

WOOD FURNITURE

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PART 1: GENERAL

1. PROJECT INFORMATION

Public Works and Government Services Canada (PWGSC) is renovating the heritage building located at 111 Wellington Street in downtown Ottawa, Ontario.

The 111 Wellington Building is a four-story heritage structure (a mechanical penthouse, four [4] floors above grade and two [2] partial basement levels and a partial basement mezzanine level). The building has no loading dock. Access for delivery will be provided at one or more of the building entrances.

2. REQUIRED SERVICES

PWGSC requires the services of a Contractor to supply, deliver and install Wood Furniture for offices and meeting rooms located at 111 Wellington Street, Ottawa, Ontario.

Group 1: There are approximately twenty-seven (27) pieces of MN Furniture to be delivered and installed in 3 separate deliveries between December 1, 2017 and March 2018.

Group 2: There are three (3) Modified Desks to be delivered and installed in 3 separate deliveries between December 1, 2017 and March 2018.

Group 3: There are five (5) pieces of Racetrack Tables to be delivered and installed in 3 separate deliveries between February 1, 2018 and April 2018.

Group 4: There is one (1) Supervisor's Cabinet to be delivered and installed between February 1, 2018 and March 2018.

Group 5: There are six (6) pieces of Lounge Serveries to be delivered in 2 deliveries between February 1 2018 and April 2018.

Group 6: There are seven (7) Meeting Room - Flag Stands to be delivered and installed between February 1, 2018 and March 2018.

3. CONSTRAINTS

Due to constraints in site access, security, scheduling requirements and site access procedures, the Contractor is required to arrange for a location in the National Capital Region where the Technical Authority can conduct an inspection of the products prior to shipping each of the shipments to the building site.

There is a security requirement associated with this requirement. The Contractor must ensure security clearance requests are submitted within thirty (30) days of contract award. Any Contractor not submitting the required documentation within this prescribed timeline will be charged the cost of additional security escorts that may be required during the component delivery and installation process.

PART II: SCOPE OF WORK

The scope of work is for the supply, delivery and installation of Wood Furniture as per the table below.

The table below provides Group number, drawing reference code and quantity for each piece. Drawing codes and quantities are referenced in Attachments 1 and 2 to Annex A: Drawings for Groups 1, 2, 3, 4, 5 & 6, and Location Plans by Group for installation locations.

Group 1 – MN Furniture			
Furniture Type	Drawing Code	Quantity	Optional Additional Quantity
MN Bookcase Unit	BCC-450a, BCC-450b	8	5
MN Credenza	BCC-451	9	5
MN Desk	BCC-452	2	12
MN Computer Desk	BCC-453	8	6

Group 2 – Modified Desk		
Furniture Type	Drawing Code	Quantity
Modified Desk	BCC-456	3

Group 3 – Racetrack Tables		
Furniture Type	Drawing Code	Quantity
1 Person Rectangular Table	BCC-490, BCC-492	1
12 Person Racetrack Table	BCC-490, BCC-492	2
18 Person Racetrack Table	BCC-491, BCC-492	1
22 Person Racetrack Table	BCC-491, BCC-492	1

Group 4 – Supervisor’s Cabinet		
Furniture Type	Drawing Code	Quantity
Supervisor’s Cabinet	BCC-440, BCC-441	1

Group 5 – Lounge Serveries		
Furniture Type	Drawing Code	Quantity
Lounge Serveries	BCC-483, BCC-484, BCC-485	4 X Open Shelves Servery, 2 X Sliding Doors Servery

Group 6 – Meeting Room – Flag Stand		
Furniture Type	Drawing Code	Quantity
Meeting Room – Flag Stand	BCC-470	7

The Contractor will supply, deliver and install furniture as detailed in this document.

SECTION 1: GROUPS

1. GROUP 1

1. SCOPE

1.1 This specification is for the manufacture of Office Wood Furniture for the MN Suites, described below in section 1.2, and delivery and installation at 111 Wellington Street.

1.2 This scope represents the wood furniture located in the MN Suites, as follows:

Group 1 – MN Furniture			
Furniture Type	Drawing Code	Quantity	Optional Additional Quantity
MN Bookcase Unit	BCC-450a, BCC-450b	8	5
MN Credenza	BCC-451	9	5
MN Desk	BCC-452	2	12
MN Computer Desk	BCC-453	8	6

1.3 These specifications are to be read in conjunction with the MN Furniture drawings provided in Attachment 2 to Annex A.

1.4 Samples of all hardware, finishes, and veneer assembly must be provided for approval before final manufacture of the components.

1.5 After contract award and approval of all finishes and hardware, a finished prototype including all hardware and accessories is required. The purpose of the prototype is to assess craftsmanship, aesthetics, wood grain, colour and finish. The following components will require a prototype before final manufacture can proceed:

1.5.1 One (1) MN Bookcase Unit

1.5.2 One (1) MN Credenza

1.5.3 One (1) MN Desk

1.5.4 One (1) MN Computer Desk

2. STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

2.1.1 CAN/CGSB-44.227, Free Standing Office Desk Products and Components

2.1.2 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.

2.1.3 ANSI A208.1, Particleboard, Mat-Formed Wood, Grade M2 or greater

2.1.4 AWI, Architectural Woodwork Institute

2.1.5 ANSI / BIFMA X5.5-2014 Desk Products

Note: Undated reference refers to the latest issue.

2.2 Regulations

2.2.1 Ontario Regulations 347 "General-Waste Management Regulation R.R.O 1990 (as amended).

2.2.2 Ontario Regulation 102/94 "Waste Audits and Waste Reduction Work Plans".

2.2.3 Ontario Regulations 103/94 "Industrial, Commercial and Institutional Source Separation Programs".

3. ENVIRONMENTAL ATTRIBUTES

3.1 Only non-solvent based adhesives are to be used.

3.2 The furniture is to be manufactured in such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.

3.3 The furniture is to be exposed to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.

3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.

3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4. MATERIALS

4.1 Hardwood Lumber

4.1.1 All hardwood lumber is to be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.

4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, plain sliced (flat sliced) only. Well matched for uniform colour and straight grain with no bow, warp, twist or hooks.

4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots are to be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.

4.1.4 No finger jointed, built-up or laminated lumber will be permitted.

4.1.5 Exposed parts (visible surfaces) to be constructed from plain sliced (flat sliced), select and better grade wood (species to be Black Walnut – *Juglans Nigra*) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.

- 4.1.6 Semi-exposed parts (interior surfaces of furniture not visible when doors and drawers are closed) to be constructed from plain sliced (flat sliced), select and better grade (species to be Black Walnut – *Juglans Nigra*) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.7 Concealed parts (non-visible surfaces of furniture whether doors and drawers are open or closed) to be constructed using birch or maple species to AWMAC Architectural Woodwork Standards for custom grade or better.

4.2 Hardwood Veneer

- 4.2.1 All veneer is to conform to Architectural Woodwork Standards (AWS) Section 4. Grade AA. Veneer to be a minimum thickness of 0.60 mm. Minimum 150 mm wide flitch. Suitable for the application of transparent finishes. Minimum thickness for table top: 3.20 mm.
- 4.2.2 Veneer to be press dried to a uniform moisture content of 10%-12%. Select only veneers that exhibit no streaks, wild grain, worm holes, pin knots or improper cutting. A limited number of pin knots are permitted provided they are not in clusters and do not detract from the overall appearance of the panel. All veneers to be selected for uniform colour presentation and straight uniform grain patterning. Select veneers to match colours and appearance of grain in adjacent solid hardwood components. Veneers to be sourced from the same flitch for all components in the same component to ensure uniformity and consistent appearance throughout.
- 4.2.3 All veneer is to be book matched, unless otherwise specified on the drawings. Exposed vertical flat panels such as back, side panels, modesty panels and door fronts must be book matched and centre balanced matched. Vertical surfaces that make up a plane and are not separated from each other by a feature such as framing including the front or back of the cabinet are to be book matched and centre balanced matched veneer over the entire plane. One heart must be provided for the vertically stacked drawer faces in each pedestal and the grain is to be aligned from drawer face to drawer face for aesthetic grain continuity. This requirement is to be applied to all similar vertically stacked conditions, including drawer and door combinations.
- 4.2.4 Veneer for exposed parts (visible surfaces), to be plain sliced (flat sliced) Black Walnut (species *Juglans Nigra*) for a transparent finish. Flitches with narrow heart must be selected for surfaces to receive plain sliced (flat sliced) veneer.
- 4.2.5 Veneer for semi-exposed parts (interior surfaces of furniture not visible when doors and drawers are closed and including back face of parts such as gables, modesty panels, end panels, etc.) to be plain sliced (flat sliced) Black Walnut (species *Juglans Nigra*).
- 4.2.6 Veneer for concealed parts (non-visible surfaces of furniture, whether doors and drawers are open or closed and including back face of parts where veneer is applied to provide balanced construction) to be plain sliced (flat sliced) hardwood veneer.

4.3 Core Material

- 4.3.1 Particleboard used as panel core is to conform to ANSI 208.1 Particleboard, Mat-Formed Wood, Grade M2 or greater. The particleboard is to have uniform moisture content in the range of 6%-8% at the time of manufacture of the various components. Sizes and thicknesses as indicated in the drawings. Provide in single thicknesses to match thickness of panel components as detailed. Laminate multiple layers as required to produce panels of non-standard thicknesses.

4.4 Adhesives

- 4.4.1 Use adhesive type recommended by AWMAC to suit application. Provide waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery to be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.
- 4.4.2 Plastic Laminate adhesive to be contact adhesive. Heavy duty, water based adhesive recommended by laminate manufacturer for specific type of laminate and substrate.

4.5 Wood Finishes

- 4.5.1 An example of an acceptable finish is: Mohawk Wiping Stain, 404-D Dark Fruitwood. Colour sample to be provided to the Contractor.
- 4.5.2 Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.6 Hardware and Accessories

- 4.6.1 Adjustable heavy duty metal glides are to be provided. Stem length to be 76 mm for all components except the Bookcase Unit which is to have a stem length of 100 mm. Finish to be black oxide.
- 4.6.2 Door and drawer pulls are to be cast architectural brass octagonal knob with bronze finish, nominal 28 mm diameter by 25 mm high.
 - 4.6.2.1 Finish is to be dark oxidized satin bronze, oil rubbed, finish code 613 to CAN/CGSB-69.34-M90, Materials and Finishes.
 - 4.6.2.2 Door and drawer pulls Used: Octagonal knob 01W25.03 by Lee Valley Tools, or equivalent, to be 28mm diameter by 25mm high, finish to be as specified in 4.6.2.1.
- 4.6.3 Hinges to be concealed, European style, self-closing and 110 degree of opening, dark hinges satin chrome or stainless steel finish.
- 4.6.4 Drawer slides are to be aluminum or plated steel of standard commercial manufacture, incorporating progressive extension action and steel ball bearings. Drawer slides to be full extension and soft-closing.
- 4.6.5 Door and drawer locks to be wafer tumbler type, with re-keyable cylinders and must have at least 50 different key combinations. Colour to be statuary bronze.
 - 4.6.5.1 Each section of the bookcase unit is to have double door locking mechanism having one cylinder to lock the two doors simultaneously. Acceptable part: CompX Timberline Type 250.
 - 4.6.5.2 Each credenza is to have central locking mechanism having one cylinder to lock the two doors and all drawers simultaneously. Acceptable part: CompX Timberline System 500.

