COVER PAGE

École élémentaire Catholique Marguerite-Bourgeois

Location: 117 Waterloo Rd E, Borden, ON L0M 1C0
Prepared For: Conseil Scolaire Catholique MonAvenir
Prepared By: AAA ARCHITECTS INC.

Specifications Booklet
This booklet contains the required construction and installation specifications for the project, including demolition, cabinetry, flooring, painting, plumbing, and related work.

INDEX

PART 1 GENERAL

1.1 SUMMARY

.1 This Section includes requirements for selective demolition and removal of plumbing, sprinkler systems and related mechanical components and incidentals required to complete work described in this Section ready for new construction.

1.2 RELATED REQUIREMENTS

.1 Section 02 41 13– Selective Site Demolition.

.2 Section 02 41 16– Structure Demolition.

.3 Section 02 41 19.16 – Selective Interior Demolition.

.4 Section 02 41 99 – Demolition for Minor Works.

.5 Section 02 82 00.02 – Asbestos Abatement.

1.3 REFERENCES

.1 CSA Group (CSA)

.1 CSA S350 M1980, Code of Practice for Safety in Demolition of Structures

1.4 DEFINATIONS

.1 Demolish: Detach items from existing construction and legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.2 Remove: Planned deconstruction and disassembly of electrical items from existing construction including removal of conduit, junction boxes, cabling and wiring from electrical component to panel taking care not to damage adjacent assemblies designated to remain; legally dispose of items off site, unless indicated as removed and salvaged, or removed and reinstalled.

.3 Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.

.4 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.5 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed and salvaged, or removed and reinstalled.

.6 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB s, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by Federal Hazardous Products Act (RSC 1985) including latest amendments.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Action Submittals: Provide in accordance with Section 01 33 00 – Submittal Procedures before starting work of this Section:

.2 Landfill Records: Indicate receipt and acceptance of selective demolition waste and hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate work of this Section to avoid interference with work by other Sections.

.2 Scheduling:

.1 Account for Owner’s continued occupancy requirements during selective demolition with Section 02 41 19.16 - Selective Interior Demolition and schedule staged occupancy and worksite activities Owner.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: Perform work of this Section in accordance with:

.1 Provincial/Territorial Workers’ Compensation Boards/Commissions.

.2 Provincial/Territorial Occupational Health and Safety Standards and Programs.

1.8 SITE CONDITIONS

.1 Condition of materials identified as being salvaged or demolished are based on their observed condition at time of site examination before tendering.

.2 Discovery of Hazardous Substances:

.1 It is not expected that Hazardous Substances will be encountered in the Work. Immediately notify Owner if materials suspected of containing hazardous substances are encountered.

.3 Hazardous Substances:

.1 Hazardous Substances are present in building to be selectively demolished. A report on the presence of Hazardous Substances is attached as an information document to this Specification for review and use. Examine report to become aware of locations where hazardous materials are present. Coordinate removal of hazardous materials as per appropriate sections of this specification.

1.9 SALVAGE AND DEBRIS MATERIALS

.1 Demolished items become Contractor's property and will be removed from Project site; except for items indicated as being reused, salvaged, or otherwise indicated to remain the Owner's property.

.2 Carefully remove materials and items designated for salvage and store in a manner to prevent damage or devaluation of.

.1 Leave main electrical distribution panel in place; panel can be used for temporary construction power for this and subsequent contracts in accordance with Section 01 51 00 – Temporary Utilities ; coordinate temporary power connections with Owner.

.2 Leave main telephone terminal backboard in place; panel can be used for temporary construction telephone system for this and subsequent contracts in accordance with Section 01 51 00 – Temporary Utilities; coordinate temporary telephone connections with Owner.

PART 2 PRODUCTS

2.1 MATERIALS

.1 General Patching and Repair Materials: Refer to Section 02 41 19.16 - Selective Interior Demolition for listing of patching and repair materials incidental to removal or demolition of components associated with work of this Section.

.2 Plumbing Repair Materials: Use only new materials required for completion or repair matching materials damaged during performance of work of this Section; new materials are required to meet assembly or system characteristics as existing systems indicated to remain and carry CSA approval labels required by the Authority Having Jurisdiction.

.3 Fire stopping Repair Materials: Use listed fire stopping materials compatible with existing fire stopping systems where removal or demolition work affects rated assemblies, restore to match existing fire rated performance.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Existing Conditions:

.1 Visit site, thoroughly examine and become familiar with conditions that may affect the work of this Section before tendering the Bid.

.2 Owner will not consider claims for extras for work or materials necessary for proper execution and completion of the contract that could have been determined by a site visit.

.2 Identify on-site removal of walls and ceilings required to facilitate work.

.3 Identify on-site testing of piping to facilitate work.

.4 Identify risks from hazardous materials prior to commencing work.

.5 Ensure hazardous materials are removed or abated prior to commencing demolition.

.6 For components intended to for relocation and reuse; remove, protect, store, clean, reinstall and connect to plumbing system. Recommission.

3.2 PREPARATION

.1 Protection of Existing Systems to Remain: Protect systems and components indicated to remain in place during selective demolition operations and as follows:

.1 Prevent movement and install bracing to prevent settlement or damage of adjacent services and parts of existing buildings scheduled to remain.

.2 Notify Owner and cease operations where safety of buildings being demolished, adjacent structures or services appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

.3 Prevent debris from blocking drainage inlets.

.4 Protect mechanical systems that will remain in operation.

.2 Protection of Building Occupants: Sequence demolition work so that interference with the use of the building by the Owner and users is minimized and as follows:

.1 Prevent debris from endangering safe access to and egress from occupied buildings.

.2 Notify Owner and cease operations where safety of occupants appears to be endangered and await additional instructions before resuming demolition work specified in this Section.

3.3 EXECUTION

.1 Coordinate requirements of this Section with information contained in Section 02 41 19.16 - Selective Interior Demolition and as follows:

.1 Disconnect and cap mechanical services in accordance with requirements of local Authority Having Jurisdiction.

.2 Do not disrupt active or energized utilities without approval of the Owner.

.3 Erect and maintain dust proof and weather tight partitions to prevent the spread of dust and fumes to occupied building areas; remove partitions when complete.

.4 Demolish parts of existing building to accommodate new construction and remedial work as indicated.

.5 At end of each work day, leave worksite in safe condition.

.6 Perform demolition work in a neat and workmanlike manner:

.1 Remove tools or equipment after completion of work, and leave site clean and ready for subsequent renovation work.

.2 Repair and restore damages caused as a result of work of this Section to match existing materials and finishes.

.7 Medical gas demolition must be coordinated with the Health Authority, Service NL, Labour Division Inspection Authority, medical gas certification agency and in accordance with CSA Z7396.1-17, Medical Gas Pipe Line Systems – Part 1.

.8 Conduit demolition of plumbing systems in accordance with local Authorities Having Jurisdiction (AHJ's) including Service NL, Labour Division Inspection Authority and city plumbing inspection authority.

3.4 CLOSEOUT ACTIVITIES

.1 Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre) except where explicitly noted otherwise for materials being salvaged for re use in new construction.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction / Demolition Waste Management and Disposal.

.3 Section 01 78 00 - Closeout Submittals.

1.2 SUBMITTALS

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

.2 Shop drawings; submit drawings stamped and signed for approval by Owner.

.3 Shop drawings to show:

- .1 Mounting arrangements.
- .2 Operating and maintenance clearances.

.4 Shop drawings and product data accompanied by:

- .1 Detailed drawings of bases, supports, and anchor bolts.
- .2 Acoustical sound power data, where applicable.
- .3 Points of operation on performance curves.
- .4 Manufacturer to certify current model production.
- .5 Certification of compliance to applicable codes.

.5 In addition to transmittal letter referred to in Section 01 33 00 - Submittal Procedures: use MCAC "Shop Drawing Submittal Title Sheet". Identify section and paragraph number.

.6 Closeout Submittals:

- .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Operation and maintenance manual approved by, and final copies deposited with, Owner before final inspection.
- .3 Operation data to include:

.1 Control schematics for systems including environmental controls.

.2 Description of systems and their controls.

.3 Description of operation of systems at various loads together with reset schedules and seasonal variances.

.4 Operation instruction for systems and component.

.5 Description of actions to be taken in event of equipment failure.

.6 Valves schedule and flow diagram.

.7 Colour coding chart.

.4 Maintenance data to include:

.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.

.2 Data to include schedules of tasks, frequency, tools required and task time.

.5 Performance data to include:

.1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.

.2 Equipment performance verification test results.

.3 Special performance data as specified.

.4 Testing, adjusting and balancing reports as specified in Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.

.6 Approvals:

.1 Submit 2 copies of draft Operation and Maintenance Manual to Owner for approval. Submission of individual data will not be accepted unless directed by Owner.

.2 Make changes as required and re-submit as directed by Owner.

.7 Additional data:

.1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.

.8 Site records:

.1 Owner will provide one (1) set of reproducible mechanical drawings or AutoCAD files. Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur. Include changes to

existing mechanical systems, control systems and low voltage control wiring.

.2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.

.3 Use different colour for each service.

.4 Make available for reference purposes and inspection.

.9 As-built drawings:

.1 Prior to start of Testing, Adjusting and Balancing for HVAC, finalize production of as-built drawings.

.2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).

.3 Submit to Owner for approval and make corrections as directed.

.4 Perform testing, adjusting and balancing for HVAC using as-built drawings.

.5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.10 Submit copies of as-built drawings for inclusion in final TAB report.

1.3 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.

.2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 MAINTENANCE

.1 Furnish spare parts in accordance with Section 01 78 00 - Closeout Submittals as follows:

.1 One set of packing for each pump.

.2 One casing joint gasket for each size pump.

.3 One glass for each gauge glass.

.2 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

.3 Furnish one commercial quality grease gun, grease and adapters to suit different types of grease and grease fittings.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Waste Management and Disposal:

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

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 All materials used on this project shall be new and CSA approved unless noted otherwise.

PART 3 EXECUTION

3.1 PAINTING, REPAIRS AND RESTORATION

.1 Do painting in accordance with Section 09 91 23 - Interior Painting.

.2 Prime and touch up marred finished paintwork to match original.

.3 Restore to new condition, finishes which have been damaged.

3.2 CLEANING

.1 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units.

3.3 FIELD QUALITY CONTROL

.1 Site Tests: conduct following tests in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - SUBMITTALS.

.1 Perform tests as specified in other sections of this specification.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.4 DEMONSTRATION

.1 Owner will use equipment and systems for test purposes prior to acceptance. Contractor to supply labour, material, and instruments required for testing.

.2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.3 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.

.4 Instruction duration time requirements as specified in appropriate sections.

.5 Owner may record these demonstrations on video tape for future reference.

3.5 PROTECTION

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 06 10 53 – Miscellaneous Rough Carpentry.

.4 Section 08 80 00 - Glazing.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.

.2 ASTM B456, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

.3 ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-dip Process.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-12.5, Mirrors, Silvered.

.3 Canadian Standards Association (CSA)

.1 CAN/CSA-B651, Barrier-Free Design.

1.3 SUBMITTALS

.1 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

.2 Samples to be returned for inclusion into work.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Sheet steel: commercial quality to ASTM A653/A653M with ZF001 designation zinc coating.

.3 Stainless steel sheet metal: to ASTM A167, Type 304 with BA finish.

.4 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.

.5 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

2.2 COMPONENTS

.1 Toilet tissue dispenser: single roll type, surface mounted, chrome plated steel frame, capacity of 500 sheets double ply roll, roll under spring tension for controlled delivery.

.2 Paper towel dispenser: for double fold paper towels, 525 sheet capacity stainless steel cabinet, hinged front panel, lock and key, surface mounted.

.3 Combination towel dispenser/waste receptacle: recessed wall unit, approximately 330 mm wide, 1400 mm high, 92 mm deep. Interior of 0.8 mm galvanized steel, exterior of 0.8 mm stainless steel. Suitable for dispensing folded paper towels. Removable rigid molded plastic waste receptacle, lockable access door with continuous full height stainless steel hinge.

.4 Soap dispenser: liquid pushup-type corrosion-resistant black ABS valve with stainless steel spring, translucent polyethylene 1.0 L capacity tank, vandal-resistant chrome plated ABS bracket and collar, surface mounted.

.5 Feminine napkin/tampon dispenser: stainless steel, surface mounted unit, minimum capacity is napkins and 20 tampons, key locked, continuous hinge front panel.

.6 Hand dryer: listed under re-examination service of ULC and CSA approved:

.1 Mounting: surface

.2 Wall box: 1.4 mm steel

.3 Cover: white enamel.

.4 Motor: universal type, 1/10 HP, 7500 RPM, resilient mounting, sealed, lubricated bearings, fuse protected, 120 V, 15 A.

.5 Fan: double inlet centrifugal type, dynamically balanced, directly mounted on motor shaft, 57 l/s.

.6 Heating element: protected by an automatic, resetting circuit breaker, isolated from nozzle.

.7 Electronic dryer: power controlled by in admitting, receiving electronic control device positioned to dryer as when hands are placed under nozzle. Operation to continue for no more than seconds of continued use.

.8 Nozzle: stainless steel, fixed.

.7 Recessed soap holder: recessed, stainless steel, 158 x 158 mm soap tray, extended lip and steel back plate.

.8 Feminine napkin disposal bin: disposal bin: stainless steel surface mounted unit, continuous hinged door, self closing, embossed with "napkin disposal".

.9 Shower curtain: anti-bacterial fire resistive self extinguishing vinyl laminated fabric shower curtain. Provide curtain hold-back hook and chain at each curtain.

.10 Shower rods: 25 mm dia x 1.2 mm wall thickness stainless steel tubing of required length with satin chrome finished flanges, 12 shower curtain hooks and curtain hold-back hook and chain. Shower rod material and anchorage to withstand downward pull of 0.9 kN.

.11 Shower/Dressing Area Seat: 8 mm thick water resistant, ivory color, solid phenolic. Frame and mounting brackets 304 stainless steel with self-locking mechanism. Size 455 mm wide and projects from wall 400 mm. Mounting height 430 mm from top of seat to floor.

.12 Grab bars: 32 mm dia x 1.2 mm wall tubing of stainless steel, 38 mm diameter wall flanges, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl/peened bar at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2 kN.

.13 Robe hook: stainless steel with 50 mm projection.

.14 Medicine cabinet: swing door cabinet, surface mounted, glass adjustable shelves, toothbrush holder, mirror. Cabinet completely reversible.

.1 Size: 355 x 460 x 90 mm.

.2 Cabinet: 0.5 mm thick steel.

.3 Mirror: plate glass, 6mm to CAN/CGSB-12.5, stainless steel frame.

.4 Hinges: 1mm stainless steel piano type, with 105° internal stop.

.5 Latch: magnetic

.6 Shelves: 5.0 mm glass, rolled edges.

.15 Hat and Coat Hook: Stainless steel with 50 mm projections.

.16 Mirror: Plate glass 4.0 mm to CAN/CGSB-12.5, Stainless steel frame, electrolytically copper plated and guaranteed against silver spoilage for 10 years, concealed fasteners for mounting.

.17 Diaper changing station: surface mounted, wall unit, polyethylene insert, moulded-in steel-on-steel hinge assembly, mounded-in integral support mechanism, minimum 864 mm wide x 533 mm high, liner dispenser, safety belt, safety instructions, graphic illustration, labeled with universally accepted symbol.

.18 Watercloset backrest: 13 mm solid core plastic laminate backrest, measuring 102 x 254 mm, with chamfered edges and rounded edges, mounted to 32 mm diameter Type 304 stainless steel tubing. Concealed vandal-resistant mounting roses for concealed flange installation. Supplied with stainless steel mounting screws.

2.3 FABRICATION

.1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.

.2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

.3 Brake form sheet metal work with 1.5 mm radius bends.

.4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.

.5 Back paint components where contact is made with building finishes to prevent electrolysis.

.6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.

.7 Shop assemble components and package complete with anchors and fittings.

.8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.

.9 Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

.1 Chrome and nickel plating: to ASTM B456, satin or polished finish.

.2 Manufacturers brand names on face of units not acceptable.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Install and secure accessories rigidly in place as follows:

.1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.

.2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.

.3 Solid masonry or concrete: use bolt with lead expansion sleeve set into drilled hole.

.4 Toilet/shower compartments: use male/female through bolts.

.2 Install grab bars on built-in anchors provided by bar manufacturer.

.3 Use tamper proof screws/bolts for fasteners.

.4 Install mirrors in accordance with Section 08 80 00 - Glazing.

3.2 TESTING

.1 Proof test grab bars to manufacturers specifications.

.2 Provide certificate of test results.

3.3 SCHEDULE

.1 Locate accessories where indicated. Exact locations determined by Owner.

.2 Toilet tissue dispenser: one in each toilet compartment.

.3 Paper towel dispenser: one in each washroom.

.4 Combination towel dispenser/waste receptacles: one in each public washroom where indicated.

.5 Soap dispenser: one at each single wash basin and.

.6 Feminine napkin/tampon dispenser: one in each female washroom.

.7 Hand dryer: two in each washroom.

.8 Recessed soap holder: one at each bathtub and shower.

.9 Feminine napkin disposal bin: one in each female toilet compartment.

.10 Shower rod and curtain: one at each bathtub with shower head and one at each shower compartment.

.11 Grab bar: two in each handicapped toilet compartment and one in each bathtub enclosure.

.12 Robe hook: one in each shower stall or bathtub.

.13 Medicine cabinets: where indicated

.14 Hat & Coat Hook: one in each male and female toilet compartment.

.15 Diaper changing station: one in each unisex washroom.

.16 Watercloset backrest: one at each tankless watercloset. Coordinate location and installation with mechanical and location of watercloset flush valve.

3.4 COMMISSIONING

.1 Instruct Owner on cleaning and maintenance.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 05 50 00 - Metal Fabrications.

.6 Section 10 28 10 - Toilet and Bath Accessories.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM A480/480M, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting, Sheet, and Strip.

.2 Canadian General Standards Board (CGSB)

.1 CAN/GCSB - 71.20, Adhesive, Contact, Brushable.

.3 Canadian Standards Association (CSA)

.1 CSA-B651, Accessible Design for the Built Environment.

1.3 SUBMITALS

.1 Indicate fabrication details, plans, elevations, hardware, and installation details.

.2 Submit duplicate 300 x 300 mm samples of panel showing finish on both sides, two finished edges and core construction.

.3 Submit duplicate representative samples of each hardware item, including brackets, fastenings and trim.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for plastic laminate for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 STORAGE AND PROTECTION

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Protect finished laminated plastic surfaces during shipment and installation. Do not remove until immediately prior to final inspection.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Laminated plastic toilet partitions to CAN3-A172 self-supporting, 19 mm thick with solid color finish on both sides.

.3 Core material: particle board to CAN3 0188.1, sanded both faces, 15.8 mm thick.

.4 Laminated plastic adhesive: to CAN/CGSB 71-20.

.5 Stainless steel sheet metal: to ASTM A480/480M, Type 304 with brushed finish.

.6 Sealer: water resistant sealer or glue as recommended by laminate manufacturer.

.7 Headrails: 57 mm x 57 mm clear anodized, extruded aluminum, anti grip design.

.8 Pilaster: solid laminate plastic panels 19 mm thick to sizes indicated.

.9 Attachment: stainless steel tamper proof type screws and bolts.

2.2 COMPONENTS

.1 Hinges:

.1 Heavy duty, non-lubricating, nylon bushings.

.2 Material/finish: chrome plated non-ferrous casting.

.3 Swing: inward and outward.

.4 Return movement: gravity.

.5 Adjustable to hold door open at any angle up to 90°.

.6 Emergency access feature.

.2 Latch set: surface mounted, combination latch, door-stop, keeper and bumper, chrome plated non-ferrous with emergency access feature.

.3 Wall and connecting brackets: chrome plated non-ferrous extrusion or casting.

.4 Coat hook: combination hook and rubber door bumper, chrome plated non-ferrous.

.5 Door pull: Barrier-free type suited for outswinging doors, chrome plated non-ferrous.

2.3 FABRICATION

.1 Doors, panels and screens: 19 mm thick, composite plastic laminate panels, to sizes indicated.

.2 Pilasters: 19 mm thick, constructed same as door, to sizes indicated

.3 Laminate plastic to core material ensuring core and laminate profiles coincide to provide continuous support and bond over entire surface.

.4 Finish edges of composite laminated plastic panels with laminated plastic strip. Chamfer exposed edges uniformly at approximately 20°.

.5 Provide formed and closed edges for doors, panels and pilasters. Miter and weld corners and grind smooth.

.6 Provide internal reinforcement at areas of attached hardware and fittings. Temporarily mark location of reinforcement for grab bars and benches.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Ensure supplementary anchorage, if required, is in place.

.2 Do work in accordance withCSA-B651.

3.2 ERECTION

.1 Partition erection.

.1 Install partitions secure, plumb and square.

.2 Leave 12 mm space between wall and panel or end pilaster.

.3 Anchor mounting brackets to masonry or concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors.

.4 Attach panel and pilaster to brackets with through type sleeve bolt and nut.

