

**SECTION 06 20 00**  
**FINISH CARPENTRY**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. Interior millwork for patient and patient support areas in hospitals.

B. Items specified:

**1.2 RELATED REQUIREMENTS**

- A. Adhesive, Paint, and Finish VOC Limits: Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS.
- B. Fabricated Metal brackets, bench supports and countertop legs: Section 05 50 00, METAL FABRICATIONS.
- C. Framing, furring and blocking: Section 06 10 00, ROUGH CARPENTRY.
- D. Wood doors: Section 08 14 00, INTERIOR WOOD DOORS.
- E. Stock Casework: Section 12 32 00, MANUFACTURED WOOD CASEWORK.
- F. Other Countertops: Division 11, EQUIPMENT and Division 12, FURNISHINGS.
- G. Electrical light fixtures and duplex outlets: Division 26, ELECTRICAL.

**1.3 APPLICABLE PUBLICATIONS**

A. Comply with references to extent specified in this section.

B. ASTM International:

1. A36/A36M-14 - Carbon Structural Steel.
2. A53/A53M-12 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
3. A240/A240M-15b - Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
4. B26/B26M-14e1 - Aluminum-Alloy Sand Castings.
5. B221-14 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
6. E84-15b - Surface Burning Characteristics of Building Materials.

C. American Hardboard Association (AHA):

1. A135.4-04 - Basic Hardboard.

D. Architectural Woodwork Institute (AWI):

1. AWI-09 - Architectural Woodwork Quality Standards and Quality Certification Program.

E. Builders Hardware Manufacturers Association (BHMA):

1. A156.9-10 - Cabinet Hardware.

- 2. A156.11-14 - Cabinet Locks.
- 3. A156.16-13 - Auxiliary Hardware.
- F. Federal Specifications (Fed. Spec.):
  - 1. A-A-1922A - Shield Expansion (Calking Anchors, Single Lead).
  - 2. A-A-1936A - Adhesive, Contact, Neoprene Rubber.
  - 3. FF-N-836E- Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding.
  - 4. FF-S-111D(1) - Screw, Wood (Notice 1 inactive for new design).
  - 5. MM-L-736C(1) - Lumber, Hardwood.
- G. Hardwood Plywood and Veneer Association (HPVA):
  - 1. HP1-09 - Hardwood and Decorative Plywood.
- H. Military Specification (Mil. Spec):
  - 1. MIL-L-19140E - Lumber and Plywood, Fire-Retardant Treated.
- I. National Particleboard Association (NPA):
  - 1. A208.1-09 - Wood Particleboard.
- J. National Electrical Manufacturers Association (NEMA):
  - 1. LD 3-05 - High-Pressure Decorative Laminates.
- K. U.S. Department of Commerce, Product Standard (PS):
  - 1. PS1-07 - Construction and Industrial Plywood.
  - 2. PS20-10 - American Softwood Lumber Standard.

#### **1.4 PREINSTALLATION MEETINGS - NOT USED**

#### **1.5 SUBMITTALS**

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submittal Drawings:
  - 1. Show size, configuration, and fabrication and installation details.
  - 2. Millwork items - Half full size scale for sections and details 1: 50 (1/4 inch) for elevations and plans.
- C. Manufacturer's Literature and Data:
  - 1. Description of each product.
    - a. Finish hardware.
    - b. Sinks with fittings.
    - c. Electrical components.
  - 2. List of acceptable sealers for fire retardant materials.
  - 3. Installation instructions.
- D. Samples:

1. Plastic Laminate Finished Plywood and Particleboard: 150 mm by 300 mm (6 by 12 inches) square, each type and color.
    - a. Submit quantity required to show full color and texture range.
  2. Approved samples may be incorporated into work.
- E. Sustainable Construction Submittals:
1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.
  2. Low Pollutant-Emitting Materials:
    - a. Show volatile organic compound types and quantities.
    - b. Certify each composite wood product contains no added urea formaldehyde.
- F. Certificates: Certify each product complies with specifications.
1. Fire retardant treatment of materials.
  2. Moisture content of materials.
- G. Qualifications: Substantiate qualifications with specifications.
1. Fabricator with project experience list.
  2. Installer with project experience list.

#### **1.6 QUALITY ASSURANCE**

- A. Fabricator Qualifications:
1. Regularly fabricates specified products.
  2. Fabricated specified products with satisfactory service on five similar installations for minimum five years.
    - a. Project Experience List: Provide contact names and addresses for completed projects.
- B. Installer Qualifications:
1. Regularly installs specified products.
  2. Installed specified products with satisfactory service on five similar installations for minimum five years.
    - a. Project Experience List: Provide contact names and addresses for completed projects.

#### **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.
- D. Store products indoors in dry, weathertight conditioned facility.

- E. Protect products from damage during handling and construction operations.

