. H. Baxter & Co., Box 752, Eugene, Oreg.

Representing users:

Mr. Richard M. Alpen, Southern Pacific Co., Oakland 20, Calif.
 Mr. Robert Z. Page, Bureau of Yards and Docks, Department of the Navy, Washington 25, D.C.
 Mr. H. P. Seavy, Mississippi Valley Engineering & Construction Co., 1420 Union Bldg., Memphis, Tenn. (Representing The Associated General Contractors of America, Inc.)

ACCEPTORS

The manufacturers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Commercial Standard prior to its publication. The acceptances in-

dicating an intention to utilize the standard as far as practicable, but reserve the right to depart from it as may be deemed desirable. The list is published to show the extent of recorded public support for the standard, and should not be construed as indicating that all products made by the acceptors actually comply with its requirements.

Products that meet all requirements of the standard may be identified as such by a certificate, grade mark, or label. Purchasers are encouraged to require such specific evidence of compliance, which may be given by the manufacturer whether or not he is an acceptor.

ASSOCIATIONS (GENERAL SUPPORT)

American Institute of Architects, The, Washington, D.C.
 American Specification Institute, Chicago, Ill.
 American Wood Preservers' Assn., Washington, D.C.
 American Wood Preservers Institute, Chicago, Ill.
 Associated General Contractors of America, Inc., Washington, D.C.
 National Lumber Manufacturers Assn., Washington, D.C.
 Railway Tie Assn., Columbus, Ohio.
 Southern Pressure Treaters Assn., DeRidder, La.
 West Coast Lumbermen's Assn., Portland, Oreg.
 Western Pine Assn., Portland, Oreg.
 Western Wood Preserving Operators Assn., Portland, Oreg.

FIRMS AND OTHER INTERESTS

Altfillisch, Olson, Gray & Thompson, Architects, Decorah, Iowa.
 American Creosoting Corp., Louisville 2, Ky.
 Ammann & Whitney Consulting Engrs., New York 11, N.Y.
 Atlantic Creosoting Co., Inc., Savannah, Ga.

Baxter, J. H., & Co., San Francisco, Calif.
 Baxter-Wyckoff Co., Seattle, Wash.

Camlet, J. Thomas, Architect & Engineer, Garfield, N.J.
 Carr, M. J., Creosoting Co., Ives Dairy Road, North Miami, Fla.
 Cascade Pole Co., Tacoma, Wash.
 Cascade Treating Co., Olympia, Wash.
 Chapman Chemical Co., Memphis, Tenn.

Dierks Forests, Inc., Hot Springs, Ark.

Eppinger & Russell Co., New York, N.Y.

Fernwood Industries, Fernwood, Miss.
 Forest Products Treating Co., Laramie, Wyo.

General Creosoting Co., Gulf, N.C.
 Georgia Creosoting Corporation, Brunswick, Georgia.

Honolulu Wood Treating Co., Ltd., Honolulu, Hawaii.

International Paper Co., Wood Preserving Div., Longview, Washington.

Joslyn Manufacturing & Supply Co., Chicago, Ill.

Koppers Co., Inc., Tar Products Div.; Wood Preserving Div., Pittsburgh, Pa.

Langdale Co., The, Valdosta, Ga., & Cherokee Div., Sweetwater, Tenn.

Los Angeles County Engineer, Los Angeles 12, California.
 Luxemburg Mfg. Co., Luxemburg, Wis.

Mann, Ralph H., South Daytona, Fla.
 Maryland Port Authority, Baltimore 2, Md.
 McCormick & Baxter Creosoting Co., Portland, Oreg.
 Miller, T. R., Mill Co., Inc., Brewton, Ala.
 Montana Pole & Treating Plant, Butte, Mont.
 Moore, William G., & Son, Inc. of Delaware, New York, N.Y.
 Moss, T. J., Tie Co., St. Louis, Mo.

Neils, J., Lumber Co., Libby, Mont.
 New England Pole & Wood Treating Corp., Merrimack, N.H.

