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# **SPECIFICATION MANUAL**

## **RCMP DETACHMENT RENOVATIONS**

### **CONSORT, ALBERTA**

**for**

**ROYAL CANADIAN MOUNTED POLICE (RCMP) K Division**

Issued for Tender  
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# **NORR**

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**1.1 WORK COVERED BY CONTRACT DOCUMENTS**

- .1 Work of this Contract comprises Renovations to Interior Entrance and Minor Patching and Repairs to Interior Finishes at the RCMP Detachment, Consort, Alberta. Work includes, but is not limited to the following:
  - .1 Demolition of the, surrounding wall, and adjacent Reception Desk in the current Reception Area. Provide new door, frame and surrounding wall and new adjacent Reception Counter in Reception Area. Provide new Bench in sitting area.
  - .2 Preparation of all wall surfaces on the main floor as required to receive new finishes. Provide new finishes as indicated and specified in the Contract Documents.
  - .3 Preparation of all floor surfaces on the main floor as required to receive new flooring. Provide new finishes as indicated and specified in the Contract Documents.
  - .4 Electrical: Refer to the Contract Documents that comprises and outlines the electrical renovations to the detachment.

**1.2 CONTRACT METHOD**

- .1 Construct Work under single stipulated price contract.

**1.3 WORK SEQUENCE**

- .1 Construct Work in stages to accommodate Owner's continued use of premises during construction.
- .2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.
- .3 Maintain fire access/control.

**1.4 CONTRACTOR USE OF PREMISES**

- .1 Limit use of premises for Work, storage and access, to allow:
  - .1 Owner occupancy.
  - .2 Public usage.
- .2 Co-ordinate use of premises under direction of Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

**1.5 OWNER OCCUPANCY**

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

**1.6 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building operations, occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.
- .2 Accept liability for damage, safety of equipment and overloading of existing equipment.

**1.7 EXISTING SERVICES**

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

**1.8 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.

**END OF SECTION**

**1.1 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Arrange with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security
- .4 Design, construct and maintain temporary “access to” and “egress from” the work area independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.2 SPECIAL REQUIREMENTS**

- .1 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .2 Keep within limits of work and avenues of ingress and egress.
- .3 Deliver materials as approved by Departmental Representative.

**1.3 SECURITY**

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.
- .2 Security clearances:
  - .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.
  - .2 Obtain requisite clearance, as instructed, for each individual required to enter premises.
  - .3 Personnel who do not require access to interior of building, do not require a pass. Personnel entering the building will require and security pass and if not cleared, an escort. Pass must be returned at end of work shift and personnel checked out.

**1.4 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions. Smoking is not permitted.

**END OF SECTION**

**1.1 ADMINISTRATIVE**

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance..
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

**1.2 PRECONSTRUCTION MEETING**

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Consultant, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
  - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
  - .5 Delivery schedule of specified equipment.
  - .6 Site security.
  - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .8 Owner provided products.

- .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Monthly progress claims, administrative procedures, photographs, hold backs.
- .12 Appointment of inspection and testing agencies or firms.
- .13 Insurances, transcript of policies.

**1.3 PROGRESS MEETINGS**

- .1 During course of Work schedule bi-weekly progress meetings.
- .2 Contractor, major Subcontractors involved in Work Departmental Representative, Consultant are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 48 hours after meeting.
- .5 Agenda to include the following:
  - .1 Review and approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revision to construction schedule.
  - .8 Progress schedule, during succeeding work period.
  - .9 Review submittal schedules: expedite as required.
  - .10 Maintenance of quality standards.
  - .11 Review proposed changes for affect on construction schedule and on completion date.
  - .12 Other business.

**END OF SECTION**



## 1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

## 1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 10 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

**1.4 MASTER PLAN**

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

**1.5 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Award.
  - .2 Shop Drawings, Samples.
  - .3 Permits.
  - .4 Mobilization.
  - .5 Selective Demolition.
  - .6 Roofing.
  - .7 Re-roofing of existing areas.
  - .8 Re-installation of existing mechanical units.

**1.6 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on [weekly] basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

**1.7 PROJECT MEETINGS**

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

**END OF SECTION**

**1.1 ADMINISTRATIVE**

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .10 Keep one reviewed copy of each submission on site.

**1.2 SHOP DRAWINGS AND PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic]copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, electronic copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

**1.3 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution monthly with progress statement..
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 4 locations.

- .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: weekly.

**1.4 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

**END OF SECTION**

**1.1 REFERENCES AND CODES**

- .1 Perform Work in accordance with National Building Code (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.

**1.2 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions and municipal by-laws.

**END OF SECTION**



**1.1 WATER SUPPLY**

- .1 Departmental Representative will provide continuous supply of potable water for construction use.
- .2 Departmental Representative will pay for utility charges at prevailing rates.

**1.2 TEMPORARY HEATING AND VENTILATION**

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Provide temporary heat and ventilation in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Protect Work and products against dampness and cold.
  - .3 Prevent moisture condensation on surfaces.
  - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .3 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .4 Ventilating:
  - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .4 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

**1.3 TEMPORARY POWER AND LIGHT**

- .1 Departmental Representative will provide for temporary power during construction for operating of power tools.

**1.4 TEMPORARY COMMUNICATION FACILITIES**

- .1 Provide and pay for temporary telephone necessary for own use.

**1.5 FIRE PROTECTION**

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

**END OF SECTION**

**1.1 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-S269.2, Access Scaffolding for Construction Purposes.
  - .2 CAN/CSA-Z321, Signs and Symbols for the Occupational Environment.

**1.2 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, swing staging and platforms.

**1.3 HOISTING**

- .1 Provide, operate and maintain hoists required for moving of materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

**1.4 SITE STORAGE/LOADING**

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

**1.5 CONSTRUCTION PARKING**

- .1 Parking will be permitted on site provided it does not disrupt Owners use of building.

**1.6 OFFICES**

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

**1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

**1.8 SANITARY FACILITIES**

- .1 Departmental Representative will designate sanitary facilities for use by work force.

**1.9 CLEAN-UP**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

**END OF SECTION**

## 1.1 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

## 1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

## 1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

#### **1.4 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .8 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

#### **1.5 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.

#### **1.6 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative can establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

**1.7 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

**1.8 CO-ORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

**1.9 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.10 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.11 FASTENINGS - EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

**END OF SECTION**



**1.1 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
  - .1 Structural integrity of elements of project.
  - .2 Integrity of weather-exposed or moisture-resistant elements.
  - .3 Efficiency, maintenance, or safety of operational elements.
  - .4 Visual qualities of sight-exposed elements.
- .3 Include in request:
  - .1 Identification of project.
  - .2 Location and description of affected Work.
  - .3 Statement on necessity for cutting or alteration.
  - .4 Description of proposed Work, and products to be used.
  - .5 Alternatives to cutting and patching.
  - .6 Effect on Work of Owner or separate contractor.
  - .7 Written permission of affected separate contractor.
  - .8 Date and time work will be executed.

**1.2 MATERIALS**

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

**1.3 PREPARATION**

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

**1.4 EXECUTION**

- .1 Execute cutting, fitting, and patching [including excavation and fill,] to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.

- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

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

**END OF SECTION**

**1.1 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .7 Provide adequate ventilation during use of volatile or noxious substances..

**1.2 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris.
- .5 Remove dirt and other disfiguration from exterior surfaces.
- .6 Clean roofs, downspouts, and drainage systems.

**END OF SECTION**

**1.1 WASTE MANAGEMENT**

- .1 This Project shall generate the least amount of waste possible and that processes shall be employed that ensure the generation of as little waste as possible including prevention of damage due to error, poor planning, breakage, mishandling, improper storage, contamination, inadequate protection or other factors as well as minimizing over-packaging and poor quantity estimating, consistent with "Built-Green" or recognized sustainability practices.
- .2 Of the inevitable waste that is generated, the waste materials designated in this specification shall be salvaged for reuse and/or recycling. Waste disposal in landfills or incinerators shall be minimized. This means careful recycling of job site waste. On demolition projects this also means careful removal or salvage of materials.
- .3 Minimize waste disposal to landfills.
- .4 Subcontractors shall cooperate with Contractor and comply with his Construction Waste Management Plan.

