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USACE / NAVFAC / AFCEA UFGS-06200A (November 2001)  
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Preparing Activity: USACE Superseding  
UFGS-06200A (April 2001)

## UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMLR dated 22 December 2004

Latest change indicated by CHG tags

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##### SECTION 06200A

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11/01

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SECTION 06200A

FINISH CARPENTRY

11/01

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NOTE: This guide specification covers the requirements for finish carpentry.

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

This guide specification includes tailoring options for fire-retardant treatment, siding, epoxy-aggregate panels, soffits, fascias and trim, moldings, wood shingles, and woodwork items. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

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PART 1 GENERAL

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NOTE: Designer should require materials, products, and innovative construction methods and techniques which are environmentally sensitive, take advantage of recycling and conserve natural resources.

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## 1.1 REFERENCES

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NOTE: Issue (date) of references included in  
project specifications need not be more current than  
provided by the latest guide specification. Use of  
SpecsIntact automated reference checking is  
recommended for projects based on older guide  
specifications.  
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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

### AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA A135.6 (1998) Hardboard Siding

### AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

AWPA C20 (1999) Structural Lumber Fire-Retardant Treatment by Pressure Processes

AWPA C27 (1999) Plywood - Fire-Retardant Treatment by Pressure Processes

AWPA C9 (2000) Plywood - Preservative Treatment by Pressure Processes

AWPA M4 (2001) Standard for the Care of Preservative-Treated Wood Products

AWPA P5 (2002) Standard for Waterborne Preservatives

### APA - THE ENGINEERED WOOD ASSOCIATION (APA)

APA E445S (2001; R 2002) Performance Standards and Policies for Structural-Use Panels (APA PRP-108)

### ARCHITECTURAL WOODWORK INSTITUTE (AWI)

AWI Qual Stds (2003) AWI Quality Standards

### ASTM INTERNATIONAL (ASTM)

ASTM D 1435 (1999) Outdoor Weathering of Plastics

ASTM D 2898 (1994; R 1999) Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing

ASTM D 3679 (2003e1) Rigid Poly(Vinyl Chloride) (PVC) Siding

ASTM F 547 (2001) Nails for Use with Wood and Wood-Base Materials

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)

NELMA Grading Rules (2003) Standard Grading Rules for  
Northeastern Lumber

REDWOOD INSPECTION SERVICE (RIS) OF THE CALIFORNIA REDWOOD  
ASSOCIATION (CRA)

RIS Grade Use (1998) Redwood Lumber Grades and Uses

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION (SCMA)

SCMA Spec (1986; Supple No. 1, Aug 1993) Standard  
Specifications for Grades of Southern  
Cypress

SOUTHERN PINE INSPECTION BUREAU (SPIB)

SPIB 1003 (2002) Standard Grading Rules for Southern  
Pine Lumber

U.S. DEPARTMENT OF COMMERCE (DOC)

PS1 (1995) Construction and Industrial Plywood  
(APA V995)

PS2 (1992) Wood-Based Structural-Use Panels  
(APA 5350)

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 17 (2000) Standard Grading Rules

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)

WWPA G-5 (1998) Western Lumber Grading Rules

WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION (WMPMA)

WMPMA WM 6 (1987) Industry Standard for Non-Pressure  
Treating of Wood Millwork

1.2 SUBMITTALS

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NOTE: Submittals must be limited to those necessary  
for adequate quality control. The importance of an  
item in the project should be one of the primary  
factors in determining if a submittal for the item  
should be required.

A "G" following a submittal item indicates that the  
submittal requires Government approval. Some  
submittals are already marked with a "G". Only  
delete an existing "G" if the submittal item is not  
complex and can be reviewed through the Contractor's  
Quality Control system. Only add a "G" if the  
submittal is sufficiently important or complex in

context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

##### Finish Carpentry

Drawings showing fabricated items and special mill and woodwork items. Drawings shall indicate materials and details of construction, methods of fastening, erection, and installation.