.5 Provide for adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor fixings with stainless steel shoes.

.6 Provide templates for locating threaded studs through finished ceilings.

.7 Equip each door with hinges, latch set, and each stall with coat hook mounted on door, mounting heights 1550 mm. Adjust and align hardware for proper function. Set door open position at 30° to front. Install door bumper, door mounted.

.8 Equip outswinging doors with door pulls on outside of door in accordance with CSA-B651, Accessible Design for the Built Environment.

.9 Install misc. hardware and grab bars.

.2 Floor supported and overhead braced partition erection.

.1 Attach pilasters to floor with pilaster supports and level, plumb, and tighten installation with levelling device.

.2 Secure pilaster shoes in position.

.3 Secure headrail to pilaster face with not less than two fasteners per face.

.4 Set tops of doors parallel with overhead brace when doors are in closed position.

.3 Screen erection.

.1 Provide urinal stall screens consisting of panel, pilaster and headrail as indicated.

.2 Anchor screen panels to walls with 3 panel brackets and pilaster complete with floor shoes, anchored to floor.

3.3 ADJUSTING

.1 Adjust doors and locks for optimum, smooth operating condition.

.2 Lubricate hardware and other moving parts.

3.4 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean surfaces after installation using manufacturer's recommended cleaning procedures.

.3 Clean aluminum with damp rag and approved non-abrasive cleaner.

.4 Clean and polish hardware and stainless components.

.5 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 RELATED WORK

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.5 Section 06 10 53 – Miscellaneous Rough Carpentry.

.6 Section 10 28 10 - Toilet and Bath Accessories.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM A167, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A480/A480M, Specification for General Requirements for Flat-Rolled Stainless and Heat Resisting Steel Plate, Sheet and Strip.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.81, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.

.2 CAN/CGSB-1.88, Gloss Alkyd Enamel, Air Drying and Baking.

.3 CAN/CGSB-1.104M, Semigloss Alkyd, Air Drying and Baking Enamel.

.3 Canadian Standards Association (CSA)

.1 CSA B651, Accessible Design for the Built Environment.

1.3 SUBMITTALS

.1 Submit 300 x 300 mm samples of panel showing finished edge and corner construction and core construction.

.2 Submit representative samples of each hardware item, including brackets, fastenings and trim.

.3 Indicate fabrication details, plans, elevations, hardware, and installation details.

.4 Submit manufacturer's printed product literature, specifications and data sheet.

.5 Submit two copies of WHMIS SDS - Safety Data Sheets. Indicate VOC's:

.1 For caulking materials during application and curing.

.6 Submit manufacturer’s installation instructions.

1.4 MOCK-UPS

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock-Up Requirements.

.2 Locate where directed.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Please refer to the design package and drawings for product selection.

.2 Metal toilet partitions.

.3 Sheet steel: commercial quality to ASTM A480/480M with ZF001 designation zinc coating.

.4 Minimum base steel thickness:

.1 Panels and doors: 0.8 mm.

.2 Pilasters: 1.0 mm.

.3 Reinforcement: 3.0 mm.

.5 Stainless steel sheet metal: to ASTM A167, Type 304 with BA finish.

.6 Headrails: 25 mm x 41 mm x 1.5 mm thick, clear anodized, extruded aluminum, anti grip design.

.7 Pilaster shoe: 0.8 mm stainless steel, 75 mm high.

.8 Attachment: stainless steel tamperproof type screws and bolts.

2.2 COMPONENTS

.1 Hinges:

.1 Heavy duty, non-lubricating nylon bushings.

.2 Material/finish: chrome plated non-ferrous casting.

.3 Swing: inward and outward for barrier free.

.4 Return movement: gravity.

.5 Adjustable to hold door open at any angle up to 90°.

.6 Emergency access feature.

.2 Latch set: built-in, combination latch, door-stop, keeper and bumper, chrome plated non-ferrous.

.3 Wall and connecting brackets: chrome plated non-ferrous extrusion or casting.

.4 Coat hook: combination hook and rubber door bumper, chrome plated non-ferrous.

.5 Door pull: Barrier-free type suited for outswinging doors, chrome plated non-ferrous.

2.3 FABRICATION

.1 Doors, panels and screens: 25 mm thick, two steel sheets faces pressure bonded to honeycomb core, to sizes indicated.

.2 Pilasters: 32 mm thick, constructed same as door, to sizes indicated.

.3 Provide formed and closed edges for doors, panels and pilasters. Miter and weld corners and grind smooth.

.4 Provide internal reinforcement at areas of attached hardware and fittings. Temporarily mark location of reinforcement for tissue holders and grab bars.

2.4 FINISHES

.1 Clean, degrease and neutralize steel components with phosphate or chromate treatment.

.2 Spray apply primer to CAN/CGSB-1.81, 1 coat.

.3 Spray apply finish enamel to CGSB 1-GP-104, Type 2, semi-gloss, 2 coats and bake to smooth, hard finish 0.025 mm thick.

.4 Finish: doors and pilaster/panels as selected from manufacturer's standard colours.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Ensure supplementary anchorage, if required, is in place.

.2 Do work in accordance with CAN/CSA-B651.

3.3 ERECTION

.1 Partition erection:

.1 Install partitions secure, plumb and square.

.2 Leave 12 mm space between wall and panel or end pilaster.

.3 Anchor mounting brackets to masonry/concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors, to steel supports with bolts in threaded holes.

.4 Attach panel and pilaster to brackets with through type sleeve bolt and nut.

.5 Provide for adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor fixings with stainless steel shoes.

.6 Equip each door with hinges, latch set, and each stall with coat hook mounted on door, mounting heights 1550 mm. Adjust and align hardware for easy, proper function. Set door open position at full open.

.7 Equip outswinging doors with door pulls on inside and outside of door in accordance with CAN/CSA-B651.

.8 Install hardware and grab bars.

.2 Floor supported and headrail braced partition erection.

.1 Attach pilasters to floor with pilaster supports and level, plumb, and tighten installation with levelling device.

.1 Secure pilaster shoes in position.

.2 Secure headrail to pilaster face with not less than two fasteners per face.

.3 Set tops of doors parallel with overhead brace when doors are in closed position.

.3 Screens erection.

.1 Provide urinal stall screens consisting of panel, pilaster and headrail as specified for toilet compartments.

.2 Anchor screen panels to walls with 3 panel brackets, and pilaster complete with floor shoes, anchored to floor.

3.4 ADJUSTING

.1 Adjust doors and locks for optimum, smooth operating condition.

.2 Lubricate hardware and other moving parts.

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean surfaces after installation using manufacturer's recommended cleaning procedures.

.3 Clean aluminum with damp rag and approved non-abrasive cleaner.

.4 Clean and polish hardware and stainless components.

.5 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.6 Section 01 78 00 - Closeout Submittals.

.7 Section 06 20 00 – Finish Carpentry.

.8 Section 06 40 00 - Architectural Woodwork.

.9 Section 08 11 00 – Metal Doors & Frames.

.10 Section 09 21 16 – Gypsum Board Assemblies.

1.2 REFERENCES

.1 Environmental Protection Agency (EPA)

.1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).

.2 SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.

.2 Master Painters Institute (MPI)

.1 MPI Architectural Painting Specifications Manual.

.3 Society for Protective Coatings (SSPC)

.1 SSPC Painting Manual, Volume Two, Systems and Specifications Manual.

.4 National Fire Code of Canada.

1.3 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

1.4 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

.1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.

.2 Where indoor air quality (odour) is a problem, use only MPI listed materials having a minimum E2 or E3 rating.

1.5 SCHEDULING

.1 Submit work schedule for various stages of painting to Owner for approval. Submit schedule minimum of two (2) working days in advance of proposed operations.

.2 Obtain written authorization from Owner for any changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.6 SUBMITTALS

.1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be

.2 Submit product data for the use and application of paint thinner.

.3 Submit WHMIS SDS - Safety Data Sheets. Indicate VOCs during application and curing.

.4 Upon completion, submit records of products used, records to be included in Operating and Maintenance Manuals. List products in relation to finish system and include the following:

.1 Product name, type and use

.2 Manufacturer's product number

.3 Colour numbers

.4 MPI Environmentally Friendly Classification System Rating

.5 Manufacturer's Safety Data Sheets (SDS)

.5 Submit full range colour sample chips to indicate where colour availability is restricted.

.6 Submit duplicate 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

.1 3.0 mm steel plate for finishes over metal surfaces.

.2 13 mm birch plywood for finishes over wood surfaces.

.3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.

.4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.7 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.7 QUALITY CONTROL

.1 Provide mock-up in accordance with Section 01 43 39 – Mock Up Requirements.

.2 When requested by Owner, prepare and paint designated surface, area, room or item (in each colour scheme) to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.

1.8 DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in original containers, sealed, with labels intact.

.3 Labels shall clearly indicate:

- .1 Manufacturer's name and address.
- .2 Type of paint or coating.
- .3 Compliance with applicable standard.
- .4 Colour number in accordance with established colour schedule.

.4 Remove damaged, opened and rejected materials from site.

.5 Provide and maintain dry, temperature controlled, secure storage.

.6 Observe manufacturer's recommendations for storage and handling.

.7 Store materials and supplies away from heat generating devices.

.8 Store materials and equipment in a well ventilated area with temperature range 7º C to 30º C.

.9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Owner. After completion of operations, return areas to clean condition to approval of Consultant.

.11 Remove paint materials from storage only in quantities required for same day use.

.12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

.13 Fire Safety Requirements:

- .1 Provide minimum one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.9 WASTE MANAGEMENT AND DISPOSAL

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

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Place materials defined as hazardous or toxic in designated containers.

.4 Ensure emptied containers are sealed and stored safely.

.5 Unused paint, coating materials must be disposed of at official hazardous material collections site as approved by Owner.

.6 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal.

.7 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.8 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.9 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

1.10 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.2 Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10° C for 24 hours before, during and after paint application until paint has cured sufficiently.

.3 Where required, provide continuous ventilation for seven days after completion of application of paint.

.4 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:

.1 Ambient air and substrate temperatures are below 10° C.

.2 Substrate temperature is over 32° C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer’s prescribed limits.

.4 The relative humidity is above 60% or when the dew point is less than 3° C variance between the air/surface temperature.

.2 Perform no painting work when the maximum moisture content of the substrate exceeds:

.1 12% for concrete and masonry (clay and concrete brick/block).

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish only in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.

.3 Apply paint only when previous coat of paint is dry or adequately cured.

.4 Additional Interior Application Requirements:

.1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Paint materials for paint systems shall be products of a single manufacturer.

.3 Low odor products. Whenever possible, select products exhibiting low odor characteristics. If two products are otherwise equivalent, select the product with the lowest odor. Only qualified products with E2 or E3 ”Environmentally Friendly” rating are acceptable for use on this project.

.4 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, shall:

.1 be water-based, water soluble, water clean-up.

.2 be non-flammable.

.3 be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.

.4 be manufactured without compounds which contribute to smog in the lower atmosphere.

.5 do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.5 Water-borne surface coatings must be manufactured and transported in a manner that steps of process, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).

.6 Water-borne surface coatings must not be formulated or manufactured with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium or their compounds.

.7 Water-borne surface coatings must have a flash point of 61.0°C or greater.

.8 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:

.1 Matter in undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

.9 Water-borne paints and stains, and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.

.10 Please refer to the design package and drawings for product selection.

2.2 COLOURS

.1 Please refer to the design package and drawings for color selection.

.2 Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

.3 For deep and ultra-deep colours; 4 coats may be required.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Owner written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Owner.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following values:

Gloss Level Category	**Units @ 60□**	**Units @ 85□**
G1 - matte finish	max. 5	max. 10
G2 - velvet finish	max. 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

.2 Gloss level ratings of painted surfaces shall be as specified herein.

2.5 INTERIOR PAINTING SYSTEMS

.1 The following paint formulas requires a three coat finish as indicated in the MPI Architectural Painting Specifications Manual.

.2 Concrete Vertical Surfaces: including horizontal soffits

.1 INT 3.1A Latex G5 finish (over sealer).

.3 Concrete Horizontal Surfaces: floors and stairs

.1 INT 3.2B Alkyd floor enamel low gloss finish.

.4 Clay Masonry Units: pressed and extruded brick

.1 INT 4.1A Latex G5 finish.

.5 Concrete Masonry Units: smooth and split face block and brick.

.1 INT 4.2A Latex G5 finish.

.6 Structural Steel and Metal Fabrications: columns, beams, joists, etc.

.1 INT 5.1E Alkyd G5 finish.

.7 Galvanized Metal: doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.

.1 INT 5.3A Latex G5 finish.

.8 Dimension Lumber: columns, beams, exposed joists, underside of decking, etc.

.1 INT 6.2D Latex G5 finish (over latex primer).

.9 Dressed Lumber: including doors, door and window frames casings, mouldings, etc.

.1 INT 6.3T Latex G5 finish (over latex primer).

.10 Wood Paneling and Casework: partitions, panels, shelving, millwork, etc.

.1 INT 6.4C Semi-transparent stain finish.

.11 Wood Floors and Stairs: including hardwood flooring, etc.

.1 INT 6.5B Polyurethane varnish gloss finish (over stain).

.2 INT 6.5C Polyurethane varnish gloss finish.

.12 Plaster and Gypsum Board: gypsum wallboard, drywall, “sheet rock type material”, etc and textured finishes:

.1 INT 9.2A Latex G5 finish (over latex sealer) for walls.

.2 INT 9.2A Latex G1 finish (over latex sealer) for ceilings.

.13 Canvas and Cotton coverings:

.1 INT 10.1B Alkyd G5 finish.

.14 Painting of interior game line layouts with colours as noted on approved game line layout drawing on interior resilient (gymnasium) flooring to be by others in accordance with MPI Architectural Painting Specification.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.

.2 Apply all paint materials in accordance with paint manufacturer's written application instructions.

3.3 PROTECTION

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Owner.

.2 Cover or mask floors, windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.3 Protect items that are permanently attached such as Fire Labels on doors and frames.

.4 Protect factory finished products and equipment.

.5 Protect passing pedestrians, building occupants and general public in and about the building.

.6 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories and other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for re-installation after painting is completed.

.7 As painting operations progress place “WET PAINT” signs in occupied areas to approval of Owner.

3.4 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Owner all damage, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple “cover patch test” and report findings to Owner. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Plaster and wallboard: 12%

.2 Masonry/Concrete: 12%

.3 Concrete Block/Brick: 12%

.4 Wood: 15%

3.5 CLEANING AND PREPARATION

.1 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

.2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or

pretreatment as soon as possible after cleaning and before deterioration occurs.

.3 Sand existing surfaces with intact, smooth, high gloss coatings to provide adequate adhesion for new finishes.

.4 Where possible, prime surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.5 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.6 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air, or vacuum cleaning.

.7 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.

.8 Do not apply paint until prepared surfaces have been accepted by Owner.

3.6 APPLICATION

.1 Method of application to be as approved by Owner. Apply paint by brush, roller, air sprayer, airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple.

.4 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.

.4 Brush out immediately all runs and sags.

.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Owner.

.5 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between coats to remove visible defects.

.8 Finish tops of cupboards, cabinets and projecting ledges, both above and below sight lines as specified for surrounding surfaces.

.9 Finish closets and alcoves as specified for adjoining rooms.

.10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

.11 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

3.7 MECHANICAL/ELECTRICAL EQUIPMENT

.1 In finished areas: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.

.2 In boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 In other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.9 Paint all fire protection piping red.

.10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.11 Do not paint interior transformers and substation equipment.

3.8 PARTITION MARKING AND IDENTIFICATION

.1 Contractor to stencil on both sides of fire rated separations, fire barriers, smoke barriers and smoke partitions the fire rating for that assembly and wall type (i.e.: **1 HOUR FIRE SEPARATION**).

.2 Stenciled fire ratings and wall types to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.

3.9 FIELD QUALITY CONTROL

.1 Field inspection of interior painting operations to be carried out by Owner.

.2 Advise Owner when each applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.3 Co-operate with Owner and provide access to all areas of the work.

.4 Standard of Acceptance:

.1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.10 RESTORATION

.1 Clean and re-install all hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Owner. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Owner.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 01 78 00 - Closeout Submittals.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM F1066, Specification for Vinyl Composition Floor Tile.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-25.20, Surface Sealer for Floors.

.2 CAN/CGSB-25.21, Detergent-Resistant Floor Polish.

1.3 SUBMITTALS

.1 Submit duplicate tile in size specified, 300 mm long base.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air temperature and structural base temperature at flooring installation area at 18º C to 30º C for 48 hours before, during and for 48 hours after installation, and at relative humidity not greater than 60%.

1.6 WARRANTY

.1 Flooring materials shall be warranted by the manufacturer against defects in materials and workmanship for a period of five (5) years from the date of Substantial Completion.

.2 Contractor shall provide a two (2) year warranty from the date of substantial completion against defects in workmanship.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Resilient flooring must:

.1 Meet or exceed all applicable governmental and industrial safety and performance standards; and

.2 Be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection ct (CEPA)

.2 Vinyl composition tile (VCT): to ASTM F1066, Composition 1 - non asbestos Class 2 - through pattern tile, plain surface, minimum 3.0 mm thick, minimum 305 mm x 305 mm unless otherwise indicated, in colour selected by Owner.

.3 Linoleum Tile: renewable, polymer based floor tile having a nominal total thickness of minimum 2.0 mm, minimum 305 mm x 305 mm unless otherwise indicated, composed of polyester resin and fillers. Pigment with colours and textures to be dispersed uniformly throughout total thickness.

.4 Vinyl flooring must:

.1 Floor tile to confirm to ASTM F1066, Class 2 – through pattern, for size, squareness, thickness, indentation, impact, deflection, resistance to chemicals and resistance to heat.

.2 Not be manufactured or formulated with cadium (Cd), chromium (Cr), lead (Pb,), mercury (Gg), and nickel (Ni);

.3 Not contain >0.01% by weight of arsenic (As);

.4 Not contain >1% by weight of tin (Sn), or zinc (Zn);

.5 Not be manufactured or formulated with short-chained chlorinated paraffin waxes (CS≤13), or nonyl phenol;

.6 Not contain or be manufactured with materials derived from species listed on the Convention on International Trade in Endangered Species (CITES).

.5 Feature strip: of same material and thickness as adjacent work, width as indicated on drawings, colour as selected by Owner.

.6 Resilient base: rubber, coved, minimum 1200 mm length and 101.6 mm high x 2.0 mm thick, including external corners for coved base only, of colour selected by Owner.

.7 Primers and adhesives: waterproof, solvent-free, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.

.8 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.

.9 Metal edge strips: aluminum extruded, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

.10 Sealer: to CAN/CGSB 25.20M, type recommended by flooring manufacturer.

.11 Wax: to CAN/CGSB-25.21 type recommended by flooring manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

.1 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

3.2 SUB-FLOOR TREATMENT

.1 Remove all tile adhesive from existing floor areas to receive new tile.

.2 Remove floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with floor filler.

.3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.

.4 Old vinyl flooring to be removed by trained personnel (may contain asbestos).

.5 Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.

3.3 TILE APPLICATION

.1 Provide a high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to the outside. Do not let contaminated air recirculate through a district or whole building air distribution system. Upon completion of work, maintain ventilation at maximum capacity until building occupation.

.2 To minimize emissions from adhesives, use water-based, solvent-free styrene-butadiene-rubber adhesive for linoleum. Butadiene exposure may cause eye and nose irritations, headaches, dizziness, and vomiting.

.3 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.

.4 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.

.5 Install flooring to square grid pattern with all joints aligned, with pattern grain alternating to produce basket weave pattern.

.6 As installation progresses, and after installation, roll flooring in 2 directions including resilient tile with 45 kg minimum roller to ensure full adhesion.

.7 Cut tile and fit neatly around fixed objects.

.8 Install feature strips and floor markings where indicated. Fit joints tightly.

.9 Install flooring in pan type floor access covers. Maintain floor pattern.

.10 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

.11 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.

.12 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 BASE APPLICATION

.1 Lay out base to keep number of joints at minimum. Base joints at maximum length available or at internal or premoulded corners.

.2 Clean substrate and prime with one coat of adhesive.

.3 Apply adhesive to back of base.

.4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.

.5 Install straight and level to variation of 1:1000.

.6 Scribe and fit to door frames and other obstructions.

.7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles, minimum 300 mm each leg. Wrap around toeless base at external corners.

3.5 INITIAL CLEANING AND WAXING

.1 Remove excess adhesive from floor, base and wall surfaces without damage.

.2 Clean, seal and wax floor and base surface to flooring manufacturer's instructions. In carpeted areas clean, seal and wax base surface before carpet installation.

3.6 PROTECTION OF FINISHED WORK

.1 Protect new floors after initial waxing until final inspection.

.2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Section 01 78 00 - Closeout Submittals.

.6 Section 07 92 00 - Joint Sealants.

.7 Section 09 21 16 – Gypsum Board Assemblies.

.8 Section 10 28 10 – Toilet and Bath Accessories.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)

.1 ANSI A108.1, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).

