MILLWORK

PART ONE: GENERAL

1.1 Description

1.1.1 Work of this Section, as shown or specified, shall be provided by the Interior Contractor and shall be in accordance with the requirements of the Contract Documents.

1.1.2 Work includes coordination, fabrication, and installation of all Millwork, wood cabinets, panelwork, counters, and shelving as shown on the drawings and as specified herein.

1.1.3 Related work in other Sections:

a. Casework - Section 12302

b. Finish Carpentry - Section 06200

c. Plastic Laminate - Section 06240

d. Glass and glazing - Section 08800

e. Metal - Section 12654

f. Wood - Section 12655

1.2 Submittals

1.2.1 All submittals shall be made according to Section 01300 and as described herein.

1.2.2 Submit the following for each item of Millwork:

a. Shop Drawings, indicating fabrication and installation methods, to include plans and elevations at not less than 1/2" = 1'-0" (1:20) scale and details at not less than 3" = 1'-0" (1:5) scale. Indicate required anchorage and blocking, accessory items, field dimensions, materials and finishes. Indicate compliance with specification requirements.

b. Manufacturer's Product Data for all specialty items not manufactured by the Millwork Fabricator.

c. Two samples of each species of specified wood, cut and finish. Samples shall be minimum 12" x 12" (300MM X 300MM) (or full member width and thickness) finished as specified on one face, one edge, and one end. Samples shall be fire-retardant treated wood where such has been specified or is required by code. Review will be for color and texture only; compliance with other requirements is responsibility of Interior Contractor. Samples of finishes shall be applied on the appropriate wood or base material as will occur in the final Millwork item when installed.

d. A minimum of three different flitches of any and all veneers specified shall be submitted to the Consultant for approval unless veneers have been previously selected by Consultant and herein specified. Flitches shall indicate the color, grain, texture, and finish range to be expected in the Project.

e. Where variations in wood and finish may occur, a minimum of three variations showing extremes which may be expected of any and all wood finishes as specified shall be submitted to the Consultant for approval. Minimum size: 12" x 20" (300 MM X 500 MM).

f. Where required by the Owner or Consultant, the Interior Contractor shall provide full size mock-up of panel or millwork assembly for approval.

g. Interior Contractor shall submit to the Consultant three samples 20" (500MM) minimum length, of all mouldings and/or moulding assemblies to be used for the Project. These shall be full size and finished as specified in the Contract Documents.

1.3 Quality Assurance

1.3.1 Comply with applicable provisions for Premium Grade as defined in the latest edition of the AWI Quality Standards for all materials, fabrication and workmanship for all work of this Section.

1.3.2 All work of this Section shall be performed by skilled mechanics of the trade and shall be of the highest quality. Comply with applicable Industry

Standards for all work and materials as specified. Such Industry Standards are to include but not be limited to the applicable provisions or standards of the following:

a. American Society for Testing and Materials (ASTM):

E-84-70	Test for Surface Burning Characteristics of Building Materials.

b. Federal Specifications (FedSpec):

FF-N-105B(2)	Nails, Brads, Staples and Spikes: Wire Cut and Wrout.
FF-S-111C(1)	Screws, Wood

c. U.S. Department of Commerce:
Product Standard (PS) 1-66 Softwood Plywood, Construction and Industrial.
Product Standard (PS) 20-70 American Softwood Lumber Standard.

d. Architectural Woodwork Institute (AWI):
Quality Standards and Guide Specification, latest edition. (Premium Grade).

e. National Electrical Manufacturers Association (NEMA):

LD-3-1975	Laminated Plastic Specification.

f. National Hardwood Lumber Associate (NHLA).

g. National Particleboard Association (NPA).

h. American Plywood Association (APA) plywood grades:
1. for softwood plywood: Product Standard PS-1
2. for hardwood plywood: Product Standard PS-51

1.3.3. The Interior Contractor shall be responsible for obtaining and complying with all Code and regulatory agencies for materials and methods. He shall also be responsible for obtaining permits and approvals.

