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## **Part 1 General**

### **1.1 PROJECT TITLE, LOCATION AND OWNER**

- .1 Project: **Crown Housing and Lanky Court Roofing Replacement**
- .2 Locations: **Yellowknife, Northwest Territories**
  - .1 Crown Housing Roofing Replacement:
    - 3 Negus Place
    - 4 Negus Place
    - 51 Rycon Drive
    - 54 Con Road
  - .2 Lanky Court Roofing Replacement
    - 881 - 885 Lanky Court

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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May 6, 2022

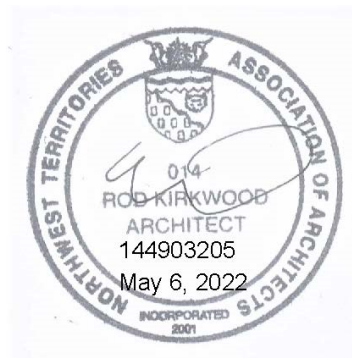
## Part 1 General

### 1.1 SECTION INCLUDES

- .1 Hereinafter are the signed and dated professional seals and permits to practice of the design professionals and others responsible for preparing the Construction Documents.
- .2 Specifications Divisions and Sections bound herein are listed below under the name of the Designer-of-Record responsible for their preparation, under whose seal and authority seal each document so listed is issued for the purpose stated above.
- .3 Seals and signatures do not apply to documents not included herein, nor to documents prepared by the Owner or others, including (except as otherwise indicated) Sections in Division 00 Procurement and Contracting Requirements and Division 01 General Requirements.

### 1.2 ARCHITECT OF RECORD

- .1 I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and that I am a registered architect licensed to practice in the Northwest Territories of Canada.



#### **Architect's Seal and Permit to Practice**

- .2 Rodney (Rod) Kirkwood, Sr. Architect, NWTAA, MRAIC, Principal  
Stantec Architecture Ltd.  
2nd Flr. 4910 - 53rd Street, P.O. Box 1777  
Yellowknife, NT, X1A 2P4
- .3 Sections covered by my seal:
  - .1 All Sections in Divisions 01, 02, 06 & 07.

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## **Part 1 General**

### **1.1 LIST OF DRAWING SHEETS**

- .1 A001 | COVER SHEET, DRAWING LIST, LOCATION MAP
- A101 | 3&4 NEGUS PLACE - SITE PLANS, ROOF PLAN, AND EXTERIOR ELEVATIONS
- A102 | 51 RYCON DRIVE - SITE PLANS, ROOF PLAN, AND EXTERIOR ELEVATIONS
- A103 | 54 RYCON DRIVE - SITE PLANS, ROOF PLAN, AND EXTERIOR ELEVATIONS
- A104 | 881-885 LANKY COURT - SITE PLANS, ROOF PLAN, AND EXTERIOR ELEVATIONS
- A105 | 881-885 LANKY COURT - EXTERIOR ELEVATIONS
- A501 | SECTIONS AND DETAILS - ROOF TYPE 1
- A502 | SECTIONS AND DETAILS - ROOF TYPE 2

### **Part 2 Products - Not Used**

### **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the replacement of roofing, insulation and vapour barrier systems at . of nine housing units (5 roofs) located at 881-885 Lanky Court, 3 & 4 Negus Place, 51 Rycon Drive, and 54 Con Road , located at Yellowknife, NT ; and further identified as Crown Housing and Lanky Court Roof Replacement.

### 1.2 CONTRACT METHOD

- .1 Construct Work under Single, Stipulated Price contract.

### 1.3 WORK SEQUENCE

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

### 1.4 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance.
- .2 Limit use of premises for access, to allow:
  - .1 Owner occupancy.
  - .2 Work by other contractors.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .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 Departmental Representative.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

### 1.5 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
    - .1 Occupancy will vary from vacant units under interior renovation to tenant occupied living spaces.
  - .2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Owner usage.
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**1.6 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

**1.7 EXISTING SERVICES**

- .1 Notify, Departmental Representative 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 tenant operations.
- .3 Provide alternative routes for pedestrian and vehicular traffic.
- .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 Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .7 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .8 Record locations of maintained, re-routed and abandoned service lines.
- .9 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 Waste Management Plan
    - .12 Other documents as specified.
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**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## **Part 1 General**

### **1.1 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

### **1.2 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to occupants, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

### **1.3 EXISTING SERVICES**

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 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 Provide for pedestrian and vehicular traffic.
- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

### **1.4 BUILDING SMOKING ENVIRONMENT**

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

## **Part 2 Products - Not Used**

## **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and Departmental Representative.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

### 1.2 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
  - .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
  - .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
  - .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
  - .5 Agenda to include:
    - .1 Appointment of official representative of participants in the Work.
    - .2 Schedule of Work: in accordance with Section 01 32 16.19.
    - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
    - .4 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
    - .5 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
    - .6 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
    - .7 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
    - .8 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
    - .9 Monthly progress claims, administrative procedures, photographs, hold backs.
    - .10 Appointment of inspection and testing agencies or firms.
    - .11 Insurances, transcript of policies.
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**1.3 PROGRESS MEETINGS**

- .1 During course of Work and two weeks prior to project completion, schedule progress meetings monthly.
- .2 Contractor, major Subcontractors involved in Work , Departmental Representative and Consultant are to be in attendance.
- .3 Notify parties minimum 10 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 4 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 - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## 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 Departmental Representative to enable monitoring of project work in relation to established milestones.

### 1.2 REQUIREMENTS

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

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

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

**1.5 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Award.
  - .2 Shop Drawings, Samples.
  - .3 Permits.
  - .4 Mobilization.
  - .5 Excavation.
  - .6 Siding and Roofing.

**1.6 PROJECT SCHEDULE REPORTING**

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

**1.7 PROJECT MEETINGS**

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

**Part 2 Products - Not Used****Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 ADMINISTRATIVE

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

### 1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
  - .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Northwest Territories, Canada.
  - .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
  - .4 Allow 10 days for Departmental Representative's review of each submission.
  - .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
  - .7 Accompany submissions with transmittal letter, in duplicate, containing:
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- .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 Relationship to adjacent work.
  - .9 After Departmental Representative's review, distribute copies.
  - .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
  - .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
  - .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
    - .2 Testing must have been within 3 years of date of contract award for project.
  - .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
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- .2 Certificates must be dated after award of project contract complete with project name.
  - .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
    - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
  - .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
  - .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
  - .18 Delete information not applicable to project.
  - .19 Supplement standard information to provide details applicable to project.
  - .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, electronic copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
  - .21 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.
    - .1 This review shall not mean that PWGSC 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 location directed by Departmental Representative.
  - .3 Notify Departmental Representative 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 Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
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- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

#### **1.4 MOCK-UPS**

- .1 Erect mock-ups in accordance with 01 43 00 - Quality Assurance.

