

SUPPLEMENTAL SPECIFICATION 709 - LUMBER AND TIMBER

SECTION 709 - LUMBER AND TIMBER, delete the present section and insert the following:

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709.01, STRUCTURAL LUMBER AND TIMBER. Structural lumber and timber shall conform to the species and stress-grades specified in the Contract and shall be acceptable to the Engineer.

- (a) Grading. Structural lumber and timber shall be graded in accordance with the requirements of AASHTO M 168. Lumber ordered in multiple lengths shall be graded after having been cut to lengths.
- (b) Moisture Content.
  - (1) Untreated Lumber and Timber. The maximum moisture content of material entering into a finished structure shall be 19 percent.
  - (2) Treated Lumber and Timber. The maximum moisture content of material prior to treatment shall be 19 percent. Material treated with water-borne preservatives in accordance with AWPA standards shall be dried after treatment to a moisture content not exceeding 19 percent and shall be maintained at a moisture content of 19 per cent or less until it is incorporated into the work.
- (c) Minimum Stress Requirements. Unless otherwise specified in the Contract, lumber and timber shall meet the following minimum requirements:
  - (1) Southern and Western Material. The material shall meet the allowable unit stress requirements for "No. 1 Grade" material as specified in the AASHTO Standard Specifications for Highway Bridges.
  - (2) Eastern (Local) Material. The material shall meet the allowable unit stress requirements for "No. 1 Grade" material as specified in the AASHTO Standard Specifications for Highway Bridges.
- (d) Lumber Dimensions.
  - (1) Full-Sawn. Minimum full-sawn lumber sizes are nominal dimension sawn sizes after seasoning. Pieces shall be sawn to obtain the full nominal dimensions specified with only occasional slight variation permitted. Thickness and width dimensions are somewhat variable depending upon the sawmill equipment used.
  - (2) Rough-Sawn. Rough-dry sized lumber is minimally 3 mm (1/8 inch) larger in each dimension than standard (seasoned) dressed sized lumber. Thickness and width dimensions are somewhat variable depending upon the sawmill equipment used.

- (3) Dressed. Dressed lumber sizes are the finished planed dimensions of material after seasoning. Minimum net finished dimensions for dressed lumber shall be 13 mm (1/2inch) less than nominal dimension, except that the minimum net width of dressed lumber exceeding 152 mm (6 inches) shall be 19 mm (3/4 inch) less than nominal dimension.
- (e) Lumber Finish. As specified per AASHTO M 168 for manufacturing classifications: e.g., Rough Lumber or Dressed (Surfaced) Lumber.
- (f) Soundness. Material shall be sound and free from any incipient or advanced form of decay.
- (g) Preservative Treatment. Preservative treatment of lumber and timber materials shall conform to Subsection 726.01. Unless otherwise specified, the treatment for lumber and timber materials shall conform to Type II preservative.
- (h) Miscellaneous Hardware, Shapes and Fabricated Materials.
- (1) Structural steel shapes and metal fabricated materials shall conform to the requirements of the Contract and the specific material requirements as specified in Sections 714 and 715.
- (2) Unless otherwise specified, bolts, studs, threaded rods, nuts and washers shall conform to the requirements of ASTM F 568M, Class 4.6 (ASTM A 307). Carbon steel nuts (unless otherwise specified) shall conform to the requirements of AASHTO M 291M (AASHTO M 291).
- (3) Nails and spikes shall conform to the requirements of ASTM F 1667.
- (4) Lag screws shall be of low to medium carbon steel and shall be of good commercial quality.
- (5) Unless otherwise specified, all steel hardware and fabricated materials shall be galvanized in accordance with AASHTO M 111M/M 111 or AASHTO M 232M/M 232, whichever is applicable.
- (i) Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02.

709.02, NONSTRUCTURAL LUMBER. Material furnished under this subsection shall be for non load-carrying, structural applications with a maximum nominal thickness of 50 mm (2 inches) (e.g. boarding, siding, trim, etc.). Lumber shall be seasoned or kiln dried Spruce, Eastern White Pine, Eastern Hemlock, Southern Pine, or Western Fir, unless otherwise specified in the Contract.