1.3.4 The Interior Contractor shall be responsible for accurately obtaining all field dimensions related to his work prior to fabrication. Where discrepancies are found, he shall notify the

Consultant immediately in writing.

1.3.5 All Millwork materials and completed Millwork shall be stored in a dry, ventilated place, protected from the weather and complying with the temperature and humidity conditions specified by AWI Quality Standards.

1.3.6 Protect sanded and finished surfaces from soiling and damage during handling and installation.

1.3.7 Maintain requirements for heating, cooling and ventilation in installation areas as required to reach relative humidity necessary to maintain optimum moisture content specified for Millwork by AWI Standards.

1.3.8 Provide temporary protection of all Millwork as required to protect work from damage.

PART TWO: PRODUCTS

2.1 Materials

2.1.1 All woodwork materials shall be new and shall conform to the Premium Grade requirements of the AWI Quality Standards, latest edition.

2.1.2 All lumber shall be kiln-dried to the average moisture content as recommended by the AWI Quality Standards, latest edition appropriate for the regional climatic conditions of the project site.

2.1.3 All solid wood elements shall be clear, straight-grain lumber of the best grade of specified species as listed by the NHLA. Lumber shall be free of any defects which might impair serviceability, aesthetics, and/or finish. Solid wood elements shall also be according to the following, unless indicated otherwise on drawings and/or specifications:

a. Specie of Face Woods receiving transparent finishes shall be as specified on the drawings and shall be selected for specified grain with uniform color and grain suitable for use with the finished plywood with which it is used.

b. Face Woods receiving opaque finishes shall be Birch, Poplar, or Custom Grade but otherwise shall have same specification as solid stock for Face Woods above.

c. Unexposed woods shall be Custom Grade Poplar, kiln dried unexposed woods come into contact with drawers, they shall be Birch or Maple, unselect.

2.1.4 All veneer core elements shall be clear straight-grain lumber of the best grade of the specified species as listed by the N.H.L.A. Lumber shall be free of any defects which might impair serviceability, aesthetics, and/or finish. Where veneer differs on two sides, veneers shall be of similar thickness, density, and characteristics to prevent any warpage. Veneer core elements shall also be according to the following, unless indicated on drawings or specifications:

a. Adhesives shall be water-resistant resin or approved equal; process shall be hot plate method using the following number of plys to achieve specified thickness:

1. 1/4" (6 mm) overall thickness shall be of 3-ply veneer core construction.

2. 3/8" (9 mm) overall thickness shall be of 5-ply veneer core construction.

3. 1/2" (12 mm) overall thickness shall be of 5-ply veneer core construction.

4. 3/4" (20 mm) overall thickness shall be of 7-ply veneer core construction.

5. 1" (25 mm) overall thickness shall be of 9-ply veneer core construction.

b. Where burl panels are specified core must be crossbanded with Poplar prior to applying burl veneer.

c. Provide Douglas or Poplar Fir V-type solid edge trim on all exposed edges of plywood not

designated to be surfaced by plastic laminate.

d. For Face Woods receiving transparent finishes, Species shall be as specified on drawings; faces shall be selected and matched by the Interior Contractor/Vendor with respect to cutting lengths, uniformity of color, figure, and grain character. Face veneers shall not contain open joints, face depressions, glue stain or other manufacturing irregularities.

e. Face Woods receiving opaque finishes shall have custom grade (face veneer) Birch or Poplar, selected, but otherwise shall have same specification as Plywood for Face Woods (Paragraph 2.1.4.a).

f. Unexposed woods shall be Birch, Poplar or Douglas Fir, rotary cut, Unselect, good one side, interior type plywood, one side Grade A and one side Grade B; Grade A faces shall not contain plugs, knots, pitch pockets, splits, rough grain or other open defects.

g. Wood for plastic lamination shall be minimum 3/4" (20 mm) Mahogany face core plywood, good one side.

2.1.5 All particle board shall be resin impregnated wood flakes of high density construction as manufactured by U.S. Plywood Corporation, Shasta Division, Redding, California, or approved equal and shall be 3/4" (20mm) minimum thickness, unless otherwise specified.

a. For Enameled Face Woods: High density particle board may be substituted for plywood panels, unless specified otherwise on drawings.

b. For Unexposed Woods: High density particle board may be substituted for plywood panels, unless specified otherwise on drawings.