#### **1.5 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic copy of colour digital photography in jpg format, standard resolution monthly with progress statement.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 4 locations.
  - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: monthly.

#### **1.6 CERTIFICATES AND TRANSCRIPTS**

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

#### **Part 2 Products - Not Used**

#### **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Northwest Territories and Nunavut
  - .1 OCCUPATIONAL HEALTH AND SAFETY REGULATION R-039-2015.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit 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 3 copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction (1) and Departmental Representative (2).
- .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.
- .6 Submit WHMIS Safety Data Sheets (SDS) in accordance with Section 02 81 00 - Hazardous Materials.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

### 1.3 FILING OF NOTICE

- .1 File Notice of Project with Territorial authorities prior to beginning of Work.

### 1.4 SAFETY ASSESSMENT

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

### 1.5 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
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**1.6 REGULATORY REQUIREMENTS**

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

**1.7 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 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

**1.8 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 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Contractor shall be the Principal Contractor as described in the Quebec Act Respecting Health and Safety code for the Construction for only their scope and areas of work as defined and described this project specification.
- .4 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.

**1.9 COMPLIANCE REQUIREMENTS**

- .1 Comply with Safety Act, General Safety Regulations, R.R.N.W.T. 1990, current to April 1, 2010.

**1.10 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 Territory having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of Territory having jurisdiction and advise Departmental Representative verbally and in writing.

**1.11 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
    - .1 Have site-related working experience specific to activities associated with selective demolition and roofing.
    - .2 Have working knowledge of occupational safety and health regulations.
    - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
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- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

#### **1.12 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 Territory having jurisdiction, and in consultation with Departmental Representative.

#### **1.13 CORRECTION OF NON-COMPLIANCE**

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

#### **1.14 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 - Not Used**

#### **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCES TO REGULATORY REQUIREMENTS

- .1 Department of Justice Canada (Jus)
  - .1 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
- .2 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.
- .3 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code
  - .1 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 Departmental Representative.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

### 1.3 BUILDING SMOKING ENVIRONMENT

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

### 1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements: Except as otherwise specified, Constructor shall apply for, obtain, and pay fees associated with, permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract and the following:
  - .1 Regulatory requirements and fees in force on date of Bid submission, and
  - .2 A change in regulatory requirements or fees scheduled to become effective after date of tender submission and of which public notice has been given before date of tender submission

## Part 2 Products

### 2.1 NOT USED

- .1 Not Used.
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## 2.2 PERMITS

- .1 Development Permit: Departmental Representative has applied for, obtained, and paid for development permit.
- .2 Building Permit:
  - .1 Contractor shall apply for, obtain and pay for building permit on behalf of the Departmental Representative, and other permits required for Work and its various parts.
  - .2 Contractor shall display building permit and other permits in a conspicuous location at Place of Work.
- .3 Occupancy Permits:
  - .1 Contractor shall apply for, obtain, and pay for occupancy permits, including partial occupancy permits where required by authority having jurisdiction.
  - .2 Departmental Representative will issue appropriate instructions to Contractor for correction to Work where Contract Document deficiencies are required to be corrected in order to obtain occupancy permits, including partial occupancy permits.
  - .3 Contractor shall correct deficiencies in accordance with Departmental Representative 's instructions. Where deficiency is not corrected, Owner reserves the right to make correction and charge Contractor for costs incurred.
  - .4 Contractor shall turn occupancy permits over to Departmental Representative.

### Part 3 Execution - Not Used

**END OF SECTION**

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## Part 1 General

### 1.1 DEFINITIONS

- .1 Mock-up: A full-size physical example that demonstrates materials, finishes, interrelationship of materials and assemblies, aesthetic effects, and execution. A mock-up may demonstrate coordination of multiple Subcontractors' work. A mock-up establishes a standard by which the Work will be judged. Mock-ups are not samples.
- .2 Quality Assurance: Procedures for preventing defects and deficiencies before and during execution of the Work.
- .3 Quality Audit: Systematic and independent examination to determine whether quality requirements have been fulfilled as planned. A quality audit will examine processes, products and services to determine if they have been implemented effectively to achieve their specified objective.

### 1.2 REFERENCE STANDARDS

- .1 ASTM International (ASTM):
  - .1 [ASTM E329-20](#) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- .2 International Organization for Standardization (ISO):
  - .1 ISO 9001: 2015, Quality Management Systems - Requirements

### 1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Contractor is responsible for self-performed testing and inspections and submittal of test reports to Departmental Representative.
- .2 Owner will employ and pay for quality audit services performed through third-party observation and testing to validate the Contractor's performance of the Work and perform whole building testing at completion of project.
- .3 Departmental Representative will employ and pay for quality audit services performed through third-party observation and testing to validate the Contractor's performance of the Work.

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit certificates for products for approval by Departmental Representative.
- .3 Submit one digital copy of each quality assurance inspection and test report to Departmental Representative, except where a technical specification Section indicates otherwise.

### 1.5 QUALIFICATIONS

- .1 Manufacturers' Qualifications:
    - .1 specializes in manufacturing the products specified in the technical Section of the Project's construction specification.
    - .2 minimum 3 years documented experience with a record of successful performance
  - .2 Suppliers' Qualifications:
    - .1 authorized to distribute manufacturer's products
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- .2 has capacity to supply required products without delaying the Project
- .3 Fabricators' Qualifications:
  - .1 experienced in producing products required for this Project
  - .2 successful record of in-service performance
  - .3 sufficient production capacity to fabricate required products without delaying the Project
- .4 Installer Qualifications:
  - .1 firm or individual experienced in design and installation, application, and erection of materials to the extent required for this Project
  - .2 successful record of in-service performance
- .5 Licensed Professionals Qualifications:
  - .1 individual registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

#### 1.6 CERTIFICATIONS

- .1 Ensure that certification of products, processes, and systems includes physical and examination testing as specified in [ASTM E329](#) to confirm compliance with Specifications requirements.

#### 1.7 COORDINATION

- .1 Obtain Departmental Representative approval before proceeding with inspections , and additional tests and inspections as may be reasonably requested by Departmental Representative .

#### 1.8 SITE SAMPLES

- .1 Obtain Departmental Representative's acceptance to proceed with the sampling process.
- .2 Ensure testing agency performs sampling in accordance with [ASTM E329](#).
  - .1 When sampling collection is required by testing agency, ensure proper protection, handling and storing of samples.
- .3 Testing agency to document procedures and appropriate techniques to select samples.
- .4 Record details of environmental conditions present during the sampling, such as rain or freezing weather that may affect testing of sample or interpretation of test results.