#### SD-03 Product Data

##### Siding Epoxy-Aggregate Panels

Manufacturer's printed data, showing texture, density, catalog cuts, and installation instructions.

##### Wood Items, Siding, and Trim

Manufacturer's printed data indicating the usage of engineered or recycled wood products, and environmentally safe preservatives.

#### SD-04 Samples

##### Siding Wood Shingles Moldings Fascias and Trim

Samples shall be of sufficient size to show patterns, color ranges, and types, as applicable, of the material proposed to be used.

### 1.3 DELIVERY AND STORAGE

Materials shall be delivered to the site in undamaged condition, stored off ground in fully covered, well-ventilated areas, and protected from extreme changes in temperature and humidity.

## PART 2 PRODUCTS

### 2.1 WOOD ITEMS, SIDING, AND TRIM

The Contractor shall furnish products which optimize design by reducing the amount of wood used (engineered wood), by using recycled wood products and preservatives without arsenic or chromium when the products and methods are competitive in price or directed by the Contracting Officer. The Contractor shall comply with EPA requirements in accordance with Section 01670 RECYCLED / RECOVERED MATERIALS.

#### 2.1.1 Grading and Marking

Materials shall bear the grademark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on a material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used. Except for plywood, wood structural panels, and lumber, bundle marking will be permitted in lieu of marking each individual piece. Surfaces that are to be architecturally exposed to view shall not bear grademarks, stamps, or other types of identifying marks.

#### 2.1.2 Sizes and Patterns

Lumber sizes and patterns shall conform to rules or standards under which produced. Unless otherwise specified, lumber shall be surfaced on four sides. Sizes and patterns for materials other than lumber shall conform to requirements of the rules or standards under which produced. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

#### 2.1.3 Moisture Content

The maximum moisture content of untreated trim and wood siding shall be 15 percent at the time of delivery to the jobsite and when installed. Moisture content of all other material shall be in accordance with the standard under which the product is produced.

#### 2.1.4 Preservative Treatment

##### 2.1.4.1 Plywood

Plywood shall be treated in accordance with AWPA C9 with waterborne preservatives listed in AWPA P5 to a retention level as follows:

- a. 4 kg per cubic meter (0.25 pcf) 0.25 pcf intended for above ground use.

- b. 6.4 kg per cubic meter (0.4 pcf) 0.4 pcf intended for ground contact and fresh water use.

#### 2.1.4.2 Exterior Wood Molding and Millwork

Exterior wood molding and millwork within 455 mm 18 inches of soil, in contact with water or concrete shall be preservative-treated in accordance with WMPMA WM 6. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPMA M4. Items of all-heart material of cedar, cypress, or redwood will not require preservative treatment, except when in direct contact with soil.

#### 2.1.5 Fire-Retardant Treatment

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NOTE: List items to be treated. Fire-retardant treatment will be specified for exposed plywood when a flame spread rating of 25 or less is required.

Fire-retardant treated plywood will be used only for nonstructural applications which are not subject to elevated temperature or high humidity. Fire-retardant treated plywood will not be used in any part of the roof or roofing system.

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Fire-retardant treated lumber shall be pressure treated in accordance with AWPMA C20. Fire-retardant treated plywood shall be pressure treated in accordance with AWPMA C27. Material use shall be defined in AWPMA C20 and AWPMA C27 for Interior Type [A] [and] [B] and Exterior Type. Treatment and performance inspection shall be by a qualified independent testing agency that establishes performance ratings. Each piece or bundle of treated material shall bear identification of the testing agency to indicate performance with such rating. Treated materials to be exposed to rain wetting shall be subjected to an accelerated weathering technique in accordance with ASTM D 2898, Method A, prior to being tested for compliance with AWPMA C20 or AWPMA C27. Items to be treated include: [\_\_\_\_].

#### 2.1.6 Siding

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NOTE: Plywood, wood structural panel, hardboard, and wood will be retained as optional materials for a particular type of siding whenever practicable.