- 4.6.5.3 Each pedestal and each bank of drawers must be provided with a gang locking mechanism having one cylinder to lock all drawers simultaneously. Acceptable part: CompX Timberline System 150.
- 4.6.5.4 All locks in each individual furniture item are to be keyed alike and all locks in each furniture set comprising one MN Desk, one MN Credenza, one MN Bookcase Unit and one MN Computer Desk must be keyed alike. Two keys are to be provided for each furniture set.
- 4.6.5.5 Codes and depth key to be provided to the Technical Authority.
- 4.6.5.6 Locks used: Removable Lock Plug System
 90 degree key turn
 Manufacturer: CompX Timberline
 Model: C400LP-20
 Colour: Statuary Bronze
 Provide key cuts charts to cut by code
 Key code to be stamp on the face of lock
 Solid Brass Keys
- 4.6.6 Shelf Supports for adjustable shelves to be nominal 5mm diameter, metal pins having a brown colour plated finish.
- 4.6.7 Cable Grommets to be molded plastic assemblies with removable and re-usable covers, colour to best match veneer. Covers for cable grommets locations to leave a nominal 19mm diameter opening, when in place. Covers for cable grommets for furniture base locations to leave a nominal 19mm x 50mm opening when in place.
 - 4.6.7.1 The Contractor to suggest grommet for approval when submitting shop drawings for the following. The following list includes acceptable grommets:
 - 4.6.7.1.1 Round Wire Grommet 33 mm opening inner diameter. Colour to be brown to match wood finish. Acceptable material: Mockett BG3 Flip-Top Series – 1 ½” Hole, Colour 91 Walnut Brown.
 - 4.6.7.1.2 Round Wire Grommet 58 mm opening inner diameter. Colour to be brown to match wood finish. Acceptable material: Mockett EDP3 Flip-Top Series – 2 ½” Hole, Colour 91 Walnut Brown.
 - 4.6.7.1.3 Round Wire Grommet 71 mm opening inner diameter. Colour to be brown to match wood finish. Acceptable material: Mockett XG3 Flip-Top Series – 3” Hole, Colour 91 Walnut Brown.
 - 4.6.7.2 The Contractor to suggest grommet for approval when submitting shop drawings for the bases of the desks and computer tables. The following list includes an acceptable grommet:
 - 4.6.7.2.1 Wire Grommet, Rectangular 102mm x 51mm, with rounded corners as indicated on drawings. Colour to be brown to match wood finish. Acceptable material: Mockett RG3 Rectangular Grommet Sherlock, Colour 91 Walnut Brown.

- 4.6.8 Cable management channels to be a minimum 38 mm deep x 50 mm high, to support user cabling and must accommodate simple lay-in routing and organization of cables and wiring. Cable management channels to be brown to match wood finish.
 - 4.6.8.1 Contractor to propose cable management channels, to be used, for approval when submitting shop drawings. 1230mm is the length desired.
- 4.6.9 Keyboard Support Surface:
 - 4.6.9.1 The keyboard platform to be QS SKATE 685mm wide 'skate' platform with leather like palm support from ISE for corner surface and for straight surface.
 - 4.6.9.2 The keyboard arm to be ISE- A-LSTL, Leader series articulation lever free spring assisted arm, 596mm track and 457mm-558mm for corner.
- 4.6.10 Drawer file frame kit: hanging file folder support system for letter or legal size hanging files. Mount two support rails to the inside faces of the front and back drawer panels, providing a sturdy base for attaching cross rails. Fabricate rails from thin steel sheet formed into a U-shaped profile. Cut to length for a custom fit. Press fit onto the ends of the side rails, hook shaped caps snap onto the support rails, forming a rigid frame. Smooth powder-coated rails. Provided with divider rail to separate files.
 - 4.6.10.1 Acceptable Material: Lee Valley series 00S09.
- 4.6.11 Pencil tray to be black plastic moulded to multiple compartments to accommodate pencils, pens, paper clips. Sized to sit on top edges of drawer frame.

4.7 Plastic Laminate

- 4.7.1 Plastic laminate must be high performance, high pressure laminate (HPL) to ANSI/NEMA LD 3. Manufacturers standard surface papers with melamine resins, bonded under heat and pressure to kraft paper backing sheet with phenolic resins. Properties to be as follows:
 - 4.7.1.1 Horizontal Grade: HGL. For backing sheets.
 - 4.7.1.2 Thickness: HGL: 0.8 mm.

5. CONSTRUCTION

5.1 General

- 5.1.1 Furniture is to be constructed in accordance with the drawings provided in Attachment 2 to Annex A and approved shop drawings and must meet the requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.
- 5.1.2 Furniture parts, unless otherwise indicated on the drawings provided, are to be constructed from veneered particleboard.
- 5.1.3 All veneered particleboard parts are to be veneered both sides to provide balanced construction.
- 5.1.4 Provide solid blocking where indicated on drawings.

- 5.1.5 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.6 Edges of particleboard parts in exposed locations to be edged with same veneer species and quality as face, except where fully concealed by solid hardwood edging or molding. Finger jointed veneer edging will not be accepted.
- 5.1.7 Bottom edges of supports to be reinforced and sealed with at least a 0.8 mm thick high pressure laminate, Formica, Black #909, to prevent moisture penetration.
- 5.1.8 The shelves must support continuous loads of heavy objects without sagging.
- 5.1.9 The shelves are to deflect no more than their length divided by 180 (Lu 80) when tested in accordance with the following:
 - 5.1.9.1 Load the shelf surface in accordance with ANSI / BIFMA X5.5, Desk Products, functional distributed load. Along the front edge of the surface, measure the vertical height of the endpoints and center of the shelf surface. Average the height of the end points and subtract the height of the center. The resulting dimension is the deflection.
- 5.1.10 Adjustable shelves to be notched on underside to conceal the four shelf support pins from view and to prevent shelf from being dislodged accidentally when objects are removed.
- 5.1.11 Adjustable shelves are to be adjustable in increments of 32mm.
- 5.1.12 Grain direction to be vertical unless otherwise stated on the drawings.
- 5.1.13 Panels and doors to be fabricated with mortise and tenon joinery. Fabricate mating rail and stile from solid hardwood. Fabricate floating panel from particleboard with veneer on both sides.
- 5.1.14 Drawer construction to be dovetailed full height. Fabricate drawers with false front for application of drawer front panel. Install drawer bottom in groove in drawer sides and front.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.
- 5.2.2 Face veneers to be tightly joined and properly matched and be similar in grain pattern and colour throughout any given area.
- 5.2.3 Moldings and solid wood edgings are to be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.4 Drawers must be properly fitted and are to operate smoothly and silently. Drawer faces in banks and pedestals to be aligned flush and gaps between faces, including gaps between drawer faces and adjacent doors, must be uniform in width and consistent throughout.

- 5.2.5 Exposed joints to be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.6 All fastenings are to be completely concealed and must be set flush.
- 5.2.7 The application of material, drying time, sanding, cleaning, rubbing and waxing, is to be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 5.2.8 All surfaces to be sanded smooth and exposed nails to be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6. FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces, other than drawer interiors and sides, are to be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by
 - 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 One (1) coat of lacquer followed by
 - 6.1.5 Top surfaces are to receive a second coat of lacquer.
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit is to be scuff sanded and cleaned of all dust particles.
 - 6.2.1 The colour value and sheen must match the validated and approved sample.
- 6.3 As a minimum, drawer interiors and sides are to be finished with one coat of vinyl sealer and one coat of catalyzed lacquer to provide a smooth, transparent finish and to protect against warping and stains.
 - 6.3.1 Drawer interiors are to be free of dirt, dust, shavings or any foreign matter before finishing.
- 6.4 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and is to be resistant to minor everyday usage.
- 6.5 Edges of doors and drawers are to have a finish compatible with the exterior finishes.
- 6.6 All interior surfaces exposed during normal use, with the exception of drawer interiors, are to be compatible in colour with the exterior surface.
- 6.7 Sand and clean all surfaces of dust between each operation.
- 6.8 Final colour and sheen to match the approved samples.

2. GROUP 2

1. SCOPE

1.1 This specification is for the manufacture of the Modified Desk, described below in section 1.2, and delivery and installation at 111 Wellington Street.

1.2 This scope represents the wood furniture located in the MP Suites, as follows:

Group 2 – Modified Desk		
Furniture Type	Drawing Code	Quantity
Modified Desk	BCC-456	3

1.3 These specifications are to be read in conjunction with the Modified Desk drawings provided in Attachment 2 to Annex A.

1.4 Samples of all hardware, finishes, and veneer assembly must be provided for approval before final manufacture of the components.

1.5 After contract award and approval of all finishes and hardware, a finished prototype including hardware and accessories is required. The purpose of the prototype is to assess craftsmanship, aesthetics, wood grain, colour and finish. The following components will require a prototype before final manufacture can proceed:

1.5.1 One (1) Modified Desk

2 STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

2.1.1 CAN/CGSB-44.227, Free Standing Office Desk Products and Components

2.1.2 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.

2.1.3 ANSI A208.1, Particleboard, Mat-Formed Wood, Grade M2 or greater

2.1.4 AWI, Architectural Woodwork Institute

2.1.5 ANSI / BIFMA X5.5-2014 Desk Products

Note: Undated reference refers to the latest issue.

2.2 Regulations

2.2.1 Ontario Regulations 347 “General-Waste Management Regulation R.R.O 1990 (as amended).

2.2.2 Ontario Regulation 102/94 “Waste Audits and Waste Reduction Work Plans”.

- 2.2.3 Ontario Regulations 103/94 "Industrial, Commercial and Institutional Source Separation Programs".

3 ENVIRONMENTAL ATTRIBUTES

- 3.1 Only non-solvent based adhesives are to be used.
- 3.2 The furniture is to be manufactured in such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.
- 3.3 The furniture is to be exposed to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.
- 3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.
- 3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4 MATERIALS

4.1 Hardwood Lumber

- 4.1.1 All hardwood lumber is to be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.
- 4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, plain sliced (flat sliced) only. Well matched for uniform colour and straight grain with no bow, warp, twist or hook.
- 4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots are to be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.
- 4.1.4 No finger jointed, built-up or laminated lumber will be permitted.
- 4.1.5 Exposed parts (visible surfaces) to be constructed from plain sliced (flat sliced), select and better grade wood (species to be Black Walnut – Juglans Nigra) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.6 Semi-exposed parts (interior surfaces of furniture not visible when doors and drawers are closed) to be constructed from plain sliced (flat sliced), select and better grade (species to be Black Walnut – Juglans Nigra) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.7 Concealed parts (non-visible surfaces of furniture whether doors and drawers are open or closed) to be constructed using birch or maple species to AWMAC Architectural Woodwork Standards for custom grade or better.

4.2 Hardwood Veneer

- 4.2.1 All veneer is to conform to Architectural Woodwork Standards (AWS) Section 4. Grade AA. Veneer to be a minimum thickness of 0.60 mm. Minimum 150 mm wide flitch. Suitable for the application of transparent finishes. Minimum thickness for table top: 3.20 mm.
- 4.2.2 Veneer to be press dried to a uniform moisture content of 10%-12%. Select only veneers that exhibit no streaks, wild grain, worm holes, pin knots or improper cutting. A limited number of pin knots are permitted provided they are not in clusters and do not detract from the overall appearance of the panel. All veneers to be selected for uniform colour presentation and straight uniform grain patterning. Select veneers to match colours and appearance of grain in adjacent solid hardwood components. Veneers to be sourced from the same flitch for all components in the same component to ensure uniformity and consistent appearance throughout.
- 4.2.3 All veneer is to be book matched, unless otherwise specified on the drawings. Exposed vertical flat panels such as back, side panels, modesty panels and door fronts must be book matched and centre balanced matched. Vertical surfaces that make up a plane and are not separated from each other by a feature such as framing including the front or back of the cabinet are to be book matched and centre balanced matched veneer over the entire plane. One heart must be provided for the vertically stacked drawer faces in each pedestal and the grain is to be aligned from drawer face to drawer face for aesthetic grain continuity. This requirement is to be applied to all similar vertically stacked conditions, including drawer and door combinations.
- 4.2.4 Veneer for exposed parts (visible surfaces), to be plain sliced (flat sliced) Black Walnut (species *Juglans Nigra*) for a transparent finish. Flitches with narrow hearts must be selected for surfaces to receive plain sliced (flat sliced) veneer.
- 4.2.5 Veneer for semi-exposed parts (interior surfaces of furniture not visible when drawers are closed and including back face of parts such as gables, modesty panels, end panels, etc.) to be plain sliced (flat sliced) Black Walnut (species – *Juglans Nigra*).
- 4.2.6 Veneer for concealed parts (non-visible surfaces of furniture, whether drawers are open or closed and including back face of parts where veneer is applied to provide balanced construction) to be plain sliced (flat sliced) hardwood veneer.

