

PART E
SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at <http://www.winnipeg.ca/matmgt>.

E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing</u>
A-1	Demolition Plan
A-2	Renovation Plan
A-3	Schedules and Details
A-4	Reflected Ceiling Plan – Demolition & New Plan
A-5	Floor Finish Plan
A-6	Furniture and Millwork Plan
A-7	Millwork Details
M-1	Mechanical Demolition
M-2	Mechanical Renovation
M-3	Plumbing & Fire Sprinkler – Demolition & Renovation
M-4	Mechanical & Plumbing Specifications
E-1	Electrical, Data & Phone Demolition
E-2	Electrical, Data & Phone Renovation
E-3	Electrical Lighting Demolition
E-4	Electrical Lighting Renovation
E-5	Security Alarm & Card Access Control System
E-6	Electrical & Category 6 Cabling Specifications

E2. GENERAL PROVISIONS SECTION 01000

E2.1 SCOPE

E2.1.1 ARCHITECT OR ENGINEER

- a) Wherever the word Architect or Engineer or Consultant is used in the construction specifications, it shall be replaced with Contract Administrator as defined in GC.1.01(8) of the General Conditions, or his agent.

E2.2 COORDINATION AND COOPERATION:

E2.2.1 OTHER TRADES

- a) Further to GC:6.1, Specifications shall be read by all trades to acquaint them with the nature of the work required. Failure to do so will not relieve them of any responsibilities for cooperation in coordinating the work and preventing delay and for the supply and installation of materials required for this work.

E2.2.2 CUTTING AND PATCHING

- a) Each trade shall do all necessary cutting and patching required for their work. Existing adjacent surfaces shall be accurately matched. Cutting through any structural member shall only be done with the prior approval of the Contract Administrator.
- b) Perform all cutting and patching required to make the several parts of the work come together properly.

E2.3 MATERIALS

E2.3.1 C.S.A.

- a) All materials, where applicable, shall be CSA approved.

E2.4 SUBMITTALS

E2.4.1 SHOP DRAWINGS

- a) Further to GC:6.9, the Contractor shall submit for approval, at least five (5) sets of detailed shop drawings for all work as requested by the Contract Administrator at the initial site meeting and as required thereafter.

E2.5 QUALITY CONTROL

E2.5.1 INSPECTING AND TESTING MATERIAL

- a) The City reserves the right to inspect and test all materials at its own expense and to reject any materials which are not in accordance with the requirements of the specifications. The Contractor shall furnish, at the contractor's expense, such specimens and samples of materials as may be required for testing.
- b) The Contractor shall allow the City to test any equipment, and shall provide power, fuel or material required for these standard performance tests on the equipment.

E2.6 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:

E2.6.1 SITE PROTECTION

- a) The Contractor shall provide adequate protection to prevent any damage to existing structures, furnishings, finishes, etc. during construction. Temporary ramps, barricades, hoardings as required shall be provided to the approval of the Contract Administrator.
- b) The Contractor shall exercise care in the operations relative to the site. Any unnecessary destruction of the site will not be permitted. The Contractor shall exercise care in the movement of equipment and materials especially during wet weather. The Contractor shall be held responsible for the repair of damages to the site, boulevards, roads, other pavements, etc. in the surrounding area of the immediate site.

E2.6.2 LAYOUT OF WORK

- a) The Contractor shall verify all dimensions on the drawings and report any discrepancies to the Contract Administrator before starting the work.

E2.6.3 EXISTING SERVICES AND UTILITIES

- a) Further to GC.3. (3.1) of the General Conditions, it shall be the responsibility of the Contractor to verify the location of all existing utilities, pipes and other objects and, if encountered, to adequately protect them during the construction period, and if disturbed or damaged by the Contractor, to have them replaced or reset in their original position after construction has been completed at the Contractor's cost.

E2.7 CONTRACTOR TO NOTIFY UTILITIES AND OTHER AUTHORITIES

E2.7.1 UTILITIES

- a) Whenever the Work requires that a public street or lane be cut for underground works, the Contractor shall before entering on the Work Site, make application to each utility, or other authorities, and shall give to the Superintendent of Traffic Services, Traffic Operations Section of the Streets and Traffic Branch in the Streets and Transportation Department of the City of Winnipeg, not less than 48 hours written notice of the date on which work is to commence. A copy of the application and of all notices are to be given to the Contract Administrator.
- b) The Contractor shall be responsible for all costs of the work to be done in the cut, the work to restore all underground structures to their "as found condition", and to restore the surface area to its original condition, or better.
- c) The Contractor shall supply, erect and maintain all applicable traffic control devices in accordance with the provisions of the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets" issued by the City of Winnipeg. The manual is available from the Public Works Department, Customer Services Division, 1155 Pacific Avenue, of the City of Winnipeg.

E2.8 PROJECT INFORMATION SIGNS

E2.8.1 SIGNS

- a) No project information signs shall be allowed without the written approval of the Contract Administrator. Any project information signs approved during construction are to be removed by the Contractor upon completion of the project.

E2.9 REQUIREMENTS FOR SUBSTANTIAL PERFORMANCE:

E2.9.1 INSTRUCTION MANUALS

- a) The Contractor shall provide the Contract Administrator with four copies of all manuals showing:
 - i. Service Instruction - including a list of spare parts and replacement parts and the names and addresses of all suppliers.
 - ii. Maintenance Instructions.
 - iii. Installation Instructions.
 - iv. Operating Instructions.
 - v. Electric Schematics.
- b) Detailed electrical and electronic circuit diagrams (wiring and schematic) showing all wiring connections; all electrical component values; all component parts manufacturers; and servicing procedure for all electrical and electronic equipment utilized to approval of the City. Substantial Performance of the equipment is contingent on the provision of the above information.

E2.9.2 OCCUPANCY PERMIT

- a) The Contractor shall obtain the Occupancy Permit required under the Building By-Law, along with the mechanical and electrical Certificate of Inspection from the City of Winnipeg Environmental Building Inspection Department.

E2.9.3 APPLICATION FOR SUBSTANTIAL PERFORMANCE

- a) Upon completion of the work or upon reaching substantial performance the Contractor shall complete form (to be supplied) C.P.10 Contractors Application for Substantial Performance.

E3. PROJECT COORDINATION SECTION 01040

E3.1 General

E3.1.1 REQUIREMENTS INCLUDED

- a) Coordination of work with Contract Administrator and all Sub-trades.

E3.1.2 DESCRIPTION

- a) Coordination of submittals, use of site, temporary utilities, construction facilities and use of elevators.