Medium-density overlay will not be specified for rough-sawn texture face panels or panels that are to receive semitransparent stain or a natural finish.

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Horizontal siding shall be hardboard, plywood, wood structural panel, wood or vinyl. Panel siding shall be hardboard, wood structural panel, or plywood.

##### 2.1.6.1 Horizontal Hardboard Siding

Horizontal hardboard siding shall be made from basic hardboard specified in AHA A135.6, factory primed face and longitudinal edges, factory applied



back, lap type, [200] [225] [250] [300] mm [8] [9] [10] [12] inches wide, maximum practicable lengths, 10 mm (3/8 inch) 3/8 inch or 11 mm (7/16 inch) 7/16 inch thick, [smooth] [embossed] [textured] face.

#### 2.1.6.2 Horizontal Plywood Siding

Horizontal plywood siding shall conform to PS1, exterior, [medium-density overlay] lap type, [150] [200] [300] mm [6] [8] [12] inches wide, maximum practicable lengths, [10 (3/8)] [11 (7/16)] [12 (15/32)] [13 (1/2)] mm (inch) [3/8] [7/16] [15/32] [1/2] inch thick, [smooth] [rough-sawn texture] [embossed] face.

#### 2.1.6.3 Wood Siding

Wood siding shall be of the species and grades listed in TABLE I at the end of this section. Siding shall be [horizontal bevel type, minimum 5 mm 3/16 inch thin edge by minimum 11 mm 7/16 inch thick edge,] [horizontal plain lap type] [horizontal drop type] [vertical board, tongue and groove or shiplap on long edges,] [vertical board and batten type,] 25 mm 1 inch thick, [150] [200] [250] mm [6] [8] [10] inches wide, maximum practicable lengths, [smooth] [rough-sawn texture] face.

#### 2.1.6.4 Vinyl Siding

Vinyl siding shall be manufactured to withstand outdoor weathering in accordance with ASTM D 1435 and shall meet the physical requirements of ASTM D 3679. The minimum thickness of the siding shall be 0.9 mm (0.035 inches). 0.035 inches. Horizontal and vertical siding panels shall be between 200 and 250 mm 8 and 10 inches in width depending on the configuration of the panel. Panels shall have a uniform color on the surface and throughout the thickness of the panel. Panels shall have a [wood grain] [smooth] [matte] surface.

#### 2.1.6.5 Panel Hardboard Siding

Panel hardboard siding shall be made from basic hardboard specified in AHA A135.6, factory primed face, factory applied back, 1200 mm 4 feet wide, maximum practicable lengths, 10 mm (3/8 inch) 3/8 inch or 11 mm (7/16 inch) 7/16 inch thick, [smooth] [embossed] face [, and grooved as selected from manufacturer's standard patterns].

#### 2.1.6.6 Panel Plywood Siding

Panel plywood siding shall conform to PS1, exterior [medium-density overlay,] 1200 mm 4 feet wide, maximum practicable lengths, span rating of [400] [600] mm on centers, [16] [24] inch on centers, [smooth] [embossed] [rough-sawn texture] [striated] face, [and grooved] [as selected from manufacturer's standard patterns].

#### 2.1.6.7 Horizontal Rated Siding

Rated horizontal siding shall be qualified under APA E445S, exterior type [medium-density overlay], lap types, [150] [200] [250] [300] mm [6] [8] [10] [12] inches wide, maximum practicable lengths, [11 (7/16)] [12 (15/32)] [13 (1/2)] mm (inch) [7/16] [15/32] [1/2] inch thick, [smooth] [embossed] [rough-sawn texture] face.

#### 2.1.6.8 Panel Rated Siding

Rated panel siding shall be qualified under APA E445S, exterior type, [medium-density overlay] 1200 mm 4 feet wide, maximum practicable lengths, [span rated at 400 mm 16 inch on centers,] [span rated at 600 mm 24 inch on centers,] [smooth] [embossed] [striated] face [, and grooves] as selected from manufacturer's standard patterns.