.2 CTI A118.6, Specification for Ceramic Tile Grouts (included in ANSI A108.1).

.2 American Society for Testing and Materials (ASTM)

.1 ASTM C144, Specification for Aggregate for Masonry Mortar.

.2 ASTM C207, Specification for Hydrated Lime for Masonry Purposes.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 CGSB 71-GP-22M, Adhesive, Organic, for Installation of Ceramic Wall Tile.

.3 CAN/CGSB-75.1, Tile, Ceramic.

.4 CAN/CGSB-25.20, Surface Sealer for Floors.

.4 Canadian Standards Association (CSA)

.1 CAN/CSA-A3000, Cementitious Materials Compendium (Consists of A5, A8, A23.5, A362, A363, A456.1, A456.2, A456.3).

.5 Terrazzo Tile and Marble Association of Canada (TTMAC)

.1 Tile Specification Guide 09300, Tile Installation Manual.

.2 Tile Maintenance Guide

1.3 SUBMITTALS

.1 Include manufacturer's information on:

.1 Ceramic tile, marked to show each type, size, and shape required.

.2 Dry-set Portland cement mortar and grout.

.3 Divider strip.

.4 Reinforcing tape.

.5 Levelling compound.

.6 Waterproofing isolation membrane.

.2 Submit duplicate 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.

.3 Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, colour, and size.

.4 Adhere tile samples to 11 mm thick plywood and grout joints to represent project installation.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Deliver, store and handle products in a manner to avoid damage or contamination.

.3 Have materials delivered to job site prior to installation.

.4 Deliver all products to job site in manufacturer’s unopened cartons with all labels intact and legible.

.5 Keep cartons dry and protect from vandalism and away from heavy traffic area.

.6 Store cartons in upright position.

1.5 ENVIRONMENTAL CONDITIONS

.1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12° C for 48 h before, during, and 48 h after, installation.

.2 Do not install tiles at temperatures less than 12° C or above 38°C.

.3 Do not apply epoxy mortar and grouts at temperatures below 15° C or above 25° C.

1.6 QUALIFICATIONS

.1 Tile setters: Minimum 5 years proven experience.

1.7 MOCK-UP

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

1.8 QUALITY ASSURANCE

.1 Provide certificate of quality compliance from tile manufacturer.

.2 Provide certificate of quality compliance from tile installer upon satisfactory completion of installation.

PART 2 PRODUCTS

2.1 FLOOR TILE

.1 Ceramic tile: to CAN/CGSB-75.1, Type 7, Class MR I, size as indicated on drawings, square edges, slip resistant surface, colour as selected by Owner. Matching coved base, size as indicated on drawings.

.2 Please refer to design package and drawings for product selection.

2.2 TRIM SHAPES

.1 Conform to applicable requirements of adjoining floor and wall tile.

.2 Use trim shapes sizes conforming to size of adjoining field wall tile, including existing spaces, unless specified otherwise.

2.3 MORTAR AND ADHESIVE MATERIALS

.1 Portland cement: to CSA-A5, type 10.

.2 Sand: to ASTM C144, passing 16 mesh.

.3 Hydrated lime: to ASTM C207, Type N.

.4 Latex additive: formulated for use in portland cement mortar and thin set bond coat.

.5 Water: potable and free of minerals and chemicals which are detrimental to mortar and grout mixes.

.6 Dry set mortar: to ANSI A118.1.

2.4 GROUT

.1 Portland cement grout: as recommended by tile manufacturer.

.2 Dry curing wall grout: as recommended by tile manufacturer.

.3 Grout preparation: to manufacturer's instructions.

.4 Colouring Pigments:

- .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
- .2 Colouring pigments to be added to grout by manufacturer.
- .3 Job coloured grout are not acceptable.

2.5 ACCESSORIES

.1 Thresholds: marble, 12 mm thick, rounded edges two sides, honed finish to exposed surfaces, size to suit door opening and frame width.

.2 Sealant: acrylics one part, mildew resistant, in accordance with Section 07 92 00 - Joint Sealants.

.3 Floor sealer and protective coating: to tile and grout manufacturer's recommendations.

2.6 MORTAR AND ADHESIVE MIXES

.1 Mortar bed for floors: 1 part Portland cement, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand. Latex additive

may be included. Mortar bed for walls 1 part portland cement, 1/5 Dry set mortar: mix to manufacturer's instructions.

.2 Organic adhesive: pre-mixed.

.3 Mix bond and levelling coats, and grout to manufacturer's instructions.

.4 Adjust water volumes to suit water content of sand.

2.7 CLEANING COMPOUNDS

.1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.

.2 Materials containing acid or caustic material are not acceptable.

PART 3 EXECUTION

3.1 WORKMANSHIP

.1 Do tile work in accordance with TTMAC Tile Installation Manual, “Ceramic Tile”, latest edition.

.2 Apply tile to clean and sound surfaces.

.3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.

.4 Maximum surface tolerance 1:800.

.5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.

.6 Lay out tiles so perimeter tiles are minimum 1/2 size.

.7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

.8 Make internal angles square, external angles bullnosed.

.9 Use bullnose edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.

.10 Install divider strips at junction of tile flooring and dissimilar materials.

.11 Allow minimum 24 h after installation of tiles, before grouting.

.12 Clean installed tile surfaces after installation and grouting cured.

.13 Make control joints where indicated. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.2 FLOOR TILE

.1 Install in accordance with TTMAC detail 311F-2002.

3.3 FLOOR SEALER AND PROTECTIVE COATING

.1 Apply in accordance with manufacturer's instructions.

3.4 COMMISSIONING

.1 Train user staff in the care and cleaning of ceramic tile and in the application of sealers.

.2 Train user staff in the repair and or replacement of damaged tiles.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Moisture testing of substrates.

.2 Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to limits defined under MPI Repainting Maintenance Manual requirements.

.3 Specific pre-treatments noted herein or specified in the MPI Repainting Maintenance Manual.

.4 Sealing/touch-up, spot priming, and/or full priming surfaces for repainting in accordance with MPI Repainting Maintenance Manual requirements.

.5 Provision of safe and adequate ventilation as required where toxic and/or volatile/flammable materials are being used over and above temporary ventilation supplied by others.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.6 Section 01 78 00 - Closeout Submittals.

.7 Section 09 01 90.62 - Exterior Re-Painting.

.8 Section 09 91 13 - Exterior Painting.

.9 Section 09 91 23 - Interior Painting.

1.3 REFERENCES

.1 Maintenance Repainting Manual by the Master Painters Institute (MPI), including Identifiers, Evaluation, Systems, Preparation and Approved Product List.

.2 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA).

.3 National Fire Code of Canada.

1.4 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. Provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in repainting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with applicable trade regulations.

.3 Conform to latest MPI requirements for interior repainting work including cleaning, preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with the latest edition of the MPI Approved Product List and shall be from a single manufacturer for each system used.

.5 Paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Maintenance Repainting Manual and shall be compatible with other coating materials as required.

.6 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Owner.

.7 Standard of Acceptance: When viewed using final lighting source surfaces shall indicate the following:

.1 Walls: No defects visible from a distance of 1000 mm at 90^{o} to surface.

.2 Ceilings: No defects visible from floor at 45^{o} to surface.

.3 Final coat to exhibit uniformity of colour and sheen across full surface area.

1.5 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

.1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.

1.6 SCHEDULING OF WORK

.1 Submit work schedule for various stages of painting to Owner for approval. Submit schedule a minimum of two (2) working days in advance of proposed operations.

.2 Paint occupied facilities in accordance with approved schedule. Schedule operations to approval of Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

.3 Obtain written authorization from Owner for changes in work schedule.

.4 Schedule repainting operations to prevent disruption by other trades if applicable and by occupants in and about the building.

1.7 SUBMITTALS

.1 Submit full range colour sample chips for review and selection. Indicate where colour availability is restricted.

.2 Submit product data and manufacturer's installation/application instructions for paints and coating products to be used.

.3 Submit WHMIS SDS - Safety Data Sheets for paint and coating materials to be used.

.4 Upon completion, submit records of products used. List products in relation to finish system and include the following:

- .1 Product name, type and use (i.e. materials and location).
- .2 Manufacturer's product number.
- .3 Colour code numbers.
- .4 MPI Environmentally Friendly classification system rating.
- .5 Manufacturer's Safety Data Sheets (SDS).

.5 Submit duplicate 200 x 300 mm sample panels of each paint, stain, clear coating, with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

- .1 3 mm plate steel for finishes over metal surfaces.
- .2 13 mm birch plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.

.6 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.8 QUALITY CONTROL

.1 Provide a mock-up in accordance with requirements of Section 01 43 39 – Mock Up Requirements, to Owner's requirements.

.2 Prepare and repaint mock-up designated interior room, surface or item to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Maintenance Repainting Manual standards for review and approval.

1.9 DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in original containers, sealed, with labels intact.

.3 Labels shall clearly indicate:

- .1 Manufacturer's name and address.
- .2 Type of paint or coating.
- .3 Compliance with applicable standard.
- .4 Colour number in accordance with established colour schedule.

.4 Remove damaged, opened and rejected materials from site.

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and equipment in a secure, dry, well-ventilated area with temperature range between 7° C to 30° C. Store materials and supplies away from heat generating devices and sensitive products above minimum temperature as recommended by manufacturer.

.7 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Owner. After completion of operations, return areas to clean condition to approval of Owner.

.8 Remove paint materials from storage in quantities required for same day use.

.9 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

.10 Fire Safety Requirements:

- .1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.10 SITE REQUIREMENTS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces.

.2 Perform no repainting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10° C for 24 hours before, during and after paint application and until paint has cured sufficiently.

.3 Where required, provide continuous ventilation for seven days after completion of application of paint.

.4 Provide temporary ventilating and heating equipment where permanent facilities are not available.

.5 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by Owner and applied product manufacturer, perform no repainting work when:

.1 Ambient air and substrate temperatures are below 10° C.

.2 Substrate temperature is over 32° C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

.4 Relative humidity is above 85% or when dew point is less than 3° C variance between air/surface temperature.

.5 Rain or snow is forecast to occur before paint has thoroughly cured.

.6 It is foggy, misty, raining or snowing at site.

.2 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except use a simple "cover patch test" on concrete floors to be repainted.

.3 Perform no repainting work when maximum moisture content of substrate exceeds:

.1 12% for concrete and masonry (clay and concrete brick/block).

.2 15% for wood.

.3 12% for plaster and gypsum board.

.4 Test painted concrete, masonry and plaster surfaces for alkalinity as required.

.3 Application Requirements:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits noted herein.

.3 Apply paint when previous coat of paint is dry or adequately cured, unless otherwise pre-approved by the specific coating manufacturer.

.4 Apply paint finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.

.5 Do not apply paint when:

.1 Temperature is expected to drop below 10^{o} C before paint has thoroughly cured.

.2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.

.3 Surface to be painted is wet, damp or frosted.

.6 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.

.7 Schedule repainting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.

.8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

1.11 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Place materials defined as hazardous or toxic in designated containers.

.4 Ensure emptied containers are sealed and stored safely.

.5 Unused paint, coating materials must be disposed of at official hazardous material collections site as approved by Owner.

.6 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.7 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.8 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.9 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

- .1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
- .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
- .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
- .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.

.10 Empty paint cans are to be dry prior to disposal or recycling (where available).

.11 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.

.2 Paint materials for repaint systems shall be products of a single manufacturer.

.3 Low odour products: whenever possible, select products exhibiting low odour characteristics. If two products are otherwise equivalent, select the product with the lowest odour. Only qualified products with E2 or E3 "Environmentally Friendly" rating are acceptable for use on this project.

.4 Paints, coatings, thinners, solvents, cleaners and other fluids used in repainting, shall:

.1 Be water-based, water soluble, water clean-up.

.2 Be non-flammable.

.3 Not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.

.4 Be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.

.5 Be manufactured without compounds which contribute to smog in the lower atmosphere.

.6 Be manufactured in a manner where matter generating a 'Biochemical Oxygen Demand' (BOD) in undiluted production plant effluent discharged to a natural watercourse or a sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.

.7 Be manufactured in a manner where the total suspended solids (TSS) content in undiluted production plant effluent discharged to a natural watercourse or a sewage treatment facility lacking secondary treatment does not exceed 15 mg/L.

.5 Paints and coatings must be manufactured and transported in a manner that steps of processes, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).

.6 Paints and coatings must not be formulated or manufactured with formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavelant chromium or their compounds.

.7 Water-borne paints and stains, and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.

.8 Please refer to the design package and drawings for product selection.

2.2 COLOURS

.1 Owner will provide Colour Schedule after Contract award.

.2 Selection of colours will be from manufacturers full range of colours.

.3 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

.4 Second coat in a three coat repaint system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed with Owner written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer' instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Owner.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI gloss / sheen standard values:

Gloss Level Category	**Units @ 60º**	**Units @ 85º**
G1 - matte finish	0 to 5	maximum 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	minimum 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

.2 Gloss level ratings of repainted surfaces shall be as specified herein.

2.5 INTERIOR PAINTING SYSTEMS

.1 The following paint formulas requires a two coat finish as indicated in the MPI Repainting Maintenance Manual.

.2 RIN 2.1 - Asphalt Surfaces: (zone/traffic marking on interior drive and parking areas, etc.).

.1 RIN 2.1B - Alkyd Zone/Traffic Marking.

.3 RIN 3.1 - Concrete Vertical Surfaces: (including soffits).

.1 RIN 3.1A - Latex G4 finish.

.4 RIN 3.2 - Concrete Horizontal Surfaces: (floors and stairs, etc.).

.1 RIN 3.2A - Latex Floor Enamel G4.

.5 RIN 4.1 - Clay Masonry Units: (pressed and extruded brick).

.1 RIN 4.1A - Latex G4 finish.

.6 RIN 4.2 - Concrete Masonry Units: (Concrete Block and Concrete Brick).

.1 RIN 4.2A - Latex G4 finish.

.7 RIN 5.1 - Structural Steel and Metal Fabrications.

.1 RIN 5.1K - 2 Component Epoxy finish.

.8 RIN 5.3 - Galvanized Metal: (High Contact/High Traffic Areas (Doors, Frames, Railings, Pipes, Handrails, etc.). Low Contact/Low traffic areas (Overhead Decking, Pipes, Ducts, etc.)

.1 RIN 5.3C - Alkyd G5 finish.

.9 RIN 6.2 - Dimension Lumber: (Columns, Beams, Exposed Joists, Underside of Decking, etc.)

.1 RIN 6.2A - Latex G4 (over latex primer).

.10 RIN 6.3 - Dressed Lumber: (Including Doors, Door and Window Frames, Mouldings, etc.)

.1 RIN 6.3A - Latex G5 finish.

.11 RIN 6.4 - Wood Panelling and Casework: (Partitions, Panels, Shelving, Millwork, etc.).

.1 RIN 6.4B – Latex G4 finish.

.12 RIN 6.5 - Wood Floors and Stairs: (Including Hardwood Flooring).

.1 RIN 6.5A - Alkyd Floor Enamel G4 (over primer).

.13 RIN 9.2 - Plaster and Gypsum Board: (gypsum wallboard, drywall, "sheet rock type material", etc.,

.1 RIN 9.2A - Latex G5 (over latex sealer) for walls.

.2 RIN 9.2A - Latex G1 (over latex sealer) for ceilings.

.14 RIN 10.1 - Canvas and Cotton Coverings:

.1 RIN 10.1B - Alkyd G5 finish.

PART 3 EXECUTION

3.1 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Maintenance Repainting Manual requirements except where otherwise specified.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.2 EXISTING CONDITIONS

.1 Prior to commencing work, thoroughly examine site conditions and existing interior substrates to be repainted. Report in writing to Owner damages, defects, or unsatisfactory or unfavourable conditions or surfaces that will adversely affect this work.

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Owner . Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Concrete: 12%.

.2 Clay and Concrete Block/Brick: 12%.

.3 Wood: 15%.

.4 No repainting work shall commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Painting Subcontractor and Inspection Agency. Commencement of work shall not be held to imply acceptance of surfaces except as qualified herein.

.5 Degree of surface deterioration (DSD) shall be assessed using MPI Identifiers and Assessment criteria indicated in the MPI Maintenance Repainting Manual. MPI DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (includes visual (aesthetic) defects that do not affect film's protective properties).
DSD-1	Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes scratches, etc.).
DSD-2	Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, staining, etc.).
DSD-3	Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs,

Condition	Description
	abrasion, small holes and gouges).
DSD-4	Substrate Damage (repair or replacement of surface required by others).

3.3 PROTECTION

.1 Protect existing surfaces and adjacent fixtures and furnishings from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Owner.

.2 Cover or mask windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

.3 Protect items that are permanently attached such as Fire Labels on doors and frames.

.4 Protect factory finished products and equipment.

.5 Protect general public and building occupants in and about the building.

.6 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and surface mounted equipment, fittings and fastenings prior to undertaking re-painting operations. Items shall be securely stored and re-installed after painting is completed.

.7 Move and cover furniture and portable equipment as necessary to carry out repainting operations. Replace as painting operations progress.

.8 As repainting operations progress, place "WET PAINT" signs in occupied areas to approval of Owner.

3.4 CLEANING AND PREPARATION

.1 Clean and prepare interior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

- .1 Remove dust, dirt, and surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
- .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and to dry thoroughly. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.

.5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.

.6 Many water-based paints cannot be removed with water once dried. Minimize the use of kerosene or such organic solvents to clean up water-based paints.

.2 Where required, pressure wash exterior surfaces prior to repainting in accordance with MPI standards for type of surfaces and recommended pressures to ensure complete removal of loose paint, stains, dirt, and foreign matter. This work to be carried out by qualified tradesman experienced in pressure water cleaning. Use of spray equipment such as water hose cleaning will not be considered satisfactory unless specified herein. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.

.3 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminates from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.5 Do not apply paint until prepared surfaces have been accepted by Owner.

.6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

3.5 APPLICATION

.1 Method of application to be as approved by Owner. Apply paint by brush, roller, air sprayer, airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy.

.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Spray Application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application by either continuous mechanical agitation or intermittent agitation frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.

.4 Back roll spray applications and brush out runs and sags immediately.

.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Owner.

.5 Apply paint coats in a continuous manner and allow surfaces to dry and properly cure between coats for minimum time period as recommended by manufacturer. Minimum dry film thickness of coats shall not be less than that recommended by the manufacturer. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Sand and dust between coats to remove visible defects.

.7 Repaint surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.8 Repaint top, bottom, and vertical edges of doors to be repainted.

.9 Repaint inside of cupboards and cabinets as specified for outside surfaces.

.10 Repaint closets and alcoves to match existing, unless otherwise scheduled or noted.

3.6 MECHANICAL / ELECTRICAL EQUIPMENT

.1 Unless otherwise noted, repainting shall also include exposed to view / previously painted mechanical and electrical equipment and components (panels, conduits, piping, hangers, ductwork, etc.).

.2 Touch up scratches and marks and repaint such mechanical and electrical equipment and components with colour, and sheen finish to match existing unless otherwise noted or scheduled.

.3 Do not paint over name plates or instruction labels.

.4 Leave unfinished exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish.

.5 Keep sprinkler heads free of paint.

.6 Do not paint interior transformers and substation equipment.

3.7 PARTITION MARKING AND IDENTIFICATION

.1 Contractor to stencil on both sides of fire rated separations, fire barriers, smoke barriers and smoke partitions the fire rating for that assembly and wall type (i.e.: **1 HOUR FIRE SEPARATION**).

.2 Stenciled fire ratings and wall types to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.

3.8 FIELD QUALITY CONTROL

.1 Field inspection of exterior painting operations to be carried out by Owner.

.2 Advise Owner when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.3 Co-operate with Owner and provide access to areas of work.

3.9 CLEAN-UP

.1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

.2 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

.3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

.4 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers/strippers in accordance with the safety requirements of authorities having jurisdiction and as noted herein.

.5 Painting equipment shall be cleaned in leak-proof containers that will permit particulate matter to settle out and be collected. Sediment remaining from cleaning operations shall be recycled or disposed of in a manner acceptable to authorities having jurisdiction.

.6 Paint and coatings in excess of repainting requirements shall be recycled as noted herein.

3.10 RESTORATION

.1 Clean and re-install hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on affected exposed surfaces. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Owner. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Owner.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 08 11 00- Metal Doors & Frames.

.6 Section 08 11 16 – Aluminum Doors and Frames.

.7 Section 08 14 16 – Flush Wood Doors.

.8 Division 26 - Electrical wiring for magnetic strikes, electric releases, electric locks.

