## Part 1 General

### 1.1 RELATED REQUIREMENTS

.1 Section 05 50 00 – Metal fabrications

.2 Section 06 10 00 – Rough carpentry.

.3 Section 06 20 00 – Finish carpentry.

.4 Section 08 80 50 - Glazing

.5 Section 09 21 16 – Gypsum board assemblies.

.6 Section 09 22 16 – Non-structural metal framing.

.7 Section 09 91 23 – Painting – interior works

.8 Section 12 50 00 – Furniture and manufactured accessories

### 1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI A208.1-09, Particleboard.

.2 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.

.3 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.

.2 ASTM International

.1 ASTM E1333-10, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.

.2 ASTM D2832-92(R2011), Standard Guide for Determining Volatile and Non-volatile Content of Paint and Related Coatings.

.3 ASTM D5116-10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

.3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)

.1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2009).

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.

.5 CSA International

.1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.

.2 CSA O112.10-08, Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).

.3 CSA O121-08, Douglas Fir Plywood.

.4 CSA O141-05(R2009), Softwood Lumber.

.5 CSA O151-09, Canadian Softwood Plywood.

.6 CSA O153-M1980 (R2008), Poplar Plywood.

.7 CAN/CSA-Z809-08, Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.7 Green Seal Environmental Standards (GS)

.1 GS-11-11, Paints and Coatings.

.2 GS-36-11, Commercial Adhesives.

.8 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.9 International Organization for Standardization (ISO)

.1 ISO 14040-2006, Environmental Management-Life Cycle Assessment - Principles and Framework.

.2 ISO 14041-98, Environmental Management-Life Cycle Assessment - Goal and Scope Definition and Inventory Analysis.

.10 National Electrical Manufacturers Association (NEMA)

.1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates (HPDL).

.11 National Hardwood Lumber Association (NHLA)

.1 Rules for the Measurement and Inspection of Hardwood and Cypress 2011.

.12 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber 2010.

.13 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards

.1 SCAQMD Rule 1113-A2011, Architectural Coatings.

.2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.14 Sustainable Forestry Initiative (SFI)

.1 SFI-2010-2014]Standard.

## 1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for architectural woodwork. Data sheets must include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two (2) copies of material safety data sheets required in terms of the WHMIS in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Shop Drawings:

.1 Shop drawings must indicate details of construction, profiles, jointing, fastening and other related details.

.2 Shop drawings must indicate materials, thicknesses, finishes and hardware.

.3 Shop drawings must indicate locations of service outlets in casework for connections to service utilities, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

.4 Samples:

.1 Submit for review and acceptance samples of each of the proposed architectural woodworks.

.2 Except if otherwise indicated, submit two (2) samples of 300 mm x 300 mm of hardwood elements, softwood elements, plywood panels, fiberboard, particle board, and oriented strand board panels.

.3 Submit two (2) samples of proposed colors for plastic laminates.

.4 Submit two (2) samples showing joints details, trims, cut-outs and profiles of post formed plastic laminates.

.5 Submit two (2) samples showing joints details, trims, cut-outs.

.6 Submit two (2) samples of each hardware piece for furniture.

.7 Submit two (2) samples of 50 mm x 50 mm of stainless steel finishes.

.5 Certifications: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

## 1.4 QUALITY ASSURANCE

.1 Lumber grading; by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Sustainable Standards Certification:

.1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

.3 Grading of Plywood, particleboard, and oriented strand board (OSB) and wood based composite panels to CSA and ANSI standards.

.4 Mock-ups:

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

.1 Shop prepare one base cabinet unit and one wall cabinet complete with hardware shop applied finishes, and install where directed by Departmental Representative.

.2 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with Work.

.3 When accepted, mock-up will demonstrate minimum standard for Work.

.4 Do not proceed with work prior to receipt of written acceptance of mock-up by Departmental Representative.

.5 Mock-up may remain as part of finished work.

## 1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Storage and Handling Requirements:

.1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect architectural woodwork from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.3 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## 1.6 ACCEPTABLE PRODUCTS AND MATERIALS

.1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

# Part 2 Products

## 2.1 MATERIALS

.1 Softwood lumber: S4S (surfaced on 4 sides), moisture content 12% or less in accordance with following standards and rules:

.1 CSA O141.

.2 CAN/CSA-Z809 or FSC or SFI certified.

.3 NLGA Standard Grading Rules for Canadian Lumber.