#### 1.9 MOCK-UPS

- .1 Mock-ups can be used as a reference for assessing quality of workmanship and site-applied finishes as requested in the project's Contract Documents.
- .2 Obtain Departmental Representative's acceptance of mock-ups installation before beginning to install those portions of the Work represented by the mock-up.
- .3 Assemble mock-ups at the Place of the Workin locations acceptable to Departmental Representative , or where location is indicated in the technical specification Section.
- .4 Schedule mock-ups ready for Departmental Representative 's review and in orderly sequence, to avoid delays in Work.



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- .1 Failure to prepare mock-ups in ample time is not considered sufficient reason to request an extension of Contract Time. Claims for extension of Contract Time by reason of such default will not be considered.
  - .5 If requested, Departmental Representative will assist in scheduling dates for construction of mock-ups.
  - .6 Construct mock-ups using materials, finishes, colours, and methods proposed for the completed Work. Mock-ups to demonstrate proposed workmanship and range of aesthetic appearance.
  - .7 Where a mock-up represents or affects multiple specification Sections, coordinate activities of these Subcontractors to ensure mock-ups are complete.
  - .8 Modify or replace mock-ups when unacceptable to Departmental Representative.

#### **1.10 WARRANTY**

- .1 Warranty: provide joint, written, 5 year full system warranty between roofing system supplier and installer against leakage, damage caused by wind and/or due to poor workmanship.
- .2 Warranty applies to materials supply and installation included in Section 07 26 00 Sheet Vapour and Weather Barriers, 07 61 00 Sheet Metal Roofing and Section 07 62 00 Sheet Metal Flashing and Trim.

#### **Part 2 Products**

##### **2.1 NOT USED**

- .1 Not Used.

#### **Part 3 Execution**

##### **3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

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## **Part 1 General**

### **1.1 ACTION AND INFORMATIONAL 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 TEMPORARY POWER AND LIGHT**

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 230 volts 30 amps.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

### **1.4 FIRE PROTECTION**

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

## **Part 2 Products - Not Used**

## **Part 3 Execution - Not Used**

**END OF SECTION**

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## **Part 1 General**

### **1.1 ACTION AND INFORMATIONAL SUBMITTALS**

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

### **1.2 INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be 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.

### **1.3 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain ladders and scaffolding

### **1.4 SITE STORAGE/LOADING**

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

### **1.5 CONSTRUCTION PARKING**

- .1 Parking will not be permitted on site.
- .2 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 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
  - .2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of
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- equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .3 Protect travelling public from damage to person and property.
  - .4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
  - .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

**1.9 CLEAN-UP**

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

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .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.
- .2 CSA Group (CSA)
  - .1 CSA-O121-M1978 (R2003), Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

### 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 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around open edges of roofs.

### 1.4 WEATHER ENCLOSURES

- .1 Make roof watertight at the end of each working day and prior to forecasted precipitation.
- .2 Design enclosures to withstand wind pressure and snow loading.

### 1.5 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

### 1.6 FIRE ROUTES

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

### 1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

### 1.8 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
  - .2 Provide necessary screens, covers, and hoardings.
  - .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
  - .4 Be responsible for damage incurred due to lack of or improper protection.
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**1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

#### 1.2 QUALITY

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

#### 1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative 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 sheet materials, lumber and insulation.
  - .5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
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- .6 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

### **1.5 TRANSPORTATION**

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

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

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

### **1.7 QUALITY OF WORK**

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

### **1.8 CO-ORDINATION**

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

### **1.9 REMEDIAL WORK**

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

### **1.10 LOCATION OF FIXTURES**

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

### **1.11 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.
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- .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.

#### **1.12 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.

#### **1.13 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 Departmental Representative.

#### **1.14 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 - Not Used**

#### **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

### 1.2 MATERIALS

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

### 1.3 PREPARATION

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

### 1.4 EXECUTION

- .1 Execute cutting, fitting, and patching to complete Work.
  - .2 Fit several parts together, to integrate with other Work.
  - .3 Uncover Work to install ill-timed Work.
  - .4 Remove and replace defective and non-conforming Work.
  - .5 Remove samples of installed Work for testing.
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- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

#### **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

#### **Part 2 Products - Not Used**

#### **Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by building occupants.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Clear snow and ice from access to building, remove from site.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 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 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
  - .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
  - .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
  - .4 Remove waste products and debris other than that caused by occupants.
  - .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
  - .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
  - .7 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.
  - .8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
  - .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
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- .10 Remove dirt and other disfiguration from exterior surfaces.
- .11 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .12 Sweep and wash clean paved areas.
- .13 Clean roofs, downspouts, and drainage systems.
- .14 Remove snow and ice from access to building.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 SUMMARY

- .1 Owner has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors be employed by the Contractor.

### 1.2 RELATED REQUIREMENTS

- .1 Section 02 81 00 - Hazardous Materials
- .2 DEFINITIONS
  - .1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.
  - .2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
  - .3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
  - .4 Non hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
  - .5 Non toxic: Not poisonous to humans either immediately or after a long period of exposure.
  - .6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
  - .7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
  - .8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.
  - .9 Return: To give back reusable items or unused products to vendors for credit.
  - .10 Reuse: To reuse a construction waste material in some manner on the project site.
  - .11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
  - .12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.
  - .13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
  - .14 Toxic: Poisonous to humans either immediately or after a long period of exposure.
  - .15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
  - .16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:
    - .1 Solvents in paints and other coatings;

- .2 Wood preservatives; strippers and household cleaners;
- .3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.
- .4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.
- .17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
- .18 Construction Waste Management Plan: A project related plan for the collection, transportation, and disposal of the waste generated at the construction site; the purpose of the plan is to ultimately reduce the amount of material being landfilled.

### 1.3 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
  - .1 ASTM E1609 01, Standard Guide for Development and Implementation of a Pollution Prevention Program

### 1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project, and ensure that requirements of the Construction Waste Management Plan are followed.
- .2 Preconstruction Meeting: Arrange a pre-construction meeting in accordance with Section 01 31 19 - Project Meetings before starting any Work of the Contract attended by the Departmental Representative to discuss the Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

### 1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide required information in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals: Provide the following submittals before starting any work of this Section:
  - .1 Draft Construction Waste Management Plan (Draft CWM Plan): Submit to Departmental Representative a preliminary analysis of anticipated site generated waste by listing a minimum of five (5) construction or demolition waste streams that have potential to generate the most volume of material indicating methods that will be used to divert construction waste from landfill and source reduction strategies; Departmental Representative will provide commentary before development of Contractor 's Construction Waste Management Plan.