4.3 Core Material

- 4.3.1 Particleboard used as panel core is to conform to ANSI 208.1 Particleboard, Mat-Formed Wood, Grade M2 or greater. The particleboard is to have uniform moisture content in the range of 6%-8% at the time of manufacture of the various components. Sizes and thicknesses as indicated in the drawings. Provide in single thicknesses to match thickness of panel components as detailed. Laminate multiple layers as required to produce panels of non-standard thicknesses.

4.4 Adhesives

- 4.4.1 Use adhesive type recommended by AWMAC to suit application. Provide waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery to be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.
- 4.4.2 Plastic Laminate adhesive to be contact adhesive. Heavy duty, water based adhesive recommended by laminate manufacturer for specific type of laminate and substrate.

4.5 Wood Finishes

- 4.5.1 An example of an acceptable finish is: Mohawk Wiping Stain, 404-D Dark Fruitwood. Colour sample to be provided to the Contractor.
- 4.5.2 Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.6 Hardware and Accessories

- 4.6.1 Adjustable heavy duty metal glides are to be provided. Stem length to be 76 mm. Finish to be black oxide.
- 4.6.2 Door and drawer pulls are to be cast architectural bronze octagonal knob, nominal 28 mm diameter by 25 mm high.
 - 4.6.2.1 Finish is to be dark oxidized satin bronze, oil rubbed, finish code 613 to CAN/CGSB-69.34-M90, Materials and Finishes.
 - 4.6.2.2 Door and drawer pulls Used: Octagonal knob 01W25.03 by Lee Valley Tools, or equivalent, to be 28mm diameter by 25mm high, finish to be as specified in 4.6.2.1.
- 4.6.3 Hinges to be concealed, European style, self-closing and 110 degree of opening, dark hinges satin chrome or stainless steel finish.
- 4.6.4 Drawer slides are to be aluminum or plated steel of standard commercial manufacture, incorporating progressive extension action and steel ball bearings. Drawer slides to be full extension and soft-closing.
- 4.6.5 Door and drawer locks to be wafer tumbler type, with re-keyable cylinders and must have at least 50 different key combinations. Colour to be statuary bronze.
 - 4.6.5.1 Each pedestal and each bank of drawers must be provided with a gang locking mechanism having one cylinder to lock all drawers simultaneously. Acceptable part: CompX Timberline System 150.
 - 4.6.5.2 Codes and depth key to be provided to the Technical Authority.
 - 4.6.5.3 Locks used: Removable Lock Plug System
 - 90 degree key turn
 - Manufacturer: CompX Timberline
 - Model: C400LP-20
 - Colour: Statuary Bronze
 - Provide key cuts charts to cut by code
 - Key code to be stamp on the face of lock
 - Solid Brass Keys
- 4.6.6 Cable Grommets to be molded plastic assemblies with removable and re-usable covers, colour to best match veneer. Covers for cable grommets locations to leave a nominal 19mm diameter opening, when in place. Covers for cable grommets for furniture base locations to leave a nominal 19mm x 50mm opening when in place.

4.6.6.1 The Contractor to suggest grommet for approval when submitting shop drawings for the following. The following list includes an acceptable grommet:

4.6.6.1.1 Round Wire Grommet 71 mm opening inner diameter. Colour to be brown to match wood finish. Acceptable material: Mockett XG3 Flip-Top Series – 3” Hole, Colour 91 Walnut Brown.

4.6.6.2 The Contractor to suggest grommet for approval when submitting shop drawings for the bases of the desks. The following list includes an acceptable grommet:

4.6.6.2.1 Wire Grommet, Rectangular 102mm x 51mm, with rounded corners as indicated on drawings. Colour to be brown to match wood finish. Acceptable material: Mockett RG3 Rectangular Grommet Sherlock, Colour 91 Walnut Brown.

4.6.7 Cable management channels to be a minimum 38 mm deep x 50 mm high, to support user cabling and must accommodate simple lay-in routing and organization of cables and wiring. Cable management channels to be brown to match wood finish.

4.6.7.1 Contractor to propose cable management channels, to be used, for approval when submitting shop drawings. 1230mm is the length desired.

4.6.8 Drawer file frame kit: hanging file folder support system for letter or legal size hanging files. Mount two support rails to the inside faces of the front and back drawer panels, providing a sturdy base for attaching cross rails. Fabricate rails from thin steel sheet formed into a U-shaped profile. Cut to length for a custom fit. Press fit onto the ends of the side rails, hook shaped caps snap onto the support rails, forming a rigid frame. Smooth powder-coated rails. Provided with divider rail to separate files.

4.6.8.1 Acceptable Material: Lee Valley series 00S09.

4.7 Plastic Laminate

4.7.1 Plastic laminate must be high performance, high pressure laminate (HPL) to ANSI/NEMA LD 3. Manufacturers standard surface papers with melamine resins, bonded under heat and pressure to kraft paper backing sheet with phenolic resins. Properties to be as follows:

4.7.1.1 Horizontal Grade: HGL. For backing sheets.

4.7.1.2 Thickness: HGL: 0.8 mm.

5 CONSTRUCTION

5.1 General

5.1.1 Furniture is to be constructed in accordance with the drawings provided in Attachment 2 to Annex A and approved shop drawings and must meet the requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.

5.1.2 Furniture parts, unless otherwise indicated on the drawings provided, are to be constructed from veneered particleboard.

- 5.1.3 All veneered particleboard parts are to be veneered both sides to provide balanced construction.
- 5.1.4 Provide solid blocking where indicated on drawings.
- 5.1.5 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.6 Edges of particleboard parts in exposed locations to be edged with same veneer species and quality as face, except where fully concealed by solid hardwood edging or molding. Finger jointed veneer edging will not be accepted.
- 5.1.7 Bottom edges of supports to be reinforced and sealed with at least a 0.8 mm thick high pressure laminate, Formica, Black #909, to prevent moisture penetration.
- 5.1.8 Grain direction to be vertical unless otherwise stated on the drawings.
- 5.1.9 Drawer construction to be dovetailed full height. Fabricate drawers with false front for application of drawer front panel. Install drawer bottom in groove in drawer sides and front.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.
- 5.2.2 Face veneers to be tightly joined and properly matched and be similar in grain pattern and colour throughout any given area.
- 5.2.3 Moldings and solid wood edgings are to be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.4 Drawers must be properly fitted and are to operate smoothly and silently. Drawer faces in banks and pedestals to be aligned flush and gaps between faces, including gaps between drawer faces and adjacent doors, must be uniform in width and consistent throughout.
- 5.2.5 Exposed joints to be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.6 All fastenings are to be completely concealed and must be set flush.
- 5.2.7 The application of material, drying time, sanding, cleaning, rubbing and waxing, is to be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 5.2.8 All surfaces to be sanded smooth and exposed nails to be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6 FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces, other than drawer interiors and sides, are to be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by

- 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 One (1) coat of lacquer followed by
 - 6.1.5 Top surfaces are to receive a second coat of lacquer.
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit is to be scuff sanded and cleaned of all dust particles.
- 6.2.1 The colour value and sheen must match the validated and approved sample.
- 6.3 As a minimum, drawer interiors and sides are to be finished with one coat of vinyl sealer and one coat of catalyzed lacquer to provide a smooth, transparent finish and to protect against warping and stains.
- 6.3.1 Drawer interiors are to be free of dirt, dust, shavings or any foreign matter before finishing.
- 6.4 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and is to be resistant to minor everyday usage.
- 6.5 Edges of doors and drawers are to have a finish compatible with the exterior finishes.
- 6.6 All interior surfaces exposed during normal use, with the exception of drawer interiors, are to be compatible in colour with the exterior surface.
- 6.7 Sand and clean all surfaces of dust between each operation.
- 6.8 Final colour and sheen to match the approved samples.

3. GROUP 3

1. SCOPE

- 1.1 This specification is for the manufacture and installation of Racetrack Tables, described below in section 1.2, and delivery in a space in the Downtown Ottawa core.
- 1.2 This scope represents the Racetrack Tables located in the Meeting Rooms, as follows:

Group 3 - Racetrack Tables		
Furniture Type	Drawing Code	Quantity
1 Person Rectangular Table	BCC-490, BCC-492	1
12 Person Racetrack Table	BCC-490, BCC-492	2
18 Person Racetrack Table	BCC-491, BCC-492	1
22 Person Racetrack Table	BCC-491, BCC-492	1

- 1.3 These specifications are to be read in conjunction with the Racetrack Tables drawings provided in Attachment 2 to Annex A.
- 1.4 Sample of all hardware, finishes, and veneer assembly **must** be provided for approval before final manufacture of the components.
- 1.5 After contract award and approval of all finishes and hardware, a finished prototype complete with IT component integration (MM & power/data) with all hardware and accessories will be required. The purpose of the prototype is to assess craftsmanship, aesthetics, wood grain, colour and finish. The following components will require a prototype before final manufacture can proceed:
- 1.5.1 One (1) 12 Person Racetrack Table
- 1.6 Due to the building constraints, no individual table component can exceed the size of the elevator dimensions specified below.
- 1.6.1 Elevator A: W: 1994 mm, D:1747 mm, H:2720 mm
- 1.6.2 Elevator B: W: 2026 mm, D:1645 mm, H:2490 mm
- 1.6.3 Elevator C: W: 2191 mm, D:1554 mm, H:2720 mm
- 1.7 Location of table bases, IT integration and wire management to be proposed by the table manufacturer. Floor box location is to be verified on site before manufacture and coordinated with the location of the bases accordingly.

2. STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

- 2.1.1 CAN/CGSB-44.227, Free Standing Office Desk Products and Components

- 2.1.2 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.
- 2.1.3 ANSI A208.1, Particleboard, Mat-Formed Wood, Grade M2 or greater
- 2.1.4 AWI, Architectural Woodwork Institute
- 2.1.5 ANSI / BIFMA X5.5-2008 Desk Products

Note: Undated reference refers to the latest issue.

2.2 Regulations

- 2.2.1 Ontario Regulations 347 "General-Waste Management Regulation R.R.O 1990 (as amended).
- 2.2.2 Ontario Regulation 102/94 "Waste Audits and Waste Reduction Work Plans".
- 2.2.3 Ontario Regulations 103/94 "Industrial, Commercial and Institutional Source Separation Programs".

3. ENVIRONMENTAL ATTRIBUTES

- 3.1 Use only non-solvent based adhesives.
- 3.2 Manufacture the furniture such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.
- 3.3 Expose the furniture to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.
- 3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.
- 3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4. MATERIALS

4.1 Hardwood Lumber

- 4.1.1 All hardwood lumber is to be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.
- 4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, plain sliced (flat cut) only. Well matched for uniform colour and straight grain with no bow, warp, twist or hooks.
- 4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots are to be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.
- 4.1.4 No finger jointed, built-up or laminated lumber will be permitted.

- 4.1.5 Exposed parts (visible surfaces) are to be constructed from plain sliced (flat cut), select and better grade wood (species to be Black Walnut- Juglans Nigra) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.6 Semi-exposed parts (interior surfaces of furniture not visible when doors are closed) are to be constructed from plain sliced (flat sliced), select and better grade (species to be Black Walnut- Juglans Nigra) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.7 Concealed parts (non-visible surfaces of furniture whether doors are open or closed) to be constructed using birch or maple species to AWMAC Architectural Woodwork Standards for custom grade or better.

