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DIVISON 06 - WOOD, PLASTICS, AND COMPOSITES

SECTION 06 20 00

FINISH CARPENTRY

02/12

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-- End of Section Table of Contents --
NOTE: This guide specification covers general exterior and interior finish carpentry.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

NOTE: On the drawings, show:
1. Location, size, type, and thickness of materials;
2. Size and spacing of fasteners;
3. Details of millwork;
4. Color and/or pattern of prefinished material;
5. Profile and size of trim; and
6. Species of any wood that is to be stain, natural, or transparent finish.
NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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; R 2006) Hardboard Siding

AMERICAN LUMBER STANDARDS COMMITTEE (ALSC)


AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA C20 (2003) Structural Lumber Fire-Retardant Treatment by Pressure Processes

AWPA C27 (2002) Plywood – Fire-Retardant Treatment by Pressure Processes

AWPA M2 (2011) Standard for Inspection of Treated Wood Products

AWPA M4 (2011) Standard for the Care of Preservative-Treated Wood Products


APA – THE ENGINEERED WOOD ASSOCIATION (APA)

APA L870 (2010) Voluntary Product Standard, PS 1-09, Structural Plywood

APA S350 (2011) Performance Standard for Wood-Based Structural-Use Panels

ARCHITECTURAL WOODWORK INSTITUTE (AWI)

AWI AWS (2009) Architectural Woodwork Standards

ASME INTERNATIONAL (ASME)

ASME B18.2.1 (2012; Errata 2013) Square and Hex Bolts and Screws (Inch Series)


ASTM INTERNATIONAL (ASTM)


ASTM F547 (2006; R 2012) Nails for Use with Wood and Wood-Base Materials

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.9 (2010) Cabinet Hardware

COMPOSITE PANEL ASSOCIATION (CPA)

CPA A208.1 (2009) Particleboard

HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)


NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA LD 3 (2005) Standard for High-Pressure Decorative Laminates

NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA)

NHLA Rules (2011) Rules for the Measurement & Inspection of Hardwood & Cypress

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)

1.2 SUBMITTALS

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project.

The Guide Specification technical editors have designated those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item, 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,
Air Force, and NASA projects.

An "S" following a submittal item indicates that the submittal is required for the Sustainability Notebook to fulfill federally mandated sustainable requirements in accordance with Section 01 33 29 SUSTAINABILITY REPORTING.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

**************************************************************************

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the Sustainability Notebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings

SD-03 Product Data

Siding; G[, [_____]]

Epoxy-Aggregate Panels; G[, [_____]]

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

Wood Items, Siding, and Trim; G[, [_____]]

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

SD-04 Samples

Siding; G[, [_____]]

Wood Shingles; G[, [_____]]

Moldings; G[, [_____]]

Fascias and Trim; G[, [_____]]

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

SD-07 Certificates

Certificates of grade

Certificates of compliance
1.3 DETAIL DRAWINGS

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

1.4 CERTIFICATES

Provide certificates of grade from the grading agency on graded but unmarked lumber or plywood attesting that materials meet the grade requirements specified herein.

Provide certificates of compliance unless materials bear certification markings or statements.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver lumber, plywood, trim, and millwork to job site in an undamaged condition. Stack materials to ensure ventilation and drainage. Protect against dampness before and after delivery. Store materials under cover in a well-ventilated enclosure and protect against extreme changes in temperature and humidity. Do not store products in building until wet trade materials are dry.

1.6 QUALITY ASSURANCE

1.6.1 Lumber

Identify each piece or each bundle of lumber, millwork, and trim by the grade mark of a recognized association or independent inspection agency that is certified by the Board of Review, American Lumber Standards Committee, to grade the species.

1.6.2 Plywood

Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over quality of the plywood. Mark shall identify plywood by species group or span rating, and shall show exposure durability classification, grade, and compliance with APA L870.

1.6.3 Hardboard [and Particleboard]

Materials shall bear a marking or statement identifying the producer and the applicable standard.

1.6.4 Pressure-Treated Lumber and Plywood

Each treated piece shall be inspected in accordance with AWPA M2.

