

Section 1082

1 Package components of the adhesive in containers of such size that one whole container
2 of each component is used in mixing one batch of adhesive. Design the containers to
3 allow for all of the contents to be readily removed and be well sealed to prevent leakage.
4 Furnish adhesive material that requires hand mixing in 2 separate containers marked as
5 Component A and Component B. A self contained cartridge or capsule consists of
6 2 components that will automatically be mixed as they are dispensed.

7 Clearly label each container with the manufacturer's name, date of manufacture, batch
8 number, batch expiration date, all directions for use and such warning of precautions
9 concerning the contents as required by Federal or State laws and regulations.

SECTION 1082 STRUCTURAL TIMBER AND LUMBER

1082-1 GENERAL

13 Use Southern Pine timber and lumber graded in accordance with the current grading rules of
14 the Southern Pine Inspection Bureau unless otherwise specified or approved by the Engineer.
15 Use stress rated grades equal to or higher than the grades specified. For temporary crossings,
16 the use of stress rated lumber having stress ratings below those specified may be used if
17 approved by the Engineer.

18 Have all timber and lumber, including any preservative treatment, inspected and/or tested at
19 no cost to the Department by an approved commercial inspection company before it is
20 delivered to the project. Provide industry standard commercial inspection reports for each
21 shipment of untreated timber or lumber before its use on the project. Provide industry
22 standard commercial inspection reports and treatment test reports for each shipment of treated
23 timber or lumber before its use on the project. Perform all timber and lumber treatment
24 inspections in accordance with Standard M2 (Part A) of the AWPA Specifications. In
25 addition, brand, hammer mark, ink stamp or tag each piece of timber or lumber with the
26 approved commercial inspection company's unique mark to indicate it has been inspected.

1082-2 UNTREATED TIMBER AND LUMBER

28 Lumber that is 2" to 4" thick and 2" to 4" wide shall conform to Structural Light Framing,
29 Grade No. 1 Dense MC19. Lumber that is 2" to 4" thick and 6" wide or wider shall conform
30 to Structural Joists and Planks, Grade No. 1 Dense MC19. Lumber that is 5" and thicker
31 along the least dimension shall conform to Structural Lumber, Grade Dense Structural 72.
32 Rough lumber will be acceptable except where surfacing is called for by the contract. Rough
33 lumber may vary $\pm 1/4$ " from the dimensions shown on the contract or bill of material.

1082-3 TREATED TIMBER AND LUMBER

(A) General

36 Grade marked lumber will not be required. Brand or ink stamp each piece of treated
37 lumber in accordance with the AWPA Standard M6.

(B) Bridges, Fender Systems and Piles

39 Lumber for bridges that is 2" to 4" thick and 2" to 4" wide shall conform to Structural
40 Light Framing, Grade No. 1 Dense. Lumber for bridges that is 2" to 4" thick and 6" wide
41 and wider shall conform to Structural Joists and Planks, Grade No. 1 Dense. Lumber for
42 bridges that is 5" and thicker along the least dimension shall conform to Structural
43 Lumber, Grade Dense Structural 65. Lumber for fender systems shall conform to
44 Structural Lumber, Grade Dense Structural 65.

45 Timber for piles shall meet ASTM D25 except that the timber shall be Southern Pine, and
46 have at least a 2" sap ring or a 3" sap ring where called for by the contract or where the
47 preservative is creosote and the retention is greater than 18 lb/cf.

1 Rough lumber will be acceptable except where surfacing is called for by the contract or
 2 bills of material. Rough lumber may vary $\pm 1/4$ " from the dimensions shown in the plans
 3 or bill of material. Dressed lumber may be $1/8$ " scant from the dimensions shown in the
 4 plans or bill of material. A $1/4$ " tolerance in length will be permitted.

5 **(C) Guardrail Posts**

6 Lumber for guardrail posts shall conform to Timbers, Grade No.1. Rough lumber will be
 7 acceptable. An allowable tolerance of $3/8$ " scant will be permitted from nominal
 8 dimensions.

9 **(D) Fence Posts and Braces**

10 Sawed fence posts and braces no larger than 4" x 4" shall conform to Structural Light
 11 Framing, Grade No. 2. Sawed fence posts and braces larger than 4" x 4" shall conform to
 12 Timbers, Grade No. 1.

13 Round lumber shall meet Subarticle 1050-2(A).

14 Use fully dressed S4S lumber for fence posts.

15 An allowable tolerance of $1/2$ " scant will be permitted from nominal dimensions of
 16 sawed and dressed lumber.

17 **(E) Sign Posts and Battens**

18 Lumber for sign posts no larger than 4" x 4" shall conform to Structural Light Framing,
 19 Grade No. 1 MC19. Lumber for sign posts larger than 4" x 4" and lumber for sign
 20 battens shall conform to Timbers, Grade No. 1. Use fully dressed S4S lumber for sign
 21 posts and battens.

22 An allowable tolerance of $1/2$ " scant will be permitted from nominal dimensions of sign
 23 posts. A tolerance of 1" under and 3" over will be permitted in the length of the post.

24 **(F) Poles**

25 Timber for poles shall meet ANSI O5.1 except the timber shall be treated Southern Pine
 26 or treated Douglas Fir. Use 40 ft Class 3 poles unless otherwise specified in the contract.

27 **1082-4 PRESERVATIVE TREATMENT**

28 **(A) General**

29 Give all timber and lumber required to be treated a preservative treatment in accordance
 30 with AWPAs Standards. The required retention of chromated copper arsenate is specified
 31 on the oxide basis. Preservative retention will be determined by the assay method.

32 After treatment, handle the timber and lumber carefully with rope slings, without sudden
 33 dropping, breaking of the fibers, bruising or penetrating the surface with tools or hooks.