**END OF SECTION**

## 1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify Departmental Representative in writing of satisfactory completion of inspection and submit verification that corrections have been made.
    - .2 Request Departmental Representative inspection.
  - .2 Departmental Representative Inspection:
    - .1 Departmental Representative, Consultant and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
  - .4 Final Inspection:
    - .1 When completion tasks are done, request final inspection of Work by Departmental Representative.
    - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
  - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

## 1.2 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

## 1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
  - .1 Convene meeting one week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
    - .1 Verify Project requirements.
    - .2 Review warranty requirements.
  - .2 Departmental Representative to establish communication procedures for:
    - .1 Notifying construction warranty defects.
    - .2 Determine priorities for type of defects.
    - .3 Determine reasonable response time.
  - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
  - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

## 1.2 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain at site one record copy of:
  - .1 Contract Drawings for use as "As Built Drawings".
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
  - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
  - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

### 1.3 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of blue line opaque drawings provided by Departmental Representative. As-built drawings should meet the requirements under STR (i.e., outline of tanks, centerline of piping, centerline of underground electrical and monitor sensor conduits, building foundation lines, property lines, and secondary containment systems).
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

### 1.4 WARRANTIES AND BONDS

- .1 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .2 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .3 Respond in timely manner to oral or written notification of required construction warranty repair work.

**END OF SECTION**

## 1 GENERAL

### 1.01 SUMMARY

- .1 This Section includes the following:
  - .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 the following:
  - .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.
- .3 Drawings contain details that suggest directions for solving some of the major demolition and removal requirements for this project; Contractor is required to develop these details further by submitting a demolition plan prepared by a professional engineer employed by the Contractor.

### 1.02 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A10.8 2011, Safety Requirements for Scaffolding
- .2 American Society for Testing and Materials (ASTM):
  - .1 ASTM C 475/C 475M-15, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
- .3 National Fire Protection Association (NFPA)
  - .1 NFPA 241 13, Standard for Safeguarding Construction, Alteration, and Demolition Operations

### 1.03 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 Representative Owner ready for reuse.
- .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.



#### 1.04 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate with Departmental Representative for the material ownership as follows:
  - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Departmental Representative '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.
- .2 Pre Demolition Meeting: Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor and Departmental Representative Consultant in accordance with Section 01 31 19 - Project Meetings 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
- .3 Hold project meetings every week month.
- .4 Ensure key personnel site supervisor project manager subcontractor representatives attend.
- .5 Departmental Representative will provide written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

#### 1.05 ACTION AND INFORMATION SUBMITTALS

- .1 Action Submittals: Provide the following submittals before starting any work of this Section:
  - .1 Schedule of Selective Demolition Activities: Coordinate with Section 01 32 16.06 - Construction Progress Schedule, and indicate the following:
    - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
    - .2 Coordinate with Departmental Representative 's 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 Departmental Representative 's continuing occupancy of portions of existing building.
  - .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 Dust Control and Noise Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Departmental Representative reserves the right to make modifications where proposed methods interfere with the Departmental Representative 's ongoing operation
  - .2 Inventory: Submit a list of items that have been removed and salvaged after selective demolition is complete.
  - .3 Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
  - .4 Pre demolition Photographs: Submit photographs indicating existing conditions of adjoining construction and site improvements prior to starting Work. Include finish surfaces that may be misconstrued as damage caused by selective demolition operations.
- .2 Informational Submittals: Provide the following submittals when requested by the Departmental Representative:
- .1 Qualification Data: Submit information for companies and personnel indicating their capabilities and experience to perform work of this Section including; but not limited to, lists of completed projects with project names and addresses, names and addresses of architects and owners, for work of similar complexity and extent.

## **1.06 QUALITY ASSURANCE**

- .1 Regulatory Requirements: Perform work as follows; use most restrictive requirements where differences occur between the municipal, provincial and federal jurisdictions:
  - .1 Provincial and Federal Requirements: Perform work in accordance with governing environmental notification requirements and regulations of the Authority Having Jurisdiction.
  - .2 Municipal Requirements: Perform hauling and disposal operations in accordance with regulations of Authority Having Jurisdiction.
- .2 Qualifications: Provide proof of qualifications when requested by Departmental Representative:
  - .1 Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project:
    - .1 Conform to the provincial Occupational Health and Safety Act and Regulation.
    - .2 Conform to Workers' Compensation Board Regulations.
    - .3 Conform to City of local municipal bylaws and regulations governing this type of work.

## **1.07 SITE CONDITIONS**

- .1 Representative Owner will occupy portions of building immediately adjacent to selective demolition area:
  - .1 Conduct selective demolition so that building operations will not be disrupted.
  - .2 Provide not less than 72 hours notice to Departmental Representative of activities that will affect building operations.
- .2 Maintain access to existing means of egress, walkways, corridors, exits, and other adjacent occupied or used facilities in accordance with Section 01 35 16:
  - .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 Departmental Representative assumes no responsibility for condition of areas to be selectively demolished:
  - .1 Conditions existing at time of Pre Bid Site Review will be maintained by Departmental Representative as far as practical.
- .4 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Representative Consultant if materials suspected of containing hazardous substances are encountered and perform the following activities:
  - .1 Refer to Section 01 41 00 - Regulatory Requirements for directives associated with specific material types.
  - .2 Hazardous materials will be as defined in the Hazardous Materials Act.
  - .3 Hazardous materials will be removed by Representative Owner before start of the Work.
  - .4 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Representative Owner. Hazardous materials will be removed by Representative Owner under a separate contract or as a change to the Work.

## **2 PRODUCTS**

### **2.01 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 the Work.

### **2.02 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

## **2.03 DEBRIS**

- .1 Make all arrangements for transport and disposal of all demolished materials from the site.

## **2.04 EQUIPMENT**

- .1 Provide all equipment required for safe and proper demolition of the building interiors indicated.

## **2.05 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 Prefinished Sheet Steel: Prefinished sheet steel, colour to match existing radiation cabinets, bent and profiled to match existing radiation cabinets.
- .5 Gypsum Board Patching Compounds: Joint compound to ASTM C 475/C 475M, 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 Systems.

## **3 EXECUTION**

### **3.01 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 Departmental Representative 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 Representative Consultant.
  - .2 Representative Consultant 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.

### **3.02 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.

### **3.03 PREPARATION**

- .1 Identify and mark all equipment and materials identified to be retained by Departmental Representative 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.

### **3.04 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 Departmental Representative immediately for further instructions where coring or cutting will damage existing slab features.

### **3.05 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 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.

- .9 Patch and repair all walls, floor and ceilings damaged during demolition with material matching adjacent walls, prepare ready for new finishes.
- .10 Patch and repair all radiation cabinets, mechanical equipment and electrical fixtures damaged or exposed during demolition to match adjacent finished surfaces.

### **3.06 PATCHING AND REPAIRING**

- .1 Floors and Walls:
  - .2 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.
  - .3 Provide a level and smooth surface having uniform finish colour, texture, and appearance.
  - .4 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform colour and appearance.
  - .5 Patch with durable seams that are as invisible as possible.
  - .6 Provide materials and comply with installation requirements specified in other Sections of these Specifications.
  - .7 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.
  - .8 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.

### **3.07 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 Representative 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.

### **3.08 CLEANING**

- .1 Develop Construction Waste Management Plan related to Work of this Section and in accordance and Section 01 74 19 - Waste Management and Disposal.
- .2 Waste Management: Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal, and as follows:
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

- .3 Divert excess materials from landfill to site approved Representative Consultant.
- .4 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.
- .5 Maintain access to exits clean and free of obstruction during removal of debris.
- .6 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**



## 1 GENERAL

### 1.01 REFERENCE STANDARDS

- .1 CSA International
  - .1 CSA O121, Douglas Fir Plywood.
  - .2 CSA O141, Softwood Lumber.
  - .3 CSA O151, Canadian Softwood Plywood.
  - .4 CAN/CSA-O325.0, Construction Sheathing.
- .2 National Research Council Canada (NRC)
  - .1 National Building Code of Canada (NBC).

### 1.02 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
- .3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

### 1.03 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.
- .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 Replace defective or damaged materials with new.

## 2 PRODUCTS

### 2.01 MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
  - .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .3 CAN/CSA-Z809 or FSC or SFI certified.
- .2 Furring, blocking, nailing strips, grounds, rough bucks:
  - .1 S2S.
  - .2 Board sizes: "Standard" or better grade.

- .3 Dimension sizes: "Standard" light framing or better grade.
- .4 Post and timbers sizes: "Standard" or better grade.
  