E3.1.3 EXISTING CONDITIONS

- a) The operation of this facility is to remain uninterrupted during the duration of this project. The contractor is to minimize interference to the staff of this building.
- b) All procedures involving existing building, or staff must be coordinated with the Contract Administrator.
- c) Construction hours of operation shall be approved by the Contract Administrator to reduce disturbance of the staff.
- d) Power actuated fastening devices or other noise generating equipment shall not be used without approval of the Contract Administrator.
- e) Only elevators designated by the Contract Administrator shall be used for the transporting of equipment and materials to and from the worksite. The contractor shall take precautions to protect the elevators used in the progress of the Work. Damages to the elevators due to construction use shall be corrected at no expense to the City.
- f) Only one elevator may be taken off service at any one time for both loading or unloading equipment and materials or for performing elevator work as required in the contract documents. Contract Administrator shall be notified 24 hours in advance of any elevator to be taken off service. Removal of more than one elevator from service shall require written permission from the Contract Administrator.

E4. FIELD MEASUREMENT SECTION 01055

E4.1 General

E4.1.1 REQUIREMENTS INCLUDED

- a) Verification of building dimensions.
- b) Site measurement for new construction.

E4.1.2 RELATED REQUIREMENTS

- a) Section 01000 – General Provisions
- b) Individual Sections – site measurements prior to fabrication.

E4.1.3 PROJECT CONDITIONS

- a) The drawings in these bid documents are based on drawings of existing facility, actual site dimensions may vary.

E4.2 Products

E4.2.1 Not Used

E4.3 Execution

E4.3.1 SITE MEASUREMENT

- a) Verify all fixed dimensions prior to commencing with work.
- b) Site check all dimensions prior to fabrication.
- c) Notify Contract Administrator of any discrepancies between site checked dimensions and drawing dimensions.

E5. CUTTING & PATCHING SECTION 01045

E5.1 General

E5.1.1 REQUIREMENTS INCLUDED

- a) Requirements and limitations for cutting and patching the Work.

E5.1.2 RELATED REQUIREMENTS

- a) Individual Sections: cutting and patching incidental to work of the section.

E5.1.3 SUBMITTALS

- a) Submit written request in advance of cutting or alteration which affects:
 - i. Structural integrity of any element of Projects.
 - ii. Integrity of weather-exposed or moisture resistant elements.
 - iii. Efficiency, maintenance, or safety of any operational element.
 - iv. Visual qualities of sight-exposed elements.
- b) Include in request:
 - i. Identification of project.
 - ii. Location and description of affected work.
 - iii. Statement on necessity for cutting or alteration.
 - iv. Description of proposed work and products to be used.
 - v. Alternatives to cutting and patching.
 - vi. Effect of work on owner.
 - vii. Date and time work will be executed.

E5.2 Products

E5.2.1 MATERIALS

- a) Required for original installation.

E5.3 Execution

E5.3.1 GENERAL

- a) Execute cutting, fitting and patching to complete the work.
- b) Fit the several parts together, to integrate with other work.
- c) Uncover work to install ill-timed work.
- d) Remove and replace defective and non-conforming work.

- e) Provide openings for penetrations of mechanical and electrical work.

E5.3.2 INSPECTION

- a) Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- b) After uncovering, inspect conditions affecting performance of work.
- c) Beginning of cutting or patching means acceptance of existing conditions.

E5.3.3 PREPARATION

- a) Provide supports to assure structural integrity of surroundings; devices and methods to protect other portions of project from damage.
- b) Provide protection from elements for areas which may be exposed by uncovering work.
- c) Conduct work to minimize interference with operation of existing facility.

E5.3.4 PERFORMANCE

- a) Execute work by methods to avoid damage to other work and which will provide proper surfaces to receive patching and finishing.
- b) Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements and sight-exposed surfaces.
- c) Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed without prior written approval.
- d) Restore work with new products in accordance with requirements of Contract Documents.
- e) Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- f) At penetration of fire-rated wall, ceiling or floor construction, completely seal voids with fire-rated material, full thickness of the construction element. Refer to Section 07270.
- g) Refinish surfaces to match adjacent finishes: for continuous surfaces refinish to nearest intersection or as indicated on schedule and drawings; for equipment refinish entire unit.
- h) Provide and install steel lintels for new openings in existing masonry construction.
- i) Restore surfaces and finishes in areas of electrical and mechanical work to match surrounding substrate as per above notes.
- j) Revise existing elevator openings to accommodate new floor heights match to adjacent materials. Patch elevator sill to match existing.

E6. FINISH CARPENTRY SECTION 06200

E6.1 General

E6.1.1 SECTION INCLUDES

- a) Finish carpentry items, including shop prefabricated casework.
- b) Hardware and attachment accessories.
- c) Interior wood base.
- d) Coat rod and shelves.
- e) Door screen frames.

E6.1.2 RELATED SECTIONS

- a) Section 08210 – Wood Doors
- b) Section 09900 – Painting; Painting and finishing of finish carpentry items.

E6.1.3 REFERENCES

- a) AWMAC (Architectural Woodwork Manufacturer's Association of Canada) – Quality Standards for Architectural Woodwork.
- b) CAN3-A172M – High Pressure Paper Base, Decorative Laminates.
- c) NLGA (National Lumber Grades Authority) – Standard Grading Rules for Canadian Lumber.
- d) CSA –121M – Douglas Fir Plywood
- e) CSA 0141 – Softwood Lumber
- f) DSA 0151M – Canadian Softwood Plywood.
- g) CGSB 71-GP020 – Contact Cement
- h) CGSB 11-GP-3M – Hardboard
- i) CAN3-0188.1M – Interior Mat Formed Particleboard.

E6.1.4 QUALITY ASSURANCE

- a) Fabricator: company specializing in custom carpentry work.
- b) Perform finish carpentry work in accordance with AWMAC.
- c) Lumber Grading: NLGA.

E6.1.5 SHOP DRAWINGS AND PRODUCT DATA

- a) Submit shop drawings and product data to requirements of Section 01000.

- b) Indicate on shop drawings, materials, component profiles, fastening methods, jointing details, finishes accessories, and required hardware.

E6.1.6 DELIVERY, STORAGE AND HANDLING

- a) Store materials in ventilated interior locations with constant minimum temperatures of 16 degrees C and maximum relative humidity of 55 percent.

E6.2 Products

E6.2.1 LUMBER MATERIALS

- a) Softwood Lumber: CSA 0141, Custom grade in accordance with AWMAC; maximum moisture content of 4 – 9 percent.
- b) Hardwood Lumber: Custom grade in accordance with AWMAC; moisture content of 4 – 9 percent, maple species, of quality capable of transparent finish.

