

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02398N

GROIN TIMBERWORK

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 DELIVERY AND STORAGE
- 1.4 QUALITY ASSURANCE
 - 1.4.1 MSDS and CIS
 - 1.4.2 Timber Preservative Inspection
 - 1.4.3 Delivery Inspection List

PART 2 PRODUCTS

- 2.1 MATERIALS
 - 2.1.1 Lumber and Timbers
 - 2.1.1.1 Solid Sawn
 - 2.1.1.2 Preservative Treatment
 - 2.1.2 Hardware

PART 3 EXECUTION

- 3.1 CONSTRUCTION
 - 3.1.1 Framing
 - 3.1.2 Fastening
- 3.2 FIELD TREATMENT
 - 3.2.1 Timberwork
 - 3.2.2 Piling Protection

-- End of Section Table of Contents --

SECTION 02398N

GROIN TIMBERWORK

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 307 (1994) Carbon Steel Bolts and Studs,
60,000 psi Tensile Strength

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

AWPA C2 (1996) Lumber, Timber, Bridge Ties and
Mine Ties - Preservative Treatment by
Pressure Processes

AWPA M4 (1996) Care of Preservative-Treated Wood
Products

AWPA M6 (1996) Brands Used on Forest Products

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-06 Test Reports

Timber preservative inspection

Delivery inspection list

SD-07 Certificates

MSDS and CIS

1.3 DELIVERY AND STORAGE

Close-stack treated timber and lumber material in a manner that will prevent long timbers or preframed material from sagging or becoming crooked. Keep ground under and within 5 feet of such piles free of weeds, rubbish, and combustible materials. Protect materials from weather. Handle treated timber with ropes or chain slings without dropping, breaking outer

fibers, bruising, or penetrating surface with tools. Do not use cant dogs, peaveys, hooks, or pike poles. Protect timber and hardware from damage.

1.4 QUALITY ASSURANCE

1.4.1 MSDS and CIS

Provide Material Safety Data Sheets (MSDS) and Consumer Information Sheets (CIS) associated with timber pile preservative treatment. Contractor shall comply with all safety precautions indicated on MSDS and CIS.

1.4.2 Timber Preservative Inspection

Submit the inspection report of an independent inspection agency, for approval by the Contracting Officer, that offered products complying with applicable AWPAs Standards. Identify treatment on each piece by the quality mark of an agency accredited by the Board of Review of the American Lumber Standard Committee.

1.4.3 Delivery Inspection List

Field inspect and submit a verification list of each treated timber member and each strapped bundle of treated lumber indicating the wording and lettering of the quality control markings, the species and the condition of the wood. Do not incorporate materials damaged in transport from plant to site. Inspect all preservative-treated wood, visually to ensure there are no excessive residual materials or preservative deposits. Material shall be clean and dry or it will be rejected due to environmental concerns.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Lumber and Timbers

2.1.1.1 Solid Sawn

Provide No. 2 "Marine" Southern Pine and identified by the grade mark of a recognized association or independent inspection agency using the specific grading requirements of an association recognized as covering the species used. The association or independent inspection agency shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used. Use commercial grade lumber for secondary members such as decking, joists and railings.

2.1.1.2 Preservative Treatment

Fabricate lumber and timbers before preservative treatment. Each piece of treated lumber or timber shall be branded, by the producer, in accordance with AWPAs M6. Treat wood in accordance with AWPAs C2 (Material Subject to Marine Borer Exposure) with dual treated, with creosote and water-borne preservative. The Contractor shall be responsible for the quality of treated wood products.