2.1.6 All masonite shall be 1/8" (3 mm) thick tempered, as manufactured by Masonite Corporation, Chicago, Illinois, or an approved equal.

2.1.7 All pegboard shall be 1/8" (3 mm) thick tempered as

manufactured by Masonite Corporation, Chicago, Illinois, unless otherwise specified.

2.1.8 All panelwork materials shall be as indicated on drawings and specifications constructed of 3/4" (20 mm) plywood (or high density particleboard) with finish veneer front side, and veneer of similar thickness, density and characteristics back side, and hardwood edges. Finish veneer and hardwood edges shall be of species indicated on drawings and specifications using the type of veneer cut and type of match between individual veneer pieces as indicated.

2.1.9 All Millwork shall be finished as indicated on drawings and specifications. Transparent and Opaque Finishes shall match approved samples submitted according to Section 01300 and Paragraph 1.2 above. All plastic laminate finishes shall be of the quality, color and finish as indicated on the drawings and specifications.

2.2 Finishes

2.2.1 All millwork shall be finished in accordance with the drawings, specifications and the quality levels indicated in Section 1.3. and as described herein.

2.2.2 All finishes shall be in compliance with all Code and Regulatory Agency requirements for the Project and location within in the Project.

2.2.3 All finish materials shall be treated with flame-retardant process where required by local code. Should flame-retardant process cause change in color and effect on finish material, Interior Contractor shall notify the Consultant.

2.2.4 Prior to finishing woods shall be filled, sanded, primed, and cleaned. When necessary for an even final finish color bleach woods prior to filling and sanding.

2.2.5 Transparent finishes on wood shall be full filled, stained to match the color required by the Consultant, and have a water, alcohol, and burn resistant finish, the degree of sheen to match the sample provided by the Consultant.

2.2.6 All paint and other finish material shall be pure, unadulterated and best quality from specified manufacturer as indicated on the drawings and specifications.

2.3 Hardware and Accessories

2.3.1 Where products are not specified in the Contract Documents the Interior Contractor shall recommend hardware to provide the function or condition indicated in the Documents. Hinges, screws, slips, and all other mountings, attachments, and fasteners to be concealed unless otherwise noted.

2.3.2 All Millwork hardware and accessories shall be furnished and installed by Millwork Contractor and shall be as indicated on drawings and specifications.

2.3.3 Interior Contractor shall submit samples of each hardware item/type and accessory item/type to Consultant for approval according to Paragraph 1.2 above and Section 01300.

2.3.4 All Millwork hardware and accessories shall be installed in accordance with manufacturer's recommendations.

2.3.5 All hardware shall be provided with necessary facilities for locking, unless otherwise specified. Locks shall be flush mounted unless noted otherwise. All locks shall be furnished with two (2) keys and all locks shall be masterkeyed. Unless otherwise specified, doors with die-stamped door pulls shall not require locking devices, unless otherwise specified.

2.4 Other Materials

2.4.1 Interior Contractor shall be responsible for providing and installing all items and materials as indicated on drawings and specifications comprising all or part of the Millwork shown. Such items and materials shall be fabricated and/or installed according to manufacturer's recommendations and comply with applicable AWI Quality Standards and Industry Standards.

2.4.2 Such items and materials may include but not be necessarily limited to the following and shall comply with the requirements indicated unless indicated otherwise on drawings and specs:

a. Conduit, Flexible: Shall be fabricated of zinc-coated steel used in continuous runs with approved fittings at connections to ballast or utility boxes.

b. Conduit, Rigid: Shall be fabricated of steel, zinc-coated inside and out by sherardizing, hot-dipping or metallic process. Conduit shall be attached to ballast or utility boxes with double lockouts, bushings, or approved fittings.

c. Outlet Boxes and Plates: Shall be one piece pressed steel, zinc or cadmium plates, knock-out type and shall be provided with necessary extension and/or plaster rings. Cover plates shall be as specified. Switches and outlets shall match cover plates.