4.2 Hardwood Veneer

- 4.2.1 All veneer is to conform to Architectural Woodwork Standards (AWS) Section 4. Grade AA. Veneer is to be a minimum thickness of 0.60 mm. Minimum 150 mm wide flitch. Suitable for the application of transparent finishes. Minimum thickness for table top: 3.20 mm.
- 4.2.2 Veneer is to be press dried to a uniform moisture content of 10%-12%. Select only veneers that exhibit no streaks, wild grain, worm holes, pink knots and improper. A limited number of pin knots are permitted provided they are not in clusters and do not detract from the overall appearance of the panel. All veneers to be selected for uniform colour presentation and straight uniform grain patterning. Select veneers to match colours and appearance of grain in adjacent solid hardwood components. Veneers to be sourced from the same flitch for all components in the same component to ensure uniformity and consistent appearance throughout.
- 4.2.3 All veneer is to be book matched, unless otherwise specified on the drawings. Exposed vertical flat panels such as back, side panels, modesty panels and door fronts must be book matched and centre balanced matched. Vertical surfaces that make up a plane and are not separated from each other by a feature such as framing including the front or back of the table are to be book matched and centre balanced matched veneer over the entire plane.
- 4.2.4 Veneer for exposed parts (visible surfaces), is to be plain sliced (flat sliced) Black Walnut (Juglans Nigra) for a transparent finish. Flitches with narrow heart must be selected for surfaces to receive plain sliced (flat sliced) veneer.
- 4.2.5 Veneer for semi-exposed parts (interior surfaces of furniture not visible when doors are closed and including back face of parts such as gables, modesty panels, end panels, etc.) are to be plain sliced (flat cut) Black Walnut (Juglans Nigra).
- 4.2.6 Veneer for concealed parts (non-visible surfaces of furniture, whether doors are open or closed and including back face of parts where veneer is applied to provide balanced construction) is to be plain sliced (flat sliced) hardwood veneer.

4.3 Core Material

- 4.3.1 Particleboard used as panel core is to conform to ANSI 208.1 Particleboard, Mat-Formed Wood, Grade M2 or greater. The particleboard is to have uniform moisture content in the range of 6%-8% at the time of manufacture of the various components. Sizes and thicknesses as indicated in the drawings. Provide in single thicknesses to match

thickness of panel components as detailed. Laminate multiple layers as required to produce panels of non-standard thicknesses.

4.4 Adhesives

- 4.4.1 Use adhesive type recommended by AWMAC to suit application. Provide waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery to be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.
- 4.4.2 Plastic Laminate adhesive to be contact adhesive. Heavy duty, water based adhesive recommended by laminate manufacturer for specific type of laminate and substrate.

4.5 Wood Finishes

- 4.5.1 An example of an acceptable finish is: Mohawk Wiping Stain, 404-D Dark Fruitwood. Colour sample to be provided to the Contractor.
- 4.5.2 Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.6 Hardware and Accessories

- 4.6.1 Adjustable heavy duty metal glides are to be provided. Stem length to be 76 mm. Finish to be black oxide.
- 4.6.2 Hinges to be concealed, European style, self-closing and 110 degree of opening, dark hinges satin chrome or stainless steel finish.
- 4.6.3 Cable Grommets to be molded plastic assemblies with removable and re-usable covers, colour to best match veneer. Covers for cable grommets locations to leave a nominal 19mm diameter opening, when in place. Covers for cable grommets for furniture base locations to leave a nominal 19mm x 50mm opening when in place.
 - 4.6.3.1 The Contractor to suggest grommet for approval when submitting shop drawings for the bases of the tables and desks. The following list includes an acceptable grommet:
 - 4.6.3.1.1 Wire Grommet, Rectangular 102mm x 51mm, with rounded corners as indicated on drawings. Colour to be brown to match wood finish. Acceptable material: Mockett RG3 Rectangular Grommet Sherlock, Colour 91 Walnut Brown.
- 4.6.4 Touch Latch to be a push to unlatch/latch with floating strike. For overlay doors. Acceptable part: Richelieu Touch Latch, 7502890.
- 4.6.5 Lock and drawer locks to be wafer tumbler type, with re-keyable cylinders and must have at least 50 different key combinations. Colour to be statuary bronze.
 - 4.6.5.7 Each base of the table is to have single door locking mechanism having one cylinder cam lock, vertical mount. Acceptable part: CompX Timberline Cam lock, Cylinder Body, Vertical Mount.

- 4.6.5.8 All locks in each individual furniture item are to be keyed alike. Two keys are to be provided for each table.
- 4.6.5.9 Codes and depth key to be provided to the Technical Authority.
- 4.6.5.10 Locks used: Removable Lock Plug System
 - 90 degree key turn
 - Manufacturer: CompX Timberline
 - Model: C400LP-20
 - Colour: Statuary Bronze
 - Provide key cuts charts to cut by code
 - Key code to be stamp on the face of lock
 - Solid Brass Keys
- 4.6.6 All cable and wire managers to be non- PVC moulding for concealing lightweight wiring. As per dimensions indicated on the drawings and open at top and ends. Components to have no sharp edges that may damage cabling when installed/ pulled through in either direction. Components to be proposed by the manufacturer. Screw in application. Colour to be black in concealed areas, and amber black walnut in exposed areas.

4.7 Plastic Laminate

- 4.7.1 Plastic laminate to be high performance, high pressure laminate (HPL) to ANSI/NEMA LD 3. Manufacturers standard surface papers with melamine resins, bonded under heat and pressure to kraft paper backing sheet with phenolic resins. Properties to be as follows:
 - 4.7.1.1 Horizontal Grade: HGL. For backing sheets.
 - 4.7.1.2 Thickness: HGL: 0.8 mm.

4.8 Flush Mounted Table Top Tilt Up Connectivity Boxes

- 4.8.1 Components labeled 'Table Top Tilt-Up Power Box' are to be integrated into the design, fabrication and assembly of the Racetrack Tables. The following includes an acceptable connectivity box:
 - 4.8.1 Table Top Tilt-Up Power Boxes are to be Mockett Model PC S36A/EE, Small Flip-Up Grommet (2 Electric). Colour: Black (90).
- 4.8.2 Components labeled 'Table Top Tilt-Up Connectivity Power/Data/Multi-Media Box' are not included in contract (NIC) but manufacturer must cut the hole for the component to be integrated at a later date.
 - 4.8.2.1 Template(s) or mock-up(s) of recessed multi-media devices shall be provided to the Manufacturer by the Technical Authority.

5. CONSTRUCTION

5.1 General

- 5.1.1 Furniture to be constructed as per dimensions indicated in the drawings provided in Attachment 2 to Annex A, and with design developments optimization integrated as required in section 1.4 of this specification. Approved shop drawings must meet the

requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.

- 5.1.2 Furniture parts, unless otherwise indicated on the drawings provided, are to be constructed from veneered particleboard.
- 5.1.3 All veneered particleboard parts are to be veneered both sides to provide balanced construction.
- 5.1.4 Provide solid blocking where indicated on drawings and where required for IT component and hardware backing.
- 5.1.5 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.6 Edges of particleboard parts in exposed locations are to be edged with same veneer species and quality as face, except where fully concealed by solid hardwood edging or molding. Finger jointed veneer edging will not be accepted.
- 5.1.7 Bottom edges of supports are to be reinforced and sealed with at least a 0.8 mm thick high pressure laminate, Formica, Black #909, to prevent moisture penetration.
- 5.1.8 Grain direction to be vertical unless otherwise stated on the drawings.
- 5.1.9 Rail and stile bases and rails and stile doors to be fabricated with mortise and tenon joinery with integral moulding on front of frame as detailed. Fabricate mating rail and stile from solid hardwood. Fabricate floating panel from particleboard with veneer on both sides.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.
- 5.2.2 Face veneers are to be tightly joined and properly matched and be similar in grain pattern and colour throughout any given area.
- 5.2.3 Moldings and solid wood edgings are to be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.4 Exposed joints are to be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.5 All fastenings are to be completely concealed and must be set flush.
- 5.2.6 The application of material, drying time, sanding, cleaning, rubbing and waxing, is to be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 5.2.7 All surfaces to be sanded smooth and exposed nails to be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6. FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces, are to be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by
 - 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 One (1) coat of lacquer followed by
 - 6.1.5 Top surfaces are to receive a second coat of lacquer.
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit is to be scuff sanded and cleaned of all dust particles.
 - 6.2.1 The colour value and sheen must match the validated and approved sample.
- 6.3 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and is to be resistant to minor everyday usage.
- 6.4 Edges of doors are to have a finish compatible with the exterior finishes.
- 6.5 All interior surfaces exposed during normal use are to be compatible in colour with the exterior surface.
- 6.6 Sand all surfaces smooth and set all exposed nails and fasteners flush. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- 6.7 Perform all finishing operations so that the application of material, drying time, sanding, cleaning, rubbing and waxing produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 6.8 Process all units through the drying oven three times as follows:
 - 6.8.1.1 After the wiping stained has been wiped off.
 - 6.8.1.2 After a coat of sealer has been applied.
 - 6.8.1.3 After the final coat of lacquer is applied.
- 6.9 Sand and clean all surfaces of dust between each operation.
- 6.10 Final colour and sheen to match the approved samples.

4. GROUP 4

6.6.3.1 SCOPE

1.1 This specification is for the manufacture of the Supervisor's Cabinet and Removable Carpeted Floor Step Extension, described below in section 1. 2, and delivery and installation at 111 Wellington Street.

1.2 This scope represents the Supervisor's Cabinet, as follows:

Group 4 – Supervisor's Cabinet		
Furniture Type	Drawing Code	Quantity
Supervisor's Cabinet	BCC-440, BCC-441	1

1.3 These specifications must be read in conjunction with the Supervisor's Cabinet drawings provided in Attachment 2 to Annex A.

1.4 Samples of all hardware and finishes must be provided for approval before final manufacture of the cabinet.

1.5 The Contractor will be required to detail the construction method for the Removable Carpeted Floor Step Extension that will ensure the seamless operation of the Supervisor's Cabinet and that will ensure that the Removable Carpeted Floor Step Extension works in a cohesive manner with the existing stairs (which will be installed prior to the Cabinet).

1.6 Contractor is to provide the best option for affixing the Supervisor's Cabinet and Removable Carpeted Floor Step Extension in place as part of the Shop Drawings Submission.

2. STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

2.1.1 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.

2.1.2 AWI, Architectural Woodwork Institute

Note: Undated reference refers to the latest issue.

2.2 Regulations

2.2.1 Ontario Regulations 347 "General-Waste Management Regulation R.R.O 1990 (as amended).

2.2.2 Ontario Regulation 102/94 "Waste Audits and Waste Reduction Work Plans".

2.2.3 Ontario Regulations 103/94 "Industrial, Commercial and Institutional Source Separation Programs".

3 ENVIRONMENTAL ATTRIBUTES

- 3.1 Only non-solvent based adhesives must be used.
- 3.2 The furniture must be manufactured in such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.
- 3.3 The furniture must be exposed to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.
- 3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.
- 3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4 MATERIALS

4.1 Hardwood Lumber

- 4.1.1 All hardwood lumber must be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.
- 4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, quarter sawn only. Well matched for uniform colour and straight grain and to minimize the presence of medullary ray patterning.
- 4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots must be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.
- 4.1.4 No finger jointed, built-up or laminated lumber will be permitted. Select pieces from straight grain stock with no bow, warp, twist or hook.
- 4.1.5 Exposed parts (visible surfaces) must be constructed from quarter sawn, select and better grade wood (species must be White Oak and Hard Maple) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.6 Semi-exposed parts (interior surfaces of furniture not visible when doors and drawers are closed) must be constructed from quarter sawn, select and better grade (species must be White Oak and Hard Maple) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.7 Concealed parts (non-visible surfaces of furniture whether doors and drawers are open or closed) must be constructed using birch or maple species to AWMAC Architectural Woodwork Standards for custom grade or better.

4.2 Hardwood Veneer

- 4.2.1 All veneer is to conform to Architectural Woodwork Standards (AWS) Section 4 grade AA. Veneer must be a minimum thickness of 0.60 mm. Minimum 150 mm wide flitch. Suitable for the application of transparent finishes. Minimum thickness for counter and cabinet top: 3.00 mm.