.4 Soft wood lumber must be concealed

.5 Select white pine

.2 Hardwood lumber: moisture content 7% or less in accordance with following standards and rules:

.1 National Hardwood Lumber Association (NHLA).

.2 CAN/CSA-Z809 or FSC or SFI certified.

.3 AWMAC premium grade, moisture content as specified.

.4 White maple lumber without knots.

.3 Wood sheet products: urea-formaldehyde free, CAN/CSA-Z809 or FSC or SFI certified.

.1 Douglas fir plywood (Douglas taxifolié): conforming to standard CSA O121, classification “construction’’ grade ‘‘standard’’.

.2 Poplar plywood (PP): conforming to standard CSA O153, classification “construction’’ grade ‘‘standard’’, two faces sanded (G2S), thickness according to indications.

.1 Use poplar plywood for countertops, washroom vanities, furniture bases, drawer fronts and cabinet doors.

.3 Particleboard: conforming to standard ANSI A208.1.

.4 Hardboard: conforming to standard CAN/CGSB-11.3.

.5 Medium density fibreboard (MDF): conforming to standard ANSI A208.2, density 640-800 kg/$m^3$.

.1 Use fiberboard for shelves, case bodies of doors and sides, bottoms and backs of drawers.

.6 CTL (cross laminated timber): beam section of cross laminated timber, 50 mm thick x254 mm high x indicated length, finished in conformance with section 09 91 23 Painting – new interior works.

.4 Wood veneers: veneers must be of grade A according to standards of HPVA and have a thickness of 0.80 mm.

.1 Species: white maple, rotary cut.

.2 Matching: according to indications.

.5 Laminates for flat surfaces: conforming to standard NEMA LD3, grade HGS (for horizontal and vertical exterior surfaces of furniture), 1.2 mm thickness; with decorative face according to following indications.

.1 Plan a range of 2 different colors of plastic laminates, to choice of Departmental Representative for each of the following sets of furniture:

.1 Washroom vanities: M04, M14, M15

.2 Bar furniture in the mess hall: M03, M08

.3 Kitchen furniture : M07, M18, M20

.4 Vanities and furniture in dressing rooms and green lounge: M10, M11, M12

.5 Furniture in spaces of shared equipments: M22, M23, M24

.6 Furniture of the reception desk of West entry hall: M13

.7 Acceptable Products:

.1 Arborite

.2 Formica;

.3 Nevamar.

.6 Laminated plastic backing sheet: Grade BKL, minimum of 0.5 mm thick for concealed use.

.7 Stainless steel countertop with integrated sink: M05 and M06

.1 Stainless steel sheet of 1.2 mm thickness premolded to form the longitudinal sink, according to indications on drawings, conforming to standard ASTM A167.

.2 Steel reinforcements to fix longitudinal sink and front piece of CLT to lateral walls.

.3 The sinks in these counters are of stainless steel identical as the one for the counters.

.4 The sinks must be supplied with drain and stainless steel connection piece of same quality as the sink.

.5 Welding must be done with electric arc and welds must be polished to required finish.

.6 Fasten stainless steel counter to cabinet by means of stainless steel anchors, and seal adequately all junctions.

.8 Nails and staples: to CSA B111.

.9 Concealed Wood screws: plain steel of type and size to suit application.

.10 Locking pins: in metal.

.11 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

.12 Adhesives:

.1 According to manufacturer's standards.

.2 Urea-formaldehyde free product.

## 2.2 MANUFACTURED UNITS

.1 Refer to details for construction of each of the furniture pieces.

.2 Casework:

.1 Fabricate caseworks to AWMAC premium quality grade.

.2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.

.1 Board sizes: "standard" or better grade.

.2 Dimension sizes: "standard" light framing or better grade.

.3 Urea-formaldehyde free.

.3 Case bodies (ends, divisions and bottoms).

.1 Softwood and poplar plywood square edge, 19 mm thick.

.4 Shelving:

.1 Particleboard, laminated with thermo fused melamine16 mm thick.

.2 Edge banding: Matching colour in 3 mm PVC.

.3 Drawers:

.1 Fabricate drawers to AWMAC premium grade supplemented as follows:

.2 Sides, Backs and bottoms:

.1 Thermo fused melamine: 12 mm thick.

.4 Casework Doors:

.1 Softwood and poplar plywood covered with plastic laminate, 16 mm thick.

## 2.3 HARDWARE FOR CASEWORK

.1 Door and drawer pulls and knobs: brushed nickel finish 195, 96 mm c/c.

