

SECTION 06 20 00
FINISH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies interior millwork.
- B. Items specified.
 - 1. Custom fabricated plastic laminate, phenolic, and wood veneer casework.
 - 2. Counter Tops: Plastic laminate (non-acid-resistant) and associated metal supports.
 - 3. Mounting Strips and Shelves
 - 4. Wall paneling.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings:
 - 1. Millwork items - Half full size scale for sections and details 1:50 (1/4-inch) for elevations and plans.
 - 2. Show construction and installation.
- C. Samples:
 - Plastic laminate finished plywood or particleboard and phenolic panels, 150 mm by 300 mm (six by twelve inches).
 - Wood veneer finished plywood or particleboard and phenolic panels, 150 mm by 300 mm (six by twelve inches).
- D. Certificates:
 - 1. Indicating fire retardant treatment of materials meet the requirements specified.
 - 2. Indicating moisture content of materials meet the requirements specified.
- E. List of acceptable sealers for fire retardant and preservative treated materials.
- F. Manufacturer's literature and data:
 - 1. Finish hardware
 - 2. Sinks with fittings
 - 3. Electrical components

1.3 DELIVERY, STORAGE AND HANDLING

- A. Protect lumber and millwork from dampness, maintaining moisture content specified both during and after delivery at site.

- B. Store finishing lumber and millwork in weathertight well ventilated structures or in space in existing buildings designated by Resident Engineer. Store at a minimum temperature of 210C (700F) for not less than 10 days before installation.
- C. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Testing and Materials (ASTM):
 - A36/A36M-05Structural Steel
 - A53-06Pipe, Steel, Black and Hot-Dipped Zinc Coated,
Welded and Seamless
 - A167-99 (R2004)Stainless and Heat-Resisting Chromium-Nickel
Steel Plate, Sheet, and Strip
 - E84-07Surface Burning Characteristics of Building
Materials
- C. American Hardboard Association (AHA):
 - A135.4-04Basic Hardboard
- D. Builders Hardware Manufacturers Association (BHMA):
 - A156.9-03Cabinet Hardware
 - A156.11-04Cabinet Locks
 - A156.16-02Auxiliary Hardware
- E. National Particleboard Association (NPA):
 - A208.1-99Wood Particleboard
- F. U.S. Department of Commerce, Product Standard (PS):
 - PS1-95Construction and Industrial Plywood
- G. Military Specification (Mil. Spec):
 - MIL-L-19140ELumber and Plywood, Fire-Retardant Treated
- H. Federal Specifications (Fed. Spec.):
 - A-A-1922AShield Expansion
 - A-A-1936Contact Adhesive
 - FF-N-836DNut, Square, Hexagon Cap, Slotted, Castle
 - FF-S-111D(1)Screw, Wood
 - MM-L-736(C)Lumber, Hardwood

PART 2 - PRODUCTS

2.1 LUMBER

A. Grading and Marking:

1. Lumber shall bear the grade mark, stamp, or other identifying marks indicating grades of material.
2. 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.
3. The inspection agency for lumber shall be approved by the Board of Review, American Lumber Standards Committee, to grade species used.

B. Sizes:

1. Lumber Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which product is produced.
2. Millwork, standing and running trim, and rails: Actual size as shown or specified.

C. Hardwood: MM-L-736, species as specified for each item.

D. Softwood: PS-20, exposed to view appearance grades: Use C select or D select, vertical grain for transparent finish including stain transparent finish.

2.2 PLYWOOD

A. Softwood Plywood:

1. Prod. Std.
2. Grading and Marking:
 - a. Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood.
 - b. The mark shall identify the plywood by species group or identification index, and shall show glue type, grade, and compliance with PS1.
3. Plywood, 13 mm (1/2 inch) and thicker; not less than five ply construction, except 32 mm (1-1/4 inch) thick plywood not less than seven ply.
4. Plastic Laminate Plywood Cores:
 - a. Exterior Type, and species group.
 - b. Veneer Grade: A-C.

- 5. Shelving Plywood:
 - a. Interior Type, any species group.
 - b. Veneer Grade: A-B or B-C.
- 6. Other: As specified for item.

B. Hardwood Plywood:

- 1. HPVA: HP.1
- 2. Species of face veneer shall be as shown or as specified in connection with each particular item.
- 3. Inside of Building: Use Type II (interior) A grade veneer for transparent finish.
- 4. Use natural maple to match Owner's sample unless specified otherwise.

2.3 PARTICLEBOARD

- A. NPA A208.1
- B. Plastic Laminate Particleboard Cores:
 - 1. Use Type 1, Grade 1-M-3, or Type 2, Grade 2-M-2, unless otherwise specified.
 - 2. Use Type 2, Grade 2-M-2, exterior bond, for tops with sinks.
- C. General Use: Type 1, Grade 1-M-3 or Type 2, Grade 2-M-2.