- 4.2.2 Veneer must be press dried to a uniform moisture content of 10%-12%. Red streaks, wild grain, worm holes and improper cut are not permitted. A limited number of pin knots are permitted provided they are not in clusters and do not detract from the overall appearance of the panel. Veneers must be specifically graded and selected to minimize patterning.
- 4.2.3 All veneer must be book matched, unless otherwise specified on the drawings. Exposed vertical flat panels such as back, side panels, and door fronts must be book matched and centre matched. Vertical surfaces that make up a plane and are not separated from each other by a feature such as framing including the front or back of the cabinet must be book matched and centre matched veneer over the entire plane. Align the grain pattern balanced and aesthetic grain continuity. Select veneer for all similar vertically stacked conditions.
- 4.2.4 Veneer for exposed parts (visible surfaces), must be quarter sliced Maple and quarter sliced White Oak for a transparent finish.
- 4.2.5 Veneer for semi-exposed parts (interior surfaces of furniture not visible when doors and drawers are closed, etc.) must be quarter sliced White Oak.
- 4.2.6 Veneer for concealed parts (non-visible surfaces of furniture, whether doors and drawers are open or closed and including back face of parts where veneer is applied to provide balanced construction) must be quarter sliced White Oak veneer.

4.3 Core Material

- 4.3.1 For shop applied veneer: Plywood core must be Baltic Birch Plywood. Grade B/BB. Solid one piece faces with uniform light colour. No plugs, or open cracks/splits. A limited amount of pin knots, and minor color inconsistencies are allowed. No patches, voids, knots or mineral streaks. Sizes and thicknesses as indicated in the drawings. Void free core, 9 plies per 12 mm thickness. Provide in single thicknesses to match thickness of panel components as detailed. Laminate multiple layers of plywood as required to produce panels of non-standard thicknesses.
- 4.3.2 For factory hardwood veneer plywood: to AWS. Section 4. Plywood core: Veneer core, combination core or solid lumber core only. Veneers: Grade AA to both front and back faces. Minimum 150 mm wide flitch. Veneers must be specifically graded and selected to match existing heritage classified materials and to minimize medullary ray patterning. Book matched lay-up. Suitable for transparent finishes. Quarter sliced Maple and quarter sliced White Oak.

4.4 Adhesives

- 4.4.1 Use adhesive type recommended by AWMAC to suit application. Provide only waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery must be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.

4.5 Wood Finishes

- 4.5.1 An example of an acceptable finish is for the Oak Components is:
 - 4.5.1.2 3 parts M545207 Mohawk medium brown walnut plus 1 part Mohawk M545143 raw umber. Colour sample must be provided to the Contractor.

- 4.5.2 Maple components must match colour of the base building components (S11). Colour sample of the Maple components will be provided to the Contractor by the Departmental Representative for matching. Colour sample must be approved prior to manufacture of the Cabinet.
- 4.5.3 Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.6 Hardware and Accessories

- 4.6.1 Hinges must be concealed, European style, soft-closing. 95 degree and 170 degree of opening with a dark oxidized satin bronze oil rubbed finish.
- 4.6.2 Drawer slides must be aluminum or plated steel. Standard commercial manufacture with full extension and soft closing, incorporating progressive extension action and steel ball bearings. Extra heavy duty rating. Black finish.
- 4.6.3 Shelf Supports for adjustable shelves must be nominal 5mm diameter, metal pins having a dark brown colour plated finish.
- 4.6.4 Pocket door hardware must be soft-closing and to come as a prepackaged kit for pocket door installation, including all hardware for a horizontal sliding pocket door. Kit to accommodate an inset door panel up to 610 mm wide. Slide and hinges must be of all steel construction, with steel ball bearings and slide members. Hinges must be clip top style operable to 100 degrees for easy door mounting or removal and to accommodate a door thickness between 16 mm and 22 mm.
 - 4.6.4.1 Acceptable Material: Accu-Ride Model123.
- 4.6.5 Decorative element solid bronze fin must be 9.5 mm wide by 6.0 mm deep solid bronze bar. Provide Bronze finish to match sample provided by Departmental Representative.
 - 4.6.5.1 Acceptable Material: Julius Blum Bronze Alloy C38500 Flat Bars, Sharp Corners.
- 4.6.6 Decorative element solid bronze dowel must be 6.0 mm diameter solid bronze rod. Provide Bronze finish to match sample provided by Departmental Representative.
 - 4.6.6.2 Acceptable Material: McMaster Carr Part number 89575K42.
- 4.6.7 Edge protector, door pulls, and drawer pull angles and channels must be extruded bronze with legs as indicated on drawings. Thickness: 3 mm. Provide Bronze finish to match sample provided by Departmental Representative.
 - 4.6.7.1 Acceptable Material: Julius Blum Bronze Alloy C38500 Angles and Channels, Sharp Corners.
- 4.6.8 Flat rectangular bar must be a solid bronze flat bar with sharp corners and 16 mm depth and 3 mm width. Provide Bronze finish to match sample provided by Departmental Representative.
 - 4.6.8.1 Acceptable Material: Julius Blum Bronze Alloy C38500 Flat Bars, Sharp Corners.

- 4.6.9 Floor connectors and mounting systems must be proposed by the contractor for both the Supervisor's Cabinet and the Carpeted Floor Step Extension prior to final manufacture. Floor connectors must be:
 - 4.6.9.2 Completely hidden from view and must allow for removal of the cabinet and Carpeted Floor Step Extension, if required.
 - 4.6.9.3 Completely removable without causing visible damage to the carpet underneath.
 - 4.6.9.4 Connected only to the existing step installed by others and in no way may they connect to the decorative wall.

4.7 Metal Fabrications

- 4.7.1 Custom fabricate edge pull from 3 mm thick sheet bronze. Provide Bronze finish to match sample provided by Departmental Representative. Round over all corners and edges to eliminate sharp profiles to approval of Departmental Representative and Technical Representative.
- 4.7.2 Contractor must provide colour sample for approval prior to fabrication.

4.8 Recycling Bin

- 4.8.1 Bin must be constructed of white polymer, 35 L capacity. Width: 248 mm, Depth: 476 mm, Height: 451 mm. Contractor must ensure fit and functionality of the recycle bin within the cabinet.
 - 4.8.1.1 Acceptable Part: Richelieu bins for Practico System. Product number: 5603030.

4.9 Carpeted Floor Step Extension

- 4.9.1 The Carpeted Floor Extension must be manufactured so that it will support the weight of the Supervisor's Cabinet when fully loaded without deflecting or moving in any way.
- 4.9.2 Carpeted Floor Extension must be carpeted on all three visible sides (front, side and top). Carpet is required to cover the Carpeted Floor Step Extension so that no part of the extension structure shows when the cabinet is not in place.
- 4.9.3 The top of the Carpeted Floor Extension must be installed flush with the existing step installed by others. Site condition must be verified by Contractor prior to final manufacture.
- 4.9.4 The Carpeted Floor Extension must not be fixed in any way to the decorative wall and must be only attached to the existing step installed by others.

4.10 Carpet

- 4.10.1 Carpet will be provided by others but must be installed by the cabinet contractor. Carpet is premium 100% wool, with a minimum 1900 g/m² pile weight above backing. One colour throughout, with hand stitched edges. Pile height will be provided after contract award.

5 CONSTRUCTION

5.1 General

- 5.1.1 Furniture must be constructed in accordance with the drawings provided in Attachment 2 to Annex A and approved shop drawings and must meet the requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.
- 5.1.2 Furniture parts, unless otherwise indicated on the drawings provided, must be constructed from shop applied veneered Baltic Birch plywood.
- 5.1.3 All veneered plywood parts must be veneered both sides to provide balanced construction.
- 5.1.4 Provide solid blocking where indicated on drawings.
- 5.1.5 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.6 Fabricate with traditional dovetail joinery techniques. No pocket holes, dowels, biscuit joinery will be permitted.
- 5.1.7 Edges of plywood parts in exposed locations must be edged with same veneer species and quality as face, except where fully concealed by solid hardwood edging or molding. Finger jointed veneer edging will not be accepted.
- 5.1.8 Construct drawers using traditional dovetail joinery techniques. Drawers must be properly fitted and operate smoothly and silently. Align drawer faces in banks and pedestals flush. Provide uniform and consistent gaps between faces, including gaps between drawer faces and adjacent doors.
- 5.1.9 Shop apply veneers with all joints tightly matched, with invisible seams. Patterns must be properly matched and similar in grain pattern and color throughout any given area.
- 5.1.10 The shelves must support continuous loads of heavy objects without sagging.
- 5.1.11 The shelves are to deflect no more than their length divided by 180 (Lu 80) when tested in accordance with the following:
 - 5.1.11.1 Load the shelf surface in accordance with ANSI / BIFMA X5.5, Desk Products, functional distributed load. Along the front edge of the surface, measure the vertical height of the endpoints and center of the shelf surface. Average the height of the end points and subtract the height of the center. The resulting dimension is the deflection.
- 5.1.12 Adjustable shelves must be notched on underside to conceal the four shelf support pins from view and to prevent shelf from being dislodged accidentally when objects are removed.
- 5.1.13 Adjustable shelves must be adjustable in increments of 32 mm.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.

- 5.2.2 Face veneers must be tightly joined and properly matched and be similar in grain pattern and colour throughout any given area.
- 5.2.3 Moldings and solid wood edgings must be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.4 Drawers must be properly fitted and are to operate smoothly and silently. Drawer faces in banks and pedestals must be aligned flush and gaps between faces, including gaps between drawer faces and adjacent doors, must be uniform in width and consistent throughout.
- 5.2.5 Exposed joints must be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.6 All fastenings must be completely concealed and must be set flush.
- 5.2.7 The application of material, drying time, sanding, cleaning, rubbing and waxing, must be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 5.2.8 All surfaces must be sanded smooth and exposed nails must be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6 FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces, other than drawer interiors and sides, must be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by
 - 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 One (1) coat of lacquer followed by
 - 6.1.5 Top surfaces are to receive a second coat of lacquer.
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit must be scuff sanded and cleaned of all dust particles.
 - 6.2.1 The colour value and sheen must match the validated and approved sample.
- 6.3 As a minimum, drawer interiors and sides must be finished with one coat of vinyl sealer and one coat of catalyzed lacquer to provide a smooth, transparent finish and to protect against warping and stains.
 - 6.3.1 Drawer interiors must be free of dirt, dust, shavings or any foreign matter before finishing.
- 6.4 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and must be resistant to minor everyday usage.
- 6.5 Edges of doors and drawers are to have a finish compatible with the exterior finishes.

- 6.6 All interior surfaces exposed during normal use, with the exception of drawer interiors, must be compatible in colour with the exterior surface.
- 6.7 Sand and clean all surfaces of dust between each operation.
- 6.8 Final colour and sheen to match the approved samples.

5. GROUP 5

1. SCOPE

1.1 This specification is for the manufacture of Lounge Serveries, described below in section 1.2, and delivery and installation at 111 Wellington Street.

1.2 This scope represents the Lounge Serveries located in the Lobbies, as follows:

Group 5 – Lounge Serveries		
Furniture Type	Drawing Code	Quantity
Lounge Serveries	BCC-483, BCC-484, BCC-485	4 x Open Shelves Serveries 2 x Sliding Doors Serveries

1.3 These specifications are to be read in conjunction with the Lounge Serveries drawings provided in Attachment 2 to Annex A.

1.4 Samples of all hardware, finishes and veneer assembly are to be provided for approval before final manufacture of the components.

2 STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

2.1.1 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.

2.1.2 AWI, Architectural Woodwork Institute

2.1.3 ANSI/NEMA LD3-2005. High - Pressure Decorative Laminates (HPDL)

Note: Undated reference refers to the latest issue.

2.2 Regulations

2.2.1 Ontario Regulations 347 "General-Waste Management Regulation R.R.O 1990 (as amended).

2.2.2 Ontario Regulation 102/94 "Waste Audits and Waste Reduction Work Plans".

2.2.3 Ontario Regulations 103/94 "Industrial, Commercial and Institutional Source Separation Programs".

3 ENVIRONMENTAL ATTRIBUTES

3.1 Only non-solvent based adhesives are to be used.

3.2 The furniture is to be manufactured in such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.

- 3.3 The furniture is to be exposed to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.
- 3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.
- 3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4. MATERIALS

4.1 Hardwood Lumber

- 4.1.1 All hardwood lumber is to be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.
- 4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, quarter cut only. Well matched for uniform colour and straight grain with no bow, warp, twist or hook.
- 4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots are to be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.
- 4.1.4 No finger jointed, built-up or laminated lumber will be permitted.
- 4.1.5 Exposed parts (visible surfaces) are to be constructed from quarter cut, select and better grade wood (species to be Black Walnut – *Juglans Nigra*) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.6 Semi-exposed parts (interior surfaces of furniture not visible when doors are closed) are to be constructed from quarter cut, select and better grade (species to be Black Walnut – *Juglans Nigra*) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.7 Concealed parts (non-visible surfaces of furniture whether doors are open or closed) are to be constructed using birch or maple species to AWMAC Architectural Woodwork Standards for custom grade or better.

