

## **1 General**

### **1.1 SUMMARY**

- .1 Provide architectural woodwork including but not limited to following:
  - .1 Architectural cabinet casework.
  - .2 Architectural cabinet casework drawers, doors and shelves
  - .3 Countertops.
  - .4 Architectural cabinet casework hardware.
  - .5 Glass divider screens in architectural casework .
  - .6 Window shade fascia panels at Rooms #\_\_\_\_\_.
  - .7 Plastic laminate wood paneling.
  - .8 Trim and moldings.
  - .9 Solid phenolic tops.
- .2 Provide architectural woodwork at following locations and as shown on drawings:
  - .1 Room #\_\_\_\_\_.

### **1.2 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 61 00 - Common Product Requirements.
- .3 Section 05 50 00 - Metal Fabrications.
- .4 Section 06 47 00 - Plastic Laminate Finishing.
- .5 Section 07 92 00 - Joint Sealants.
- .6 Section 08 80 00 - Glazing. Glass and Glazing.
- .7 Section 09 21 16 - Gypsum Board Assemblies.
- .8 Section 09 65 13 - Resilient Base and Accessories.
- .9 Section 09 65 16 - Resilient Sheet Flooring.
- .10 Section 09 65 19 - Resilient Tile Flooring.
- .11 Section 09 91 00 - Painting.
- .12 Division 26 - Electrical: Outlets and Wiring

### **1.3 REFERENCES**

- .1 American National Standards Institute (ANSI)
    - .1 ANSI A208.1-99, Particleboard.
    - .2 ANSI/NEMA LD 3-2005, High-Pressure Decorative Laminates.
    - .3 ANSI/NEMA LD 3.1-2005, Application, Fabrication, and Installation of High-Pressure Decorative Laminates.
  - .2 American Society for Testing and Materials (ASTM)
    - .1 ASTM E1333-96, Test Method for Determining Formaldehyde Concentrations in Air and Emissions Rates from Wood Products Using a Large Chamber.
    - .2 ASTM E84-08a, Test Method for Surface Burning Characteristics of Building Materials.
  - .3 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
    - .1 AWMAC Quality Standards for Architectural Woodwork 1994.
    - .2 Architectural Woodwork Standards (AWS) 2009 Edition.
  - .4 Canadian General Standards Board (CGSB)
    - .1 CAN/CGSB-11.3-M87, Hardboard.
  - .5 Canadian Standards Association (CSA)
    - .1 CAN3-A172-M79, High Pressure Paper Base, Decorative Laminates.
    - .2 CSA B111-74(R1998), Wire Nails, Spikes and Staples.
    - .3 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped
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Articles.

- .4 CSA O121-M78(R1998), Douglas Fir Plywood.
- .5 CAN/CSA O141-91(R1999), Softwood Lumber.
- .6 CSA O151-M78 (R1998), Canadian Softwood Plywood.
- .7 CSA O112 Series-M77(R2001), CSA Standards for Wood Adhesives.
- .8 CAN/ULC-S102-07, Standard Method of Test for Surface Burning.
- .6 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2000.
- .7 NEMA, National Electrical Manufacturers Association.
- .8 Canadian Electrical Code

#### 1.4 SYSTEM DESCRIPTION

- .1 Design Requirements:
  - .1 Millwork casework (e.g. countertops, wall cabinets, cabinet drawers and similar items) shall be capable of supporting structural loads without deflection in accordance with Casework Integrity Tests in Appendix A of AWS.
  - .2 Design casework shelves for uniformly distributed loads as follow:
    - .1 Other horizontal surfaces: 1.9 Kilopascals
    - .2 Closet shelves: 1.197 Kilopascals
    - .3 Bookshelves: 1.915 Kilopascals
  - .3 Without limitations, in particular ensure:
    - .1 Millwork counter tops, are capable of supporting 907 kg.
  - .4 Minimum nominal thickness and material for cabinet components and shelf deflection, type of materials, thicknesses, span width and total load distribution shall be in accordance with Architectural Woodwork Standards.

#### 1.5 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's literature, data sheets for each type of material provided under this Section for project.
  - .2 Data sheets shall provide all required information.
  - .3 Submit required copies of detailed instructions for maintaining, preserving and keeping materials in clean and safe conditions and give adequate warning of maintenance practices or materials detrimental to specified materials.
  - .4 Submit manufacturer's installation instructions.
- .3 Material Safety Data Sheets:
  - .1 Submit MSDS for inclusion in Operation and Maintenance Manual.
- .4 Shop Drawings:
  - .1 Clearly indicate material being supplied and show connections, attachments, reinforcing, anchorage and location of exposed fastenings in accordance with AWS Section 1.

#### 1.6 QUALITY ASSURANCE

- .1 Qualifications:
  - .1 Provide Work of this Section executed by competent installers with minimum 5 years experience in the application of products, systems and assemblies specified and be a member of AWI/AWMAC/WI in good standing for 2 years.
- .2 Provide Work of this Section in accordance with Architectural Woodwork Standards (AWS), except as specified otherwise herein and by reference are hereby made a part of this Section.

- .3 Any reference to grades and terminology in this Section shall be as defined in "AWS".
- .4 Regulatory Requirements:
  - .1 Fire-Test-Response Characteristics:
    - .1 Where fire-retardant materials are indicated, provide materials with specified fire-test-response characteristics as determined by a testing and inspecting agency acceptable to authorities having jurisdiction.
    - .2 Identify materials with appropriate markings of applicable testing and inspecting agency on surfaces of materials that will be concealed from view after installation.
  - .2 No added urea-formaldehyde during manufacturing process.
- .5 Pre-Installation Meetings:
  - .1 Prior to start of work, arrange for site meeting of all parties associated with work of this Section presided over by Contractor, including Departmental Representative, Subcontractor performing Work of this trade.
  - .2 Review Contract Documents for Work included under trade and determine complete understanding of requirements and responsibilities relative to Work included, storage and handling of materials, materials to be used, Installation of materials, sequence and quality control, project staffing, restrictions on areas of work and other matters affecting construction, to permit compliance with intent of this Section.
- .6 Coordination with Mechanical, Electrical and Communication Services:
  - .1 As a requirement of this Section, allow access to shop by associated trades for purpose of performing pre-wiring and partial mounting of electrical and audio/visual equipment and concealed wiring to the required by the design.
  - .2 Exposed wiring is not acceptable.

#### **1.7 FABRICATION**

- .1 Fabricate finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC).

#### **1.8 DELIVERY, STORAGE AND HANDLING**

- .1 Do not deliver finished products during rainy or damp weather.
- .2 Do not deliver Work of this Section until building and storage areas are sufficiently dry so products will not be damaged by excessive changes in moisture content.
- .3 Deliver, store and handle products of this Section in accordance with AWS Section 2.
- .4 Do not deliver and install damaged products. Replace in accordance with requirements of this Section.
- .5 Cover finished plastic laminate surfaces and varnished surfaces with heavy kraft paper and put in cartons for protection.
- .6 Protect installed plastic laminate surfaces by acceptable means.
- .7 Do not remove protective covers until immediately prior to final cleaning.

#### **1.9 PROJECT CONDITIONS**

- .1 Ensure project conditions conforms to requirements of AWS Section 2.
- .2 Moisture contents of wood at time of installation shall be for interior locations at established Optimum Moisture Content and Optimum Indoor Relative Humidity as outlined in AWS Section 2, Item 1.2.3.