1.6.5 Nonpressure-Treated Woodwork and Millwork

Mark, stamp, or label, indicating compliance with WDMA I.S.4.

1.6.6 Fire-Retardant Treated Lumber

Each piece to bear Underwriters Laboratories label or the label of another nationally recognized independent testing laboratory.
PART 2   PRODUCTS

2.1   WOOD

2.1.1   Sizes and Patterns of Wood Products

Yard and board lumber sizes shall conform to ALSC PS 20. Provide shaped lumber and millwork in the patterns indicated and standard patterns of the association covering the species. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the applicable standard.

2.1.2   Trim, Finish, and Frames

Provide species and grades listed for materials to be paint finished. Provide materials that are to be stain, natural, or transparent finished one grade higher than that listed. Provide species indicated for materials to be transparent finished. Run trim, except window stools and aprons with hollow backs.

******************************************************************************
NOTE: Edit table to delete unsuitable species. For small projects, species that are not readily available locally may be deleted.
******************************************************************************

### TABLE OF GRADES FOR WOOD TO RECEIVE PAINT FINISH

<table>
<thead>
<tr>
<th>Grading Rules</th>
<th>Species</th>
<th>Exterior and Interior Trim, Finish, and Frames</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCLIB 17 standard grading rules</td>
<td>Douglas Fir-Larch, Hem-Fir, Mountain Hemlock, Sitka Spruce, Western Cedars, Western Hemlock</td>
<td>All Species: C &amp; Btr VG, except A for Western Red Cedar</td>
</tr>
<tr>
<td>SPIB 1003 standard grading rules</td>
<td>Southern Pine</td>
<td>C &amp; Btr</td>
</tr>
</tbody>
</table>
### TABLE OF GRADES FOR WOOD TO RECEIVE PAINT FINISH

<table>
<thead>
<tr>
<th>Grading Rules</th>
<th>Species</th>
<th>Exterior and Interior Trim, Finish, and Frames</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHLA Rules</td>
<td>Cypress</td>
<td>C-Select</td>
</tr>
<tr>
<td>RIS Grade Use</td>
<td>Redwood</td>
<td>Clear, Clear All Heart</td>
</tr>
<tr>
<td>standard grading rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHLA Rules</td>
<td>Cypress</td>
<td>B Finish</td>
</tr>
<tr>
<td></td>
<td>Red Gum</td>
<td>Select or BTR (for interior use only)</td>
</tr>
<tr>
<td></td>
<td>Soft Elm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birch</td>
<td></td>
</tr>
</tbody>
</table>

#### 2.1.3 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 thick, any species group.

#### 2.1.4 Softwood Plywood

APA L870, thicknesses as indicated.


#### 2.1.5 Hardwood Plywood

**************************************************************************
NOTE: Retain bracketed option describing core construction if only hardwood veneer or lumber core construction is acceptable.
**************************************************************************

HPVA HP-1, Type [Technical (Exterior)] [I (Exterior)] [II (Interior)] [III (Interior)], [Premium (A)] [Good (1)] [Sound (2)] [Utility (3)] [Backing
(4) [Specialty (SP)] Grade, [hardwood veneer core construction,] [lumber core construction,] face veneers of [____], of thickness indicated.

2.1.6 Hardboard


2.1.7 Particleboard

**************************************************************************
NOTE: Particleboard is considered inferior by some and is prohibited in many areas. Verify before using.
**************************************************************************

CPA A208.1, Grade 1-M-2 or 2-M-2 or better.

2.1.8 Stairs

Treads 32 mm 1-1/4 inches thickness, clear red or white oak. Risers 19 mm 1 inch nominal finish lumber.

2.1.9 Shoe Mold

Clear red or white oak, 13 by 16 mm 1/2 by 5/8 inch unless otherwise indicated.

2.1.10 Wood Seats

Clear maple, oak, or other suitable hardwood, not less than 40 mm 1-5/8 inches thick, with rounded edges. Provide stainless steel stanchions or brackets [as indicated].

