

# **SPECIFICATION**

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## **LUNDAR HOUSE INTERIOR / EXTERIOR RENOVATIONS**

**LUNDAR, MANITOBA**

### **Construction**

**John White Architect  
311 Ash Street  
Winnipeg, MB**

**Can-Tec Services Ltd.  
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## **Part 1           General**

### **1.1           WORK COVERED BY CONTRACT DOCUMENTS**

- .1       Work of this Contract comprises the renovation of a fire damaged house located in, Lundar, Manitoba. This work includes; labour, materials and shipping of materials, in accordance with the contract documents and as further described herein.

### **1.2           SCOPE OF WORK**

- .1       Existing house has been gutted down to the studs on the main and second floor. The work will involve the following but not be limited to:
  - .1       Construction
    - .1       Demolition
    - .2       New insulation, drywall and vapour barrier.
    - .3       New millwork
    - .4       New flooring
    - .5       Repairs to exterior of the house
    - .6       New doors
    - .7       Replacement of Roof Assembly
    - .8       New plumbing

### **1.3           SITE VERIFICATION**

- .1       Upon award of the contract contractor is to schedule a site trip to site verify all sizes and dimensions. No additional fees will be considered for materials brought onto site of the wrong size.

### **1.4           PROTECTION OF REMAINING FIXTURES AND CABINETS**

- .1       The contractor is to document photo the condition of the existing cabinetry and fixtures at takeover of the houses and supply a copy to the consultant.
- .2       The contractor is responsible for the protection of all damage caused during the construction process and it will be the responsibility of the contractor to make good to the acceptance of the Project Manager and Consultant.
- .3       Protect remaining existing fixtures and structure from damage including rain or weather damage as required to ensure moisture content of existing wood structure is to remain below 20% as measured by a moisture meter.
- .4       Secure site from public access.

### **1.5           CONTRACTOR USE OF PREMISES**

- .1       Move stored products or equipment which **interfere** with operation of owner or other contractors.
- .2       Assume responsibility for the protection and safekeeping of products under this contract.
- .3       Co-ordinate use of premises under direction of Consultant, and Property Manager.

- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract as required.
- .5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.

## **1.6 OWNER OCCUPANCY**

- .1 Owners will not occupy the building during the duration of the contract.
- .2 Co-operate with project manager in scheduling operations to minimize conflict and to facilitate Planning of Alternate accommodations during construction.

## **1.7 EXISTING SERVICES**

- .1 Notify Consultant and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and tenant operations.
- .3 Provide alternative routes for personnel and vehicular traffic (if required).
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.
- .5 Submit schedule to and obtain approval from Consultant and RCMP operations 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.
- .6 Provide temporary services when directed by Consultant or as required to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .10 Record locations on as built drawings maintained, re-routed and abandoned service lines.
- .11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures

## **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.

**1.9 CODES AND STANDARDS**

- .1 Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards board, the Canadian Standards Association, The National Building Code of Canada 2010, and all applicable Territorial and Municipal codes, and all standards listed below. In the case of conflict or discrepancy the most stringent requirement shall apply.
- .2 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1            General**

**1.1                ACCESS AND EGRESS**

- .1        Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.2                USE OF SITE AND FACILITIES**

- .1        Execute work with least possible interference or disturbance to normal use of premises. Make arrangements **with** owner 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        Closures: protect work temporarily until permanent enclosures are completed.

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

- .1        Execute work with least possible interference or disturbance to building operations occupants, public and normal use of premises. Arrange with RCMP to facilitate execution of work.

**1.4                EXISTING SERVICES**

- .1        Notify, utility companies, Consultant, of intended interruption of services and obtain required permission.
- .2        Where Work involves breaking into or connecting to existing services, give owner 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3        Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures .

**1.5                SPECIAL REQUIREMENTS**

- .1        Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANNT) Chart.
- .2        Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3        Keep within limits of work and avenues of ingress and egress.

**1.6 SECURITY CLEARANCES**

- .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will be required to enter premises.

**1.7 BUILDING SMOKING ENVIRONMENT**

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

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**



**Part 1            General**

**1.1                REFERENCES**

- .1        Project Supplementary Conditions

**1.2                CASH ALLOWANCES**

- .1        Include in Contract Price specified cash allowances.
- .2        Cash allowances, unless otherwise specified, cover net cost to contractor subcontractor of services, products, construction machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing Work.
- .3        Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.
- .4        Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.
- .5        Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .6        Include progress payments on accounts of work authorized under cash allowances in Consultant's monthly certificate for payment.
- .7        Prepare schedule jointly with Consultant and Contractor to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed.
- .8        Amount of each allowance, for Work specified in respective specification Sections is as follows:
  - .1        Lighting Fixtures \$3,500.00

**Part 2            Products**

**2.1                NOT USED**

- .1        Not Used.

**Part 3            Execution**

**3.1                NOT USED**

- .1        Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                ON-SITE DOCUMENTS**

- .1      Contract Documents
- .2      Specifications
- .3      Addenda
- .4      Reviewed shop drawings
- .5      Change orders
- .6      Other modifications in contract
- .7      Field test reports
- .8      Copy of approved Work Schedule
- .9      Manufacturers installation and application instructions
- .10     Labour conditions and wage schedules
- .11     Project Record Documents (for as-built purposes)
- .12     Codes and Standards listed in 01 11 00

**1.2                ADMINISTRATIVE**

- .1      Attend project meetings throughout the progress of the work at the call of Consultant.
- .2      Provide physical space and make arrangements for meetings.
- .3      Consultant will record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .4      Consultant will reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants, affected parties not in attendance, Project Manager, and Contractor.
- .5      Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

**1.3                PRECONSTRUCTION MEETING**

- .1      After award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. Meeting will be held at the location and time designated by the departmental representative

- .2 Departmental Representative, Engineer and Consultant, Contractor, major Subcontractors, will be in attendance. Others may be in attendance at the discretion of the departmental representative or the Contractor. Representatives of the local Building Manager may also be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 2 days before meeting.
- .4 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 in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
  - .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 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals
  - .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
  - .12 Monthly progress claims, administrative procedures, photographs, hold backs.
  - .13 Appointment of inspection and testing agencies or firms.
  - .14 Insurances, transcript of policies.
- .5 Comply with Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic and parking facilities.
- .6 During construction coordinate use of site and facilities through Departmental Representatives procedures for intra-project communications: submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
- .7 Comply with instruction of consultant for use of Temporary utilities and construction facilities.
- .8 Coordinate field engineering and layout work with consultant.

#### **1.4 PROGRESS MEETINGS**

- .1 During course of Work at the discretion of the Consultant and Departmental Representative.

- .2 Representatives of the Contractor, major Subcontractors involved in the work and other as required and decided upon by the Departmental Representative or Contractor are to be in attendance. Contractor to notify all sub-contractors.
- .3 Consultant will notify contractor min 5 days prior to meetings
- .4 Consultant to record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after meeting.
- .5 Agenda to include the following:
  - .1 Review, 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.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## **Part 1            General**

### **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. Generally 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 RCMP 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        Construction Progress Schedule to be Completed in Microsoft Project or Similar Software.
  
- .3        Plan to complete Work in accordance with prescribed milestones and time frame.
  
- .4        Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

- .5 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 SUBMITTALS**

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

### **1.4 PROJECT MILESTONES**

#### **1.5 MASTER PLAN**

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Consultant 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.

#### **1.6 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.

#### **1.7 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.

#### **1.8 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.

**Part 2            Products**

**2.1                NOT USED**

.1                Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1                Not used.

**END OF SECTION**

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1        Submit to Consultant 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 imperial units.
- .4        Where items or information is not produced in imperial units converted values are acceptable.
- .5        Review submittals prior to submission to Consultant. 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 Consultant, 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 Engineer's, Consultant's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant 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 shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in the Province of Manitoba, 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 14 days for Consultant's review of each submission.
- .5 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant 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 Property Manager's, Engineer's, Consultant's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant and Engineer may reasonably request.

- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant 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 Consultant and Engineer.
  - .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 Consultant and Engineer
  - .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 or 6 copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant and Engineer.
  - .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 6 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant and Engineer.
  - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant and Engineer
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Consultant and Engineer, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by and Consultant is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that Consultant approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or

omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### **1.3 SAMPLES**

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultants business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

### **1.4 NOT USED**

- .1 Not Used.

## **Part 2 Execution**

### **2.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1        Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2        Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .3        Manitoba
  - .1        The Workers Compensation Act latest edition.

**1.2                SUBMITTALS**

- .1        Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1        Results of site specific safety hazard assessment.
  - .2        Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3        Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant or authority having jurisdiction, as required.
- .4        Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5        Submit copies of incident and accident reports.

**1.3                SAFETY ASSESSMENT**

- .1        Perform site specific safety hazard assessment related to project.

**1.4                MEETINGS**

- .1        Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

**1.5                REGULATORY REQUIREMENTS**

- .1        Do Work in accordance with Section 01 41 00 - Regulatory Requirements .

**1.6                GENERAL REQUIREMENTS**

- .1        Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

- .2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

### **1.7 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

### **1.8 COMPLIANCE REQUIREMENTS**

- .1 Comply with The Workers Compensation Act, Workplace Safety Regulation, WCB Workers compensation board of Manitoba.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

### **1.9 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Consultant and or Departmental Representative verbally and in writing.

### **1.10 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

### **1.11 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant.
- .2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

### **1.12 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**Part 2            Products**

**2.1                NOT USED**

.1                Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1                Not used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES AND CODES**

- .1        Perform Work in accordance with National Building Code of Canada (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                HAZARDOUS MATERIAL DISCOVERY**

- .1        Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify consultant and Project Manager.
- .2        PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Consultant and Project Manager.
- .3        Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Consultant and Project Manager.

**1.3                BUILDING SMOKING ENVIRONMENT**

- .1        No smoking permitted.

**Part 2            Products**

**2.1                NOT USED**

- .1        Not Used.

**Part 3            Execution**

**3.1                NOT USED**

- .1        Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                INSPECTION**

- .1        Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant, instructions, or law of Place of Work.
- .3        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4        Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

**1.2                INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection/Testing Agencies will be engaged by consultant for purpose of inspecting and/or testing portions of Work.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.
- .3        Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4        If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Property Manager or Consultant at no cost to Property Manager or Consultant. Pay costs for retesting and re-inspection.

**1.3                ACCESS TO WORK**

- .1        Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2        Co-operate to provide reasonable facilities for such access.

**1.4                PROCEDURES**

- .1        Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.
- .2        Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.



- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

## **1.5 REJECTED WORK**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

## **1.6 REPORTS**

- .1 Submit electronic copies of inspection and test reports to Consultant.
- .2 Provide copies to subcontractor of work being inspected or tested.

## **1.7 MOCK-UPS**

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Consultant.
- .3 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups 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.
- .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

## **1.8 MILL TESTS**

- .1 Submit mill test certificates as requested.

## **1.9 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                SUBMITTALS**

- .1            Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

**1.2                INSTALLATION AND REMOVAL**

- .1            Provide temporary utilities controls in order to execute work expeditiously.
- .2            Remove from site all such work after use.