To minimize the amount of creosote material available to migrate into the environment, the following guidelines (based on Western Wood Preservers Institute Best Management Practices for the Use of Treated Wood in Aquatic Environments) shall be used when treating material for use in marine applications:

a. Treatment Procedures

- i. Treat using preservative specified in AWPA P1/P13, using low xylene new creosote. New material creosote shall have a xylene insoluble (XI) of 0.10% maximum.
- ii. Follow good housekeeping practices to minimize sawdust and other surface residues on the wood products prior to treatment.
- iii. The "in use" creosote inventory maintained by the treating firm at the plant for aquatic applications shall be purchased, managed and/or processed such as to maintain a XI of 1.5% maximum.
- iv. Techniques shall be incorporated into the treating process to minimize the amount of residual creosote that may occur on the surface of the treated product.
- v. The wood shall be conditioned using one of the techniques recommended in AWPA C2.

b. Post Treatment Procedures. Prior to shipment, material shall be processed under one of the following procedures as determined by the producer.

i. Expansion Bath. Following the pressure period, the creosote should be heated 10 to 20 degrees F above press temperatures for a minimum of one hour.

Pump creosote back to storage and apply a minimum vacuum of 24" for a minimum of 2 hours.

ii. Steaming. Following the pressure period and once the creosote has been pumped back to the storage tank, a vacuum shall be applied for a minimum of two hours at no less than 22" of vacuum to recover excess preservative. Release vacuum back to atmospheric pressure and steam for 2 hours. Maximum temperature during this process shall not exceed 240 degrees F. Apply a second vacuum for a minimum of 4 hours at 22" vacuum.

c. Maximum Chemical Loading. Treating shall be conducted to seek to minimize the amount of chemical placed into the wood while assuring conformance with AWPA retention and penetration requirements.

d. Visual Inspection. The creosote product shall be inspected visually to insure that there are no excessive residual materials or preservative deposits. If the material does not appear clean and dry it shall be rejected. Once on site and prior to installation the materials should be visually inspected in accordance with the above directions. Materials that have developed areas of "bleeding" or do not meet the criteria of a clean and dry appearance shall be rejected. Good housekeeping is essential to avoid surface deposits and keep the product clean until shipment and installation.

2.1.3 2.1.2 Hardware

Bolts with necessary nuts and washers, nails, and other fastenings. Bolts and nuts shall conform to ASTM A 307. Provide cast-iron ogee, malleable iron washers, or plate or cut washers where indicated. Provide bolts with washers under nut and head. Provide timber connectors and other metal

fastenings of type and size shown. Hot-dip galvanize hardware.

PART 3 EXECUTION

3.1 CONSTRUCTION

Cut timbers prior to plant preservative treatment. In addition to the contract clause entitled "Accident Prevention" provide protective equipment for personnel fabricating, field treating, or handling materials treated with creosote or water-borne salts. Refer to paragraph entitled "MSDS and CIS."

3.1.1 Framing

Cut and frame lumber and timber so that joints will fit over contact surface. Secure timbers and piles in alignment. Open joints are unacceptable. Shimming is not allowed. Bore holes for bolts with a bit 1/16 inch larger in diameter than bolt. Counterbore for countersinking wherever smooth faces are indicated or specified.

3.1.2 Fastening

Bolt members together when they are installed and retighten immediately prior to final acceptance of contract. Provide bolts having sufficient additional threading to provide at least 3/8 inch per foot thickness of timber for future retightening.

3.2 FIELD TREATMENT

3.2.1 Timberwork

Field treat cuts, bevels, notches, refacing and abrasions made in the field in treated piles or timbers in accordance with AWPA M4, MSDS and CIS. Wood preservatives are restricted use pesticides and shall be applied according to applicable standards. Trim cuts and abrasions before field treatment. Pour hot creosote oil into the bolt holes before the insertion of the bolts. Paint depressions or openings around bolt holes, joints, or gaps including recesses formed by counterboring, with hot creosote oil; and after bolt or screw is in place, fill with hot pitch or a bitumastic compound.

3.2.2 Piling Protection

Immediately after pile tops are cut off give the heads of piles three coats of hot creosote oil. Then cover them with a coat of hot tar over which place a sheet of copper, of a weight of 10 oz/ft squared or greater, meeting the requirements of ASTM B 370. Provide a cover that measures at least 4 inches more in each dimension greater than the diameter of the pile. Bend the cover down over the pile and fasten the edges with large copper nails or three wraps of No. 12 copper wire.

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