#### 2.1.6.9 Wood Structural Panels

Wood Structural Panels shall conform to PS2, exterior, exposure [1] [2], [single-faced] [double-faced], 1200 mm 4 feet wide, maximum practicable lengths, selected from manufacturer's standard patterns to satisfy the wind load for the specified span.

#### 2.1.7 Epoxy-Aggregate Panels

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**NOTE: Epoxy-aggregate coated panels may be included  
in the design for architectural purposes and then  
only as accent and spandrel panels. If not included  
in the design, delete this information.**  
\*\*\*\*\*

Prefinished epoxy-aggregate panels shall consist of an asbestos-free cement board base sheet with a factory applied surface of epoxy resins and decorative natural stone chips. Factory applied finish shall be a minimum of 0.5 mm 20 mils of 100 percent solids, two-component epoxy resin-based coating followed by an application of inert aggregate. Stone color shall be selected from manufacturer's standard colors. Cement board base sheet shall be a minimum of 6 mm 1/4 inch thick. Finished panels shall be dimensionally stable. Water absorption on the surfaced side shall not exceed 0.20 percent after 24 hours of submergence in water. Accessories shall be manufacturer's standard extruded matching color aluminum moldings.

Moldings shall be provided for meeting strips, end caps, inside corners, or outside corners. Fasteners shall be noncorrosive, self-tapping screw type and finished to match the color of stone. Caulking compound shall be color compatible, low modulus silicone or urethane type.

#### 2.1.8 Soffits

##### 2.1.8.1 Hardboard and Plywood

Hardboard and plywood soffits shall be siding grade hardboard, 10 or 11 mm (3/8 or 7/16 inch) 3/8 or 7/16 inch thick; plywood, PS1, exterior type, [Grade A-C] [plywood panel siding] [rated siding], [9 mm (11/32 inch) 11/32 inch thick for 600 mm 24 inch on centers] [12 mm (15/32 inch) 15/32 inch thick for 800 mm 32 inch on centers] [15 mm (19/32 inch) 19/32 inch thick for 1200 mm 48 inch on centers] maximum span with all edges supported.

##### 2.1.8.2 Vinyl

Vinyl soffits shall be manufactured to withstand outdoor weathering in accordance with ASTM D 1435 and shall meet the physical requirements of ASTM D 3679. Panels shall be [solid] [vented] and shall have [smooth] [matte] surface.

## 2.1.9 Fascias and Trim

### 2.1.9.1 Wood

Fascias and trim, including exterior door and window casing, shall be species and grade listed in TABLE I at the end of this section. Sizes shall be as indicated. Metal corners may be furnished in lieu of wood cornerboards for horizontal siding; and if furnished, shall be galvanized steel and primed or aluminum and primed.

### 2.1.9.2 Vinyl

Vinyl trim, including exterior door and window casing and moldings, shall meet the pertinent requirements specified for vinyl siding and soffits.

### 2.1.10 Moldings

Moldings shall be of the pattern indicated and shall be of a grade compatible with the finish specified.

### 2.1.11 Wood Shingles

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NOTE: Selection of wood shingles will be based on climatic conditions at the job site. Besides fire resistance, factors to be considered are: wind, fungus, rot and termite resistance plus tear strength and whether the shingles are sealing or not.  
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Wood shingles shall be No. 1 Grade, Red Cedar, Tidewater Red Cypress or California Redwood in accordance with applicable grading rules under which it is produced, random widths, [400] [450] [600] mm [16] [18] [24] inches length, dip-stained at factory in color selected from manufacturer's standards colors.

### 2.1.12 Woodwork Items

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NOTE: Materials and fabrication requirements for woodwork items not listed in this guide specification will be added or modified as necessary for the project.  
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#### 2.1.12.1 Bulletin Boards

Bulletin boards shall have a hardwood or aluminum frame, 6 mm (1/4 inch) 1/4 inch thick plywood or hardboard back; and a 6 mm (1/4 inch) 1/4 inch thick, dense, smooth faced corkboard face securely cemented to the back.

