

**PMGM ARCHITECTURE LTD.
3434 REGINA AVENUE
REGINA, SK S4S 7J9**

**S P E C I F I C A T I O N S
FOR
GENERAL CONTRACT**

**ROOF REPLACEMENT 2017
5303 REGINA AVENUE
REGINA, SASKATCHEWAN**

19 FEB 18 SET NO. _____

FILE: 17-45

THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS ARE PROPERTY OF THE CONSULTANTS AND MUST BE RETURNED TO THEM AT COMPLETION OF THE CONTRACT.

Project Title **Roof Replacement 2018**
5303 Regina Avenue
Regina, Saskatchewan

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1 GENERAL**1.01 WORK COVERED BY CONTRACT DOCUMENTS**

- .1 Work of this Contract comprises removal of approximately 466 square meters (5,015 square feet) of built up roof membrane system down to existing concrete deck and the replacement of new vapour barrier and SBS roof system located at 5303 Regina Avenue. Along with minor mechanical and electrical work for removal and reinstallation of existing mechanical units.

1.02 CONTRACT METHOD

- .1 Construct Work under stipulated price contract.

1.03 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site (roof area) until Substantial Performance.
- .2 Limit use of premises for Work, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Public usage of facility.
- .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.

1.04 OWNER OCCUPANCY

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

1.05 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.06 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 72 hour 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 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service, including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.
- .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.

1.07 DOCUMENTS REQUIRED

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

2 PRODUCTS**2.01 NOT USED**

- .1 Not used.

3 EXECUTION

3.01 NOT USED

.1 Not used.

END OF SECTION

1 GENERAL**1.01 ADMINISTRATIVE**

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

1.01 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 will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANNTT) Chart.
 - .3 Schedule of submission of shop drawings. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 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 Monthly progress claims, administrative procedures, photographs, hold backs.

.9 Insurances, transcript of policies.

1.02 PROGRESS MEETINGS

- .1 During course of Work and one week prior to project completion, schedule progress meetings monthly.
- .2 Contractor, major Subcontractors involved in Work, and Departmental Representative are to be in attendance. Notify parties minimum seven days prior to meetings.
- .3 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 10 days after meeting.
- .4 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 Corrective measures and procedures to regain projected schedule.
 - .6 Revision to construction schedule.
 - .7 Progress schedule, during succeeding work period.
 - .8 Review submittal schedules: expedite as required.
 - .9 Maintenance of quality standards.
 - .10 Review proposed changes for affect on construction schedule and on completion date.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL**1.01 ACCESS AND EGRESS**

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

1.01 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Department 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 Sanitary facilities for use by Contractor's personnel to be provided by Contractor. Building facilities will not be available for use.
- .5 Closures: protect work temporarily until permanent enclosures are completed.

1.02 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.03 EXISTING SERVICES

- .1 Notify Department 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 Department Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for personnel and pedestrian and vehicular traffic.

1.04 SPECIAL REQUIREMENTS

- .1 Carry out noise generating Work Monday to Friday from 08:00 to 17:00 hours.
- .2 Upon receipt of a written request from the Contractor noting the reason for the exception, anticipated duration and scope of work included. Work may proceed during exception periods only upon receipt by the Contractor of written approval from the Departmental Representative
- .3 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.
- .4 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

- .5 Keep within limits of work and avenues of ingress and egress.
- .6 Ingress and egress of Contractor vehicles will be determined at start up meeting.

1.05 SECURITY CLEARANCES

- .1 Contractor personnel must submit to local law enforcement verification by RCMP, prior to admittance to the facility site. All personnel employed on the site must have an Identification Card (Government-issued photo I.D.) and have passed a security clearance. The Owner reserves the right to deny access to any facility / site or part thereof, to any Contractor personnel, at any time.
- .2 All access to the building is to be through a designated entrance. Personnel will be signed in daily at start of work shift, and provided with a pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.
- .3 Security clearance documents will be provided.

1.05 SECURITY ESCORT

- .1 Personnel employed on this project must be escorted when executing work in all building areas during normal working hours. Personnel must be escorted in all areas after normal working hours.
- .2 Owner will provide escorts and will cover the cost. Coordinate with Owner.

1.06 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

1.07 BUILDING ENVIRONMENT

- .1 Comply with smoking restrictions. No smoking or vaping will be allowed in or around the building. Smoking is allowed only in areas indicated by Departmental Representative.
- .2 Idling of vehicles adjacent building when not in use is not permitted.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 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 Consultant to enable monitoring of project work in relation to established milestones.

1.02 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.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Consultant within 14 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule Consultant within 5 working days of receipt of acceptance of Master Plan.

1.04 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 Substantial Completion on date determined after Award of Contract date.

1.05 MASTER PLAN

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

1.06 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 Roofing.

1.07 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.

1.08 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.

2 PRODUCTS

2.01 NOT USED

.1 Not used.

