



## Perennial Wood™ Decking

### Natural Wood Modified with TruLast™ Technology

Perennial Wood™ decking is real wood made to endure. It resists shrinking and swelling that causes cracking, cupping, and warping, without sacrificing the beauty of real wood. It's able to do this because it has been modified with TruLast™ Technology, resulting in a physical barrier throughout that's warranted to protect against rot, decay, and movement for 25 years. For added value and convenience, Perennial Wood decking is also available in a choice of four factory finishes, saving labor spent on staining or painting after installation.

TruLast Technology is a process called acetylation, which permanently transforms the wood's cellular structure throughout by using heat, pressure, and an organic compound to replace the water-loving (hydrophilic) groups in the wood's cells with water-hating (hydrophobic) groups. The resulting Perennial Wood is three times more resistant to shrinking and swelling, and has 25% greater surface hardness than unmodified pine — without compromising the wood's natural appearance.

Perennial Wood is well-suited for outdoor applications where the authenticity of real wood is desired while minimizing the damaging effects of the elements.

Perennial Wood contributes to the sustainability of your design projects:

- Perennial Wood is harvested from U.S. Southern pine — a renewable resource.
- Perennial Wood is manufactured in the U.S., lessening the environmental impact of product transportation.
- Perennial Wood products last longer than unmodified wood and therefore need to be replaced less often, reducing material disposal.
- TruLast Technology modifies the wood with heat, pressure, and an organic compound, leaving no toxic substances in the wood.

Eastman Chemical Company, a Fortune 500 company, has more than 80 years of history in acetyating wood pulp. Eastman is actively engaged with Responsible Care® and is committed to continuously improving its sustainability performance through innovative, environmentally and socially responsible solutions.

Consult your Perennial Wood representative at Eastman Chemical Company, 29 Industrial Park Dr., Binghamton, NY 13904; (800) 530-7495; [info@PerennialWood.com](mailto:info@PerennialWood.com); [PerennialWood.com](http://PerennialWood.com).

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## SECTION 06 15 33 WOOD PATIO DECKING

### GENERAL

#### 1.1 SECTION INCLUDES

- A. Acetylated wood decking boards [and preservative-treated wood lumber] for exterior decks and porches.

#### 1.2 RELATED SECTIONS

Specifier: If retaining this optional article, edit paragraphs below to correspond to project. Retain references to sections specifying work that might otherwise be incorporated in work of this Section.

- A. Division 01 Section "Sustainable Design Requirements" for related LEED general requirements.
- B. Division 06 Section "Rough Carpentry" for framing, blocking, and other concealed carpentry work.

#### 1.3 REFERENCES

Specifier: If retaining this optional article, edit paragraphs below to correspond to project.

- A. American Forest & Paper Association (AF&PA): [www.awc.org](http://www.awc.org)
  - 1. AF&PA DCA-6 — Prescriptive Residential Wood Deck Construction.
- B. American Lumber Standard Committee, Inc. (ALSC):
  - 1. DOC PS 20 Accredited Agencies List.
- C. ASTM International (ASTM):
  - 1. ASTM A 307 — Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
  - 2. ASTM A 563 — Standard Specification for Carbons and Alloy Steel Nuts.
  - 3. ASTM A 653 — Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 4. ASTM A 666 — Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
  - 5. ASTM D 4761 — Standard Test Methods for Mechanical Properties of Lumber and Wood-Base Structural Material.
  - 6. ASTM E 488 — Standard Test Methods for Strength of Anchors in Concrete Elements.
- D. American Wood Preservers' Association (AWPA):
  - 1. AWPA E10 — Standard Method of Testing Wood Preservatives by Laboratory Soil-Block Cultures.
  - 2. AWPA U1 — Use Category System: User Specification for Treated Wood.
- E. International Accreditation Service, Inc. (IAS):
  - 1. IAS AA-664 and IAS AA-696 — Certificates of Accreditation.

- F. International Code Council (ICC):
  - 1. IBC — International Building Code, applicable edition.
  - 2. IRC — International Residential Code, applicable edition.
- G. International Code Council Evaluation Service (ICC-ES):
  - 1. ICC-ES AC70 — Acceptance Criteria for Fasteners Power-Driven Into Concrete, Steel and Masonry Elements.
  - 2. ICC-ES AC233 — Acceptance Criteria for Alternate Dowel-Type Threaded Fasteners.
- H. Southern Pine Inspection Bureau, Inc. (SPIB):
  - 1. SPIB — 2002 Standard Grading Rules for Southern Pine Lumber.
- I. U.S. Green Building Council (USGBC):
  - 1. LEED Green Building Rating System (LEED).