- .3 Panel Materials:
  - .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
    - .1 Urea-formaldehyde free.
  - .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
    - .1 Urea-formaldehyde free.
  - .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
    - .1 Urea-formaldehyde free.
  
- .4 Primers: in accordance with manufacturer's recommendations for surface conditions:

## **2.02 ACCESSORIES**

- .1 Fasteners: to CAN/CSA-G164, for exterior work interior highly humid areas pressure- preservative fire-retardant treated lumber.
- .2 Nails, spikes and staples: plain finish for interior locations.
- .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs as recommended for purpose by manufacturer.

## **3 EXECUTION**

### **3.01 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rough carpentry installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.02 INSTALLATION**

- .1 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.
- .2 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.

- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .5 Use caution when working with particle board. Use dust collectors and high quality respirator masks.
- .6 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .7 Countersink bolts where necessary to provide clearance for other work.

### **3.03 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**END OF SECTION**

## 1 GENERAL

### 1.01 DESCRIPTION OF WORK

- .1 Work of the Section comprises, but is not limited to, the following:
  - .1 Supply, fabrication, and delivery to the job site factory finishing and site installation of shop manufactured architectural woodwork indicated on the drawings and as specified.
  - .2 Architectural woodwork shall include all clear, kiln dried, dressed, or re-sawn material exposed to view in a finished building interior, including cabinet work, frames, paneling, trim, and other wood related products.
  - .3 Cabinet hardware to be supplied by this section.

### 1.02 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)
  - .1 ANSI/ASME 18.6.1 1981 (R2012) Wood Screws (Inch Series).
  - .2 ANSI/BHMA A156.9-2010, Cabinet Hardware.
  - .3 ANSI/BHMA A156.11-2014, Cabinet Locks.
  - .4 ANSI/BHMA A156.16-2013, Auxiliary Hardware.
  - .5 ANSI/BHMA A156.18-2012, Materials and Finishes.
  - .6 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.
  - .7 ANSI A208.1-09, Particleboard.
  - .8 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.
  - .9 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
  - .1 Architectural Woodwork Standards-31. (AWMAC AWS), 2017.
- .3 ASTM International
  - .1 ASTM A 153/A 153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .2 ASTM E 1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
  - .3 ASTM F 1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3-M87, Hardboard.
  - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
  - .3 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
- .5 CSA International
  - .1 CSA O112-M Series 1977 (R2006) Standards for Wood Adhesives.
  - .2 CSA O121-08(R2013), Douglas Fir Plywood.
  - .3 CSA O141-05 (R2014), Softwood Lumber.
  - .4 CSA O151-14, Canadian Softwood Plywood.
  - .5 CSA O153-M1980 (R2014), Poplar Plywood.

- .6 CAN/CSA-Z809-08(R2013), Sustainable Forest Management.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .7 National Electrical Manufacturers Association (NEMA)
  - .1 ANSI/NEMA LD-3-05, High-Pressure Decorative Laminates (HPDL).

### **1.03 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Prepare and submit material list in accordance with AWMAC AWS, cross-referenced to specifications.
  - .2 Include manufacturer's instructions, printed product literature, data sheets and catalogue pages for all materials and products to be incorporated into architectural wood casework and include product characteristics, performance criteria, dimensions and profiles, finish and limitations on use.
  - .3 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures.
- .3 Hardware List:
  - .1 Submit hardware list cross-referenced to specifications.
  - .2 Include manufacturer's specification sheets indicating name, model, material, function, finish, BHMA designations and other pertinent information.
- .4 Shop Drawings:
  - .1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows.
  - .2 Submit two sets of shop drawings for initial review in accordance with requirements of Division 01. Revise as directed, submit six copies for final acceptance and distribution.
  - .3 Indicate details of construction, profiles, jointing, fastening and other related details.
    - .1 Scales: profiles full size, details half full size.
  - .4 Indicate materials, thicknesses, finishes and hardware.
  - .5 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
  - .6 Show location on casework elevations of backing required in supporting structure for attachment of casework.
  - .7 Indicate AWMAC AWS quality grade where different from predominant grade specified.
  - .8 Include color schedule of all casework items, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.

- .5 Samples:
  - .1 Prepare and submit samples in accordance with AWMAC AWS and as follows.
  - .2 Apply sample finishes to specified substrate or core material minimum 300 x 300 mm to match designer sample. For veneers with transparent finish submit three samples to illustrate range and colour of grain expected.
  - .3 Shop applied coatings:
    - .1 For transparent finish, submit triplicate samples of each species and cut of wood to be used, finished to match project sample as specified.
    - .2 For opaque finish, submit triplicate samples for each colour selection, finished to match project sample as specified.
  - .4 Submit duplicate samples of laminated plastic for each specified colour selection.
  - .5 Submit duplicate samples of laminated plastic joints, edging, cutouts and post-formed profiles.
  - .6 Furnish four samples of each lumber and composite panel material to Contractor for preparation of field applied finish samples in accordance with Section 09 91 23 Interior Painting.
  - .7 Certifications: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - .8 Submit statement of experience and qualifications of architectural wood casework fabricator.

#### **1.04 QUALITY ASSURANCE**

- .1 Perform Work of this Section by single architectural wood casework fabricator with minimum 5 years of current architectural casework production experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.

#### **1.05 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver wood casework only when area of work is enclosed, plaster and concrete work is dry, and area is broom clean and site environmental conditions are acceptable for installation.
- .3 Protect millwork against dampness and damage during and after delivery.
- .4 Store millwork in ventilated areas, protected from extreme changes of temperature and humidity, and within range recommended by AWMAC AWS for location of project.
- .5 Store materials indoors in dry location in clean, dry, well-ventilated area.

- .6 Protect architectural woodwork and hardware from nicks, scratches, and blemishes.
- .7 Replace defective or damaged materials with new.
- .8 Waste Management: for packaging and materials, in accordance with Section 01 74 19 - Waste Management and Disposal.

## **2 PRODUCTS**

### **2.01 QUALITY GRADE**

- .1 Provide all materials and perform all fabrication in accordance with AWMAC AWS Custom Grade and as follows, except where specified otherwise:
- .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.

### **2.02 LUMBER**

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

### **2.03 PANEL MATERIALS**

- .1 Interior mat-formed wood particleboard: to ANSI/NPA A208.1, industrial grade M-2 or M-3, medium density (640-800 kg/m<sup>3</sup>), thickness 19 mm unless indicated otherwise.
  - .1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.
- .2 MDF (medium density fibreboard) core: to ANSI A208.2, density 769 kg/m<sup>3</sup>, Grade , 19 mm thick unless indicated otherwise
  - .1 Use moisture resistant MR grade for countertops and splash-backs to receive plumbing fixtures.
- .3 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .4 Hardwood plywood: to CHPA grading rules ANSI/HPVA HP-1.
- .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .6 Poplar plywood (PP): to CSA O153, standard construction.
- .7 Hardboard: To CAN/CGSB-11.3.

## 2.04 LAMINATED PLASTIC MATERIALS

- .1 Laminated plastic for flatwork: to NEMA LD3.
  - .1 High pressure decorative laminated (HPDL) plastic.
    - .1 Type: GP (general purpose).
    - .2 Horizontal Surfaces: HGS to suit application, 1.0 mm thick.
    - .3 Vertical Surfaces: VDS VGL to suit application, 0.5 mm thick.
    - .4 Colour: integral colour throughout , multilayered.
    - .5 Pattern: solid woodgrain printed pattern metallic.
    - .6 Finish: gloss satin furniture matt textured embossed.
  - .2 Laminated plastic for postforming work: to NEMA LD3.
    - .1 Type: postforming.
    - .2 Grade: HGP.
    - .3 Size: 1.0 mm thick.
    - .4 Colour: integral colour throughout , multilayered.
    - .5 Pattern: solid woodgrain printed pattern metallic.
    - .6 Finish: gloss satin furniture matt textured embossed.
  - .3 Laminated plastic for backing sheet:
    - .1 Type: backer.
    - .2 Grade: BKH.
    - .3 Thickness: not less than 0.5 mm thick or same thickness as face laminate.
    - .4 Colour: same colour as face laminate.
  - .4 Thermofused Melamine: to NEMA LD3 Grade LPDL, .
    - .1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
  - .5 Edge finishing for doors, drawer fronts, shelves and false fronts:
    - .1 HPDL to match face.
    - .2 PVC ABS: solid colour to match face , mm thick.
    - .3 Matching melamine and polyester overlay edge strip with thermoplastic adhesive.
    - .4 Edges dadoed or saw kerfed to take plastic "T" moulding in width and colour to match face.
  - .6 Laminated plastic adhesive:
    - .1 Adhesive: , urea resin adhesive to CSA O112 contact adhesive to CAN/CGSB-71.20 resorcinol resin adhesive to CSA O112.10 polyvinyl adhesive to CSA O112-M two component epoxy thermosetting adhesive.