#### 2.1.12.2 Chalkboards

Chalkboards shall have a hardwood or aluminum frame and 6 mm (1/4 inch) 1/4 inch thick writing surface of [selected chalkboard slate with surface ground to a true plane] [cast acrylic plastic plate glass with color fused to surface] [porcelain enamel laminated to plywood]. Color shall be [black] [green].

### 2.1.12.3 Utility Shelving

Utility shelving shall be a suitable species equal to or exceeding requirements of No. 3 Common white fir under WWPA G-5, 25 mm 1 inch thick; or plywood, interior type, Grade A-B, 13 mm (1/2 inch) 1/2 inch thick, any species group.

### 2.1.12.4 Workbench

Workbench shall have a work surface of [6 mm (1/4 inch) 1/4 inch tempered hardboard] [6 mm (1/4 inch) 1/4 inch particle board] [6 mm (1/4 inch) 1/4 inch solid core plywood with sanded face] [1.3 mm (18 gauge) 18 gauge steel with gray enamel finish] over 50 mm 2 inch thick lumber backing. Base shall be 2 mm (14 gauge) 14 gauge steel with legs adjustable to 25 mm 1 inch increments to adjust the work surface from 760 to 915 mm. 30 to 36 inches.

## 2.2 NAILS

Nails shall be the size and type best suited for the purpose and shall conform to ASTM F 547. Nails shall be hot-dip galvanized or aluminum when used on exterior work. For siding, length of nails shall be sufficient to extend 40 mm 1-1/2 inches into supports, including wood sheathing over framing. Screws for use where nailing is impractical shall be size best suited for purpose.

## PART 3 EXECUTION

### 3.1 GENERAL

#### 3.1.1 Installation of Siding

Siding shall be accurately fitted and positioned without springing or otherwise forcing siding in place. [Siding to have a stain finish shall have nails set and stopped with nonstaining putty to match finished siding.] [Siding to have a paint finish shall have nails driven flush.]

#### 3.1.2 Horizontal Siding

\*\*\*\*\*  
**NOTE: Only one nail at each support is used to attach 150 mm (6 inch) or less wide siding. Edit paragraph accordingly.**  
\*\*\*\*\*

End joints shall be made over framing members and be so alternated that at least two boards will be between joints on the same support. Shorter pieces shall be uniformly distributed throughout each area. Starter strips shall be provided as necessary to establish proper slant for siding. Ends of siding shall be predrilled if necessary to prevent splitting when nailed. [Horizontal bevel or plain lap siding shall be overlapped and nailed into each support in accordance with approved recommendations of the siding manufacturer.] [Horizontal drop siding shall have each course fully worked into the top edge of the previous course, and shall be nailed into each support with [two nails, one near the lower edge to clear top of previous course, and one just above mid-height of course.] [one nail just above mid-height of course.]] Vinyl siding shall be fastened to a starter strip at the locking hem. Each subsequent course shall be interlocked at the locking hem to the adjoining panel and nailed to the substrate on the nailing flange. Nails shall be placed at the center of the slots on the

nauling flange, and loosely nailed to allow movement in the panel.

### 3.1.3 Vertical Board Siding

\*\*\*\*\*  
**NOTE: Only one nail at each support is used to  
attach 150 mm (6 inch) or less wide siding. Edit  
last sentence accordingly.**  
\*\*\*\*\*

Siding shall be applied with horizontal joints only at locations indicated. Each board shall be fully worked into the edge of previous course, and shall be nailed into supports at 600 mm 24 inches on centers with [two nails, one blind if possible at or near joint with the previous board, and one just outside the board centerline.] [one nail just outside the board center line.]

### 3.1.4 Vertical Board and Batten Siding

Siding shall be applied with horizontal joints only at locations indicated. Each board shall be installed with 13 mm 1/2 inch space between it and the previous board, and nailed at the center of the board and into supports at 600 mm 24 inches on center. Battens shall be centered over the space between boards and nailed down the center at 400 mm 16 inches on center.