### 1.6 QUALITY ASSURANCE

- .1 Resources for Development of Construction Waste Management Report (CWM Report): The following sources may be useful in developing the Draft Construction Waste Management Plan:

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**1.7 DELIVERY, STORAGE AND HANDLING**

- .1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.
- .2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:
  - .1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
  - .2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.
- .3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.

**Part 2 Products - Not Used****Part 3 Execution****3.1 (CWM PLAN) IMPLEMENTATION**

- .1 Manager: Contractor is responsible for designating an on site party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.
- .2 Distribution: Distribute copies of the CWM Plan to the job site foreman, each Subcontractor, the Owner, the Departmental Representative and other site personnel as required to maintain CWM Plan.
- .3 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the project to Subcontractor 's at appropriate stages of the project.
- .4 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting and return:
  - .1 Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
  - .2 Hazardous wastes shall be separated, stored, and disposed of in accordance with local regulations.
- .5 Progressive Documentation: Submit a monthly summary of waste generated by the project to ensure that waste diversion goals are on track with project requirements:
  - .1 Submission of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Owner, Contractor and Departmental Representative.
  - .2 Monthly waste summary shall contain the following information:
    - .1 The amount in tonnes or m<sup>3</sup> and location of material landfilled,
    - .2 The amount in tonnes or m<sup>3</sup> and location of materials diverted from landfill, and
    - .3 Indication of progress based on total waste generated by the project with materials diverted from landfill as a percentage.

**3.2 SUBCONTRACTOR'S RESPONSIBILITY**

- .1 Subcontractor 's shall cooperate fully with the Contractor to implement the CWM Plan.
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- .2 Failure to cooperate may result in the Owner not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractor 's.

### **3.3 SAMPLE CONSTRUCTION WASTE MANAGEMENT FORMS**

- .1 Sample waste tracking form below can be used by the Contractor to establish their own forms for recording management of construction waste:

**END OF SECTION**

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## Part 1 General

### 1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
    - .2 Request Departmental Representative inspection.
  - .2 Departmental Representative Inspection:
    - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
    - .3 Work: complete and ready for final inspection.
  - .4 Final Inspection:
    - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
    - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
  - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
  - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
  - .7 Final Payment:
    - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
  - .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

### 1.2 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
    - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
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- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 ADMINISTRATIVE REQUIREMENTS

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

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

### 1.3 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.
    - .1 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.
    - .1 Bind in with text; fold larger drawings to size of text pages.
  - .9 Provide scaled CAD files in dxf format on USB flash drive.
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**1.4 CONTENTS - PROJECT RECORD DOCUMENTS**

- .1 Table of Contents for Each Volume: 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.
  - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 43 00 - Quality assurance.

**1.5 AS -BUILT DOCUMENTS AND SAMPLES**

- .1 Maintain, in addition to requirements in General Conditions, 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.
  - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
  - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

**1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS**

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
  - .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
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- .3 Record information concurrently with construction progress.
    - .1 Do not conceal Work until required information is recorded.
  - .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
    - .1 Measured depths of elements of foundation in relation to finish first floor datum.
    - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
    - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
    - .4 Field changes of dimension and detail.
    - .5 Changes made by change orders.
    - .6 Details not on original Contract Drawings.
    - .7 Referenced Standards to related shop drawings and modifications.
  - .5 Specifications: mark each item to record actual construction, including:
    - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
    - .2 Changes made by Addenda and change orders.
  - .6 Other Documents: maintain manufacturer's certifications, required by individual specifications sections.
  - .7 Provide digital photos, if requested, for site records.

### 1.7 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
  - .1 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.

### 1.8 MAINTENANCE MATERIALS

- .1 Extra Stock 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 location as directed ; place and store.
    - .4 Receive and catalogue items.
      - .1 Submit inventory listing to Departmental Representative.
      - .2 Include approved listings in Maintenance Manual.
    - .5 Obtain receipt for delivered products and submit prior to final payment.
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**1.9 DELIVERY, STORAGE AND HANDLING**

- .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 for review by Departmental Representative.

**Part 2 Products - Not Used**

**Part 3 Execution - Not Used**

**END OF SECTION**

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## Part 1 General

### 1.1 SUMMARY

- .1 This Section includes the following:
  - .1 Demolition and removal of selected portions of exterior building components or structural elements.
  - .2 Repair procedures for selective demolition operations.
- .2 This section does not include the following:
  - .1 Removal of hazardous materials or asbestos abatement.
  - .2 Demolition of interior building components and finishes.
- .3 Drawings contain details that suggest directions for solving some of the major demolition and removal requirements for this project; Contractor is required to develop these details further by submitting a demolition plan prepared by a professional engineer employed by the Contractor.

### 1.2 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)
  - .1 ANSI A10.8 2011, Safety Requirements for Scaffolding
- .2 CSA Group:
  - .1 CSA S350 M1980 (R2003), Code of Practice for Safety in Demolition of Structures
- .3 National Research Council Canada (NRC)
  - .1 National Building Code of Canada 2015 (NBC).
- .4 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Assessment Act (CEAA), 2012
- .5 National Fire Protection Association (NFPA)
  - .1 NFPA 241 13, Standard for Safeguarding Construction, Alteration, and Demolition Operations

### 1.3 DEFINITIONS

- .1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.
  - .2 Remove and Salvage: Detach items from existing construction and deliver them to Departmental Representative.
  - .3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
  - .4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.
  - .5 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB's, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled
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improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

#### 1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions with all elements in planes as drawn, maintaining their relationships with all other building elements.
- .2 Coordination: Coordinate with Departmental Representative for the material ownership as follows:
  - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Departmental Representative 's property, demolished materials shall become Contractor 's property and shall be removed from Project site.

#### 1.5 ACTION AND INFORMATION SUBMITTALS

- .1 Action Submittals: Provide the following submittals before starting any work of this Section:
  - .1 Schedule of Selective Demolition Activities: Coordinate with Section 01 32 16.16– Construction Progress Schedule - Critical Path Method (CPM), and indicate the following:
    - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
    - .2 Coordinate with Departmental Representative 's user group ongoing site operations, and limit the number of interruptions during regular business hours.
    - .3 Interruption of utility services.
    - .4 Coordination for shutoff, capping, and continuation of utility services.
  - .2 Schedule of Selective Demolition Activities: Coordinate with Section 01 32 .16.19 – Construction Progress Schedule - - bar (GANTT) chart, and indicate the following:
    - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
    - .2 Coordinate with Departmental Representative 's user group ongoing site operations, and limit the number of interruptions during regular business hours.
    - .3 Interruption of utility services.
    - .4 Coordination for shutoff, capping, and continuation of utility services.
    - .5 Coordination with Departmental Representative 's continuing occupancy of portions of existing building and of partial occupancy of completed Work.
  - .3 Schedule of Selective Demolition Activities: Coordinate with Section 01 32 16.16– Construction Progress Schedule - bar (GANTT) chart, and indicate the following:
    - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.