## **2.05 CASEWORK FABRICATION - GENERAL**

- .1 Fabricate casework of specified core and surface finish materials to specified AWMAC AWS quality grade.
  - .1 Construction type: frameless face frame.
  - .2 Door-cabinet interface: flush overlay reveal overlay with mm gap lipped flush flush inset.
- .2 Set nails and countersink screws apply stained plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .3 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .4 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .5 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .6 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .7 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

## **2.06 LAMINATED PLASTIC CASEWORK FABRICATION**

- .1 Do laminated plastic fabrication in compliance with NEMA LD3, Annex A and specified AWMAC AWS quality grade.
- .2 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .3 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm. Keep joints 600 mm from sink cutouts.
- .4 Form shaped profiles and bends as indicated, using post-forming grade laminate to laminate manufacturer's instructions.
- .5 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .6 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .7 Apply laminated plastic liner sheet to interior of cabinetry where indicated.

- .8 Drawer Construction:
  - .1 Sides:
    - .1 Custom grade: LPDL (melamine) or HPDL on particleboard MDF, thickness 12 mm.
    - .2 Premium grade: 7-ply veneer core with HPDL faces.
  - .2 Bottoms: Tempered hardboard MDF with melamine surfaces Hardwood plywood of same species as drawer sides, thickness 6 mm.
  - .3 Joinery: Meeting requirements of AWMAC for Grade specified.
    - .1 Sides, front and back: Miter fold Doweled Dowel screwed Nailed lock joints.
  - .4 Drawer bottoms held in place with drawer hardware to sides and mechanically fastened to back and sub front fully housed into sides and sub front and mechanically fastened to back or plowed into back

## 2.07 WOOD CASEWORK FABRICATION

- .1 Fabricate casework bodies of specified veneered plywood panel materials of specified veneers laid up as specified in accordance with AWMAC AWS requirements for grade specified and as follows.
  - .1 Exposed interior surfaces: Veneer of same species and cut and grade as exposed exterior surfaces.
  - .2 Semi-exposed surfaces: Veneer of same species as exposed exterior surfaces low pressure melamine overlay in solid woodgrain colour.
- .2 Fabricate door, drawer and panel surfaces of specified veneered plywood panel materials of specified veneers laid up as specified.
- .3 Drawer construction:
  - .1 Sides:
    - .1 AWMAC AWS Custom grade: solid wood of manufacturer's species option LPDL melamine surface.
    - .2 AWMAC AWS Premium grade: prefinished seven or nine ply hardwood veneer core with no internal voids prefinished solid hardwood, 12 mm thickness.
  - .2 Bottoms: Tempered hardboard MDF with melamine surfaces Hardwood plywood of same species as drawer sides, 6 mm thick.
  - .3 Joinery: Meeting requirements of AWMAC AWS for Grade specified.
    - .1 Sides, front and back: Miter fold Doweled Dowel screwed Nailed lock joints.
    - .2 Drawer bottoms held in place with drawer hardware to sides and mechanically fastened to back and sub front fully housed into sides and sub front and mechanically fastened to back or plowed into back.

## 2.08 CABINET HARDWARE

- .1 Cabinet hardware: to AWMAC AWS quality grade specified and to ANSI/BHMA A156.9, designated by letter B and numeral identifiers as listed below.
- .2 Finish:
  - .1 Exposed hardware: satin nickel.
  - .2 Semi-exposed hardware: Manufacturer's standard finish .
- .3 Casework door hinges: five knuckle Grade 1 hinges concealed European style Grade II hinges minimum 170° opening type.
- .4 Other hinges: butt concealed continuous full surface olive knuckle pivot self-closing semi-concealed hinge type.
- .5 Pulls: back mounted surface mounted flush pull design (describe), with back plate, type B02191.
- .6 Latches: elbow thumb bar turn child resistant touch or secret panel latch.
- .7 Catches: friction roller spring magnetic touch or secret panel catch.
- .8 Shelf brackets and standards: ornamental shelf support, vertical slotted shelf standard, with shelf brackets.
- .9 Drawer slides:
  - .1 Slide type: bottom edge mounted bottom center mounted center top mounted side mounted drawer slides, type .
  - .2 Extension and capacity: ó extension full extension over extension meeting requirements of AWMAC AWS for type and size of drawer.
  - .3 File drawer slides: full extension.
- .10 Sliding glass door hardware: Top-hung Bottom rollers.

## 2.09 CABINET LOCKS

- .1 Provide locks as shown on elevations at all cabinet doors and drawers.
- .2 Cabinet and Sliding Door locks: to ANSI/BHMA A156.11, designated by letter E and numeral identifiers as listed below.
- .3 Keying: All locks keyed alike Each room keyed alike.
  - .1 Provide master keys.
  - .2 Stamp keying code numbers on keys and cylinders.

## 2.10 ACCESSORIES

- .1 Wood screws: plain steel, type and size to suit application.
- .2 Nails and staples: to ASTM F 1667.
- .3 Splines: wood plastic metal.

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

## 2.11 LAMINATED PLASTIC COUNTERTOPS

- .1 Laminated plastic for flatwork: to NEMA LD3.
  - .2 Type: general purpose.
  - .3 Grade: HGS.
  - .4 Size: 1.0 mm thick.
  - .5 Colour: integral colour throughout, multi layered.
  - .6 Pattern: solid woodgrain printed pattern metallic.
  - .7 Finish: gloss satin furniture matt textured embossed.
- .2 Laminated plastic for post-forming work: to NEMA LD3.
    - .1 Type: post-forming.
    - .2 Grade: HGS.
    - .3 Size: 0.76 mm thick.
    - .4 Colour: integral colour throughout, multilayered.
    - .5 Pattern: solid woodgrain printed pattern metallic.
    - .6 Finish: gloss satin furniture matt textured embossed.
  - .3 Core material: particleboard MDF exterior grade hardwood plywood with a non-telegraphing grain.
    - .1 Countertops to receive plumbing fixtures: Water resistant particle board  
Water resistant MDF Veneer core plywood with type II adhesive.

## 3 EXECUTION

### 3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for architectural woodwork installation in accordance with manufacturer's instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### 3.02 INSTALLATION

- .1 Install architectural wood casework in accordance with AWMAC AWS grade for respective items.
- .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.
- .3 Install prefinished millwork at locations shown on drawings.
  - .1 Position accurately, level, plumb straight.
- .4 Fasten and anchor millwork securely.
  - .1 Supply and install heavy duty fixture attachments for wall mounted

cabinets.

- .5 Countersink mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws securing cabinets end to end.
- .6 Use draw bolts in countertop joints.
- .7 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
- .8 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.
- .9 Apply moisture barrier between wood framing members and masonry or cementitious construction.
- .10 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
- .11 Make cutouts for inset equipment and fixtures using templates provided.

### **3.03 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.
  - .2 Remove excess glue, pencil and ink marks from surfaces.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

### **3.04 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**

## 1 GENERAL

### 1.01 REFERENCE STANDARDS

- .1 ASTM International
  - .1 ASTM C 919-08, Standard Practice for Use of Sealants in Acoustical Applications.
- .2 Canadian General Standards Board (CGSB)
  - .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
  - .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
  - .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
  - .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .3 General Services Administration (GSA) - Federal Specifications (FS)
  - .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

### 1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Manufacturer's product to describe:
    - .1 Caulking compound.
    - .2 Primers.
    - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
  - .3 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures.
- .3 Manufacturer's Instructions:
  - .1 Submit instructions to include installation instructions for each product used.

### **1.03 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect joint sealants from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials in accordance with Section 01 74 19 - Waste Management and Disposal.

### **1.04 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Proceed with installation of joint sealants only when:
    - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
    - .2 Joint substrates are dry.
    - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .2 Joint-Width Conditions:
  - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

### **1.05 ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.
- .2 Departmental Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants.