### 3.1.5 Panel Siding

Panels shall be applied with edges at joints spaced in accordance with manufacturer's recommendations. Shiplapped edges or square edges covered with battens shall be [primed for paint finish,] [sealed for stain finish,] and all edges shall be backed with framing members. Panels shall be nailed at edges at 150 mm 6 inches on center and at intermediate supports at 300 mm 12 inches on center unless otherwise shown. Nailing at edges shall be 10 mm 3/8 inch from edges. For shiplap joints, nailing shall be 10 mm 3/8 inch from the visible joint and at a location to penetrate lap with previous panel. When panel siding is part of an engineered shear wall or used as wall-bracing, shiplap joints shall be nailed to supports with double rows of nails. Battens shall be spaced at [300] [400] mm [12] [16] inches on centers and nailed down the center at 600 mm 24 inches on center.

### 3.1.6 Epoxy-Aggregate Coated Panels

Panels shall be installed where shown. Installation shall be as recommended by the manufacturer of the panels.

## 3.2 SOFFITS

### 3.2.1 Wood

Panels shall be applied with edges at joints spaced in accordance with manufacturer's instructions and with all edges backed with framing members. Panels shall be nailed 10 mm 3/8 inch from edges at 150 mm 6 inches on center and at intermediate supports at 300 mm 12 inches on center. Panels shall be installed using the maximum practical lengths.

### 3.2.2 Vinyl

Vinyl soffits shall rest in a "j" channel at each end of the soffit panel. Each panel shall be interlocked at the locking hem and nailed to a support

at the nailing flange. Nails shall be placed at the center of the slots on the nailing flange, and loosely nailed to allow movement in the panel.

### 3.3 FASCIAS AND EXTERIOR TRIM

Exposed surfaces and square edges shall be machine sanded, caulked, and constructed to exclude water. Joints of built-up items, in addition to nailing, shall be glued as necessary for weather-resistant construction. End joints in built-up members shall be well distributed. Joints in flat work shall be shouldered. Backs of wide-faced miters shall be held together with metal rings and glue. Fascias and other flat members shall be in maximum practicable lengths. Cornices shall be braced, blocked, and rigidly anchored for support and protection of vertical joints.

### 3.4 MOLDING AND INTERIOR TRIM

Molding and interior trim shall be installed straight, plumb, level and with closely fitted joints. Exposed surfaces shall be machine sanded at the mill. Molded work shall be coped at returns and interior angles and mitered at external corners. Intersections of flatwork shall be shouldered to ease any inherent changes in plane. Window and door trim shall be provided in single lengths. Blind nailing shall be used to the extent practicable, and face nailing shall be set and stopped with a nonstaining putty to match the finish applied. Screws shall be used for attachment to metal; setting and stopping of screws shall be of the same quality as required where nails are used.

### 3.5 FINISH STAIRWORK

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**NOTE: Details on drawings should indicate balusters set into treads and landings, and newels anchored to rough stair framing.**  
\*\*\*\*\*

Finish stairwork shall conform to AWI Qual Stds, [Premium Grade for transparent] [Custom Grade for opaque] finish. Stairwork shall be erected to form a strong, rigid structure without squeaks or vibrations. Railings shall be secured with concealed fasteners. Wall rails shall be supported on metal brackets spaced near ends and not over 1.5 m 5 feet on centers.