1.2 REFERENCES

.1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

- .1 ANSI/BHMA A156.1, American National Standard for Butts and Hinges.
- .2 ANSI/BHMA A156.2, Bored and Preassembled Locks and Latches.
- .3 ANSI/BHMA A156.3, Exit Devices.
- .4 ANSI/BHMA A156.4, Door Controls - Closers.
- .5 ANSI/BHMA A156.5, Cylinders and Input Devices for Locks.
- .6 ANSI/BHMA A156.6, Architectural Door Trim.
- .7 ANSI/BHMA A156.8, Door Controls - Overhead Stops and Holders.
- .8 ANSI/BHMA A156.12, Interconnected Locks and Latches.
- .9 ANSI/BHMA A156.13, Mortise Locks and Latches Series 1000.
- .10 ANSI/BHMA A156.14, Sliding and Folding Door Hardware.
- .11 ANSI/BHMA A156.15, Release Devices - Closer Holder, Electromagnetic and Electromechanical.
- .12 ANSI/BHMA A156.16, Auxiliary Hardware.
- .13 ANSI/BHMA A156.17, Self-closing Hinges and Pivots.

.14 ANSI/BHMA A156.18, Materials and Finishes.

.15 ANSI/BHMA A156.19, Power Assist and Low Energy Power - Operated Doors.

.16 ANSI/BHMA A156.21, Thresholds.

.17 ANSI/BHMA A156.22, Door Gasketing and Edge Seal Systems.

.18 ANSI/BHMA A156.26, Continuous Hinges.

.19 ANSI/BHMA A156.28, Keying Systems.

.20 ANSI/BHMA A156.31, Electronic Strikes.

.2 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)

.1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.2 CSDFMA Recommended Dimensional Standards for Commercial Steel Doors and Frames.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Include in submitted product literature, copy of manufacturer’s standard product warranty for each hardware item submitted.

.2 Samples:

.1 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.

.2 After approval samples will be returned for incorporation in the Work.

.3 Hardware List:

.1 Submit contract hardware list.

.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.5 Closeout Submittals

.1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for

incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 MAINTENANCE MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Supply two sets of wrenches for door closers, locksets and fire exit hardware.

1.5 WARRANTY

.1 Provide a written manufacturer's warranty, dated from Substantial Completion Certificate, for work of this Section for failure due to defective materials as per the following requirements:

.1 Locks and Latches: minimum seven (7) years.

.2 Butts and Hinges: minimum three (3) years.

.3 Exit Devices: minimum ten (10) years.

.4 Door Closers and assemblies: minimum twenty five (25) years.

.5 Door Operators: minimum two (2) years.

.6 Power Supplies: minimum two (2) years.

.7 Architectural Door Trim: minimum five (5) years.

.8 Door Bottoms, Thresholds, Weatherstripping: minimum five (5) years.

.9 Astragals: minimum one (1) year.

.2 Provide a written Contractor's warranty for work of this Section for failure due to defective installation workmanship for one (1) year, dated from submittal completion certificate.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements:

.1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.2 Only products certified in accordance with ANSI/BHMA standards are acceptable. Items that are equal in design, function and quality will be accepted upon approval of the Owner.

.3 Only recognized contract hardware distributors will be considered for the work of this section. The distributor shall have on staff a qualified Architectural Hardware Consultant recognized by the Door and Hardware Institute or a person with equivalent qualifications to assist installers and direct detailing, processing and delivery of material, and certify installation acceptance.

.4 Upon completion of finish hardware installation, hardware supplier shall inspect work and shall certify in writing that all items and their installation are in accordance with requirements of Contract Documents and are functioning properly.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Store finishing hardware in locked, clean and dry area.

.3 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

1.8 MAINTENANCE SERVICE

.1 Provide maintenance service for one year during warranty period to maintain all barrier free entrance automatic operators as follows:

.1 Qualified service personal approved by manufacturer of operators.

.2 Site inspection every three months will all necessary adjustment made during this visit. Separate warranty service calls, if required, will only qualify as an inspection if time of call is close to the three month intervals.

.3 Make detailed reports of each visit and copy to Owner and Engineer.

.4 Cost of this service will be included as part of this Section and is not covered by any allowance amount.

PART 2 PRODUCTS

2.1 HARDWARE ITEMS

.1 Only door locksets and latches listed on ANSI/BHMA Standards list are acceptable for use on this project.

.2 Use one manufacturer's products only for similar items.

.3 Please refer to the design package and drawings for product selection.

2.2 DOOR HARDWARE

.1 Locks and latches:

.1 Bored and preassembled locks and latches: to ANSI/BHMA A156.2, 4000 bored lock, grade 1, designed for function and keyed as stated in Hardware Schedule.

.2 Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, designed for function and keyed as stated in Hardware Schedule.

.3 Lever handles: design as indicated in hardware groups.

.4 Roses: round.

.5 Normal strikes: box type, lip projection not beyond jamb.

.6 Cylinders: key into keying system as directed.

.7 All corresponding cylinders to be removable.

.8 Finished as indicated in Hardware Groups.

.2 Butts and hinges:

.1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.

.2 Interior hinges of steel, unless otherwise indicated.

.3 Continuous hinges shall be heavy duty as indicated, full height, complete with installation aids and fasteners to suit door and frame conditions. Hinge to have access to electrical items without removing hinge.

.4 Quantity, size and width of hinges in accordance with manufacturer’s recommendations and ASNI/BHMA 156.1.

.3 Exit devices:

.1 To ANSI/BHMA A156.3, function, grade and finish as per schedule. Rim type with push pad design.

.4 Door Closers and Accessories:

.1 Door controls (closers): to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Schedule, size in accordance with ANSI/BHMA A156.4. Table A1.

.2 Closers of narrow, slim line design complete with backcheck, rack and pinion hydraulic action.

.3 Closers equipped with full cover, as noted in Hardware Groups, complete with secure and concealed mounting screws

.4 Adapter plates for added reinforcing shall be added to any opening if required to suit field conditions or door design.

.5 Closers shall include all necessary arm brackets, cush arm supports and blade stop spacers to suit door swing, frame reveals or stop conditions.

.6 Closers capable of field adjustments of at least fifteen (15) percent.

.7 Finish as indicated in Hardware Groups.

.5 Door Operators:

.1 Power-operated pedestrian doors: to ANSI/BHMA A156.10.

.2 Complete with all components including operator housing, power operator, electronic control, soft start, switching networks, and all connecting hardware.

.3 Design intent and function of opening as indicated in Hardware Groups. Supplier to include additional components and power supplies required to properly operate all hardware devices, door control devices, remote control devices, complete with any special cables or wirings to connect all parts.

.4 Operator housing shall be complete with finished end caps prepared for mounting to door frame.

.5 Operator housing shall be factory assembled with all necessary components for proper operation and switching. Relays, wiring harness and other components shall be plug-in type.

.6 Operator controls shall include adjustable time delay, safe-swing circuit as well as provision for accessories as detailed in Hardware Groups.

.7 Complete unit shall be mounted with provisions for easy servicing or replacement without removing the door or frame.

.8 All wiring shall be of shielded type with proper number and gauge of conductor wires to install all components as specified.

.9 Installation of operators shall be carried out by manufacturer's certified and authorized personnel.

.6 Power Supplies:

.1 To ANSI/BHMA 156.19, designated by numerical identifiers listed in Hardware Groups.

.2 Shall be concealed in ceiling space of suitable adjacent area.

.3 Shall interface with all electrical security components and supplied with all relays and devices to operate as per Hardware Groups.

.4 When key switch is used, it will operate as per hardware notes and reset the power supply.

.7 Auxiliary locks and associated products: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers listed in Hardware Schedule.

.1 Key into keying system as noted.

.8 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule.

.1 Door protection plates: 1.27 mm thick stainless steel, finished to BMHA 630.

.2 Push plates: 1.27 mm thick stainless steel finished to BMHA 630.

.3 Push/Pull units: type stainless steel finished to BMHA 630.

.4 Fastened with through bolts or concealed bolts depending on application.

.5 Where pull has back plate, fasteners will be countersunk and bevelled with no sharp edges.

.6 Where bolts cannot be concealed under the push plate they shall have a grommet washer finished to match other hardware.

.9 Auxiliary hardware: to ANSI/BHMA A156.16, designated by letter L and numeral identifiers listed in Hardware Schedule.

.1 Combination stop and holder, floor mounted: finished to BMHA 626.

.2 Surface bolt lever extension flush bolt: finish to BMHA 626.

.10 Door bottom seal: heavy duty, door seal of extruded aluminum frame and hollow closed cell neoprene weather seal, surface mounted with drip cap closed ends, clear anodized finish.

.11 Thresholds:

.1 To ANSI/BHMA A156.21 extruded aluminum mill finish, serrated surface, with lip and vinyl door seal insert, thermally broken.

.2 Thresholds of aluminum material. Provide 50 mm longer than opening to allow fitting on site.

.3 When mullion is used, increase length of threshold to fit around mullion.

.4 Fasteners of countersink type suitable to properly install to floor/sill conditions. Supply complete with screw anchors.

.12 Weatherstripping:

.1 Head and jamb seal:

.1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.

.13 Astragal: overlapping, extruded aluminum frame with vinyl insert, finished to match doors.

2.3 KEY CABINET

.1 Provide one wall mounted steel key cabinet with capacity for 1.5 times the number of keys with an indexed key control system to ANSI/BHMA A156.5.

2.4 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

2.5 KEYING

.1 Doors, padlocks and cabinet locks to be master keyed as directed. Prepare detailed keying schedule in conjunction with Owner.

.2 Provide keys in triplicate for every lock in this Contract.

.3 Provide six master keys for each MK or GMK group. Allow for six (6) levels of sub master keying.

.4 Stamp keying code numbers on keys and cylinders.

.5 Provide construction cores.

.6 Provide all permanent cores and keys to Owner.

.7 Supply fifty (50) blanks for each sub master group used.

2.6 FINISHES

.1 Following finishes are indicated in hardware groups.

BHMA	CAN MATERIAL	FINISH
626	C26D Brass/Bronze	Satin Chrome
628	C28 Aluminum	Satin Alum, Anodized
630	C32D Stainless Steel	Satin Stainless Steel
652	C26D Steel	Plated Satin Chrome
689	Al All	Painted Aluminum
	Alum Aluminum	Mill Finish
	TMDFF (to match door and frame finish).	

2.7 ABBREVIATIONS

ALD	Aluminum Door and Frame
ATMS STMS	Arm/strike To Template with Machine Screws
ASB	Arm Complete with Sex Bolts
BC	Back Check
C to C, C/L	Centerline to Centerline
Cyl	Cylinder (of a lock)
CMK	Construction Master Key
Deg.	Degree (of opening)
DEL	Delayed Action
FBB or BB	Ball bearing hinge

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

.2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install door hardware in accordance with manufacturer's instructions, using special tools and jigs. Fit accurately and apply securely. Ensure that hardware is installed correctly.

.2 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.

.3 No operating hardware shall be installed at a height of more than 1200 above the finished floor (NBC 3.4.6.16).

.4 Installation to be done by a qualified tradesman. Technical assistance provide by door hardware supplier where required.

.5 Closers shall be installed according to manufacturer's templates and installation instructions. Unless required otherwise, installation shall be on pull side of door. Outswing doors shall be on push side using top jamb or parallel arm installation.

.6 Where closer or arm is installed on door, sex bolts will be used, finished to match other hardware.

.7 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners. Plates drilled to accept through bolts will not be acceptable.

.8 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.9 Install key control cabinet.

.10 Use only manufacturer's supplied fasteners. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.11 Remove construction cores and locks when directed by Owner; install permanent cores and check operation of locks.

.12 Installation of all Automatic Operator items to be performed by AAADM certified and manufacturer authorized personnel, including connections to hardware products installed by others.

.13 Installation of Access Control items to be performed by manufacturer certified authorized personnel, including connections to hardware products installed by others.

.14 Wiring Diagrams:

.1 Provide any special information, voltage requirements and wiring diagrams to other trades requiring such information.

3.3 EXAMINATION

.1 Visit site prior to start of installation of hardware.

.2 Visit will include examination of openings, site conditions and materials for conditions that prevent proper application of finish hardware.

.3 Report to General Contractor, in writing, defects of work prepared by other trades and other unsatisfactory site conditions. Commencement of installation will imply acceptance pf prepared work by others.

3.4 FIELD QUALITY CONTROL

.1 Hardware contractor to have a qualified AHC representative from the manufacturer/supplier on site at Substantial Completion Inspection and at commissioning of the finished hardware. Cost of the visits to be included in contract.

.2 Provide an inspection report 6 (six) months after Substantial Completion, completed by a qualified Architectural Hardware Consultant, to note any deficiencies. The inspection should include checking each lock against the key schedule to make sure the correct locks and cylinders are on the proper doors.

.3 Fire Rated Door Assemblies On-Site Inspection:

.1 Upon completion of the installation, inspect each fire rated door assembly to confirm proper operation of its closing device, confirming it meets the criteria of NFPA 80.

.2 Provide a written report to the Owner listing each fire rated door assembly for the project including:

.1 Each door number,

.2 An itemized list of hardware set components for each door opening, and

.3 Each door location in the facility.

3.5 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to provide tight fit at contact points with frames.

.4 Where hardware is found defective, repair or replace or correct as desired by inspection reports.

3.6 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.7 PROTECTION

.1 All hardware shall be protected against damage from paint, plaster or other defacing materials. Whenever possible manufacturers protective covering when applied, shall not be removed until final project cleaning takes place. Material not protected by manufacture shall be covered or removed from door during painting or any other adjustments that can cause damage to hardware.

3.8 HARDWARE GROUPS

.1 Provide hardware as specified in the previous articles in sets according to the following groups: ***(insert hardware groups)*****.**

3.9 DEMONSTRATION

.1 Keying System Setup and Cabinet:

.1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.

.2 Place file keys and duplicate keys in key cabinet on their respective hooks.

.3 Lock key cabinet and turn over key to Owner.

.2 Designated Staff Briefing:

.1 Brief designated staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Use, application and storage of wrenches for door closers, locksets, and fire exit hardware.

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.10 COMMISSIONING

.1 Site inspection or visit at Substantial Completion and training follow up and inspection at commissioning as directed by Owner.

.2 Provide 10-month warranty service.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 07 21 20 – Low Expanding Foam Sealant.

.4 Section 07 92 00 - Joint Sealants.

.5 Section 08 71 00 - Door Hardware.

.6 Section 08 80 00 – Glazing.

.7 Section 09 91 13 - Exterior Painting.

.8 Section 09 91 23 - Interior Painting.

.9 Section 23 37 13 - Diffusers, Registers and Grilles.

.10 Division 26: Wiring for electronic hardware.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM A653/A653M, Specification for Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot Dip Process.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.

.2 CGSB 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.

.3 Canadian Standards Association (CSA)

.1 G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA W59, Welded Steel Construction (Metal Arc Welding).

.4 Canadian Steel Door Manufacturers' Association, (CSDMA).

.1 CSDMA, Specifications for Commercial Steel Doors and Frames.

.2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors.

.5 National Fire Protection Association (NFPA)

.1 NFPA 80, Standard for Fire Doors and Fire Windows.

.2 NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)

.1 CAN4-S104M, Fire Tests of Door Assemblies.

.2 CAN4-S105M, Fire Door Frames Meeting the Performance Required by CAN4-S104.

.3 CAN/ULC-S701, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.4 CAN/ULC-S702, Thermal Insulation, Mineral Fibre, for Buildings.

.5 CAN/ULC-S704, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

1.3 DESIGN REQUIREMENTS

.1 Design door assembly to withstand minimum 1,000,000 swing cycles in accordance with ANSI A151.1, with no failure of any design features of the door.

.2 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35˚C to 35˚C.

.3 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

.4 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 and NFPA 252 for ratings specified or indicated.

.5 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104 and NFPA 252 and listed by nationally recognized agency having factory inspection services and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

1.4 SUBMITTALS

.1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware and fire rating and finishes.

.2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing firerating and finishes.

.3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

.4 Submit one 300 x 300 mm top corner sample of each type door.

.5 Submit one 300 x 300 mm corner sample of each type of frame.

.1 Show butt cutout, glazing stops.

1.5 DELIVERY STORAGE AND HANDLING

.1 Deliver, store, handle and protect doors and frames in accordance with Section 01 61 00- Common Product Requirements.

.2 Deliver, handle and store doors and frames at the job site in such a manner as to prevent damage.

.3 Store doors and frames under cover with doors stored in a vertical position on blocking, clear of floor and with blocking between doors to permit air circulation.

1.6 QUALITY ASSURANCE

.1 Conform to requirements to ANSI A117.1

.2 Company specializing in manufacturing products specified with a minimum of five (5) years documented experience.

1.7 WARRANTY

.1 Provide a written warranty for work of this section from manufacturer for failure due to defective materials and from contractor for failure due to defective installation workmanship, for one (1) year respectively from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A653/A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.

.2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653/A653M, ZF75.

.3 Please refer to the design package and drawings for product selection.

2.2 DOOR CORE MATERIALS

.1 Stiffened: face sheets welded insulated core.

.1 Expanded polystyrene: CAN/ULC-S701, density 16 to 32 kg/m³.

.2 Polyurethane: to CAN/ULC-S704 rigid, modified polyisocyanurate, closed cell board. Density 32 kg/m³.

.2 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250˚C at 60 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, ASTM E152 or NFPA 252, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

.3 Thermal Insulation material must:

.1 Not require being labelled as poisonous, corrosive, flammable or explosive under the Consumer Chemical and Container Regulations of the Hazardous Products Act.

.2 Be manufactured using a process that uses chemical compounds with the minimum zone depletion potential (ODP) available.

2.3 ADHESIVES

.1 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

2.4 PRIMER

.1 Touch-up prime CAN/CGSB-1.181.

2.5 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Exterior top and bottom caps steel.

.3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Door bottom seal: Section 08 71 00 – Door Hardware.

.5 Metallic paste filler: to manufacturer's standard.

.6 Fire labels: metal riveted.

.7 Sealant: Section 07 92 00 – Joint Sealants.

.8 Provide low expanding, single component polyurethane foam sealant installed at head and jamb perimeter of door frame for sealing to building air barrier, vapour retarder and door frame. Foam sealant width to be adequate to provide required air tightness and vapour diffusion control to building air barrier and vapour retarder foam interior. Refer to Section 07 21 20 – Low Expanding Foam Sealant.

.9 Glazing: Section 08 80 00 – Glazing.

.10 Make provisions for glazing as indicated and provide necessary glazing stops.

- .1 Provide removable stainless steel glazing beads for dry glazing of snap-on type.
- .2 Design exterior glazing stops to be tamperproof.

.11 Finish Painting: to Section 09 91 13 – Exterior Painting and Section 09 91 23 – Interior Painting.

2.6 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Exterior frames: 1.2 mm welded, thermally broken type construction.

.4 Interior frames: 1.2 mm welded type construction.

.5 Blank, reinforce, drill and tap frames for mortised, template hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.6 Protect mortised cutouts with steel guard boxes.

.7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.8 Manufacturer's nameplates on frames and screens are not permitted.

.9 Conceal fastenings except where exposed fastenings are indicated.

.10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.11 Insulate exterior frame components with polyurethane insulation.

2.7 FRAME ANCHORAGE

.1 Shim and anchor new doors in accordance with CAN/CSA A440.4.

.2 Provide appropriate anchorage to floor and wall construction.

.3 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.4 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

.5 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm o.c. maximum.

2.8 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.9 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Exterior doors: insulated, hollow steel construction. Interior doors: honeycomb hollow steel construction.

.3 Fabricate doors with longitudinal edges locked seam. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.4 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E330.

.5 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.

.6 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.7 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.8 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.9 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN4-S104 ASTM E152 NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.10 Manufacturer's nameplates on doors are not permitted.

2.10 HOLLOW STEEL CONSTRUCTION

.1 Form each face sheet for exterior doors from 1.2 mm sheet steel.

.2 Form each face sheet for interior doors from 1.2 sheet steel.

.3 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.

.4 Fill voids between stiffeners of exterior doors with insulation as specified.

.5 Fill voids between stiffeners of interior doors with honeycomb core.

2.11 THERMALLY BROKEN DOORS AND FRAMES

.1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.

.2 Thermal break: rigid polyvinyl chloride extrusion conforming to CGSB 41-GP-19Ma.

.3 Fabricate thermally broken frames separating exterior parts form interior parts with continuous interlocking thermal break.

.4 Apply insulation.

PART 3 EXECUTION

3.1 INSTALLATION GENERAL

.1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.2 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

.6 Maintain continuity of air barrier and vapour retarder.

3.3 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.

.2 Provide even margins between doors and jambs and doors and finished floor as follows.

.1 Hinge side: 1.0 mm.

.2 Latch side and head: 1.5 mm.

.3 Finished floor: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvres.

3.4 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.5 GLAZING

.1 Install glazing for doors and frames in accordance with Section 08 80 00 - Glazing.

3.6 COMMISSIONING

.1 Contractor to instruct maintenance personnel in operation and maintenance of doors and hardware.

.2 Confirm operation and function for all doors and hardware.

.3 Commissioning will be witnessed by Owner and Certificate will be signed by Contractor and Owner.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

.3 Section 06 40 00 - Architectural Woodwork.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI Z124.3, Plastic Lavatories.
.2 ANSI Z124.6, Plastic Sinks.

1.3 SUMMARY

.1 This section includes the following horizontal and trim solid surface product types:

.1 Counters
.2 Vanity Tops

1.4 SUBMITTALS

.1 Submit duplicate samples: sample size 300 x 300 mm or 300 mm long unless specified otherwise.