## 2 PRODUCTS

### 2.01 SEALANT MATERIAL DESIGNATIONS

- .1 Polysulfide one part, self-levelling: to CAN/CGSB-19.13, MC-1-40-B-N, colour to match adjacent surfaces
- .2 Preformed compressible and non-compressible back-up materials:
  - .1 Polyethylene, urethane, neoprene or vinyl foam:
    - .1 Extruded closed cell foam backer rod.
    - .2 Size: oversize 30 to 50 %.
  - .2 Neoprene or butyl rubber:
    - .1 Round solid rod, Shore A hardness 70.
  - .3 High density foam:
    - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.
  - .4 Bond breaker tape:
    - .1 Polyethylene bond breaker tape which will not bond to sealant.

### 2.02 JOINT CLEANER

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

## 3 EXECUTION

### 3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.



### 3.02 SURFACE PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

### 3.03 PRIMING

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

### 3.04 BACKUP MATERIAL

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

### 3.05 MIXING

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

### 3.06 APPLICATION

- .1 Sealant:
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads.
  - .4 Apply sealant using gun with proper size nozzle.
  - .5 Use sufficient pressure to fill voids and joints solid.
  - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.

**3.07 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
  - .3 Remove excess and droppings, using recommended cleaners as work progresses.
  - .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**3.08 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by joint sealants installation.

**END OF SECTION**

## 1 GENERAL

### 1.01 REFERENCE STANDARDS

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A 653/A 653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM B 29-03, Standard Specification for Refined Lead.
  - .3 ASTM B 749-03, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
  
- .2 CSA Group (CSA)
  - .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
  
- .3 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
  - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.
  
- .4 National Fire Protection Association (NFPA)
  - .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.
  - .2 NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.
  
- .5 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S701-01, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .2 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
  - .3 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
  - .4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.
  - .5 CAN4-S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

### 1.02 SYSTEM DESCRIPTION

- .1 Design Requirements:
  - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
  - .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.
  - .3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 NFPA 252 for ratings specified or indicated.

- .4 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104, ASTM E 152 or NFPA 252 and listed by nationally recognized agency having factory inspection services.

### **1.03 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province Territory, Canada.
  - .2 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.
  - .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing fire rating finishes.
  - .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

### **1.04 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
  - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

## **2 PRODUCTS**

### **2.01 MATERIALS**

- .1 Hot dipped galvanized steel sheet: to ASTM A 653M, 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 A 653M, ZF75.

### **2.02 DOOR CORE MATERIALS**

- .1 Honeycomb construction:
  - .1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m<sup>3</sup> minimum sanded to required thickness.
- .2 Stiffened: face sheets , honeycomb uninsulated core.

- .3 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 250 degrees C at 30 60 minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, ASTM E 152 or NFPA 252, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

### **2.03 ADHESIVES**

- .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
- .2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

### **2.04 ACCESSORIES**

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior and interior top caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma 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 Metallic paste filler: to manufacturer's standard.
- .5 Fire labels: metal rivited.

### **2.05 FRAMES FABRICATION GENERAL**

- .1 Fabricate frames in accordance with CSDMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Interior frames: 1.2 mm welded type construction.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been

removed during fabrication.

## **2.06 FRAME ANCHORAGE**

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 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.
- .4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

## **2.07 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.
- .7 Fabricate frame products for openings in sections, x mm, splice joints for field assembly.
- .8 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.

## **2.08 DOOR FABRICATION GENERAL**

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Fabricate doors with longitudinal edges locked seam locked seamed, adhesive assisted welded. Seams: visible grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .3 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 E 330 to provide blast resistance of .
- .4 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.

- .5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .6 Reinforce doors where required, for surface mounted hardware. Provide flush PVC steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .8 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN4-S104 ASTM E 152 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.
- .9 Manufacturer's nameplates on doors are not permitted.

## **2.09 DOORS: HONEYCOMB CORE CONSTRUCTION**

- .1 Form face sheets for exterior doors from 1.6 1.2 1.0 mm sheet steel with honeycomb polystyrene polyurethane core laminated under pressure to face sheets.
- .2 Form face sheets for interior doors from 1.6 1.2 1.0 mm sheet steel with honeycomb temperature rise rated core laminated under pressure to face sheets.

## **2.10 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 polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

## **3 EXECUTION**

### **3.01 MANUFACTURER'S INSTRUCTIONS**

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

### **3.02 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.

### **3.03 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.

### **3.04 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 and thresholds as follows.
  - .1 Hinge side: 1.0 mm.
  - .2 Latchside and head: 1.5 mm.
  - .3 Finished floor, top of carpet noncombustible sill and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.
- .4 Install louvres.

### **3.05 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.

**END OF SECTION**



## 1 GENERAL

### 1.01 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.
  - .2 ANSI/BHMA A156.2-2003, Bored and Preamsembled Locks and Latches.
  - .3 ANSI/BHMA A156.4-2000, Door Controls - Closers.
  - .4 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
  - .5 ANSI/BHMA A156.6-2005, Architectural Door Trim.
  - .6 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.
  - .7 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.
  - .8 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.
  - .9 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .10 ANSI/BHMA A156.18-2006, Materials and Finishes.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

### 1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
  - .1 Submit for review and acceptance of each unit.
  - .2 Samples will be returned for inclusion into work.
  - .3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
  - .4 After approval samples will be returned for incorporation in Work.
- .4 Hardware List:
  - .1 Submit contract hardware list.
  - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 Manufacturer's Instructions: submit manufacturer's installation instructions.

### **1.03 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.

### **1.04 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Extra Stock Materials:
- .2 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .3 Tools:
  - .1 Supply 2 sets of wrenches for door closers locksets and fire exit hardware.

### **1.05 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 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

### **1.06 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect door hardware from nicks, scratches, and blemishes.
  - .3 Protect prefinished surfaces with wrapping strippable coating.
  - .4 Replace defective or damaged materials with new.
- .5 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials in accordance with Section 01 74 19 - Waste Management and Disposal.

## **2 PRODUCTS**

### **2.01 HARDWARE ITEMS**

- .1 Use one manufacturer's products only for similar items.

## **2.02 DOOR HARDWARE**

- .1 Locks and latches:
  - .1 Mortise locks and latches: to ANSI/BHMA A156.13, series 1000 mortise lock, grade 1 2 3 4, designed for function and keyed as stated in Hardware Schedule.
  - .2 Lever handles: plain design.
  - .3 Escutcheons: round.
  - .4 Normal strikes: box type, lip projection not beyond jamb.
  - .5 Cylinders: key into keying system as noted as directed.
- .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.
- .3 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, finished to .
- .4 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers listed in Hardware Schedule as listed below, finished to .
  - .1 Door protection plates: kick plate type , 1.27 mm thick aluminum brass stainless steel 3.2 mm thick solid plastic laminated plastic, 1 edges, size, finished to .
  - .2 Push plates: type , 1.27 mm thick aluminum brass stainless steel 3.2 mm thick solid plastic laminated plastic, 1 edge, size, finished to .
  - .3 Push/Pull units: type , combination aluminum brass stainless steel wood plastic stone, size, finished to .

## **2.03 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.

## **2.04 KEYING**

- .1 Doors, padlocks and cabinet locks to be keyed differently keyed alike keyed alike in groups master keyed grand master keyed great grand master keyed great great grand master keyed as noted in Hardware Schedule as directed. Prepare detailed keying schedule in conjunction with Departmental.
- .2 Supply keys in duplicate for every lock in this Contract.
- .3 Supply 3 master keys for each master key or grand master key group.
- .4 Stamp keying code numbers on keys and cylinders.
- .5 Supply construction cores.
- .6 Hand over permanent cores and keys to Departmental Representative.

## **3 EXECUTION**

### **3.01 INSTALLATION**

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .6 Install key control cabinet.
- .7 Use only manufacturer's supplied fasteners.
  - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .8 Remove construction cores locks when directed by Departmental Representative.
  - .1 Install permanent cores and ensure locks operate correctly.

### **3.02 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 ensure tight fit at contact points with frames.

### **3.03 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
  - .3 Remove protective material from hardware items where present.
  - .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

### **3.04 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 Departmental Representative.
- .2 Maintenance Staff Briefing:
  - .1 Brief maintenance 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.

### **3.05 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by door hardware installation.

### **3.06 SCHEDULE**

- .1 Refer to Drawings for required door hardware.

