

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 05 50 00 – Metal Fabrications
- .2 Section 09 20 13 – Ceramic Tiling
- .3 Section 22 42 16 – Commercial Lavatories and Sinks
- .4 Section 26 50 00 – Lighting

1.2 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)
 - .1 ANSI/ASME B18.6.1 1981 (R2016) Wood Screws (Inch Series).
 - .2 ANSI/BHMA A156.9-2015, Cabinet Hardware.
 - .3 ANSI/BHMA A156.11-2014, Cabinet Locks.
 - .4 ANSI/BHMA A156.16-2018, Auxiliary Hardware.
 - .5 ANSI/BHMA A156.18-2016, Materials and Finishes.
 - .6 ANSI/BHMA A156.20-2017, Strap and Tee Hinges, and Hasps.
 - .7 ANSI A208.1-2016, Particleboard.
 - .8 ANSI A208.2-2016, Medium Density Fiberboard (MDF) for Interior Applications.
 - .9 ANSI/HPVA HP-1-16, Standard for Hardwood and Decorative Plywood.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 North American Architectural Woodwork Standards (NAAWS) 3.1, 2017
- .3 ASTM International
 - .1 ASTM A153/A153M-16a, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - .2 ASTM E 1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
 - .3 ASTM F1667-18a Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-11.3-M87, Hardboard.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
 - .3 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
- .5 CSA Group (CSA)
 - .1 CSA B111-74 (R2003), Wire Nails, Spikes and Staples
 - .2 CSA O112-M Series 1977 (R2006) Standards for Wood Adhesives.
 - .3 CSA O121-17, Douglas Fir Plywood.

- .4 CSA O141-05 (R2014), Softwood Lumber.
- .5 CSA O151-17, Canadian Softwood Plywood.
- .6 CSA O153-13 (R2017), Poplar Plywood.
- .7 CAN/CSA-Z809-16, Sustainable Forest Management
- .6 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001 V5-2 EN (2015), FSC Principles and Criteria for Forest Stewardship.
- .7 Green Seal Environmental Standards (GS)
 - .1 GS-11-2015, Paints, Coatings, Stains and Sealers.
 - .2 GS-36-2013, Adhesives for Commercial Use.
- .8 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .9 National Electrical Manufacturers Association (NEMA)
 - .1 ANSI/NEMA LD3 (2005), High-Pressure Decorative Laminates (HPDL).
- .10 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2016, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2017, Adhesives and Sealant Applications.
- .11 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2015-2019 Standard and Rules.

1.3 PRE-INSTALLATION MEETING

- .1 Prior to enclosing framing, convene a meeting of contractor, casework fabricator, casework installer, framing subcontractor.
 - .1 Review locations of backing required for casework installation as shown on shop drawings and as necessary for installation.
 - .2 Review method of attachment for backing to wall system.
 - .3 Review coordination with other affected sections.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Prepare and submit material list in accordance with NAAWS 3.1, cross-referenced to specifications.
 - .2 Include manufacturer's instructions, printed product literature, data sheets and catalogue pages for all materials and products to be incorporated into architectural wood casework and include product characteristics, performance criteria, dimensions and profiles, finish and limitations on use.