**1.3                WATER SUPPLY**

- .1            Water is available on site provided by the Building Owner

**1.4                TEMPORARY HEATING AND VENTILATION**

- .1            Provide temporary heating as required during construction period, including attendance, maintenance and fuel.
- .2            Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3            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.
- .4            Maintain temperatures of minimum 21 degrees C in areas where construction is in progress.
- .5            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            Ventilate storage spaces containing hazardous or volatile materials.
  - .5            Ventilate temporary sanitary facilities.
  - .6            Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

- .6 Permanent heating system of building, to be used when available. Be responsible for damage to heating system if use is permitted.
- .7 On completion of Work for which permanent heating system is used, replace filters, clean furnaces and power vacuum all ductwork inform Consultant of completion.
- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Consultant.
- .9 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.
- .10 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

#### **1.5 TEMPORARY POWER AND LIGHT**

- .1 Power is available for use by the contractor provided by the Building Owner.
- .2 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of consultant provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

#### **1.6 TEMPORARY COMMUNICATION FACILITIES**

- .1 Contractor to furnish own Temporary phone, Fax and e-mail.

#### **1.7 FIRE PROTECTION**

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

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
  - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
  - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
  - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.

**1.2                SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

**1.3                INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by contractor, number of trailers used, avenues of ingress/egress to fenced area and details of fence installation
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

**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.
- .3 Co-ordinate location of staging with consultant or owners representative on site.

**1.5                CONSTRUCTION PARKING**

- .1 Parking will be permitted on site provided it does not disrupt performance of Work or impede the operation of the owners.
- .2 Adequate parking must be maintained for site access.

- .3 Provide and maintain adequate access to project site.

**1.6 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.

**1.7 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

**1.8 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 Remove materials resulting from demolition as soon as possible from site.
- .4 Stack stored new or salvaged material not in construction facilities.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1    Canadian General Standards Board (CGSB)
  - .1    CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
  - .2    CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

**1.2                INSTALLATION AND REMOVAL**

- .1    Provide temporary controls in order to execute Work expeditiously.
- .2    Remove from site all such work after use.

**1.3                BUILDING TARP**

- .1    Supply weather tarp to protect existing structure for damage due to weather once roof has been removed

**1.4                DUST TIGHT SCREENS**

- .1    Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2    Dust tight screens are to be located upon the second floor around the area of work and to be from floor to ceiling to protect the remainder of the second floor unit not under renovation.
- .3    All furnace supply and return grills on second floor to be sealed dust tight for the duration of construction.
- .4    Maintain and relocate protection until such work is complete.

**1.5                ACCESS TO SITE**

- .1    Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

**1.6                HOARDING**

- .1    Erect temporary site enclosure using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m on centre. Provide one lockable truck gate. Maintain fence in good repair.

**1.7                WEATHER ENCLOSURES**

- .1    Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

**1.8 FIRE ROUTES**

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles

**1.9 PROTECTION OF BUILDING FINISHES**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide covering on second floor flooring to protect during construction.
- .3 Provide necessary screens, covers, and hoardings.
- .4 Confirm with property manager and detachment commander locations and installation schedule 3 days prior to installation.
- .5 Be responsible for damage incurred due to lack of or improper protection.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**



**Part 1 General**

**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, Project Manager and/or Consultant 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 Project Manager 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 Consultant 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 Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant 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 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .9 Touch-up damaged factory finished surfaces to Consultants 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 Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Project Manager will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant 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 Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant reserves the 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 the Consultant, 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 CONCEALMENT**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Consultant if there is interference. Install as directed by Consultant.

### **1.10 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.

### **1.11 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Engineer of conflicting installation. Install as directed.

### **1.12 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.

**1.13 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.

**1.14 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Engineer.

**1.15 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                PROJECT CLEANLINESS**

- .1        Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2        Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .3        Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4        Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5        Dispose of waste materials and debris off site.
- .6        Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .7        Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .8        Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .9        Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .10      Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.2                FINAL CLEANING**

- .1        Entire house fully cleaned prior to substantial performance inspection.
- .2        When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3        Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4        Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5        Remove waste products and debris including that caused by Owner or other Contractors.
- .6        Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.

- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .10 Clean lighting reflectors, lenses, and other lighting surfaces.
- .11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .16 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .17 Sweep and wash clean paved areas.
- .18 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .19 Clean roofs, downspouts, and drainage systems.
- .20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Dispose of waste and separate waste materials for recycling as per requirements of local authorities.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**



**Part 1            General**

**1.1                INSPECTION AND DECLARATION**

- .1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .2 Request Inspection.
- .2 Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
  - .1 Work has been completed and inspected for compliance with Contract Documents.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
  - .4 Certificates required by Fire Commissioner, Utility companies, Engineering Services and Local Authorities have been submitted.
  - .5 Inspection by RCMP Fire Protection Engineer
  - .6 Operation of systems have been demonstrated to Owner's personnel.
  - .7 Work is complete and ready for final inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Consultant and Contractor. If Work is deemed incomplete by Consultant, complete outstanding items and request reinspection.

**1.2                CLEANING**

- .1 In accordance with Section 01 74 11 – Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with local authorities.

**Part 2            Products**

**2.1                NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                Not Used**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3        Copy will be returned after final inspection, with Consultant comments.
- .4        Revise content of documents as required prior to final submittal.
- .5        Two weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in English.
- .6        Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7        Furnish evidence, if requested, for type, source and quality of products provided.
- .8        Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9        Pay costs of transportation.
- .10      Supply one electronic and 5 copies of equipment manuals for all new items installed under this project

**1.2                FORMAT**

- .1        Organize data as instructional manual.
- .2        Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3        When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4        Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5        Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6        Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7        Text: manufacturer's printed data, or typewritten data.
- .8        Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- .9 Provide scaled CAD files in dwg format on CD.

### **1.3 CONTENTS - EACH VOLUME**

- .1 Table of Contents: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

### **1.4 AS-BUILTS AND SAMPLES**

- .1 Maintain, at site for Consultant one record copy of:
  - .1 Contract 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. 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. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

- .5 All copies of the documents must be turned over to consultant, **NO** copies may be maintained by the General Contractor or Trades.

## **1.5 EQUIPMENT AND SYSTEMS**

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

## **1.6 MATERIALS AND FINISHES**

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

## **1.7 SPARE PARTS**

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

## **1.8 SPECIAL TOOLS**

- .1 Provide special tools, in quantities specified in individual specification sections.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listing in Maintenance Manual

## **1.9 MAINTENANCE MATERIALS**

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

## **1.10 SPECIAL TOOLS**

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.

- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

#### **1.11 STORAGE, HANDLING AND PROTECTION**

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

#### **1.12 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Property Manager and Consultant for approval.
- .3 Warranty management plan to include required actions and documents to assure that Property Manager receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Property Manager for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 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.
- .8 Include information contained in warranty management plan as follows:

- .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
- .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps.
- .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
  - .1 Name of item.
  - .2 Model and serial numbers.
  - .3 Location where installed.
  - .4 Name and phone numbers of manufacturers or suppliers.
  - .5 Names, addresses and telephone numbers of sources of spare parts.
  - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
  - .7 Cross-reference to warranty certificates as applicable.
  - .8 Starting point and duration of warranty period.
  - .9 Summary of maintenance procedures required to continue warranty in force.
  - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
  - .11 Organization, names and phone numbers of persons to call for warranty service.
  - .12 Typical response time and repair time expected for various warranted equipment.
- .4 Contractor's plans for attendance at 10 month post-construction warranty inspections.
- .5 Procedure and status of tagging of equipment covered by extended warranties.
- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the property manager to proceed with action against Contractor.

### **1.13 PRE-WARRANTY CONFERENCE**

- .1 Meet with Consultant, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Consultant.
- .2 Consultant will establish communication procedures for:
  - .1 Notification of construction warranty defects.
  - .2 Determine priorities for type of defect.
  - .3 Determine reasonable time for response.



- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue 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.

**1.14 WARRANTY TAGS**

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Property Manager or Consultant.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
  - .1 Type of product/material.
  - .2 Model number.
  - .3 Serial number.
  - .4 Contract number.
  - .5 Warranty period.
  - .6 Inspector's signature.
  - .7 Construction Contractor.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Equipment and systems.
- .2    Materials and finishes.
- .3    Spare parts.
- .4    Maintenance manuals.
- .5    Special tools.
- .6    Storage, handling and protection.

**1.2                RELATED SECTIONS**

- .1    Section 017800 - Closeout Submittals.

**1.3                EQUIPMENT AND SYSTEMS**

- .1    Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2    Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3    Include installed colour coded wiring diagrams.
- .4    Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5    Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6    Provide servicing and lubrication schedule, and list of lubricants required.
- .7    Include manufacturer's printed operation and maintenance instructions.
- .8    Include sequence of operation by controls manufacturer.
- .9    Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10   Provide installed control diagrams by controls manufacturer.

- .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports.
- .15 Additional requirements: As specified in individual specification sections.

#### **1.4 MATERIALS AND FINISHES**

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Building Envelope: include copies of drawings of building envelope components, illustrating the interface with similar or dissimilar items to provide an effective air, vapour and thermal barrier between indoor and outdoor environments. Include an outline of requirements for regular inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.
- .5 Additional Requirements: as specified in individual specifications sections.

#### **1.5 SPARE PARTS**

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

#### **1.6 MAINTENANCE MATERIALS**

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

**1.7 SPECIAL TOOLS**

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

**1.8 STORAGE, HANDLING AND PROTECTION**

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

**END OF SECTION**

**Part 1            General**

**1.1                DESCRIPTION**

- .1        Demonstrate operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of final inspection.
- .2        Owner will provide list of personnel to receive instructions, and will co-ordinate their attendance at agreed-upon times.

**1.2                QUALITY CONTROL**

- .1        When specified in individual Sections require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

**1.3                SUBMITTALS**

- .1        Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant approval.
- .3        Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4        Give time and date of each demonstration, with list of persons present.

**1.4                CONDITIONS FOR DEMONSTRATIONS**

- .1        Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

**1.5                PREPARATION**

- .1        Verify that conditions for demonstration and instructions comply with requirements.
- .2        Verify that designated personnel are present.

**1.6                DEMONSTRATION AND INSTRUCTIONS**

- .1        Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.
- .2        Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
- .3        Review contents of manual in detail to explain aspects of operation and maintenance.

- .4 Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instructions.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## **Part 1           General**

### **1.1               SUMMARY**

- .1   Section Includes:
  - .1    This section is limited to portions of the Building Management Manual (BMM) provided to Departmental Representative by Contractor.
- .2   Acronyms:
  - .1    BMM - Building Management Manual.
  - .2    HVAC - Heating, Ventilation and Air Conditioning.
  - .3    PI - Product Information.
  - .4    PV - Performance Verification.
  - .5    TAB - Testing, Adjusting and Balancing.
  - .6    WHMIS - Workplace Hazardous Materials Information System.

### **1.2               GENERAL REQUIREMENTS**

- .1   Standard letter size paper 216 mm x 279mm.
- .2   Binders: vinyl hard covered, 3” “D” ring,(not “O” ring) loose leaf sized, with spine pocket. Identify contents of each binder on spine
- .3   Methodology used to facilitate updating.
- .4   Drawings, diagrams and schematics to be professionally developed.
- .5   Electronic copy of data to be in a format accepted and approved by Property Manger (PDF).
- .6   Supply final 2 copis of the BMM in hard copy format and Electronic PDF.

### **1.3               APPROVALS**

- .1   Prior to commencement, co-ordinate requirements for preparation, submission and approval with Property Manager.

### **1.4               GENERAL INFORMATION**

- .1   Provide Consultant the following for insertion into appropriate Part and Section of BMM:
  - .1    Complete list of names, addresses, telephone and fax numbers of contractor, sub-contractors that participated in delivery of project - as indicated in Section 1.2 of BMM.
  - .2    Summary of architectural, structural, fire protection, mechanical and electrical systems installed and commissioned - as indicated in Section 1.4 of BMM.
    - .1    Including sequence of operation as finalized after commissioning is complete as indicated in Section 2.0 of BMM.