- (a) Grade. The grade classification of Yard Lumber, whether Common or Select, shall be as specified in the Contract. Structural lumber meeting the requirements of Subsection 709.01 and 50 mm (2 inches) thickness may be used for nonstructural lumber applications. Except with the written permission of the Engineer, lumber which has not been grade classified or stress-graded shall not be used for nonstructural lumber.
- (b) Moisture Content. The moisture content shall be as specified in Subsection 709.01 (b).

- (c) Dimensions.
- (1) Full-Sawn. When required in the Contract, lumber shall be furnished to the minimum full-sawn (nominal) dimensions specified. See Subsection 709.01 (d) for a full definition of full-sawn lumber dimensions.
  - (2) Dressed. Unless otherwise specified, all lumber shall S4S. See Subsection 709.01 (d) for a full definition of dressed lumber dimensions.
- (d) Finish. Rough Lumber or Dressed (Surfaced) Lumber, per AASHTO M 168 manufacturing classifications.
- (e) Soundness. Lumber shall be sound and free from any incipient or advance form of decay.
- (f) Preservative Treatment. Preservative treatment of lumber shall conform to Subsection 726.01. Unless otherwise specified, the treatment shall conform to Type IV preservative.
- (g) Hardware, Shapes and Fabricated Materials. Hardware, shapes and fabricated materials shall be as specified in Subsection 709.01 (h).
- (h) Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02.

709.03, STRUCTURAL GLUED LAMINATED TIMBER.

- (a) Material. Unless otherwise specified, structural glued laminated timber shall be fabricated from Southern Pine, Coastal Douglas Fir, Western Hemlock, or Western Larch and shall meet the requirements of Division II, Section 16 of the AASHTO Standard Specifications for Highway Bridges.
- Adhesives used in the lamination process shall be for wet-use conforming to ASTM D 2559 and shall comply with all other requirements of ANSI/AITC A190.1.
- Unless otherwise specified, the appearance grade of the finished glulam products shall be "Industrial."
- (b) Seasoning. Unless specified otherwise, all material shall have a moisture content not exceeding 16 percent at the time of gluing laminations.
- (c) Preservative Treatment. Unless specified otherwise, all glued laminated timber shall be treated with Type II pentachlorophenol preservative (heavy oil solvent) conforming to Subsection 726.01. Also, unless specified otherwise, all material shall be shop fabricated prior to treatment. Any field treatment required by the Engineer shall be performed in accordance with AWPA Standard M4.
- (d) Miscellaneous Hardware, Shapes and Fabricated Materials.
- (1) Structural steel shapes and metal fabricated materials shall conform to the requirements of the Contract and the specific material requirements as specified in Sections 714 and 715.

- (2) Unless otherwise specified, bolts, studs, threaded rods, nuts and washers shall conform to the requirements of ASTM F 568M, Class 4.6 (ASTM A 307). Stainless steel fasteners shall conform to the requirements of ASTM F 568M, Property Class A1-70, Condition CW, with nuts conforming to ASTM F 836M, Property Class A1-70, Condition CW.
- (3) All welding shall conform to the requirements of Subsection 506.10.
- (4) Nails and spikes shall conform to the requirements of ASTM F1667.
- (5) Lag screws shall be of low to medium carbon steel and shall be of good commercial quality.
- (6) Unless otherwise specified, all steel hardware and fabricated materials shall be galvanized in accordance with AASHTO M 111M/M 111 or AASHTO M 232M/M 232, whichever is applicable.
- (e) Dimensions. The designated dimensions for glued laminated timber shall be taken as the actual net dimensions.
- (f) Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02.
- (g) Handling. Glued laminated timber shall be carefully handled to avoid damaging the edges and surfaces. The handling, transit and erection procedures shall meet the requirements of specification AITC 111-79.