**END OF SECTION**

**1. General**

**1.01 SUMMARY**

- .1 This Section includes the following:
  - .1 Interior gypsum board for walls, ceilings and bulkheads

**1.02 REFERENCES**

- .1 American Society for Testing and Materials (ASTM):
  - .1 ASTM A653/A653M04a Steel Sheet, ZincCoated (Galvanized) or Zinclron AlloyCoated (Galvannealed) by the HotDip Process, General Requirements
  - .2 ASTM C1103d Standard Terminology Relating to Gypsum and Related Building Materials and Systems
  - .3 ASTM C47504 Joint Compound and Joint Tape for Finishing Gypsum Board
  - .4 ASTM C104799 (2004) Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
  - .5 ASTM C1396/C1396M04 Standard Specification for Gypsum Board
- .2 Canadian General Standards Board (CGSB):
  - .1 CAN/CGSB19.21M87 Sealing and Bedding Compound for Acoustic Purposes
- .3 Northwest Wall and Ceiling Bureau (NWCB):
  - .1 Specification Standards Manual
- .4 Underwriters Laboratories of Canada (ULC):
  - .1 CAN/ULC S10104 Fire Endurance Tests of Building Construction and Materials
  - .2 CAN/ULCS10203 Surface Burning Characteristics of Building Materials and Assemblies
  - .3 CAN/ULC S1141980 (R1997) Test for Determination of NonCombustibility in Building Materials
  - .4 CAN/ULC S70297 Mineral Fibre Thermal Building Insulation
  - .5 List of Equipment and Materials

**1.03 DEFINITIONS**

- .1 **Levels of Finish:** Standard levels of finish defined by NWCB Manual apply to products of this Section as follows, and are used in Section 09 99 10 Room Finish Schedule to designate required finish levels for indicated areas:
  - .1 **L0 – Level 0:** No tape or joint compound in joints.
  - .2 **L1 – Level 1:** Embed tape at joints in ceiling plenum areas, concealed areas, unless a higher level of finish is required for fire resistance rated assemblies and sound rated assemblies.
  - .3 **L2 – Level 2:** Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile.

- .4 **L4 – Level 4:** Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view.

- .2 Refer to ASTM C11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

#### **1.04 QUALITY ASSURANCE**

- .1 Install gypsum board in accordance with the Northwest Wall and Ceiling Bureau (NWCB), except as specified otherwise herein.
- .2 Conform to product manufacturer's written instruction and ULC Design Requirements to provide STC and fire ratings indicated.

#### **1.05 SITE SUPERVISION**

- .1 Site supervision for work of this section shall be full time. Supervisor shall be directly employed by the installer and shall have the authority to receive, represent and make decisions on behalf of the Trade Contractor.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- .1 Comply with requirements of Section 01 65 00.
- .2 Deliver materials in undamaged, original factory wrappings with labels and seals intact, and stored on job site in a dry, weatherproof, heated area.
- .3 Store metal furring and accessories flat and protected from moisture and damage.
- .4 Store boards flat, in piles, without overhanging boards, protected from moisture and physical damage.
- .5 Waste Management and Disposal: separate waste materials for re-use and recycling in accordance with Section 01 35 41.

#### **1.07 ENVIRONMENTAL CONDITIONS**

- .1 Maintain room, surface and material between 15°C and 21°C for a period of at least 72 hours before and during application, and continuously after.

#### **1.08 SUPERIMPOSED LOADS**

- .1 Determine the superimposed loads which will be applied to suspended ceiling systems and ensure that adequate hangers are installed to safely support the additional loads in conjunction with the normal loads of the system.

### **2. Products**

#### **2.01 GYPSUM BOARD MATERIALS**

- .1 Gypsum Board: meeting the requirements of ASTM C1396/C1396M and as follows:
  - .1. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system as indicated on drawings.
  - .2. Regular Gypsum Board:
    - .1. Thickness: As indicated.
    - .2. Long Edges: Tapered.
    - .3. Location: Vertical surfaces, unless otherwise indicated.

- .2 Fire Resistant Type (Type C or X):
  - .1 Thickness: As indicated, 16 mm minimum.
  - .2 Long Edges: Tapered.
  - .3 Location: Where required for fire resistance rated assembly.
- .3 Joint Tape: To ASTM C475, perforated paper with tapered edges as recommended by gypsum board manufacturer, or glass fibre mesh tape
- .4 Joint Compound: To ASTM C475, bedding and finishing types recommended by gypsum board manufacturer; casein, vinyl or latex base.
- .5 Corner and Casing Beads, Edge Trim: To ASTM 1047, Minimum 0.455 mm metal core thickness (0.017") (26 gauge) galvanized sheet steel with Z275 zinc finish to ASTM A525M86, type with perforated flanges, of type to be finished with joint compound
- .6 Control/Expansion Joints: To ASTM C1047, 3 m (10 foot) lengths, roll formed zinc with a tape protected 6 mm (1/4") opening, 11 mm (7/16") deep
- .7 Adhesive: Type as recommended by gypsum board manufacturers
- .8 Acoustic Insulation: To ULC S702, mineral fibre sound control batts, steel stud friction fit insulation (un faced), thickness 76 mm (3"), density 40 kg/m<sup>3</sup> minimum STC 50 for wall assembly. Acceptable material: Roxul AFB, substitutions shall submit product data to the Consultant prior to close of bid with all supporting information
- .9 Sealant (acoustic purposes only): To CAN/CGSB19.21, non-skinning, non-hardening as specified in Section 07 90 00
- .10 Sealant (fire rated for rated walls): ULC labelled, as specified in Section 07 90 00
- .11 Insulating Strip: Rubberized, moisture resistant 3 mm thick closed cell neoprene strip 90 mm wide with self sticking permanent adhesive on one face lengths as required

### **PART 3 Execution**

#### **3.1 INSPECTION AND PREPARATION**

- .1 Inspect areas and surfaces and ensure all required metal backing for equipment is in place before commencing gypsum board application.
- .2 Verify stud framing securely and rigidly erected, all services, lines, outlets and insulation.
- .3 Prepare existing walls with wall metal backing ready for installation of new or relocated cabinet as indicated on drawings. Coordinate with Section 06 40 00 Architectural Wood work for backing requirements.
- .4 Inspect all pressed steel frames and correct out-of-plumb frames for true alignment.

#### **3.2 RESTORATION AND REPAIRS**

- .1 Skim coat all existing affected gypsum board walls and columns to make ready for new finishes. Repair all dents and gouges to provide smooth and even appearance. Cut and repair any gypsum board that has broken front and backer face.



- .2 Repair existing drywall surfaces where existing abutting partitions have been removed. Review conditions on site during bid period.

### 3.3 CONTROL JOINTS

- .1 Erect control joints at maximum 7.5 metre (25 feet) centres to divide large ceiling and wall areas into panels, over junction of structural members and non structural members where gypsum board is continuous, over control joints in masonry walls, at junction of ceilings and partitions with furred exterior wall.
- .2 Control joints shall be laid out to coincide as far as possible with metal door, window or screen frames, but not necessarily to occur at every individual frame. Obtain Architect's approval for location, prior to installation.

### 3.4 ACCESSORIES

- .1 Secure corner beads rigidly at all external angles of walls and ceilings.
- .2 Install casing beads where gypsum board terminates against surface having no trim concealing the junction or where junction is not taped.
- .3 Install casing beads where gypsum board butts to windows, frames or where interior partitions butt to exterior walls.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window exterior door frames and ceilings to provide thermal break and air seal.

### 3.5 GYPSUM BOARD APPLICATION

- .1 Erect gypsum board and tape joints to NWCB except where specified otherwise herein.
- .2 Kerf cut gypsum board at curved walls follows by plaster fill system to present smooth even curve showing no faceting and blending smoothly into adjacent straight wall sections.
- .3 Install fire rated and labelled gypsum board at all locations indicated on Drawings, utilizing type "C" or "X" as indicated by ULC rating for assembly and as required by authority having jurisdiction. Continue fire and smoke rated wall construction behind and around fire hose cabinet recesses and other recessed items larger than a double gang switch box to maintain wall fire rating.
- .4 Stop gypsum board 25 mm (1") from underside of roof deck. Attach gypsum board to vertical studs, not to ceiling track, to allow for deflection.