34 Treated timber and lumber will not be accepted for use unless it has been inspected and
 35 found satisfactory, both before and after treatment, and shall be delivered to the project
 36 site in a condition acceptable to the Engineer.

37 Use treating plants that have laboratory facilities at the plant site for use of the inspector
 38 in accordance with AWPAs Standard T1.

39 **(B) Timber Preservatives**

40 Use timber preservatives conforming to AWPAs Standard T1.

41 **(C) Bridges, Fender Systems and Piles**

42 Treat timber and lumber for bridges and fender systems in accordance with
 43 AWPAs Standard U1, except the type of preservative and the retention of preservative will
 44 be as required by the contract.

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1 Treat piles in accordance to AWPA Standard U1, except the type of preservative and the
2 retention of preservative will be as required by the contract.

3 **(D) Guardrail Posts**

4 Treat guardrail posts in accordance to AWPA Standard U1, except require retention of
5 preservative as below.

6 Give all guardrail posts a preservative treatment of creosote, pentachlorophenol or
7 chromated copper arsenate. The same type of preservative is to be used throughout the
8 entire length of the project.

9 Minimum retention for creosoted timber will be 12 lb of preservative per cubic foot of
10 wood. Minimum retention for timber treated with pentachlorophenol will be 0.6 lb of dry
11 chemical per cubic foot of wood. Minimum retention for timber treated with chromated
12 copper arsenate will be 0.6 lb of dry chemical per cubic foot of wood.

13 **(E) Fence Posts and Braces**

14 Treat sawed posts and braces in accordance with AWPA Standard U1, except require
15 retention of preservative as below.

16 Treat round posts and braces in accordance with AWPA Standard U1, except require
17 retention of preservative as below.

18 Before treatment, peel round posts and braces cleanly for their full length, remove all
19 bark and innerskin, and trim all knots and projections flush with the surface of the
20 surrounding wood. Machine peeling will be permitted. Cut the ends to the proper length
21 before treatment.

22 Give all fence posts and braces a preservative treatment of either creosote,
23 pentachlorophenol, or chromated copper arsenate. The same type of preservative shall be
24 used throughout the entire length of the project.

25 Minimum retention for creosoted sawed timber will be 10 lb of preservative per cubic
26 foot of wood. Minimum retention for sawed timber treated with pentachlorophenol will
27 be 0.5 lb of dry chemical per cubic foot of wood. Minimum retention for sawed timber
28 treated with chromated copper arsenate will be 0.5 lb of dry chemical per cubic foot of
29 wood.

30 Minimum retention for creosoted round timber will be 8 lb of preservative per cubic foot
31 of wood. Minimum retention for round timber treated with pentachlorophenol will be
32 0.4 lb of dry chemical per cubic foot of wood. Minimum retention for round timber
33 treated with chromated copper arsenate will be 0.4 lb of dry chemical per cubic foot of
34 wood.

35 **(F) Sign Posts and Battens**

36 Treat sign posts and battens in accordance with AWPA Standard U1, except require
37 retention of preservative as below.

38 Give all sign posts and battens a preservative treatment of either pentachlorophenol or
39 chromated copper arsenate. The same type of preservative shall be used throughout the
40 entire length of the project.

41 Minimum retention for timber treated with pentachlorophenol will be 0.6 lb of dry
42 chemical per cubic foot of wood. Minimum retention for timber treated with chromated
43 copper arsenate will be 0.6 lb of dry chemical per cubic foot of wood.

44 All timber shall have moisture content of not greater than 19% before treatment. Redry
45 timber treated with chromated copper arsenate after treatment until it has moisture
46 content of not greater than 25%.

(G) Poles

Treat poles in accordance with AWWA Standard U1, except require retention of preservative as below.

Give all poles a preservative treatment of either pentachlorophenol, or chromated copper arsenate. The same type of preservative shall be used throughout the entire length of the project.

Minimum retention for poles treated with pentachlorophenol will be 0.45 lb by assay of dry chemical per cubic foot of wood. Minimum retention for poles treated with chromated copper arsenate will be 0.6 lb by assay of dry chemical per cubic foot of wood.

SECTION 1084 PILES

1084-1 PILES**(A) Treated Timber Piles**

Timber for treated timber piles shall meet Article 1082-3. Give treated timber piles a preservative treatment in accordance with Article 1082-4.

(B) Steel Piles

See Section 1076 for galvanized steel piles. Before incorporating steel piles into the work, obtain all applicable certified mill test reports clearly identifiable to the lot of material by heat numbers, submit these reports to the Engineer for review and analysis and receive approval of such test reports from the Engineer. These requirements apply to both domestic and foreign produced steel piles. Transfer the heat number of each painted pile to the newly painted surface with a permanent marker of a color contrasting to the paint once the paint has fully cured.

(1) Steel H-Piles

Steel H-piles shall meet ASTM A572 Grade 50 or ASTM A588.

(2) Steel Pipe Piles

Steel pipe piles shall be of uniform diameter and conform to ASTM A252 Grade 3 modified (50,000 psi). Make all joints and seams in the pipe pile watertight. Unless otherwise indicated by the contract, the ends of pipe pile may be flame cut. Square flame cut ends with axis of the pile to provide a full uniform bearing over the entire end area when the pile is being driven. Pipe piles under 24" in diameter shall be spliced by a certified pipe welder.

(C) Prestressed Concrete Piles

Prestressed concrete piles shall meet Section 1078.

1084-2 STEEL SHEET PILES

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A690 unless otherwise required by the plans.

Steel sheet piles detailed for temporary applications shall be hot rolled and meet ASTM A328.