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- .2 Coordinate with Departmental Representative 's user group ongoing site operations, and limit the number of interruptions during regular business hours.
- .3 Interruption of utility services.
- .4 Coordination for shutoff, capping, and continuation of utility services.
- .5 Coordination with Departmental Representative 's continuing occupancy of portions of existing building and of partial occupancy of completed Work.

## 1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: Comply with governing environmental notification requirements and regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction and in accordance with the following:

## 1.7 SITE CONDITIONS

- .1 Owner will occupy portions of building immediately adjacent to selective demolition area:
  - .1 Conduct selective demolition so that Owner 's operations will not be disrupted.
  - .2 Provide not less than 72 hours notice to Departmental Representative of activities that will affect Owner 's operations.
- .2 Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities and as follows:
  - .1 Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- .3 Departmental Representative assumes no responsibility for condition of areas to be selectively demolished:
  - .1 Conditions existing at time of Pre Bid Site Review will be maintained by Departmental Representative as far as practical.
- .4 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Departmental Representative if materials suspected of containing hazardous substances are encountered and perform the following activities:
  - .1 Refer to Section 01 41 00– Regulatory Requirements for directives associated with specific material types.
  - .2 Hazardous materials will be as defined in the Hazardous Materials Act.
  - .3 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Departmental Representative. Hazardous materials will be removed by Departmental Representative under a separate contract or as a change to the Work.
- .5 Storage or sale of removed items or materials on site will not be permitted.
- .6 Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- .7 Maintain fire protection facilities in service during selective demolition operations.

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**Part 2 Products - Not Used****Part 3 Execution****3.1 EXAMINATION**

- .1 Verify that utilities have been disconnected and capped.
- .2 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- .3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- .4 Notify the Departmental Representative where existing mechanical, electrical, or structural elements conflict with intended function or design:
  - .1 Investigate and measure the nature and extent of conflict and submit a written report to Departmental Representative.
  - .2 Departmental Representative will issue additional instructions or revise drawings as required to correct conflict.

**3.2 UTILITY SERVICES**

- .1 Coordinate existing services indicated to remain and protect them against damage during selective demolition operations.
- .2 Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - .1 Arrange to shut off affected utilities with utility companies.
  - .2 If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
  - .3 Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- .3 Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.
- .4 Existing Utilities:
  - .1 Abandon existing utilities and below grade utility structures; cut utilities flush with grade.

**3.3 PREPARATION**

- .1 Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
  - .2 Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
    - .1 Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Departmental Representative and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
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### 3.4 SELECTIVE DEMOLITION

- .1 Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - .1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - .2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - .3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - .4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame cutting operations. Maintain fire watch and portable fire suppression devices during flame cutting operations.
  - .5 Remove decayed, vermin infested, or otherwise dangerous or unsuitable materials and promptly dispose of off site.
  - .6 Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  - .7 Dispose of demolished items and materials promptly.
  - .8 Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- .2 Comply with Departmental Representative 's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- .3 Existing Items to Remain:
  - .1 Protect construction indicated to remain against damage and soiling during selective demolition
  - .2 Items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete
- .4 Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to Section Applicable Division 7 Section for new roofing requirements.

### 3.5 CLOSEOUT ACTIVITIES

- .1 Patching and Repairs: Promptly repair damage to adjacent construction caused by selective demolition operations and as follows:
    - .1 Patch to produce surfaces suitable for new materials where repairs to existing surfaces are required,
    - .2 Completely fill holes and depressions in remaining existing masonry walls remain with an approved masonry patching material applied according to manufacturer's written recommendations.
  - .2 Demolition Waste Disposal: Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre) except
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where explicitly noted otherwise for materials being salvaged for re use in new construction and as follows:

- .1 Promptly dispose of demolished materials.
- .2 Do not allow demolished materials to accumulate onsite.
- .3 Do not burn demolished materials.

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
  - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
- .2 Department of Justice Canada (Jus)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c. 34).
  - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 WHMIS Safety Data Sheets (SDS).
- .4 National Research Council Canada (NRC)
  - .1 National Fire Code of Canada 2015 (NFC).

### 1.2 DEFINITIONS

- .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into environment.
- .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS Safety Data Sheets (SDS) in accordance with Section 01 35 29.06 - Health and Safety Requirements to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
  - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.
  - .4 Hazardous waste classification: identify waste codes applicable to each hazardous waste material based on applicable federal and provincial acts, regulations, and guidelines. Waste profiles, analyses, and classification submitted to contract offices for review and approval.

### 1.4 DELIVERY, STORAGE AND HANDLING

- .1 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
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- .1 When exporting hazardous waste to another country, ensure compliance with Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations.
  - .2 Storage and Handling Requirements:
    - .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
    - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
    - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada (NFC) requirements.
    - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
      - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
      - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
    - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
    - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
    - .7 Solvents or cleaning agents: non-flammable or have flash point above 38 degrees C.
    - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
    - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
    - .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
      - .1 Store hazardous materials and wastes in closed and sealed containers.
      - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
      - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
      - .4 Segregate incompatible materials and wastes.
      - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
      - .6 Store hazardous materials and wastes in secure storage area with controlled access.
      - .7 Maintain clear egress from storage area.
      - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
      - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
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- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
  - .1 Co-ordinate transportation and disposal with Departmental Representative.
  - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
  - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
  - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
  - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
  - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
  - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
  - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
  - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

## Part 2 Products

### 2.1 MATERIALS

- .1 Description:
  - .1 Bring on site only quantities hazardous material required to perform Work.
  - .2 Maintain WHMIS Safety Data Sheets (SDS) in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.
  - .3 Spill Response Materials: provide spill response materials which can be used for absorbing/shoveling and containing hazardous materials.
  - .4 Provide personal protective equipment.

## Part 3 Execution

### 3.1 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.



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- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
  - .2 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
  - .3 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
  - .4 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
  - .5 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
  - .6 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 CSA Group (CSA)
  - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
  - .2 CSA O121-08, Douglas Fir Plywood.
  - .3 CSA O141-05 (R2009), Softwood Lumber.
  - .4 CSA O151-09, Canadian Softwood Plywood.
  - .5 CAN/CSA-O325.0-07, Construction Sheathing.
- .2 National Research Council Canada (NRC)
  - .1 National Building Code of Canada 2015 (NBC).
- .3 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2010.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for rough carpentry work and include product characteristics, performance criteria, physical size, finish and limitations.