2.1.11 Wood Bumpers

Clear oak [, maple] [, birch] [or] [____], dressed to size indicated and with outer edges beveled.

2.1.12 Catwalks

Boards, 19 by 140 mm 1 by 6 inches nominal, species and grade equal to or exceeding 3 Common Hem-Fir under WWPA G-5.

2.1.13 Siding

Horizontal siding shall be hardboard, plywood, or wood. Panel siding shall be hardboard or plywood.

2.1.13.1 Horizontal Hardboard Siding

AHA A135.6, factory primed face and longitudinal edges, factory sealed back, lap type, [200] [225] [250] [300] mm [8] [9] [10] [12] inches wide, maximum practicable lengths, 9.5 or 11 mm 3/8 or 7/16 inch thick, [smooth] [embossed] [textured] face.

2.1.13.2 Panel Hardboard Siding

AHA A135.6, factory primed face and longitudinal edges, factory sealed back,
1220 mm 4 feet wide, maximum practicable lengths, 9.5 or 11 mm 3/8 or 7/16 inch thick, [smooth] [embossed] face [, and grooved as selected from manufacturer's standard patterns].

2.1.13.3 Horizontal Plywood Siding


2.1.13.4 Panel Plywood Siding

APA L870, exterior, [medium-density overlay,] 1220 mm 4 feet wide, maximum practicable lengths, span rating of [400] [600] mm [16] [24] oc, [smooth] [embossed] [rough-sawn texture] [striated] face, [and grooved] as selected from manufacturer's standard patterns.

2.1.13.5 Horizontal Rated Siding


2.1.13.6 Panel Rated Siding

Qualified under APA E445, exterior type, [medium-density overlay] 1220 mm 4 feet wide, maximum practicable lengths, [span rated at 400 mm 16 oc] [span rated at 600 mm 24 oc], [smooth] [embossed] [striated] face [, and grooves] as selected from manufacturer's standard patterns.

2.1.13.7 Wood Siding

Species and grades listed in paragraph entitled "Trim, Finish, and Frames" Table. 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].

2.1.13.8 Wood Structural Panels

Wood Structural Panels shall conform to APA S350, 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.

2.1.13.9 Epoxy-Aggregate Panels

**************************************************************************
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.

2.2 SOFFITS

2.2.1 Hardboard and Plywood

Hardboard and plywood soffits shall be siding grade hardboard, 10 or 11 mm
3/8 or 7/16 inch thick; plywood, APA L870, exterior type, [Grade A-C]
[plywood panel siding] [rated siding], [ 9 mm 11/32 inch thick for 600 mm
24 inch on centers] [ 12 mm 15/32 inch thick for 800 mm 32 inch on centers] [ 15 mm 19/32 inch thick for 1200 mm 48 inch on centers] maximum span with
all edges supported.

2.3 FASCIAS AND TRIM

2.3.1 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.

2.4 WOOD SHINGLES

**************************************************************************
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.
**************************************************************************

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
standard colors. Wood shingles shall be fire-retardant treated as
indicated.

2.5 COUNTER TOPS

2.5.1 Laminated Plastic

ANSI/NEMA LD 3.
2.5.1.1 Countertop Finish

Grade GP 50 or PF 42, satin finish. Color and pattern shall be [___] [as indicated].

2.5.1.2 Backing Sheet

BK 20.

2.5.2 Solid Surface

For solid surface counter tops refer to section 06 61 16, SOLID POLYMER (SOLID SURFACING) FABRICATIONS.

2.6 MOISTURE CONTENT OF WOOD PRODUCTS

Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products at time of delivery to the job site, and when installed, shall be as follows:

**************************************************************************

NOTE: At the text below, the lower percentages (6 and 8 percent) may be specified for interior woodwork which will be located in spaces which will be dry due to heating and air conditioning.

**************************************************************************


c. Exterior Treated and Untreated Finish Lumber and Trim 89 mm 4 inches Nominal or Less in Thickness: 19 percent.

d. Exterior Wood Siding: 15 percent.

e. Moisture content of other materials shall be in accordance with the applicable standards.