2.4 PLASTIC LAMINATE

- A. NEMA LD-3.
- B. Exposed decorative surfaces including countertops, both sides of cabinet doors, and for items having plastic laminate finish. General Purpose, Type HGL.
- C. Cabinet Interiors including Shelving: Both of following options to comply with NEMA, CLS as a minimum.
 - 1. Plastic laminate clad plywood or particle board.
 - 2. Resin impregnated decorative paper thermally fused to particle board.
- D. Backing sheet on bottom of plastic laminate covered wood tops: Backer, Type HGP.
- E. Phenolic Core Panels: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges.
 - 1. Facing Sheet Color: One color in each room as selected by Architect/Engineer from manufacturer's full range of colors.
 - 2. Core Color: Manufacturer's standard dark color.
 - 3. Pull Out Resistance: 390 pounds for a #12 screw in a 1/2" panel.

4. Uniform Load Resistance: 110 pounds on a 12" x 36" x 1/2" panel.

5. Flame Spread, ASTM E84: Class 1A (25)

2.5 BUILDING BOARD (HARDBOARD)

A. ANSI/AHA A135.4, 6 mm (1/4 inch) thick unless specified otherwise.

2.6 ADHESIVE

A. For Plastic Laminate: Fed. Spec. A-A-1936.

B. For Interior Millwork: Unextended urea resin, unextended melamine resin, phenol resin, or resorcinol resin.

2.7 STAINLESS STEEL

ASTM A167, Type 302 or 304.

2.8 ALUMINUM CAST

ASTM B26

2.9 ALUMINUM EXTRUDED

ASTM B221

2.10 HARDWARE

A. Rough Hardware:

1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electric-galvanizing process. Galvanized where specified.

2. Use stainless steel for phenolic work.

3. Fasteners:

a. Bolts with Nuts: FF-N-836.

b. Expansion Bolts: A-A-1922A.

c. Screws: Fed. Spec. FF-S-111.

B. Finish Hardware

1. Cabinet Hardware: ANSI A156.9.

a. Door/Drawer Pulls: B02011. Door in seismic zones: B03182.

b. Drawer Slides: Side or rail mount; self closing; active disconnect; steel ball bearing; B05051 for drawers over 150 mm (6 inches) deep, B05052 for drawers 75 mm to 150 mm 3 to 6 inches) deep, and B05053 for drawers less than 75 mm (3 inches) deep; ¾ extension minimum. Bottom mounted, epoxy coated, nylon roller guides are not permitted.

c. Adjustable Shelf Standards: Non-mortising; slots in standard for shelf adjustment, B4061 with shelf rest B04083.

d. Butt Hinges: B01361, for flush doors, B01381 for inset lipped doors, and B01521 for overlay doors.

- e. Cabinet Door Catch: Heavy duty magnetic catch, operating Life Test Grade 1: 100,000 cycles, test pull minimum 6 lbf (27 N); B03171 or B03172; or roller catches, BHMA A156.9, B03071.
- f. Recessed Door and Drawer Pulls: Comply with ANSI/BHMA A156.9 heavy duty; semi-recessed, ABS plastic; ADA compliant.
- 2. Cabinet Locks: ANSI A156.11. Provide locks at file drawers, at study carrels, and as indicated.
 - a. Drawers and Hinged Door: E07262.
 - b. Sliding Door: E07162.
- 3. Auxiliary Hardware: ANSI A156.16.
 - a. Vertical Slotted Shelf Standard: B04103 with shelf brackets B04113, sized for shelf depth.
- 4. Steel Channel Frame and Leg supports for Counter top. Fabricated under Section 05 50 00, METAL FABRICATIONS.
- 5. Utility Grommets: Comply with ANSI/BHMA A156.9 heavy duty; plastic countertop grommets, with "flip-top," 2 inch diameter in color as selected by Designer from manufacturer's premium range.
- 6. Pipe Bench Supports: Pipe, ASTM A53.
- 7. Fabricated Wall Bench Supports:
 - a. Steel Angles: ASTM A36 steel with chrome finish, or ASTM A167, stainless steel with countersunk wood screws, holes at 64 mm (2-1/2 inches) on center on horizontal member.
 - b. Use 38 mm by 38 mm by 5 mm (1-1/2 by 1-1/2 by 3/16 inch) angle thick drilled for screw and bolt holes unless shown otherwise. Drill 6 mm (1/4 inch) holes for anchors on vertical member, not more than 200 mm (8 inches) on center between ends or corners.
 - c. Stainless steel bars brackets: ASTM A167, fabricated to shapes shown, Number 4 finish. Use 50 mm by 5 mm (2 inch by 3/16 inch) bars unless shown otherwise. Drill for anchors and screws. Drill countersunk wood screw holes at 64 mm (2-1/2 inches) on center on horizontal members and not less than two 13 mm (1/4 inch) hole for anchors on vertical member.
- 8. Thru-Wall Counter Brackets:
 - a. Steel angles drilled for fasteners on 100 mm (4 inches) centers.
 - b. Baked enamel prime coat finish.
 - c. L-shaped, steel or aluminum bracket; powder coat finish, color as selected by Designer; with provisions for wire run clearance; 450 pound capacity each.