3 EXECUTION

3.01 NOT USED

.1 Not used.

END OF SECTION

1 GENERAL**1.01 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.

1.02 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Saskatchewan, 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.

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- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
 - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
 - .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
 - .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Performance characteristics.
 - .5 Standards.
 - .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 manufacturers instructions for requirements requested in specification Sections and as requested 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.
 - .13 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested Departmental Representative.
 - .14 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

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- .15 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
 - .16 Delete information not applicable to project.
 - .17 Supplement standard information to provide details applicable to project.
 - .18 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.03 SAMPLES

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .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 Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.04 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic 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: weekly as directed by Departmental Representative.

1.05 CERTIFICATES AND TRANSCRIPTS

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

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL**1.01 REFERENCE STANDARDS**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Province of Saskatchewan
 - .1 Occupational Health and Safety Act, 1993, S.S. - Updated [2012].
 - .2 WHMIS – MSDS, Material Safety Data Sheets

1.02 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 one copy of Contractor's authorized representative's work site health and safety inspection reports Departmental Representative weekly.
- .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 MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 – Submittal Procedures.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 7 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 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.03 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.
- .2 All work to be done in accordance with NBC 2010, Part 8, Safety Measures at Construction and Demolition Sites.

1.04 MEETINGS

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

1.05 REGULATORY REQUIREMENTS

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

1.06 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.

1.07 RESPONSIBILITY

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

1.8 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Regulations, 1996.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .3 Comply with FC #301, standard for Construction Operations.

1.9 UNFORSEEN HAZARDS

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

1.10 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.

1.11 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.

1.12 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 minimum 2 years site-related working experience.
 - .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.
 - .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.

1.13 POSTING OF DOCUMENTS

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

2 PRODUCTS**2.01 NOT USED**

- .1 Not used.

3 EXECUTION**3.01 NOT USED**

- .1 Not used.

END OF SECTION

1 GENERAL**1.01 SUMMARY**

- .1 This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

1.02 REFERENCES TO REGULATORY REQUIREMENTS

- .1 Perform Work in accordance with 2015 National Building Code of Canada (NBC), including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 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.

1.03 BUILDING SMOKING ENVIRONMENT

- .1 Bidders are cautioned that the jobsite is a non-smoking site, and shall make necessary allowances for observance by construction personnel. Any violation of or disregard to this site requirement by construction personnel is grounds for dismissal from the site.
- .2 Smoking in vehicles on-site is not permitted.

1.04 QUALITY ASSURANCE

- .1 Regulatory Requirements: Except as otherwise specified, Contractor will 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

2 PRODUCTS**2.01 NOT USED**

- .1 Not Used.

2.02 EASEMENTS AND NOTICES

- .1 Owner will obtain permanent easements and rights of servitude that may be required for performance of Work.

- .2 Contractor will give notices required by regulatory requirements.

2.03 PERMITS

- .1 Building Permit:
 - .1 Contractor will apply for, obtain and pay for building permit on behalf of Departmental Representative, and other permits required for Work and its various parts.
 - .2 Contractor will display building permit and other permits in a conspicuous location at Place of Work.
- .2 Occupancy Permits:
 - .1 Contractor will 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 will correct deficiencies in accordance with Departmental Representative's instructions. Where deficiency is not corrected, Departmental Representative reserves the right to make correction and charge Contractor for costs incurred.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 INSPECTION**

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

1.01 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.03 ACCESS TO WORK

- .1 Allow Departmental Representative access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.02 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work

or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents.

1.03 REPORTS

- .1 Submit copies of inspection and test reports to Departmental Representative.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 ACTION AND INFORMATIONAL SUBMITTALS**

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

1.02 INSTALLATION AND REMOVAL

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

1.03 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep roof and site free from standing water.

1.04 WATER SUPPLY

- .1 Owner will provide continuous supply of potable water for construction use.
- .2 Contractor to arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal if required.
- .3 Contractor will pay for utility charges at prevailing rates.

1.05 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .3 Ventilating:
 - .1 Ventilate storage spaces containing hazardous or volatile materials.
 - .2 Ventilate temporary sanitary facilities.
- .4 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.06 TEMPORARY POWER AND LIGHT

- .1 Contractor to provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- .2 Arrange for connection with appropriate utility company. Contractor to pay costs for installation, maintenance and removal.

1.07 FIRE PROTECTION

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

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 RELATED REQUIREMENTS**

- .1 Section 01 51 00 Temporary Utilities.

1.02 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

1.04 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 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.05 SCAFFOLDING

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

1.06 HOISTING

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

1.07 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.

1.08 CONSTRUCTION PARKING

- .1 Limited parking will be permitted on site. Coordinate parking with Departmental Representative.
- .2 Provide and maintain adequate access to project site.

1.09 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.

1.10 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.