4.2 Hardwood Veneer

- 4.2.1 All veneer is to conform to Architectural Woodwork Standards (AWS) Section 4 grade AA. Veneer is to be a minimum thickness of 0.60 mm. Minimum 150 mm wide flitch. Suitable for the application of transparent finishes.
- 4.2.2 Veneer is to be press dried to a uniform moisture content of 10%-12%. Red streaks, wild grain, worm holes and improper cut are not permitted. A limited number of pin knots are permitted provided they are not in clusters and do not detract from the overall appearance of the panel. Veneers to be specifically graded and selected to minimize patterning.
- 4.2.3 All veneer is to be slip matched, unless otherwise specified on the drawings. Exposed vertical flat panels such as back, side panels, and door fronts are to be slip matched and centre matched. Vertical surfaces that make up a plane and are not separated from each

other by a feature such as framing including the front or back of the cabinet are to be slip matched and centre matched veneer over the entire plane. Align the grain pattern balanced and aesthetic grain continuity.

4.2.4 Veneer for exposed parts (visible surfaces), is to be quarter cut, Black Walnut (species – Juglans Nigra) for a transparent finish.

4.2.5 Veneer for semi-exposed parts (interior surfaces of furniture not visible when doors are closed and including back face of parts such as doors, end panels, etc.) is to be quarter cut, Black Walnut (species Juglans Nigra).

4.2.6 Veneer for concealed parts (non-visible surfaces of furniture, whether doors are open or closed and including back face of parts where veneer is applied to provide balanced construction) is to be quarter cut, hardwood veneer.

4.3 Core Material

4.3.1 For shop applied veneer: Plywood core to be Baltic Birch Plywood. Grade B/BB. Solid one piece faces with uniform light colour. No plugs, or open cracks/splits. A limited amount of pin knots, and minor color inconsistencies are allowed. No patches, voids, knots or mineral streaks. Sizes and thicknesses as indicated in the drawings. Void free core, 9 plies per 12 mm thickness. Provide in single thicknesses to match thickness of panel components as detailed. Laminate multiple layers of plywood as required to produce panels of non-standard thicknesses.

4.3.2 Factory hardwood veneer plywood: to AWS. Section 4. Veneer core, combination core or solid lumber core only. Veneers: Grade AA to both front and back faces. Minimum 150 mm wide flitch. Book matched lay-up. Suitable for transparent finishes. For plain sliced (flat sliced), Black Walnut (species Juglans Nigra).

4.4 Adhesives

4.4.1 Use adhesive type recommended by AWMAC to suit application. Provide waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery to be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.

4.4.2 Plastic Laminate adhesive to be contact adhesive. Heavy duty, water based adhesive recommended by laminate manufacturer for specific type of laminate and substrate.

4.5 Wood Finishes

4.5.1 An example of the acceptable finish sample to be provided to the Contractor. Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.6 Hardware and Accessories

4.6.1 Piano hinge: continuous piano hinge. 3.18 mm pin diameter, reversible, 38 mm x 1.52 mm thick. Holes at 50 mm OC. Screw size: no 6 flat head. Bronze plated steel or solid bronze. Finish: Dark Bronze plated.

4.6.2 Concealed Hinges: SOSS hinges, model #204 or equivalent. Material: Steel. Finish: Brass Satin. Acceptable material: Richelieu, 420204160.

- 4.6.3 Sliding Door Hardware: recessed double rail kit. For 19 mm thick doors. By-Pass sliding. Dark oil-rubbed finish.
- 4.6.4 Roller catch: double roller catch. Size appropriate to function.
- 4.6.5 Heavy duty castors to be made of heavy pressed steel, with a swivel bracket with double ball bearing in the swivel head, swivel head seals and bolted wheel axle. Width to be 40 mm, and diameter to be 100 mm. Wheel to be constructed of a hard rubber compound for low-noise operation, and to be abrasion resistant. Load capacity to be 300 kg. Wheels to be pivotable with brake and fixed position as indicated on drawings. Colour: Black or Gray. Acceptable material: Blickle Heavy Duty Castors, LK-ALBS 100K-1-FI (swivel with brake), and Blickle Heavy Duty Castors, BK-ALBS 100K-1 (fixed with no brake).
- 4.6.7 Shelf Supports for adjustable shelves are to be nominal 5mm diameter, metal pins having a dark oxide finish. Acceptable material: Lee Valley 5mm Steel Supports and Sleeves, 00S10.62

4.7 Metal Fabrications

- 4.7.1 Metal for decorative purposes is to be solid bronze with a dark oil rubbed finish. Gauge to be suitable for purpose and able to withstand reasonable use without denting, scraping or warping.
- 4.7.2 Contractor must provide colour for approval prior to fabrication.

4.8 Plastic Laminate

- 4.8.1 Plastic laminate to be high performance, high pressure laminate (HPL) to ANSI/NEMA LD 3. Manufacturers standard surface papers with melamine resins, bonded under heat and pressure to kraft paper backing sheet with phenolic resins. Properties to be as follows:
- 4.8.2 Horizontal Grade: HGL. For backing sheets.
- 4.8.3 Thickness: HGL: 0.8 mm.

4.9 Quartz Countertop

- 4.9.1 Fabricate countertops to AWS Section 11 - Countertops. Premium grade. Provide edges profiled as detailed. Provide in one piece length.
 - 4.9.1.1 Fabricate countertops with quartz sheet adhered to Baltic Birch plywood backing.
 - 4.9.1.2 Fabricate front, side and rear edge profiles from built up layers of solid quartz as detailed. Seam: manufacturer's standard seam compounds. Colour matched to create invisible seams.
 - 4.9.1.3 Cover exposed bottom face of plywood with plastic laminate backer sheet, Grade HGL. Colour to match top face.
- 4.9.2 Quartz: homogeneous quartz surfaces material. Thickness: 19 mm. Properties as follows:
 - 4.9.2.1 Nominal weight: 10 pounds per square foot at 20 mm thickness.

- 4.9.2.2 Density: 2400 kg per cubic meter.
- 4.9.2.3 Moisture absorption: to ASTM C97: negligible.
- 4.9.2.4 Compressive strength: to ASTM C170: 24750 psi.
- 4.9.2.5 Abrasion resistance: to ASTM C501: 223.
- 4.9.2.6 Modulus of rupture: to ASTM C99: 6800 psi.
- 4.9.2.7 Bond strength: to ASTM C482: 205 psi.
- 4.9.2.8 Thermal shock: to ASTM C484: passes after 5 cycles.
- 4.9.2.9 Freeze thaw resistance: to ASTM C1026: unaffected after 15 cycles.
- 4.9.2.10 Surface burning characteristics: to ASTM E84: 17. Class A/1 rating.
- 4.9.2.11 Stain resistance: to ANSI Z124.6: unaffected.
- 4.9.2.12 Gloss: % of incident light reflected at 60 degrees on polished finish: 47% minimum.
- 4.9.2.13 Colour patterns and texture: as selected to match samples as provided by Departmental Representative as indicated below. Where colours are indicated, selection will be from manufacturer's full range of available products.
- 4.9.2.14 Standard of Acceptance: qz-1: Cambria. Durham.

4.10 Recycling Bins

- 4.10.1 Bins to be constructed of white polymer, 35 qt capacity. Width: 365 mm, Depth: 267 mm, Height: 435 mm. Contractor must ensure fit and functionality of the recycle bin within the cabinet.
 - 4.10.1.1 Acceptable Part: Richelieu bins for RAS Waste Bins. Product number: RV358.

5. CONSTRUCTION

5.1 General

- 5.1.1 Furniture is to be constructed in accordance with the drawings provided in Attachment 2 to Annex A. Approved shop drawings must meet the requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.
- 5.1.2 Furniture parts, unless otherwise indicated on the drawings provided, are to be constructed from shop veneered Baltic Birch plywood.
- 5.1.3 All veneered plywood parts are to be veneered both sides to provide balanced construction.
- 5.1.4 Provide solid blocking where indicated on drawings.

- 5.1.5 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.6 Edges of plywood parts in exposed locations are to be edged with same veneer species and quality as face, except where fully concealed by solid hardwood edging or molding. Finger jointed veneer edging will not be accepted.
- 5.1.7 Bottom edges of supports are to be reinforced and sealed with at least a 0.8 mm thick high pressure laminate, Formica, Black #909, to prevent moisture penetration.
- 5.1.8 The shelves must support continuous loads of heavy objects without sagging.
- 5.1.9 The shelves are to deflect no more than their length divided by 180 (Lu 80) when tested in accordance with the following:
 - 5.1.9.1 Load the shelf surface in accordance with ANSI / BIFMA X5.5, Desk Products, functional distributed load. Along the front edge of the surface, measure the vertical height of the endpoints and center of the shelf surface. Average the height of the end points and subtract the height of the center. The resulting dimension is the deflection.
- 5.1.10 Adjustable shelves are to be notched on underside to conceal the four shelf support pins from view and to prevent shelf from being dislodged accidentally when objects are removed.
- 5.1.11 Adjustable shelves are to be adjustable in increments of 32mm.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.
- 5.2.2 Face veneers are to be tightly joined and properly matched and be similar in grain pattern and colour throughout any given area.
- 5.2.3 Moldings and solid wood edgings are to be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.4 Exposed joints are to be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.5 All fastenings are to be completely concealed and must be set flush.
- 5.2.6 The application of material, drying time, sanding, cleaning, rubbing and waxing, is to be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.
- 5.2.7 All surfaces to be sanded smooth and exposed nails to be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6. FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces are to be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by
 - 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 One (1) coat of lacquer
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit is to be scuff sanded and cleaned of all dust particles.
 - 6.2.1 The colour value and sheen must match the validated and approved sample.
- 6.3 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and is to be resistant to minor everyday usage.
- 6.4 Edges of doors are to have a finish compatible with the exterior finishes.
- 6.5 All interior surfaces exposed during normal use are to be compatible in colour with the exterior surface.
- 6.6 Sand and clean all surfaces of dust between each operation.
- 6.7 Final colour and sheen to match the approved samples.

6. GROUP 6

1. SCOPE

- 1.1 This specification is for the manufacture of the Meeting Room Flag Stands, described below in section 1.2, and delivery and installation at 111 Wellington Street.
- 1.2 This scope represents the custom wood furniture located in the Meeting Rooms, as follows:

Group 6 - Meeting Room Flag Stand		
Furniture Type	Drawing Code	Quantity
Meeting Room – Flag Stand	BCC-470	7

- 1.3 These specifications are to be read in conjunction with the Flag Stand drawings provided in Attachment 2 to Annex A.
- 1.4 Sample of finish is to be provided for approval before final manufacture of the component.
- 1.5 Contractor is to provide one finished flag stand prior to completion of all other components, for review of stability. Requirement of additional metal plate will be evaluated at that testing.

2. STANDARDS AND REGULATIONS

All products are to comply with the following standards and regulations:

2.1 Standards

- 2.1.1 AWMAC, Architectural Woodwork Manufacturers Association of Canada. Architectural Woodwork Standards. (AWS) Second Edition 2014.
- 2.1.2 AWI, Architectural Woodwork Institute

Note: Undated reference refers to the latest issue.

2.2 Regulations

- 2.2.1 Ontario Regulations 347 “General-Waste Management Regulation R.R.O 1990 (as amended).
- 2.2.2 Ontario Regulation 102/94 “Waste Audits and Waste Reduction Work Plans”.
- 2.2.3 Ontario Regulations 103/94 “Industrial, Commercial and Institutional Source Separation Programs”.