#### 1.4 DEFINITIONS

- A. Acetylation: A process that essentially alters the actual cell structure of wood by transforming hydroxyl groups into acetyl groups, improving the technical properties (durability and dimensional stability) of wood.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. For wood patio decking, stair and railing components, framing and accessories.
- B. LEED Submittals:
  - 1. Credit NC MR 5 Regional Materials: Documentation for wood products indicating location of manufacturer, point of harvest, and distances to project. Include statement indicating cost of each type of product.
  - 2. Credit Homes MR 2.2 Environmentally Preferable Products — Local Production: Documentation for wood products used for decking or patio material indicating location of manufacturer, point of harvest, and distances to project. Include statement indicating weight of each type of product.
  - 3. Credit Homes ID 2 Durability Management Process: Documentation for wood products indicating performance characteristics of wood products used in moderate- and high-risk durability locations identified in Durability Risk Evaluation Form. Include verification of installation by Green Rater.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Material Certificates:
  - 1. For lumber specified by references to minimum allowable unit stresses. Indicate species, grade, and design values per ALSC.
  - 2. For preservative-treated wood products, indicating preservative type, net amount retained, and statement of compliance of finished product with specified moisture levels.

B. Evaluation Reports: For the following products, from ICC-ES:

1. Acetylated wood lumber.
2. Preservative-treated wood lumber.
3. Metal framing anchors.
4. Fasteners and anchors.

## 1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum **[5]** years experience in manufacture of similar products in use in similar environments.

Specifier: Retain subparagraphs below when allowing product substitution.

1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time period allowed for substitution review:
  - a. Product data, including certified independent test data indicating compliance with requirements.
  - b. Samples of each type of product specified.
  - c. Project references: Minimum of 5 installations, with owner contact information, available for evaluation by Architect.
  - d. Sample warranty.

B. Source Limitations: Obtain wood patio decking from a single approved and licensed source by the listed manufacturer, and participating in a quality control program with inspections by Timber Products Inspection, Inc. per IAS AA-664 and AA-696.

C. Mockup: Build mockup to verify approved materials and demonstrate acceptable workmanship.

1. Do not proceed with work until mockup has been approved by the Architect.
2. Approved mockups may be incorporated in finished work.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery of wood patio decking to avoid extended on-site storage.
- B. Protect materials against weather. Store on flat surface supported every two feet. Provide air circulation within and around stacks and under temporary coverings.
- C. Material should not be removed from packaging until ready for installation. Avoid stacking boards in direct contact.

## 1.9 WARRANTY

Specifier: Evaluate proposed substitute products to ensure they provide a warranty similar to the following warranty available from Eastman Chemical Company. Consult the manufacturer's web site for the full warranty description.

- A. Limited Warranty: Manufacturer's standard form indicating manufacturer's intent to provide replacement material for wood patio and deck materials installed in accordance with manufacturer's requirements that fail within **[25]** years following Substantial Completion under normal conditions of use and exposure. Failures are defined to include rot, decay, and swelling, shrinking, and cupping movement.

## PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design: Wood patio decking is based on product of the following manufacturer. Provide basis of design product [ , or comparable products approved by Architect prior to bid].
1. **Eastman Chemical Company, Binghamton NY 13904; (800) 530-7495; [info@PerennialWood.com](mailto:info@PerennialWood.com); [PerennialWood.com](http://PerennialWood.com).**
  2. [Specifier: Insert additional product manufacturers meeting requirements of Quality Assurance Article, if required.]

### 2.2 PERFORMANCE REQUIREMENTS

Specifier: Delete this article if a qualified design professional is preparing drawings for the deck framing indicating sizing and spacing of wood members. Retain and edit this article if contractor is responsible for engineering of deck framing and supports.

Perennial Wood components, when properly installed on a properly designed joist or sleeper system, will meet the following structural performance requirements, which are based on IBC 2009 requirements. Edit as necessary to meet requirements of authorities having jurisdiction.