- .3 Description of building operation under conditions of heightened security and emergencies as indicated in Section 2.0 of BMM.
- .4 System, equipment and components Maintenance Management System (MMS) identification - Section 2.1 of BMM..
- .5 Information on operation and maintenance of architectural systems and equipment installed and commissioned - Section 2.0 of BMM.
- .6 Information on operation and maintenance of fire protection and life safety systems and equipment installed and commissioned - Section 2.0 of BMM.
- .7 Information on operation and maintenance of mechanical systems and equipment installed and commissioned - Section 2.0 of BMM.
- .8 Operating and maintenance manual - Section 3.2 of BMM.
- .9 Final commissioning plan as actually implemented.
- .10 Completed commissioning checklists.
- .11 Commissioning test procedures employed.
- .12 Completed Product Information (PI) and Performance Verification (PV) report forms, approved and accepted by Property Manager.
- .13 Commissioning reports.

## **1.5 CONTENTS OF OPERATING AND MAINTENANCE MANUAL**

- .1 For detailed requirements refer to Section 01 78 00 - Closeout Submittals.
- .2 Consultant to review and approve format and organization within 2 weeks of award of contract.
- .3 Include original manufactures brochures and written information on products and equipment installed on this project.
- .4 Record and organize for easy access and retrieval of information contained in BMM.
- .5 Include completed PI report forms, data and information from other sources as required.
- .6 Inventory directory relating to information on installed systems, equipment and components.
- .7 Approved project shop-drawings, product and maintenance data.
- .8 Manufacturer's data and recommendations relating: manufacturing process, installation, commissioning, start-up, O&M, shutdown and training materials.
- .9 Inventory and location of spare parts, special tools and maintenance materials.
- .10 Warranty information.
- .11 Inspection certificates with expiration dates, which require on-going re-certification inspections.
- .12 Maintenance program supporting information including:
  - .1 Recommended maintenance procedures and schedule.



- .2 Information to removal and replacement of equipment including, required equipment, points of lift and means of entry and egress.

## **1.6 SUPPORTING DOCUMENTATION FOR INSERTION INTO SUPPORTING APPENDICES**

- .1 Provide RCMP supporting documentation relating to installed equipment and system, including:
  - .1 General:
    - .1 Finalized commissioning plan.
    - .2 WHMIS information manual.
    - .3 Approved "as-built" drawings and specifications.
    - .4 Procedures used during commissioning.
    - .5 Cross-Reference to specification sections.
  - .2 Architectural and structural:
    - .1 Inspection certificates, construction permits.
  - .3 Mechanical:
    - .1 Installation permits, inspection certificates.
    - .2 Piping pressure test certificates.
    - .3 Ducting leakage test reports.
    - .4 TAB and PV reports.
    - .5 Copies of posted instructions.
  - .4 Electrical:
    - .1 Installation permits, inspection certificates.
    - .2 Charts and schedules.
    - .3 Locations of cables and components.
    - .4 Copies of posted instructions.

## **1.7 IDENTIFICATION OF FACILITY**

- .1 When submitting information to Departmental Representative for incorporation into BMM, use following system for identification of documentation:
  - .1 To be supplied to successful contractor.

## **1.8 USE OF CURRENT TECHNOLOGY**

- .1 Use current technology for production of documentation. Emphasis on ease of accessibility at all times, maintain in up-to-date state, compatibility with user's requirements.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

**Part 1           General**

**1.1               REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.

**1.2               SUBMITTALS**

- .1 Submit shop drawings in accordance with Sections 01 33 00 - Submittal Procedures 01 00 10 - General Instructions.

**1.3               SITE CONDITIONS**

- .1 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.
  - .1 Do not proceed until written instructions have been received from Consultant.

**Part 2           Products**

**2.1               NOT USED**

- .1 Not used.

**Part 3           Execution**

**3.1               PREPARATION**

- .1 Inspect site with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Survey remaining structure, identify saturated wood products demolish, remove and replace wood structure and materials that have a moisture content exceeding 20%

**3.2               PROTECTION**

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.
- .2 Keep noise, dust, and inconvenience to occupants to minimum.

- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.

**3.3 SALVAGE**

- .1 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .2 Items to be stored in weather tight enclosure to ensure that no damaged is caused prior to re-installation

**3.4 SITE REMOVALS**

- .1 Remove items as indicated.

**3.5 DEMOLITION**

- .1 Remove parts of existing building to permit new construction.
- .2 Trim edges of partially demolished building elements to tolerances as defined by Consultant to suit future use.

**3.6 DISPOSAL**

- .1 Dispose of removed materials, except where specified otherwise, in accordance with authority having jurisdiction.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2        Section 06 05 73 - Treated Wood.

**1.2                REFERENCES**

- .1        American National Standards Institute (ANSI)
  - .1        ANSI A208.1-1999, Particleboard, Mat Formed Wood.
- .2        American Society for Testing and Materials (ASTM)
  - .1        ASTM A653/A653M-01a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
  - .2        ASTM C36/C36M-01, Specification for Gypsum Wallboard.
  - .3        ASTM C578-01, Specification for Rigid, Cellular Polystyrene Thermal Insulation.
  - .4        ASTM C1289-01, Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  - .5        ASTM D1761-00, Standard Test Methods for Mechanical Fasteners in Wood.
  - .6        ASTM D5055-00, Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
  - .7        ASTM D5456-01ae1, Specification for Evaluation of Structural Composite Lumber Products.
- .3        Canadian General Standards Board (CGSB)
  - .1        CAN/CGSB-11.3-M87, Hardboard.
  - .2        CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
  - .3        CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
  - .4        CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .4        Canadian Standards Association (CSA)
  - .1        CSA A123.2-M1979(R1999), Asphalt Coated Roofing Sheets.
  - .2        CAN/CSA-A247-M86, Insulating Fiberboard.
  - .3        CSA B111-1974, Wire Nails, Spikes and Staples.
  - .4        CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .5        CSA O112 Series-M1977, CSA Standards for Wood Adhesives.
  - .6        CSA O121-M1978, Douglas Fir Plywood.
  - .7        CAN/CSA-O122-M89, Structural Glued-Laminated Timber.
  - .8        CAN/CSA-O141-91, Softwood Lumber.
  - .9        CSA O151-M1978, Canadian Softwood Plywood.
  - .10      CSA O153-M1980, Poplar Plywood.

- .11 CAN/CSA-O325.0-92(R1988), Construction Sheathing.
- .12 CAN3-O437 Series-93, Standards on OSB and Waferboard.
- .5 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2000.
- .6 Truss Design and Procedures for Light Metal Connected Wood Trusses, Truss Plate Institute of Canada.

### **1.3 QUALITY ASSURANCE**

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

### **1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal to the maximum extent economically possible.
- .2 Set aside damaged wood and dimensional lumber off-cuts for approved alternative uses (e.g. bracing, blocking, cripples, bridging). Store this separated reusable wood waste convenient to cutting station and area of work.
- .3 Separate metal, plastic, wood and corrugated cardboard-packaging in accordance with the Waste Management Plan and place in designated areas for recycling.
- .4 Do not burn scrap at the project site.
- .5 Fold up metal banding, flatten, and place in designated area for recycling.

## **Part 2 Products**

### **2.1 FRAMING AND STRUCTURAL MATERIALS**

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content not greater than 19% at time of installation (S-dry) or less in accordance with following standards:
  - .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Glulam in accordance with Structural Glued-Laminated Timber CAN/CSA-O122.
- .3 Wood I-joists in accordance with Prefabricated Wood I-Joists ASTM D5055.
- .4 Light-frame trusses in accordance with "Truss Design and Procedures for Light Metal Connected Wood Trusses", Truss Plate Institute of Canada.
- .5 Structural Composite Lumber (SCL) in accordance with ASTM D5456.

- .1 Framing and board lumber: in accordance with NBC.
- .6 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
  - .1 S2S, S4Sm or NLGA species, SPF No.2 grade is acceptable.
  - .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.

## **2.2 PANEL MATERIALS**

- .1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.
- .2 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .4 Poplar plywood (PP): to CSA O153, standard construction.
- .5 Interior mat-formed wood particleboard: to ANSI 208.1.
- .6 Mat-formed structural panelboards (OSB wafer): to CAN3-O437.0.
- .7 Insulating fiberboard sheathing: to CAN/CSA-A247.
- .8 Glass fibre board sheathing: non-structural, rigid, faced, fiberglass, insulating exterior sheathing board.
- .9 Isocyanurate & Urethane sheathing: to ASTM C1289, unfaced faced .
- .10 Expanded polystyrene sheathing: to ASTM C578.
- .11 Gypsum sheathing: to ASTM C36/C36M.

## **2.3 ACCESSORIES**

- .1 Exterior wall sheathing paper: to CAN/CGSB-51.32.
- .2 Polyethylene film: to CAN/CGSB-51.34, Type 1, 0.15 mm thick.
- .3 Air seal: closed cell polyurethane or polyethylene.
- .4 Subflooring adhesive: to CGSB-71.26, cartridge loaded.
- .5 General purpose adhesive: to CSA O112 Series.
- .6 Nails, spikes and staples: to CSA B111 except:
  - .1 Use hot-dipped galvanized spiral nails and hot-dipped galvanized spiral spikes throughout.

- .2 Use hot dip galvanized steel common nails for exterior work, interior highly humid areas and for pressure-preservative and fire-retardant treated lumber and in all other areas.
- .7 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers. Hot-dip galvanized finish to CAN/CSA G164 for all work
- .8 Use surface fastenings of following types, except where specified otherwise
  - .1 To concrete, use expansion shield with lag screws.
  - .2 In masonry, set bolts at joints in full bed of mortar.
  - .3 To structural steel, use bolts through drilled hole, or welded stud-bolts or power driven self-drilling screws, or welded stud-bolts.
- .9 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .10 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.
- .11 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, fibre, formed to prevent dishing. Bell or cup shapes not acceptable.
- .12 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, extruded 6063-T6 aluminum alloy type approved by Consultant.

## **2.4 FASTENER FINISHES**

- .1 Galvanizing: Bolt, nut, washer, screw, and pin type fasteners, hot-dip galvanize finish to CAN/CSA-G164 for all work.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Store wood products.

### **3.2 INSTALLATION**

- .1 Comply with requirements of NBC Part 9 supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.



- .6 Install subflooring or combined subfloor and underlay with panel end-joints located on solid bearing, staggered at least 800 mm.
  - .1 In addition to mechanical fasteners, floor panels secure floor subflooring to floor joists using glue and screws. Place continuous adhesive bead in accordance with manufacturer's instructions, single-bead on each joist and double-bead on joists where panel ends butt.
- .7 Install wall sheathing in accordance with manufacturer's printed instructions.
- .8 Install roof sheathing in accordance with requirements of NBC.
- .9 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.
- .10 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
  - .1 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .11 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
  - .1 Except where indicated otherwise use material at least 38mm thick, secured with 9 mm bolts located within 300 mm from ends of members and uniformly spaced at 1200 mm o.c.
  - .2 Countersink bolts where necessary to provide clearance for other work.
- .12 Install wood cants, fascia backing, nailers, curbs and other wood supports for roofing and sheet metal work, and roof mounted equipment and/or access hatches as indicated:
  - .1 Secure using galvanized 9 mm bolts where indicated. Located bolts within 300 mm from ends and at 1200 mm centres except where indicated otherwise.
  - .2 Secure to Steel Deck with No. 9 self tapping metal screws at 300 mm centres.
  - .3 At roof perimeter, leave loose minimum 200 mm to be sealed to wall vapour barrier membrane (liner panel) and the remainder left to be sealed to roof vapour barrier by roofing contractor.
- .13 Install sleepers as indicated.
- .14 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.
- .15 Surface-applied wood preservative applied as follows:
  - .1 Apply preservative by dipping, or by brush or spray to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
  - .2 Treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
  - .3 Treat all material as follows:
    - .1 Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.