2.7 PRESERVATIVE TREATMENT OF WOOD PRODUCTS

2.7.1 Nonpressure Treatment

Treat woodwork and millwork, such as exterior trim, door trim, and window trim, in accordance with WDMA I.S.4, with either 2 percent copper napthenate, 3 percent zinc napthenate, or 1.8 percent copper-8-quinolinolate. Provide a liberal brushcoat of preservative treatment to field cuts and holes.

2.7.2 Pressure Treatment

Lumber and plywood used on the exterior of buildings [or in contact with masonry or concrete] shall be treated with water-borne preservative listed in AWPA P5 as applicable, and inspected in accordance with AWPA M2. Identify treatment on each piece of material by the quality mark of an agency accredited by the Board of Review of the American Lumber Standards Committee. Plywood shall be treated to a reflection level as follows:
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 WMMPA WM 6. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M4. Items of all-heart material of cedar, cypress, or redwood will not require preservative treatment, except when in direct contact with soil.

2.8 FIRE-RETARDANT TREATMENT

**************************************************************************
NOTE: List items to be treated in this paragraph. If fire-retardant treatment is not required, delete this paragraph and the following subparagraph.
Specify fire-retardant treated plywood only for nonstructural applications not subject to elevated temperatures or high humidity. Do not specify fire-retardant treated plywood for any part of the roof or roofing system.
**************************************************************************

2.8.1 Wood Products

Fire-retardant treated lumber shall be pressure treated in accordance with AWPA C20. Fire-retardant treated plywood shall be pressure treated in accordance with AWPA C27. Material use shall be defined in AWPA C20 and AWPA 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 D2898, Method A, prior to being tested for compliance with AWPA C20 or AWPA C27.

Treat the following items:

[______].

2.9 HARDWARE

Provide sizes, types, and spacings of manufactured building materials recommended by the product manufacturer except as otherwise indicated or specified.

2.9.1 Wood Screws

ASME B18.6.1.

2.9.2 Bolts, Nuts, Lag Screws, and Studs

ASME B18.2.1 and ASME B18.2.2.

2.9.3 Nails

Nails shall be the size and type best suited for the purpose and shall conform to ASTM F547. 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.

2.9.4 Adjustable Shelf Standards

**************************************************************************
NOTE: See ANSI/BHMA A156.9 for types of hardware available.
**************************************************************************
ANSI/BHMA A156.9, Type [____], with shelf rests Type [____].

2.9.5 Vertical Slotted Shelf Standards

**************************************************************************
NOTE: See ANSI/BHMA A156.9 for types of hardware available.
**************************************************************************
ANSI/BHMA A156.9, Type [____], with shelf brackets Type [____].

2.9.6 Closet Hanger Rods

Chromium-plated steel rods, not less than 25 mm 1 inch diameter by 1.3 mm thick 18 gage. Rods may be adjustable with integral mounting brackets if smaller tube is 25 mm 1 inch by 1.3 mm thick 18 gage. Provide intermediate support bracket for rods more than 1200 mm 48 inches long.

2.10 FABRICATION

2.10.1 Quality Standards (QS)

**************************************************************************
NOTE: Include this paragraph only if AWI QS will be referenced in the text of this section. See paragraph entitled "Casework with Transparent Finish (CTF)," for an example of such a reference. See AWI QS for additional examples, and for definitions of quality grades.
**************************************************************************
The terms "Premium," "Custom," and "Economy" refer to the quality grades defined in AWI AWS. Items not specified to be of a specific grade shall be Custom grade. The AWI QS is superseded by all contract document requirements indicated or stated herein.

2.10.2 Countertops

**************************************************************************
NOTE: Use a plastic laminate backing sheet for counters exposed to excessive moisture.
**************************************************************************
Fabricate with lumber and a core of [exterior plywood] [or] [particleboard], glued and screwed to form an integral unit. Bond laminated plastic under pressure to exposed surfaces, using type of glue recommended by plastic manufacturer [, and bond a backing sheet under pressure to underside of countertop]. Countertop unit shall be post-formed type with no-drip nose, cove moulding, and Style A back splash, and covered...
with ANSI/NEMA LD 3, Grade PF 42 plastic. Back splash shall be not less than 90 mm 3-1/2 inches nor more than 115 mm 4-1/2 inches high.