- A. Structural Performance: Provide wood patio decking components capable of meeting the following minimum design loads when installed in the configuration indicated:
1. Deck: Uniform Live Load: 100 lbf/sq. ft. (4.8 kN/sq. m).
  2. Stair Treads: Uniform Load: 100 lbf/sq. ft. (4.8 kN/sq. m), and concentrated load: 300 lbf (1.33 kN) on area of 4 sq. in. (25.8 sq. cm), whichever produces the greater stress.

### 2.3 LUMBER, GENERAL

Specifier: Retain Regional Materials paragraph below for applicable LEED-NC, LEED-CS, or LEED for Schools projects; verify that products comply before requiring. As alternative, delete requirement from this section and incorporate general requirements in Division 01 sustainable design section, allowing contractor to elect products with which to fulfill credit requirements.

- A. **Regional Materials:** Not less than [50] % of porch and deck wood products shall be harvested within 500 miles (800 km) of project site and milled within 500 miles (800 km) of project site.
- B. Compliance: DOC PS 20, grading rules of ALSC-certified agencies.
1. Factory mark each item with agency grade stamp on back or end of each piece.
  2. Provide dressed lumber, S4S.
- C. Moisture Content: Provide wood patio decking and supports with the following maximum moisture content:

Specifier: Retain one or both paragraphs below if project also utilizes conventional pressure-treated wood lumber and timber for framing components of decks.

1. **Pressure-Treated Lumber and Timber:** 19%.
2. **Pressure-Treated Lumber and Timber:** Kiln dried after treatment (KDAT): 15%.

### 2.4 ACETYLATED WOOD DECKING

- A. Acetylated Wood, General: Modified wood lumber suitable for use in aboveground applications, produced using a proprietary process involving acetic anhydride impregnation and reaction with

the wood substrate, of species, grade, and grading agency indicated, and with the following characteristics:

1. Basis of Design Product: **Eastman Chemical Company, Perennial Wood.**
  2. Bending Stiffness, Modulus of Elasticity, ASTM D 4761: Not less than 1,700,000 psi (11 700 MPa).
  3. Preservative Retention Level: Greater than 17% bound acetyl.
  4. Fungal Decay Resistance, AWPA E10: Less than 10% weight loss.
- B. Acetylated Wood Decking [and Stair Treads]: Southern pine, No. 1 Prime, SPIB.
- C. Acetylated Wood Railings: Dimensional lumber and boards, as indicated: Southern pine, No. 1 Prime, SPIB.
- D. Acetylated Dimension Lumber Deck and Stair Framing: Southern pine, [No. 1 Prime] [No. 2], SPIB.

## 2.5 PRESERVATIVE-TREATED WOOD LUMBER AND POSTS

Specifier: Retain and edit this article if conventional preservative treated lumber components are required for project.

- A. Pressure-treated Dimension Lumber Deck and Stair Framing: Southern pine, [No. 1] [No. 2], SPIB.
- B. Dimension Lumber Posts: 4 by 4 and 4 by 6 inches nominal: Southern pine, No. 2, SPIB.
- C. Timber Posts: 6 by 6 inches nominal and larger: Southern pine, [No. 1] [No. 2], SPIB.
- D. Preservative-Treated Dimension Lumber and Timber: AWPA U1; Use Category UC3b, with treatment containing no arsenic or chromium.
  - 1. After treatment, redry dimension lumber and timber to 19% maximum moisture content.
  - 2. Mark treated wood with treatment quality mark of an inspection agency approved by ALSC's Board of Review.
  - 3. Provide preservative-treated materials for items other than those indicated to be acetylated wood.

## 2.6 ACCESSORIES

- A. Fasteners: Comply with requirements of authorities having jurisdiction and recommendations of wood patio decking manufacturer for application, including the following:
  - 1. Provide nails or screws of length required to penetrate wood substrate not less than 1-1/2 inches (38 mm).
  - 2. Stainless steel fasteners: Stainless steel, Type 304.
  - 3. Stainless steel Wood Screws and Lag Screws: ICC-ES AC233.
  - 4. Power-Driven Fasteners: ICC-ES AC70.
  - 5. Carbon-Steel Bolts: ASTM A 307 (ASTM F 568M) with ASTM A 563 (ASTM A 563M) hex nuts and flat washers, hot-dip zinc coated.
- B. Postinstalled Anchors: Stainless steel, chemical or torque-controlled expansion anchors with capability to sustain, without failure, a load equal to six times the load imposed as determined by testing per ASTM E 488.