.2 Submit duplicate colour samples of acrylic solid surfacing for colour selection.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Protect against dampness and damage during and after delivery.

.2 Store in ventilated areas, protected from extreme changes of temperature or humidity.

1.6 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, by the Solid Surface Manufacturer, stating that the solid surface material is free from manufacturer's defects and will remain free from defects for a period of ten (10) years from the date of Certificate of Substantial Completion.

.2 Warranty to be non-prorated.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Solid Acrylic components:

.1 Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colours meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.

.2 Superficial damage to a depth of 0.25 mm shall be repairable by sanding and/or polishing.

.2 Thickness: 13 mm.

.3 Please refer to the design package and drawings for product selection.

2.2 FABRICATION

.1 Shop assembly:

.1 Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.

.2 Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

.1 Reinforce with strip of solid acrylic material, 50 mm wide.

.3 Provide factory cutouts for plumbing fittings and accessories as indicated on drawings.

.4 Rout and finish component edges with clean, sharp returns.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

.1 Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.

.1 Provide product in largest pieces available.

.2 Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.

.1 Exposed joints/seams shall not be allowed.

.3 Reinforce field joints with solid surface strips extending a minimum of 25 mm on either side of the seam with the strip being the same thickness as the top.

.4 Cut and finish component edges with clean, sharp returns.

.5 Rout Radii and contours to template.

.6 Anchor securely to base cabinets or other supports.

.7 Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in colour to match countertop.

.8 Carefully dress joints smooth, remove surface scratches and clean entire surface.

.9 Install countertops with no more than 3.0 mm sag, bow or other variation from a straight line.

3.3 CLEANING

.1 Keep components clean during installation.

.2 Remove adhesives, sealants and other stains.

3.4 REPAIR

.1 Repair or replace damaged work which cannot be repaired to Owner satisfaction.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 61 00 - Common Product Requirements.

.3 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 06 20 00 - Finish Carpentry.

.6 Section 06 40 00 - Architectural Woodwork.

1.2 REFERENCES

.1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

.1 ANSI/BHMA A156.9, Cabinet Hardware.
.2 ANSI/BHMA A156.11, Cabinet Locks.
.3 ANSI/BHMA A156.16, Auxiliary Hardware.
.4 ANSI/BHMA A156.18, Materials and Finishes.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Hardware List:

.1 Submit contract hardware list.
.2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Closeout Submittals:

.1 Provide maintenance data, parts list, and manufacturer's instructions for incorporation into maintenance manual specified in Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Store cabinet hardware in locked, clean and dry area.

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

PART 2 PRODUCTS

2.1 HARDWARE ITEMS

.1 Use one manufacturer's product for all similar items.

2.2 CABINET HARDWARE

.1 Cabinet hardware: to ANSI/BNMA A156.9, designated by letter B and numeral identifiers listed in Hardware Schedule indicated on drawings.

.1 Hinges: European style hinge with 110° swing of operation for face frame construction cabinets.

.2 Pulls: surface mounted pull.

.3 Knobs: surface mounted knob.

.4 Latches: elbow latch.

.5 Catches: friction catch.

.6 Shelf rests and standards: adjustable shelf standards, with open shelf rests.

.7 Shelf brackets and standards: vertical slotted shelf standard, with shelf brackets.

.8 Drawer slides: side mounted drawer slides.

.9 Track and guides for sliding panels: surface or recessed mounted with anti-friction inserts.

.2 Cabinet locks: to ANSI/BNMA A156.11, designated by letter E and numeral identifiers listed in Hardware Schedule.

.1 Door or drawer locks: half mortised into back of door or drawer

.2 Cylinders: key to keying system as directed

2.3 FASTENINGS

.1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.2 Exposed fastening devices to match finish of hardware.

.3 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Cabinet locks to be as keyed alike in a room or as directed. Submit keying schedule for approval.

.2 Provide keys in duplicate for every type of lock in this Contract.

.3 Stamp keying code numbers on keys and cylinders.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.

3.3 ADJUSTING

.1 Lubricate hardware and other moving parts, as recommended by manufacturer.

.2 Adjust cabinet door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.5 DEMONSTRATION

.1 Keying System Setup:

.1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.

.2 Designated Staff Briefing.

.1 Brief designated staff regarding:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements

.3 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 06 20 00 - Finish Carpentry.

.6 Section 06 40 00 - Architectural Woodwork.

.7 Section 08 14 16 – Flush Wood Doors.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI 208.1, Particleboard.

.2 ANSI A208.2, Medium Density Fibreboard (MDF) for Interior Applications.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)

.1 Architectural Woodwork Standards (AWS).

.3 Canadian General Standards Board (CGSB)

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

.4 Canadian Standards Association (CSA International)

.1 CSA O112-M Series, Standards for Wood Adhesives.

.2 CSA O121, Douglas Fir Plywood.

.3 CSA O151, Canadian Softwood Plywood.

.4 CSA O153, Poplar Plywood.

.5 National Electrical Manufacturers Association (NEMA)

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

1.3 SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for laminate, adhesive, and core materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's for adhesives in g/L.

.3 Samples:

.1 Submit duplicate samples of joints, edging, cutouts and postformed profiles.

.4 Shop Drawings:

.1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows:

.2 Indicate AWMAC AWS quality grade where different from predominant grade specified.

.3 Include color schedule of all plastic laminate work, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.

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

1.4 QUALITY ASSURANCE

.1 Perform the Work of this Section by a plastic laminate fabricator with a minimum of 5 years of current experience and having completed a minimum of one project in the past 5 years with value within 20% of the cost of the work of this Section.

.2 Mock-ups:

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Prepare one typical plastic laminate finish installation where directed by Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.

.2 Maintain relative humidity between 25 and 60% at 22˚C during storage and installation.

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

.4 Store and protect laminate, adhesive, and core materials from nicks, scratches, and blemishes.

.5 Replace defective or damaged materials with new.

.6 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.7 Maintain indoor temperature and humidity within range recommended by the AWMAC Quality Standards for location of the project.

1.6 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Laminated plastic for flatwork: to NEMA LD 3.

- .1 Type: General purpose.
- .2 Grade: HGS.
- .3 Size: 1.27 mm thick.
- .4 Colour: multilayered.
- .5 Pattern: solid.
- .6 Finish: satin.

.2 Laminated plastic for postforming work: to NEMA LD 3.

- .1 Type: Postforming.

.2 Grade: HGP.

.3 Size: 1.0 mm thick.

.4 Colour: multilayered.

.5 Pattern: solid.

.6 Finish: satin.

.3 Laminated plastic for backing sheet: to NEMA LD 3.

.1 Type: Backer.

.2 Grade:BKH.

.3 Size: 0.75 mm thick.

.4 Colour: white.

.4 Laminated plastic for liner: to NEMA LD 3.

.1 Type: Cabinet Liner.

.2 Grade: CLS.

.3 Size: 0.75mm thick.

.4 Colour: white.

.5 Plywood core: to CSA O153 solid two sides, Grade Popular Plywood, 19 mm thick.

.6 Particleboard core: to ANSI 208.1, sanded faces, of thickness indicated.

.7 Laminated plastic adhesive: urea resin adhesive to CSA O112.10, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O112.10, polyvinyl adhesive to CSA O112.10, two component epoxy thermosetting adhesive.

.8 Sealer: water resistant sealer on glue acceptable to laminate manufacturer.

.9 Sealants: Silicone based material to CGSB 19-GP-22M.

.10 Draw bolts and splines: as recommended by fabricator.

.11 Please refer to the design package and drawings for product selection.

2.2 FABRICATION

.1 Comply with NEMA LD 3, Annex A.

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

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

.4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.

.5 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20˚. Do not mitre laminate edges.

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

.8 Apply laminated plastic liner sheet to interior of cabinetry.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment.

.2 Protect installed laminated surfaces in accordance with manufacturer's written recommendations.

.1 Remove protection only immediately before final inspection.

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

.4 Repair damage to adjacent materials caused by laminate, adhesive, and core materials installation.

3.2 INSTALLATION

.1 Install work plumb, true and square, neatly scribed to adjoining surfaces.

.2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.

.3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm oc, 75 mm from edge. Make flush hairline joints.

.4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.

.5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.

3.3 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Perform care and cleaning with NEMA LD 3, Annex B.

.3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

3.4 PROTECTION

.1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment.

.2 Protect installed laminated surfaces in accordance with manufacturer's written recommendations.

.1 Remove protection only immediately before final inspection.

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

.4 Repair damage to adjacent materials caused by laminate, adhesive, and core materials installation.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 43 39 – Mock-Up Requirements.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.6 Section 06 20 00 - Finish Carpentry.

.7 Section 06 40 23.13 - Plastic Laminate Finishing for Interior Architectural Woodwork.

.8 Section 06 41 93 - Cabinet and Miscellaneous Hardware.

.9 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

.1 American National Standards Institute (ANSI)

- .1 ANSI/NPA A208.1, Particle board.
- .2 ANSI A208.2, Medium Density Fiberboard (MDF) for Interior Applications.
- .3 ANSI/HPVA HP-1, Standard for Hardwood and Decorative Plywood.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)

- .1 Architectural Woodwork Standards (AWS).
  - .1 AWS Manual.

.3 American Society for Testing and Materials (ASTM)

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

.2 ASTM D2832, Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.

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

.4

.4 Canadian General Standards Board (CGSB)

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

.5 Canadian Standards Association (CSA)

.1 CSA B111, Wire Nails, Spikes and Staples.

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

.3 CSA O121, Douglas Fir Plywood.

.4 CSA O141, Softwood Lumber.

.5 CSA O151, Canadian Softwood Plywood.

.6 CSA O153, Poplar Plywood.

.6 National Electrical Manufacturers Association (NEMA)

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

1.3 QUALITY ASSURANCE

.1 Provide Certificate of Quality Compliance upon completion of Fabrication, in accordance with Architectural Woodword Manufacturer's Association of Canada (AWMAC) quality standards.

.2 Provide Certificate of Quality Compliance upon satisfactory completion of installation.

.3 Work in accordance with Grade or Grades specified of the AWS.

1.4 SUBMITTALS

.1 Indicate details of construction, profiles, jointing, fastening and other related details. Scales:

.1 profiles full size, details 1/2 full size.

.2 Indicate all materials, thicknesses, finishes and hardware.

.3 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

.4 Submit duplicate colour samples of laminated plastic for colour selection.

.5 Submit duplicate samples of laminated plastic joints, edging, cutouts, and postformed profiles.

1.5 MOCK-UPS

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Shop prepare one base cabinet unit, wall cabinet, counter top, shelving unit, complete with hardware and shop applied finishes, and install on project in designated location.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 – Common Product Requirements.

.2 Protect millwork against dampness and damage during and after delivery.

.3 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

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

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

.6 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 19 % or less in accordance with following standards:

.1 CAN/CSA-O141.

.2 AWMAC premium grade, moisture content as specified.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Hardwood lumber: moisture content 10% or less in accordance with following standards:

.1 National Hardwood Lumber Association (NHLA).

.2 AWMAC premium grade, moisture content as specified.

.4 Douglas fir plywood (DFP): to CSA O121, standard construction.

.1 Urea-formaldehyde free.

.5 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.1 Urea-formaldehyde free.

.6 Hardwood plywood: to ANSI/HPVA HP-1.

.1 Urea-formaldehyde free.

.7 Poplar plywood (PP): to CSA O153, standard construction.

.1 Urea-formaldehyde free.

.8 Birch plywood: to AWMAC Natural.

.1 Urea-formaldehyde free.

.9 Hardboard: to CAN/CGSB – 11.3.

.1 Urea-formaldehyde free.

.10 Medium density fibreboard (MDF): to ANSI A208.2, density 769 kg/m$^{3.}$

.1 Urea-formaldehyde free.

.2 Must meet the performance requirements of ANSI A208.2

.11 Laminated plastic: Section 06 40 23.13 - Plastic Laminate for Interior Architectural Woodwork.

.12 Thermofused Melamine: to NEMA LD3 Grade VGL.

.1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).

.13 Nails and staples: to CSA B111.

.14 Wood screws: steel plain, type and size to suit application.

.15 Splines: wood.

.16 Sealant: Section 07 92 00 – Joint Sealants.

.17 Glazing: provide glazing to the requirements of Section 08 80 50 – Glazing.

2.2 MANUFACTURED UNITS

.1 Casework.

.1 Fabricate caseworks to AWMAC premium quality grade.

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

.1 S2S is acceptable.

.2 Board sizes: "Standard" or better grade.

.3 Dimension sizes: "Standard" light framing or better grade.

.3 Framing birch or maple species, NHLA premium grade.

.4 Premanufactured plastic laminate covered Particle board grade premium 20mm thick.

.5 Backs.

.1 Premanufactured plastic laminate covered particle board, grade premium 6 mm thick.

.6 Shelving.

.1 Premanufactured plastic laminate covered particle board, grade premium 20mm thick.

.2 Edge banding: provide 10mm thick solid matching wood strip on plywood particleboard edges 12mm or thicker, exposed in final assembly. Strips same width as plywood particleboard.

.2 Wood Drawers

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

.2 Sides and Backs.

.1 Hardwood plywood:

.1 Thickness: 12mm.

.3 Bottoms.

.1 Preformed plastic laminate covered particle board, grade premium 12 mm thick.

.4 Fronts.

.1 Hardwood plywood:

.1 Thickness: 12 mm.

.2 Preformed plastic laminate covered particleboard, grade premium 12mm thick.

.3 Metal Drawers Sidebox

.1 Metal sidebox drawer profiles, heights to suite drawer dimensions, c/w brackets for securing wood drawer front, back and bottom.

.2 Provide sliding drawer profiles, length to suite metal sidebox. Sliding drawer profile to provide full drawer extension operation

.3 Backs

.1 Hardwood plywood:

.1 Thickness: 12 mm.

.4 Bottoms

.1 Preformed plastic laminate covered particle board, grade premium 12 mm thick.

.5 Fronts

.1 Hardwood plywood:

.1 Thickness: 12 mm

.2 Preformed plastic laminate covered particleboard, grade premium 12 mm thick.

.4 Casework Doors

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

.2 Preformed plastic laminate covered particleboard, grade premium 20 mm thick.

.5 Hardware

.1 Door and Drawer rolls, hinges, slides, locks, pulls, knobs shelf rest, standards, rods track shall be in accordance with CAN/CGSB-69.25-M90/ANSI/BHMA A156.9 and Section 06 41 93 – Cabinet and Miscellaneous Hardware.

2.3 FABRICATION

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

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

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

.4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

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

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

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

.8 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.

.9 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.

.10 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.

2.4 FINISHING

.1 Section 09 91 23 – Interior Painting

PART 3 EXECUTION

3.1 INSTALLATION

.1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.

.2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.

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

.4 Use draw bolts in countertop joints.

.5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.

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

.7 Apply bituminous coating over wood framing members in contact with masonry or cementitious construction.

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

3.2 CLEANING

.1 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.

.2 Remove excess glue from surfaces.

3.3 PROTECTION

.1 Protect millwork and cabinet work from damage until final inspection.

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

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

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 04 05 00 - Common Work Results for Masonry.

.3 Section 04 05 12 - Masonry Mortar and Grout.

.4 Section 04 05 19 - Masonry Anchorage and Reinforcing.

.5 Section 04 05 23 - Masonry Accessories.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM E514, Standard Test Method for Water Permeance of Masonry.

.2 ASTM E96, Standard Test Methods for Water Vapour Transmission of Materials.

.2 Canadian Standards Association (CSA)

.1 CAN/CSA A165 SERIES, CSA Standards on Concrete Masonry Units, covers: A165.1, A165.2, A165.3.

.2 CAN/CSA A371, Masonry Construction for Buildings.

.3 CSA S304.1, Design of Masonry Structures.

.3 Underwriters' Laboratories of Canada (ULC).

.1 CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

1.3 SUBMITTALS

.1 Product Data

.1 Submit manufacturer’s printed product Literature, specifications and data sheet illustrating products to be incorporated into project for specified products.

.2 Samples

.1 Two of each type of concrete masonry unit specified.

.3 Manufacturer’s Instructions

.1 Submit manufacturer's installation instructions.

.4 Certificates

.1 Submit a certification report stating the concrete masonry unit manufacturer is in compliance with the performance and certification criteria for manufactured water-repellent concrete masonry units. Certification report to include:

.1 Test method results.

.2 Masonry unit physical properties.

.3 Manufacturer's certificate of performance.

1.4 QUALITY ASSURANCE

.1 Mock-up

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

.2 Construct mock-up 10 m^2 minimum of brick unit masonry in area designated by Owner before proceeding with brick unit masonry work.

.3 Allow two (2) working days for inspection of mock-up by Owner before proceeding with Concrete Unit Masonry Work.

.2 Test reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.4 Pre-installation meeting: conduct pre-installation meeting to verify project requirements manufacturer's instructions and manufacturer's warranty requirements.

1.5 QUALIFICATIONS

.1 Manufacturer: company specializing in manufacturing products of this section with minimum 10 years experience.

.1 Hold a current certification in the manufacture of water-repellent concrete masonry units.

.2 Installer: company specializing in performing work of this section approved by manufacturer. Minimum 5 years experience.

.3 Design structural installations under direct supervision of Professional Engineer experienced in structural design of concrete masonry installation and registered in the Province of Ontario.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.1 Offload concrete unit masonry packages using equipment that will not damage the surfaces.

.2 Do not use brick tongs to move or handle masonry.

.3 Storage and Handling Requirements:

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

.2 Do not double stack cubes of concrete unit masonry.

.3 Cover masonry units with non-staining waterproof membrane covering.

.4 Allow air circulation around units.

.5 Installation of wet or stained masonry units is prohibited.

.6 Keep concrete unit masonry in individual cardboard packaging provided by manufacturer until units are ready to be installed.

.7 Store and protect concrete unit masonry from nicks, scratched, and blemishes.

.8 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Standard concrete block units: to CAN/CSA-A165, Series (CAN/CSA-A165.1)

.1 Classification: H/10/A/M

.2 Size: modular.

.3 Special shapes: provide bull nosed units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.

.2 Split-face concrete block units Type 1: to CAN/CSA-A165 Series-04 (CSA-A165.1). Decorative face treatment: split face ashlar/centre scored.

.1 Classification: S/20/A/M.

.2 Size: modular as indicated on drawings.

.3 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.

.4 Colour: as selected by Owner from manufacturer's standard colour range.

.3 Acoustical concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) purpose made with slots to provide the acoustical characteristics specified.

.1 Classification: H/10/C/M

.2 Size: modular

.3 Special shapes: provide special shapes indicated. Provide purpose made shapes for lintels and bond beams.

2.2 WATER-REPELLENT ADMIXTURE

.1 Liquid, polymeric based water-repellent admixture to ASTM E514, incorporated into the concrete mix at block plant during the concrete masonry unit manufacturing process.

.1 Water-repellent admixture to be incorporated into concrete mix at the water-repellent manufacturer's recommended dosage.

2.3 ACCESSORIES

.1 Reinforcement: to Section 04 05 19 - Masonry Anchorage and Reinforcing.

.2 Connectors: to Section 04 05 19 - Masonry Anchorage and Reinforcing.

.3 Flashing: to Section 04 05 23 - Masonry Accessories.

.4 Mortar and mortar mixes: to Section 04 05 12 - Masonry Mortar and Grout.

.5 Grout and grout mixes: to Section 04 05 12 - Masonry Mortar and Grout.

2.4 CLEANING COMPOUNDS

.1 Use VOC products to limits listed in Section 01 35 21 - LEED® Requirements.

.2 Compatible with substrate and acceptable to masonry manufacturer for use on products.

.3 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions.

2.5 TOLERANCES

.1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA A165.1, supplemented as follows:

.1 Maximum variation between units within specific job lot not to exceed 2.0 mm.

.2 No parallel edge length, width or height dimension for individual unit to differ by more than 2.0 mm.

.3 Out of square tolerance not to exceed 2.0 mm.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Concrete block units.

.1 Bond: running

.2 Coursing height: 200 mm for one block and one joint

.3 Jointing: concave where exposed or where paint or other finish coating is specified

.2 Special Shapes:

.1 Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.

.2 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

.3 End bearing: not less than 200 mm.

.3 Acoustical Concrete Unit Masonry:

.1 Bond: running.

.2 Coursing height: 200 mm for one block and one joint.

.3 Jointing: concave where exposed or where paint or finish coating is specified.

3.2 CONSTRUCTION

.1 Installer shall use only masonry units containing a compatible integral water-repellent admixture added to the concrete masonry units (CMU) at the time of manufacture for construction of water-repellent masonry walls.

.2 Installer shall use only mortar containing integral liquid polymeric water-repellent admixture at the manufacturer's recommended addition rate and mixed according to the manufacturer's recommended instructions for construction of water-repellent masonry walls.

.3 Installing Units: Use face bedding to provide the greatest resistance to water penetration.

.4 Cull out masonry units, in accordance with CAN/CSA A165 and approved range of color samples, with chips, cracks, broken corners, excessive color and texture variation.

.5 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.