### 1.3 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
- .3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.
- .4 Sustainable Standards Certification:
  - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

### 1.4 DELIVERY, STORAGE AND HANDLING

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

## Part 2 Products

### 2.1 MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
- .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
  - .3 CAN/CSA-Z809 or FSC or SFI certified.
- .2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
- .1 S2S is acceptable for all framing, blocking and backing.
  - .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.
  - .5 Pressure treated with wood preservative where indicated.
- .3 Panel Materials:
- .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
    - .1 Urea-formaldehyde free.
  - .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
    - .1 Urea-formaldehyde free.
  - .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
    - .1 Urea-formaldehyde free.
- .4 Wood Preservative:
- .1 Pentachlorophenol use is restricted to building components that are in ground contact and subject to decay or insect attack only. Where used, pentachlorophenol-treated wood must be covered with two coats of an appropriate sealer.
  - .2 Structures built with wood treated with pentachlorophenol and inorganic arsenicals must not be used for storing food nor should the wood come in contact with drinking water.
- .5 Primers: in accordance with manufacturer's recommendations for surface conditions:

### 2.2 ACCESSORIES

- .1 Fasteners: to CAN/CSA-G164, for exterior work.
  - .2 Nails, spikes and staples: to CSA B111.
  - .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
  - .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
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## Part 3 Execution

### 3.1 EXAMINATION

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

### 3.2 INSTALLATION

- .1 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.
- .2 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .5 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.
- .6 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.
- .7 Install sleepers as indicated.
- .8 Use caution when working with particle board. Use dust collectors and high quality respirator masks.
- .9 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .10 Countersink bolts where necessary to provide clearance for other work.

### 3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

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## Part 1 General

### 1.1 RELATED REQUIREMENTS

- .1 Section 07 26 00 Vapour Retarders.
- .2 Section 07 61 00 Sheet Metal Roofing

### 1.2 REFERENCE STANDARDS

- .1 ASTM International
  - .1 ASTM C591-13, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
  - .2 ASTM C612-14, Standard Specification for Mineral Fibre Block and Board Thermal Insulation.
  - .3 ASTM C726-12, Standard Specification for Mineral Fiber Roof Insulation Board.
  - .4 ASTM E96/E96M-13, Standard Test Methods for Water Vapour Transmission of Materials.
- .2 Canadian General Standards Board (CGSB)
  - .1 CGSB 71-GP-24M-AMEND-77 (R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
- .3 CSA Group
  - .1 CSA B149 PACKAGE-10, Consists of B149.1, Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (SDS).
- .5 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S604-2012, Standard for Factory-Built Type A Chimneys.
  - .2 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
  - .3 CAN/ULC-S702-2012, Standard for Mineral Fibre Insulation for Buildings.
  - .4 CAN/ULC-S704-11, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .1 Submit manufacturer's instructions, printed product literature and data sheets for board insulation and include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's during application and curing.
  - .3 Shop Drawings:
  - .4 Samples:
    - .1 Submit 300 x 300 mm x 100 mm sample of board insulation.
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- .5 Certificates:
  - .1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .6 Test Reports:
  - .1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .7 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.
- .8 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

#### 1.4 DELIVERY, STORAGE AND HANDLING

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

### Part 2 Products

#### 2.1 INSULATION

- .1 Board Insulation Type A : Rigid Cellular Polyisocyanurate
  - .1 Unfaced: to ASTM C591.
  - .2 Type: III to CAN/ULC-S702
  - .3 Compressive strength: 172kPa.
  - .4 Thickness: 100 & 38mm mm as indicated.
  - .5 Size: 1220 x 1220 or 1220 x 2440.
  - .6 Edges: shiplapped.
- .2 Board Insulation Type B: Mineral fibre board: to ASTM C726
  - .1 Type: III.
  - .2 Density: Top Layer: 220 kg/m<sup>3</sup>.
  - .3 Density: Bottom Layer: 150 kg/m<sup>3</sup>.
  - .4 Surfaces: unsurfaced.

- .5 Thickness: 2-100mm layers or as indicated.
- .6 Size: 1219mm x 1219mm.

## 2.2 TYPE 1 ADHESIVE

- .1 For Board Insulation Type A and B
- .2 Two Component adhesive for cold weather application
- .3 Colour: light grey

## 2.3 ACCESSORIES

- .1 Insulation clips: 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.

## Part 3 Execution

### 3.1 EXAMINATION

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

### 3.2 INSTALLATION

- .1 Install insulation after building substrate materials are dry.
- .2 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
- .4 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.
- .5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .6 Offset both vertical and horizontal joints in multiple layer applications.
- .7 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

### 3.3 RIGID INSULATION INSTALLATION

- .1 Apply adhesive beads continuously at 100mm o.c. in accordance with manufacturer's recommendations.
- .2 Imbed insulation boards into vapour barrier type adhesive, applied as specified, prior to skinning of adhesive.

- .3 In addition to adhesive, install mineral fibre insulation boards with insulation clips and disk, 2 per 600 x 1200 mm board minimum, fit boards tight, cut off fastener spindle 3 mm beyond disk.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

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

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for vapour retarders and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Certificates:
  - .1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

### 1.3 QUALITY ASSURANCE

- .1 Warranty: provide joint, written, 5 year full system warranty between membrane system supplier and installer against leakage or damage due to poor workmanship.
- .2 Mock-Ups:
  - .1 Submit mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .2 Construct mock-up of sheet vapour barrier installation including one lap joint, one inside corner and at one electrical box. Mock-up may be part of finished work.
  - .3 Mock-up will be used to judge quality of work, substrate preparation, and material application.
  - .4 Locate where directed.
    - .1 Intent is to prepare one mock-up in one roof location to review typical conditions at all locations.
  - .5 Allow 24 hours for inspection of mock-up by Consultant before proceeding with vapour barrier work.
  - .6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

### 1.4 DELIVERY, STORAGE AND HANDLING

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

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

## Part 2 Products

### 2.1 SHEET BARRIERS

- .1 Air Vapour Barrier: Self-adhesive air/vapour barrier membrane composed of SBS modified bitumen and a tri-laminated woven polyethylene facer used on walls, with an underface of silicone release paper or film.

### 2.2 ACCESSORIES

- .1 Sealant: compatible with vapour retarder materials, recommended by vapour retarder manufacturer. To Section 07 92 00 - Joint Sealants.
- .2 Primer: compatible with vapour retarder materials, recommended by vapour retarder manufacturer.