- .2 Wood furring on outside surface of exterior concrete walls.

### **3.3 ERECTION**

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.
- .3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

### **3.4 SCHEDULES**

- .1 Exterior wall sheathing:
  - .1 Plywood, standard sheathing grade, size as indicated.
- .2 Electrical equipment mounting boards:
  - .1 Provide backboards for mounting electrical equipment as indicated. Use 19 mm thick, CSP/S1S or DFP/G1S on 19 x 38 mm at 300 mm o.c. intermediate spacing.
  - .2 Paint as per Section 09 91 23 – Interior Painting.
  - .3 Backboards shall be painted before installation of equipment

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A208.1-99, Particleboard.
  - .2 ANSI A208.2-02, Medium Density Fibreboard (MDF).
  - .3 ANSI/HPVA HP-1-2004, Standard for Hardwood and Decorative Plywood.
- .2 American Society for Testing and Materials International (ASTM)
  - .1 ASTM E1333-96(2002), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emissions Rates from Wood Products Using a Large Chamber.
- .3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
  - .1 Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 2003.
- .4 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-11.3-M87, Hardboard.
- .5 Canadian Plywood Association (CanPly)
  - .1 The Plywood Handbook 2005.
- .6 Canadian Standards Association (CSA International)
  - .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
  - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CSA O121-M89(R2003), Douglas Fir Plywood.
  - .4 CAN/CSA O141-91(R1999), Softwood Lumber.
  - .5 CSA O151-04, Canadian Softwood Plywood.
  - .6 CSA O153-M1980(R2003), Poplar Plywood.
  - .7 CSA Z760-94, Life Cycle Assessment.
- .7 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .8 National Hardwood Lumber Association (NHLA)
  - .1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
- .9 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2005.
- .10 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1113-04, Architectural Coatings.

- .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .11 Underwriters Laboratories of Canada (ULC)
  - .1 CAN4-S104-80(R1985), Standard Method for Fire Tests of Door Assemblies.
  - .2 CAN4-S105-85(R1992), Standard Specification for Fire Door Frames, meeting the Performance Required by CAN4-S104.

## **1.2 SUBMITTALS**

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Shop Drawings Submittals: in accordance with Section 01 33 00 - Submittal Procedures .
  - .1 Indicate details of construction, profiles, jointing, fastening and other related details.
  - .2 Indicate materials, thicknesses, finishes and hardware.
- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures .
  - .1 Submit duplicate samples: sample size 150 x 150 mm or 150 mm long unless specified otherwise of panel materials.

## **1.3 QUALITY ASSURANCE**

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
  - .1 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

## **1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements .
  - .1 Protect materials against dampness during and after delivery.
  - .2 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

## **Part 2 Products**

### **2.1 LUMBER MATERIAL**

- .1 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:
  - .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .3 AWMAC custom grade, moisture content as specified.
  - .4 Forest Stewardship Council (FSC) certified.
- .2 Machine stress-rated lumber is acceptable.

- .3 Hardwood lumber: moisture content 8% or less in accordance with following standards:
  - .1 National Hardwood Lumber Association (NHLA).
  - .2 AWMAC custom grade, moisture content as specified.

## **2.2 PANEL MATERIAL**

- .1 Douglas fir plywood (DFP): to CSA O121 , standard construction.
  - .1 Forestry Stewardship Council (FSC) certified.
- .2 Canadian softwood plywood (CSP): to CSA O151 , standard construction.
- .3 Hardwood plywood: to ANSI/HPVA HP-1 .
  - .1 Urea-formaldehyde free.
- .4 Poplar plywood (PP): to CSA O153 , standard construction.
- .5 Particleboard: to ANSI A208.1 .
- .6 Hardboard: to CAN/CGSB-11.3 .
- .7 Medium density fibreboard (MDF): to ANSI A208.2 , density 640-800 kg/m<sup>3</sup>.
  - .1 Medium density fibreboard .
- .8 Low density fibreboard: to CSA-A247M .
- .9 Decorative overlaid composite panels.
  - .1 Decorative overlay, heat and pressure laminated with suitable resin to thickness indicated 12.7 mm thick particleboard MDF core.
  - .2 Overlay bonded to both faces where exposed two sides, and when panel material require surface on one side only, reverse side to be overlaid with a plain (buff) balancing sheet.
  - .3 Furniture finish: selected by RCMP Project Manager .
  - .4 Edge finishing: matching melamine and polyester overlay edge strip with self-adhesive edge filler to provide a smooth surface for paint finish.

## **2.3 ACCESSORIES**

- .1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; plain finish elsewhere.
- .2 Wood screws: plain, type and size to suit application.
- .3 Splines: wood.
- .4 Adhesive: recommended by manufacturer .
  - .1 Adhesives: maximum VOC limit 30 g/L SCAQMD Rule 1168 - Adhesives and Sealants Applications.

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Do finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.
- .3 Form joints to conceal shrinkage.
- .4 Replace fire or water damaged existing materials, adjust existing structure to connect straight, level and true to new material.

**3.2 CONSTRUCTION**

- .1 Fastening:
  - .1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.
  - .2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.
  - .4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
- .2 Standing and running trim:
  - .1 Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitred joints.
  - .2 Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
  - .3 Make joints in baseboard, where necessary using a 45 degrees scarf type joint.
  - .4 Install door and window trim in single lengths without splicing.
- .3 Interior and exterior frames:
  - .1 Set frames with plumb sides and level heads and sills and secure.
- .4 Panelling:
  - .1 Secure panelling and perimeter trim using adhesive recommended for purpose by manufacturer. Fill nail holes caused by temporary fixing with filler matching wood in colour.
  - .2 Secure panelling and perimeter trim using concealed fasteners.
  - .3 Secure panelling and perimeter trim using counter sunk screws plugged with matching wood plugs.
- .5 Handrails, wall rails and bumper rails.

- .1 Make joints hair line, dowelled and glued.
- .2 Install brackets at ends and at 1500 mm on centre maximum at intermediate spacings.
- .3 Install metal backing plates between studs at bracket locations to ensure proper support for brackets and bolts or self-tapping screws.
- .4 Secure using counter sunk screws plugged with matching wood plugs.
- .6 Shelving:
  - .1 Install shelving on shelf brackets.

### **3.3 SCHEDULES**

- .1 Standard of Acceptance
  - .1 Manufacturer: Moulding and Millworks
  - .2 Material: Finger Joint Pine - Primed
  - .3 Schedule
    - .1 Window Casing: Model: MP356 7 /16"x2 1/4"
    - .2 Base Board: Model: MP3140 – 3/8"x3 1/4"
- .2 Shelving:
  - .1 Construction: Birch Plywood, 19mm thickness, G1S
  - .2 Shelves: 19MM Melamine surfaced MDF or Particle Board
  - .3 Shelves with Pilaster strips and strips

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Shop fabricated casework.
- .2        Wood trim, cabinet trim.
- .3        Hardware and attachment accessories.

**1.2                RELATED SECTIONS**

- .1        Section 06100 - Rough Carpentry: Wood blocking and curbing.
- .2        Section 06200 - Finish Carpentry.
- .3        Section 09910 - Paints and Coatings: Site finishing of finish carpentry items.

**1.3                QUALITY ASSURANCE**

- .1        Fabricator: Company specializing in custom carpentry work with three (3) years documented experience.
- .2        Perform work to AWMAC Quality Standards - Custom.

**1.4                REGULATORY REQUIREMENTS**

- .1        Conform to applicable code for fire retardant requirements.

**1.5                SUBMITTALS**

- .1        Submit shop drawings to requirements of Section 01330.
- .2        Indicate on shop drawings, materials, component profiles, fastening methods, jointing details, finishes.

**Part 2            Products**

**2.1                MATERIALS**

- .1        Softwood Lumber: AWMAC Custom grade; maximum moisture content of 6 percent, White Birch species.
- .2        Softwood Plywood: APA grade; core materials of veneer or lumber; SPF species.
- .3        Plastic Laminate: NEMA LD-3, 0.05 inch General Purpose; color, pattern, and surface finish as selected by RCMP Property Manager.



- .4 Plastic Laminate Backing: NEMA LD-3, high pressure paper base laminate without a decorative finish; 0.02 inch thick, smooth surface finish.

## **2.2 ACCESSORIES**

- .1 Contact Adhesives: Water base type.
- .2 Bolts, Nuts, Washers, Blind fasteners, Lags, and Screws: Size and type to suit application; plain finish.
- .3 Primer: Alkyd primer sealer type.
- .4 Plastic Edge Trim: Extruded convex shaped; smooth finish; self-locking serrated tongue; of width to match plywood thickness; same color as finish.

## **2.3 HARDWARE**

- .1 Shelf Standards, Brackets, and Rests: by manuf.
- .2 Drawer and Door Pulls: Chrome, solid steel type, 1/4 inch diameter rod.
- .3 Drawer Slides: By manufacturer.
- .4 Hinges: as per manuf.

## **2.4 SHOP FINISHING**

- .1 Shop finish work stain and seal factory finishing.

## **2.5 COUNTER TOPS**

- .1 Counter Tops to Be Post Formed with a 180 Underwrap Profile
- .2 Core Materials
  - .1 At counter tops with sinks fabricate from Douglas fir plywood (DFP)
  - .2 At all other counter tops may be fabricated from MDF.
- .3 Shop install Plastic laminate
  - .1 Laminate Manufacturers – Nevamar and Formica
  - .2 Color to be chosen from manufacturers standard range

## **2.6 MANUFACTURERS**

- .1 Standard of Acceptance is as follows
  - .1 Manufacturer: Kitchen Kraft
    - .1 Collection: Integra Collection

- .2 Door Style: Berkley
- .3 Wood: Maple
- .4 Finish: Natural
- .5 Pulls: Crescent pull
- .2 Or Approved Equal

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that site conditions are ready to receive work.
- .2 Beginning of installation means acceptance of site conditions.

**3.2 INSTALLATION**

- .1 Install work in accordance with AWMAC Custom Premium Quality Standard.
- .2 Set and secure materials and components in place, plumb and level.
- .3 Install components and trim, with screws and bolts with blind fasteners.
- .4 Cover exposed edges of shelving and site made casework with plastic edging. Width of edging to match shelving.
- .5 Apply plastic laminate finishes where indicated. Cap exposed edges with plastic laminate of same finish and pattern. Apply laminate backing sheet on reverse side of plastic laminate finished surfaces.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C553-02, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
  - .2 ASTM C665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
  - .3 ASTM C1320-05, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
- .2 Canadian Gas Association (CGA)
  - .1 CAN/CGA-B149.1-05, Natural Gas and Propane Installation Code Handbook.
  - .2 CAN/CGA-B149.2-05, Propane Storage and Handling Code.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .4 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S604-M1991, Type A Chimneys.
  - .2 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

**1.2 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

**1.3 QUALITY ASSURANCE**

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
  - .1 Verify project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Co-ordinate with other building subtrades.
  - .4 Review manufacturer's installation instructions and warranty requirements.
- .2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements .

## **Part 2 Products**

### **2.1 INSULATION**

- .1 Batt and blanket mineral fibre: to ASTM C553 ASTM C665 CAN/ULC S702.
  - .1 Type: Standard of Acceptance
    - .1 Roxul R-22
  - .2 Thickness: Fill entire cavity

### **2.2 ACCESSORIES**

- .1 Insulation clips:
  - .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.
- .3 Staples: 12 mm minimum leg.
- .4 Tape: as recommended by manufacturer.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

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

### **3.2 INSULATION INSTALLATION**

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C1320 .
- .2 Install insulation with factory applied vapour barrier facing warm side of building spaces and vapour permeable membrane facing cold side . Lap ends and side flanges of membrane over framing members. Retain in position with insulation clips installed as recommended by manufacturer. Tape seal butt ends and lapped side flanges. Do not tear or cut vapour barrier.
- .3 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .4 Do not compress insulation to fit into spaces.
- .5 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 Type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 Type B and L vents.
- .6 Do not enclose insulation until it has been inspected and approved by consultant.

**3.3 CLEANING**

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

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Foamed-in-place insulation in exterior framed walls, at exterior wall crevices requiring a thermal seal, and at floor system.
- .2        Foamed-in-place insulation at junctions of dissimilar wall and roof materials to achieve a thermal and air seal.

**1.2                RELATED SECTIONS**

- .1        Section 07 26 00 - Vapour Retarders: Materials continuing the vapour seal.
- .2        Section 07 27 00 - Air Barriers: Materials continuing the air barrier seal.

**1.3                REFERENCES**

- .1        ASTM C177-04 - Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus.
- .2        ASTM C1029-05a - Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.
- .3        ASTM D1621-04a - Compressive Properties of Rigid Cellular Plastics.
- .4        ASTM D1622-03 - Test Method for Apparent Density of Rigid Cellular Plastics.
- .5        ASTM D2482-97(2007) -Test Method for Surface Strength of Paper (Wax Pick Method).
- .6        ASTM E84-07 - Test Method for Surface Burning Characteristics of Building Materials.
- .7        ASTM E96/E96M-05 - Test Methods for Water Vapour Transmission of Materials.
- .8        CAN/ULC-S101-07 - Fire Endurance Tests of Building Construction and Materials.
- .9        CAN/ULC-S102-07 - Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .10        CAN/ULC-S705.1-01 - Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density - Material - Specification.
- .11        CAN/ULC-S705.2-05 - Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density, Installer's Responsibilities - Specification.
- .12        The Canadian Urethane Foam Contractors Association (CUFCA).

**1.4                ADMINISTRATIVE REQUIREMENTS**

- .1        Section 01 31 00: Project management and coordination procedures.
  - .1        Coordinate with other work having a direct bearing on work of this section.

- .2 Coordinate work to ensure timely placement of insulation within construction spaces.

## **1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide product description, insulation properties, preparation requirements , and overcoat properties.

## **1.6 SUBMITTALS FOR INFORMATION**

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements, perimeter conditions requiring special attention, and any other site conditions.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

## **1.7 QUALITY ASSURANCE**

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) () years documented experience.
- .3 Installer Qualifications: Applicators to be licensed and certified by the SPF Quality Assurance Program used by CUFCA.

## **1.8 REGULATORY REQUIREMENTS**

- .1 Conform to applicable code for flame and smoke, concealment, and over coat requirements.

## **1.9 ENVIRONMENTAL REQUIREMENTS**

- .1 Section 01 35 26: Environmental conditions affecting products on site.
- .2 Do not install insulation when ambient temperature is lower than 21 degrees C.

## **Part 2 Products**

### **2.1 MANUFACTURERS**

- .1 BASF : Walltite.
- .2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
  - .1 Approved equal.
- .3 Substitutions: Refer to Section 01 62 00.

## **2.2 MATERIALS**

- .1 Insulation: CAN/ULC-S705-98, with CCMC #12840-R for insulation and #12877-R for use as an air barrier material two component polyurethane type.

## **2.3 ACCESSORIES**

- .1 Primer: As required by insulation manufacturer.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify work within construction spaces or crevices is complete prior to insulation application.
- .3 Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

### **3.2 PREPARATION**

- .1 Mask and protect adjacent surfaces from over spray or dusting.
- .2 Apply primer in accordance with manufacturer's written instructions.

### **3.3 INSTALLATION**

- .1 Apply insulation in accordance with CAN/ULC-S705.2 and to manufacturer's instructions.
- .2 Apply insulation by spray method, to a uniform monolithic density without voids.
- .3 Apply to achieve a thermal resistance RSI value of 22 in walls and 40 in floor.
- .4 Patch damaged areas.

### **3.4 FIELD QUALITY CONTROL**

- .1 Inspection will include verification of insulation thickness and density.

### **3.5 PROTECTION OF FINISHED WORK**

- .1 Section 01 78 40: Protecting installed work.
- .2 Do not permit subsequent construction work to disturb applied insulation.

### **3.6 SCHEDULES**

- .1 See drawings.



**END OF SECTION**

## **Part 1           General**

### **1.1               REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.33-M89, Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
  - .2 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.

### **1.2               SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include:
    - .1 Product characteristics.
    - .2 Performance criteria.
    - .3 Limitations.

## **Part 2           Products**

### **2.1               SHEET VAPOUR BARRIER**

- .1 Polyethylene film: to CAN/CGSB-51.34, 6 mil thick.

### **2.2               ACCESSORIES**

- .1 Joint sealing tape: air resistant pressure sensitive adhesive tape, cloth fabric duct tape type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.
- .2 Sealant: compatible with vapour retarder materials, recommended by vapour retarder manufacturer. To Section 07 92 00 - Joint Sealing .
- .3 Staples: minimum 6 mm leg.
- .4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

## **Part 3           Execution**

### **3.1               INSTALLATION**

- .1 Ensure services are installed and inspected prior to installation of retarder.

- .2 Install sheet vapour retarder on warm side of exterior wall ceiling assemblies prior to installation of gypsum board to form continuous retarder.
- .3 Use sheets of largest practical size to minimize joints.
- .4 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

### **3.2 EXTERIOR SURFACE OPENINGS**

- .1 Cut sheet vapour retarder to form openings and ensure material is lapped and sealed to frame.

### **3.3 PERIMETER SEALS**

- .1 Seal perimeter of sheet vapour barrier as follows:
  - .1 Apply continuous bead of sealant to substrate at perimeter of sheets.
  - .2 Lap sheet over sealant and press into sealant bead.
  - .3 Install staples through lapped sheets at sealant bead into wood substrate.
  - .4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

### **3.4 LAP JOINT SEALS**

- .1 Seal lap joints of sheet vapour barrier as follows:
  - .1 Attach first sheet to substrate.
  - .2 Apply continuous bead of sealant over solid backing at joint.
  - .3 Lap adjoining sheet minimum 150 mm and press into sealant bead.
  - .4 Install staples through lapped sheets at sealant bead into wood substrate.
  - .5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

### **3.5 ELECTRICAL BOXES**

- .1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:
  - .1 Install moulded box vapour barrier Wrap boxes with film sheet providing minimum 300 mm perimeter lap flange.
  - .2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

### **3.6 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning .
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1            Requirements for installation of plywood, hardboard and lumber siding.

**1.2                RELATED SECTIONS**

- .1            Section 01 33 00 - Submittal Procedures.
- .2            Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3            Section 07 62 00 - Sheet Metal Flashing and Trim.
- .4            Section 07 92 00 - Joint Sealing.
- .5            Section 09 91 13 - Exterior Painting.

**1.3                REFERENCES**

- .1            American Society for Testing and Materials International, (ASTM).
  - .1            ASTM D5116-97, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .2            Canadian General Standards Board (CGSB).
  - .1            CAN/CGSB-11.3-M87, Hardboard.
  - .2            CAN/CGSB-11.5-M87, Hardboard, Precoated, Factory Finished, for Exterior Cladding.
  - .3            CAN/CGSB-11.6-M87, Installation of Exterior Hardboard Cladding.
  - .4            CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .3            Canadian Standards Association (CSA International).
  - .1            CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
  - .2            CSA O121-M1978(R1998), Douglas Fir Plywood.
  - .3            CSA O151-M1978(R1998), Canadian Softwood Plywood.
  - .4            CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
- .4            Environmental Choice Program (ECP).
  - .1            CCD-045-95, Sealants and Caulking Compounds.
- .5            National Lumber Grades Authority (NLGA).
  - .1            NLGA Standard Grading Rules for Canadian Lumber 2003.

**1.4                SUBMITTALS**

- .1            Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Samples:
  - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures .
- .3 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

## **1.5 QUALITY ASSURANCE**

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Hardboard siding:
  - .1 Factory finished: to CGSB 11.5, KWP NATURE TECH hardboard siding Prestige Double 5” duchlap, colour selected by Consultant from manufacturers standard colors.
- .2 Trimboard
  - .1 Factory Finished: to CGSB 11.5, KWP Nature Tech Hardbard trimboard 5/4”
- .3 Colors to be chosen from manufacturers standard set
- .4 Accessories: exposed trim, closures, cap pieces of manufacturer's standard.
- .5 Exterior wall sheathing paper: to CAN/CGSB-51.32
  - .1 Typar or approved equal
- .6 Fasteners: nails to CSA B111, as per manufacturers instructions.
- .7 Sealants: as per manufacturer.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

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

**3.2           INSTALLATION**

- .1       Install hardboard to CGSB11-GP-6M and manufacturers' instructions.
- .2       Install one layer sheathing paper horizontally by stapling , lapping edges 100 mm.
- .3       Install sill flashings, wood starter strips, inside corner flashings, edgings and flashings over openings.
- .4       Fasten wood siding in straight, aligned lengths to sheathing as per manufacturers instructions. Stagger butt joints not less than 800 mm and distribute evenly over wall faces . Cut butt joints at 45 degrees and for vertical siding slope to outside . Seal cut surfaces.

**3.3           CLEANING**

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

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1            Materials, preparation and application for caulking and sealants.

**1.2                RELATED SECTIONS**

- .1            Section 01 33 00 - Submittal Procedures.
- .2            Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3            Section 01 45 00 - Quality Control.
- .4            Section 01 61 00 - Common Product Requirements.

**1.3                REFERENCES**

- .1            American Society for Testing and Materials International, (ASTM)
  - .1            ASTM C919-02, 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            Department of Justice Canada (Jus)
  - .1            Canadian Environmental Protection Act, 1999 (CEPA).
- .4            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.
- .5            Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1            Material Safety Data Sheets (MSDS).
- .6            Transport Canada (TC)
  - .1            Transportation of Dangerous Goods Act, 1992 (TDGA).



#### **1.4 SUBMITTALS**

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .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 samples in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Submit duplicate samples of each type of material and colour.
- .5 Cured samples of exposed sealants for each color where required to match adjacent material.
- .6 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Instructions to include installation instructions for each product used.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

#### **1.6 PROJECT CONDITIONS**

- .1 Environmental Limitations:
  - .1 Do not proceed with installation of joint sealants under following conditions:
    - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
    - .2 When joint substrates are wet.
- .2 Joint-Width Conditions:
  - .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

#### **1.7 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 Labour Canada.

- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

## **Part 2 Products**

### **2.1 SEALANT MATERIALS**

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .2 When low toxicity caulks are not possible, confine usage to areas which offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.
- .3 Where sealants are qualified with primers use only these primers.