1.11 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Consultant.
- .3 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 equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Provide necessary, signs, barricades, and distinctive markings for safe movement of traffic.
- .8 Dust control: adequate to ensure safe operation at all times.

1.12 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.

1.13 SIGNAGE

.1 Signage and advertisements, other than signage required in Section 01 35 29.06 Health and Safety Requirements, are not permitted on site.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL**1.01 REFERENCE STANDARDS**

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

1.02 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.

1.03 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.

1.04 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 on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .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.

1.05 TRANSPORTATION

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

1.06 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.

1.07 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.

1.08 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.

1.09 REMEDIAL WORK

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

1.10 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work.
- .4 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .5 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.11 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur.

1.12 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building.
- .2 Cutting, drilling, and sleaving of loadbearing structural members are not permitted unless specifically noted.

1.13 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 occupant.
- .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.

1.14 ACCEPTABLE PRODUCTS

- .1 “Products”, for the purpose of this Contract, means material, machinery, equipment, and fixtures forming the Work but does not include machinery and equipment used for preparation, fabrication, conveying, and erection of the Work and normally referred to as construction machinery and equipment.
- .2 Products listed as acceptable in various sections of the specifications are to be used as a guide and does not imply exclusion of unlisted products of equivalent type. Products believed to be of equivalent type are to have data sheets submitted to Departmental Representative for review. No product will be considered acceptable unless written approval is given by Departmental Representative.
- .3 “Acceptable Products” means that products named and specified by manufacturer’s reference meet the specification in all respects and are acceptable to the Departmental Representative.
- .4 Products other than those listed in the specifications as “acceptable products” must be same type as, be capable of performing same function as, and meet or exceed standards of quality and performance of named products, and must not require revisions to Contract Documents nor to work of others.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.

1.02 RECORDS

- .1 Maintain a complete, accurate log of work as it progresses.

1.03 SUBSURFACE CONDITIONS

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

1.04 SUBMITTALS

- .1 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 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 any element of Project
 - .2 Integrity of weather-exposed or moisture-resistant elements
 - .3 Efficiency, maintenance, or safety of any operational element
 - .4 Visual qualities of sight-exposed elements
 - .5 Work of Departmental Representative 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 Departmental Representative or separate contractor
 - .7 Written permission of affected separate contractor
 - .8 Date and time work will be executed

1.02 MATERIALS

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

1.03 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 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 free of water.

1.04 EXECUTION

- .1 Execute cutting, fitting, and patching to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Remove and replace defective and non-conforming Work.

- .4 Restore work with new products in accordance with requirements of Contract Documents.
- .5 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .6 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping, full thickness of the construction element.
- .7 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .8 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .9 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

2 PRODUCTS**2.01 NOT USED**

- .1 Not Used.

3 EXECUTION**3.01 NOT USED**

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily regularly scheduled. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Contractor to recycle all suitable materials at designated facilities within 100km radius of job site. Contractor to provide copies of receipts for all materials recycled.
- .6 Dispose of waste materials and debris at designated dumping areas/landfill.
- .7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .8 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.02 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.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. 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 Broom clean exterior walks, steps and surfaces; rake clean other surfaces of grounds ensuring no roofing debris is visible.
- .8 Clean and sweep roofs, gutters and downspouts.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 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's inspection.
 - .2 Departmental Representative's 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 Certificates required by roof warranty provider: submitted.
 - .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 Owner and Departmental Representative, complete outstanding items and request re-inspection. The Departmental Representative reserves the right to be compensated by the Contractor, at no cost to the Owner, for any costs incurred to perform a re-inspection and any other subsequent inspections due to failure of completing and correcting all tasks identified in subsection 1.02.1.3 above.
 - .5 Declaration of Substantial Performance: Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period.
 - .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 When Work deemed incomplete Departmental Representative, complete outstanding items and request re-inspection.
 - .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.

1.03 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

- .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL**1.01 ADMINISTRATIVE REQUIREMENTS**

- .1 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
- .2 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.
- .3 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.02 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 Departmental Representative, two 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.
- .5 Contractor to pay for costs of transportation.

1.03 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, and two (2) Pdf copies on CD or removable USB stick.
- .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 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.

1.04 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Bind in with text; fold larger drawings to size of text pages.
- .2 Table of Contents for Each Volume: provide title of project;

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- .3 Date of submission; names.
 - .4 Addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties.
 - .5 Schedule of products and systems, indexed to content of volume.
 - .9 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
 - .10 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
 - .11 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
 - .12 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 45 00 - Quality Control.

1.04 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain at site for Owner 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 Manufacturer's certificates.

1.05 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.
 - .3 Details not on original Contract Drawings.
 - .4 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 Provide digital photos, if requested, for site records.

1.06 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 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.
- .3 Additional requirements: as specified in individual specifications sections.