.2 Edge pulls: mat nickel, 25mm width, and projection 36mm.

.3 Concealed hinges: door hinge with nickeled steel casing, 107°opening and automatic closure, nickeled mounting plate height adjustable. Provide 2 hinges for doors 915 mm high and less, 3 hinges for doors up to 1220 mm high, and 4 hinges for doors higher than 1200 mm high.

.4 Slides for drawers and shelves: enameled metal, ball-bearing slide with safety stopper. Full extension drawer slide, capacity of 45 kg.

.5 Bumpers for doors and drawers: rubber, transparent, 9.5 mm diameter, 3 mm high, installed with adhesive.

.6 Removable shelf support: nickeled metal, 5 mm diameter to insert in pre pierced holes in panels. At least two supports at each end of shelf.

.7 Fixed shelf support (module M01) : nickel finish, to insert in pre pierced holes in panels 5 mm diameter.

.8 Circular wire-pass : prefabricated caps composed of a fixed flange concealing the edge of the opening and a removable cap, hole of 60 mm diameter, 72 mm diameter overall, in black plastic.

.9 Wire Pass moldings: 50 x 38 x 38 mm, in black PCV, fastened with screws and not glued.

.10 Plastic screw concealer, to insert in countersunk holes of 10 mm diameter, to conceal anchor screws of wall casework of color matching the color of panels in which they are integrated.

.11 Steel adjustable leg, 710 mm high, 60 mm in diameter, with adjustment of 30 mm, black finish, with appropriate fastening device.

.12 Catch for removable panel of furniture module M02: in brass, projection 60mm and width11mm.

.13 Magnetic catch with pressure plate: white plastic finish, 28.5mm with magnet.

.14 Double hook for ceiling : chromed metal, 55mm x 35mm.

.15 All other casework hardware specifically indicated on drawings and/or required to complete the works.

## 2.4 MISCELLANEOUS HARDWARE ARTICLES

.1 Closet rods and supports

.1 Metal closet rod supports, dimensions according to indications.

.2 Telescoping closet rod with integrated rod supports, finish 645 (nickeled).

## 2.5 FASTENINGS

.1 Provide screws, bolts, expandable anchors and other fastening devices necessary to provide satisfactory fastening and to adequate functioning of hardware articles.

.2 Apparent fastening devices must have the same finish as the installed hardware article.

.3 Use fasteners in materials compatible with the one they go through.

## 2.6 FABRICATION

.1 Construct casework elements and plate them according to indications and approved shop drawings.

.2 Set nails and countersink screws apply stained wood filler to indentations, sand smooth and leave ready to receive finish.

.3 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.

.4 Shelving to cabinetwork to be adjustable unless otherwise noted.

.5 Provide cut-outs for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

.6 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

.7 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

.8 Ensure adjacent parts of continuous laminate work match in colour and pattern.

.9 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 3000 mm. Keep joints 600 mm from sink cut-outs.

.10 Use straight PVC strip for flatwork to cover exposed edge of core material. Edges of shelves, doors, drawer fronts, and counters are laminated with plastic laminate identical to the one used for apparent surfaces. Do not mitre laminate edges.

.11 Apply laminate backing sheet to reverse side of core of plastic laminate work.

.12 Apply laminated plastic liner sheet to interior of cabinetry and where indicated.

**2.7 FINISHING**

.1 Sand the works before varnishing them

.2 Finish elements as approved samples.

## Part 3 Execution

**3.1 EXAMINATION**

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for architectural woodwork installation in accordance with manufacturer's instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

**3.2 INSTALLATION**

.1 Do architectural woodwork to Quality Standards of AWMAC.

.2 Install prefinished millwork at locations shown on drawings with precision and position accurately, level, and plumb straight.

.3 Fasten and anchor millwork securely. Supply and install heavy duty fixture attachments for wall mounted cabinets.

.4 Use draw bolts in countertop joints.

.5 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.

.6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.

.7 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

.8 When required, coordinate the installation of mirrors above the furniture with section 08 80 50- Glazing.

## 3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.1 Clean all surfaces of casework, including drawers, interior of cabinets, exterior surfaces of work, of finish carpentry and architectural wood works.

.2 Remove excess glue from surfaces.

.3 Waste Management: separate waste materials for reuse/recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

## 3.4 PROTECTION

.1 Protect cabinet work from damage until final inspection.

.2 Protect installed products and components from damage during construction.

.3 Repair damage to adjacent materials caused by architectural woodwork installation.

**END OF SECTION**