#### **1.10 WARRANTY**

- .1 Warrant Work of this Section for period of 2 years against defects and/or deficiencies in accordance with General Conditions of the Contract.
  - .2 Promptly correct any defects or deficiencies which become apparent within warranty
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- period, to satisfaction of Departmental Representative and at no expense to Owner.
- .3 Defects include but are not limited to; delamination of plastic laminate, opening of seams, warpage and extensive colour fading.

## **1.11 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.
- .4 Remove waste materials from site in accordance with Infection Control requirements.
- .5 Set aside damaged wood for acceptable alternative uses (e.g. bracing, blocking, cripples, bridging, finger-joining, or ties).

## **2 Products**

### **2.1 MATERIALS**

- .1 Composite wood and agrifibre products, including core materials, to contain no added urea-formaldehyde resins.
- .2 Adhesives used to fabricate laminated assemblies containing these products to contain no added urea-formaldehyde.
- .3 Architectural Lumber:
  - .1 Conform to AWS Section 3.
  - .2 Clear, straight, kiln dried, Premium Grade Natural Birch for fitments and door jambs.
  - .3 Provide kiln dried lumber to 7% moisture content, free from blemishes that would be apparent after finish is applied.
- .4 Softwood Lumber:
  - .1 Conform to requirements AWS Section 3, Premium Grade Ontario White Pine, Yellow Pine or other Pine species.
  - .2 S4S, moisture content 19% or less in accordance with following standards:
    - .1 CAN/CSA O141.
    - .2 NLGA Standard Grading Rules for Canadian Lumber.
    - .3 AWMAC custom grade, moisture content as specified.
- .5 Hardwood Lumber:
  - .1 NHLA requirements, Hard Maple, FAS, of uniform grain and colour, Premium Grade.
  - .2 Moisture content 13% or less in accordance with following standards:
    - .1 National Hardwood Lumber Association (NHLA).
    - .2 AWMAC custom grade, moisture content as specified.
- .6 Concealed framing:
  - .1 Sound material of any species may be used for concealed members, free from sap, shakes, knots, splits and other defects.
  - .2 Concealed wood shall also be of highest grade that satisfies fabrication, utility and structural requirements.
- .7 Exposed framing, solid members and trim:
  - .1 Hardwood lumber as specified herein or indicated on Drawings, or where not specified or indicated, of Maple , FAS grade, matched for compatibility of grain and colour for transparent finish.
- .8 Panel Products:
  - .1 Conform to AWMAC AWS Section, for Panel Products which includes types of plywood, Particleboard Core Plywood, Veneer Core Plywood, Medium Density Fiberboard Core Plywood, Lumber Core Plywood and Combination Core

- Plywood.
- .2 For plywood conform to AWS Section 4 paragraph 1.2.31.
  - .1 Douglas fir plywood (DFP): to CSA 0121, standard construction.
  - .2 Hardwood plywood: to CSA O115.
  - .3 Birch plywood: to AWMAC Paint Grade, Natural, Select White, Select Red.
- .3 Interior mat-formed wood particleboard: to CAN-0188.1.
- .4 Hardboard: to CAN/CGSB-11.3.
- .5 Medium density fiberboard (MDF): to ANSI A208.2, density 769kg/m3.
- .9 Wood Cores:
  - .1 Medium Density Fibreboard Core (MDF).
  - .2 Medium density panels, meeting requirements of ANSI 208.2, balanced design, manufactured from 100% recycled materials, without the use of formaldehyde resins, meeting HUD 24 Standards for emissions, of minimum density of 770 kg/m3 and surface character to match sample in Departmental Representative's possession.
  - .3 Fire retardant product shall contain fire-retardant chemicals injected with raw materials during manufacturing and achieve a maximum Flame Spread rating of 25 with a maximum Smoke Developed of 200 when tested to ASTM E84.
  - .4 Do not use MDF panels in moist areas.
  - .5 Acceptable Material:
    - .1 Flakeboard Company Limited; [www.flakeboard.com](http://www.flakeboard.com)
    - .2 Uniboard Canada Inc.; [www.uniboard.com](http://www.uniboard.com);
    - .3 Tafisa Canada and Company, Ltd.; [www.tafisa.ca](http://www.tafisa.ca);
- .10 Veneer Core (Plywood) post formed at Counter Tops with Sink and other Counter Tops:
  - .1 Softwood Plywood: Douglas Fir, CSA O121-M, good two sides Standard Grade. Poplar plywood conforming to CSA O153-M, Grades A and B.
- .11 Thermofused Melamine Panels (semi-exposed locations only):
  - .1 Use melamine faced composition board, (MFCB) with high density particle board core to CSA 0188.0, faced both sides with melamine/polyester laminate of equal thickness and density, to overall thicknesses specified.
  - .2 Formaldehyde Emissions: shall conform to H.U.D. formaldehyde emission 24 CFR Part 3280.308 for particleboard, emission content of 0.14PPM or less, desiccator value of mg/ml. Authorized label shall be affixed to each bundle or pallet load leaving plant. Melamine finish to be minimum 120 gram cover sheet, colour to be selected by Departmental Representative from FULL range.
  - .3 Uniform Thickness: to tolerance of +/- .006 inches.
  - .4 Product Specifications: shall exceed or meet ANSI A 2081-1979 Grade 1-M-3 and CAN3-0184. 1M Grade R.
  - .5 Screw Holding Capability: 300lbs/face, 225lbs/edge.
  - .6 Decor paper shall be thermofused to both faces to prevent warping.
  - .7 Melamine panels in finished (installed) condition shall show no exposed fasteners on exterior surfaces.
  - .8 Assemble melamine millwork using doweled/wafered-and-glued construction.
  - .9 Where indicated on Drawings construction system may also include assembly using hardware.
  - .10 Clean thermofused melamine surfaces with paint thinner or solvents for varnish or for contact glue.
  - .11 Do not use any abrasive substance that could damage surface of panels.
  - .12 Do not use acidic or alkaline products.
  - .13 Color and finish selected by Departmental Representative from manufacturer's