### **2.2 SEALANT MATERIAL DESIGNATIONS**

- .1 Sealant manufacturers to provide product catalogue. Subject to Consultants approval.
- .2 Urethanes One Part.
  - .1 Self-Leveling to CAN/CGSB-19.13, Type 1, colour as selected.
- .3 Urethanes One Part.
  - .1 Non-Sag to CAN/CGSB-19.13, Type 2, MCG-2-25 MCG-2-40, colour as selected.
- .4 Silicones One Part.
  - .1 To CAN/CGSB-19.13.
    - .1 Selant type: one part, acetoxo silicone sealant, cures to a flexible rubber when exposed to moisture present in the air, containin a fungicide, suitable for use in bathrooms, spas, and similar applications where joints need protection against fungi and bacteria. .
- .5 Acoustical Sealant.
  - .1 To ASTM C919.
  - .2 Acceptable material:single component, non-skinning, non-hardening synthetic rubber, dark gray color, designed for use in drywall partitions to inhibit air movement and buffer vibration
- .6 Acrylic Latex One Part
  - .1 To CAN/CGSB-19.17
- .7 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.

### **2.3 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

## **Part 3 Execution**

### **3.1 PROTECTION**

- .1 Protect installed Work of other trades from staining or contamination.

### **3.2 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.

### **3.3 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.

### **3.4 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.

### **3.5 MIXING**

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

### **3.6 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 Cleanup.
  - .1 Clean adjacent surfaces immediately and leave Work neat and clean.
  - .2 Remove excess and droppings, using recommended cleaners as work progresses.
  - .3 Remove masking tape after initial set of sealant.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 01 33 00 - Submittal Procedures.
- .2        Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3        Section 06 20 00 - Finish Carpentry.
- .4        Section 08 71 00 - Door Hardware - General.

**1.2                REFERENCES**

- .1        Architectural Woodwork Manufacturers Association of Canada (AWMAC).
  - .1        Quality Standards for Architectural Woodwork 1998.
- .2        Canadian General Standards Board (CGSB).
  - .1        CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
  - .2        CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3        Canadian Standards Association (CSA International).
  - .1        CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
  - .2        CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
  - .3        CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
  - .4        CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
  - .5        CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
  - .6        CSA Certification Program for Windows and Doors 00.
- .4        Environmental Choice Program (ECP).
  - .1        CCD-045-92, Sealants and Caulking Compounds.
  - .2        CCD-046-92, Adhesives.
- .5        National Fire Protection Association (NFPA).
  - .1        NFPA 80-1999, Standard for Fire Doors and Fire Windows.
  - .2        NFPA 252-1999, Standard Method of Fire Tests of Door Assemblies.
- .6        Underwriters' Laboratories of Canada (ULC).
  - .1        CAN-4S104M-80(R1985), Fire Tests of Door Assemblies.
  - .2        CAN4-S105M-85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.

**1.3                SUBMITTALS**

- .1        Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures .
  - .2 Indicate door types and cutouts for lights and louvres, sizes, core construction, transom panel construction and cutouts.

#### **1.4 SAMPLES**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Submit one 300 x 300 mm corner sample of each type wood door.
- .3 Show door construction, core, glazing detail and faces.
- .4 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

#### **1.5 QUALITY ASSURANCE**

- .1 Regulatory Requirements:
  - .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- .1 Storage and Protection:
  - .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
  - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
  - .3 Protect doors from scratches, handling marks and other damage
  - .4 Store doors away from direct sunlight.

#### **1.7 WASTE MANAGEMENT AND DISPOSAL**

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

- .2 Dispose of packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
- .4 Divert unused adhesive material from landfill to official hazardous material collections site approved by Departmental Representative.
- .5 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

## **Part 2 Products**

### **2.1 WOOD FLUSH DOORS**

- .1 Solid core: to CAN/CSA-O132.2.1.
- .2 Materials
  - .1 Standard of acceptance: Masonite Moulded Panel Series
    - .1 Style: 4 Panel Square Top
    - .2 Wood Type: High Density Fiber Board
  - .2 Construction:
    - .1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks.
    - .2 Solid, wood block, lined core: with two core liners:
      - .1 Glued block with wood edge band .
      - .2 Framed block glued core.
      - .3 Framed block nonglued core.
      - .4 Stile and rail core.
      - .5 7-ply construction.
  - .3 Adhesive: Type II (water resistant) for interior doors.
- .3 Hollow core: to CAN/CSA-O132.2.2.
  - .1 Construction: ladder core with lock blocks, 7-ply construction .
  - .2 Adhesive: Type II (water resistant) for interior doors.

### **2.2 STILE AND RAIL DOORS**

- .1 Fabricate doors as indicated to AWMAC CAN/CSA-O132.5.
- .2 Construction:
  - .1 Residential grade: to CAN/CSA-O132.5, interior construction.

### **2.3 FABRICATION**

- .1 Vertical edge strips to match door .

- .2 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.
- .3 Radius vertical edges of double acting doors to 60 mm radius.
- .4 Finish laminated plastic smooth and flush with stile edges of door and bevel at approximately 20 degrees.

### **Part 3 Execution**

#### **3.1 MANUFACTURER'S INSTRUCTIONS**

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

#### **3.2 INSTALLATION**

- .1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.
- .2 Install labelled fire rated doors to NFPA 80.
- .3 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A .
- .4 Adjust hardware for correct function.
- .5 Install stops.

#### **3.3 ADJUSTMENT**

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

#### **3.4 CLEANING**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking; clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**



**Part 1            General**

**1.1                REFERENCE STANDARDS**

All references shall be the current version or latest revision at the date of building permit issue:

- .1        Canadian Steel Door Manufacturers' Association, (CSDMA)
- .2        Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .3        CAN4-S104-M80, Method for Fire Tests of Door Assemblies.
- .4        CAN/ULC-S132, Emergency Exit and Emergency Fire Exit Hardware.
- .5        DHI (Door and Hardware Institute Canada) - AHC and EHC certification programs
- .6        Door Hardware Institute (DHI) - A115 series
- .7        Door Hardware Institute (DHI) - WDHS.3 - Hardware Locations for Wood Flush Doors
- .8        Builders Hardware Manufacturers Association (BHMA), A156 series.
- .9        NFPA 80, Fire Doors, Fire Windows.
- .10      NFPA 252, Fire Tests of Door Assemblies.
- .11      UL 10B, Fire Tests of Door Assemblies.
- .12      UL 305, Panic Hardware

**1.2                REGULATORY**

- .1        Hardware for doors in fire separations and exit doors shall be certified by a Canadian Certifications Organization accredited by the Standards Council of Canada.

**1.3                SUBMITTALS**

- .1        Product Data:
  - .1        Submit manufacturer's printed product literature, specifications and data sheet .
  - .2        Submit vertical form hardware list indicating manufacturer, model, material, function, finish and other pertinent information for each different type of hardware item proposed for use.
  - .3        Hardware samples, illustrating style, colour and finish, if requested by Owner.
- .2        Shop Drawings:

- .1 Submit shop drawings for electrified hardware. Identify manufacturer, model, function, finish, options and other pertinent information. List each item separately.
- .2 Provide description of operation for each different hardware set or function.
- .3 Include schematic wiring diagrams, electrical service requirements, interconnection diagrams.
- .4 Include parts lists and part numbers for each item.
- .3 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.
- .4 Closeout Submittals:
  - .1 Provide maintenance data and manual for door closers, door holders, locksets, fire exit hardware and electrified hardware.
  - .2 Include manufacturer, make and model number, parts list, and information of proper care, cleaning, and general maintenance of door hardware.
  - .3 Brief maintenance staff regarding proper care, cleaning and general maintenance.

#### **1.4 MAINTENANCE MATERIALS**

- .1 Provide two (2) sets of special wrenches for door closers, locksets and fire exit hardware and other tools applicable to each different or special hardware component.
- .2 Provide two (2) sets of maintenance tools and accessories supplied by hardware component manufacturer.

#### **1.5 QUALITY ASSURANCE**

- .1 Regulatory Requirements: hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

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

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Furnish door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

- .3 Furnish manufacturers' instructions for proper installation of each hardware component.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver and store finishing hardware in locked, clean and dry area. Maintain finishes and mechanism in perfect condition until the date of substantial performance.
- .2 Package each item of hardware including fastenings, separately or in like groups of hardware. Label each package as to item definition and location.
- .3 Maintain inventory list with hardware schedule.

## **Part 2 Products**

### **2.1 HARDWARE ITEMS**

- .1 Door hardware: as specified in Door Hardware Schedule included in Project Manual.
- .2 Use one manufacturer's products for all similar items.
- .3 Supply hardware as specified. No substitutions will be permitted without prior written approval of the Consultant.

### **2.2 TEMPLATES AND REINFORCING UNITS**

Supply all necessary templates, blueprints and reinforcing units to Subcontractors requiring such items for completion of their portion of the Work.

### **2.3 LOCKSETS AND KEYING**

- .1 Locksets shall be properly itemized as to keying and location.
- .2 Cylinders, deadbolts and keys will be supplied by RCMP project manager for the following door location:
  - .1 Building and suite entrances
- .3 All locks shall be keyed under the direction of the RCMP

### **2.4 BUTTS**

- .1 Provide doors up to and including 2150 mm (7'-0") in height and 900 mm (3'-0") in width with 1½ pair butts, unless indicated otherwise.
- .2 Provide doors over these sizes with two pair butts or as may be specified in Door Hardware Schedule.

### **2.5 FASTENINGS**

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

- .2 Use fasteners supplied by manufacturers with each specific hardware item only. No substitutions will be permitted.
- .3 Exposed fastening devices to match material and finish of hardware.
- .4 Where pull is required on one side of door and push plate on other side provide fastening devices so pull can be secured through door from reverse side. Install push plates to cover fasteners.
- .5 Include provisions for drilling push/pull plates to accept lock cylinder where both items occur on the same door.
- .6 Use fasteners compatible with material through which they pass. Execution

## **2.6 THRESHOLDS**

- .1 Install threshold plates level over entire length and width to ensure door bottom seals seal properly to thresholds.
- .2 Grout under thresholds with non-shrink grout to ensure solid and secure installation.
- .3 At exterior openings provide two beads of sealant under threshold plates. Sealant as specified in Section 07 92 00 – Joint Sealers.

## **2.7 SCHEDULE**

- .1 Refer to Door and Frame Schedules for number and location of following specific hardware groups.

### ENTRY DOORS – 1 3/4” HM

3 EA	HINGE -for door width < 34”	FBB248,UL-RATED 4.5”x4”	652	STANLEY
3 EA	HINGE -for door width min34”	FBB179,UL-RATED 4.5”x4”	652	STANLEY
1 EA	PASSAGE SET	AL10S SAT	626	SCHLAGE
1 EA	DEADLOCK	B660R	626	SCHLAGE
1 EA	CLOSER	SC60	689	LCN
1 EA	KICKPLATE	K10A 10” x WIDTH TO SUIT	628	STANDARD METAL
1 EA	FLOOR STOP	S103	626	STANDARD METAL
1 EA	VIEWER	U698	626	IVES

\*DOOR GUARD SHALL COVER BOTH PASSAGE SET AND DEADBOLT WHEN POSSIBLE

### BATHROOM DOORS – 1 3/8” HCW

3 EA	HINGE	FBB179	3.5 X 3.5	652	STANDARD METAL
1 EA	PRIVACY SET	F40 ELAN		626	SCHLAGE
1 EA	FLEXI STOP	060		652	IVES

BEDROOM/STORAGE ROOM DOORS – 1 3/8” HCW

3 EA	HINGE	FBB179	3.5 X 3.5	652	STANLEY
1 EA	PASSAGE SET	F10 ELAN		626	SCHLAGE
1 EA	FLEXI STOP	060		652	IVES

SGL CLOSET DOOR – SWINGING – 1 3/8” HCW

3 EA	HINGE	179	3.5 X 3.5	652	STANLEY
1 EA	DUMMY LEVER	F170	ELAN	626	SCHLAGE
1 EA	ROLLER LATCH	RL30		626	IVES

2 PANEL BY-PASSING DOORS – 1 3/8” HCW

1 SET	TRACK AND HANGERS	C-538 X 4/C100	STOPS	628	KN CROWDER
1 SET	GUIDE TRACK/ROLLER	C-201 X C-200		628	KN CROWDER
2 EA	FLUSH PULL	C-75		652	KN CROWDER

CLOSET DOOR – 2 PANEL BIFOLD – 1 3/8” HCW

1 SET	TRACK AND PIVOT	CF-115		628	KN CROWDER
1 EA	H/D PIANO HINGE	314		652	STANDARD METAL
1 EA	PULL	M85C		628	STANDARD METAL

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that doors and frames are ready to receive work and dimensions are as indicated on Shop Drawings and as instructed by the manufacturer.
- .2 Verify that electric power is available to power operated devices and is of the correct characteristics.