### 3.6 SEALANT SOUND RATINGS

- .1 Caulk sound rated partitions strictly in accordance with gypsum board manufacturer's instructions for the specific sound rating requirements. Locate sealant to ensure it is covered at completion of partition when finishes applied. Seal top and bottom tracks, and seal studs where they abut adjacent wall construction to ensure that no sound flanking occurs.
- .2 Seal around mechanical and electrical work and other work in walls to ensure proper sound ratings. Provide gaskets where partitions abut a finished surface or material as per details and where partitions meet exterior wall furring.
- .3 Build in all door, borrowed light frames and equipment to best practice to provide a neat, cleanly finished system.

- .4 In fire rated partitions install fire stopping sealant before installing acoustic sealant.

### 3.7 INSULATION ACOUSTIC

- .1 Install insulation within metal stud space to top of wall construction as indicated for sound or fire rating. Insulation to extend full height of partitions. Fill behind electrical outlet boxes, fire hose cabinets, washroom accessories and other openings with at least 150 mm (6") lap around perimeter of opening, packed tight in layers (to approximately 50% of nominal thickness).
- .2 Coordinate with Electrical and Mechanical Subcontractors to ensure that no back-to-back openings are formed, whether or not so indicated on drawings. All electrical and mechanical openings shall be separated by one stud space and lined all around with gypsum board and sealed with acoustic sealant.
- .3 Installation to comply with manufacturer's current written recommendations.

### 3.8 SEALANT FIRE RATINGS

- .1 Coordinate requirements for fire sealants with General Contractor.
- .2 Caulking and sealing of fire and smoke rated partitions and separations specified under Section 07 84 00 Fire stopping and Smoke Seals.

### 3.9 CEILINGS AND SOFFITS

- .1 Apply no-sag gypsum board to ceiling suspension system with end joints occurring over supports. Allow 1.5 mm (1/16") to 3 mm (1/8") space between butting ends.
- .2 Cut board to fit within 6 mm (1/4") of fixtures and other surfaces.
- .3 Screw attach to furring channels at spacing recommended by gypsum board manufacturer but in no case less than 150 mm (6") on centre.
- .4 Coordinate cutouts, trim and opening details and location with mechanical and electrical subcontractors.
- .5 Finish gypsum board to heights and profiles indicated. Trim all corners and edges with proper corner and casing beads.
- .6 Install moisture resistant gypsum board ceiling in washrooms and housekeeping rooms.
- .7 Build bulkheads for drop ceilings as detailed. Carry gypsum board a minimum 50 mm (2") above finished acoustic board ceiling. Provide furring behind for attachment of acoustic board perimeter track.
- .8 Maintain surface flatness and level of ceiling within 3 mm (1/8") in 3 metres (10 feet).

### 3.10 FINISHING

- .1 Finish gypsum wallboard in accordance with the Northwest Wall and Ceiling Bureau (NWCBC), Section 9.6 Part 3, Item 12.2, Levels of Finish No. 4.

### 3.11 ACCESS DOORS

- .1 Install flush mounted access doors in locations as indicated on drawings in accordance with manufacturers instructions. Ensure that installation occurs prior to taping and finishing of gypsum board surfaces.

- .2 Install all access doors provided by other trades. Exact locations of these doors will be verified on site.

**3.12 CLEAN UP**

- .1 All gypsum board debris and dust shall be cleaned up and disposed of daily.
- .2 Cleaning shall consist of brushing down wall and ceiling and sweeping floors daily.
- .3 As areas are completed, thoroughly vacuum ceilings, walls and floors of all dust.

**END OF SECTION**

## 1 GENERAL

### 1.01 RELATED REQUIREMENTS

- .1 Section .

### 1.02 REFERENCE STANDARDS

- .1 ASTM International
  - .1 ASTM F1066-[04], Standard Specification for Vinyl Composition Floor Tile..

### 1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for resilient sheet flooring and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
  - .1 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base,nosing,feature strips,treads,edge strips.

### 1.04 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirement sand with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off groundindoorsin dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect specified materials from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets,crates,padding,and packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 19 - Waste Management and Disposal.

### 1.05 SITE CONDITIONS

- .1 Ambient Conditions:
  - .1 Maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48

hours after installation.

## 2 PRODUCTS

### 2.01 MATERIALS

- .1 Vinyl composition tile: to ASTM F 1066.
  - .1 Composition 1 - non asbestos.
  - .2 Class 3 - surface patterned.
  - .3 Size, 1.5mm thick x 300mm x 300mm .
  - .4 Colour: as selected by Departmental Representative from manufacturer's standard range..
  
- .2 Resilient base: continuous, top set, complete with premoulded end stops and external corners:
  - .1 Type: rubber.
  - .2 Style: cove.
  - .3 Thickness: 2.36 mm.
  - .4 Height: 101.6 mm.
  - .5 Lengths: cut lengths minimum 2400 mm.
  - .6 Colour: as selected by Departmental Representative from manufacturer's standard range..
  
- .3 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
  - .1 Rubber floor adhesives:
    - .1 Adhesive: maximum VOC limit 60 g/L to SCAQMD Rule 1168.
  - .2 Cove base adhesives:
    - .1 Adhesive: maximum VOC limit 50 g/L to SCAQMD Rule 1168.
  
- .4 Metal edge strips:
  - .1 Aluminum extruded, smooth, mill finishpolished stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

## 3 EXECUTION

### 3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for resilient sheet flooring installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative t.
  - .2 Inform Departmental Representative t of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative .

### 3.02 SITE VERIFICATION OF CONDITIONS

- .1 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

### 3.03 PREPARATION

- .1 Remove existing resilient flooring.
- .2 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 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .5 PrimeSeal concrete slabplywood sub-floor to resilient flooring manufacturer's printed instructions.

### 3.04 APPLICATION: FLOORING

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least 1 month following building occupation.
- .2 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.
- .4 Cut flooring around fixed objects.
- .5 Resilient tile flooring:
  - .1 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern.
  - .2 Border tiles: half tile width minimum.
  - .3 Install flooring to square grid pattern with joints aligned.
- .6 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
- .7 Install metal edge strips at unprotected or exposed edges where flooring terminates.

**3.05 APPLICATION: BASE**

- .1 Lay out base to keep number of joints at minimum.
- .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. Use premoulded end pieces at flush door frames.
- .7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.
- .8 Use toeless type base where floor finish will be carpet, coved type elsewhere.
- .9 Install toeless type base before installation of carpet on floors.
- .10 Heat weld base in accordance with manufacturer's printed instructions.

**3.06 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Clean flooring and base surfaces to flooring manufacturer's printed instructions.

**3.07 PROTECTION**

- .1 Protect new floors from time of final set of adhesive after initial waxing until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.

**END OF SECTION**

## **1 GENERAL**

### **1.01 REFERENCE STANDARDS**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Master Painters Institute (MPI)
  - .1 The Master Painters Institute (MPI)/Architectural Painting Specification Manual (ASM) - current edition.
  - .2 Standard GPS-1-12, MPI Green Performance Standard.
  - .3 Standard GPS-2-12, MPI Green Performance Standard.
- .3 National Research Council Canada (NRC)
  - .1 National Fire Code of Canada 2015 (NFC).
- .4 Society for Protective Coatings (SSPC)
  - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

### **1.02 ADMINISTRATIVE REQUIREMENTS**

- .1 Scheduling:
- .2 Submit work schedule for various stages of painting to Departmental Representative for review. Provide schedule minimum of 48 hours in advance of proposed operations.
- .3 Obtain written authorization from Departmental Representative for changes in work schedule.
- .4 Schedule new additions to existing building coordinate painting operations with other trades.

### **1.03 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's instructions, printed product literature and data sheets for paint and paint products and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures.
  - .3 Confirm products to be used are in MPI's approved product list.
- .3 Upon completion, provide records of products used. 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 Material Safety Data Sheets (MSDS).



- .4 Samples:
  - .1 Submit full range colour sample chips to indicate where colour availability is restricted.
  - .2 Submit duplicate 200 x 300 mm sample panels of each paint stain clear coating special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on 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.
    - .5 10 mm cedar hardboard siding plywood for finishes over wood surfaces.
  - .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- .5 Test reports: Provide certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
  - .1 Lead, cadmium and chromium: presence of and amounts.
  - .2 Mercury: presence of and amounts.
  - .3 Organochlorines and PCBs: presence of and amounts.
- .6 Certificates: Provide certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties. MPI Gateway #.
- .7 Manufacturer's Instructions:
  - .1 Provide manufacturer's installation and application instructions.