## Part 3 Execution

### 3.1 EXAMINATION

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

### 3.2 INSTALLATION

- .1 Ensure services are installed and inspected prior to installation of retarder.
- .2 Prime all surfaces to receive self-adhering vapour barrier in accordance with manufacturer's written instructions.
- .3 Install sheet vapour barrier on exterior face of sheathing as indicated.
  - .1 All lap joints to be vertical at eave/curb assemblies and parallel with roof slope.
  - .2 Drain moisture at vapour barrier plane to rain screen cavity in eave assembly as indicated.
- .4 Install over primed sheathing barrier to manufacturer's written instructions:
  - .1 Ambient temperature above -10°C.
  - .2 Roll out full length of membrane to relax.

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- .3 Pull silicone release sheet at 45° angle.
- .4 Lap joints 75mm.
- .5 Seal joints with weighted roller.
- .5 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
  - .1 Remove insulation material spilled during installation and leave work area ready for application of wall board.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 Aluminum Association (AA)
  - .1 DAF-45-R03, Designation System for Aluminum Finishes - 9th Edition.
  - .2 ASM-35-October 2000, Specifications for Aluminum Sheet Metal Work in Building Construction, Section 5.
- .2 ASTM International
  - .1 ASTM A653/A653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM D523-89 (2008), Standard Test Method for Specular Gloss.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Safety Data Sheets (SDS).
- .4 National Building Code of Canada 2015 (NBC).
  - .1 CCMC- Registry of Product Evaluations.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .1 Submit manufacturer's instructions, printed product literature and data sheets for sheet metal roofing and include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Proof of manufacturer's CCMC listing and listing number.
    - .3 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
  - .3 Shop Drawings:
    - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Northwest Territories, Canada.
    - .2 Engineer Roofing Panels, cleats, Thermal Isolation clips, steel angle rail and all fasteners to withstand all snow, wind and maintenance loads for Yellowknife, Northwest Territories..
    - .3 Indicate arrangement of pre-finished Roof Sheet, including joints, types and locations of supports, fasteners, flashing, mitres, and all metal components related to the roof installation
  - .4 Samples:
    - .1 Submit 300 x 300 duplicate mm samples of each sheet metal material.
  - .5 Sustainable Design Submittals:
    - .1 Construction Waste Management:
      - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
-

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### 1.3 QUALITY ASSURANCE

- .1 Warranty: provide joint, written, 5 year full system warranty between roofing system supplier and installer against leakage, damage caused by wind and/or due to poor workmanship.
- .2 Mock-ups:
  - .1 Submit mock-ups in accordance with Section 01 43 00 - Quality assurance.
  - .2 Fabricate
  - .3 Mock-up will be used:
    - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
  - .4 Locate where directed.
    - .1 Intent is to prepare one mock-up in one roof location to review typical conditions at all locations.
  - .5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sheet metal flashing work.
  - .6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work.
  - .7 Approved mock-up may remain as part of finished Work.

### 1.4 DELIVERY, STORAGE AND HANDLING

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

## Part 2 Products

### 2.1 SHEET METAL MATERIALS

- .1 Zinc coated steel sheet: to ASTM A653/A653M, commercial quality, copper steel, with Z275 coating, extra smooth surface, prefinish as specified in ???, .....,
- .2 Zinc coated steel sheet: to ASTM A653/A653M, commercial quality, copper steel, with Z275 coating, extra smooth surface, prefinished.

### 2.2 PREFINISHED STEEL SHEET

- .1 Prefinished steel with factory applied silicone modified polyester.
    - .1 Class F1S.
    - .2 Specular gloss: 30 units +/-5 to ASTM D523.
-

- .3 Coating thickness: 22 micrometres minimum.
- .4 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
  - .1 Outdoor exposure period 1000 hours minimum.
  - .2 Humidity resistance exposure period 1000 hours minimum.

### 2.3 ROOF SYSTEM

- .1 Vapour Barrier: as specified in 07 26 00
- .2 Insulation: as specified in Section 07 21 13 and as indicated.
- .3 Fastening System
  - .1 121 mm thermal Isolation clip.
  - .2 2.0mm (14 ga.) ASTM A792 Galvalume or ASTM A653 Galvanized, steel
  - .3 Adjustment: Plus or minus 13 mm deviation
  - .4 Continuous Galvanized Angle Rail: 50mm leg x depth to accommodate 200mm insulation thickness. Material thickness as recommended by Clip manufacturer, minimum 1.2mm (18ga.) thick.
  - .5 Supplementary Galvanized Angles, Closures, Girts and Special Break Shapes: minimum 50mm legs or as indicated. Material thickness minimum 1.2mm (18ga.) thick.
  - .6 Thermal Isolation Clip:
    - .1 System to be designed and stamped by professional engineer registered in the Northwest Territories.
    - .2 Performance and Design Requirements:
      - .1 High Load Capacity per clip resulting in reduced thermal bridging due to minimized clip quantity.
      - .2 Built in slotted retaining tab to ease installation of girts and rails.
      - .3 127 mm clip for Insulation Thickness Range up to 203 mm.
    - .3 2.0 mm (14 ga) thickness, ASTM A792 Galvalume or ASTM A653 Galvanized, steel
    - .4 ASHRAE 90.1 and NECB, SB-10 compliance
    - .5 Thermal Isolator Pad: Glass fibre reinforced polyamide.
- .4 Roof Fasteners: As specified by manufacturer , to resist wind uplift and sliding snow forces.
- .5 Prefinished Roof Sheet, exposed to exterior:
  - .1 Profile: pre-manufactured, pre-finished low slope hidden faster system.
    - .1 Seamed joint at 610 mm c/c with seams a minimum of 50 mm above the bottom of the ribbed profile.
    - .2 Panel: Z275 galvanized sheet steel conforming to ASTM A653M structural quality Grade 230, 0.76mm thick.

### 2.4 ACCESSORIES

- .1 Snow Restraint System: continuous proprietary snow stop
  - .1 3 metre length pieces

- .2 2-piece with galvanized base cleat and prefinished metal cap.
- .3 Locations as indicated.
- .2 Isolation coating: alkali resistant bituminous paint.
- .3 Sealant: Asbestos-free sealant, compatible with systems materials, recommended by system manufacturer see Section 07 92 00.
- .4 Cleats: of same material, and temper as sheet metal:50 mm minimum wide.
  - .1 Thickness same as sheet metal being secured.
- .5 Touch-up paint: as recommended by sheet metal roofing manufacturer.
- .6 Stack Jack Plumbing Vent Flashings
  - .1 One piece, EPDM flashed, pre-insulated aluminum stack jack flashing, diameter to suit existing plumbing vent diameters.
  - .2 20 year warranty.
- .7 Chimney Flashing: spun aluminum double chimney flashing with positive drainage above and below flashing location.

## 2.5 FABRICATION

- .1 Fabricate steel sheet in accordance with ASTM E72
- .2 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .3 Apply minimum 0.2 mm dry film thickness coat of plastic cement to both faces of dissimilar metals in contact.