E6.2.2 SHEET MATERIALS

- a) Softwood Plywood: CSA 0121M- Douglas Fir; AWMAC, Custom grade; core materials of veneer; fir species.
- b) Hardwood plywood: Conforming to requirements of CSA 0115, Architectural good sequence matched grade, core material of veneer, thickness indicated on drawings. Veneer to be rotary cut maple veneer, location as noted on drawings.
- c) Plastic Laminate: 01.050" thick General Purpose grade.
- d) Plastic Laminate Backing: CAN3-A172M; high pressure paper base laminate without a decorative finish; thickness to match face sheets; smooth surface finish.

E6.2.3 ADHESIVE

- a) Contact Adhesives: Solvent release type.

E6.2.4 ACCESSORIES

- a) Nails: size and type to suit application; plain finish.
- b) Bolts, Nuts, Washers, Blind Fasteners, Lags, and Screws: size and type to suit application; plain finish – interior; galvanized finish – exterior.
- c) Wood Filler: oil base, tinted to match surface finish colour.

E6.2.5 FABRICATION – CASEWORK

- a) Fabricate casework in accordance with AWMAC Custom quality standards and as shown on drawings.
- b) All casework construction to be veneer core plywood except as noted or existing plastic laminate.
- c) Doors: Plastic laminate on ¾" (face & edges all around) veneer core plywood or as indicated on drawings.

- d) Cabinet back: ½" prefinished plywood to match cabinet interior, unless otherwise noted on the drawings.
- e) Bases to be carpet to replace existing carpet base or veneer core plywood with rubber base or as indicated on drawings.
- f) Apply plastic laminate in full uninterrupted sheets. Joints to be hairline.
- g) Apply laminate backing sheet to reverse side of plastic laminate finished surfaces. If surface is visible, it shall be finished with same thickness and colour as face laminate.
- h) When necessary to cut and fit on site, provide materials with ample allowance for cutting provided. Trim for scribing and site cutting.
- i) Keep plastic laminate counter top joints minimum 24" from sink cut outs.
- j) Obtain governing dimensions before fabricating items which are to accommodate or abut or other equipment.

E6.2.6 HARDWARE

- a) Hinges: Blum 90 concealed hinges, 175° opening, spring closed. (2 pairs on each coat/storage cabinet door.
- b) Adjustable shelving supports: KV No. 255 c/w No. 256 supports. Nickel finish.
- c) Pulls:
 - i. All Coat Closets/Storage: Richelieu 496160-195-160mm.
 - ii. Drawer pulls: Extruded aluminum to match existing.
 - iii. Cabinet Pulls: Extruded aluminum to match existing.
- d) Coat Rod: 1: dia. Chrome rod; K & V 770 1 c/w 764 end flanges.

E6.2.7 FINISHES

- a) Shop applied polymerizing two component catalytic conversion varnish system. The individual components of the system used must be chemically compatible to assure perfect adhesion and top quality, durable final finish.
- b) All surfaces shall be carefully prepared and sanded free of machine marks before and between finish coats.
- c) Exterior and exposed interior of cases, doors and drawer fronts shall be finished as follows:
 - i. One coat sealer.
 - ii. Sand.
 - iii. One clear top coat.

- d) Cabinet interior (cabinet with doors) and drawer bodies shall be finished as follows:
 - i. One coat sealer.
 - ii. Sand.
 - iii. One clear top coat.
- e) Cabinet and case backs not exposed to view shall be given one coat of moisture repellent sealer.
- f) All screens, panels and cabinetwork shall be constructed and finished by the same fabricator to ensure uniformity in construction and colour.

E6.3 Execution

E6.3.1 INSPECTION

- a) Verify that surfaces are ready to receive work and filed measurements are as shown on shop drawings.
- b) Verify mechanical, electrical and building items affecting work of this section are placed and ready to receive this work.
- c) Beginning of installation means acceptance of existing conditions.

E6.3.2 PREPARATION

- a) Before installation, seal surfaces of items or assemblies to be in contact with cementitious materials.
- b) Sand all work smooth and set all exposed nails and screws. Apply wood filler in all exposed nail and screw indentations and leave ready to receive applied finishes. On items which are to receive transparent finishes, use wood filler which matches surrounding surfaces and of type recommended for applied finishes.

E6.3.3 INSTALLATION

- a) Install work in accordance with AWMAC Custom quality standard.
- b) Set and secure materials and components in place, plumb and level.
- c) Install components with purpose designed fasteners.
- d) Carefully scribe cabinetwork which is against other building components leaving gaps of 1/16" maximum.
- e) Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- f) Install hardware in accordance with manufacturers recommendations.

E6.3.4 WOOD TRIM

- a) Wood trim shall be installed using the longest possible lumber lengths. Adjacent boards shall be selected and positioned for matching colour and grain. Butting joints shall be scarfed. Nails shall be set and holes filled to match wood colour.

E6.3.5 PROTECTION

- a) Protect finish installation.

E7. SOUND INSULATION SECTION 07212

E7.1 General

E7.1.1 SECTION INCLUDES

- a) Sheet vapour barrier.
- b) Batt insulation.

E7.1.2 RELATED SECTIONS

- a) Section 07900 – Sealants and Caulking
- b) Section 09260 – Gypsum Board Systems

E7.1.3 REFERENCES

- a) CAN2-51.33M – Vapour Barrier, Sheet for Use in Building Construction.
- b) CSA 101M – Thermal Insulation, Mineral Fibre for Buildings.

E7.2 Products

E7.2.1 SOUND INSULATION

- a) Glass fibre blanket, friction fit, noise stop blanket as manufactured by Owens Corning Canada. Other acceptable manufacturers; Certainteed, Manville Gold.

E7.2.2 ACCESSORIES

- a) Tape: permanent acrylic adhering back, polypropylene, 3M Contractors Sheathing Tape.
- b) Sealant: Type 'B' as specified in Section 07900.

E7.2.3 ACOUSTIC INSULATION

- a) Install acoustic insulation to walls and screens indicated on drawings.
- b) Fit insulation tight in spaces and tight to one side of mechanical and electrical services leaving no gaps or voids.

E8. FIRE STOPPING SECTION 07270

E8.1 General

E8.1.1 SECTION INCLUDES

- a) Fireproof fire stopping materials.

E8.1.2 RELATED SECTIONS

- a) Section 09260 – Gypsum Board Systems: Gypsum wallboard fireproofing.