1.07 MAINTENANCE MATERIALS

- .1 Spare Parts:
- .2 Provide spare parts, in quantities specified in individual specification sections.
- .3 Provide items of same manufacture and quality as items in Work.
- .4 Deliver to site; place and store.
- .5 Receive and catalogue items.

1.08 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.

1.09 WARRANTIES AND BONDS

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

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- .6 Retain warranties and bonds until time specified for submittal.
 - .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
 - .8 Conduct joint 10 month warranty inspection, measured from time of acceptance, by Departmental Representative.
 - .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs.
 - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Location where installed.
 - .2 Name and phone numbers of manufacturers or suppliers.
 - .3 Starting point and duration of warranty period.
 - .4 Summary of maintenance procedures required to continue warranty in force.
 - .5 Organization, names and phone numbers of persons to call for warranty service.
 - .4 Contractor's plans for attendance at 10 month post-construction warranty inspections.
 - .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
 - .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for Departmental Representative to proceed with action against Contractor.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 SUMMARY

- .1 This Section includes the following demolition and removal of existing built-up roof system down to existing vapour barrier at level of concrete deck.
- .2 Drawings contain details that suggest directions for solving some of the major demolition and removal requirements for this project; contractor representative is required to develop these details further for completion of the work.
- .3 Demolition of all portions of the existing building required for or reasonably incidental to the execution of the work of this contract, including related mechanical and electrical services as described on drawings.
- .4 Demolition and removals related to the provision of new mechanical and electrical installations and services.

1.02 REFERENCE STANDARDS

- .1 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
 - .2 National Fire Code of Canada 2015 (NFC).

1.03 QUALITY ASSURANCE

- .1 Regulatory Requirements: Ensure Work is performed in compliance with applicable Provincial/Territorial and Municipal regulations.
 - .1 Comply with hauling and disposal regulations of Authority Having Jurisdiction.
- .2 Regulatory Requirements: Perform work of this Section in accordance with the following:
 - .1 Saskatchewan Workers' Compensation Board.
 - .2 Saskatchewan Occupational Health and Safety Standards and Programs.

1.04 EXISTING CONDITIONS

- .1 Visit the site to obtain a comprehension of work required and conditions under which work must be performed. No allowance will be made for failure to conduct such investigation.

1.05 EXISTING SERVICES

- .1 Cooperate with Owner's personnel for access to areas of work.

2 PRODUCTS

2.01 EQUIPMENT

- .1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2 Demonstrate that tools and machinery are being used in manner which allows for

salvage of materials in best condition possible.

3 EXECUTION

3.01 EXAMINATION

- .1 Survey existing conditions and correlate with requirements indicated to determine extent of demolition required. Take particular care in areas of existing foundations and supporting structural members.
- .2 Departmental Representative does not guaranty that existing conditions are the same as those indicated in Contract Documents.

3.02 PREPARATION

- .1 Protection:
 - .1 Provide, erect and maintain all necessary shoring and strutting or other supports for the protection and safety of existing portions of the building, adjacent buildings, and workers. Be entirely responsible for the design, construction and efficiency of such supports for the purpose for which they are erected.
 - .2 Make good any damage caused by inadequate shoring or failure of shoring at no expense to the Owner.
 - .3 Keep noise, dust, and inconvenience to occupants to minimum.
 - .4 Protect building systems, services and equipment.
 - .5 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .3 Disconnect electrical, telephone and communication service lines. Post warning signs on electrical lines and equipment which must remain energized to serve other products during period of demolition.

3.03 DEMOLITION

- .1 Remove existing equipment, services and obstacles where required for refinishing or making good of existing surfaces, and replace same as work progresses.
- .2 Carry out demolition work in an orderly and careful manner. At end of each day's work, leave the work in a safe condition so that no part is in danger of toppling or falling. Perform demolition in accordance with applicable local and provincial authorities having jurisdiction.
- .3 Exercise care in equipment operations to prevent any damage from occurring to the building exterior, interior, mechanical, and electrical systems of the building.
- .4 Notify Departmental Representative of any unforeseen conditions. Discontinue work in the area until notified by the Departmental Representative to resume work.
- .5 Use demolition methods to minimize dusting.
- .6 Selling, burning or burying materials on site is not permitted.
- .7 Remove contaminated or dangerous materials from site and dispose of in a safe manner so as not to endanger the health of persons involved at site or at any time during disposal.

- .8 Repair all demolition performed in excess of that indicated or required, to the approval of the Departmental Representative and at no cost to the Owner.
- .9 Contractor is responsible for the security of the building when using existing or created doorways for access.
- .10 Carry out demolition work in a manner to cause as little inconvenience to the adjacent occupied building areas as possible.