d. Receptacles: Shall be 3-wire polarized type Switch-Lock design as manufactured by Harvey-Hubbell, Inc., Bridgeport, Connecticut, or approved equal. Maximum load for duplex receptacle shall be 10 amps. total. Maximum load for single receptacle shall be 20 amps. Receptacle plates and receptacles to have finish as specified by Consultant. Ground fault outlets required in all damper wet locations.

e. Junction Boxes: Shall be minimum 4" (100 MM) octagon or square and in no case smaller than size required by local ordinance.

f. Lights: Shall be U.L. approved. Unless specified otherwise, lamps shall be slim-line type T-6 furnished and installed in reflector as shown on drawings. All slim-line lamps shall be Deluxe warm white, unless otherwise specified. Interior Contractor shall be responsible for providing lighting in Millwork items unless otherwise noted.

g. Ballasts: Shall be U.L. approved 430 MA for all areas except cocktail lounge area, which shall be

120 MA. Ballast shall be located in an accessible area, or as indicated on drawings and specifications.

h. Gaskets: For low temperature seal shall be replaceable extruded or molded live rubber of such nature as not to absorb moisture or harden at low temperatures. Gaskets shall be shaped with flat mounting surfaces and sealed to prevent harborage of vermin. Gaskets used in conjunction with magnetic doors shall be as per drawings and as specified.

i. Glass and related items: Unless specified otherwise in drawings and specifications shall be in accordance with Section 08800 and as follows:

1. All glass shall bear the label of its manufacturer and shall conform in all respects with the pertinent requirements of Fed. Spec. DD-G-1403 for tempered and heat strengthened glass and DD-G-451 for float and wire glass.

   a. Float Glass - Type I, Quality Q3.

   b. Tempered Glass: Provide prime glass of color and type indicated, which has been heat treated to strengthen glass in bending to not less than 4.5 times annealed strength. Where sandblasting, etching, carving, or beveling are required, those processes may be done prior to tempering.

   c. Mirror Glass - 1/4" (6MM) thick, type I, class 1, Quality q^2, conforming to U. S. Federal Specification FS-DD-G-451, free from bubbles, waves, or other defects. Silver coating and protective electrolytic copper coating shall be not less than .0002" thick, complying with CS27. Paint mirror back surface with 2 coats of manufacturer's special mirror backing paint totaling 2.0 mils dry film thickness. Glass to have ground smooth

and polished eased square edges, unless specified otherwise in drawings and specifications. All mirrors shall be guaranteed against silver oxidation.

d. Refer to Drawings for glass thickness, glass shall be not less than 1/4" (6MM) thick.

2. Float Glass Cement and/or mirror mastic shall be as recommended by the Glass and/or Mirror manufacturer respectively and shall be compatible with the surfaces contacted.

3. Provide putty, gaskets and glazing sealant as specified and as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are known (proven) to be fully compatible with surfaces contacted. Color shall be as specified on drawings and specifications; submit 3, 12" (300 MM) long samples of each color required for each type of glazing sealant exposed to view. Install sample between two strips of material similar to or representative of channel surfaces where sealant will be used, held apart to represent typical joint widths. Samples will be reviewed by Consultant for color and texture only. Compliance with other requirements is the exclusive responsibility of the Interior Contractor. Attachment of mirror shall be invisible where possible. Where visible slips or attachments must be used details for attachment and the slips must be approved by Consultant.

4. Provide only laminated or tempered glass.

5. Interior Contractor to coordinate with Operator and Owner in providing warnings in guestrooms where laminated or tempered glass top tables are in use.

j. Marble, Granite, Travertine, and Stone: Provide in accordance with Section _____, the drawings

and specifications and as follows:

1. Where the term "Marble" is used it shall mean marble, granite, travertine or interior stone.

2. Thickness of marble shall be as indicated on drawings and specifications. Minimum thickness shall be 3/4" (20 MM). Where materials are to be thicker than 3/4' (20 MM), cubic or built-up for 3/4" (20 MM) materials may be used. Where built-up sections are used construction and details must be submitted to and approved by the Consultant.