E8.1.3 REFERENCES

- a) ASTM E84 – Test Method for Surface Burning Characteristics of Building Materials.
- b) CAN4 – S115-M85, Standard Method of Fire Tests of Fire Stop Systems.
- c) ULC 0 Listing of Equipment and Materials.
- d) Warnock Hersey – Fire Laboratories Listings.

E8.1.4 PERFORMANCE REQUIREMENTS

- a) Fireproofing Materials: CAN4-S115 to achieve a fire rating as noted on Drawings.

E8.1.5 SUBMITTALS

- a) Manufacturers Installation Instructions: Indicate preparation and installation instructions.
- b) Manufacturers Certificate: Certify that products meet or exceed specified requirements.

E8.1.6 REGULATORY REQUIREMENTS

- a) Conform to applicable code for fire resistance rating and surface burning characteristics.

E9. SEALANTS AND CAULKING SECTION 07900

E9.1 General

E9.1.1 SECTION INCLUDES

- a) Clean and prepare surfaces to receive sealant materials.
- b) Install sealant and backing materials window frames, joints between similar and dissimilar materials as indicated, and per schedule in this Section.
- c) Install acoustic sealant at interior partitions.

E9.1.2 RELATED SECTIONS

- a) Section 06100 – Rough Carpentry
- b) Section 07270 – Fire Stopping
- c) Section 09260 – Gypsum Board Systems

E9.1.3 ENVIRONMENTAL CONDITIONS

- a) Sealant and substrata materials to be minimum 50C.
- b) Should it become necessary to apply sealants below 50c, consult sealant manufacturer and follow their recommendations.

E9.1.4 REFERENCE STANDARDS

- a) CGSB 19-GP-22M – “Sealing Compound, One Component, Silicone Base, Chemical Curing” – Mildew Resistant.
- b) CGSB 19-GP-21M – Sealing and Bedding Compound for Acoustical Purposes.
- c) CGSB 19-GP-17M – Sealing Compound, One Component, Acrylic Emulsion Base.

E9.1.5 WARRANTY

- a) Provide a three year warranty.
- b) Warranty: Include coverage of installed sealants and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

E9.2 Products

E9.2.1 SEALANT MATERIALS

- a) Sealant 'A': sealing compound, one component, silicone base to CGSB-19GP-22M. General Electric 'Sanitary 1700; Dow Corning 786. Colours as selected by Contract Administrator.
- b) Sealant 'B':; sealing compound, one component, synthetic rubber, Tremco Acoustic Sealant.

- c) Sealant 'C': sealing compound, one component, pintable, acrylic base to CGSB 19.GP-17. Tremco latex 100. Colour to be selected by consultant.

E9.2.2 PREPARATORY MATERIALS

- a) Primer: non-staining type recommended by sealant manufacturer to suit applications.
- b) Joint Cleaners: non-corrosive types recommended by sealant manufacturer; compatible with substrate and joint forming materials.
- c) Joint Filler: round closed cell polyethylene foam rod; oversized to 50%.

E9.3 Execution

E9.3.1 PREPARATION/INSTALLATION

- a) Maintain workmanship of highest quality in accordance with best trade practices.
- b) Clean and prepare joints in accordance with manufacturer's recommendations. Remove any loose materials and other foreign matter which might impair adhesion of sealant.
- c) Ensure that joint forming materials are compatible with sealant.
- d) Examine joint dimensions and size materials to achieve required width/depth ratios. Use joint filler to achieve required joint depths, to allow sealants to perform properly. Use bond breaker(s) where required.
- e) Apply sealant within recommended temperature ranges. Advise consultant when sealant cannot be applied within recommended temperature ranges and do not proceed until so advised by consultant.
- f) Form joints as detailed on drawings and concave, free of air pockets, embedded matter, ridges and sags.

E9.3.2 SCHEDULE

- a) Apply sealant Type 'A' to perimeter joints of all sanitary components, vanities, counters, sinks, water closets, shower heads, etc. unless noted otherwise on drawings.
- b) Apply sealant type 'B' in two continuous beads around perimeter of plates, at top, bottom and sides of all partitions.
- c) Apply sealant type 'C' to junctures of millwork items and adjacent building components and perimeter of door frames as directed by Consultant.

E10. WOOD DOORS SECTION 08210

E10.1 General

E10.1.1 SECTION INCLUDES

- a) Wood doors solid core.

E10.1.2 RELATED SECTIONS

- a) Section 06200 – Finish Carpentry
- b) Section 09900 – Painting and Finishing.

E10.1.3 REFERENCES

- a) AWMAC (Architectural Woodwork Manufacturer's Association of Canada) – Millwork Standards.

E10.1.4 QUALITY ASSURANCE

- a) Conform to requirements of AWMAC Quality Standard – Institutional Grade.

E10.1.5 SHOP DRAWINGS AND PRODUCT DATA

- a) Submit shop drawings and product data to requirements of Section 01000.
- b) Indicate on shop drawings, door elevations, stile and rail reinforcement, internal blocking for hardware attachment, and cutouts for glazing.
- c) Provide samples of entire range of colours for prefinished items for selection by Consultant.

E10.1.6 DELIVERY, STORAGE AND HANDLING

- a) Deliver products to site after work causing abnormal amount of humidity has been completed.
- b) Store and protect products to protect against humidity, scratches, and other damage.

E10.1.7 WARRANTY

- a) Provide a three year warranty.

E10.2 Products

E10.2.1 DOOR TYPES

- a) Flush Interior Doors: 1 $\frac{3}{4}$ " thick, solid core construction.

E10.2.2 DOOR CONSTRUCTION

- a) Solid core: AWMAC standard type, particleboard core.

E10.2.3 FLUSH DOOR FACING

- a) Veneer Flush Interior Doors: Oak Veneer rotary cut faces, clear finish to match existing cabinetwork and frames in colour and sheen.

E10.2.4 FABRICATION

- a) Provide flush doors with ½" thick edge strips of wood species to match veneer. Veneer to extend over edge strip to door edge.
- b) Premachine doors for finish hardware.

E10.3 Execution

E10.3.1 INSPECTION

- a) Verify that prepared openings are ready to receive work and dimensions are as indicated on shop drawings.
- b) Beginning of installation means acceptance of site conditions.

E10.3.2 INSTALLATION

- a) Install doors in accordance with manufacturers instructions.
- b) Machine cut relief for hinges and closers and coring for handsets and cylinders.
- c) Trim door width by cutting equally on both jamb edges.
- d) Trim door height by cutting equally on top and bottom edges to a maximum of ¾".
- e) Pilot drill screws and bolt holes.
- f) Prepare doors to receive finish hardware in accordance with AWMAC requirements.
- g) Conform to AWMAC requirements for fit tolerances.