.6 Construct masonry walls using running bond unless otherwise noted.

.7 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.

.8 Install movement joints and keep free of mortar where indicated.

.9 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.

.10 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.

.11 Ensure compacted head joints. Use full or face-shell joint as indicated.

.12 Tamp units firmly into place.

.13 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.

.14 Tool exposed joints concave; strike concealed joints flush.

.15 After mortar has achieved initial set up, tool joints.

.16 Do not interrupt bond below or above openings.

3.3 CLEANING

.1 Promptly remove excess wet mortar containing integral water-repellent mortar admixture from face of masonry as work progresses by dry brushing.

.2 Clean masonry once mortar is set and cured.

.3 Upon completion of installation remove surplus materials, rubbish, tools and equipment barriers.

3.4 PROTECTION

.1 Brace and protect concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.

.2 Cover top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in CMU cores.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 04 05 00 - Common Work Results for Masonry.

.4 Section 04 05 19 - Masonry Anchorage and Reinforcing.

1.2 REFERENCES

.1 American Society for Testing and Materials, (ASTM).

.1 ASTM D2240, Standard Test Method for Rubber Property - Durometer Hardness.

.2 Canadian Standards Association (CSA)

.1 CSA-A371, Masonry Construction for Buildings.

1.3 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data including product characteristics, performance criteria, and limitations.

.2 Submit two copies of WHMIS SDS - Safety Data. Indicate VOC's for joint fillers and lap adhesives.

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle masonry accessories in accordance with, Section 01 61 00 - Common Product Requirements supplemented as follows:

.1 Keep fillers and adhesives dry, protected against dampness, and freezing.

.2 Store packaged materials off ground and in accordance with manufacturer's written instructions.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Control joint filler: purpose-made elastomer 70 durometer hardness to ASTM D2240 of size and shape indicated. Use VOC products to limits listed in Section 01 35 21 - LEED® Requirements.

.2 Lap adhesive: recommended by masonry flashing manufacturer. Use VOC products to limits listed in Section 01 35 21 - LEED® Requirements.

.3 Weep hole vents: purpose-made PVC.

.4 Cavity Wall Flashing:

.1 Self adhering SBS rubberized asphalt compound integrally laminated to cross-laminated polyethylene film, minimum thickness 1.0 mm.

.2 Primer: as per manufacturer’s recommendation.

.5 Trash mortar diverters: shaped and sized to suit cavity spaces.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

.1 Install continuous control joint fillers in control joints at locations indicated on drawings.

.2 Lap adhesive: apply adhesive to flashing lap joints.

.3 Reglets: install reglets at locations indicated on drawings.

.4 Install weep hole vents in vertical joints immediately over flashings, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm on centre.

.5 Trash mortar diverters: install purpose made diverters in cavities where indicated and as directed, size and shape to suit purpose and function.

3.3 CONSTRUCTION

.1 Build in flashings in masonry in accordance with CSA-A371 as follows:

- .1 Install flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings. Install flashings under weep hole courses and as indicated.
- .2 In cavity walls and veneered walls, carry flashings from front edge of masonry, under outer wythe, then up backing not less than 300 mm, and as follows:
  - .1 For masonry backing embed flashing 25 mm in joint.
  - .2 For concrete backing, insert flashing into reglets.
  - .3 For wood frame backing, staple flashing to walls behind sheathing paper.
  - .4 For gypsum board backing, bond to wall using manufacturer's recommended adhesive.
- .3 Lap joints 150 mm and seal with adhesive.

.2 Form flashing (end dams) at lintels, sills and wall ends to prevent water from travelling horizontally past flashing ends.

3.4 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 04 05 00 - Common Work Results for Masonry.

.4 Section 04 05 13 - Masonry Mortar and Grout.

.5 Section 04 05 23 - Masonry Accessories.

.6 Section 04 21 13 - Brick Masonry.

.7 Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International).

- .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-A370, Connectors for Masonry.
- .3 CSA-A371, Masonry Construction for Buildings.
- .4 CSA G30.18, Carbon Steel Bars for Concrete Reinforcement.
- .5 CSA S304.1, Design of Masonry Structures.
- .6 CSA A179, Mortar and Grout For Unit Masonry.
- .7 CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction.

.2 Reinforcing Steel Institute of Canada (RSIC).

- .1 Reinforcing Steel Manual of Standard Practice.

1.3 SUBMITTALS

.1 Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Submit two copies of WHMIS SDS - Safety Data Sheets. Indicate VOC's for epoxy coatings and galvanized protective coatings and touch-up products illustrating products to be incorporated into project for specified products.

.2 Shop Drawings:

.1 Shop drawings consist of bar bending details, lists and placing drawings. Provide shop drawings detailing bar bending details, anchorage details, lists and placing drawings.

.2 On placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

.3 Indicate on shop drawings, bar bending details, lists, quantities of reinforcement, sizes, spacings, locations of reinforcement and mechanical splices if approved by Owner, with identifying code marks to permit correct placement without reference to structural drawings. Indicate sizes, spacings and locations of chairs, spacers and hangers. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada. ANSI/ACI 315 and ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 SITE MEASUREMENTS

.1 Make site measurements necessary to ensure proper fit of members.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Bar reinforcement: to CSA-A371, and CAN/CSA G30.18, Grade 400.

.2 Wire reinforcement: to CSA-A371, and CSA S304.1, two wire ladder or truss type, galvanized.

.3 Ties:

.1 For metal stud or wood stud and masonry construction: to CSA-A370 and CSA-S304, 1.6 mm thick side mounting, stainless steel flat plate, c/w 5.8 mm ø holes for veneer tire wire attachment, 4.76

mm ø veneer ties with polyethylene insulation supports. Total length of flat plate to suit stud width, sheathing, air space and insulation.

.2 For cast-in-place concrete and masonry construction: to CSA-A370 and CSA-S304, 1.6 mm thick stainless steel L-Plate, c/w 5.8 mm ø holes for veneer tire wire attachment, 4.76 mm ø veneer ties with polyethylene insulation supports.

.3 For concrete block and masonry construction: to CSA-A370 and CSA-S304, 1.6 mm thick stainless steel connector plate, c/w 5.8 mm ø holes for veneer tire wire attachment, 4.76 mm ø veneer ties with polyethylene insulation supports. Total length of connector plate to suit block width, air space and insulation.

.4 Corrosion protection for wire reinforcement: to CSA S304.1, galvanized to CSA S304.1 and CSA-A370.

2.2 FABRICATION

.1 Fabricate reinforcing in accordance with CSA-A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.

.2 Fabricate connectors in accordance with CSA-A370.

.3 Obtain Owner's approval for locations of reinforcement splices other than shown on placing drawings.

.4 Upon approval of Owner, weld reinforcement in accordance with CSA W186.

.5 Ship reinforcement and connectors, clearly identified in accordance with drawings.

2.3 SOURCE QUALITY CONTROL

.1 Upon request, provide Owner with certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum 5 weeks prior to commencing reinforcement work.

.2 Upon request inform Owner of proposed source of material to be supplied.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

.1 Supply and install masonry connectors and reinforcement in accordance with CSA-A370, CSA-A371, CSA-A23.1/A23.2, and CSA-S304.1, unless indicated otherwise.

.2 Prior to placing concrete, mortar, obtain Owner’s approval of placement of reinforcement and connectors.

.3 Supply and install additional reinforcement to masonry as indicated.

3.3 BONDING AND TYING

.1 Bond walls of two or more wythes using metal connectors in accordance with CSA S304.1, CSA-A371, and as indicated.

.2 Tie masonry veneer to backing in accordance with NBC, CSA-S304.1, CSA-A371, and as indicated.

3.4 REINFORCED LINTELS AND BOND BEAMS

.1 Reinforce masonry lintels and bond beams as indicated.

.2 Place and grout reinforcement in accordance with CSA-S304.1, CSA-A371 and CSA-A179.

.3 Support and position reinforcing bars in accordance with CAN/CSA A371.

3.5 GROUTING

.1 Grout masonry in accordance with CSA-S304.1, CSA-A371 and CSA-A179, and as indicated.

3.6 ANCHORS

.1 Supply and install metal anchors as indicated.

3.7 LATERAL SUPPORT AND ANCHORAGE

.1 Supply and install lateral support and anchorage in accordance with CSA-S304.1 and as indicated.

3.8 MOVEMENT JOINTS

.1 Reinforcement will not be continuous across movement joints unless otherwise indicated.

3.9 FIELD BENDING

.1 Do not field bend reinforcement and connectors except where indicated or authorized by Owner.

.2 When field bending is authorized, bend without heat, applying a slow and steady pressure.

.3 Replace bars and connectors which develop cracks or splits.

3.10 FIELD TOUCH-UP

.1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.

3.11 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 04 05 00 - Common Work Results for Masonry.

.4 Section 04 22 00 – Concrete Unit Masonry.

1.2 REFERENCES

.1 American Standards for Testing and Materials (ASTM)

- .1 ASTM C1072, Standard Test Methods for Measurement of Masonry Flexural Bond Strength.
- .2 ASTM C1384, Standard Specification for Admixtures for Masonry Mortar.
- .3 ASTM E514, Standard Test Method for Water Penetration and Leakage through Masonry.

.2 Canadian Standards Association (CSA)

- .1 CAN/CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA A179, Mortar and Grout for Unit Masonry.
- .3 CAN/CSA A371, Masonry Construction for Buildings.
- .4 CAN/CSA-A3000, Cementitious Materials Compendium; CAN/CSA-A3002, Masonry and Mortar Cement.

1.3 SUBMITTALS

.1 Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet including product characteristics, performance criteria, and limitations.
- .2 Submit copy of WHMIS SDS Safety Data Sheets. Indicate VOC's mortar, grout, parging, colour additives and admixtures, expressed as grams per litre (g/L).

.2 Samples:

.1 Submit two samples of mortar showing actual product colour when set.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.4 Certificate:

.1 Submit certificate from masonry installer stating the only mortar containing specified water-repellant admixture at the manufacturer's recommended dosage has been used for construction of water-repellent masonry.

1.4 QUALITY ASSURANCE

.1 Submit test reports showing compliance with specified performance characteristics and physical properties.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handles masonry mortar and grout materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:

.1 Deliver prepackaged, dry-blended mortar mix to project site in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and color or formula numbers.

.2 Maintain mortar, grout and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials.

.3 Store integral water-repellent mortar admixture in an area where temperature is maintained between 4° C and 43° C. Do not allow integral water-repellent mortar admixture to freeze. Discard any frozen admixture.

1.6 SITE CONDITIONS

.1 Ambient Conditions: maintain materials and surrounding air temperature to:

.1 Minimum 5° C prior to, during, and 48 hours after completion of masonry work.

.2 Maximum 32° C prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Use same brands of materials and source of aggregate for entire project.

.2 Cement:

.1 Portland Cement: to CAN/CSA-A3000. Use VOC products to limits listed in Section 01 35 21 - LEED® Requirements.

.2 Masonry Cement: to CAN/CSA-A3002 and CAN/CSA A179.

.3 Mortar Cement: to CAN/CSA-A3002 and CAN/CSA A179.

.4 Packaged Dry Combined Materials for mortar: to CAN/CSA A179, using gray color cement.

.3 Aggregate: supplied by one supplier.

.1 Fine Aggregate: to CAN/CSA A179, natural sand.

.2 Course Aggregate: to CAN/CSA A179.

.4 Water: clean and potable.

2.2 COLOR ADDITIVES

.1 Use coloring admixture not exceeding 10% of cement content by mass, or integrally colored masonry cement, to produce colored mortar to match approved sample. Admixtures to be approved prior to use. Use in accordance with the specific manufacturer's recommendations. Mortar color sample as selected from manufacturer’s standard color range.

.2 White mortar: use white masonry cement to produce mortar type specified.

2.3 INTEGRAL WATER-REPELLENT MORTAR ADMIXTURE

.1 Integral liquid polymeric water-repellent admixture for mortar added to the mortar at the time of mixing for use in the construction of water-repellent concrete masonry.

.1 Performance requirements:

.1 Water Permeance: to ASTM E514. Capable of achieving a Class E Rating with the test extended to 72 hours, using the rating criteria specified in ASTM E514-74.

.2 Flexural Bond Strength: to ASTM C1072. No statistically lower masonry flexural bond strength shall occur as a result of adding integral water-repellent CMU and mortar admixtures when compared to a control (containing no admixtures) CMU and mortar.

.3 Water Repellent Mortar Admixture Classification: to ASTM C1384. Capable of meeting all of the requirements of a water repellent classification.

2.4 MORTAR MIXES

.1 Mortar for exterior masonry above grade:

.1 Loadbearing: Type S based on proportion specifications.

.2 Non-Loadbearing: Type N based on proportion specifications.

.2 Mortar for interior masonry:

.1 Loadbearing: Type S based on proportion specifications.

.2 Non-Loadbearing: Type N based on proportion specifications.

.3 Mortar for Parapet walls, chimneys, unprotected walls: Type S based on proportion specifications.

.4 Pointing Mortar: CAN/CSA A179, Type N using property specification with maximum 2 percent ammonium stearate or calcium stearate per cement weight.

.5 Stain Resistant Pointing Mortar: one part Portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate to 2 percent of Portland cement by weight.

.6 Mortar for Glass Block Masonry: CAN/CSA A179, Type S, using the property specification.

.7 Pointing Mortar for Glass Block Masonry: CAN/CSA A179, Type S, using the property specification; with maximum 2 percent ammonium stearate or calcium stearate per cement weight.

.8 Parging mortar: Type N to CAN/CSA A179.

.9 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: Type M based on proportion specifications.

.10 Following applies regardless of mortar types and uses specified above:

.1 Mortar for calcium silicate brick and concrete brick: Type N based on proportion specifications.

.2 Mortar for stonework: Type N based on proportion specifications.

.3 Mortar for grouted reinforced masonry: Type S based on proportion specifications.

2.5 MORTAR MIXING

.1 Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.

.2 Use a batch type mixer in accordance with CAN/CSA A179.

.3 Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

.4 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.

.5 Use mortar within 2 hours after mixing at temperatures of 32° C, or 2-1/2 hours at temperatures under 5° C.

2.6 GROUT MIXES

.1 Bond Beams: minimum grout mix 10 to 12.5 MPa strength at 28 days or as otherwise indicated on drawings; 200-250 mm slump; mixed in accordance with CAN/CSA A179.

.2 Lintels: minimum grout mix 10 to 12.5 MPa strength at 28 days or as otherwise indicated on drawings; 200-250 mm slump; mixed in accordance with CAN/CSA A179.

.3 Grout: minimum compressive strength of 12.5 MPa at 28 days or as otherwise indicated on drawings. Maximum aggregate size and grout slump: CAN/CSA A179.

2.7 GROUT MIXING

.1 Mix grout ingredients in quantities needed for immediate use in accordance with CAN/CSA A179.

.2 Add admixtures in accordance with manufacturer's instructions; mix uniformly.

.3 Do not use calcium chloride or chloride based admixtures.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that conditions of substrate are acceptable for masonry installation in accordance with manufacturer’s written instructions.

.2 Visually inspect substrate in presence of Owner.

.3 Inform Owner of unacceptable conditions immediately upon discovery.

.4 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Owner.

3.2 MANUFACTURER'S INSTRUCTIONS

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

3.3 CONSTRUCTION

.1 Do masonry mortar and grout work in accordance with CSA A179, except where specified otherwise.

.2 Apply parging in uniform coating of thickness indicated.

.3 Installer shall use only masonry units containing a compatible integral water-repellent admixture added to the concrete masonry units (CMU) at the time of manufacture for construction of water-repellent masonry walls.

.4 Installer shall use only mortar containing integral liquid polymeric water-repellent admixture at the manufacturer’s recommended addition rate and mixed according to the manufacturer’s recommended instructions for construction of water-repellent masonry walls.

.5 Installing Units: Use face bedding to provide the greatest resistance to water penetration.

3.4 MIXING

.1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes. Mixing by hand must be pre-approved by the Owner.

.2 Clean all mixing boards and mechanical mixing machine between batches.

.3 Mortar must be weaker than the units it is binding.

.4 Contractor to appoint one individual to mix mortar, for duration of project. In the event that this individual must be changed, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

3.5 MORTAR PLACEMENT

.1 Install mortar to manufacturer's instructions.

.2 Install mortar to requirements of CAN/CSA A179.

.3 Remove excess mortar from grout spaces.

.4 Mortar Joint Tooling:

.1 Tool mortar joints to concave or V-profile to provide the greatest resistance to water penetration.

.2 Do not use raked, flush, extruded, struck, beaded weather or other joint profiles to due to their reduced water-resistance.

.3 Tool mortar joints when they are thumbprint hard to provide the greatest resistance to water penetration and to help minimize hairline cracks between mortar and CMU.

3.6 GROUT PLACEMENT

.1 Install grout in accordance with manufacturer's instructions.

.2 Install grout in accordance with CAN/CSA A179.

.3 Work grout into masonry cores and cavities to eliminate voids.

.4 Do not install grout in lifts greater than 400 mm, without consolidating grout by rodding.

.5 Do not displace reinforcement while placing grout.

3.7 CLEANING

.1 In-Progress Cleaning: Promptly remove excess wet mortar containing integral water-repellent mortar admixture from face of masonry as work progresses by dry brushing.

.2 Clean masonry once mortar is set and cured.

.3 Cover top of unfinished masonry work to protect it from the weather and to prevent accumulation of water in CMU cores.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

.5 Remove droppings and splashings using clean sponge and water.

.6 Clean masonry with low pressure clean water and soft natural bristle brush.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 This Section includes:

.1 Demolition and removal of selected portions of interior building components and finishes.

.2 Repair procedures for selective demolition operations.

.2 This section does not include:

.1 Removal of hazardous materials or asbestos abatement.

.2 Demolition of exterior building components or structural elements.

.3 Mechanical or electrical equipment, except as required to make minor modifications to allow the work to be completed.

1.2 RELATED SECTIONS

.1 Section 01 11 00 – Summary of Work

.2 Section 01 35 29.06 - Health and Safety Requirements

.3 Section 01 35 43 - Environmental Procedures

.4 Section 01 52 00 – Construction Facilities

.5 Section 01 56 00 - Temporary Barriers and Enclosures

.6 Section 01 74 21 – Construction/Demolition Waste Management and Disposal

.7 Section 02 41 13- Selective Site Demolition.

1.3 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI A10.8, Safety Requirements for Scaffolding.

.2 CSA Group (CSA)

.1 CSA S350, Code of Practice for Safety in Demolition of Structures.

.3 National Fire Protection Association (NFPA)

.1 NFPA 241 13, Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.4 DEFINITIONS

.1 Demolish: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

.2 Remove and Salvage: Detach items from existing construction and deliver them to Owner.

.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.

.5 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB s, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner’s property. Demolished materials shall become Contractor’s property and shall be removed from Project site.

.2 Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions with all elements in planes as drawn, maintaining their relationships with all other building elements.

.3 Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner’s property:

.1 Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

.2 Coordinate with Owner, who will establish special procedures for removal and salvage.

.4 Pre Demolition Meeting: Convene pre-installation meeting one (1) week prior to beginning work of this Section, with Owner to:

.1 Confirm extent of salvaged and demolished materials.

.2 Review Contractor's demolition plan:

.1 Verify existing site conditions adjacent to demolition work.

.2 Coordination with other construction sub trades.

1.6 ACTION AND INFORMATION SUBMITTALS

.1 Provide the following submittals before starting any work of this Section:

.1 Schedule of Selective Demolition Activities:

.1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.

.2 Coordinate with Owner ongoing site operations, and limit the number of interruptions during regular business hours.

.3 Interruption of utility services.

.4 Coordination for shutoff, capping, and continuation of utility services.

.5 Use of elevator and stairs.

.6 Locations of temporary partitions and means of egress, including for others affected by selective demolition operations.

.7 Coordination with Owner continuing occupancy of portions of existing building and of partial occupancy of completed Work.

.2 Demolition Plan: Submit a plan of demolition area indicating extent of temporary facilities and supports, methods of removal and demolition prepared by a professional engineer in accordance with requirements of Authority Having Jurisdiction, and as follows:

.1 Proposed Noise Control and Dust Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Owner reserves the right to make modifications where proposed methods interfere with the Owner's ongoing operation.

.2 Inventory: Submit a list of items that have been removed and salvaged after selective demolition is complete.

1.7 SITE CONDITIONS

.1 Owner will occupy portions of building immediately adjacent to selective demolition area:

.1 Conduct selective demolition so that Owner's operations will not be disrupted.

.2 Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

.2 Maintain access to existing means of egress, walkways, corridors, exits, and other adjacent occupied or used facilities:

.1 Do not close or obstruct means of egress, walkways, corridors, exits, or other occupied or used facilities without written acceptance from authorities having jurisdiction.

.3 Discovery of Hazardous Substances:

.1 It is not expected that Hazardous Substances will be encountered in the Work. Immediately notify Owner if materials suspected of containing hazardous substances are encountered.