3. Interior Contractor shall submit three samples of each marble prior to fabrication in accordance with Section 0130. Samples shall show proposed surface texture, finish, and edge detail and shall be of sufficient size to show full range of color and pattern - 12" X 12" (300MM X 300MM) minimum.

4. Interior Contractor shall submit sample of each marble profile specified.

5. Interior Contractor shall submit three (3) samples of each grout to be used.

6. All marble must be treated with penetrating sealer and protective top coat. Marble/sealer shall be burn, water and alcohol resistant. Interior Contractor shall submit Manufacturer's literature for approval by Consultant.

k. All adhesives, glues, and mastic shall be as recommended for the required application and condition of installation in each case by the manufacturer of the material/item being adhered and meet Premium Grade/Best Quality Industry Standards. Only compounds which are proven to be fully compatible with surfaces contacted shall be used. Conditions which must be accommodated, with approved adhesives, may include but not be limited to the following:

1. Mirror and Glass Setting: Mirror-Mastic as

manufactured by 3M Company.

2. Sealant: Formula EC-152 as manufactured by 3M Company, "butter-test" and shall be non-odorous.

3. Load Bearing: Weldwood Plastic Resin Glue as manufactured by U. S. Plywood Corporation.

4. Moisture Areas: Weldwood Plastic Resin Glue as manufactured by U. S. Plywood Corporation.

5. Plastic Laminating: As recommended by Laminate manufacturer.

l. Insulation shall be as required by the application and condition of installation in each case. Provide material, type, and density for the required insulating as recommended by the insulation manufacturer for the use indicated. Fiberglass may be used for insulation against heat; Rigid Polystyrene Foam may be used for insulation against cold; Approved manufacturers are as follows:

Manville
Owens-Corning
Dow

All insulation shall meet all applicable codes, standards, and regulations for the Millwork use indicated.

m. All resilient covering materials shall be as specified and shall be applied as per manufacturer's recommendations.

n. Upholstery material shall be as indicated on the drawings and specifications.

o. Wallcovering material shall be as indicated on the drawings and specifications and shall be applied as per manufacturer's recommendations.

PART THREE: EXECUTION

3.1 Examination of Conditions

3.1.1 The Interior Contractor shall be responsible for examination of the substrate and the conditions under which the work under this section is to be performed. Do not proceed with the work under this section until unsatisfactory conditions have been corrected.

3.2 Fabrication

3.2.1 All work shall be performed in such manner as to fulfill the intent of the drawings and specifications.

3.2.2 All items to be mill fabricated per AWI Premium Grade specifications and according to the sizes and designs indicated on the drawings and specifications, and assembled in single and complete units insofar as the dimensions thereof will permit shipment to and installation at the building. Large pieces requiring sectional construction shall have their several parts accurately fitted and aligned with each other and be provided with ample screws, glue and bolt blocks, tongues, grooves and splines, dowels, mortises and tenons, screws, bolts, or suitable means of concealed fastening, as required to render the work substantial, rigid and permanently secured in proper position to each related section.

3.2.3 Where necessary to fit at site provide ample allowance for cutting and fitting. Sufficient additional material shall be allowed to permit accurate scribing to walls, floors and related work; and due allowance made wherever possible for such shrinkage as may develop after installation. All single and sectional units shall be provided with adequate cleating, blocking, crating and other forms of protection as required to preclude damages thereto during shipping and handling.

3.2.4 Framing and blocking members shall be assembled with bolted and screwed connections, and shall be

secured to the structural backings with expansion screws, or toggle bolts, as required, spaced and installed so as to insure ample strength and rigidity. Rails and stiles shall be mortised and tenoned, work neatly mitered and membered, all butt joints made flush and smooth, and all permanent joints made up with water-resistant glue. All fixtures shall be assembled without face screws or nails, except where it may be necessary to attach trim items. All face screws or nails which are necessary to attach trim items shall be countersunk and plastic wood or wood plugs used to cover heads, and the plug neatly touched up. The heads of all screws used in any assembly shall be countersunk below the surface.