3.04 PROTECTION

- .1 Do not interfere with use of adjacent building areas. Maintain free and safe passage to and from all occupied spaces, including maintaining fire exits.
- .2 Cease operations and notify the Departmental Representative immediately if safety of structure appears to be endangered. Take all precautions to properly support the structure. Do not resume operations until permission is granted by the Departmental Representative.
- .3 Exercise care in equipment operations to prevent any damage from occurring to the building exterior, interior, and mechanical and electrical systems of the building.
- .4 Notify Departmental Representative of any unexpected sub-surface conditions. Discontinue work in the area until notified by the Departmental Representative to resume work.
- .5 The Contractor is responsible for the security of the building when access is achieved through openings provided for this Contract.

3.05 DEMOLITION SALVAGE AND DISPOSAL

- .1 Remove parts of existing [building] to permit new construction. Sort materials into appropriate piles for reuse, recycling, and disposal.
- .2 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .3 Remove items to be reused. Store and protect materials and equipment and reinstall as indicated.
- .4 Except where noted otherwise, maintain possession of all materials being demolished. Immediately remove from site those items rejected as Owner's salvage.
- .5 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

3.06 REMOVAL FROM SITE

- .1 Transport material designated for alternate disposal to approved landfill.
- .2 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

3.07 REPAIRS

- .1 General: Promptly repair damage to adjacent construction caused by demolition

operations.

- .2 Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- .3 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.08 CLEANING AND RESTORATION

- .1 Remove all demolished materials, debris, tools and equipment from site upon completion of work. Leave site in a condition acceptable to Departmental Representative.
- .2 Keep site clean and organized throughout demolition procedure.
- .3 As demolition proceeds, keep roads, streets and sidewalks clean of dirt & debris. Clean these areas to remove dirt and debris caused by demolition which may be hazardous to vehicular and pedestrian traffic.
- .2 Upon completion of project, reinstate areas, parking surfaces, walkways, affected by Work to condition which existed prior to beginning of Work.

3.09 INSPECTION OF EXISTING CONDITIONS

- .1 Inspect existing interior building conditions with Owner and Departmental Representative prior to commencement of the Work. Contractor and Departmental Representative to document all areas of existing damage.

END OF SECTION

Part 1 GENERAL**1.01 RELATED REQUIREMENTS**

- .1 Section 07 52 00 Modified Bituminous Membrane Roofing.

1.02 REFERENCE STANDARDS

- .1 CSA International
 - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .2 CSA O121-08(R2013), Douglas Fir Plywood.
- .2 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.
- .3 National Research Council Canada (NRC)
 - .1 National Building Code of Canada [2015] (NBC).

1.03 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

Part 2 PRODUCTS**2.01 DIMENSION LUMBER**

- .1 Lumber: softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
 - .1 CSA O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Framing, blocking, strapping: construction-grade spruce:

2.02 PANEL MATERIALS AND APPLICATION

- .1 Plywood:
 - .1 Conform to CSA O121-08(R2013).
 - .2 Concealed material sheathing grade fir ply. Other grades where specified. Thicknesses as shown.

2.03 INSULATIONS

- .1 Refer to drawings for types, locations, thicknesses.
- .2 Stone Wool Insulation: Roxul ComfortBatt or approved equal.

2.04 ACCESSORIES

- .1 General purpose adhesive: to CSA O112.9.
- .2 Nails, spikes and staples: Conform to CSA B111-1974 (R-2003).
- .3 Use spiral thread nails except where specified otherwise.
- .4 Toggle bolts, expansion shields, lag bolts, fibre plugs, of types and sizes suitable for installations.
- .5 All bolts, nuts, washers, pins, screws, etc., cadmium-plated or galvanized finish.

2.05 MISCELLANEOUS MATERIALS

- .1 Sealant: Tremco Dymonic, Sikaflex, 1A, Franklin All-Season or approved equal.

Part 3 EXECUTION**3.01 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or existing conditions are acceptable for product installation.
 - .1 Inform Consultant of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.02 SYSTEMS INTEGRATION

- .1 Install air barrier and vapour retarder sheeting around framing members to ensure continuity of protection and to lap and seal to main sheets.
- .2 Install insulation in exterior wall framing cavities that will not be accessible after completion of framing.

3.03 FRAMING INSTALLATION

- .1 Erect to CSA-086-14. Conform to all requirements of NBC 2015, Part 9, as applicable.
- .2 Make adequate provision for possible erection stresses.
- .3 Install members true to line, levels and elevations, square and plumb, securely brace in place until permanently fixed and held in structure.
- .4 Construct continuous members from pieces of longest practical length.
- .5 Install spanning members with "crown-edge" up.

- .6 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
- .7 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .8 Countersink bolts where necessary to provide clearance for other work.
- .9 Install specified panel product for each application.

3.04 STUDDING

- .1 Stud sizes and spacing as shown.
- .2 Single bottom plates, single top plates, lapped at intersections and corners.

3.05 FURRING AND BLOCKING

- .1 Install furring and blocking as required to space-out and support wall finishes, facings, fascia, soffit, siding, and other work as required.
- .2 Install fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.