- full range.
- .14 Acceptable Material:
  - .1 Flakeboard Company Limited; [www.flakeboard.com](http://www.flakeboard.com)
  - .2 Uniboard Canada Inc.; [www.uniboard.com](http://www.uniboard.com);
  - .3 Tafisa Canada and Company Ltd.; [www.tafisa.ca](http://www.tafisa.ca);
  - .4 Panolam Industries International, Inc.; [www.panolam.com](http://www.panolam.com)
  - .5 Formica: Permalam.
- .12 Edges:
  - .1 PVC Edge Tape: to match MCP surface adjacent. Machine-glued application, pre-glued type not acceptable. Polyester, PVC thin edge or 3mm PVC edge machine applied and radiused.
  - .2 Polyester, PVC thin edge or 3mm PVC edge machine applied and radiused.
  - .3 Solid wood or moldings (wood, plastic or metal) to meet design requirements as indicated on Drawings.
- .13 High Pressure, Paper Base, Decorative Laminates (HPDL):
  - .1 Provide following types and thicknesses conforming to ANSI/NEMA LD3 and ANSI/NEMA LD3.1 and AWS Section 4, Item 4.2c:
    - .1 Horizontal General Purpose: HGS - 1.2 mm.
    - .2 Horizontal Light Duty: HGL - 1.0 mm.
    - .3 Vertical General Purpose: VGS - 0.7 mm.
    - .4 Vertical Light Duty: VGL - 0.5 mm.
    - .5 Postforming Horizontal: HGP - 1.0 mm.
    - .6 Postforming Vertical: VGP - 0.7 mm.
    - .7 Fire Rated HGF - 1.2 mm.
    - .8 Cabinet Liner: CLS - 0.5 mm.
    - .9 Backer Sheet: BKV - 0.7 mm.
    - .10 Backer Sheet: BKM - 1.0 mm.
    - .11 Backer Sheet: BKH - 1.2 mm.
    - .12 Backer Sheet: BKL - 0.5 mm.
    - .13 Special Purpose: HSH - 3.0 mm.
    - .14 Special Purpose: HSM - 1.5 mm.
    - .15 Flooring Grade, High Wear: HDH - 3.0 mm.
    - .16 Flooring Grade, High Wear: HDM - 1.5 mm.
    - .17 Flooring Grade, High Wear: HDS - 1.2 mm.
    - .18 Flame Retardant: SGF - 1.5 mm.
    - .19 Flame Retardant: HGF - 1.2 mm.
    - .20 Flame Retardant: VGF - 0.8 mm.
  - .2 Acceptable Material:
    - .1 Abet Incorporated; [www.abetlaminati.com](http://www.abetlaminati.com).
    - .2 Arborite; [www.arborite.com](http://www.arborite.com).
    - .3 Formica Inc.; [www.formica.com](http://www.formica.com).
    - .4 Nevamar Company, LLC; [www.nevamar.com](http://www.nevamar.com).
    - .5 Wilsonart Canada; [www.wilsonart.com](http://www.wilsonart.com).
    - .6 Industrial Laminates/Norplex, Inc.; [www.micarta.com](http://www.micarta.com).
    - .7 Pionite Decorative Laminates; [www.pionite.com](http://www.pionite.com).
  - .3 Colours and Finishes:
    - .1 Provide full colour range including solid, woodgrain with ability to offer cross-grain patterns and printed patterns, suede or matte finishes.
    - .2 Maximum three (3) colours and Product design will be selected later by

Departmental Representative from one of above listed manufacturers.

- .14 Plastic Laminate Adhesive:
  - .1 Heat-cured urea-formaldehyde type resin in accordance with requirements of CSA O112 Series-M for all Work except as otherwise specified.
  - .2 Heat-cured resorcinol resin in accordance with requirements of CSA O112 Series-M for wet areas and counter tops with sinks and lavatories built-in.
- .15 Fire Retardant Treated Materials:
  - .1 Conform to AWS Section 3 Article 1.2 , for Fire Retardant Wood, AWS Section 8, Item 1.2.7 for Flame Spread Classification, Built up Construction to Improve Fire Rating, Fire Retardant Treatments FRT and AWS Section 5, for Preservative Treatments.
  - .2 For all casework, use materials impregnated with fire-retardant chemicals by a pressure process or other means acceptable to authorities having jurisdiction to produce products with the following fire-test-response characteristics:
    - .1 Flame-spread index of not greater than 25 when tested according to CAN/ULCQEHACC S102 and in accordance with OBC requirements.
    - .2 For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
    - .3 Interior, Low-Hygroscopic-Type, Fire-Retardant Treatment:
      - .1 Formulation that results in treated material with an apparent moisture content of not more than 28% when tested according to ASTM D 3201 at 92% relative humidity.
      - .2 Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber and plywood from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
      - .3 Kiln-dry material after treatment to levels required for untreated material.
    - .4 Do not use material that does not comply with requirements for untreated material or is warped or discolored.
    - .5 Provide fire retardant pressure treatment of wood against fire complying with CSA O80-C20 for lumber and O80-C27 for plywood, kiln dried after treatment to required moisture content specified in this Section.
    - .6 Pressure fire retardant treat lumber prior to final milling.
    - .7 Pressure fire retardant treat plywood to receive a natural finish before face veneer is applied and apply face veneers not thicker than 1.0 mm (6.2 mills) in the rough to treated cores.
    - .8 Provide ULC or WHI label for treated lumber and plywood as received from the pressure treating plant.
    - .9 Do not expose pressure treated material to dampness between the time the material is treated and the time the finish is applied.
    - .10 Carefully sand surfaces which show surface salt deposits to remove such deposits before finish is applied.
    - .11 Provide quality of finished Work of equal standard to that of untreated material.
    - .12 Provide identification on materials delivered to project site showing that these Specifications have been complied with, on each large item, and on bundles of small items.
    - .13 Arrange wood members in pressure treating equipment to avoid sticker marks on best face of members.

- .14 Minimize reworking of fire retardant treated wood.
- .15 Re-treat surfaces exposed by cutting, trimming or boring with fire retardant chemical before installation to requirements of labelling authority and other authorities having jurisdiction.
- .3 Fire retardant medium density fibreboard; fire retardant MDF:
  - .1 Industrial grade MDF certified to meet Class 1 surface burning characteristics in accordance with ASTM E84, CAN/ULC-S102, and UL 723, with a flame and smoke development of 20.

## **2.2 MISCELLANEOUS MATERIALS**

- .1 Unframed Cork boards 6mm thick natural cork laminated directly to wall surfaces where indicated on drawings/accessories schedule.
- .2 Nails and staples: to CSA B111.
- .3 Wood screws: steel, type and size to suit application.
  - .1 Wood screws: to CSA B35.4-1972 electroplated.
  - .2 Zinc-plated "CUP" washers at all locations where exposed screws are indicated or required.
  - .3 Drywall screws: to ASTM C646-76, Type S x length to suit.
- .4 Fastenings:
  - .1 Include all fastenings, anchors and accessories required for fabrication and erection of the Work of this Section.
  - .2 Fastenings include without being limited to anchor bolts, machine bolts, toggle bolts, male/female bolts, lag screws, expansion shields, sleeves, brackets, washers and nuts.
  - .3 Exposed fasteners, where approved and shown on reviewed Shop Drawings, shall be of same texture, colour and finish as the base material on which they occur unless otherwise shown or noted.
  - .4 Use stainless steel fasteners with stainless steel components.
  - .5 Supply bolts with all washers and nuts required for complete installation.
  - .6 Provide lock washers where vibration may loosen bolted fastenings.
  - .7 Ensure thread dimensions are such that nuts and bolts will fit without rethreading or chasing threads.
  - .8 Bevelled hexagon head bolts to ASTM A307.
- .5 Splines: wood or as recommended by manufacturer.
- .6 Sealant: Refer to Section 07 92 00 - Joint Sealant
- .7 Adhesives: to CSA 0112.7-M77 resorcinol resin adhesive for laminated plastic.
- .8 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
- .9 Tempered Glass: to CAN/CGSB-12.1, transparent, 6mm thick.
- .10 Aluminum edge mounting: 19mm x 5mm extrusions for wall protection; anodized finish; M-D A811.
- .11 Solid Surfacing:
  - .1 In accordance with Section 06 61 16 - Solid Surfacing Fabrications.
- .12 Solid Phenolic Dividers:
  - .1 Solid Phenolic Core Panels, 6.4mm - laminate two sides, colour to later Departmental Representative direction.