Specifier: The following metal framing anchors are typically identified on drawings when structural design is completed by design professional; framing anchors are available from numerous manufacturers, including [Cleveland Steel Specialty Co.](#), [Simpson Strong-Tie Co.](#), and [USP Structural Connectors](#).

- C. Metal Framing Anchors: Structural capacity, type, and size indicated on Drawings, made from hot-dip galvanized steel complying with ASTM A 653/A 653M, G185 (Z550) coating or stainless steel complying with ASTM A 666, Type 304.
- D. Concealed Decking Fasteners:

Specifier: Retain specialty deck board fastening accessories listed in the following, if appropriate to project. Concealed deck fasteners are available from several manufacturers, including [Tiger Claw, Inc.](#)

- 1. Deck Clips: Black-oxide-coated stainless steel clips designed to be fastened to deck framing with screws, and to secure decking material with teeth.

## EXECUTION

### 3.1 EXAMINATION

- A. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting performance and appearance of wood patio decking and supports.
- B. Proceed with installation of wood patio decking on correction of unsatisfactory conditions.

### 3.2 INSTALLATION, GENERAL

- A. Framing and Supports: Construct structural framing of adequate size and spacing in accordance with manufacturer's recommendations and requirements of authorities having jurisdiction.
  1. Comply with AF&PA DCA-6 unless otherwise indicated.
  2. Set members plumb, level, true to line, and properly cut and fitted.
  3. Comply with requirements of metal framing anchor manufacturer.
  4. Comply with the following as appropriate to project:
    - a. IBC Table 2304.9.1, "Fastening Schedule."
    - b. IRC Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments."
- B. Wood Patio Deck Board Installation: Extend wood patio deck boards across a minimum of three supports; center end joints on supports.
  1. Install wood patio deck boards true to line and aligned with adjacent materials. Allow recommended spacing around columns, newel posts, and other vertical surfaces.

Specifier: Select installation method from the following two optional paragraphs; coordinate with product listings in Part 2.

2. **Concealed Deck Fastener Installation:** Fasten wood patio deck boards to supports in accordance with fastening system manufacturer's recommendations.
  3. **Face Screw Installation:** Fasten wood patio deck boards with stainless steel screws. Countersink screw heads flush with face of boards.
- C. **Stair Tread and Riser Installation:** Secure treads and risers by face screwing to carriages. Countersink screw heads.
    1. Install stair treads and risers according to DCA-6 and manufacturer's instructions.

Specifier: Retain the following paragraph if railings are part of work of project. Edit to correspond to assembly details indicated on Drawings.

#### D. **Railing Installation:**

1. Install posts and railing sections as per manufacturer's instructions.

### 3.3 CLEANING

- A. Clean wood patio decking surfaces, following procedures and employing cleaning materials as recommended by manufacturer.



### 3.4 PROTECTION

- A. Protect installed products from damage by subsequent construction activities until completion of Project.
- B. Field repair of damaged product finishes is limited to surface scratch repairs only. Use manufacturer's recommended field repair procedures. Replace products that have been structurally damaged by subsequent construction activities, or that cannot be adequately field repaired to satisfaction of Architect.

END OF SECTION

**ADDITIONAL SPECIFIER'S NOTES for Eastman Chemical Company's Perennial Wood decking**

**SUBSTITUTION REVIEWS:** When reviewing substitution requests for other products for compliance with this specification, Eastman Chemical Company recommends particular attention to the following issues:

Flexural strength: TruLast Technology, the modification process used in Perennial Wood, enhances, rather than reduces, the structural strength of the modified wood members, as shown by independent third-party testing.

Moisture resistance: Perennial Wood decking offers superior resistance to moisture absorption and the related issues of dimensional change, cupping, checking, and splitting.

Warranty terms and conditions: Eastman Chemical Company offers a limited 25-year warranty on Perennial Wood decking products.

**COORDINATION WITH DRAWINGS:** Coordinate the following:

Size, spacing, and orientation of wood patio decking and support framing members.

Extent of acetylated wood products and preservative-treated wood products.

Fastener and anchor systems, including specific manufacturer's products and locations meeting live load, dead load, wind uplift, and seismic load requirements of local code.

Mounting details for stair stringers, newel posts, and columns.