E10.3.3 TOLERANCES

- a) Maximum Diagonal Distortion: 1/8" measured with straight edge, corner to corner.

E10.3.4 ADJUSTING AND CLEANING

- a) Adjust for smooth and balances door movement.

E11. GLASS AND GLAZING SECTION 08800

E11.1 General

E11.1.1 SECTION INCLUDES

- a) Glass and glazing for wood frames and screens, and wood doors.
- b) Mirrors.

E11.1.2 RELATED SECTIONS

- a) Section 06200 – Finish Carpentry; wood frames.
- b) Section 08210 – Wood Doors.

E11.1.3 REFERENCE STANDARDS

- a) CGSB 12-GP-1M – “Glass, Safety, Tempered or Laminated”
- b) CGSB 12-GP-3M – “Glass, Polished Plate or Float, Flat, Clear”

E11.2 Products

E11.2.1 GLASS

- a) Safety Glass: conforming to CGSB 12-GP-1M Type 2 tempered, class b float; clear; of thicknesses determined by size of glazed openings, minimum ¼” thick.

E11.2.2 GLAZING MATERIALS

- a) Glazing tape: preformed butyl type, Tremco 440 tape; paper release.
- b) Setting Blocks: neoprene; 70 – 90 durometer hardness; 4 inch long x 3/8 inch thick x ¼ inch high.
- c) Spacer Shims: neoprene; 50 durometer hardness; 3 inch long x 3/32 inch thick x ¼ inch high.
- d) Sealant: Tremglaze as manufactured by Tremco.

E11.3 Execution

E11.3.1 INTERIOR COMBINATION METHOD (TAPE/TAPE)

- a) Cut glazing tape to proper length and install against permanent stop, projecting 1/16” above sightline.
- b) Place setting blocks at ¼ point.
- c) Rest glass on setting blocks and push against tape with sufficient pressure to ensure full contact and adhesion at perimeter.
- d) Place glazing tape on free perimeter of glass in same manner described above.

- e) Install removable stop, avoid displacement of tape, exert pressure on tape for full continuous contact.
- f) Knife trim excess or protruding tape.

E11.3.2 CLEANING

- a) After installation mark glass with an "X" by using tape or removable paste.
- b) Immediately remove droppings from finished surfaces. Remove labels after work is completed.

E12. GYPSUM BOARD SYSTEMS SECTION 09260

E12.1 General

E12.1.1 SECTION INCLUDES

- a) Metal stud wall framing.
- b) Metal channel ceiling framing.
- c) Acoustic sealant.
- d) Acoustic insulation.
- e) Gypsum Board.
- f) Taped and sanded joint treatment.
- g) Installation of access panels.

E12.1.2 WORK INSTALLED BUT FURNISHED UNDER OTHER SECTIONS

- a) Section 07212 – Sound insulation.

E12.1.3 RELATED SECTIONS

- a) Section 07212 – Sound Insulation.
- b) Section 09900 – Painting: Surface finish.

E12.1.4 REFERENCES

- a) CSA A82.27M – Gypsum Board Products
- b) CSA A82.30M – Interior Furring, Lathing and Gypsum Plastering.
- c) CSA A82.31M – Gypsum Board Application

E12.1.5 REGULATORY REQUIREMENTS

- a) Conform to applicable codes for fire rated assemblies

E12.2 Products

E12.2.1 ACCEPTABLE MANUFACTURERS

- a) Domtar Construction Materials.
- b) Canadian Gypsum Company Limited.
- c) Westroc

E12.2.2 FRAMING

- a) Studs and tracks: Interior Walls: CSA A82.30M, Galvanized sheet steel, 25ga., 'C' shape, with serrated faces.
- b) Slip joint head track: 25 ga., galvanized sheet steel, 2" deep.
- c) Metal Furring: 25 ga., galvanized sheet steel with serrated face.
- d) Lateral Stud Bracing: 16 ga. Galvanized, cold rolled channel, $\frac{3}{4}$ " x $\frac{3}{8}$ ".
- e) Carrying Channels: 16 ga. Galvanized sheet steel, $\frac{1}{2}$ " x $\frac{3}{4}$ ".
- f) Hangers: galvanized steel wire, size to suit application, maximum deflection 1/360.
- g) Fasteners: Type S drywall screws, length to suit application.

E12.2.3 SHEET MATERIALS

- a) Fire Rated Gypsum Board: CSA 82.27M, fire resistive type, ULC rated; 5/8" thick, maximum permissible length; ends square cut, tapered edges.
- b) All gypsum board on ceilings to be 5/8" thick unless noted.

E12.2.4 ACCESSORIES

- a) Acoustical Insulation: specified in Section 07212.
- b) Acoustical Sealant: non-hardening, non-skinning, for use in conjunction with gypsum board, specified in Section 07900.
- c) Corner Beads: galvanized sheet steel; tapable.
- d) Casing Trim: Galvanized steel with 'J' type bead, tapable.
- e) Joint Materials: CSA A82.31M, reinforcing tape, joint compound, adhesive, water, fasteners.
- f) Control Joints: back to back tapable 'J' trim.

E12.3 Execution

E12.3.1 METAL STUD INSTALLATION

- a) Install studding in accordance with manufacturer's instructions.
- b) Metal Stud Spacing: 24" o.c. unless shown otherwise.
- c) Partition Heights: Refer to drawings.
- d) Install 20 ga. Steels studs at locations where interior stud wall heights are greater than 12 feet.
- e) Openings: Install double studs at perimeter of all openings.

- f) Coordinate installation of bucks, anchors, blocking, electrical and mechanical work placed in or behind partition framing.
- g) Install slip joint head track where stud walls meet structure. Allow for $\frac{3}{4}$ " deflection.
- h) Install bead of acoustic sealant at junction of track and structure, top and bottom.

E12.3.2 WALL FURRING INSTALLATION

- a) Erect wall furring for direct attachment to concrete and concrete block walls.
- b) Secure furring channels in place on alternate channel flanges at maximum 24" o.c.
- c) Space furring channels maximum 16" on centre.

E12.3.3 CEILING FRAMING INSTALLATION

- a) Install carrying channels maximum 48" o.c. and furring channels maximum 24" o.c.
- b) Coordinate location of hangers with other work.
- c) Install ceiling framing independent of walls, columns and above ceiling work.
- d) Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24" past each end of openings.
- e) Laterally brace entire suspension system.
- f) Install access panels where indicated on drawings.