### 3.6 WOOD SHINGLES

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**NOTE: Weather exposure should be 190 mm (7-1/2 inches) for 400 mm (16 inch) shingles, 215 mm (8-1/2 inches) for 450 mm (18 inch) shingles, and 290 mm (11-1/2 inches) for 600 mm (24 inch) shingles. If roof slope is over 18 degrees, 330 mm per meter (4 in 12), exposure should be 125 mm (5 inch), 140 mm (5-1/2 inch), and 190 mm (7-1/2 inch) for the same length of shingles.**  
  
**In snow areas the minimum recommended roof slope is 330 mm per meter (4 in 12); in non-snow areas is 300 mm per meter (3 in 12).**  
\*\*\*\*\*

Wood shingles shall be applied by single-coursing method and with a weather

exposure of [190] [215] [290] mm. [7-1/2] [8-1/2] [11-1/2] inches. Each shingle shall be nailed with two nails 25 mm 1 inch above butt line of the next course, except shingles more than 200 mm 8 inches in width shall be nailed with three nails. Starter course shall be doubled, and vertical joints shall be offset from vertical joints of the previous course. Corners shall be [mitered over flashing] [abutted to a cedar or redwood strip at the corner] as indicated.

### 3.7 WOODWORK ITEMS

#### 3.7.1 Bulletin Boards and Chalkboards

Items shall be installed in accordance with the manufacturer's recommendation.

#### 3.7.2 Shelving

Shelving shall be anchored to supporting construction. Unless otherwise indicated, shelves shall be supported by wall-supported brackets not more than 600 mm 24 inches on center or as required to limit deflection to 6 mm 1/4 inch between supports with a load of 525 N per meter. 35 lb per lineal foot. Adjustable shelf hardware shall be steel standards, channel shaped, with 25 mm 1 inch adjustment slots and brackets designed for attachment to standards.

#### 3.7.3 Clothes Hanger Rods

Rods shall be provided where indicated and in all closets having hook strips. Rods shall be [hardwood 38 mm (1-1/2 inches) 1-1/2 inches in diameter] [aluminum pipe or tubing 25 mm (1 inch) 1 inch in diameter] [zinc-coated steel pipe 25 mm (1 inch) 1 inch in diameter]. Rods shall be set parallel with the front edges of the shelving, and shall be supported at each end by suitable sockets, and by intermediate brackets spaced at not more than 1200 mm 4 foot centers.

#### 3.7.4 Workbenches

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**NOTE: Where a natural finish without the use of stain is required for interior trim, species suited for a clear natural finish will be specified.**  
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Items shall be anchored in place as indicated.

### 3.8 TABLES

TABLE I. SPECIES AND GRADE TABLES

Grading Rules	Species	Choice	Clear	C Select	C & Better
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NELMA Grading Rules	Eastern Cedar				X
	Eastern Hemlock		X		
	Tamarack				X
	Eastern W. Pine				X
	Northern Pine				X

TABLE I. SPECIES AND GRADE TABLES

Grading Rules	Species	Choice	Clear	C Select	C & Better
RIS Grade Use SCMA Spec SPIB 1003 WCLIB 17	Eastern Spruce			X	
	Balsam Fir		X		
	Redwood			X	
	Cypress			X	
	Southern Pine				X
	Douglas Fir				X
	Larch				X
	Hemlock Fir				X
	Mountain Hemlock				X
	Sitka Spruce				X
WWPA G-5	Douglas Fir				X
	Larch				X
	Hemlock Fir		X		
	Mountain Hemlock				X
	Western Larch		X		
	Idaho White Pine	X			
	Lodgepole Pine		X		
	Ponderosa Pine		X		
	Sugar Pine		X		
	Englemann Spruce		X		
	Douglas Fir South		X		
	Subalpine Fir		X		

NOTE 1: Western Cedar under WCLIB 17 shall be Grade B; and under WWPA G-5, Western Cedar shall be Grade B bevel for siding and Grade A for trim.

NOTE 2: Except as specified in NOTE 3 below, siding and exterior trim shall be any of the species listed above. Interior trim shall be any one of the species listed above and the highest grade of the species for stain or natural finish and one grade below highest grade of species for paint finish.

NOTE 3: Southern Yellow Pine, Douglas Fir, Larch, Western Larch, and Tamarack shall not be used where painting is required and may be used on exterior work only when approved and stained with a preservative type stain.

-- End of Section --