## **2.3 CABINET MATERIALS**

- .1 Use melamine faced composition board, (MFCB) with high density particle board core to CSA 0188.0, faced both sides with melamine/polyester laminate of equal thickness and density, to overall thicknesses specified.
- .2 At the following locations a high-pressure decorative laminate, in accordance with the



requirements of Section 06 47 00 - Plastic Laminate Finishing is to be used.

- .1 Exposed front (public side) of all counters unless indicated otherwise.
- .2 At front face and edges of all cupboard doors, of both upper and lower cabinets.
- .3 At front face and edges of all drawers.
- .4 At top and edges for seat of box/storage unit.
- .3 Color selections: for bidding purposes assume the following:
  - .1 The melamine/polyester laminate liner on the interior of the cabinets and cupboards shall be a different color than that selected for high-pressure plastic laminate on the exterior face and edges of the doors.
  - .2 The melamine/polyester laminate on the interior face of the cabinets and cupboard doors shall be the same color as the interior of the cabinets and cupboards.
  - .3 All shelving inside cabinets and cupboards shall be the same color as selected for the interior of the cabinets and cupboards.
  - .4 All shelving units shall have the same color for the melamine/polyester laminate and the PVC Edge tape at front edges.
  - .5 3mm PVC edge to match adjacent surface.
  - .6 Drawer bottoms: white metal drawer unit.
  - .7 Backs of lower cupboard units: white Masonite.
  - .8 Color selections: to be selected by Departmental Representative:
  - .9 Melamine/polyester laminates:
    - .1 Flakeboard: Two (2) colors from manufacturer's standard colors.
  - .10 Plastic Laminate: Two (2) colors from manufacturer's standard colors.
    - .1 High pressure plastic laminates:
    - .2 Laminate: as per Section 06 47 00 - Plastic Laminate Finishing.

## 2.4 MANUFACTURED UNITS

- .1 Casework:
  - .1 Fabricate casework to AWMAC custom grade.
  - .2 Framing:
    - .1 Melamine, thickness as required.
  - .3 Furring, blocking, nailing strips, grounds and rough bucks and sleepers:
    - .1 Hardwood plywood, thickness as required.
  - .4 Case bodies (ends, divisions, gables and bottoms, including base, uppers and wall cabinets):
    - .1 Melamine, Grade R, 19mm thick.
    - .2 Edge banding: Heavy duty 3 mm PVC, color and finish to match top surface, strip same width as material.
  - .5 Backs: Composite Panel (melamine)
    - .1 Core: medium density M3 particleboard.
    - .2 Thickness 13 mm.
  - .6 Shelving (Adjustable, Fixed Top and Bottom) (Melamine):
    - .1 Melamine, Grade R, 19mm thick.
    - .2 Use recessed standards to support shelves.
    - .3 Edge Banding (all edges): Heavy duty 3 mm PVC, color and finish to match top surface, same width as material.
  - .7 Form Shelving:
    - .1 Plastic laminate, standard duty grade, 1.15 mm thick.
    - .2 Two layers adhered back to back for spans up to 225mm.
    - .3 Three layers adhered back to back for spans over 225mm.

- .8 Cork:
  - .1 6 mm thick natural cork, suitable for use as a tackboard.
- .2 Doors and Drawer Fronts:
  - .1 Fabricate doors to AWMAC custom grade, full overlays, supplemented as follows:
    - .1 Core: Particle board, grade R, 18 mm thick.
    - .2 Laminated Plastic: Standard grade, 1.15 mm thick.
    - .3 Edge banding (all edges): Heavy duty (3 mm) PVC, color and finish to match face surface, same width as door.
    - .4 Glass: Tempered glass.
  - .3 Drawers: Fabricate drawers to AWMAC custom grade, supplemented as follows:
    - .1 Sides and Backs:
      - .1 For drawers over 150 mm in height: Solid wood, Maple species, premium grade, 16 mm thick. Finish to requirements of Section 09 91 00 - Painting.
      - .2 For drawers up to 150 mm in height: sides to be metal integral side slide system - Metabox steel by Blum, Model 320M or 320H series as applicable. Back to be 16 mm M3 melamine.
    - .2 Bottoms: 16 mm M-3 Melamine.
  - .4 Laminated Plastic Counter Tops and Back Splashes:
    - .1 Counter tops and backsplash: one piece post formed, factory laminated, self-edged or post-formed as noted on drawings.
      - .1 Core: 19mm Douglas Fir plywood.
      - .2 Laminated plastic: Post forming Grade, 0.75 mm thick.
      - .3 Laminated Plastic: Standard grade, 1.15 mm thick.
      - .4 Laminated plastic (non-exposed surfaces): Liner sheet, 0.75 mm thick.
      - .5 Splash back side returns to be installed on site, based on field conditions.

## 2.5 CABINET HARDWARE

- .1 Shallow Drawer Slides 125mm or less:
  - .1 Full extension type with self-closer and capacity of 34 kg.
  - .2 Acceptable Material:
    - .1 Knappe and Vogt, 1375.
    - .2 Accuride, 3832.
    - .3 Julius Blum Canada Limited, BS 430E.
- .2 Deep Drawer Slides (over 125mm):
  - .1 Full extension type with self-closer and capacity of 68 kg.
  - .2 Acceptable Material:
    - .1 Knappe and Vogt, 1485.
    - .2 Accuride, 4005.
- .3 Door Hinges:
  - .1 Concealed, 170° opening, self-closing, low profile.
  - .2 Acceptable Material:
    - .1 Selekt Pro2000 by Hettich Canada Inc.
    - .2 Euromat; Julius Blum Canada Limited.
- .4 Recessed Shelf Pilasters, Standards and Clips:
  - .1 Acceptable Material:
    - .1 KV255 pilaster and KV256 clip supports by Knappe & Vogt Manufacturing Company; [www.knappeandvogt.com](http://www.knappeandvogt.com)

- .2 120-10 Series pilasters and 1903-2G clip supports by Richelieu Hardware Ltd.; [www.richelieu.com](http://www.richelieu.com).
- .5 Locks for Cabinets:
  - .1 Locks for doors and drawers on base cabinets, hinged doors on wall and floor-standing cabinets.
  - .2 CCL Security keyed cylinder cam lock type US2060 (Satin Chrome) finish or Door Cam Locks.
  - .3 Ensure keys are removable in locked or unlocked positions.
  - .4 Acceptable Material:
    - .1 #M4-00542 by National Cabinet Lock; [www.nclnet.com](http://www.nclnet.com).
    - .2 Disc Tumbler Series 15751 or 15752 or 15753 by CCL Security Products; [www.cclsecurity.com](http://www.cclsecurity.com)
- .6 Locks:
  - .1 Provide locks for 50% of doors and drawers to be installed where located by Departmental Representative.
- .7 Drawer and Hinged Door Bumpers:
  - .1 Vinyl, peel and stick, thickness 2.4 mm, color white.
  - .2 Acceptable Material:
    - .1 Richelieu-Martin No. MP4000-30.
- .8 Concealed Hinges:
  - .1 Minimum 120 degree opening angle.
  - .2 Self closing.
  - .3 Supply manufacturer's recommended number of hinges to suit door size and thickness.
  - .4 Acceptable Material:
    - .1 Julius Blum Canada Limited.
    - .2 Hettich Canada Limited Partnership.
    - .3 Euromat Topsafe.
- .9 Piano Hinges:
  - .1 Provide piano hinges along full length of door greater than 1200mm high.
  - .2 1.5mm (16 ga.) wrought steel with 3.25mm pin, 50mm wide x length to suit.
  - .3 Nickel plate finish.
  - .4 Acceptable Material:
    - .1 McFadden's Hardwood and Hardware Limited.
    - .2 Stanley 314 x C29
- .10 Catches:
  - .1 Cast aluminum.
  - .2 Acceptable Material:
    - .1 918 by Knappe & Vogt
    - .2 C97 by Ferrum Metal Manufacturing Company.
- .11 Wire Pulls (Doors And Drawers):
  - .1 Bright chrome plated.
  - .2 Satin chrome plated finish.
  - .3 Acceptable Material:
    - .1 Richelieu Hardware Ltd.; [www.richelieu.com](http://www.richelieu.com), 2213, metal, 97 mm x 31 mm, screw 8/32.
    - .2 "CBH 220" by Canadian Builders Hardware.
- .12 Closet Coat Rods:
  - .1 27 mm od stainless steel rod complete with KV734 and KV735 polished chrome flanges.