E12.3.4 ACOUSTICAL ACCESSORIES INSTALLATION

- a) Place acoustical insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions and tight to items passing through partitions.
- b) Install acoustical sealant at gypsum board perimeter at base, between metal framing and substrate, and caulk all penetrations of partitions by conduit, pipe, ductwork, rough-in boxes, etc.

E12.3.5 GYPSUM BOARD INSTALLATION

- a) Install gypsum board in accordance with manufacturers instructions.
- b) Erect single layer fire rated gypsum board with edges and ends occurring over firm bearing.
- c) Double layer applications: secure second layer to first with adhesive and sufficient support to hold in place. Apply adhesive in accordance with manufacturers recommendations.
- d) Use screws when fastening gypsum board to metal furring or framing, 12" o.c. maximum.

- e) Place control joints consistent with lines of building spaces as directed, but not more than 25 feet o.c.
- f) Place corner beads at external corners. Use longest practical length.
- g) Place tapable casing beads where gypsum board abuts dissimilar materials, or where gypsum board ends.

E12.3.6 JOINT TREATMENT

- a) Tape, fill (3 coats) and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
- b) Feather coats onto adjoining surfaces.

E12.3.7 TOLERANCE

- a) Maximum variation from True Flatness: 1/8"/10 feet in any direction.

E13. SUSPENDED ACOUSTIC CEILINGS SECTION 09511

E13.1 General

E13.1.1 SECTION INCLUDES

- a) Suspended metal grid ceiling system.
- b) Acoustical tile.
- c) Non-fire rated assembly.
- d) Perimeter trim.
- e) Suspended Louvre Ceilings.

E13.1.2 RELATED SECTIONS

- a) Section 09260 – Gypsum Board Systems.
- b) Division 15 – Air diffusion devices in ceiling system.
- c) Division 16 - :Light fixtures in ceiling system.

E13.1.3 REGULATORY REQUIREMENTS

- a) Flame spread rating and smoke development to conform to National building Code and the Manitoba Building Code.

E13.1.4 SAMPLES

- a) Submit samples to requirements of Section 01000.
- b) Submit one sample 12" x 12" illustrating material and finish of each type of acoustic unit.
- c) Submit one sample each, of suspension system main runner, cross runner, and edge trim.

E13.1.5 ENVIRONMENTAL REQUIREMENTS

- a) Perform work to requirements of Section 01000.
- b) Maintain uniform temperature of minimum 16 degrees C, and humidity of 20 to 40 percent prior to, during, and after installation.
- c) Store material in work area 48 hours prior to installation.

E13.1.6 SEQUENCING/SCHEDULING

- a) Do not install acoustical ceilings until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

- b) Schedule installation of acoustic units after interior wet work is dry.

E13.1.7 EXTRA STOCK

- a) Provide extra quantity of acoustic units for maintenance use amounting to 2% of gross ceiling area for each type required for project. Store where directed and identify contents.
- b) Maintenance materials to be from same production run as installed materials.

E13.2 Products

E13.2.1 ACCEPTABLE MANUFACTURERS

- a) Acoustic Unit materials
 - i. Armstrong
 - ii. Canadian Gypsum Co.
 - iii. Celotex

E13.2.2 ACOUSTIC UNIT MATERIALS

- a) Acoustic Tiles: 5/8" thick mineral fibre "Cortega-769" manufactured by Armstrong; square edge; 24: x 48"; Colour to be white.

E13.2.3 SUSPENSION SYSTEM MATERIALS

- a) Grid: Intermediate non-fire rated exposed T components die cut and interlocking.
- b) Accessories: Stabilizer bars, clips, splices, edge moldings, hold down clips required for suspended grid system.
- c) Grid materials: Commercial quality cold rolled steel with galvanized coating.
- d) Grid Finish: White.
- e) Support Channels and Hangers: Galvanized steel; size and type to suit application, to rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.
- f) Grid components: galvanized steel die cut main tee with double web, rectangular bulb and 1: rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersections.

E13.2.4 SUSPENDED LOUVRES

- a) 1/2" x 1/2" x 1/2" Clear anodized aluminum sized to suit grid; manufactured by Intalite Inc. Provide trim to match acoustic ceiling.

E13.3 Execution

E13.3.1 INSPECTION

- a) Verify that surfaces are ready to receive work instructed by the manufacturer.
- b) Verify that layout of hangers will not interfere with other work.
- c) Beginning of installation means acceptance of site conditions.

E13.3.2 INSTALLATION

- a) Install acoustic tile and luminous grid systems in accordance with manufacturer's instructions and as supplemented in this section.
- b) Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- c) Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- d) Supply hangers or inserts for installation with instructions for their correct placement.
- e) Hang system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- f) Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- g) Locate system on room axis according to reflected plan.
- h) Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6" of each corner; or support components independently.
- i) Do not eccentrically load system, or produce rotation of runners.
- j) Install edge moulding at intersection of ceiling and vertical surfaces, using longest practical lengths. Mitre corners. Provide edge mouldings at junctions with other interruptions.
- k) Form expansion joints to accommodate plus or minus 1" movement. Maintain visual closure.
- l) Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- m) Install acoustic units level, in uniform plane, and free from twist, war and dents.

E13.3.3 TOLERANCES

- a) Variation from Flat and Level Surface: 1/8" / 3 FT.

E14. RESILIENT FLOORING SECTION 09650

E14.1 General

E14.1.1 SECTION INCLUDES

- a) Preparation of substrate surfaces.
- b) Vinyl composition tile.
- c) Base materials.
- d) Clean up all surfaces and areas of work.

E14.1.2 RELATED SECTIONS

- a) Section 09680 – Carpeting

E14.1.3 REFERENCES

- a) ASTM E84 – Surface Burning Characteristics of Building Materials.
- b) CSA A126 – Sheet Flooring Products

E14.1.4 SAMPLES

- a) Submit samples in accordance with Section 01000.
- b) Include duplicate 12”x 12” sized samples of each flooring material, color and pattern selected.

E14.1.5 MAINTENANCE DATA

- a) Provide manufacturers instructions covering care and maintenance of materials of this section as per Section 01000.

E14.1.6 EXTRA MATERIALS

- a) Provide 5% or 50 sf, whichever is greater, of each colour and type of flooring, base and stair materials for project for maintenance use. Store where directed. Identify each roll or container.

E14.2 Products

E14.2.1 FLOORING MATERIALS

- a) Vinyl Composition Tile: 12” x 12” x 1/8” thick; Type IV Mannington Commercial Inspirations – 419 Tweed Medley & #255 Frosted Jade.
- b) Rubber Flooring – Johnsonite Roundel Speckled Rubble Tile – Artisan Collection Colour – 713 Sahara – Surface – Hammered - .125 thick.