## **1.8 FIELD CONDITIONS**

- A. Environment:
  - 1. Product Temperature: Minimum 21 degrees C (70 degrees F) for minimum 48 hours before installation.
  - 2. Work Area Ambient Conditions: HVAC systems are complete, operational, and maintaining facility design operating conditions continuously, beginning 48 hours before installation until Government occupancy.
  - 3. Install products when building is permanently enclosed and when wet construction is completed, dried, and cured.
  - 4. 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.
- B. Field Measurements: Verify field conditions affecting countertops fabrication and installation. Show field measurements on Submittal Drawings.
  - 1. Coordinate field measurement and fabrication schedule to avoid delay.

## **1.9 WARRANTY**

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

## **PART 2 - PRODUCTS**

### **2.1 SYSTEM PERFORMANCE**

- A. Design acoustical panel complying with specified performance:
  - 1. Surface Burning Characteristics: When tested according to ASTM E84.
    - a. Flame Spread Rating: 25 maximum.
    - b. Smoke Developed Rating: 450 maximum.

### **2.2 MATERIALS**

- A. Grading and Marking: Factory mark with grade stamp lumber and plywood of inspection agency approved by the Board of Review, American Lumber Standard Committee.
- B. Lumber:
  - 1. Sizes:

- a. Lumber Size references, unless otherwise specified, are nominal sizes, and actual sizes within manufacturing tolerances allowed by the standard under which product is produced.
  - b. Millwork, standing and running trim, and rails: Actual size as shown or specified.
- 2. Hardwood: MM-L-736, species as specified for each item.
- 3. Softwood: PS-20, exposed to view appearance grades:
  - a. Use C select or D select, vertical grain for transparent finish including stain transparent finish.
  - b. Use Prime for painted or opaque finish.
- 4. Moisture Content:
  - a. 32 mm (1-1/4 inches) or less nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on the remainder.
  - b. Other materials: According to standards under which the products are produced.
- 5. Fire Retardant Treatment: Mil. Spec. MIL-L-19140E.
  - a. Treatment and performance inspection by an independent and qualified testing agency that establishes performance ratings.
  - b. Each piece of treated material bear identification of the testing agency and indicate performance according to such rating of flame spread and smoke developed.
  - c. Treat wood for maximum flame spread of 25 and smoke developed of 25.
  - d. Fire Resistant Softwood Plywood:
    - 1) Grade A, Exterior, plywood for treatment.
    - 2) Surface Burning Characteristics: When tested according to ASTM E84.
      - a) Flame spread: 0 to 25.
      - b) Smoke developed: 100 maximum.
  - e. Fire Resistant Hardwood Plywood:
    - 1) Core: Fire retardant treated softwood plywood.
    - 2) Hardwood face and back veneers untreated.
    - 3) Factory seal panel edges.
- C. Plywood:
  - 1. Softwood Plywood: DOC PS1.
    - a. Plywood, 13 mm (1/2 inch) and thicker; minimum five ply construction, except 32 mm (1-1/4 inch) thick plywood minimum seven ply.

- b. Plastic Laminate Plywood Cores:
      - 1) Exterior Type, and species group.
      - 2) Veneer Grade: A-C.
    - c. Shelving Plywood:
      - 1) Interior Type, any species group.
      - 2) Veneer Grade: A-B or B-C.
    - d. Other: As specified for item.
  - 2. Hardwood Plywood: HPVA: HP.1.
    - a. Species of Face Veneer: As shown or as specified with each particular item.
    - b. Grade:
      - 1) Transparent Finish: Type II (interior) A grade veneer.
      - 2) Paint Finish: Type II (interior) Sound Grade veneer.
    - c. Species and Cut: Plain sliced red oak unless specified otherwise.
- D. Particleboard: NPA A208.1, Type 1, Grade 1-M-3.
  - 1. Plastic Laminate Particleboard Cores:
    - a. Type 1, Grade 1-M-3, unless otherwise specified.
    - b. Type 2, Grade 2-M-2, exterior bond, for tops with sinks.
- E. Building Board (Hardboard):
  - 1. ANSI/AHA A135.4, 6 mm (1/4 inch) thick unless specified otherwise.
  - 2. Perforated hardboard (Pegboard): Type 1, Tempered perforated 6 mm (1/4 inch) diameter holes, on 25 mm (1 inch) centers each way, smooth surface one side.
- F. Plastic Laminate: NEMA LD-3.
  - 1. Exposed Laminate Surfaces including Countertops, and Sides of Cabinet Doors: Grade HGL.
  - 2. Cabinet Interiors including Shelving: NEMA, CLS as a minimum, with the following:
    - a. Plastic laminate clad plywood or particle board.
    - b. Resin impregnated decorative paper thermally fused to particle board.
  - 3. Plastic Laminate Covered Wood Tops Backing: Grade HGP.
  - 4. Postformed Surfaces: Grade HGP.