- .3 Submit two copies of WHMIS SDS in accordance with Section 01 35 29.06 – Health and Safety Requirements.
- .3 Hardware List:
 - .1 Submit hardware list cross-referenced to specifications.
 - .2 Include manufacturer’s specification sheets indicating name, model, material, function, finish, BHMA designations and other pertinent information.
- .4 Shop Drawings:
 - .1 Prepare and submit shop drawings in accordance with NAAWS 3.1 and as follows.
 - .2 Submit shop drawings for initial review in accordance with requirements of Division 01. Revise as directed, submit for final acceptance and distribution.
 - .3 Indicate details of construction, profiles, jointing, fastening and other related details.
 - .1 Details 1:2 or 1:5 as appropriate.
 - .4 Indicate materials, thicknesses, finishes and hardware.
 - .5 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
 - .6 Show location on casework elevations of backing required in supporting structure for attachment of casework.
 - .7 Indicate AWMAC quality grade where different from predominant grade specified.
 - .8 Include color schedule of all casework items, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.
 - .9 Coordinate with Section 05 50 00 – Metal Fabrications for provision of shop drawings and coordination of Huddle Canopy oak hardwood slats.
- .5 Samples:
 - .1 Prepare and submit samples in accordance with NAAWS 3.1 and as follows.
 - .2 Apply sample finishes to specified substrate or core material minimum 300 x 300 mm to match designer sample. For veneers with transparent finish submit three samples to illustrate range and colour of grain expected.
 - .3 Shop applied coatings:
 - .1 For transparent finish, submit triplicate samples of each species and cut of wood to be used, finished to match project sample as specified.
 - .2 For opaque finish, submit triplicate samples for each colour selection, finished to match project sample as specified.
 - .4 Submit duplicate samples of laminated plastic for each specified colour selection.
 - .5 Submit duplicate samples of laminated plastic joints, edging, cutouts and post-formed profiles.
 - .6 Certifications: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.5 SUSTAINABLE DESIGN SUBMITTALS

- .1 Low Emitting Materials:
 - .1 Submit listing of adhesives and sealants, paints and coatings used in building, comply with VOC and chemical component limits or restrictions requirements
 - .2 Submit listing of composite wood products used in building, stating that they contain no added urea-formaldehyde resins, laminate adhesives used in building, stating that they contain no urea-formaldehyde.
- .2 Submit vendor's Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.
 - .1 Submit vendor's FSC Chain-of-Custody Certificate number.
- .3 Submit ASTM E 1333 test report for formaldehyde emissions from composite wood products showing compliance with specified limits.
- .4 Submit product data indicating compliance with other specified sustainable design characteristics.

1.6 QUALITY ASSURANCE

- .1 Perform Work of this Section by single architectural wood casework fabricator with minimum 5 years of current architectural casework production experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.
- .2 Independent inspection/testing agency may be engaged by Departmental Representative for purpose of inspecting and/or testing Work of this Section.
 - .1 Cost of inspection and testing services will be borne by Departmental Representative.
- .3 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 – Quality Control.
 - .2 Shop prepare one counter top, wall cabinet, and base cabinet unit, complete with hardware and shop applied finishes, and install where directed by Departmental Representative.
 - .3 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with Work.
 - .4 When accepted, mock-up will demonstrate minimum standard for Work.
 - .5 Do not proceed with work prior to receipt of written acceptance of mock-up by Departmental Representative.
 - .6 Accepted mock-up may remain as part of finished work.

1.7 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 Deliver wood casework only when area of work is enclosed, plaster and concrete work is dry, and area is broom clean and site environmental conditions are acceptable for installation.

- .3 Protect millwork against dampness and damage during and after delivery.
- .4 Store millwork in ventilated areas, protected from extreme changes of temperature and humidity, and within range recommended by NAAWS 3.1 for location of project.
- .5 Store materials indoors in dry location in clean, dry, well-ventilated area.
- .6 Protect architectural woodwork and hardware from nicks, scratches, and blemishes.
- .7 Replace defective or damaged materials with new.
- .8 Waste Management: for packaging and materials, in accordance with Section 01 74 19 – Waste Management and Disposal.

Part 2 Products

2.1 SUSTAINABILITY CHARACTERISTICS

- .1 Lumber, plywood and composite wood products to be CAN/CSA-Z809 or FSC or SFI certified.
- .2 Adhesives: VOC limit 120 g/L maximum to GS-36.
- .3 Coatings
 - .1 Clear Wood Finishes: VOC limit 550 g/L maximum to GS-11.
 - .2 Paints: VOC limit 50 g/L maximum to GS-11.

2.2 QUALITY GRADE

- .1 Provide all materials and perform all fabrication in accordance with NAAWS 3.1 Custom Grade and as follows, except where specified otherwise:
- .2 In case of conflict between Specifications and Drawings and NAAWS 3.1 grade requirements, Specifications and Drawings govern.