Pacific Lumber & Shipping Co., Seattle 1, Wash.
 Patzig Testing Laboratories, Des Moines, Iowa.
 Piedmont Wood Preserving Co., Spartanburg, S.C.

Reid, William H., Whittier, Calif.
 Republic Creosoting Co., Indianapolis, Ind.

San Diego Wood Preserving Co., National City, Calif.
 Seattle, Port of, Seattle, Wash.
 Seidemann, Ernst, Corporation, New York, N.Y.
 Smith, W. J., Wood Preserving Co., Denison, Texas.

Taylor-Colquitt Co., Spartanburg, S.C. and Wilmington, N.C.

Urania Lumber Co., LTD, The, Urania, La.

Ward, Joseph S., Inc., Caldwell, N.J.
Weyerhaeuser Company, Tacoma Building, Tacoma, Washington.
Wheeler Lumber Bridge and Supply Co., St. Louis Park, Minn.
Wood Treating Chemicals Co., St. Louis, Mo.

U.S. GOVERNMENT

Army, Department of The, Engineer Research and Development
Laboratories, Fort Belvoir, Virginia.

Army, Department of, Office of the Chief of Engineers, Washing-
ton, D.C.
Coast Guard, 1300 E Street, NW., Washington, D.C.
Health, Education, Welfare, Department of, 330 Independence
Avenue, SW., Washington 25, D.C.
Interior, Department of The, Division of Property Management,
Office of the Secretary, Washington, D.C.
Navy, Department of The, Bureau of Yards & Docks, Washington,
D.C.
Veterans Administration, Technical Representative on Standards,
Washington, D.C.

ACCEPTANCE OF COMMERCIAL STANDARD

CS249-62 Pressure-Treated Douglas Fir Marine Piles

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this Commercial Standard.

Date _____

Commodity Standards Division
Office of Technical Services
U. S. Department of Commerce
Washington 25, D. C.

Gentlemen:

We believe that this Commercial Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production¹ distribution¹ purchase¹ testing¹
of this commodity.

We reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer _____

(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Organization _____

(Fill in exactly as it should be listed)

Street address _____

City, zone, and State _____

¹Underscore the applicable words. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interest, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

(Cut on this line)

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial Standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of Commercial Standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function, performed by the Department of Commerce in the voluntary establishment of Commercial Standards on a nationwide basis is fourfold: First, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

THE NATIONAL ARCHIVES
FEDERAL REGISTER
OF THE UNITED STATES

DEPARTMENT OF COMMERCE
National Bureau of Standards
VOLUNTARY PRODUCT STANDARDS
Notice of Action on Proposed
Withdrawal

In accordance with the provisions of § 10.12 of the Department's published "Procedures for the Development of Voluntary Product Standards" (15 CFR Part 10, as amended; 35 F.R. 8349 dated May 28, 1970), notice is hereby given of the withdrawal of the 36 commercial standards (CS) and 25 simplified practice recommendations (SPR) identified below. Each of these standards has been found to be obsolete, no longer technically adequate, no longer generally acceptable to and used by the industry, inconsistent with established policy, or otherwise inappropriate, and revision is not feasible or would serve no useful purpose.