- .2 Size rods to suit closet widths.
- .3 Provide support at maximum 3'-0" centres.
- .4 Acceptable Material:
  - .1 KV660 by Knappe and Vogt Manufacturing Company.
- .13 Grommets:
  - .1 Provide 2 grommets per workstation and locate as directed by Departmental Representative.
  - .2 60 mm, black in colour.
  - .3 Acceptable Material:
    - .1 McFadden, PH.603510.
    - .2 Hafele 429.99.
- .14 Strike Plates:
  - .1 Provide strike plates fabricated of stainless steel, designed to be secured to cabinet stile without twisting, fixed with a single self-tapping screw.
- .15 Built-in Drawer Stops:
  - .1 Resilient type recommended by manufacturer.
- .16 Shelf Clips: Base Cabinets:
  - .1 Zinc-finished steel.
  - .2 Acceptable Material:
    - .1 #101 by Roll-It
- .17 Shelf Clips: Wall Hung and Tall Storage Cabinets:
  - .1 Zinc-finished steel.
  - .2 Acceptable Material:
    - .1 #103 by Roll-It.
- .18 Paper guide:
  - .1 PVC, color by Departmental Representative, 415mm x 21mm inside slot size.
  - .2 Acceptable Material:
    - .1 Richelieu Model 60.1830.

## 2.6 CABINET HARDWARE ALLOCATION

- .1 Supply and install all cabinet hardware. Provide the following in addition to manufacturers recommended allocation:
  - .1 Cupboard Hinges:
    - .1 2 hinges on all doors, up to 900mm in height.
    - .2 3 hinges on all doors over 900mm in height.
  - .2 Counter top hinges:
    - .1 2 fully concealed hinges at lift-up section of counter top.
  - .3 Pulls:
    - .1 On all doors and drawers.
  - .4 Drawer slides:
    - .1 On all drawers.
  - .5 Drawer locks:
    - .1 Allow 50% drawer locks, confirm prior to fabrication at shop drawing stage.
  - .6 Door Locks:
    - .1 Allow 50% drawer locks, confirm prior to fabrication at shop drawing stage.
  - .7 Cupboard Locks:
    - .1 Allow 50% drawer locks, confirm prior to fabrication at shop drawing stage.

- .8 Elbow catches:
  - .1 Provide elbow catch at inactive leaf of all double doors.
- .9 Door Bumpers:
  - .1 Two (2) at each door of cabinetwork.
- .10 Adjustable shelf supports:
  - .1 Four (4) per shelf at all adjustable shelves.
- .11 Cable entry plugs:
  - .1 Two (2) at each computer station.
- .12 Keyboard Trays:
  - .1 One (1) at each computer station.

## **2.7 COUNTER TOP AND VANITY TOP MATERIALS**

- .1 Plywood for application of plastic laminate: poplar-faced Douglas Fir Plywood (DFP) to CSA O153 and CSA O121 solid one side, sanded grade to thickness indicated.
- .2 All counter tops over cabinetwork are to be plywood, plastic laminate covered with appropriate adhesive complete with backer sheet.
- .3 All vanity tops over cabinetwork or supported on steel wall brackets are to be plywood, plastic laminate covered.
- .4 Colour and pattern to be chosen by Departmental Representative from complete colour range.

## **2.8 GLASS CABINETS IN ARCHITECTURAL WOOD CASEWORK**

- .1 Glass Cabinets:
  - .1 9 mm Tempered Glass for Cabinets:
    - .1 Conforming to ASTM C1048, CAN/CGSB-12.1-M, Type 2 tempered, Class B float glass, Category II,.
  - .2 Perform heat strengthening using horizontal tong free method; surface compression not less than 7500 psi.
  - .3 Glass Bonding System:
    - .1 Ultraviolet activated adhesive.
  - .4 All surfaces must be completely clean and free of grease, dust and other substances and are to be cleaned with system manufactured approved methods.
  - .5 All bonding surfaces must be absolutely clean, free of grease, and dry.
  - .6 When UV bonding use appropriate cleaners as approved by the system manufacture that are free of surfactants (soap) or other contaminants.
  - .7 Common glass and general purpose cleaners are not suitable in most cases.
  - .8 In order to obtain a stable and durable bond, the adhesive and all parts to be bonded must be at room temperature.
  - .9 Heating all surfaces to 68°C prior to bonding will remove any condensation that could adversely affect the bond strength.
- .2 Adhesive Selection:
  - .1 Provide the appropriate and best application adhesive, as recommended by the System provider for:
    - .1 Glass-to-glass bonds, self-supported "closed" construction is recommended to obtain the highest possible stability.
    - .2 For glass-to-metal bonds.
- .3 Adhesive Application:
  - .1 Before applying the adhesive it is recommended to check if the parts to be bonded fit in their intended position.
  - .2 This is best done by first assembling the project without bonding by using system approved fixation devices to securely hold the surfaces in position.