9. Edge Strips Moldings:

- a. Driven type "T" shape with serrated retaining stem; vinyl plastic to match plastic laminate color, stainless steel, or 3 mm (1/8 inch) thick extruded aluminum.
- b. Stainless steel or extruded aluminum channels.
- c. Stainless steel, number 4 finish; aluminum, mechanical applied medium satin finish, clear anodized 0.1 mm (0.4 mils) thick.

10. Rubber or Vinyl Molding

- a. Rubber or vinyl standard stock and in longest lengths practicable.
- b. Design for closures at joints with walls and adhesive anchorage.
- c. Adhesive as recommended by molding manufacturer.

11. Primers: Manufacturer's standard primer for steel providing baked enamel finish.

12. Provide perforated metal screens as required to conceal services from tops of end island sinks to underside of ceiling grid. Furnish an equal number of screens for Owner's use as attic stock.

2.11 MOISTURE CONTENT

A. Moisture content of lumber and millwork at time of delivery to site.

1. Interior finish lumber, trim, and millwork 32 mm (1-1/4 inches) or less in nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on the remainder.

2. Moisture content of other materials shall be in accordance with the standards under which the products are produced.

2.12 FIRE RETARDANT TREATMENT

A. Where wood members and plywood are specified to be fire retardant treated, the treatment shall be in accordance with Mil. Spec. MIL-L19140.

B. Treatment and performance inspection shall be by an independent and qualified testing agency that establishes performance ratings.

C. Each piece of treated material shall bear identification of the testing agency and shall indicate performance in accordance with such rating of flame spread and smoke developed.

D. Treat wood for maximum flame spread of 25 and smoke developed of 25.

E. Fire Resistant Softwood Plywood:

1. Use Grade A, Exterior, plywood for treatment.

2. Meet the following requirements when tested in accordance with ASTM E84.

- a. Flame spread: 0 to 25.
- b. Smoke developed: 100 maximum

2.13 PRESERVATIVE TREATMENT

A. Wood members and plywood in contact with plaster, masonry or concrete, including wood members used for rough framing of millwork items except heart-wood Redwood and Western Red Cedar shall be preservative treated in accordance with AWP Standards.

B. Use Grade A, exterior plywood for treatment.

2.14 FABRICATION

A. General:

- 1. Except as otherwise specified, use AWI Custom Grade for architectural woodwork and interior millwork; flush overlay casework design.
- 2. Finish woodwork shall be free from pitch pockets.
- 3. Provide finished ends on casework.
- 4. Except where special profiles are shown, trim shall be standard stock molding and members of the same species.
- 5. Plywood shall be not less than 13 mm (1/2 inch), unless otherwise shown or specified.
- 6. Edges of members in contact with concrete or masonry shall have a square corner caulking rebate.
- 7. Fabricate members less than 4 m (14 feet) in length from one piece of lumber, back channeled and molded as shown.
- 8. Interior trim and items of millwork to be painted may be fabricated from jointed, built-up, or laminated members, unless otherwise shown on drawings or specified.
- 9. Do not use veneer core plywood for doors for any grade of work.
- 10. Plastic Laminate Work:
 - a. Factory glued to either a plywood or a particle board core, thickness as shown or specified.
 - b. Cover exposed edges with plastic laminate, except where aluminum, stainless steel, or plastic molded edge strips are shown or specified. Use plastic molded edge strips on 19 mm (3/4-inch) molded thick or thinner core material.