- CS 14-51 Boys' sport and dress shirt (woven fabrics) size measurements.
- CS 33-43 Knit underwear (exclusive of rayon).
- CS 56-60 Strip oak flooring.
- CS 70-41 Phenolic disinfectant (emulsifying type).
- CS 71-41 Phenolic disinfectant (soluble type).
- CS 90-58 Power cranes and shovels.
- CS 101-63 Flue-connected oil-burning space heaters and recessed heaters with vaporizing pot-type burners.
- CS 104-63 Warm-air furnaces equipped with vaporizing-type oil burners.
- CS 106-57 Boys' pajama sizes (woven fabrics).
- CS 109-44 Solid-fuel-burning forced-air furnaces.
- CS 111-43 Earthenware (vitreous-glazed) plumbing fixtures.
- CS 113-63 Oil-burning floor furnaces equipped with vaporizing pot-type burners.
- CS 128-52 Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
- CS 129-47 Materials for safety wearing apparel.
- CS 131-46 Industrial mineral wool products, all types—testing and reporting.
- CS 134-46 Cast aluminum cooking utensils (metal composition).
- CS 135-46 Men's shirt sizes (exclusive of work shirts).
- CS 145-47 Testing and rating hand-fired hot water supply boilers.
- CS 152-48 Copper naphthenate wood preservative (spray, brush, dip applications).
- CS 158-49 Model forms for girls' apparel.
- CS-165-50 Zinc naphthenate wood preservative (spray, brush, dip applications).
- CS 174-41 140-F drycleaning solvent.
- CS 177-62 Bituminous-coated metal septic tanks (residential).
- CS 178-51 Testing and rating ventilating fans (axial and propeller types).
- CS 180-52 Model forms for boys' apparel.
- CS 183-51 Boys' trouser size measurements.
- CS 185-52 Wool felt.
- CS 186-52 Boys' sport outerwear size measurements.
- CS 195-60 Warm-air furnace burner units equipped with pressure-atomizing or rotary type oil burners.
- CS 196-55 Model forms for toddlers' and children's apparel.

- CS 198-55 Infants', children's, girls' and boys' knit underwear (exclusive of rayon, acetate, and nylon).
- CS 216-58 Asphalt insulating siding.
- CS 235 61 Pressure treated wood fence posts (with oil-type preservatives).
- CS 249-62 Pressure-treated Douglas fir marine piles.
- CS 250-62 Pressure-treated southern pine marine piles.
- CS 271-65 Grading of abrasive grain for grinding wheels.
- SPR 17-47 Heavy forged hand tools.
- SPR 44-49 Boxboard thicknesses.
- SPR 60-55 Machine, carriage and lag bolts, and nuts (case quantity and gross weight).
- SPR 72-27 Solid section steel windows.
- SPR 77-45 Hickory handles.
- SPR 100-47 Welded chain.
- SPR 125-31 Waxed tissue paper.
- SPR 136-32 Flax and hemp twine.
- SPR 147-42 Wire diameters for mineral aggregate production screens.
- SPR 157-50 Steel firebox boilers and steel heating boilers (commercial and residential).
- SPR 168-37 Braided shoe laces.
- SPR 180-41 Copper conductors for building purposes.
- SPR 183-46 Brass or bronze valves (gate, globe, angle, and check).
- SPR 184-47 Iron valves (gate, globe, angle, and check).
- SPR 185-47 Pipe fittings (gray cast-iron, malleable iron, and brass or bronze).
- SPR 190-42 Stove pipe and accessories.
- SPR 198-50 Wire rope.
- SPR 207-60 Pipes, ducts and fittings for warm air heating and air-conditioning systems.
- SPR 214-55 Metal-cutting band saws (hard edge flexible back).
- SPR 220-46 Open-end and box wrenches.
- SPR 227-47 Plumbing fixture fittings and trim for housing.
- SPR 229-63 Vises (machinists' and other bench-mounted vises).
- SPR 238-50 Convectors.
- SPR 245-51 Weldless chain and chain products.
- SPR 259-56 Hexagon-head cap screws (case quantity and gross weight).

Public notice of the intention to withdraw these standards was published in the FEDERAL REGISTER on June 21, 1972 (37 F.R. 12248), and a 45-day period was provided for the submission of comments or objections concerning the proposed withdrawal of any of these standards. No valid objections to the withdrawal of any of these standards have been received by the National Bureau of Standards.

The effective date for the withdrawal of these standards will be 60 days after the publication of this notice. This withdrawal action terminates the authority to refer to these standards as voluntary product standards developed under the Department of Commerce Procedures.

LAWRENCE M. KUSHNER,
Acting Director.

AUGUST 18, 1972.

[FR Doc.72-14465 Filed 8-23-72; 8:57 am]

Printed from

FEDERAL REGISTER, VOL. 37, NO. 165—THURSDAY, AUGUST 24, 1972