- .3 Applied adhesive within five minutes after the parts have been heated.
- .4 Bonding surfaces should preferably be in a horizontal position when the adhesive is applied.
- .4 Curing:
  - .1 Perform curing in strict accordance with manufacturer's written instructions.
  - .2 Use only UV lamps approved by the system provider.
  - .3 In general the UV lamp should not be shorter than the bonding edge to avoid tension build-up due to uneven curing.
  - .4 Position Lamp as close as possible to the bonding surface during curing.
  - .5 Do not move parts during the curing process, and do not expose the project to vibrations.
  - .6 Pre-Cure the bond by exposing to UV light from at least 10 seconds to approximately two minutes, depending on the type of Curing Lamp used and glass thickness.
  - .7 By pre-curing, a working strength (approximately 30% of the final strength) is achieved.
  - .8 Remove excess adhesive outside the bonding surface with the appropriate tools.
  - .9 Remove any Fixation Devices and clean the object of any adhesive residue.
  - .10 Finish-Cure the bond by exposing to UV light for at least 60 seconds to approximately five minutes, depending on the type of UV Curing Lamp used and glass thickness.
  - .11 Allow all connections to fully cure for a minimum of 24 hour prior to placing under load.
- .5 Bond Test:
  - .1 Test strength of bond by subjecting it to stresses exceeding those it would normally incur by impacts, tilting, sudden movements, etc.
- .6 Glass Hardware:
  - .1 The following hardware selection is based on C. R. Laurence Company.
  - .2 Other manufacturers are also acceptable provided the product meets the performance criteria of the stated component:
  - .3 Glass to Glass Hinge:
    - .1 CRL UVHG1BS, loading 9 kg per butt.
  - .4 Drop Bolt:
    - .1 CRL UV6258 one per door leaf.
  - .5 Lock:
    - .1 Inset Lock CRL UV410BS on per door leaf.
  - .6 Shelf Support:
    - .1 Large Adjustable Shelf Support UV6194, four per shelf.
  - .7 Wall to Shelf Support:
    - .1 UVCK29, two per shelf.
  - .8 All hardware finishes to be brushed stainless unless otherwise noted.
- .7 Sliding Glass Door System in Architectural Casework:
  - .1 Glass Door Lock:
    - .1 Glass door lock with plate cylinder, with clip on rack, cylinder slides on to rack; with 5 plates to provide 100 different key changes, closure travel 180E; accessories 2 keys.
  - .2 Finish:
    - .1 Housing and cylinder to have zinc alloy, matte nickel plated finish; Rack to have steel, matte nickel plated finish. Catalogue No. 233.01.601 by Hafele; [www.hafele.com](http://www.hafele.com).

- .3 Complete Fitting Set for GK Sliding Glass Door Fittings:
  - .1 Catalogue No. 405.82.272 by Hafele; consisting of running gear, guide and stopper.
- .4 Glass Fitting Profile Upper:
  - .1 Catalogue No. 405.78.925; Double Guide Rail, Catalogue No. 405.89.017.
- .5 Complete Fitting Set for GR Sliding Glass Door Fittings:
  - .1 Catalogue No. 405.82.261 by Hafele; consisting of running gear, running gear mounting part, guide and stopper, frame mounting angle.
- .6 Glass Fixing Profile for Aluminum Frame:
  - .1 Catalogue No. 405.78.925.
- .8 Glass Divider Screens in Architectural Casework:
  - .1 Bottom Channel:
    - .1 C. R. Laurence Model C7SC for 13mm, all exposed surfaces clad with .911mm (20 ga.) 304 Stainless Steel, XL Blend finish, provide all corners and transitions preformed.
  - .2 Side Channels:
    - .1 Glass: 13mm Monolithic Tempered Glass to ASTM C1048, CAN/CGSB-12.1-M, Type 2 tempered, Class B float glass, Category II.
  - .3 All edges polished, with open ends radiused 20 mm.

### **3 Execution**

#### **3.1 COMPONENTS**

- .1 Supply architectural cabinet casework conforming to AWS Section 10.
- .2 Casework for Plastic Laminate Finish:
  - .1 AWMAC Quality Grade: Premium.
  - .2 Construction: Casework shall conform to AWS Section 10.
  - .3 Exposed Surfaces Core: Composite Core (MDF)
  - .4 Exposed surfaces Finish: Plastic laminate; HGS for horizontal surfaces and VGS for vertical surfaces in accordance with AWS Section 10.
  - .5 Semi-Exposed Surfaces Core: Composite Core (MDF).
  - .6 Semi-Exposed Surfaces Finish: Plastic laminate; HGS for horizontal surfaces and VGS for vertical surfaces Factory finish in accordance with AWS Section 4, Rule 4.2c.
  - .7 Concealed Surfaces Finish: Backing sheet; BKV.
- .3 Edge Banding:
  - .1 Provide 3mm heavy duty PVC edge bending for exposed locations and veneer semi-exposed edges.
- .4 Laminate Countertops and Backsplashes:
  - .1 Countertops shall be postformed type to AWS Section 11.
  - .2 Front Edge type shall conform to AWI/AWMAC/WI Postformed Type 5 Edge Detail as per AWS Section 11 and Item 1.2.11.
  - .3 Backsplash shall conform to AWI/AWMAC/WI Postformed Splash and deck Detail as per AWS Section 11 Item 1.2.11.
  - .4 Finish edge banding other than backsplash or sidesplash with same plastic laminate material used for countertops. Provide 3mm heavy duty PVC at all exposed edges or veneer edge band at non-exposed edge as indicated.
  - .5 Laminate: Provide HGP post-forming for horizontal locations and VGP for vertical locations.
- .5 Plastic Laminate Wood Panelling:

- .1 AWI/AWMAC/WI Quality Grade: Premium.
- .2 Panel shall be 19mm thickness using composite (MDF) core.
- .3 Mounting: Concealed fasteners.
- .4 Panel Finish: High pressure laminate HGF.
- .6 Melamine Paneling:
  - .1 AWI/AWMAC/WI Quality Grade: Premium.
  - .2 Panel shall be 19mm thickness using composite (MDF) core.
  - .3 Mounting: Concealed or exposed fasteners as noted on drawings.
  - .4 Panel Finish: Melamine.
  - .5 Edging: Self-adhesive Melamine strip.
- .7 Standing and Running Trim:
  - .1 AWI/AWMAC/WI Quality Grade: Premium.
  - .2 Solid Wood: Hard Maple FAS.
  - .3 Interior for Transparent Finish.
- .8 Factory Finishing:
  - .1 Factory finish following items: All exposed wood fabrications.
  - .2 Apply finishes in accordance with AWS Section 5.
- .9 Field Touch-Up:
  - .1 Field touch-up is responsibility of installing trade or architectural woodwork manufacturer providing it is responsible for factory finishing.
  - .2 Field touch-up includes filling and touch-up of exposed job-made nail and screw holes, refinishing of raw surface resulting from job fitting, repair of job-inflicted scratches and mars and final cleaning up of finished surfaces.

### 3.2 EXAMINATION

- .1 Ensure woodwork is back primed immediately after delivery to site.
- .2 Ensure cut ends are sealed.

### 3.3 PREPARATION

- .1 Wood Surface Preparation for Finish:
  - .1 Verify and determine wood species, grain direction and structure, properties of finish, application method and exposure to elements.
  - .2 Check moisture content to avoid movement of wood caused by expansion and contraction due to changes in moisture content.
  - .3 Verify grain cut as it may interfere with adhesion of finish.
    - .1 Apply wood finishing product in following order and as needed for specific appearance and application specified herein.
    - .2 Sand sealer to control penetration of subsequent coats to create more uniform finish.
    - .3 Stain to colour wood and highlight grain for final finish.
    - .4 Filler to fill pores of wood and control penetration of subsequent coats.
    - .5 Apply filler across grain forcing it into pores followed with rubbing and sanding when dried.
    - .6 For staining requirements mix stain with filler before applying for uniform finish.
    - .7 Finish coats to provide protection to wood.
- .2 Wood Surface Preparation for Opaque Coating:
  - .1 Seal knots and sapwood in surfaces to receive paint with alcohol-based primer-sealer.
  - .2 Seal door edges.
  - .3 Sand smooth rough surfaces of woodwork to be finished using 150 grit paper