3.06 SHEATHING

- .1 Apply sheathing perpendicular to framing.
- .2 Stagger joints in adjacent panels.
- .3 End joints of panels on solid bearing.
- .4 Secure with minimum 2" (50) spiral nails spaced 6" (150) o. c. at perimeter and 8" (200) along intermediate supports. Use galvanized nails for pressure-treated material.
- .5 All sheathing, roof and walls, to be set in continuous bead of construction adhesive along all framing members. Where panels meet on framing members, provide double beads of adhesive.

3.07 BATT INSULATION

- .1 Refer to drawings for types, locations, thicknesses.
- .2 Fit batts snugly between studs and to one another.
- .3 Fit insulation tightly around boxes, conduits and other obstructions to form continuous effective blanket.
- .4 Do not compress insulation to fit into spaces.

3.08 CLEANING

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

3.09 PROTECTION

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

END OF SECTION

Part 1 GENERAL**1.01 INTENT OF SPECIFICATIONS**

- .1 It is the intention of this Specification to produce a first-class durable roof, free of defects and abnormal maintenance costs, for a time period as noted in the General Conditions.
- .2 Before tendering, this Contractor shall make known in writing to the Architect if, in his opinion, the Specification will not produce the high standard intended.
- .3 The Roofing Contractor shall examine drawings and specifications for other trades and fully satisfy himself of the nature of the structure and the working conditions that can be anticipated.

1.02 REFERENCE STANDARDS

- .1 ASTM International Inc.
 - .1 ASTM D 6162-00a, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fibre Reinforcements.
 - .2 ASTM D 6163-00e1, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fibre Reinforcements.
 - .3 ASTM D 6164-16, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- .2 Canadian Roofing Contractors Association (CRCA)
 - .1 CRCA Roofing Specifications Manual-1997.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA A123.21-14, Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-Roofing Systems
- .4 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 Underwriters Laboratories' of Canada (ULC)
 - .1 Roofing system must meet or exceed the requirements of CAN/ULC-S701-10, Methods of Fire Tests of Roof Coverings, Class C.
 - .2 Polyisocyanurate Thermal Insulation Boards must meet or exceed requirements of CAN/ULC-S-704-11, Thermal Insulation, Polyurethane and Polyisocyanurate Boards Faced.
 - .3 Extruded Polystyrene Insulation Boards must meet or exceed requirements of CAN/ULC-S-701-11, Polystyrene Insulation Board and Pipe Covering.

1.03 LABORATORY TESTING

- .1 Upon request from the Owner, the elastomeric asphalt manufacturers shall supply, at their expense, results of mechanical and chemical testing performed on the elastomeric asphalt materials supplied.
- .2 Tests shall be performed to certify compliance with ASTM D6164-16 and CSA A123.21-14 standards.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide shop drawings:
 - .1 Provide layout for tapered insulation, indicating roof size, location and type of penetrations, perimeter and penetration details, and roof insulation and make-up.
- .3 Manufacturer's Certificate: certify that products meet or exceed specified requirements.
- .4 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.
- .5 Warranty: two (2) copies to be submitted for SBS Modified Bitumen sheet roofing.

1.05 GUARANTEE

- .1 This Contractor shall furnish a written guarantee covering all of the work described in this Section except metal flashing, for a period of two (2) years from the date of final certification. Use C.R.C.A. Standard Form of Guarantee.
- .2 Metal flashings shall be guaranteed for a period of two (2) years from the date of final certification.

1.06 MANUFACTURER'S REPRESENTATIVE

- .1 The roofing materials manufacturer may delegate a representative to visit the work site at commencement of work.
- .2 At all times, the Contractor shall permit and facilitate access to the work site and roofs to said manufacturer's representative.

1.07 SKILLED LABOUR - SUPERVISION

- .1 Only experienced roofing and sheet metal workers producing the highest quality of work shall be employed.
- .2 All work under this Contract shall be done under direct supervision of the Roofing Contractor's supervisor who shall be acceptable to the Architect as to supported

evidence of experience.

1.08 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 All materials shall be delivered and stored in their original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
- .3 Storage and Handling Requirements:
 - .1 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.
 - .2 Provide and maintain dry, off-ground weatherproof storage.
 - .3 Store rolls of felt and membrane in upright position. Store membrane rolls with salvage edge up.
 - .4 Remove only in quantities required for same day use.
 - .5 Store sealants at +5 degrees C minimum.
 - .6 Store insulation protected from daylight and weather and deleterious materials.

1.09 SITE CONDITIONS

- .1 Ambient Conditions
 - .1 Do not install roofing when temperature remains below -18 degrees C for torch application, or to manufacturers' recommendations.
 - .2 Minimum temperature for solvent-based adhesive is -5 degrees C.
- .2 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.10 SITE PROTECTION

- .1 During roofing work, exposed surfaces of finished walls shall be protected with tarps in order to prevent damage. Contractor shall assume full responsibility for damage caused by his operations.
- .2 Use tarpaulins for protection from asphalt. Polyethylene is not acceptable for this use.