.4 Hazardous Substances:

.1 Hazardous Substances are present in building to be selectively demolished. A report on the presence of Hazardous Substances is attached as an information document to this Specification for review and use. Examine report to become aware of locations where hazardous materials are present. Coordinate removal of hazardous materials as per appropriate sections of this specification.

PART 2 PRODUCTS

2.1 TEMPORARY SUPPORT STRUCTURES

.1 Design temporary support structures required for demolition work and underpinning and other foundation supports necessary for the project using a qualified professional engineer registered or licensed in Province of Ontario.

2.2 DESCRIPTION

.1 This section of the Work includes, but is not necessarily limited to, the following:

.1 Demolition, removal completely from site, and disposal of all identified components, materials, equipment and debris.

.2 Selective demolition to allow new walls, bulkheads, ceilings and other materials to meet existing construction as indicated.

.3 All material from demolition shall be removed from site immediately with no salvage, selling, sorting or burning permitted on site.

.4 Retain items indicated on drawings for re use in new construction.

2.3 DEBRIS

.1 Make all arrangements for transport and disposal of all demolished materials from the site.

2.4 EQUIPMENT

.1 Provide all equipment required for safe and proper demolition of the building interiors indicated.

2.5 REPAIR MATERIALS

.1 Use repair materials identical to existing materials:

.1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

.2 Use a material whose installed performance equals or surpasses that of existing material.

.3 Comply with material and installation requirements specified in individual Specification Sections.

.2 Floor Patching and Levelling Compounds: Cement based, trowelable, self levelling compounds compatible with specified floor finishes; gypsum based products are not acceptable for work of this Section.

.3 Concrete Unit Masonry: Lightweight concrete masonry units, and mortar, cut and trimmed to fit existing opening to be filled. Provide standard hollow core units, square end units and bond beam units as indicated on drawings.

.4 Gypsum Board Patching Compounds: Joint compound to ASTM C475/C475M, bedding and finishing types thinned to provide skim coat consistency to patch and prepare existing gypsum board walls ready for new finishes in accordance with Section 09 21 16 – Gypsum Board Assemblies.

.5 Hoarding and Dust Screens: Refer to Sections 01 35 99 – Dust Control Procedures and 01 56 00 - Temporary Barriers and Enclosures for stud framing and gypsum board sheathing materials.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that utilities have been disconnected and capped.

.2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

.3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

.4 Notify the Owner where existing mechanical, electrical, or structural elements conflict with intended function or design:

.1 Investigate and measure the nature and extent of conflict and submit a written report to Owner.

.2 Owner will issue additional instructions or revise drawings as required to correct conflict.

.5 Perform surveys as the work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

.1 Coordinate existing services indicated to remain and protect them against damage during selective demolition operations.

.2 Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.

.1 Arrange to shut off affected utilities with utility companies.

.2 If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.

.3 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

.4 Cut off pipe or conduit to a minimum of 25 mm below slab, and remove concrete mound. Patch concrete using cementitious grout.

.3 Coordinate with Mechanical and Electrical Divisions for shutting off, disconnecting, removing, and sealing or capping utilities.

.4 Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

.1 Identify and mark all equipment and materials identified to be retained by Owner or to be re used in subsequent construction. Separate and store items to be retained in an area away from area of demolition and protect from accidental disposal.

.2 Post warning signs on electrical lines and equipment that must remain energized to serve other areas during period of demolition.

.3 Confirm that all electrical and telephone service lines entering buildings are not disconnected.

.4 Do not disrupt active or energized utilities crossing the demolition site.

.5 Provide and maintain barricades, warning signs, protection for workmen and the public during the full extent of the Work. Read drawings carefully to ascertain extent of protection required.

.6 Mark all materials required to be re used, store in a safe place until ready for re installation.

.7 Adjust all junction boxes, receptacles and switch boxes flush with new wall construction where additional layers to existing construction are indicated.

.8 Remove permanent marker lines used or found on exposed surfaces and at surfaces indicated for subsequent finish materials. Mechanically remove permanent marker lines and associated substrates where permanent marker lines occur and patch surface. Sealing or priming over permanent marker lines is not acceptable.

3.4 CONCRETE SLAB REINFORCING

.1 Locate location of reinforcing steel in concrete slabs prior to cutting or coring using non destructive, non ionizing radio frequency locators.

.2 Core concrete slabs to avoid reinforcing steel, electrical conduit or water pipes; adjust core location and coordinate with Engineer where slab features interfere with core drilling.

.3 Notify the Owner immediately for further instructions where coring or cutting will damage existing slab features.

3.5 SELECTIVE DEMOLITION

.1 Demolish and dismantle work in a neat and orderly manner and in strict accordance with all regulations.

.2 At end of each day s work, leave Work in safe condition so that no part is in danger of toppling or falling.

.3 Demolish in a manner to minimize dusting and to prevent migration of dust.

.4 Selling or burning of materials on the site is not permitted.

.5 Remove concrete bases by cutting and chipping, take precautions against slab cracking and degradation. Grind edges smooth, fill and make level with self levelling grout.

.6 Fill all openings in concrete block walls with concrete masonry units, coursing to match existing, prepare ready to receive new finishes to match existing.

.1 Provide bond beams in new openings cut into existing concrete masonry unit walls.

.2 Provide finished end masonry units to patch and repair for new jamb sections in existing concrete masonry unit walls.

.7 Fill all openings in gypsum board walls with gypsum board and steel framing to match existing, skim coat to make wall smooth and even.

.8 Demolish existing carpet, resilient flooring and adhesive remnants as follows:

.1 Vacuum existing carpet thoroughly, prior to removal, using vacuum equipped with power head/sweeper.

.2 Apply fine mist water spray to carpet as required to minimize dust generation during removal. Avoid spraying near electrical outlets.

.3 Demolish existing carpet and resilient floor finishes, remove and dispose of off site.

.4 Remove adhesive to the greatest extent possible using scrapping tools and as follows:

.1 Do not use solvent based cleaners to remove adhesive remnants.

.2 Lightly shot blast or grind floor using machine designed for purpose to remove adhesive remnants.

.3 Vacuum floor ready for application of skim coating.

.4 Repair all slab depressions and damage with cementitious patching compound.

.5 Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials.

.5 Floor substrate shall be smooth, free from ridges and depressions, and adhesive remnants that could telegraph through resilient flooring materials and carpets.

.9 Demolish existing ceramic tile finishes. Remove setting bed or adhesive to the greatest extent possible using mechanical scrapping tools and as follows:

.1 Saw cut edge of tile for clean and even transition joint between existing tile to remain and new flooring materials

.2 Lightly shot blast or grind floor to remove remnants of setting materials

.3 Vacuum floor ready for application of skim coating

.4 Repair all slab depressions and damage with cementitious patching compound. Skim coat floor with minimum 1 mm thick cementitious floor underlayment compatible with new flooring materials

.10 Demolish completely all ceiling panels and grid as indicated.

.11 Remove all wall coverings scheduled for demolition. Patch and repair wall surfaces with skim coat of gypsum board joint compound leaving wall surfaces smooth and even ready for new wall finishes.

.12 Patch and repair all walls, floor and ceilings damaged during demolition with material matching adjacent walls, prepare ready for new finishes.

.13 Patch and repair all radiation cabinets, mechanical equipment and electrical fixtures damaged or exposed during demolition to match adjacent finished surfaces.

3.6 PATCHING AND REPAIRING

.1 Floors and Walls:

.1 Where walls or partitions that are demolished extend from one finished area into another, patch and repair floor and wall surfaces in the new space.

.2 Provide a level and smooth surface having uniform finish colour, texture, and appearance.

.3 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform colour and appearance.

.4 Patch with durable seams that are as invisible as possible.

.5 Provide materials and comply with installation requirements specified in other Sections of these Specifications.

.6 Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.

.7 Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

.2 Ceilings: patch, repair, or re hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.7 PROTECTION

.1 Prevent debris from blocking drainage inlets and systems and ground draining, and protect material and electrical systems and services that must remain in operation.

.2 Arrange demolition and shoring work so that interference with the use of adjoining areas by the Owner and users is minimized.

.3 Maintain safe access to and egress from occupied areas adjoining.

.4 Provide and maintain fire prevention equipment and alarms accessible during demolition.

3.8 CLEANING

.1 Promptly as the Work progresses, and on completion, clean up and remove from the site all rubbish and surplus material. Remove rubbish resulting from demolition work daily.

.2 Maintain access to exits clean and free of obstruction during removal of debris.

.3 Keep surrounding and adjoining roads, lanes, sidewalks, municipal rights of way clean and free of dirt, soil or debris that may be a hazard to vehicles or persons.

END OF SECTION

PART 1 GENERAL

1.1 RELATED WORK

.1 Division 1 - General Requirements.

.2 Comply with Asbestos Abatement Regulations, Latest Edition.

1.2 SECTION INCLUDES

.1 Removal as specified of all spray or trowel-applied asbestos-containing material located as indicated.

.2 Encapsulation as specified of all spray or trowel-applied asbestos-containing material located as indicated.

.3 Encapsulation of areas where asphaltic adhesive coating under spray or trowel-applied asbestos-containing material prevents complete removal of spray or trowel-applied asbestos-containing material.

.4 Enclosure as specified of all spray or trowel-applied asbestos-containing material located as indicated.

.5 Removal (other than defined minor amounts) of friable materials containing asbestos.

.6 Use of power tools that are fitted with dust collectors equipped with a HEPA filter to cut, shape, grind, drill, scrape, or abrade manufactured products containing asbestos.

.7 Cleaning, maintaining, or removal of air-handling equipment in buildings where sprayed fireproofing materials containing asbestos have been applied.

1.3 REFERENCES

.1 Codes and standards referenced in this section refer to the latest edition thereof.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205, Sealer for Application to Asbestos-Fibre-Releasing Materials.

1.4 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Amended Water: Water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos-Containing Materials (ACMs): Materials identified under Existing Conditions (Article 1.7), including fallen materials and settled dust.

.4 Asbestos Work Area: Area where actual removal, sealing and enclosure of spray or trowel-applied asbestos-containing materials takes place.

.5 Authorized Visitors: Building Owner, Asbestos Abatement Consultant or designated representative, and persons representing regulatory agencies.

.6 Friable Material: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 Occupied Area: Any area of the building or work site that is outside the Asbestos Work Area.

.8 Polyethylene sheeting sealed with tape: Polyethylene sheeting of type and thickness specified sealed with tape along all edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through the sheeting into a clean area.

.9 Glove Bag: Prefabricated glove bag as follows:

- .1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.
- .2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.
- .3 Equipped with reversible double-pull double throw zipper on top.
- .4 Straps for sealing ends around pipe.
- .5 Must incorporate internal closure strip if it is to be moved or used in more than one specific location.

.10 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

.11 Sprayer: Garden reservoir type sprayer or airless spray equipment capable of producing a mist or fine spray. Must be appropriate capacity for scope of work.

.12 Negative pressure: A system that extracts air directly from work area, filters such extracted air through a High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building. This system shall maintain a minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with an alarm to warn of system breakdown, and be equipped with an instrument to continuously monitor and automatically record pressure differences.

.13 Airlock: A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.

.14 Curtained doorway: An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows: Place two overlapping sheets of polyethylene over an existing or temporarily framed doorway, secure each along the top of the doorway, secure the vertical edge of one sheet along one vertical side of the doorway, and secure the vertical edge of the other sheet along the opposite vertical side of the doorway. Reinforce free edges of polyethylene with duct tape and weight the bottom edge to ensure proper closing. Each polyethylene sheet shall overlap openings not less than 1.5 m on each side.

.15 Competent person: in relation to specific work, means a worker who:

- .1 Is qualified because of knowledge, training and experience to perform the work.
- .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
- .3 Has knowledge of all potential or actual danger to health or safety in the work.

.16 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

1.5 SUBMITTALS

.1 Before commencing work:

.1 Obtain from the appropriate agency and submit to Owner all necessary permits for transportation and disposal of asbestos waste. Ensure that dump operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Owner that suitable arrangements have been made to receive and properly dispose of asbestos waste.

.2 Submit proof satisfactory to Owner that all employees have had instruction on the hazards of asbestos exposure, respirator use, dress, use of showers, entry and exit from work areas, and all aspects of work procedures and protective measures. Supervisory personnel shall have attended an asbestos abatement course, of not less than two days duration, approved by the Owner. Submit proof of attendance in the form of a certificate. Minimum of one Supervisor for every five workers.

.3 Submit layout of proposed enclosures and decontamination facilities to Owner for review.

.4 Submit documentation including test results for sealer proposed for use.

.5 Submit Provincial and/or local requirements for Notice of Project Form.

.6 Submit proof of Contractor's Asbestos Liability Insurance.

.7 Submit proof satisfactory to the Owner that all employees have respirator fitting and testing. Workers must be fit-tested with the respirator that is personally issued.

.8 Submit Workplace Health, Safety and Compensation Commission status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets for chemicals or materials including but not limited to the following:

.1 encapsulants;

.2 amended water;

.3 slow-drying sealer.

1.6 REGULATORY REQUIREMENTS

.1 Comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or

with these specifications the more stringent requirement applies. Comply with regulations in effect at the time the work is performed.

.2 Follow Ontario Regulation of the Occupation Health and Safety Act, Asbestos Abatement Regulations, Latest Edition. All work as defined under this section must be completed by a "Qualified Asbestos Abatement Contractor" (registered with the Government of Ontario)

.3 Follow regulations for the transport of asbestos waste, specifically the Transportation of Dangerous Goods Act, latest edition.

.4 Follow regulations for the disposal of asbestos waste, specifically Waste Management Regulations and Waste Material Disposal Areas Regulations.

1.7 EXISTING CONDITIONS

.1 Prior to commencing of work, verify with Owner, and review whether an asbestos audit and/or Asbestos Management Plan are in place for the building.

.2 Information contained in audits and plans are for general information only and are not necessarily representative of all asbestos containing materials covered within the scope of this project.

.3 Notify Owner of materials believed to contain asbestos encountered during the execution of work that is not contained in the audits and plans. Do not disturb such materials until instructed by Owner.

1.8 INSTRUCTION AND TRAINING

.1 Before commencing work, provide to the Owner satisfactory proof that every worker has had instruction and training in the hazards of asbestos exposure, in personal hygiene including dress and showers, in entry and exit from the Asbestos Work Area, in all aspects of work procedures including glove bag procedures, and in the use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at a minimum:

.1 Proper fitting of the equipment.

.2 Inspection and maintenance of the equipment.

.3 Disinfecting of the equipment.

.4 Limitations of the equipment.

.3 Instruction and training must be provided by a competent, qualified person.

.4 Supervisory personnel to complete required training.

1.9 WORKER PROTECTION

.1 Protective equipment and clothing to be worn by workers while in the Asbestos Work Area includes:

.1 Respirator equipped with HEPA filter cartridges, personally issued to the worker and marked as to efficiency and purpose, and acceptable to the Provincial Authority having jurisdiction as suitable for the type of asbestos and the level of asbestos exposure in the Asbestos Work Area. If disposable type filters are used, provide sufficient filters so that workers can install new filters following disposal of used filters and before re-entering contaminated areas.

.2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head covering with snug-fitting cuffs at wrists, ankles, and neck.

.2 Each worker shall:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. All street clothes, uncontaminated footwear, towels, and similar uncontaminated articles shall be stored in clean change room.

.2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room. Place contaminated worksuits in receptacles for disposal with other asbestos - contaminated materials Clean outside of respirator with soap and water. Remove respirator; remove filters and wet them and dispose of filters in the container provided for the purpose; and wash and rinse the inside of the respirator. When not in use in the work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 Provide facilities for washing and/or showering when leaving Asbestos Work Area, which shall be used by every worker. Hot and

cold water supply is to be provided in such a manner to allow workers to adjust water temperature during decontamination.

.4 Enter the unloading room from outside dressed in clean coveralls to remove waste containers and equipment from the Holding Room of the Container and Equipment Decontamination Enclosure system. No worker shall use this system as a means to leave or enter the work area.

.3 Workers shall not eat, drink, smoke or chew gum or tobacco at the work site except in established clean room.

.4 Workers shall be fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.

.5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in 1.9 of this section, in both official languages.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects the seal between the respirator and the face.

1.10 VISITOR PROTECTION

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing and respirators.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from work areas.

1.11 NOTIFICATION

.1 Not later than ten (10) working days before commencing work on this project notify the Occupational Health and Safety Division in writing as per Regulation 194/91, Section 34 Sub-Section (7). Provide telephone notification immediately prior to start of work.

.2 Notify Sanitary Landfill site.

.3 Inform all sub-trades of the presence of friable asbestos-containing materials identified in the Existing Conditions.

.4 Submit to the Owner a copy of all notifications prior to the start of work.

PART 2 PRODUCTS

2.1 MATERIALS

.1 All materials and equipment brought to work site must be in good condition and free of asbestos, asbestos debris, and fibrous materials. Disposable items must be of new materials only.

.2 Polyethylene: Minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.3 Tape: Fibreglass reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

.4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other material approved by Owner, mixed with water in a concentration to provide adequate penetration and wetting of asbestos-containing material.

.5 Asbestos waste containers: Metal or fibre - type acceptable to dump operator with tightly fitting covers and 0.15 mm minimum thickness sealable polyethylene liners. Labelling requirements: Affix a pre-printed cautionary asbestos warning, in both official languages, that is clearly visible when ready for removal to disposal site.

.6 Encapsulants : Type 2 surface film forming type Class A water based conforming to CAN/CGSB-1.205, ULC listed.

.7 Glove bag: Acceptable materials include safe-T-strip products in configuration suitable for work, or alternative material approved by addendum during the tendering period in accordance with the Instructions to Tenderers. Glove bags intended for use in more than one location must be equipped with a reversible, double-pull, double-throw zipper on the top and at approximately the mid-section of the bag.

.8 Slow drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for the purpose of trapping residual asbestos fibres. Sealer shall have flame spread and smoke developed rating less than 50

PART 3 EXECUTION

3.1 PREPARATION

.1 Work Areas:

.1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other areas of the building during work phase. Conduct smoke tests to ensure that duct work is airtight. Active return air ducts within the Asbestos Work Area shall have all joints and seams rigid seal and caulked.

.2 Clean proposed work area using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use a wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.3 Put negative pressure system in operation and operate continuously from the time the first polyethylene is installed to seal openings until final completion of the work including final cleanup. Provide continuous monitoring of pressure difference using an automatic recording instrument.

.4 Seal off all openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.5 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.6 Build airlocks at all entrances to and exits from work area so that work area is always closed off by one curtained doorway when workers enter or exit.

.7 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where the number in parentheses indicates the font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.8 After work area isolation, remove heating, ventilating, and air conditioning filters, pack in sealed plastic bags 0.15 mm minimum thick and treat as contaminated asbestos waste. Remove ceiling - mounted objects such as lights, partitions, other fixtures not previously sealed off, and other objects that interfere with asbestos removal, as directed by Owner. Use localized water spraying during fixture removal to reduce fibre dispersal.

.9 Maintain emergency and fire exits from work area, or establish alternative exits satisfactory to Provincial Fire Commissioner.

.10 Where application of water is required for wetting asbestos-containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source

for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.11 After preparation of work area and Decontamination Enclosure Systems remove plaster ceilings, including lath, furring, channels, hangers, wires, clips, and dispose of as contaminated waste in specified containers. Spray ceiling debris and immediate work area with amended water (see definition in Section 1.4.2) to reduce dust, as work progresses.

.2 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System shall comprise an Equipment and Access Room, a Wash Area Room, and a Clean Room, as follows:

.1 Equipment and Access Room: Build an Equipment and Access Room between Wash Area Room and work area, with two curtained doorways, one to the Wash Area Room and one to work area. Install portable toilet, waste receptor, and storage facilities for workers' shoes and any protective clothing to be reworn in work area. The Equipment and Access Room shall be large enough to accommodate specified facilities, any other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.

.2 Wash Area Room: Build a Wash Area Room between the Clean Room and Equipment and Access Room, with two curtained doorways, one to the Clean Room and one to Equipment and Access Room. Provide a constant supply of hot and cold or warm water. Provide piping and connect to water sources and drains. Pump waste water through a 5 micrometre filter system acceptable to Owner before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: Build a Clean Room between the Wash Area Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Wash Area Room. Provide lockers or hangers and hooks for workers‘ street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install a mirror to permit workers to fit respiratory equipment properly.

.3 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of a Staging Area within the work area, a Holding Room, and an Unloading Room. The purpose of this system is to provide a means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which the Worker Decontamination Enclosure System is not suitable.

.1 Staging Area: Designate a Staging Area in the work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Staging Area shall have a curtained doorway to the Washroom.

.2 Holding Room: shall be of sufficient size to accommodate at least two waste containers and the largest item of equipment used.

.3 Unloading Room: Build an Unloading Room between the Holding Room and outside, with two curtained doorways, one to the Holding Room and one to outside.

.4 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through a doorway, one of the two closures comprising the doorway always remains closed.