E14.2.2 N/A

E14.2.3 BASE MATERIALS

- a) Rubber Base: Roll stock 4" high, 1/8" thick, top set covered; premoulded external corners.

E14.2.4 EDGE GUARD MATERIALS

- a) Edge Guards: Metal binder bar; Roberts Nap-Lok 3/4" Binder Bar Flat (1/8" inset); Silver.

E14.2.5 ACCESSORIES/ADHESIVES/SEALERS

- a) Sub-Floor Filler: trowelable cement based floor filler; Ardex K-55 or type recommended by flooring material manufacturer.
- b) Primer and adhesives: waterproof, of types recommended by flooring manufacturer for specific material.
- c) Sealer and Polish: type recommended by flooring material manufacturer for material type and location.

E14.3 Execution

E14.3.1 SITE AND SUBSTRATE CONDITIONS

- a) Ensure floor surfaces are smooth and flat with maximum variation of 1/4" in 10 ft.
- b) Maintain minimum 70 degrees F. air temperature at flooring installation area for 72 hours prior to, during and for 48 hours after installation.
- c) Beginning of installation means acceptance of existing substrate and site conditions.

E14.3.2 PREPARATION

- a) Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
- b) Clean floor and apply, trowel and float filler to leave smooth, flat hard surface. Prohibit traffic until filler is cured.
- c) Apply primer to concrete surfaces, to flooring manufacturers recommendations.

E14.3.3 INSTALLATION – TILE MATERIAL

- a) Install in accordance with manufacturer's instructions.
- b) Mix tile from container to ensure shade variations are consistent.
- c) Spread only enough adhesive to permit installation of materials before initial set.
- d) Set flooring in place, press with heavy roller to attain full adhesion.
- e) Install tile to square grid pattern with all joints aligned. Allow minimum 1/2 full size tile width at room or area perimeter.
- f) Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.

- g) Install edge strips at unprotected or exposed edges, and where flooring terminates.
- h) Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

E14.3.4 INSTALLATION – BASE MATERIALS

- a) Fit joints tight and vertical. Maintain minimum measurement of 2' – 0" between joints.
- b) Mitre internal corners. Use premoulded units at exterior corners and at exposed ends.
- c) Run sheet flooring up wall in rooms indicated on room finish schedule using cover former strips. Taper cove former strips 4" from door frames to prevent cove from projecting past door frame.
- d) Install base on solid blocking. Bond tight to wall.
- e) Scribe and fit to door frames and other interruptions.

E14.3.5 PROTECTON

- a) Prohibit traffic from floor finish for 48 hours after installation.

E14.3.6 CLEAN-UP

- a) Remove excess adhesive from floor, base and wall surfaces and leave free of damage.
- b) Clean, seal and polish floor and base surfaces in accordance with manufacturers recommendations.

E15. CARPET SECTION 09680

E15.1 General

E15.1.1 WORK INCLUDED

- a) Supply and install carpeting on second floor in this project – remove existing carpet.

E15.1.2 RELATED WORK (specified elsewhere)

- a) Resilient Flooring - Section 09650

E15.1.3 CERTIFICATION

- a) Bidder shall submit within two (2) business days of a request by the Contract Administrator manufacturer's product data verifying compliance with specification requirements.

E15.1.4 MAINTENANCE DATA

- a) Provide maintenance data for carpet maintenance for incorporation into Maintenance Manual.

E15.1.5 WARRANTY

- a) Provide a written warranty stating that carpeting work of this Section is warranted against deterioration of backing, delamination, failure of seams, stretching or wrinkling, fading or other defect of materials or workmanship detrimental to appearance or performance for a period of five years from the date of Certificate of Total Performance.

E15.2 PRODUCTS:

E15.2.1 MATERIALS

- a) Carpets: Patcraft Commercial, Duality – 10061
- b) Carpet Colour: – 61101 Yin & Yang.
- c) Carpet grippers: Types recommended by carpet manufacturer.
- d) Binder bars: Aluminum finish of type recommended by carpet manufacturer.
- e) Adhesive: type of brand recommended by carpet manufacturer.
- f) Polyethylene film: to CGSB 70-GP-1a CAN2-51.33-M77, Type 2, 0.15mm thick.

E15.3 EXECUTION:

E15.3.1 WORKMANSHIP

- a) Install glue-down carpet in accordance with CGSB 4-GP-156.

- b) Install carpeting after finishing work is complete but before telephone and electrical pedestal outlets are installed.
- c) Finish installation to present smooth wearing surface free from conspicuous seams, burring and other faults.
- d) Ensure perfect colour, pattern and texture match within any one area.

E15.3.2 PREPARATION

- a) Prepare floor surfaces in accordance with CGSB 4-GP-156.
- b) Ensure toeless type resilient base is installed before proceeding with carpeting.

E15.3.3 CARPET GRIPPERS AND BINDER BARS

- a) Install carpet grippers to conform to high and low spots in floor, using carpet gripper cement, concrete nails or approved stud driver.
- b) Use carpet grippers at walls and vertical surfaces; metal binder bars at exposed carpet edges.

E15.3.4 CARPET INSTALLATION

- a) Install carpet in accordance with seaming plan. Hand sew seams and cross-joints. Maintain run of pile directionally constant.
- b) Install carpet tightly and fit neatly around architectural, mechanical, electrical and furniture fitments. around perimeter of rooms into recesses and around fixtures, and around projections through the floor.
- c) Seal edges of cut-outs with latex, or use positive binding method.

E15.3.5 PROTECTION OF FINISHED WORK

- a) Vacuum carpets clean. Protect traffic areas of carpeted floors with polyethylene drop sheets. Tape joints to prevent shifting.

E16. PAINTING SECTION 09900

E16.1 General

E16.1.1 SECTION INCLUDES

- a) Surface preparation.
- b) Surface finish schedule at end of section.

E16.1.2 RELATED SECTIONS

- a) Section 05500 – Metal Fabrications: Shop Prime Painting
- b) Section 06200 – Finish Carpentry: Shop Finishing

E16.1.3 REFERENCES

- a) CPCA (Canadian Painting Contractors Association) – Painting Manual.

E16.1.4 QUALITY ASSURANCE

- a) Product Manufacturer: Company specializing in manufacturing quality paint and finish products.
- b) Applicator: Company specializing in commercial painting and finishing approved by product manufacturer.