3.2.5 On Millwork whose face is to receive a transparent finish, all exposed surfaces of wood and/or plywood behind closed doors (i.e. millwork interior) shall be sanded smooth, given one coat of transparent finish, and two coats of clear polyurethane varnish in the mill before shipping to job site. The transparent finish shall match the face finish unless indicated otherwise on drawings and specifications.

3.2.6 On Millwork whose face is to receive an opaque finish, or to be finished with plastic laminate, all exposed surfaces of wood and/or plywood behind closed doors (i.e. millwork interior) shall be sanded smooth and given two coats of semi-gloss paint in the mill before shipping to job site. The color of the paint shall match the opaque face finish or plastic laminate face finish unless indicated otherwise on drawings or specifications.

3.2.7 All items where paint is required shall be shop spray finished except where impractical or otherwise specified.

3.2.8 Backsides of all Millwork cabinets, counters and shelving concealed by the building shall be given a prime coat of paint, color to closely approximate the value and hue of the face finish.

3.2.9 All shelving shall be adjustable unless indicated otherwise on drawings and specifications.

3.2.10 Plastic Laminate edges shall be square, self-edged, or postformed as indicated on drawings. Metal trim is not acceptable. Edges shall be neatly beveled, joints shall be minimized in quantity and be made to a smooth hairline and puttied. Appearance of unsightly or excessive joints will be cause for rejection.

3.3 Installation

3.3.1 Install all Millwork straight, plumb, level and in true alignment except where otherwise indicated. Fit all joints closely and fasten all pieces rigidly in place. Nails shall be finish or casing nails. Countersink nail heads and leave ready for putty. Joints shall be neatly matched and mitered. Fill exposed joints prior to jointing.

a. Finished size shall be as indicated on the drawings.

b. Surfaces shall be left free from hammer marks, free from warp, twist, open joints or other defects and shall be cleaned, scraped and sanded ready for finishing.

c. Lengths of all running trim shall be as long as practical.

d. Shim as required using concealed shims.

3.3.2 Cut Millwork to fit unless specified to be shop-fabricated or shop-cut to exact size. Where Millwork abuts other finished work, scribe and cut for accurate fit. Before making cutouts, drill pilot holes at corners.

3.3.3 Distribute defects allowed in the quality grade specified to the best overall advantage, when installing job assembled Millwork items.

3.3.4 Install trim and moldings in single, unjointed lengths for openings and for runs less than maximum length of lumber available. For longer runs, use only one piece less than maximum length available in any straight run. Stagger joints in adjacent members.

3.3.5 Attach Millwork securely in place with uniform joints providing for thermal and building movements. Attach to substrates by anchoring and fastening as shown, as required by recognized standards, and as follows:

a. Nailing: Blind nail where possible. Use fine finishing nails where exposed. Set exposed nail heads for filling except for exterior wood which is to receive a natural finish (if any).

b. Anchoring: Secure millwork to anchors or blocking built-in or directly attached to substrates.

3.3.6 Where finishes are applied at job site, clean Millwork and fill nail holes in preparation for finishes application. Where Millwork is to receive a transparent finish, use matching wood filler.

3.3.7 For Fire-Retardant Millwork, handle, store and install in accordance with manufacturer's direction and as required to meet the required classification or rating. Provide special fasteners, adhesives and other accessories as tested and listed for the type of fire-retardant work indicated. Re-coat any and all cut surfaces with a heavy brush coating of the same compound used for wood treatment.

3.3.8 Fit Millwork to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow proper support.

3.4 Cleaning and Protection

3.4.1 Clean shop finished Millwork, touch-up finish as required and remove and refinish damaged or soiled areas of finish.

3.4.2 Provide temporary boxing as required and protect installed Millwork from damage by work of other trades until Owner's acceptance of the work. Subcontractor to advise Interior Contractor of procedures and

precautions for protection of materials and installed Millwork from damage and of the required temperature/humidity conditions which must be maintained during the remainder of the construction period in areas of Millwork installations.

END OF SECTION