2.10.3 Cabinets

Wall and base cabinets [and vanity cabinets] shall be of the same construction and appearances. Fabricate with solid ends and frame fronts, or with frames all around. Frames shall be solid hardwood not less than 19 by 38 mm 3/4 by 1-1/2 inches. Ends, bottom, back, partitions, and doors shall be hardwood plywood. Mortise and tenon, dovetail, or dowel and glue joints to produce a rigid unit. Cover exposed edges of plywood with hardwood strips. Doors, frames, and solid exposed ends shall be 19 mm 3/4 inch thick; bottom, partitions, and framed ends 13 mm 1/2 inch minimum; shelves 16 mm 5/8 inch minimum; back 6 mm 1/4 inch minimum.

2.10.3.1 Cabinet Hardware

**************************************************************************
NOTE: See ANSI/BHMA A156.9 for types of hardware available. Edit this paragraph to include hardware items needed for custom millwork such as custom wood wardrobes.
**************************************************************************

ANSI/BHMA A156.9. Provide cabinet hardware including two self-closing hinges for each door, two side-mounted metal drawer slides for each drawer and pulls for all doors and drawers as follows. Hardware exposed to view shall be [bright chromium plated][_____] [as indicated]. All cabinet hardware shall comply with the following requirements:

a. Provide concealed Euro-Style, back mounted hinges with opening to 165 degrees with self-closing feature at less than 90 degrees to its closed position.

**************************************************************************
NOTE: Static drawer slide capacity of 444 N 100 lbs are appropriate for housing kitchens, vanities and light commercial construction. Specify a heavier capacity slide for more abusive situations or where heavier loading of drawers is anticipated.
**************************************************************************

b. Drawer slides shall have a static rating capacity of [444 N 100 lbs][______]. The slides shall have a self closing/stay-closed action, zinc or epoxy coated steel finish, ball bearing rollers, and positive stop with lift out design.

c. Drawer pulls shall be [wire type pulls with center-to-center dimension not less than 89 mm 3-1/2 inches and cross sectional diameter of 8 mm 5/16 inch. The handle projection shall be not less than 33 mm 1-5/16 inches.][______][as indicated].

d. Drawer catch shall be heavy duty magnetic catch.

2.10.3.2 Finish

Provide a natural factory finish on wood surfaces after fabrication. Finish shall be fabricator's standard natural finish, except that it shall be equivalent to one coat of sealer and one coat of spar varnish on all
surfaces and a second coat of spar varnish on surfaces exposed to view. Sand lightly and wipe clean between coats.

2.10.4 Workbenches

Fabricate as indicated. Dovetail and glue drawer corners. Fasten frames with suitable wood screws or bolts. Sand exposed surfaces smooth, and ease exposed edges. Provide two side-mounted, metal, ball-bearing drawer slides \[\text{ANSI/BHMA A156.9, Type [____]},\] for each drawer, and at least two surface-mounted hinges \[\text{[____]},\] and a magnetic catch \[\text{[____]},\] for each door.

2.10.5 Casework With Transparent Finish (CTF)

**************************************************************************
NOTE: This is a sample paragraph for referencing the AWI QS. See the standards for definitions of quality grades and for additional information on using the AWI QS.
**************************************************************************

2.10.5.1 AWI Quality Grade (CTF)

[Premium] [Custom] [Economy] grade.

2.10.5.2 Construction (CTF)

Details shall conform to [reveal overlay] [flush overlay] [exposed face frame] design.

2.10.5.3 Exposed Parts

[____] specie, [____] cut.

2.10.5.4 Semi-Exposed Parts

As specified in the AWI AWS for the grade selected.

2.10.6 Casework With High Pressure Laminate Finish (CHPL)

**************************************************************************
NOTE: This is a sample paragraph for referencing the AWI QS. See the standards for definitions of quality grades and for additional information on using the AWI QS.
**************************************************************************

2.10.6.1 AWI Quality Grade (CHPL)

[Premium] [Custom] grade.