E16.1.5 REGULATORY REQUIREMENTS

- a) Conform to National Building Code, Interior Finish, for flame/fuel/smoke rating requirements for finishes.

E16.1.6 SAMPLES AND LIST OF MATERIALS

- a) List of Materials
 - i. Before ordering materials, submit written request in form acceptable to Consultant, for approval of paint materials. List each of the materials proposed and surfaces to be covered. State manufacturers name and brand name of materials.
 - ii. List of materials shall be endorsed by manufacturer as being the best material for the applicable condition.
- b) Samples
 - i. Prepare 8" x 10" samples of paint finishes (draw downs) of each colour and finish requested. Apply finishes on identical type materials to which they will be applied on job.
 - ii. Submit samples of stained finished on each species and grade of wood specified and indicated on drawings.
 - iii. Identify each sample as to finish, colour name and number and sheen name and gloss units.

E16.1.7 PROTECTION OF SURROUNDING ELEMENTS

- a) Protect elements surrounding the work of this section from damage.
- b) Provide protection in accordance with Section 01000.

E16.1.8 ENVIRONMENTAL REQUIREMENTS

- a) Perform work to requirements of Section 01000.
- b) Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above for 24 hours before, during and 48 hours after application of finishes.
- c) Provide minimum 270 lx of lighting to be finished.
- d) The facility will be in operation during the construction period, provide adequate ventilation to minimize the discomfort to the employees and public. Use low-odour paint wherever possible.

E16.2 Products

E16.2.1 ACCEPTABLE MANUFACTURERS

- a) Paint
 - i. Glidden Paints
 - ii. Pratt & Lambert Paints
 - iii. Para Paints
 - iv. Benjamin Moore

E16.2.2 MATERIALS

- a) All painting materials shall be the best quality and shall be approved by the Consultant.
- b) Paint shall not be settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency, and shall be excellent application properties.
- c) Paint shall arrive on the job colour-mixed except for tinting of undercoats and possible thinning.
- d) All thinning and tinting materials shall be recommended by the manufacturer for the particular material thinned or tinted.
- e) Mixed colours shall match colour selection made by the Consultant prior to application of the coating.
- f) Paint shall be ready mixed except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- g) Paint shall have good flow and brushing properties; capable of drying or curing free of streaks or sages.
- h) Paint Accessory materials: Linseed oil, shellac, turpentine, and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

E16.2.3 FINISHES

- a) Refer to schedule at end of Section for application schedule.
- b) Paint colours and other finishes will be selected by Consultant. Do not start work until after receiving colour schedule.
- c) Colours selected by Consultant will not necessarily be from the manufacturer's standard colours.
- d) A variety of colours may be used. Consultant may select deferent colours for different elements such as ductwork, bulkheads, exposed decks, slabs, and structural steel. Some colours may be deep tone.
- e) Confirm gloss levels for all surfaces with Consultant before starting work. Unless otherwise indicated, allow for semi-gloss finish.

E16.3 Execution

E16.3.1 INSPECTION

- a) Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- b) Examine surfaces scheduled to be finished, prior to commencement of work. Report any condition that may potentially affect proper application.
- c) Verify substrate surface temperature and ambient air temperature is above 5 degrees C before applying finishes.
- d) Minimum Application Temperatures for Latex Paints: Interiors: 7 degrees C.
- e) Minimum Application Temperature for Varnish and urethane Finishes: 18 degrees C.
- f) Measure moisture content of surfaces using an electronic moisture meter. Do no apply finishes unless moisture content of surfaces are below maximum established by the paint manufacturer.
- g) Beginning of installation means acceptance of existing surfaces.

E16.3.2 PREPARATION

- a) Correct minor defects and deficiencies in surfaces which affect work of this section.
- b) Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- c) Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- d) Gypsum Board Surfaces: Remove contamination and prime paint to identify minor defects. Prime paint after defects have been remedied.
- e) Unprimed Steel Surfaces: Clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bots and nuts are similarly cleaned. Prime surfaces to identify defects. Prime paint after defects have been remedied.
- f) Shop Primed and Shop Painted Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Lean surfaces with solvent. Prime bare steel surfaces.

E16.3.3 APPLICATION

- a) Apply products in accordance with manufacturer's instructions.
- b) Apply each cost to smooth consistency.

- c) Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
- d) Sand lightly between coats to achieve required finish.
- e) Do no apply finishes to surfaces that are not dry.
- f) Allow applied coat to dry before next coat is applied.
- g) Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

E16.3.4 MECHANICAL AND ELECTRICAL EQUIPMENT

- a) Remove finished louvers, grilles, covers, and access panels on mechanical and electrical components from location and paint separately. Finish paint primed equipment to match adjacent work, except as noted otherwise.
- b) Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, to match adjacent work except where items are prefinished or noted otherwise.
- c) Replace identification markings on mechanical or electrical equipment when painted accidentally.
- d) Paint interior surfaces of air ducts, convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, convector and baseboard cabinets to match face panels.
- e) Paint exposed conduit and electrical equipment including baseboard heaters, forced air unit heaters, fire bells, fire alarm panel, and electrical panels occurring in finished areas. Colour and texture to match adjacent surfaces, unless otherwise noted.
- f) Paint both sides and edges of plywood backboards for electrical equipment before installing equipment.
- g) Replace electrical plates, hardware and fittings removed prior to painting.

E16.3.5 PROTECTION

- a) Protect other surfaces from paint or damage. Repair damage.
- b) Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- c) Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

E16.3.6 CLEANING

- a) As work proceeds, promptly remove paint where spilled, splashed, or spattered.
- b) During progress of work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials and debris.

E16.3.7 SCHEDULE – INTERIOR SURFACES

- a) Steel – unprimed
 - i. One coat interior alkyd primer.
 - ii. Two coats alkyd enamel, semi-gloss finish.
- b) Steel – primed
 - i. Touch-up with zinc chromate primer.
 - ii. Two coats alkyd enamel, semi-gloss finish.

- c) Steel galvanized
 - i. One coat zinc chromate primer.
 - ii. Two coats alkyd enamel, semi-gloss finish.
- d) Gypsum Board
 - i. One coat primer sealer.
 - ii. Two coats latex eggshell finish.
- e) Ceilings
 - i. One coat primer sealer.
 - ii. Two coats latex flat finish.
- f) Hollow Metal Doors and Frames
 - i. Touch-up with zinc chromate primer.
 - ii. Two coats alkyd semi-gloss finish.
- g) Stained Wood Finish
 - i. Shop finished as per Section 06200.
- h) Walls to Receive Wallcovering
 - i. One coat primer seal