**3.2 INSTALLATION**

- .1 Install hardware to standard hardware location dimensions in accordance with CSDMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.2 The following dimensions are only to be used as a general guide in the placement of hardware. Where special items are concerned, or uncertainty exists, check with the Consultant before fitting. Dimensions indicated are from finish floor to centre line of item, except as noted.

.1 Knob Locksets: 1024 mm (40-5/16")

.2 Push/Pull Plates: 1067 mm (42")

.3 Guard Bars: 1092 mm (43")

.4 Deadlock: 1220 mm (48")

.5 Exit Device (to cross bar): 1024 mm (40-5/16")

.3 Push and pull plates: install 127 mm (5") from edge of door to centre of plate, unless indicated otherwise. Where pulls are mounted back-to-back use #5 mounting.

.4 Install closers and stops to allow maximum door swing permitted by the hardware and adjacent construction.

.5 Where door stop contacts door pulls, mount stop to strike bottom of pull.

### **3.3 ADJUSTING AND CLEANING**

.1 After work is complete adjust hardware for proper function and smooth operation.

.2 After work is complete clean and polish hardware finishes. Remove dust, dirt, smudges and other markings.

### **3.4 FINAL INSPECTION AND CERTIFICATION**

.1 The Contractor shall, upon completion of the work, visit the job site, check the installation of hardware, and certify in writing to the Consultant that the hardware and installation, as specified, has been furnished, installed and is in proper working order in accordance with manufacturer's written instructions and as specified.

### **3.5 PROTECTION OF FINISHED WORK**

.1 The Contractor shall not permit adjacent work to damage hardware or finish.

**END OF SECTION**



**Part 1            General**

**1.1                RELATED SECTIONS**

- .1            Section 01 33 00 - Submittal Procedures.
- .2            Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

**1.2                REFERENCES**

- .1            Aluminum Association
  - .1            Designation for Aluminum Finishes-1997.
- .2            American Society for Testing and Materials International, (ASTM)
  - .1            ASTM C36/C36M-01, Specification for Gypsum Wallboard.
  - .2            ASTM C79/C79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
  - .3            ASTM C442/C442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
  - .4            ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .5            ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
  - .6            ASTM C557-99, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
  - .7            ASTM C630/C630M-01, Specification for Water-Resistant Gypsum Backing Board.
  - .8            ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
  - .9            ASTM C931/C931M-01, Specification for Exterior Gypsum Soffit Board.
  - .10          ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
  - .11          ASTM C960/C960M-01, Specification for Pre-decorated Gypsum Board.
  - .12          ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
  - .13          ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .14          ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.
  - .15          ASTM C1177-01, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
  - .16          ASTM C1178/C1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
- .3            Association of the Wall and Ceilings Industries International (AWEI)
- .4            Canadian General Standards Board (CGSB)



- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .5 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

### **1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

### **1.4 SITE ENVIRONMENTAL REQUIREMENTS**

- .1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

### **1.5 SAMPLES**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

### **1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

## Part 2 Products

### 2.1 MATERIALS

- .1 Standard board: to ASTM C36/C36M regular, 13 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.
- .2 Gypsum sheathing board: to ASTM C79/C79M, regular, 13 mm thick and Type X, 16mm thick , 1200 mm wide x maximum practical length.
- .3 Backing board and coreboard: to ASTM C442/C442M regular, mm thick and Type X, mm thick, rounded squared bevelled T&G edges.
- .4 Water-resistant board: to ASTM C630/C630M regular, 13 mm thick and Type X, 16 mm thick, 1200 mm wide x maximum practical length.
- .5 Metal furring runners, hangers, tie wires, inserts, anchors: to manufacturers standard.
- .6 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .7 Resilient clips : 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .8 Steel drill screws: to ASTM C1002.
- .9 Stud adhesive: to CAN/CGSB-71.25 ASTM C557.
- .10 Laminating compound: as recommended by manufacturer, asbestos-free.
- .11 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, zinc-coated by hot-dip process , 0.5 mm base thickness, perforated flanges, one piece length per location.
- .12 Sealants: in accordance with Section 07 92 00 - Joint Sealing.
- .13 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .14 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .15 Joint compound: to ASTM C475, asbestos-free.

### 2.2 FINISHES

- .1 Texture finish: asbestos-free standard white texture coating and primer-sealer, recommended by gypsum board manufacturer.

**Part 3 Execution**

**3.1 ERECTION**

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing in accordance with ASTM C1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, .
- .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .10 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .11 Furr openings and around built-in equipment, cabinets, access panels, , on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- .13 Erect drywall resilient furring transversely across studs joists between the layers of gypsum board, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail 25 mm drywall screw.
- .14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

**3.2 APPLICATION**

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single double layer gypsum board to wood metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.

- .1 Single-Layer Application:
  - .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
  - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .2 Double-Layer Application:
  - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
  - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
  - .3 Apply base layers at right angles to supports unless otherwise indicated.
  - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .3 Apply single layer gypsum board to concrete block surfaces, where indicated, using laminating adhesive.
  - .1 Comply with gypsum board manufacturer's recommendations.
  - .2 Brace or fasten gypsum board until fastening adhesive has set.
  - .3 Mechanically fasten gypsum board at top and bottom of each sheet.
- .4 Exterior Soffits and Ceilings: Install exterior gypsum board perpendicular to supports; stagger end joints over supports. Install with 6 mm gap where boards abut other work.
- .5 Apply water-resistant gypsum board in washrooms and adjacent to slop sinks janitors closets . Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.
- .6 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, , in partitions where perimeter sealed with acoustic sealant.
- .7 Arrange vinyl-faced gypsum board symmetrical about openings and wall areas, with butt joints aluminum/vinyl mouldings between joints.
- .8 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .9 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .10 Install gypsum board with face side out.
- .11 Do not install damaged or damp boards.
- .12 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

### 3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre using contact adhesive for full length.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.
- .6 Construct control joints of preformed units two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
- .7 Provide continuous polyethylene dust barrier behind and across control joints.
- .8 Locate control joints where indicated at changes in substrate construction at approximate 10 m spacing on long corridor runs at approximate 15 m spacing on ceilings.
- .9 Install control joints straight and true.
- .10 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .11 Install expansion joint straight and true.
- .12 Install cornice cap where gypsum board partitions do not extend to ceiling.
- .13 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.
- .14 Splice corners and intersections together and secure to each member with 3 screws.
- .15 Install access doors to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .16 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .17 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
  - .1 Levels of finish:
    - .1 Level 0: No tapping, finishing or accessories required.

- .2 Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
- .3 Level 2: Embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable.
- .4 Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .5 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .6 Level 5: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.
- .18 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .19 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .20 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .21 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .22 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
- .23 Mix joint compound slightly thinner than for joint taping.
- .24 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
- .25 Allow skim coat to dry completely.
- .26 Remove ridges by light sanding or wiping with damp cloth.
- .27 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian Environmental Protection Act (CEPA) 1999
- .2 Canadian Lumbermen's Association (CLA)
  - .1 CLA Grading Rules for Canadian Hardwood Strip Flooring. The Long Standing Choice 1997.
- .3 Canadian General Standards Board (CGSB)
  - .1 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
  - .2 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

**1.2 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 samples in accordance with Section 01 33 00 - Submittal Procedures .
- .4 Closeout Submittals:
  - .1 Provide maintenance data for floor finish and care for incorporation into manual specified in Section 01 78 00 - Closeout Submittals .

**1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements .
- .2 Ensure concrete, masonry, sheetrock, paint and framing members are thoroughly dry before flooring is delivered.
- .3 Do not truck or unload flooring in rain, snow or other excessively humid conditions.
- .4 Cover flooring with tarpaulin or vinyl if atmosphere is foggy or damp.
- .5 Store in fully enclosed, well-ventilated, clean, dry building with weatherproof windows.
- .6 Leave adequate room for air circulation around stacks of flooring.
- .7 Maintain heat near occupancy levels for five days prior to delivery and until sanding and finishing are complete during winter months.

- .8 Deliver flooring and divide into small lots in installation locations.
- .9 Waste Management and Disposal:
  - .1 Separate waste materials for reuse and recycling

#### 1.4 ENVIRONMENTAL REQUIREMENTS

- .1 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of materials.
- .2 Ventilation:
  - .1 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities .
- .3 Temperature:
  - .1 Maintain ambient temperature of not less than 18 degrees C nor more than 21 degrees C from 72 hours before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40 % during same period.
  - .2 Maintain minimum temperature 10 degrees C within area of installation until final acceptance of building .
  - .3 Ensure substrate is within moisture limits prescribed by flooring manufacturer.
  - .4 Install flooring after masonry, plastering work is completed and overhead mechanical and electrical work is finished in wood floor areas.

#### 1.5 MAINTENANCE

- .1 Extra Materials:
  - .1 Deliver 4 boxes of each type and pattern of wood flooring required for this project for maintenance use. Include sufficient amount of adhesive, underlayment and finishing materials and installation and application instructions. Store as directed.

### Part 2 Products

#### 2.1 MATERIALS

- .1 High vinyl tile (VP-1) : to ASTM F1066, Composition 1 - non asbestos
  - .1 Armstrong Vivero Best
    - .1 Color to be chosen from all available options
  - .2 Wear Layer Min 0.51mm
  - .3 Finish Urethane Plus
  - .4 Warrantee Residential: Lifetime
  - .5 Tile Dimensions:6" x 48" or 4 ½" x 48".
- .2 **Tiles to be glued down with a full spread adhesive and not interlocked.**



**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

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

**3.2 INSTALLATION: CUSHIONED SUBFLOOR SYSTEM**

- .1 Attach resilient pads to underside of sheathing at 300 mm on centre and at corners.
- .2 Cover floor with sheathing parallel to short dimension of room.
- .3 Nail second layer of sheathing to first layer at 600 mm on centre and with 45 or 90 degree offset from first layer.
- .4 Stagger and offset sheathing joints over first layer.
- .5 Maintain minimum 6 mm expansion space at joints between sheathing panels.

**3.3 CONSTRUCTION**

- .1 Install finish flooring parallel to long dimension of room.
- .2 Install as per manufacturers instructions
- .3 Maintain 2" expansion space at perimeter of floor surface .
- .4 Install thresholds at openings and where indicated. Attach threshold to adjacent rigid floor surface. Threshold to act as ramp between floor surfaces over expansion space.

**3.4 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

**3.5 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning .
- .2 Clean flooring and base surfaces to flooring manufacturer's printed instructions.

**3.6 PROTECTION**

- .1 Protect new floors from until final waxing.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM F1303-04, Standard Specification for Sheet Vinyl Floor Covering with Backing.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 South Coast Air Quality Management District (SCAQMD), California State
  - .1 SCAQMD Rule 1113-04, Architectural Coatings.
  - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

**1.2 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 samples in accordance with Section 01 33 00 - Submittal Procedures .
  - .1 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base, nosing, feature strips, treads, edge strips.
- .4 Closeout Submittals:
  - .1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals .

**1.3 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 21 - Construction/Demolition Waste Management and Disposal .

**1.4 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.

**1.5 MAINTENANCE**

- .1 Extra Materials:

- .1 Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01 78 00 - Closeout Submittals .
- .2 Provide 10 m<sup>2</sup> of each colour, pattern and type flooring material required for project for maintenance use.
- .3 Extra materials one piece and from same production run as installed materials.
- .4 Identify each roll of sheet flooring and each container of adhesive.
- .5 Deliver to owner, upon completion of the work of this section.

## **Part 2 Products**

### **2.1 MATERIALS (LVT-1)**

- .1 Provide NATURAL CREATIONS® with Diamond 10™ Technology: ArborArt® Luxury Solid Vinyl Tile Flooring manufactured by Armstrong Flooring Inc.
  - .1 Description: A layered construction consisting of a tough, clear, rigid vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a diamond-infused UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.
  - .2 Reference specification - ASTM F 1700, "Standard Specification for Solid Vinyl Tile", Class III, Type B – Embossed Surface. Meets requirements for size, squareness, thickness, thickness of wear layer, residual indentation, resistance to chemicals, resistance to light and resistance to heat.
  - .3 Pattern and Color: in [%COLOR%] [color selected from the range currently available from Armstrong Flooring Inc.]
  - .4 Size: 48 in. x 6 in. (1219.2 mm x 152.4 mm).
  - .5 Wear layer thickness: 0.020 (0.5 mm)
  - .6 Thickness: 1/8"/0.125 in. (3.2mm)

### **2.2 ADHESIVES**

- .1 Provide Armstrong S-288 Flooring Adhesive under the flooring.

### **2.3 ACCESSORIES**

- .1 For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
- .2 Provide transition/reducing strips tapered to meet abutting materials.
- .3 Provide threshold of thickness and width as shown on the drawings.
- .4 Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

- .5 Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anc

### **Part 3 Execution**

#### **3.1 MANUFACTURER'S INSTRUCTIONS**

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

#### **3.2 SITE VERIFICATION OF CONDITIONS**

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

#### **3.3 PREPARATION**

- .1 Remove existing flooring.
- .2 Wood subfloors: Armstrong resilient floors are recommended on suspended wood subfloors with a 1/4" underlayment (see product installation systems for exceptions) and a minimum of 18" of well-ventilated air space below. Armstrong Flooring does not recommend installing resilient flooring on wood subfloors applied directly over concrete or on sleeper-construction subfloors. Loading requirements for subfloors are normally set by various building codes on both local and national levels. Trade associations such as APA-The Engineered Wood Association provide structural guidelines for meeting various code requirements. Subfloor panels are commonly marked with span ratings showing the maximum center-to-center spacing in inches of supports over which the panels should be placed.
  - .1 Refer to the Armstrong Flooring Guaranteed Installation Systems manual, F-5061 and ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use under Resilient Flooring for additional information.
  - .3 Wood subfloors - Surface Cleaning: Make subfloor free from dust, dirt, grease, and all foreign materials.
    - .1 Check panels for sources of discoloration such as contamination from paint, varnish, stain overspray or spills, plumbing sealers, asphalt, heater fuel, markers or potential staining agents such as wood or bark not visible on the surface, edge sealers, logo markings, printed nail patterns and synthetic patches.
    - .2 Remove old adhesive.
    - .3 Cover adhesive, oil or wax residue with an appropriate underlayment. If the residue is tacky, place a layer of felt or polyethylene sheeting over it to prevent a cracking sound when walking on the floor.
    - .4 Remove all paint, varnish, oil and wax from all subfloors. Many buildings constructed before 1978 contain lead-based paint, which can pose a health hazard

if not handled properly. State and federal regulations govern activities that disturb lead-based painted surfaces and may also require notice to building occupants. **Do not remove or sand lead-based paint without consulting a qualified lead professional for guidance on lead-based paint testing and safety precautions.** Armstrong Flooring does not recommend the use of solvents to remove paint, varnish, oil, wax or old adhesive residues because the solvents can remain in the subfloor and negatively affect the new installation. Whenever sanding, be certain the work site is well ventilated and avoid breathing dust. If high dust levels are anticipated, use appropriate National Institute for Occupational Safety and Health (NIOSH) designated dust respirator. All power sanding tools must be equipped with dust collectors. Avoid contact with skin or eyes. Wear gloves, eye protection and long-sleeve, loose fitting clothes

- .5 For additional information on the installation and preparation of wood and board-type underlayments see the current edition of ASTM F1482, "Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring."
- .6 Vacuum or broom-clean surfaces to be covered immediately before the application of flooring.

### 3.4 APPLICATION: FLOORING

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 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 one 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 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.
- .4 Run sheets in direction of traffic. Double cut sheet joints and continuously seal heat weld according to manufacturer's printed instructions.
- .5 Heat weld seams of linoleum sheet flooring in accordance with manufacturer's printed instructions.
- .6 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion or as per manufacturers recommended roller.
- .7 Cut flooring around fixed objects.
- .8 Install feature strips and floor markings where indicated. Fit joints tightly.
- .9 Install flooring in pan type floor access covers. Maintain floor pattern.
- .10 Continue flooring over areas which will be under built-in furniture.
- .11 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.

- .12 Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
- .13 Install metal edge strips at unprotected or exposed edges where flooring terminates.

### **3.5 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

### **3.6 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning .
- .2 Remove excess adhesive from floor, base and wall surfaces without damage.
- .3 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

### **3.7 PROTECTION**

- .1 Protect new floors from time of final set of adhesive until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.
- .3 Use only water-based coating for linoleum.

**END OF SECTION**

## **Part 1 General**

### **1.1 REFERENCES**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Master Painters Institute (MPI)
  - .1 MPI Architectural Painting Specifications Manual, 2004.
  - .2 MPI - Maintenance Repainting Manual, 1998.

### **1.2 SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures 01 00 10 - General Instructions.
- .2 Product Data:
  - .1 Submit product data and instructions for each paint and coating product to be used.
  - .2 Submit product data for the use and application of paint thinner.
  - .3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures 01 00 10 - General Instructions.
  - .4 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - .5 Submit manufacturer's installation and application instructions.

### **1.3 STORAGE AND HANDLING**

- .1 Storage and Protection:
  - .1 Provide and maintain dry, temperature controlled, secure storage.
  - .2 Store materials and supplies away from heat generating devices.
  - .3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
- .2 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 National Fire Code of Canada requirements.



## **1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Place materials defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.
- .4 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

## **1.5 SITE CONDITIONS**

- .1 Heating, Ventilation and Lighting:
  - .1 Ventilate enclosed spaces continuously during and after painting process. Run ventilation system 24 hours per day during installation, and provide continuous ventilation for 7 days after completion of application of paint.
  - .2 Co-ordinate use of existing ventilation system with RCMP Property Manager and ensure its operation during and after application of paint as required.
  - .3 Provide minimum lighting level of 323 Lux on surfaces to be painted.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
  - .1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
  - .2 Test concrete, masonry and plaster surfaces for alkalinity as required.
  - .3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.
- .3 Additional application requirements:
  - .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 in occupied facilities during silent hours only. Schedule operations to approval of RCMP Property Manager such that painted surfaces will have dried and cured sufficiently before occupants are affected.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Provide paint materials for paint systems from single manufacturer.
  - .1 Acceptable Manufacturers: Sherwin Williams, Benjamin Moore, Pittsburgh Paints.

- .2 Conform to latest MPI requirements for all painting work including preparation and priming.
- .3 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.
- .4 Use MPI listed materials having minimum E2 rating where indoor air quality (odour) requirements exist.

## 2.2 COLOURS

- .1 Colour schedule will be based upon selection of five base colours and three accent colours.

## 2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written instructions. Obtain written approval from Consultant for tinting of painting materials.
- .2 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .3 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

## 2.4 GLOSS/SHEEN RATINGS

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
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.

## 2.5 EXTERIOR PAINTING

- .1 Concrete Vertical Surfaces: (including horizontal soffits)
  - .1 EXT 3.1A - Latex semi gloss finish.

- .2 Concrete Masonry Units: smooth and split face block and brickEXT 4.2A - Latex semi gloss finish.
- .3 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
  - .1 EXT 5.1D - Alkyd semi gloss finish.
- .4 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
  - .1 EXT 5.3B - Alkyd semi gloss finish.
- .5 Dimension Lumber: columns, beams, exposed joists, underside of decking, siding, fencing, etc.
  - .1 EXT 6.2B - Waterborne solid colour stain finish.
  - .2 EXT 6.2C - Alkyd semi gloss finish.
  - .3 EXT 6.2L - Semi-transparent stain finish.
- .6 Dressed Lumber: doors, door and window frames, casings, battens, smooth facias, etc.
  - .1 EXT 6.3B - Alkyd semi gloss finish do not use flat finish on doors.
  - .2 EXT 6.3C - Solid colour stain finish do not use in high contact areas or on doors.
  - .3 EXT 6.3D - Semi-transparent stain finish do not use on doors.

## **2.6 EXTERIOR RE-PAINTING**

- .1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
  - .1 REX 5.1D - Alkyd semi gloss.
  - .2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
    - .1 REX 5.3B - Alkyd semi gloss.
  - .3 Dressed Lumber: doors, door and window frames, casings, battens, smooth fascias, etc.
    - .1 REX 6.3B - Alkyd semi gloss.
    - .2 REX 6.3D - Semi-Transparent Stain.

## **2.7 INTERIOR PAINTING**

- .1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.
  - .1 INT 5.1E Alkyd - semi gloss finish.
- .2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
  - .1 INT 5.3C - Alkyd semi gloss finish (over cementitious primer).
- .3 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.
  - .1 INT 9.2A - Latex semi gloss finish (over latex sealer).
  - .2 INT 9.2C - Alkyd semi gloss finish (over latex sealer).
  - .3 INT 9.2M - Institutional low odour/low VOC semi gloss finish.

## **2.8 INTERIOR RE-PAINTING**

- .1 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).
  - .1 RIN 5.3C - Alkyd semi gloss.
- .2 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.
  - .1 RIN 9.2A - Latex semi gloss.
  - .2 RIN 9.2C - Alkyd semi gloss finish.

## **Part 3 Execution**

### **3.1 GENERAL**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.
- .2 Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.

### **3.2 EXAMINATION**

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to RCMP Property Manager and General Contractor damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 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.

### **3.3 PREPARATION**

- .1 Protection:
  - .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 RCMP Property Manager or Consultant.
  - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
  - .3 Protect factory finished products and equipment.
- .2 Surface Preparation:
  - .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 RCMP Property Manager.
- .3 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.
  - .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 vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
    - .2 Apply wood filler to nail holes and cracks.
    - .3 Tint filler to match stains for stained woodwork.
  - .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 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.
  - .8 Touch up of shop primers with primer as specified.
  - .9 Do not apply paint until prepared surfaces have been accepted by Consultant

### **3.4 APPLICATION**

- .1 Method of application to be as approved by Consultant. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .3 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .4 Sand and dust between coats to remove visible defects.
- .5 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.

**3.5 MECHANICAL/ELECTRICAL EQUIPMENT**

- .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
- .2 Do not paint over nameplates.
- .3 Keep sprinkler heads free of paint.
- .4 Paint fire protection piping red.
- .5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .6 Paint natural gas piping yellow.
- .7 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.

**END OF SECTION**