## Part 3 Execution

### 3.1 EXAMINATION

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

### 3.2 ROOF PANEL INSTALLATION

- .1 Install exterior prefinished roof panels on panel support clips, using manufacturer's proper construction procedure. Ensure batten is positively locked for full length of roof. Close interlocking side joints by using a purpose-made seaming machine, as supplied by the manufacturer.
- .2 Where indicated on approved shop drawings, secure the end-lap of metal roofing sheets in accordance with the manufacturers specifications and details to provide a weather-tight seal. Exposed fasteners to match colour of the roof sheet.
- .3 Provide notched and formed closures, sealed against weather penetration, at changes in pitch, and at ridges and eaves, where required.

- .4 Install all companion flashing {gutters}, {ventilators} as shown on the shop drawings. Use concealed fasteners when possible. Exposed fasteners to match colour of roof sheet.
- .5 Lock all end joints and caulk to provide a weather tight seal.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### **3.4 PROTECTION**

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

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 The Aluminum Association Inc. (AAI)
  - .1 AA Aluminum Design Manual 2015 Part VIII Guidelines for Aluminum Sheet Metal Work in Building Construction.
  - .2 AAI DAF45-2003 (R2009), Designation System for Aluminum Finishes.
- .2 American Architectural Manufacturers Association (AAMA)
  - .1 AAMA 611-14 Voluntary Specifications for Anodized Architectural Aluminum.
  - .2 AAMA 621-02 Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Substrates.
  - .3 AAMA 2603-15, Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
  - .4 AAMA 2604-13 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
  - .5 AAMA 2605-13 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- .3 American National Standards Institute (ANSI)
  - .1 ANSI/SPRI/FM 4435/ES-1, Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems 2011.
- .4 ASTM International
  - .1 ASTM A606/A606M-15, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
  - .2 ASTM A 653/A 653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3 ASTM B32-08 (2014), Standard Specification for Solder Metal.
  - .4 ASTM D 523-14, Standard Test Method for Specular Gloss.
- .5 Canadian Roofing Contractors Association (CRCA)
  - .1 Roofing Specifications Manual 2012.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (SDS).

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .1 Submit manufacturer's printed product literature including product specifications and technical data sheets for sheet metal flashing fasteners and accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations.
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- .2 Submit two copies WHMIS SDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
  - .1 Submit shop drawings for all sheet metal fabrications.
  - .2 Indicate sheet thickness, flashing dimensions and fastenings. Include anchorage, expansion joints and other provisions for thermal movement.
  - .3 Submit manufacturer's catalogue cut sheets for manufactured items.
- .4 Samples:
  - .1 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, finishes and colour.

### 1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.
- .3 Waste Management and Disposal:
  - .1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

## Part 2 Products

### 2.1 PREFINISHED STEEL SHEET

- .1 Prefinished steel sheet with coating system consisting of base metal pre-treatment, primer, silicone modified polyester or polyester topcoat meeting requirements of CSSBI S8.
  - .1 Finished one side with wash coat on back.
  - .2 The colour selected by Departmental Representative from manufacturer's standard range.
  - .3 Specular gloss: 30 units +/- 5 gloss units in accordance with ASTM D 523.
  - .4 Exposed coating thickness: dry film coating system thickness not less than 22 micrometres.

### 2.2 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Sealants: in accordance with Section 07 92 00, in colour to match flashing finish colour.
- .3 Cleats and hook strips: of same material, and temper as sheet metal, minimum one-third width of secured flashing. Thickness same as sheet metal being secured.
- .4 Screws: of same material as sheet metal, Suitable for substrate and material being fastened, coloured nylon head, neoprene washer.
- .5 Touch-up paint: as recommended by prefinished material manufacturer.

### 2.3 FABRICATION

- .1 Fabricate sheet steel flashings and other sheet steel work as indicated and in accordance with applicable CRCA 'FL' series details.

- .2 Form pieces in 2400 mm maximum lengths.
  - .1 Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm.
  - .1 Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

## **2.4 METAL FLASHINGS**

- .1 Form flashings, copings and fascias to profiles indicated of 0.511 mm thick prefinished steel.

## **2.5 EAVES TROUGHS AND DOWNPIPES**

- .1 Form eaves troughs and downpipes from 0.511 prefinished sheet metal to match existing roofing and flashings.
- .2 Sizes and profiles as indicated.
- .3 Provide goosenecks, outlets, strainer baskets and necessary fastenings.

## **Part 3 Execution**

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

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

### **3.2 INSTALLATION**

- .1 Install sheet metal work as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal.
  - .1 Secure in place and lap joints 100 mm.
- .4 Lock end joints and caulk with sealant.
- .5 Caulk flashing at cap flashing with sealant.
- .6 Where flashing installed with mechanical fasteners, install fasteners in slots or oversize holes to allow expansion and contraction of flashings.

### **3.3 EAVES TROUGHS AND DOWNPIPES**

- .1 Install eaves troughs and secure to building at 750 mm on centre with eaves trough spikes through spacer ferrules.
  - .1 Slope eaves troughs to downpipes as indicated.
  - .2 Seal joints watertight.
- .2 Install downpipes and provide goosenecks back to wall.
  - .1 Secure downpipes to wall with straps at 1800 mm on centre; minimum two straps per downpipe.
  - .2 Connect downpipes to drainage system and seal joint with plastic cement.

**3.4 CLEANING**

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

**END OF SECTION**

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## Part 1 General

### 1.1 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .2 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Safety Data Sheets (SDS).

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Manufacturer's product to describe:
    - .1 Caulking compound.
    - .2 Primers.
    - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
  - .3 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Samples:
  - .1 Submit 2 samples of each type of material and colour.
  - .2 Cured samples of exposed sealants for each colour where required to match adjacent material.
- .4 Manufacturer's Instructions:
  - .1 Submit instructions to include installation instructions for each product used.
- .5 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

### 1.3 CLOSEOUT SUBMITTALS

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

### 1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
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- .2 Delivery and Acceptance Requirements: Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

### 1.5 SITE CONDITIONS

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

### 1.6 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 Safety Data Sheets (SDS) acceptable to Health Canada.

## 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 off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .3 Where sealants are qualified with primers use only these primers.

### 2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Silicones one part: to CAN/CGSB-19.13
- .2 Butyl: to CGSB 19-GP-14M
- .3 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 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 in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

## Part 3 Execution

### 3.1 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.

### 3.2 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.

### 3.3 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.

### 3.4 MIXING

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

### 3.5 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.

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- .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.

### 3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
  - .3 Remove excess and droppings, using recommended cleaners as work progresses.
  - .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### 3.7 PROTECTION

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

**END OF SECTION**

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