1.11 EXAMINATION OF ROOF DECK

- .1 This Contractor shall examine the roof deck surfaces and satisfy himself that the surfaces are in good condition, completed with all openings and sleeves before proceeding with the work.

1.12 HOISTING MATERIALS

- .1 Throughout his operations, this Contractor shall provide all aprons and protection for finished work.

- .2 This Contractor shall only hoist materials at locations confirmed with Owner and shall be entirely responsible for damage caused by his operations.

1.13 WARRANTY

- .1 The product manufacturer shall supply the Owner with a written and signed document, certifying the performance of his products and the consistency of the properties of such products affecting their performance, for a period of fifteen (15) years from date of acceptance.

Part 2 PRODUCTS

2.01 PERFORMANCE CRITERIA

- .1 Compatibility between components of roofing system is essential. Provide written declaration to Consultant stating that materials and components, as assembled in system, meet this requirement.
- .2 Roofing System: to CSA A123.21 for wind uplift resistance.

2.02 MATERIALS

- .1 Vapour Barrier: Sopra Vap'R or IKO MVP, self-adhesive, SBS Modified Bitumen.
- .2 Primer: Elastocol 500 and Elastocol Stick or IKO Mod-Bit Primer and IKO SAM Adhesive.
- .3 Membrane Base Sheet: Soprasmart Board 180 or IKO Protectobase, 3/16" thickness, 180 g/m² non-woven polyester reinforced SBS membrane laminated on a semi-rigid asphaltic panel.
- .4 Base sheet stripping/flashing: Sopraflash Flam Stick or IKO ArmourBond Flash.
- .5 Membrane cap sheet: Sopralene Flam 250-GR or IKO TP-250 CAP. Field Colour to be Grey, Control Zone indicator to be Red.
- .6 Cap Sheet Flashing: Sopralene Flam 250-GR or IKO TP-250 CAP. Colour to be Grey
- .7 Adhesive: Duotack or IKO Millennium Adhesive.
- .8 Sealant: Tremco Mono, 3M Weatherban, Grace Horn Seal.
- .9 Plumbing Vent Flashing: Thaler SJ-34 Stack Jack Flashing (uninsulated), 1.6 mm mill finish 1100-OT alloy aluminum. Or approved equal.
- .10 Pitch Pocket: Sopramastic Block or approved equal. Sealant to be Sopramastic SP2 or approved equal. Sealant fill to be Sopramastic PF or approved equal.
- .11 Scupper: MiFab R1640 or approved equal.
- .12 Roof Drain: Watts Model RD-100 large capacity roof drain or approved equal.

- .13 Conduit Support: Pro-pipe support, or approved equal.

2.03 INSULATION MATERIALS

- .1 Polyisocyanurate Insulation: closed-cell polyisocyanurate foam core integrally laminated between 2 heavy coated glass facers meeting the requirements of ASTM C 1289, Type II, Class 1, Grade 2 and CAN/ULC S704-11.
- .2 Acceptable Products:
 - .1 SOPRA ISO+ by Soprema
 - .2 ENRGY 3 AGF by Johns Manville
 - .3 ACFOAM III by Atlas Roofing Company
 - .4 IKO Therm III Polyiso by IKO Industries
- .3 Expanded Polystyrene: Plastispan, Styrolite, Koro or other manufacture, conforming to CGSB 51-GP-20, Type 2. Provide sloped insulation to areas shown, 1/4" per foot slope.
- .4 Stone Wool Insulation: Roxul ComfortBatt or approved equal.

Part 3 EXECUTION

3.01 QUALITY OF WORK

- .1 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual and CRCA Roofing Specification Manual, particularly for fire safety precautions.
- .2 Do priming in accordance with manufacturers written recommendations.
- .3 The interface of the walls and roof assemblies will be fitted with durable rigid material plywood providing connection point for continuity of air barrier.
- .4 Assembly, component and material connections will be made in consideration of appropriate design loads.

3.02 EXAMINATION OF ROOF DECKS

- .1 Verification of Conditions:
 - .2 Inspect with Consultant deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed.
- .1 Evaluation and Assessment:
 - .1 Prior to beginning of work ensure:
 - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium or salt for ice or snow removal.
 - .2 Curbs have been built.
 - .3 Roof drains have been installed at proper elevations relative to finished roof surface.
 - .4 Plywood and lumber nailer plates have been installed to deck,

walls and parapets as indicated.

- .2 Do not install roofing materials during rain or snowfall.
- .3 Check if the work of other trades has been properly completed.