2.3 LUMBER

- .1 Softwood and Hardwood Lumber: Sound lumber to specified NAAWS 3.1 quality grade requirements, kiln-dried to moisture content recommended by NAAWS 3.1 for location of the Work.
- .2 Machine stress-rated lumber is acceptable for all purposes.
- .3 Face framing, pulls, trims, molding, edge-banding, stiles and rails: birch species, in profiles indicated.

2.4 PANEL MATERIALS

- .1 Interior mat-formed wood particleboard: to ANSI A208.1, industrial grade M-2 or M-3, medium density (640-800 kg/m³), thickness 19 mm unless indicated otherwise.
 - .1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.
- .2 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/m³, Grade, 19 mm thick unless indicated otherwise

- .1 Use moisture resistant MR grade for countertops and splash-backs to receive plumbing fixtures.
- .3 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .4 Hardwood plywood: to ANSI/HPVA HP-1.
- .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .6 Poplar plywood (PP): to CSA O153, standard construction.
- .7 Hardboard: To CAN/CGSB-11.3.

2.5 DECORATIVE TAMBOUR

- .1 Oak Wood veneer sanded and unfinished, applied on a backing of high-density MDF 5mm thick with 19mm slats. Prepare to receive paint or stain finish to selection of departmental representative.

2.6 LAMINATED PLASTIC MATERIALS

- .1 Laminated plastic for flatwork: to NEMA LD3.
 - .1 Allow for up to 2 laminate types for horizontal applications to selection by departmental representative.
 - .2 Allow for up to 3 laminate types for vertical applications to selection by departmental representative.
 - .3 High pressure decorative laminated (HPDL) plastic.
 - .1 Type: GP (general purpose).
 - .2 Horizontal Surfaces: HGL to suit application, 1.2 mm thick.
 - .3 Vertical Surfaces: VGL to suit application, 0.71 mm thick.
 - .4 Colour: multilayered.
 - .5 Pattern: woodgrain, concrete, solid, metallic, printed, or pattern to selection by departmental representative
 - .6 Finish: satin, matt, textured, furniture, gloss, or embossed to selection by departmental representative.
 - .4 Laminated plastic for backing sheet:
 - .1 Type: backer.
 - .2 Grade: BKH.
 - .3 Thickness: not less than 0.5 mm thick or same thickness as face laminate.
 - .4 Colour: same colour as face laminate.
 - .5 Laminated plastic liner sheet: CLS grade, .5 mm thick, almond colour.
 - .6 Laminated plastic fire retardant: to NEMA LD3.
 - .1 Type: flame retardant.
 - .2 Grade: SGF, VGF, or HGF.
 - .3 Size: 1.016 mm thick.
 - .4 Colour: integral colour throughout or multilayered.
 - .5 Pattern: concrete look, printed pattern, or solid. to selection by departmental representative

- .6 Finish: gloss, matt, embossed, satin, furniture, or textured to selection by departmental representative
- .7 Edge finishing for doors, drawer fronts, shelves and false fronts:
 - .1 HPDL to match face.
- .8 Laminated plastic adhesive as recommended by laminate manufacturer technical manual:
 - .1 Adhesive: resorcinol resin adhesive to CSA O112.10, contact adhesive to CAN/CGSB-71.20, polyvinyl adhesive to CSA O112-M, two component epoxy thermosetting adhesive, or urea resin adhesive to CSA O112.

2.7 SPECIALTIES FABRICATION

- .1 Install hardwood slats into Huddle canopy as indicated. Coordinate size, spacing and fastening with Section 05 50 00 – Metal Fabrications. Prepare to receive paint or stain finish to the selection of the departmental representative.
- .2 Install decorative tambour around charging station column enclosure as indicated. Prepare to receive paint or stain finish to the selection of the departmental representative.

2.8 CASEWORK FABRICATION - GENERAL

- .1 Fabricate casework of specified core and surface finish materials to specified NAAWS 3.1 quality grade.
 - .1 Construction type: frameless.
 - .2 Door-cabinet interface: flush overlay.
- .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 cutouts 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.

2.9 LAMINATED PLASTIC CASEWORK FABRICATION

- .1 Do laminated plastic fabrication in compliance with ANSI/NEMA LD3, Annex A and specified NAAWS 3.1 quality grade.
- .2 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .3 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 cutouts.