2.10.6.2 Construction (CHPL)

Details shall conform to [reveal overlay] [flush overlay] [exposed face frame] design.

2.10.6.3 Exposed Surfaces

High pressure laminate, color [____], pattern [____].
2.10.6.4 Semi-Exposed Surfaces

As specified in the AWI AWS for the grade selected.

PART 3 EXECUTION

3.1 FINISH WORK

Provide sizes, materials, and designs as indicated and as specified. Apply primer to finish work before installing. Where practicable, shop assemble and finish items of built-up millwork. Joints shall be tight and constructed in a manner to conceal shrinkage. Miter trim and moldings at exterior angles and cope at interior angles and at returns. Material shall show no warp after installation. Install millwork and trim in maximum practical lengths. Fasten finish work with finish nails. Provide blind nailing where practicable. Set face nails for putty stopping.

3.1.1 Exterior Finish Work


3.1.2 Interior Finish Work

After installation, sand exposed surfaces smooth. Provide window and door trim in single lengths.

3.1.3 Door Frames

Set plumb and square. Provide solid blocking at not more than 400 mm 16 inches o.c. for each jamb. Position blocking to occur behind hinges and lock strikes. Double wedge frames and fasten with finishing nails. Set nails for putty stopping.

3.1.4 Thresholds

Provide thresholds [shaped as indicated] [16 mm 5/8 inch thick by 70 mm 2-5/8 inches wide with beveled sides] and cut to fit at jambs. Fasten thresholds with casing nails. Set nails for putty stopping.

3.1.5 Window Stools and Aprons

Provide stools with rabbet over window sill. Provide aprons with returns cut accurately to profile of member.
3.1.6 Bases

Flat member with a molded top [and oak shoe mold]. Fasten base to framing or to grounds. [Nail shoe mold to the base.] Set [shoe mold] [one-piece wood base] after finish flooring is in place.

3.1.7 Finish Stair Work

Fit, nail, screw, bolt, and glue stair work together to form a strong rigid structure without squeaks or vibrations. Anchor newels and posts securely to rough stair framing. Cut newels, posts, and drops accurately around floor construction to make tight fit. Install balusters into treads and landings with glue. Install railing with straight runs following slope of stairs and with smooth curve turns. Return railing profile at ends and secure joints with bolts and nuts. Secure railing to posts and newels with concealed anchors. Support wall rails on metal brackets spaced near ends and not over 1500 mm 5 feet o.c.

3.2 SHELVING

19 mm 1 inch nominal thick wood shelf material or 19 or 20 mm 3/4 or 23/32 inch thick plywood shelf material supported substantially with end and intermediate supports and arranged to prevent buckling and sagging. [Hook strips shall be 19 by 89 mm 1 by 4 inches nominal and cleats 19 by 38 mm 1 by 2 inches nominal.] Provide cleats except where hook strips are specified or indicated. [Where adjustable shelving is indicated, provide standards and brackets or shelf rests for each shelf.] [Anchor standards to wall at not more than 600 mm 2 feet o.c.]

3.2.1 Linen Closets

Unless indicated otherwise, linen closets shall have a counter shelf 500 mm 20 inches wide located 900 mm 36 inches above the floor, a lower shelf approximately 450 mm 18 inches wide and 450 mm 18 inches above the floor, and three upper shelves 285 mm 11-1/4 inches wide located 350 mm 14 inches above the counter shelf and 350 mm 14 inches apart.

3.2.2 Storage Rooms

Provide storage rooms with shelves [of size and arrangement as indicated] [285 mm 11-1/4 inches wide, bottom shelf 450 mm 18 inches above the floor, top shelf 450 mm 18 inches below the ceiling, and intermediate shelves approximately 450 mm 18 inches apart].

3.2.3 Room Closets

Provide two shelves 285 mm 11-1/4 inches wide. Support lower shelf by hook strips at back and ends, and provide full-length wood or metal clothes hanger rods unless indicated otherwise.