.5 Separation of Work Areas from Occupied Areas:

.1 Separate parts of the building required to remain in use from parts of the building used for asbestos abatement by means of an airtight barrier system constructed as follows:

.1 Build suitable floor to ceiling lumber or metal stud framing, cover with polyethylene sheeting sealed with tape, and apply 9 mm minimum thick plywood. Seal all joints between plywood sheets and between plywood and adjacent materials with surface film forming type sealer, to create an airtight barrier.

.2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.

.6 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethyene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at the beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Owner.

.7 Asbestos Abatement work shall not commence until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area and decontamination enclosures and parts of the building required to remain in use are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs specified in PART 3 are displayed where access to contaminated areas is possible.

.7 All notifications have been completed and other preparatory steps have been taken.

3.2 SUPERVISION

.1 A minimum of one Supervisor for every five workers is required. Refer to Asbestos Abatement Regulations for definition and training of supervisor.

.2 An approved Supervisor must remain within the Asbestos Work Area at all times during the disturbance, removal, or other handling of asbestos-containing materials.

3.3 ASBESTOS REMOVAL

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing the specified wetting agent, using airless spray equipment capable of providing a "mist" application to prevent release of fibres. Saturate the asbestos material sufficiently to wet it to the substrate without causing excess dripping. Spray the asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove the saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack the material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from the Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, all surfaces from which asbestos has been removed shall be wire brushed and wet-sponged to remove all visible material. During this work keep the surfaces wet.

.5 Where Owner decides complete removal of asbestos-containing material is impossible due to obstructions such as structural members or major service elements, and provides a written direction, encapsulate the material as follows:

.1 Apply surface film forming type sealer to provide 0.635 mm minimum dry film thickness over sprayed asbestos surfaces. Apply using airless spray equipment to avoid blowing off fibres.

.6 After wire brushing and wet sponging to remove visible asbestos, and after encapsulating asbestos-containing material impossible to remove, wet clean the entire work area including the Equipment and Access Room, and equipment used in the process. After a 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted.

3.4 PIPE INSULATION REMOVAL USING GLOVE BAG

.1 Place tools necessary to remove insulation in tool pouch. Wrap the bag around pipe and close zippers. Seal bag to pipe with cloth straps.

.2 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.

.3 Insert nozzle of a garden reservoir type sprayer into bag through valve and wash down pipe and interior of bag thoroughly. Wet surface of insulation in lower section of bag.

.4 When glove bags are intended for use at more than one location: After wash-down and application of sealer, seal off waste in lower section of bag using zipper at mid-section of bag. Remove air from top section of bag through the elasticized valve using a HEPA vacuum. Remove bag from pipe, reinstall in new location, and reseal to pipe prior to opening the lower section of the bag. Repeat stripping operation.

.5 If bag is to be moved along pipe, first remove air from top section through the elasticized valve using a HEPA vacuum. Next loosen straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat stripping operation.

.6 To remove bag after completion of stripping, wash top section and tools thoroughly. Remove air from top section through the elasticized valve using a HEPA vacuum. Pull polyethylene waste container over glove bag before removing from pipe. Release one strap and remove freshly washed tools. Place tools in water. Remove second strap and zipper. Fold over into waste container and seal.

.7 After removal of bag ensure that pipe is free of all residue. Remove all residue using HEPA vacuum or wet cloths. Ensure that surfaces are free of sludge which after drying could release asbestos dust into atmosphere. Seal exposed surfaces of pipe and ends of insulation with slow-drying sealer to seal in any residual fibres.

.8 Upon completion of work shift, cover exposed ends of remaining pipe insulation with polyethelene taped in place.

3.5 FINAL CLEANUP

.1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum all visible asbestos-containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.2 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.3 Work areas, Equipment and Access Room, Wash Area Room, and other enclosures that may be contaminated shall be included in the clean-up.

.4 Sealed waste containers and all equipment used in the work shall be included in the cleanup and shall be removed from work areas, via the Container and Equipment Decontamination Enclosure System, at an appropriate time in the cleaning sequence.

.5 A final check shall be carried out to ensure that no dust or debris remains on surfaces as a result of dismantling operations and air-monitoring shall be carried out again to ensure that asbestos levels in the building do not exceed 0.10 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this criteria.

.6 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative who shall ensure that dumping is done in accordance with governing regulations.

3.6 AIR MONITORING

.1 From commencement of work until completion of cleaning operations, air samples will be taken on a daily basis both inside and outside of work area enclosure in accordance with Asbestos Abatement Regulations (personal, perimeter and clearance) and conforming to applicable NIOSH sampling protocol. (ie: NIOSH 7400)

.2 Results of air monitoring inside the work area will be used to establish the type of respirators to be used. Workers may be required to wear sample pumps for up to full-shift periods. If fibre levels are above the safety factor of the respirators in use, the abatement will be stopped, means of dust suppression will be applied, and a higher safety factor in respiratory protection will be used by all persons inside the enclosure. If air monitoring shows that areas outside work area enclosures are contaminated, these areas shall be enclosed, maintained and cleaned, in the same manner as that applicable to work areas.

.3 During the course of the work, fibre content of the air will be measured by a PCM test. If PCM measurements exceed 0.10 f/cc work will be stopped until procedures are corrected.

.4 Conduct final air monitoring as follows: After the Asbestos Work Area has passed a visual inspection, an acceptable coat of lock-down agent has been applied to all surfaces of the enclosure, and an appropriate setting period has passed, perform air monitoring within the Asbestos Work Area. Final air monitoring results must show fibre levels of less than 0.10 f/cc. If air monitoring results show fibre levels in excess of 0.10 f/cc, re-clean the

work area and apply another acceptable coat of lock-down agent to all surfaces. Repeat as necessary until fibre levels are less than 0.10 f/cc.

3.7 INSPECTION

.1 Inspection of the Asbestos Work Area will be performed to confirm compliance with the requirements of the specifications and governing authorities. Deviation from the Asbestos Abatement Regulations is not accepted without prior approval of the governing authority. Any deviation from these requirements that have not been approved in writing by the Owner and the governing authority may result in a stoppage of work, at no cost to the Owner.

.2 The Owner is empowered to inspect adherence to specific procedures and materials, and to inspect for final cleanliness and completion. Additional labour or materials expended by the Contractor to provide performance to the level specified shall be at no additional cost.

.3 The Owner is empowered to order a shutdown of work when a leakage of asbestos from the Asbestos Work Area has occurred or is likely to occur. Additional labour or materials expended by the Contractor to provide performance to the level specified shall be at no additional cost.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 29 83 - Payment Procedures for Testing Laboratory Services.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 43 39 – Mock-Up Requirements.

.4 Section 01 45 00 - Quality Control.

.5 Section 01 61 00 - Common Product Requirements.

.6 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Section 03 30 00 - Cast-in-Place Concrete.

.8 Section 04 05 13 - Masonry Mortar and Grout.

.9 Section 04 05 19 - Masonry Anchorage and Reinforcing.

.10 Section 04 05 23 - Masonry Accessories.

.11 Section 04 21 13 - Brick Masonry.

.12 Section 04 22 00 - Concrete Unit Masonry.

.13 Section 04 23 00 - Glass Unit Masonry.

.14 Section 05 50 00 - Metal Fabrications.

.15 Section 07 21 13 - Board Insulation.

.16 Section 07 92 00 - Joint Sealants.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International).

.1 CSA-A165 Series, Standards on Concrete Masonry Units.

.2 CSA A179, Mortar and Grout for Unit Masonry.

.3 CSA-A371, Masonry Construction for Buildings.

.2 International Masonry Industry All-Weather Council (IMIAC).

.1 Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

1.3 SUBMITTALS

.1 Product Data.

.1 Submit manufacturer's printed product literature, specifications and data, including product characteristics, performance criteria, limitations and colors.

.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Safety Data Sheets (SDS).

.3 Samples.

.1 Submit samples:

.1 Two of each type of masonry unit specified including special shapes.

.2 One of each cured and coloured samples of mortar and grout, illustrating mortar colour and colour range.

.3 One of each type of masonry accessory specified.

.4 One of each type of masonry reinforcement, tie and connector proposed for use.

.2 Submit samples tested to laboratories employing technicians certified/trained in procedures for testing masonry units.

.3 Samples used for testing, when accepted, become standard for material used.

.4 Shop drawings.

.1 Provide drawings stamped and signed by a professional engineer licensed in the Province of Ontario, Canada.

.2 Provide confirmation to the Owner that a professional engineer has designed temporary bracing and support.

.5 Manufacturer's Instructions.

.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with specification requirements.

.2 Submit certified test reports showing compliance with specified performance characteristics and physical properties.

.3 For clay units, in addition to requirements set out in referenced CSA and ASTM Standards include data indicating initial rate of absorption.

.4 Qualifications:

.1 Manufacturer: minimum five (5) years experience in manufacturing components similar to or exceeding requirements of project.

.2 Installer: experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

.3 Masons: company or person specializing in masonry installations with minimum five (5) years documented experience with masonry work similar to this project.

.1 Masons employed on this project must demonstrate ability to reproduce mock-up standards.

1.5 JOB MOCK-UPS.

.1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.

.2 Construct mock-up panel of exterior masonry wall construction 1200 x 1800 mm showing masonry colours and textures, use of reinforcement, ties, through-wall flashing, weep holes, jointing, coursing, mortar and workmanship.

.3 Construct mock-up where directed.

1.6 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver materials to job site in dry condition.

.3 Keep materials dry until use except where wetting of bricks is specified

.4 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

.5 Replace defective or damaged materials with new.

1.7 SITE CONDITIONS

.1 Cold weather requirements.

.1 In accordance with CSA-A371 and as outlined below.

.1 Maintain temperature of mortar between 5˚C and 50˚C until batch is used or becomes stable.

.2 Maintain ambient temperature of masonry work and its constituent materials between 5°C and 50°C and protect site from exposure to wind.

.3 Maintain temperature of masonry above 0°C for minimum of 3 days, after mortar is installed.

.4 Preheat unheated wall sections in enclosure for minimum 72 hours about 10°C, before applying mortar.

.2 Hot weather requirements.

.1 In accordance with CSA-A371 and as outlined below.

.1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

.2 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.

.3 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

.4 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Masonry materials are specified in related Sections indicated in 1.1.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 PREPARATION

.1 Provide temporary bracing and support of masonry work during and after erection until permanent lateral support is in place.

.2 Bracing approved by Owner.

.3 Establish and protect lines, levels, and coursing.

.4 Protect adjacent materials from damage and disfiguration.

3.3 INSTALLATION

.1 Do masonry work in accordance with CSA-A371, except where specified otherwise.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment respecting construction tolerances permitted by CAN/CSA-A371.

.3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.4 CONSTRUCTION

.1 Exposed masonry:

.1 Remove chipped, cracked, and otherwise damaged units, in accordance with CSA A-165, in exposed masonry and replace with undamaged units.

.2 Jointing:

.1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, joints true to line, compressed, uniformly concave joints where concave joints are indicated.

.2 Strike flush joints concealed in walls and joints in walls to receive plaster, tile, insulation, or other applied material except paint or similar thin finish coating.

.3 Cutting:

.1 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects.

.2 Make cuts straight, clean, and free from uneven edges.

.4 Building-In:

.1 Build in items required to be built into masonry.

.2 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.

.3 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.

.5 Wetting of bricks:

.1 Except in cold weather, wet bricks having an initial rate of absorption exceeding 1 g/minute/1000 mm^2: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surface dry.

.2 Wet tops of walls built of bricks qualifying for wetting, when recommencing work on such walls.

.6 Support of loads:

.1 Use 30 MPa concrete to Section 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units.

.2 Use grout to CSA A179, where grout is used in lieu of solid units.

.3 Install building paper below voids to be filled with grout; keep paper 25 mm back from faces of units.

.7 Provision for movement:

.1 Leave 3 mm space below shelf angles.

.2 Leave 6 mm space between top of non-load bearing walls and partitions and structural elements. Do not use wedges.

.3 Built masonry to tie in with stabilizers, with provision for vertical movement.

.8 Loose steel lintels:

.1 Install loose steel lintels. Centre over opening width.

.9 Control joints:

.1 Construct continuous control joints where indicated or detailed.

.10 Expansion joints:

.1 Build-in continuous expansion joints where indicated or detailed.

.11 Interference with other work:

.1 Cut openings in existing work as indicated.

.2 Openings in walls: approved by Owner.

.3 Make good existing work. Use materials to match existing.

3.5 SITE TOLERANCES

.1 Tolerances in notes to CSA-A371 apply.

3.6 FIELD QUALITY CONTROL

.1 Inspection and testing will be carried out by Testing Laboratory designated by Owner.

.2 Owner will pay costs for testing, as specified in Section 01 29 83 – Payment Procedures for Testing Laboratory Services.

.3 Cost of testing will be paid from cash allowance specified in Section 01 21 00 - Allowances. Re-testing as a result of deficient work will be paid for by contractor, credit change order.

.4 Provide Certificate of Field Quality Inspection and testing to Owner for inclusion in Commissioning Manual.

3.7 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.8 PROTECTION

.1 Temporary Bracing and Supports:

.1 Provide temporary bracing and supports of masonry work during and after erection until permanent lateral support is in place.

.2 Provide confirmation to Owner that temporary bracing and support has been designed by professional engineer.

.3 Brace masonry walls as necessary to resist wind pressure and lateral forces during construction.

.2 Moisture Protection:

.1 Keep masonry dry using waterproof, nonstaining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until completed and protected by flashing or other permanent construction.

.2 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.

.3 Air Temperature Protection: protect completed masonry as per Part 1 article Site Conditions.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Section includes:

.1 The supply and installation of washroom fixtures and trim.

.2 Products installed but not supplied under this section as indicated elsewhere in the contract:

.1 Install rough-in for equipment supplied by others, complete with valves on hot and cold water supplies, waste and vent.

.2 Equipment installed by others.

.1 Connect with unions.

.3 Equipment not installed.

.1 Capped for future connection by others.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 35 29.06 – Health and Safety Requirements.

.3 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

1.3 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI 112-19.2, Ceramic Plumbing Fixtures.

.2 American National Standards Institute/national Sanitation Foundation (ANSI/NSF)

.1 ANSI/NSF 61, Drinking Water System Components.

.3 Canadian Standards Association (CSA)

.1 CAN/CSA-B45 Series, Plumbing Fixtures.

.2 CAN/CSA-B125, Plumbing Fittings.

.3 CAN/CSA-B651, Barrier-Free Design.

.4 Province of Ontario Building Accessibility Act Regulations.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Product Data: Submit WHMIS SDS –Safety Data Sheets.

.3 Submit shop drawings and product data in accordance with Section 01 33 00 – Submittal Procedures.

.4 Indicate fixtures and trim:

.1 Dimensions construction details, roughing-in dimensions.

.2 Factory-set water consumption per flush at recommended pressure.

.3 For water closets, urinals: minimum pressure required for flushing.

.5 Closeout Submittals:

.1 Provide maintenance data including monitoring requirements for incorporation into manuals specified in Section 01 78 00 – Closeout Submittals.

.2 Include:

.1 Description of fixtures and trim, giving manufacturer's name, type, model, year, capacity.

.2 Details of operation, servicing, maintenance.

.3 List of recommended spare parts.

1.5 QUALITY ASSURANCE

.1 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.

1.6 DELIVERY STORAGE AND DISPOSAL

.1 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Collect and separate for disposal, paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.3 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.7 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, against defective materials and workmanship for a period of one (1) year from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

.1 Fixtures: Manufacture in accordance with CAN/CSA-B45 series.

.2 Trim, fittings: manufacture in accordance with CAN/CSA-B125.

.3 Exposed plumbing brass to be chrome plated.

.4 Number, locations: Architectural drawings to govern.

.5 Fixtures to be product of one manufacturer and of same type.

.6 Trim to be product of one manufacturer and of same type.

2.2 WATER CLOSETS

.1 Please refer to the design package and drawings for product selection.

2.3 URINALS

.1 Please refer to the design package and drawings for product selection.

2.4 WASHROOM LAVATORIES

.1 Please refer to the design package and drawings for product selection.

2.5 FIXTURE PIPING

.1 Hot and cold water supplies to fixtures:

.1 Chrome plated flexible supply pipes with screwdriver stop, reducers, escutcheon.

.2 Waste:

.1 Brass P trap with cleanout on fixtures not having integral trap.

.2 Chrome plated in exposed places.

2.6 CHAIR CARRIERS.

.1 Factory manufactured floor-mounted carrier systems for wall-mounted fixtures.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Mounting heights:

.1 Standard: to comply with manufacturer's recommendations unless otherwise indicated or specified.

.2 Wall-hung fixtures: as indicated, measured from finished floor.

.3 For barrier-free washrooms: to comply with most stringent of either NBCC or CAN/CSA B651, or Provincial Building Accessibility Act and Regulations.

.4 Please refer to the design package and drawings for product selection.

3.2 ADJUSTING

.1 Conform to water conservation requirements specified this section.

.1 Adjustments.

.1 Adjust water flow rate to design flow rates.

.2 Adjust pressure to fixtures to ensure no splashing at maximum pressures.

.3 Adjust flush valves to suit actual site conditions.

.4 Adjust urinal flush timing mechanisms.

.5 Automatic flush valves for urinals and waterclosets: set controls to prevent unnecessary flush cycles during silent hours.

.2 Checks.

.1 Water closets, urinals: flushing action.

.2 Aerators: operation, cleanliness.

.3 Vacuum breakers, backflow preventers: operation under all conditions.

.3 Thermostatic controls.

.1 Verify temperature settings, operation of control, limit and safety controls.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Section includes:

.1 The supply and installation of plumbing fixtures and trim.

.2 Products installed but not supplied under this section as indicated elsewhere in the contract:

.1 Install rough-in for equipment supplied by others, complete with valves on hot and cold water supplies, waste and vent.

.2 Equipment installed by others.

.1 Connect with unions.

.3 Equipment not installed.

.1 Capped for future connection by others.

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.3 Section 01 35 29.06 – Health and Safety Requirements.

.4 Section 01 78 00 – Closeout Submittals.

1.3 REFERENCES

.1 Canadian Standards Association (CSA)

.1 CAN/CSA-B45 Series, Plumbing Fixtures.

.2 CAN/CSA-B125, Plumbing Fittings.

.3 CAN/CSA-B651, Barrier-Free Design.

.2 Province of Newfoundland and Labrador Building Accessibility Regulations.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Product Data: submit WHMIS SDS – Safety Data Sheets.

.1 Submit shop drawings and product data in accordance with Section 01 33 00 – Submittal Procedures.

.1 Indicate, for all fixtures and trim:

.1 Dimensions, construction details, roughing-in dimensions.

.3 Closeout Submittals:

.1 Submit maintenance data in accordance with Section 01 78 00 – Closeout Submittals

.2 Include:

.1 Description of fixtures and trim, giving manufacturer's name, type, model, year, capacity.

.2 Details of operation, servicing maintenance.

.3 List of recommended spare parts.

1.5 QUALITY ASSURANCE

.1 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.

1.6 DELIVERY STORAGE AND DISPOSAL

.1 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with Waste Management and Disposal.

.2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.3 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.7 WARRANTY

.1 Provide a written guarantee, signed and issued in the name of the owner, against defective materials and workmanship for a period of one (1) year from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

.1 Please refer to the design package and drawings for product selection.

.2 Fixtures: manufacture in accordance with CAN/CSA-B45 series.

.3 Trim, fittings: manufacture in accordance with CAN/CSA-B125.

.4 Exposed plumbing brass to be chrome plated.

.5 Number, locations: Architectural drawings to govern.

.6 Fixtures in any one location to be product of one manufacturer and of same type.

.7 Trim in any one location to be product of one manufacturer and of same type.

2.2 SERVICE SINKS

.1 Please refer to the design package and drawings for product selection.

2.3 FIXTURE PIPING

.1 Hot and cold water supplies to each fixture:

.1 Chrome plated flexible supply pipes each with screwdriver handwheel stop, reducers, escutcheon for exposed supplies.

.2 Waste:

.1 Brass P trap with cleanout on each fixture not having integral trap.

.2 Chrome plated in all exposed places.

2.4 CHAIR CARRIERS

.1 Factory manufactured floor-mounted carrier systems for all wall-mounted fixtures

PART 3 EXECUTION

3.1 INSTALLATION

.1 Mounting heights:

.1 Standard: to comply with manufacturer's recommendations unless otherwise indicated or specified.

.2 Wall-hung fixtures: as indicated, measured from finished floor.

.3 Physically handicapped: to comply with most stringent of either NBCC or CAN/CSA B651, or Provincial Buildings Accessibility Act and Regulations.

3.2 ADJUSTING

.1 Conform to water conservation requirements specified this section.

.2 Do adjustments prior to pre-commissioning.

.3 Adjustments.

.1 Adjust water flow rate to design flow rates.

.2 Adjust pressure to fixtures to ensure no splashing at maximum pressures.

.4 Checks.

.1 Aerators: operation, cleanliness.

.2 Vacuum breakers, backflow preventers: operation under all conditions.

.3 Wash fountains: operation of flow-actuating devices.

.5 Thermostatic controls.

.1 Verify temperature settings, operation of control, limit and safety controls.

.6 Report verification checks in Commissioning Manual.

END OF SECTION