3. ENVIRONMENTAL ATTRIBUTES

- 3.1 Only non-solvent based adhesives are to be used.
- 3.2 The furniture is to be manufactured in such a manner that liquid surface coatings are stored in controlled storage areas as per WHMIS requirements.

- 3.3 The furniture is to be exposed to ventilated open air prior to delivery for a minimum of 24 hours prior to packaging for shipping, to allow for off-gassing.
- 3.4 All wood used in the manufacture of furniture is to originate from a forest certified under PEFC International (which includes SFI, CSA) or FSC International.
- 3.5 The Manufacturer is to have a hazardous and toxic material management system in place at its manufacturing facilities.

4. MATERIALS

4.1 Hardwood Lumber

- 4.1.1 All hardwood lumber is to be kiln dried to a maximum average moisture content of 6-8% at time of fabrication.
- 4.1.2 All hardwood lumber pieces are to conform to Architectural Woodwork Standards (AWS) Section 3. Selected for Premium grade construction for transparent finishes. Clear, quarter cut only. Well matched for uniform colour and straight grain and to minimize the presence of medullary ray patterning.
- 4.1.3 All wood must be free of pinholes, sap pockets, worm holes or other visible defects. Knots are to be not more than 3.2mm in diameter or clustered. Heartwood only, no sapwood will be permitted.
- 4.1.4 No finger jointed, built-up or laminated lumber will be permitted. Select pieces from straight grain stock with no bow, warp, twist or hook.
- 4.1.5 Exposed parts (visible surfaces) are to be constructed from quarter cut, select and better grade wood (species to be Maple) to AWMAC Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.
- 4.1.6 Semi-exposed parts are to be constructed from quarter cut, select and better grade (species to be Maple) to AWMAC, Architectural Woodwork Standards for premium grade hardwood lumber, for a transparent finish.

4.2 Core Material

- 4.2.1 Particleboard used as panel core is to conform to ANSI 208.1 Particleboard, Mat-Formed Wood, Grade M2 or greater. The particleboard is to have uniform moisture content in the range of 6%-8% at the time of manufacture of the various components. Sizes and thicknesses as indicated in the drawings. Provide in single thicknesses to match thickness of panel components as detailed. Laminate multiple layers as required to produce panels of non-standard thicknesses.

4.3 Adhesives

- 4.3.1 Use adhesive type recommended by AWMAC to suit application. Provide waterproof and non-solvent based adhesives. Adhesives for hardwood veneering and joinery to be polyvinyl acetate resin emulsion or cross-linkable polyvinyl acetate resin emulsion type. Elastomeric solvent dispersed adhesives are not acceptable.

4.4 Wood Finishes

- 4.4.1 Exposed wood must match base building finishes. Maple to match 'Canadian Maple Flowered' ready to bond veneer by Prestige d'Oberflex. Colour to match S12 sample provided by Departmental Representative with clear satin finish.
- 4.4.2 Finish all solid wood surfaces to premium grade quality standards, transparent, catalyzed lacquer finish system consisting of vinyl wash coat, stain, vinyl sealer, sand (220 grit) and catalyzed lacquer top coat to match colour and sheen.

4.5 Metal Plate

- 4.5.1 If required for stability of flags, contractor is to procure and install metal plates inside the flag stands. Metal plate to be constructed of steel and powder coated with black paint. Contractor to proposed gauge and installation details.

5 CONSTRUCTION

5.1 General

- 5.1.1 Furniture is to be constructed in accordance with the drawings provided in Attachment 2 to Annex A. Approved shop drawings must meet the requirements of AWMAC Architectural Woodwork Standards for premium grade woodwork. In case of conflict, the most stringent requirements apply.
- 5.1.2 Construct furniture parts from solid hardwood material and particleboard as indicated on the drawings.
- 5.1.3 Provide solid blocking where indicated on drawings.
- 5.1.4 Finger jointed solid hardwood is not acceptable for exposed and semi-exposed locations.
- 5.1.5 Grain direction to be as indicated on the drawings.

5.2 Workmanship

- 5.2.1 Wood and wood veneer surfaces and edges must be smoothly sanded and free of blemishes or defects such as tool marks, machine marks, sanding marks, surplus glue, raised grain, delamination or water marks.
- 5.2.2 Moldings and solid wood edgings are to be cleanly run, smoothly sanded, free of machine marks and with sharply defined detail.
- 5.2.3 Exposed joints are to be neatly executed, rigid, tight and flush, with no tool, machine or cross sanding marks, slivering or patching which may impair the strength or appearance of the furniture piece.
- 5.2.4 All fastenings are to be completely concealed and must be set flush.
- 5.2.5 The application of material, drying time, sanding, cleaning, rubbing and waxing, is to be controlled to produce items of uniform finish without sags, runs, overspray or other defects detrimental to a smooth quality appearance.

- 5.2.6 All surfaces to be sanded smooth and exposed nails to be set. Apply wood filler in exposed nail indentations. Use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

6 FINISH

- 6.1 As a minimum, all exposed and semi-exposed solid wood and wood veneer surfaces, are to be finished using the following process:
 - 6.1.1 One (1) coat of sub stain followed by
 - 6.1.2 One (1) coat of wiping stain followed by
 - 6.1.3 One (1) coat of sealer followed by
 - 6.1.4 Two (2) coats of lacquer
- 6.2 All units will go through the drying oven three (3) times. Once after the wiping stained has been wiped off, once after a coat of sealer has been applied and once after the final coat of lacquer is applied. Every unit is to be scuff sanded and cleaned of all dust particles.
- 6.3 The colour value and sheen must match the validated and approved sample.
- 6.4 The exposed finishes must enhance the beauty of the wood through colour, clarity and sheen. Finish is to consist of at least the processing steps stated in paragraph 6.1 and is to be resistant to minor everyday usage.
- 6.5 Sand and clean all surfaces of dust between each operation.
- 6.6 Final colour and sheen to match the approved samples.

SECTION 2: SUBMITTALS

1. GENERAL

- 1.1. The Contractor **MUST**, prior to final manufacturing, submit the following listed deliverables to the Project Authority: Shop Drawings and Product Data (as per section 2 below) and Mock-Up (as per section 3 below) and Prototype (as per section 4 below) and Submission Samples (as per section 5 below). Deliverables are to be submitted in accordance with the schedule in PART IV: SUPPLY, DELIVERY AND INSTALLATION REQUIREMENTS.
- 1.2. The Contractor **MUST** not proceed with manufacturing until review and acceptance of submittals is complete by the Project and Technical Authority.
- 1.3. Submittals not stamped, signed, dated and identified as to specific project may be rejected.
- 1.4. The Contractor must be able to communicate in both official languages, French and English. All deliverables, i.e. reports, must be in English.

2. SHOP DRAWINGS AND PRODUCT DATA

- 2.1. The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- 2.2. The Contractor **MUST** indicate materials, methods of construction and attachment or anchorage, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated. Indicate cross references to design drawings and specifications.
- 2.3. Allow fifteen (15) working days for Technical Authority's review of each submission.
- 2.4. The Contractor **MUST** make changes in shop drawings as the Technical Authority may require, consistent with the requirements. When resubmitting, notify the Technical Authority in writing of revisions other than those requested.
- 2.5. If upon review by the Technical Authority, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, **MUST** be performed before fabrication and installation of Work may proceed.
- 2.6. The review of shop drawings by the Technical Authority is for the sole purpose of ascertaining conformance with the detail design. The Technical Authority's review of shop drawings **DOES NOT** relieve the Contractor of responsibility for errors or omissions in the shop drawings.
- 2.7. The Contractor **MUST** include a transmittal letter with all submissions. The transmittal letter **MUST** contain the following:
 - 2.7.1 Date
 - 2.7.2 Contract title and number
 - 2.7.3 Contractor's name and address
 - 2.7.4 Identification and quantity of each shop drawing, submittal, product data and sample

- 2.8. All submissions made by the Contractor MUST include:
- 2.8.1 Date and revision dates.
 - 2.8.2 Contract title and number.
 - 2.8.3 Name and address of Contractor.
 - 2.8.4 Name and address of Manufacturer
 - 2.8.5 Details of appropriate portions of Work as applicable:
 - 2.8.6 Fabrication details
 - 2.8.7 Dimensions
 - 2.8.8 Performance characteristics
 - 2.8.9 Standards
 - 2.8.10 Relationship to adjacent components
- 2.9. For Technical Authority's review, the Contractor MUST submit:
- 2.9.1 Two (2) hard copies and a digital copy in pdf format of shop drawings for each furniture piece.
 - 2.9.2 Two (2) hard copies and a digital copy in pdf format of product data sheets or brochures for accessories and finishes where shop drawings will not be prepared due to standardized manufacture of product.
 - 2.9.3 Two (2) hard copies and a digital copy in pdf format of test reports for specified materials and as requested by the Technical Authority:
 - 2.9.3.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - 2.9.4 Testing MUST have been on or after January 1, 2011.
 - 2.9.5 Two (2) hard copies and a digital copy in pdf format of a statement certifying compliance with all environmental attributes detailed in the requirements.
 - 2.9.6 Certificates MUST be dated after award of contract complete with project name.
 - 2.9.7 Two (2) hard copy prints and a digital copy in pdf format of manufacturer's instructions for materials and components and as requested by the Technical Authority.
 - 2.9.8 Pre-printed material describing the product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

3. MOCK-UP

- 3.1 When a mock-up(s) is requested for a piece of furniture in Part II, the purpose of the mock-up is to review and verify:
- 3.1.1 The design and functionality of the furniture piece, and to assess design refinements affecting ease of use, and construction and durability based on design details provided in Attachment 2 to Annex A – Wood Furniture Construction Drawings.
 - 3.1.2 Furniture Structural Details
 - 3.1.3 Confirmation of ease of use, cabling installation, disassembly and stackability (where applicable.)
 - 3.1.4 The final weight of the product.
- 3.2 When a mock-up(s) is requested for a piece of furniture in Part II, the Contractor MUST prepare one (1) mock-up of each piece identified, which MUST be built in accordance with the approved shop drawings, for review by the Technical Authority. The Contractor MUST make any modifications that may be required to the mock-up before proceeding to revise the shop drawings or prepare the Prototype.

- 3.3 The Contractor MUST deliver the mock-up(s) to a site within the National Capital Region specified by the Technical Authority. The mock-ups must be available for review and comment for ten (10) working days. Any final modifications or adjustments will be examined and reviewed by Technical Authority prior to proceeding to revise the shop drawings or prepare the Prototype.
- 3.4 The Contractor MUST remove the mock-up(s) when advised in writing to do so, by the Technical Authority.

4. PROTOTYPE

- 4.1 The Contractor MUST prepare one (1) prototype for each furniture item listed in Part II Scope of Work for review by the Technical Authority. The prototype MUST be built in accordance with the reviewed shop drawings. The purpose of the prototype will be to allow the Technical Authority to review and verify furniture details, quality of finishing, confirm ease of cabling installation and verify the ease of use and of disassembly of the furniture (where required) and any associated moving cart.
- 4.2 Prototypes MUST be delivered to a site within the National Capital Region specified by the Technical Authority. The prototypes are to be available for review and comment for ten (10) working days. Final modifications or adjustments will be examined and reviewed by Technical Authority prior to manufacturing and delivery of the final furniture products.
- 4.3 The Contractor MUST remove the prototypes when advised in writing to do so, by the Contract Authority.
- 4.4 Prototypes may form part of final work and are to be the last items installed.

5. SUBMISSION SAMPLE

- 5.1 The Contractor MUST provide one (1) Submission Sample for each area of the component which is identified "Submission Sample Required" on the bid documents. These submission samples should be submitted with the Shop Drawing submission for the respective furniture component.
- 5.2 The size and extent of the Submission Samples are noted on the drawings. The purpose of the Submission Samples is to review and verify the furniture details, quality of workmanship, detailing at junctions of materials and the quality of finishes.

PART III: CORPORATE REQUIREMENTS

1. Corporate Background

- 1.1. Contractor MUST identify the manufacturing company, delivery company and installation company of the requirements.

2. Qualifications

- 2.1. The Furniture manufacturer MUST have a minimum of seven (7) years' experience in the manufacturing and sales of custom furniture.
- 2.2. The Lead furniture installer resource MUST have a minimum of five (5) years' of experience as a furniture installer.