3.2.4 Cleaning-Gear Closets

Provide [shelves of size and arrangement indicated] [two shelves 350 mm 14 inches wide].

3.3 CLOTHES HANGER RODS

Provide clothes hanger rods where indicated and in closets having hook strips. Set rods parallel with front edges of shelves and support by
sockets at each end and by intermediate brackets spaced not more than 1200 mm 4 feet o.c.

3.4 MISCELLANEOUS

3.4.1 Counters

Construct as indicated. Conceal fastenings where practicable, fit counter neatly, install in a rigid and substantial manner, and scribe to adjoining surfaces. Provide counter sections in longest lengths practicable; keep joints in tops to a minimum; and where joints are necessary, provide tight hairline joints drawn up with concealed-type heavy pull-up bolts. Glue joints with water-resistant glue and, in addition, make rigid and substantial with screws, bolts, or other approved fastenings.

3.4.2 Cabinets

Install level, plumb, and tight against adjacent walls. Secure cabinets to walls with concealed toggle bolts, and secure top to cabinet with concealed screws. [Make cut-outs for fixtures to templates supplied by fixture manufacturer. Carefully locate cut-outs for pipes so that edges of holes will be covered by escutcheons.]

3.4.3 Workbenches

Construct as indicated. Install level, plumb, and tight against adjacent construction. Fasten to walls with screws or toggle bolts and to floors with expansion bolts.

3.4.4 Wood Seats

Support seats [on brackets spiked to the studs] [on stanchions] [as indicated]. Secure seats to supports with [screws] [bolts] as required; countersink heads of [screws] [bolts] and fill holes with hardwood filler, finished flush with tops of seats.

3.4.5 Wood Bumpers

Bore, countersink, and bolt in place where indicated.

3.4.6 Catwalks in Attic Spaces

Lay boards with 25 mm 1 inch spaces between. Stagger end joints, with each joint on a support.

3.5 SIDING

3.5.1 Installation of Siding

Fit and position without springing or otherwise forcing into place. [For siding to have a stain finish, set nails and stop with nonstaining putty to match finished siding.] [For siding to have a paint finish, drive nails flush.]

3.5.2 Horizontal Siding

**************************************************************************
NOTE: Only one nail at each support is used to attach 150 mm 6 inch or less wide siding. Edit last
Make end joints over framing members and alternate so at least two boards will be between joints on same support. Uniformly distribute shorter pieces throughout area. Provide starter strips to establish proper slant for siding. Predrill ends of siding if necessary to prevent splitting when nailed. [Horizontal bevel or plain lap siding: Overlap and nail into each support in accordance with recommendations of siding manufacturer.] [Horizontal drop siding: Work each course into top edge of previous course. Nail into each support with [two nails, one near lower edge to clear top of previous course, and one just above mid-height of course.] [one nail just above mid-height of course.]]

3.5.3 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.

Apply siding with horizontal joints only at locations indicated. Work each board into edge of previous course. Nail into supports at 600 mm 24 inches on center with [two nails, one blind if possible at or near joint with previous board, and one just outside board centerline.] [one nail just outside board center line.]

3.5.4 Vertical Board and Batten Siding

Apply with horizontal joints only at locations indicated. Install each board with 13 mm 1/2 inch space between it and previous board. Nail at center of board and into supports at 600 mm 24 inches on center. Center battens over space between boards and nail down center at 400 mm 16 inches on center.

3.5.5 Panel Siding

Apply panels 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,]. Back all edges with framing members. Nail panels at edges 150 mm 6 inches on center and at intermediate supports 300 mm 12 inches on center. Edge nailing to be 10 mm 3/8 inch from edges. For shiplap joints, nail 10 mm 3/8 inch from 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, nail shiplap joints to supports with double rows of nails. Space battens at [300] [400] mm [12] [16] inches on center and nail down center at 600 mm 24 inches on center.

3.5.6 Epoxy-Aggregate Coated Panels

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

3.6.1 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.

3.7 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.

3.8 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 cope 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.

3.9 WOOD SHINGLES

**************************************************************************
**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.

-- End of Section --