- .4 Form shaped profiles and bends as indicated, using post-forming grade laminate to laminate manufacturer s instructions.
- .5 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 mitre laminate edges.
- .6 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .7 Apply laminated plastic liner sheet where indicated to interior of cabinetry.
- .8 Drawer Construction:
 - .1 Sides:
 - .1 Manufactured metal drawer side and slide system that includes attachment provisions for back and bottom and hardware mounting brackets for drawer face that facilitates tool-free drawer face attachment and removal
 - .2 Custom grade: HPDL on MDF or particleboard.
 - .3 Premium grade: 7-ply veneer core with HPDL faces.
 - .2 Bottoms: thickness 6 mm.
 - .3 Joinery: Meeting requirements of NAAWS 3.1 for Grade specified.
 - .1 Sides, front and back: Miter fold.
 - .4 Drawer bottoms held in place with drawer hardware to sides and mechanically fastened to back and sub front

2.10 CABINET HARDWARE

- .1 Cabinet hardware: to NAAWS 3.1 quality grade specified and to ANSI/BHMA A156.9, designated by letter B and numeral identifiers as listed below.
- .2 Finish:
 - .1 Exposed hardware: finished to 622 Matte black
 - .2 Semi-exposed hardware: Manufacturer's standard finish.
- .3 Casework door hinges: concealed European style Grade II hinges minimum 120° opening.
- .4 Pulls: surface mounted pull, functional metal D, rectangular profile type B02191, finished to 622 Matt Black, 104 mm centres, 8 mm dia.
- .5 Catches: magnetic friction catch, type.
- .6 Shelf brackets and standards: type recessed vertical slotted shelf standard, with shelf brackets.
- .7 Drawer slides for all drawers:
 - .1 Slide type: side mounted.
 - .2 Extension and capacity: full extension meeting requirements of NAAWS 3.1 for type and size of drawer.

2.11 CABINET LOCKS

- .1 Do not provide locks.

2.12 ACCESSORIES

- .1 Wood screws: stainless steel, type and size to suit application.
- .2 Nails and staples: to CSA B111 and ASTM F1667.
- .3 Splines: metal or wood.
- .4 Sealant: in accordance with Section 07 92 00 – Joint Sealants.

2.13 LAMINATED PLASTIC COUNTERTOPS

- .1 Laminated plastic for flatwork: to ANSI/NEMA LD3 (2005).
 - .1 Type: general purpose.
 - .2 Grade: HGS HGL.
 - .3 Size: 1.2 mm thick.
 - .4 Colour: integral colour throughout, multilayered.
- .2 Core material: 19 mm exterior grade hardwood plywood with a non-telegraphing grain, particleboard.
 - .1 Countertops to receive plumbing fixtures: Veneer core plywood with type II adhesive.
- .3 Front edges: As shown on plans.

Part 3 Execution**3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections 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 Install architectural wood casework in accordance with NAAWS 3.1 grade for respective items.
- .2 In case of conflict between Specifications and Drawings and NAAWS 3.1 grade requirements, Specifications and Drawings governs.
- .3 Install prefinished millwork at locations shown on drawings.

- .1 Position accurately, level, plumb straight.
- .4 Fasten and anchor millwork securely.
 - .1 Supply and install heavy duty fixture attachments for wall mounted cabinets.
- .5 Countersink mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws securing cabinets end to end.
- .6 Use draw bolts in countertop joints.
- .7 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.
- .8 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.
- .9 Apply moisture barrier between wood framing members and masonry or cementitious construction.
- .10 Fit hardware accurately and securely in accordance with manufacturer s written instructions.
- .11 Make cutouts for inset equipment and fixtures using templates provided.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 – General Instructions, “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 00 10 – General instructions, “Cleaning”.
 - .1 Clean cabinet work, millwork, outside surfaces, inside cupboards, and drawers.
 - .2 Remove excess glue, pencil and ink marks from surfaces.
- .3 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 19 – Waste Management and Disposal.

3.4 PROTECTION

- .1 Protect millwork 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.
- .4 Leave work to be site finished ready for finishing by Section 09 91 23 – Interior Painting.

END OF SECTION