- c. Provide plastic backing sheet on underside of countertops, vanity tops, thru-wall counter including back splashes and end splashes of countertops.
 - d. Use backing sheet on concealed large panel surface when decorative face does not occur.
- B. Mounting Strips and Shelves:
- 1. Cut mounting strips from 25 mm by 100 mm (1 by 4 inches) softwood stock, with exposed edge slightly rounded.
 - 2. Cut wood shelf from softwood 1 inch stock, of width shown, exposed edge slightly rounded. Option: Use 19 mm (3/4 inch) thick plywood with 19 mm (3/4 inch) softwood edge nosing on exposed edge, slightly rounded.
 - 3. Plastic laminate covered, 19 mm (3/4 inch) thick plywood or particle board core with edges and ends having plastic molded edge strips. Size, finish and number as shown.
- C. Counter Tops: Fabrication with plastic laminate over 1 inch thick core unless shown otherwise.
- 1. Use decorative laminate for exposed edges of tops 38 mm (1-1/2 inches) wide and on back splash and end splash. Use plastic or metal edges for top edges less than 38 mm (1-1/2 inches) wide.
 - 2. Assemble back splash and end splash to counter top.
 - 3. Use one piece counters for straight runs.
 - 4. Miter corners for field joints with overlapping blocking on underside of joint.
 - 5. Provide continuous backing sheet on underside of counter tops for balanced construction.
- D. Wood Finish Materials:
- 1. Stain, Varnish and Finishing Materials: As required by AWI Section 1500.
 - 2. Application: Comply with AWI Section 1500, unless otherwise indicated. Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
 - 3. Sand work smooth and set exposed fasteners. Apply wood filler in exposed fastener indentations.
 - 4. Finish work to meet AWI Custom Quality Standards. Finish work in locations as indicated according to AWI Finish System, pre-catalyzed lacquer or AWI Finish System, conversion varnish.

E. Drawer Fabrication:

1. Drawer Fronts: 3/4" thick or thicker as required by referenced AWI quality standard; particleboard with wood veneer and hardwood edge banding. Fabricate drawer front separate from drawer body.
2. Drawer Sides, Backs, and Subfronts: Glue and pin nail joints using lock shoulder detail. Alternatively, use dovetailed or doweled joints glued under pressure as is appropriate for drawer material under AWI guidelines. Space dowels, if used, at 32mm on center maximum to 4" high, 64mm o.c. above 4" high.
 - a. Thickness: Minimum 1/2" thick.
 - b. Permitted: Single species solid lumber with an AWI Section 100-G-1 hardness rating of Medium or better or 7-ply all hardwood veneer core plywood, no voids (minimum 12.7 mm [1/2"] thickness); No edge band required.
 - c. Not Permitted: Medium density fiberboard or raw particleboard sides; dovetail drawer box construction with particleboard substrates clad with thermoset decorative overlay (melamine), square shoulder details, or drawers with joinery using biscuits.
3. Drawer Bottoms: Fabricate drawer bottoms from minimum 1/4 inch thick hardboard with melamine interior. Set drawer bottoms into all 4 sides, 1/4" deep with minimum 3/8" standing shoulder. "Plant on" bottoms will not be permitted.

F. Wall Paneling:

1. Fire Retardant Treated, Class A.
2. Wood Substrate Panels: ASTM E-84 rated MDF wood fiber product with veneer measuring between 0.010" and 0.015".
 - a. Overall Thickness: 19 mm (3/4 inch) unless shown otherwise; color coordinated edges.
 - b. Prefinished, high heat cured modified acrylic topcoat.
 - c. Square cut panels.
 - d. Balancing Backer: Veneer measuring between 0.015" and 0.025" and falls within the exemption outlined for finishes less than 1/28" (0.0357") thickness
3. Trim and base:
 - a. Manufacturer's standard extruded aluminum in clear satin anodized.
 - b. Reveals, Horizontal and Vertical: 1/4" inch.

- c. Provide inside corners, outside corners, head and sill terminations, as is standard with manufacturer.

- 4. Furring Strips: Manufacturer's standard extruded aluminum.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

- A. Maintain work areas and storage areas to a minimum temperature of 21⁰C (70⁰F) for not less than 10 days before and during installation of interior millwork.
- B. Do not install finish lumber or millwork in any room or space where wet process systems such as concrete, masonry, or plaster work is not complete and dry.

3.2 INSTALLATION

- A. General: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved. Set and secure casework in place rigid, plumb and level.
 - 1. Millwork receiving transparent finish shall be primed and back-painted on concealed surfaces. Set no millwork until primed and back-painted.
 - 2. Secure trim with fine finishing nails, screws, or glue as required.
 - 3. Set nails for putty stopping. Use washers under bolt heads where no other bearing plate occurs.
 - 4. Seal cut edges of preservative and fire retardant treated wood materials with a certified acceptable sealer.
 - 5. Coordinate with plumbing and electrical work for installation of fixtures and service connections in millwork items.
 - 6. Plumb and level items unless shown otherwise.
 - 7. Nail finish at each blocking, lookout, or other nailer and intermediate points; toggle or expansion bolt in place where nails are not suitable.
 - 8. Set grommets in locations as indicated.

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