- followed by a second sanding using 220 grit paper.
- .4 Sand in direction of grain.
- .5 Clean surfaces free of dust before applying first coat using brush, compressed air or tack rags.
- .6 Fill nail holes, splits and scratches with non-shrinking filler after first coat is dry.
- .7 Remove salt deposits that may appear on wood surfaces treated with fire retarder.
- .8 Prepare plywood surface by removing dirt and debris.
- .9 Fill screw and nail holes or minor imperfections with recommended filler and sand properly to receive finish coating.
- .10 Plywood requiring stained or painted finish shall be primed with top quality alkyd primer.
- .11 Use only penetrating quality stain over plywood.
- .3 Woodwork for Clear Finish or Stain:
  - .1 Sand smooth all woodwork to be finished using 150 grit paper followed by a second sanding using 220 grit paper and clean surfaces free of dust using brush, compressed air or tack rags before applying first coat.
  - .2 Abrade surfaces with stiff brush to remove loose fibers and splinters.
  - .3 Fill nail holes, splits and scratches with non-shrinking filler tinted to match local grain condition after first coat is dry.
  - .4 Sand lightly between coats with No. 220 sandpaper and remove dust.
  - .5 Remove salt deposits that may appear on wood surfaces treated with fire retarder.
  - .6 Ensure resilient flooring under millwork cabinets are provided prior to proceeding work of this Section unless indicated otherwise.

### 3.4 FABRICATION

- .1 Fabricate joints accurately fitted, coped where possible, and well glued up.
- .2 Fabricate joints mitred to perfect fit and alignments carefully matched.
- .3 Fabricate finished woodwork in 1 piece where possible.
- .4 Fabricate running members in the longest lengths obtainable.
- .5 Fabricate to conceal fastenings.
- .6 Provide plastic laminate Work in shop in accordance with ANSI/NEMA. LD3.
- .7 Provide backer sheets to panels and counters to ensure balance.
- .8 Provide metal laminate Work in shop in accordance with ANSI/NEMA. LD3, Annex A.
- .9 Provide backer sheets to panels to ensure balance.
- .10 Fabricate exposed gables to match the required exposed finishes.
- .11 Exposed wood construction:
  - .1 Fabricate joints carefully matched for grain and colour.
  - .2 Fabricate millwork with slow fed machines free from sticker and/or sander markings, with sections and molding work cut accurately to profiles.
  - .3 Sandpaper woodwork, smooth removing burrs, feathers, sleeves, raised grain and sharp arises and leave exposed surfaces perfectly clean and smooth ready for finishing.
  - .4 Provide edges noted to be solid, as minimum 6 mm thick wood to match exposed veneer to visible and semi-exposed edges, glued to core prior to application of face veneers.
  - .5 Provide plastic laminate or elastomeric edges to plastic laminate work visible or semi-visible edges.
- .12 Countertops:
  - .1 Fabricate and assemble countertops and splashbacks in shop to profiles and

- lengths required.
- .2 Fabricate cutouts for services penetrations as required.
- .3 Verify governing dimensions before fabricating items which abut wall surfaces.
- .4 Provide cutouts required and round internal corners, chamfer edges and seal exposed core.
- .5 Provide backer sheets on all counter construction.
- .6 Provide veneer core plywood substrate to support counter spans in excess of 910mm.
- .7 Provide sidesplashes at abutting ends of counters and at adjoining walls, unless otherwise indicated.
- .8 Provide a 6 mm drip groove approximately 13 mm in from the underside edge.
- .9 Maximum free span 1200mm. Where free span exceeds 1200mm, provide HSS supports as detailed.

### 3.5 INSTALLATION

- .1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight and true.
- .3 Complete fabrication at site to comply with requirements for fabrication specified herein and to extent that it was not completed in shop.
- .4 Shim as required with concealed shims.
- .5 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
- .6 Install level and plumb (including tops) to a tolerance of 3 mm in 2400 mm.
- .7 Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- .8 Use draw bolts in countertop joints.
- .9 Cabinets:
  - .1 Install without distortion so doors and drawers fit openings properly and are accurately aligned.
- .10 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
- .11 Where cupboard or shelving units end within 300mm of a side wall provide a filler panel between end of unit and wall c/w closure panel at top and bottom.
- .12 Form joints to conceal shrinkage.
- .13 At junction of plastic laminate counter backsplash and adjacent wall finish, apply small bead of sealant.
- .14 Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.
- .15 Fit hardware accurately and securely in accordance with manufacturer's directions.
- .16 Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.
- .17 Complete installation of hardware and accessory items as indicated.
- .18 Site apply laminated plastic to units as indicated or required. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel all rises.
- .19 Maintain veneer sequence matching of cabinets with transparent finish.

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- .20 For site application offset joints in plastic laminate facing from joints in core.
  - .21 Vacuum clean all cavities prior to final placement of millwork.
  - .22 Install millwork bases before flooring is applied.
  - .23 Fasten wall cabinets through back, near top and bottom, at ends and not more than 400 mm o.c. with No. 10 wafer-head screws sized for 25 mm penetration into wood framing, blocking, or hanging strips.
  - .24 Countertops:
    - .1 Scribe countertop to wall and related profiles.
    - .2 Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
    - .3 Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
    - .4 Carefully dress joints smooth, remove surface scratches, and clean entire surface.
    - .5 Secure backsplashes to tops with concealed metal brackets at 400 mm o.c. and to walls with adhesive.
    - .6 Touch up finishing work specified in this Section after installation of woodwork.
    - .7 Fill nail holes with matching filler where exposed.
    - .8 Provide Work of this Section true and straight and securely fastened in place.
    - .9 Mitre exposed corners and butt joints.
    - .10 Provide plastic laminate countertops plumb and true, neatly scribed to adjoining surfaces.
    - .11 Thoroughly fix and anchor Work of this Section into position.
  - .25 Mechanical and Electrical Fittings:
    - .1 Provide openings required to accommodate mechanical and electrical fittings as part of the Work of this Section and provide a core sealant to protect counter cores which are exposed to accommodate:
      - .1 Locate and install lenses where indicated.
      - .2 Carefully align lenses, shown in continuous lines so that appear as straight lines.
      - .3 Mount lenses perfectly level or plumb.
      - .4 Lenses shall fit tightly without showing space or light leak between frame and lenses.
      - .5 Remove improperly installed lenses and reinstall at no cost to Owner.
      - .6 Mechanical services and fittings.
      - .7 Washroom accessories.
      - .8 Mechanical and electrical fittings and services will be provided as part of the Work of Sections 21, 22 23, 26, 27 and 28.
  - .26 Installation of Architectural Woodwork Hardware:
    - .1 Install architectural woodwork hardware in accordance with AWMAC AWS and manufacturer's requirements and templates.
    - .2 Adjust architectural woodwork hardware to provide smooth operation and ensure clearances are maintained.
    - .3 Repair damage to adjacent surfaces resulting from failure to conform with this requirement.
    - .4 Provide lubricants required and use in manner to ensure smooth function of hardware consistent with manufacturer's recommendations.
    - .5 Verify fastening components are tightened securely.
    - .6 Align screws, bolts and similar fastenings such that relationship of screw head indentations, similar surfaces and slots are perpendicular to matching vertical or
-

horizontal position when on same surface.

- .7 Do not burr or otherwise mar edges of surfaces of hardware components.
- .27 Do not burr or otherwise mar edges of surfaces of hardware components.