#### **1.04 CLOSEOUT SUBMITTALS**

- .1 Provide in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: Provide operation and maintenance data for painting materials for incorporation into manual.
- .3 Include:
  - .1 Product name, type and use.
  - .2 Manufacturer's product number.
  - .3 Colour numbers.
  - .4 MPI Environmentally Friendly classification system rating.

#### **1.05 QUALITY ASSURANCE**

- .1 Qualifications:
- .2 Contractor: to have a minimum of 5 years proven satisfactory experience. When requested, provide list of last 3 comparable jobs including, job name and location, specifying authority, and project manager.
- .3 Qualified journeypersons as defined by local jurisdiction to be engaged in

- painting work.
- .4 Apprentices: may be employed provided they work under direct supervision of qualified journey person in accordance with trade regulations.
- .5 Conform to latest MPI requirements for exterior painting work including preparation and priming.
- .6 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
- .7 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative .
- .8 Standard of Acceptance:
  - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
  - .2 Soffits: 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.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
  - .1 Labels: to indicate:
    - .1 Type of paint or coating.
    - .2 Compliance with applicable standard.
    - .3 Colour number in accordance with established colour schedule.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Observe manufacturer's recommendations for storage and handling.
  - .3 Store materials and supplies away from heat generating devices.
  - .4 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
  - .5 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative . After completion of operations, return areas to clean condition to approval of Departmental Representative t.
  - .6 Remove paint materials from storage only in quantities required for same day use.
  - .7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
  - .8 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 (NFC).
  - .4 Develop Construction Waste Management Plan Waste Reduction Workplan related to Work of this.

## 1.07 SITE CONDITIONS

- .1 Ambient Conditions:
  - .1 Heating, Ventilation and Lighting:
    - .1 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
    - .2 Provide continuous ventilation for 7 days after completion of application of paint.
    - .3 Co-ordinate use of existing ventilation system with Departmental Representative DCC Representative Consultant and ensure its operation during and after application of paint as required.
    - .4 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
    - .5 Provide minimum lighting level of 323 Lux on surfaces to be painted.
    - .6 Temperature, Humidity and Substrate Moisture Content Levels:
      - .1 Unless pre-approved written approval by Specifying body Paint Inspection Agency Authority and product manufacturer, perform no painting when:
        - .1 Ambient air and substrate temperatures are below 10 degrees C.
        - .2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
        - .3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
        - .4 The relative humidity is under 85% or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
        - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
        - .6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse

- environmental factors.
- .2 Perform painting work when maximum moisture content of the substrate is below:
  - .1 12% for concrete and masonry (clay and concrete brick/block). Allow new concrete and masonry to cure minimum of 28 days.
  - .2 15% for hard wood.
  - .3 17% for soft wood.
  - .4 12% for plaster and gypsum board.
- .3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".
- .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .7 Surface and Environmental Conditions:
  - .1 Apply paint finish 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 to adequately prepared surfaces and to surfaces within moisture limits.
  - .3 Apply paint when previous coat of paint is dry or adequately cured.
- .8 Additional interior application requirements:
  - .1 Apply paint finishes 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 Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

## 2 PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

- .1 Environmental Performance Requirements:
- .2 Provide paint products meeting MPI "Environmentally Friendly" E1 E2 E3 ratings based on VOC (EPA Method 24) content levels.
- .3 Green Performance in accordance with MPI Standard GPS-1 GPS-2.

### 2.02 MATERIALS

- .1 Only Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Only qualified products with E2 E3 "Environmentally Friendly" rating are acceptable for use on this project.
- .4 Conform to latest MPI requirements for interior painting work including preparation and priming.

- .5 Provide paint products meeting MPI "Environmentally Friendly" E1, E2 E3 ratings based on VOC (EPA Method 24) content levels.
- .6 Use MPI listed materials having minimum E2 E3 rating where indoor air quality (odour) requirements exist.
- .7 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids to be:
  - .1 Be Water-based Water soluble Water clean-up.
  - .2 Be non-flammable biodegradable.
  - .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.
- .8 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:
  - .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
  - .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.
- .9 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.
- .10 Recycled water-borne surface coatings to contain 50% post-consumer material by volume.
- .11 Recycled water-borne surface coatings must not contain:
  - .1 Lead in excess of 600.0 ppm weight/weight total solids.
  - .2 Mercury in excess of 50.0 ppm weight/weight total product.
  - .3 Cadmium in excess of 1.0 ppm weight/weight total product.
  - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
  - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

## **2.03 COLOURS**

- .1 In general paint colours are to match existing.
- .2 Where specific products are available in restricted range of colours, selection based on limited range.
- .3 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats, if requested by Departmental Representative
- .4 For deep and ultra deep colours; 4 coats may be required.

**2.04 MIXING AND TINTING**

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Departmental Representative for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .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. Strain as necessary.

**2.05 GLOSS/SHEEN RATINGS**

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	<u>Gloss @ 60 degrees</u>	<u>Sheen @ 85 degrees</u>
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max. 10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	
- .2 Gloss level ratings of painted surfaces as indicated and as noted on Finish Schedule.

**2.06 INTERIOR PAINTING SYSTEMS**

- .1 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
  - .1 INT 5.3A - Latex semi-gloss (over cementitious primer) finish.
- .2 Dressed lumber: including doors, door and window frames, casings, mouldings:
  - .1 INT 6.3A - High performance architectural latex semi-gloss (over latex primer) finish.
- .3 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:

- .1 INT 9.2A - Latex semi-gloss finish (over latex primer/sealer).

## **2.07 SOURCE QUALITY CONTROL**

- .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.
  - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
  - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
  - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

## **3 EXECUTION**

### **3.01 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.

### **3.02 GENERAL**

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

### **3.03 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable to be painted in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- .2 Interior repainting work: inspected by MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority and local Painting Contractor's Association. Painting contractor to notify Paint Inspection Agency minimum of one week prior to commencement of work and provide copy of project repainting specification and Finish Schedule.
- .3 Interior surfaces requiring repainting: inspected by both painting contractor and Paint Inspection Agency who will notify Departmental Representative in writing of defects or problems, prior to commencing repainting work, or after surface

preparation if unseen substrate damage is discovered.

- .4 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .5 Maximum moisture content as follows:
  - .1 Stucco, plaster and gypsum board: 12%.
  - .2 Concrete: 12%.
  - .3 Clay and Concrete Block/Brick: 12%.
  - .4 Hard Wood: 15%.
  - .5 Soft Wood: 17%.

### **3.04 PREPARATION**

- .1 Protection (not applicable to new painting work):
  - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
  - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
  - .3 Protect factory finished products and equipment.
  - .4 Protect passing pedestrians, building occupants and general public in and about the building.
- .2 Surface Preparation (not applicable to new painting work):
  - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
  - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
  - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.
- .3 Clean and prepare surfaces in accordance with MPI Architectural 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. Minimize use of mineral spirits or organic solvents to clean up water-



based paints.

- .4 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.
- .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
  - .1 Apply 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.
- .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.
- .7 Carried out during shop priming: 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.
- .8 Touch up of shop primers with primer as specified.
- .9 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

### **3.05 EXISTING CONDITIONS**

- .1 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test" and report findings to Departmental Representative. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .2 Maximum moisture content as follows:
  - .1 Stucco: 12%.
  - .2 Concrete: 12%.
  - .3 Clay and Concrete Block/Brick: 12%.
  - .4 Hard Wood: 15%.
  - .5 Soft Wood: 17%.

### **3.06 APPLICATION**

- .1 Method of application to be as approved by Departmental Representative. 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 uniform layer using brush and/or roller type 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 free of roller tracking and heavy stipple.
  - .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 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 uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
  - .4 Brush out immediately all runs and sags.
  - .5 Use brushes and rollers 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.
- .5 Apply coats of paint 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 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.
- .9 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .10 Finish closets and alcoves as specified for adjoining rooms.
- .11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .12 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

### **3.07 MECHANICAL/ ELECTRICAL EQUIPMENT**

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 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 Do not paint over nameplates.
  - .5 Keep sprinkler heads free of paint.
  - .6 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
  - .7 Paint fire protection piping red.
  - .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
  - .9 Paint natural gas piping yellow.
  - .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.

### **3.08 SITE TOLERANCES**

- .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.

### **3.09 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

### **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 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 Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

**END OF SECTION**