2.3. All installers MUST be trained in the installation and functioning of the furniture specified in PART II: SCOPE OF WORK before the delivery of product to site.

3. Local Representation

3.1. Manufacturers MUST have a local representative available to address issues and provide Customer Service duties.

4. Warranty

4.1. All furniture pieces as contained within PART II: SCOPE OF WORK, MUST be warranted for a period of at least ten (10) years for manufacturer's defects, from the final date of acceptance.

4.2. The Contractor MUST provide a plan for dealing with warranty issues. The plan MUST clearly identify what constitutes replacement or repair, timelines for service and any costs involved.

4.3. The Contractor MUST respond to telephone and e-mail contact by PWGSC or the Technical Authority within 24 hours.

4.4. The Contractor MUST have a local representative available to address issues relating to warranty.

5. Quality Assurance

5.1. The Contractor MUST have a written quality assurance program, ISO Certification or ISO Certification equivalent.

5.2. The Contractor MUST provide a written summary of the key quality assurance steps that the Contractor will follow to produce a consistent product of high quality for the Scope of Work described in Part II.

6. Storage Services

6.1. The Contractor MUST have the ability to store the product, if required, in an environment appropriate to the product, to insure no damage occurs during the stored time period.

7. Contractor Representative Responsibilities and Tasks

7.1 The Contractor must assign a representative to be the sole contact with the Project Authority

7.2 The named Contractor Representative must be available when requested (through conference call or on-site) for all meetings. In addition, the Contractor Representative must be available for weekly coordination

7.3 The named Contractor Representative will be responsible for the following:

- a) to schedule deliveries and installation;
- b) to ensure the Contractor's security clearances and health and safety training is acquired as required;
- c) to track and address component deliveries, deficiencies and acceptance; and
- d) to provide installation instructions for components to be installed by a third party.

7.4 The named Contractor Representative must respond to telephone and e-mail contact by the Project Authority and Contract Authority within 24 hours.

- 7.5 The minimum level of service required is detailed below:
 - 7.5.1 Coordinate deliveries with the Project Authority
 - 7.5.2 Assemble components off-site
 - 7.5.3 Uncrate product in designated staging area
 - 7.5.4 Provide all required component delivery documentation (packing slips) at delivery
 - 7.5.5 Inspect product for damage with Project Authority and Technical Authority
 - 7.5.6 Make minor adjustments / repairs as required
 - 7.5.7 Clean product once installed
 - 7.5.8 Remove and recycle all waste material

PART IV: SUPPLY, DELIVERY AND INSTALLATION REQUIREMENTS

1. SUPPLY, DELIVERY AND INSTALLATION

- 1.1 The Contractor MUST supply all material and labour necessary for the supply, delivery and installation of all furniture required and detailed in PART II: SCOPE OF WORK.
- 1.2 As described in PART II: SCOPE OF WORK, Section 2.0. Submittals, the Contractor MUST submit shop drawings, mock-ups and prototypes prior to manufacturing. Below is a table that provides estimated duration for shop drawings, prototype, manufacturing and delivery per room.

1.2.1 Activities to supply, deliver and install furniture items

Activities for Supply , Delivery and Installation	Responsible Authority	Approximate Duration in Weeks
Submit Schedule and Shop Drawing and Submission Samples	Contractor	4
Review Shop Drawings	Technical Authority	3
Submit Revised Shop Drawings	Contractor	2
Shop Drawing Review	Technical Authority	3
Submit Revised Shop Drawings (if Required)	Contractor	2
Production and Submission of Prototype	Contractor	6
Prototype Review and Acceptance	Technical Authority	3
Manufacture	Contractor	TBD
Deliver and Install	Contractor	phased deliveries

- 1.3 Locations of the furniture pieces are available in Attachment 1 to Annex A, Wood Furniture Location Plans for installation.
- 1.4 Approximate installation timeframe is December 1 2017 to April 2018. Final schedule to be confirmed by the Project Authority two (2) months prior to delivery.
- 1.5 The final date and time of delivery will be confirmed by the Project Authority ten (10) calendar days in advance. The schedule for deliveries shall include considerations for site and loading dock constraints, volume of deliveries, and resource constraints regarding reviews and acceptances.
- 1.6 The Contractor will be responsible to take the necessary steps to ensure all interior finishes i.e., door frames, flooring finishes, elevators, etc. are protected against damage.
- 1.7 The minimum level of service required is detailed below:
- 1.7.1 Inspect product prior to shipping, remove any pieces not meeting acceptable standards
 - 1.7.2 Arrange products for Technical Authority inspection prior to delivery to building site
 - 1.7.3 Deliver product to designated building access locations
 - 1.7.4 Uncrate product
 - 1.7.5 Inspect product for damage
 - 1.7.6 Install product
 - 1.7.7 Ensure all products function properly, i.e., test lock mechanisms, level guides, etc.
 - 1.7.8 Make minor adjustments/repairs as required.
 - 1.7.9 Clean product once installed.

- 1.7.10 Place all waste material in designated receptacle at the loading dock, or as instructed by Project Authority.
- 1.7.11 Clean up the installation site. The site MUST present a neat and orderly appearance at all times.

1.8 Delivery Services:

- 1.8.1 Deliveries are only to be scheduled after hours between 7:00pm and 6:00am, Monday to Saturday via the entrances designated for delivery by the Project Authority. All delivered materials are to be moved from the loading entry to their respective rooms by 5:00 am each day. For information regarding the site conditions, off hours work and work restrictions involved in after hours work please refer to Annex "D", Site Instructions.
- 1.8.2 If the Contractor should need to work during hours outside of the regular work hours they shall obtain an "off hours work permit" and conform to all requirements of the Construction Manager's Project Specific Health Safety and Environment Plan.
- 1.8.3 All deliveries to be scheduled five (5) working days in advance with the Project Authority.
- 1.8.4 At no time is space on the exterior of the building to be used for removals, or staging deliveries, unless approved in writing by the Project Authority in advance of the delivery.
- 1.8.5 Each driver coming to site MUST review and understand the *Traffic Control Plan* provided by the Construction Manager in the Health and Safety Plan (refer to Health and Safety Preparedness Plan, 111 Wellington Street, to be provided at contract award) prior to the delivery being made.
- 1.8.6 There is no loading dock serving the building. Most trucks can access the site.
- 1.8.7 There will be no opportunity for jockeying or maneuvering the contents of the delivery vehicle while at the delivery entrance location. The item(s) to be delivered MUST be the first accessible item(s) in the delivery vehicle.
- 1.8.8 The 111 Wellington Street building has one (1) freight elevator (Elevator C) which serves all levels and two (2) large passenger elevators (Elevators G+H) serving levels 00 through 3 inclusive. These elevators will be available for transportation of materials to floors during the times noted above. Elevator C: inside dimensions, Length 2191mm (86") x Width 1554mm (61") x Height 2940mm.(115") Clear opening, Width 1219mm (48") x Height 2133mm (84"), Capacity 1815 kg. Elevators G+H: inside dimensions, Length 2410mm (94") x Width 1625mm(63") x Height 2455mm.(96") Clear opening, Width 1219mm (48") x Height 2133mm (84"), Capacity 1815 kg.
- 1.8.9 The Contractor MUST include a packing slip with all deliveries that clearly identifies the following information:
 - 1.8.9.1 Date
 - 1.8.9.2 Contract Title and Number
 - 1.8.9.3 Contractor's Name and Address
 - 1.8.9.4 Description of item(s) including all product code numbers
 - 1.8.9.5 Checklist of items delivered as listed under SOW, Part II: Scope of Work.
 - 1.8.9.6 Total quantity of item(s) delivered
 - 1.8.9.7 Total quantity of item(s) delivered to date versus remaining quantities to be delivered.

1.9 Installation Services

- 1.9.1 The site is considered a construction site. Installation will be carried out during normal working hours, which are defined as Monday to Friday, from 7:00am to 5:00pm, excluding statutory holidays. Installations will be scheduled by the Project Authority. For information regarding the site conditions, off hours work and work restrictions involved in after-hours work please refer to Annex "D", Site Instructions
- 1.9.2 If the Contractor should need to work during hours outside of the regular work hours they shall obtain an "off hours work permit" and conform to all requirements of the Construction Manager's Project Specific Health Safety and Environment Plan.
- 1.9.3 The Construction Manager (CM) is responsible for scheduling the use of the elevator.
- 1.9.4 Installers are required to have a designated Supervisor on site while the work is being carried out. The Site Supervisor is responsible for obtaining site-access, the on-site delivery personnel and liaising with the Project Authority as required. Refer to Annex "D", Site Instructions, for instructions on the Site Supervisor's responsibilities.

PART V: HEALTH AND SAFETY

1. General:

- 1.1 Until the Base Building Substantial Completion date, the Construction Manager (CM), assumes the role of "Constructor" as defined in the Occupational Health and Safety Act and Regulations for construction Projects and is fully responsible for ensuring compliance with OSHA for all aspects of the Project.
- 1.2 The Contractor MUST comply with the Construction Manager Health and Safety Procedures and Policy described below and attached under Annex "D".
- 1.3 A Site Orientation Course will be provided by the CM to all of the Contractor's personnel required to access the worksite.
- 1.4 All personnel accessing the site (beyond the delivery entrances) are required to have valid WHMIS and Basics of Fall Protection training cards during their time on site. Copies of the training cards will be taken by Construction Manager at the site orientation course.
- 1.5 The Construction Manager complies with and enforces the requirements of:
 - 1.5.1 The National Building Code of Canada 2005 (NBC), Part 8 Safety Measures at Construction and Demolition Sites and Provincial Regulations for Construction Projects.
 - 1.5.2 The Designated Substances Report.
 - 1.5.3 The Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials; and labeling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources and Skills Development Canada, Labour Program.

PART VI: INSPECTION & DEFICIENCY PROCEDURES

The Contractor MUST adhere to the following inspection process and deficiency procedure:

1. INSPECTIONS

1.1. At Manufacturer's Premises

- 1.1.1. The Project Authority and Technical Authority reserve the right to visit the manufacturer's premises.

1.2. Inspection Prior to Delivery to Site

- 1.2.1. The Contractor must arrange for components to be delivered and uncrated at a location in the National Capital Region for Technical Authority review and approval of each shipment prior to shipping to the building site.

1.3. Inspection Upon Delivery

- 1.3.1. The Project Authority will inspect all products arriving on-site.
- 1.3.2. There will be an inspection of the building prior to any deliveries by the Contractor. Damages will be formally documented by the Project Authority and a copy provided to the Contractor.

1.4. Inspection During Installation

- 1.4.1. The Project Authority and Technical Authority will inspect all products during installation.

1.5. Inspection Upon Completion of Installation

- 1.5.1. The Contractor MUST notify the Project Authority when the installation is completed.
- 1.5.2. The Project Authority and the Technical Authority will perform the inspection within five (5) business days after notification of the completed installation.;

2. DEFICIENCIES

- 2.1. The Project Authority with input from the Technical Authority, will prepare an inspection report documenting any deficiencies upon installation completion. If there are no deficiencies, the Contracting Authority will provide the Contractor with a sign-off that the work is accepted.
- 2.2. The deficiency list will be forwarded to the Contractor.
- 2.3. Within three (3) working days of receipt of this deficiency list, the Contractor MUST complete all minor deficiencies and make all adjustments not requiring new parts.
- 2.4. For all outstanding deficiencies, the Contractor MUST submit a deficiency rectification plan with delivery dates and completion dates, within five (5) working days from receipt of the deficiency list.
- 2.5. In instances where replacement furniture pieces are required before deficiency rectification can be scheduled, temporary pieces of furniture will need to be supplied. These pieces will be identified at the time of the walk-through inspections and itemized on the deficiency list.

- 2.6. The Contractor **MUST** notify the Project Authority and the Contracting Authority when all deficiencies have been rectified.
- 2.7. A final inspection will be coordinated by the Project Authority with the Contractor and other stakeholders. Once all rectified deficiencies pass inspection, the Contracting Authority will provide the Contractor a final sign-off that the work is accepted.