### 3.6 CONSTRUCTION

- .1 Fastening.
  - .1 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .2 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round cleanly cut hole and plug with wood plug to match material being secured.
  - .3 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .2 Standing and running trim.
  - .1 Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitered joints.
  - .2 Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
  - .3 Make joints in baseboard, where necessary using a 45 degrees scarf type joint.
  - .4 Install door and window trim in single lengths without splicing.
- .3 Interior and exterior frames.
  - .1 Set frames with plumb sides and level heads and sills and secure.
- .4 Paneling.
  - .1 Secure paneling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in color.
  - .2 Secure paneling and perimeter trim using concealed fasteners.
  - .3 Secure paneling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- .5 Shelving.
  - .1 Install shelving on ledgers.

### 3.7 FABRICATION OF COUNTERTOPS, WORKTOPS AND VANITY TOPS

- .1 Fabricate counter tops/worktops/vanity tops continuous over multiple cabinetwork types, in as long a length as practicable, using minimum 19mm thickness plywood, except where indicated otherwise.
- .2 Provide backslash at vanity tops, and elsewhere where backslash is indicated, with return backslash along side wall(s) to front edge of counter.
- .3 Cut holes for fittings, accessories and equipment.
- .4 Use draw bolts and splines in counter top joints. Maximum spacing 450mm, keep back 75mm from edges.
- .5 Leave ready for installation of plastic laminate by Section 06 47 00 - Plastic Laminate Finishing.
- .6 All PVC edge tape to be applied by hot glue with a purpose made machine.

### 3.8 INSTALLATION OF COUNTERTOPS/WORKTOPS AND VANITY TOPS

- .1 Install counter tops on cabinet bases. Fasten securely to cabinet. Ensure top is level, with backslash tight against abutting walls.
- .2 Install worktops and Vanity tops using metal support brackets. Anchor brackets securely to wood blocking in steel stud walls using appropriate fasteners to ensure rigid installation and secure vanity top to brackets and to blocking at each end. Ensure top is level, with backslash tight against abutting walls.

- .3 Leave ready for installation plastic laminate by Section 06 47 00 - Plastic Laminate  
Finishing and sealant between backslash and wall by Section 07 92 00 - Joint Sealants.

### **3.9 POSTFORMED COUNTER TOP**

- .1 Postformed counter top with backsplash and rounded nosing front edge profile with a top depth of 25mm complete with backer sheet, for all counter tops with sinks.
- .2 All other countertops are to be constructed as noted.

### **3.10 GROMMETED HOLES**

- .1 Locate and drill grommeted holes after countertop equipment has been arranged and located on site.

### **3.11 FINISHING**

- .1 Prime unexposed surfaces including backs of fitments against walls and underside of fitments.
- .2 Before priming, treat knots and sap streaks, with a coat of shellac and then prime with a wood primer.
- .3 Shop finish natural finished wood surfaces.

### **3.12 ADJUSTING AND CLEANING**

- .1 Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork.
- .2 Adjust joinery for uniform appearance.
- .3 Clean, lubricate, and adjust hardware.
- .4 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.
- .5 Touch up shop-applied finishes to restore damaged or soiled areas.

### **3.13 PROTECTION**

- .1 Protect millwork and cabinet work from damage until final inspection.
- .2 Remove protection prior to Substantial Performance.

END OF SECTION

## **1 General**

### **1.1 WORK INCLUDED**

- .1 Supply of plastic laminates for shop fabrication of casework as indicated and detailed on the drawings.

### **1.2 RELATED SECTIONS**

- .1 Section 06 41 00 - Architectural Wood Casework.
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 08 14 16 - Flush Wood Doors.

### **1.3 REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI 208.1-99, Particleboard.
  - .2 ANSI A208.2-02, Medium Density Fiberboard (MDF) for Interior Applications.
- .2 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM D2832-92(R1999), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
  - .2 ASTM D5116-97, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA O112-M1977(R2001, Standards for Wood Adhesives.
  - .2 CSA O112.5-1.1-Series-M-1977(R2001), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
  - .3 CSA O112.7-1.1-Series M-1977(R2001), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
  - .4 CSA O121-M1978(R1998), Douglas Fir Plywood.
  - .5 CAN/CSA O141-91(R1999), Softwood Lumber.
  - .6 CSA O151-M1978(R1998), Canadian Softwood Plywood.
- .5 National Electrical Manufacturers Association (NEMA)
  - .1 NEMA LD3-2000, High Pressure Decorative Laminates.

### **1.4 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for adhesives, solvents and cleaners.
- .2 Samples:
  - .1 Submit samples in accordance with Section 01 33 00- Submittal Procedures.
  - .2 Submit full range of samples and textures from manufacturer's standard range.
- .3 Closeout Submittals:
  - .1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

### **1.5 QUALITY ASSURANCE**

- .1 Pre-installation Meetings: Attend pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- .1 Storage and Protection:
  - .1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
  - .2 Maintain relative humidity between 25 and 60% at 22 degrees C during storage and installation. Maintain in storage environment for 72 hours prior to installation.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times.
- .4 Divert unused caulking, sealants, surface coatings and adhesive materials from landfill.

## **2 Products**

### **2.1 MATERIALS**

- .1 Laminated plastic facing sheet for flatwork: to NEMA LD3, Type 1b, 1.0mm thickness, velor finish, unless noted otherwise.
- .2 Color selections:
  - .1 Vanities: One (1) colors, to be selected by Departmental Representative.
  - .2 Laminated plastic at MFCB cabinetwork.
  - .3 Laminated plastic backing sheet: supplied by same manufacturing as facing sheet; 1.15mm thick, sanded one side.
- .3 Acceptable Material:
  - .1 Formica
  - .2 Arborite
  - .3 Nevamar
  - .4 Wilsonart
  - .5 Pionite
- .4 Plywood core: to CSA O121 solid two sides, 19 mm thick.
- .5 Particleboard core: to ANSI 208.1, sanded faces, of thickness indicated.
- .6 Laminated plastic adhesive: urea resin adhesive to CSA O112.5.
  - .1 Test for acceptable VOC emissions in accordance with ASTM D2369 and ASTM D2832.
- .7 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
  - .1 Test for acceptable VOC emissions in accordance with ASTM D2369 and ASTM D2832.
- .8 Draw bolts and splines: as recommended by fabricator.

## **3 Execution**

### **3.1 FABRICATION**

- .1 Comply with NEMA LD 3, Annex A.
- .2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .3 Ensure adjacent parts of continuous laminate work match in color and pattern.
- .4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm. Keep joints 600 mm from sink cutouts.
- .5 Form shaped profiles and bends as indicated, using post forming grade laminate to

laminate manufacturer's instructions.

- .6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not miter laminate edges.
- .7 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .8 Apply laminated plastic liner sheet to interior of cabinetry.

### **3.2 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

### **3.3 INSTALLATION**

- .1 Install work plumb, true and square, neatly scribed to adjoining surfaces.
- .2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
- .3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm on center, 75 mm from edge. Make flush hairline joints.
- .4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
- .5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.
- .6 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where indicated. Slightly bevel arises.
- .7 For site application, offset joints in plastic laminate facing from joints in core.

### **3.4 PROTECTION**

- .1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminated surfaces by approved means. Do not remove until immediately before final inspection.

### **3.5 CLEANING**

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Perform care and cleaning with NEMA LD 3, Annex B.
- .3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

END OF SECTION