### 2.3 PRODUCTS - GENERAL

- A. Provide each product from one manufacturer and from one production run.
- B. Sustainable Construction Requirements:

1. 50% Recycled Content: 50% percent post-consumer total recycled content, minimum. Select products with recycled content to achieve overall Project recycled content requirement.
2. Low Pollutant-Emitting Materials: Comply with VOC limits specified in Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS for the following products:
  - a. Non-flooring adhesives and sealants.
  - b. Aerosol adhesives.
  - c. Paints and coatings.
  - d. Wall base and accessories.
  - e. Composite wood and agrifiber.
- C. Acoustical Panel: Fabric-covered glass fiber panel.
  1. NRC 19 mm (3/4 inch) adhesive mounting direct to substrate.
  2. Glass Fiber Panel: 25 mm (1 inch) thick minimum, self-supporting of density required for minimum NRC.
  3. Fabric: Bonded directly to glass fiber panel face, flat wrinkle-free surface, stain and soil resistant.
  4. Adhesive: As recommended by panel manufacturers.

## **2.4 FABRICATION**

- A. General:
  1. AWI Custom Grade for interior millwork.
  2. Finish woodwork, free from pitch pockets.
  3. Trim, standard stock molding and members of same species, except where special profiles are shown.
  4. Plywood, minimum 13 mm (1/2 inch), unless otherwise shown on Drawings or specified.
  5. Edges of members in contact with concrete or masonry having a square corner caulking rebate.
  6. Fabricate members less than 4 m (14 feet) in length from one piece of lumber, back channeled and molded as shown.
  7. Fabricate interior trim and items of millwork to be painted from jointed, built-up, or laminated members, unless otherwise shown on Drawings or specified.
  8. Plastic Laminate Work:
    - a. Factory glued to either a plywood or a particle board core, thickness as shown on Drawings or specified.
    - b. Cover exposed edges with plastic laminate, except where aluminum, stainless steel, or plastic molded edge strips are

shown on drawings or specified. Use plastic molded edge strips on 19 mm (3/4 inch) thick or thinner core material.

- c. Provide plastic backing sheet on underside of countertops, vanity tops, including back splashes and end splashes of countertops.
- d. Use backing sheet on concealed large panel surface when decorative face does not occur.

B. Seats and Benches:

- 1. Fabricate from 50 mm (2 inch) stock strips of plain-sawed White Oak, or Maple.
- 2. Solid seats securely glued together of spliced, doweled, or double tongued and grooved wood pieces. Where open joints are indicated, work each wood piece from solid stock.
- 3. Round top edges and corners where exposed.

C. Plastic Laminate Counter or Work Tops:

- 1. Thickness: 32 mm (1-1/4 inch) thick core unless shown otherwise.
  - a. Edges:
    - 1) Decorative laminate for exposed edges of tops, back, and endsplash, 38 mm (1-1/2 inches) wide.
    - 2) Plastic or metal edges for top edges less than 38 mm (1-1/2 inches) wide.
  - b. Assemble backsplash and end splash to counter top.
  - c. Use one piece counters for straight runs.
  - d. Miter corners for field joints with overlapping blocking on underside of joint.
- 2. Fabricate wood counter for work benches as shown on Drawings.

## 2.5 ACCESSORIES

A. Hardware:

- 1. Rough Hardware:
  - a. Provide 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.
  - b. Fasteners:
    - 1) Bolts with Nuts: FF-N-836.
    - 2) Expansion Bolts: A-A-1922A.
    - 3) Screws: Fed. Spec. FF-S-111.
- 2. Finish Hardware:



a. Cabinet Hardware: ANSI A156.9.

- 1) Door/Drawer Pulls: B02011. Door in seismic zones: B03182.
- 2) Drawer Slides: 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.
- 3) Sliding Door Tracks: B07063.
- 4) Adjustable Shelf Standards: B4061 with shelf rest B04083.
- 5) Concealed Hinges: B1601, minimum 110 degree opening.
- 6) Butt Hinges: B01361, for flush doors, B01381 for inset lipped doors, and B01521 for overlay doors.
- 7) Cabinet Door Catch: B0371 or B03172.
- 8) Vertical Slotted Shelf Standard: B04103 with shelf brackets B04113, sized for shelf depth.

b. Auxiliary Hardware: ANSI A156.16.

B. Adhesive:

1. Plastic Laminate: Fed. Spec. A-A-1936.
2. Interior Millwork: Unextended urea resin, unextended melamine resin, phenol resin, or resorcinol resin.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
- C. Clean substrates. Remove contaminants capable of affecting subsequently installed product's performance.

**3.2 INSTALLATION**

A. Installation:

1. Prime millwork receiving transparent finish and back-paint concealed surfaces.
2. Fasten trim with fine finishing nails, screws, or glue as required.
3. Set nails for putty stopping. Provide washers under bolt heads where no other bearing plate occurs.
4. Seal cut edges of 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. Apply adhesive uniformly for full contact between plastic laminate and substrate.

### **3.3 CLEANING**

- A. Remove excess adhesive before adhesive sets.
- B. Clean exposed surfaces. Remove contaminants and stains.
- C. Touch up damaged factory finishes.
  1. Repair painted surfaces with touch up primer.

### **3.4 PROTECTION**

- A. Protect finish carpentry from traffic and construction operations.
- B. Cover finish carpentry with reinforced kraft paper, and plywood or hardboard.
- C. Remove protective materials immediately before acceptance.
- D. Repair damage.

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