3.03 PROTECTION OF IN-PLACE CONDITIONS

- .1 Cover walls, walks and adjacent work where materials hoisted or used.
- .2 Use warning signs and barriers. Maintain in good order until completion of Work.
- .3 Clean off drips and smears of bituminous material immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.
- .5 Protect roof from traffic and damage. Comply with precautions deemed necessary by Consultant.
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.
- .7 Metal connectors will be treated with rust proofing or galvanization.

3.04 INSTALLATION

- .1 Install roofing elements on clean and dry surfaces, in accordance with the manufacturer's requirements and recommendations.
- .2 Roofing work shall be performed on a continuous basis as surface and weather conditions allow.
- .3 Adjoining surfaces shall be protected against any damage that could result from roofing installation.
- .4 It is mandatory to seal all seams that are not covered by a cap sheet membrane in the same day. The cap sheet cannot be installed if any moisture is present in the base sheet seams.
- .4 Ensure there are waterproof conditions for roofs at all times, including protection during installation work by other trades.

3.05 EQUIPMENT

- .1 Maintain all equipment and tools in good working order.
- .2 Use torch types recommended by the manufacturer of the elastomeric asphalt membranes.

3.06 DECK SHEATHING

- .1 Existing concrete deck and vapour barrier to remain.

3.07 PRIMING DECK

- .1 Apply deck primer to existing vapour barrier at the rate recommended by manufacturer.

3.08 VAPOUR RETARDER (CONCRETE)

- .1 Apply self-adhesive vapour barrier as per manufacturer's instructions. Overlap side laps a minimum of 50 mm and end laps a minimum of 150mm.
- .2 Install vapour barrier membrane to vertical surfaces as detailed to permit a solid connection with the base sheet layer.

3.09 (EXPOSED) CONVENTIONAL MEMBRANE ROOFING (CMR) APPLICATION

- .1 Insulation: fully adhered, adhesive application:
 - .1 Insulation to be adhered to the vapour barrier with manufacturer's approved adhesive. Use bead spacing and size in conformance with CSA A123.21-14 test results.
 - .2 Place boards in parallel rows with ends staggered, and in firm contact with one another.
 - .3 Over first layer of insulation, install 50 mm flat polyiso insulation.
 - .4 Cut end pieces to suit.
- .2 Tapered insulation application:
 - .1 Insulation to be adhered to bottom layer of insulation with manufacturer's approved adhesive. Use bead spacing and size in conformance with CSA A123.21-14 test results.
 - .2 Install tapered insulation as first insulation layer, in accordance with shop drawings. Stagger joints between layers 150 mm minimum.
- .3 Base sheet application:
 - .1 Starting at roof drains, install base sheet panels adhered to insulation with adhesive as per manufacturer's instructions and the wind uplift test results per CSA A123.21-14.
 - .2 Seal side and end laps to adjacent boards to form continuous membrane as per manufacturer's recommended methods.
- .4 Base sheet stripping (flashing) application:
 - .1 Membrane shall be laid in strips 914 mm wide to vertical surfaces and extending onto the flat surface as per manufacturer's requirements. Side laps shall be 75 mm and shall be staggered a minimum of 100mm from the laps of the base sheet.
 - .2 Base sheet stripping shall be self-adhesive.
 - .3 End and side laps 100 mm shall be torch-welded.
- .5 Cap sheet application:
 - .1 Once the base sheet and stripping has been applied and does not show any defects, the cap sheet can then be laid.

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- .2 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends prior to torching. Care must be taken to ensure good alignment of the first roll, parallel with the edge of the roof.
 - .3 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement. During this application, both surfaces shall be simultaneously melted, forming an asphalt bead that shall be pushed out in front of the cap sheet.
 - .4 Cap sheet shall have side laps of 75mm and end laps of 150mm. Surface granules on end laps shall be embedded prior to installation of following sheet.
 - .5 Application to be free of blisters, fishmouths, air pockets, and wrinkles.
 - .6 After installation of cap sheet, check all lap seams on cap sheet.
 - .7 During installation, care must be taken to avoid asphalt seepage greater than 3/16" at seams.
 - .8 Do membrane application in accordance with manufacturer's recommendations.
- .6 Cap sheet stripping (flashing) application:
- .1 Cap sheet stripping shall be laid in strips 914 mm wide. Side laps shall be 75 mm and shall be staggered a minimum of 300 mm from cap sheet laps in order to avoid excessive thickness.
 - .2 Using a chalk line, lay out a straight line on cap sheet surface, parallel to roof edge, 150 mm inside the roof from the base of the vertical surface.
 - .3 Using a torch and round-nosed roofing trowel, embed the surface granules into the heated and soft bitumen, from the chalk line to the edge of the cap sheet, at the top of the vertical surface.
 - .4 Cap sheet stripping shall be torch-welded directly on its base sheet, proceeding from bottom to top. Torching shall soften the two membranes and ensure a uniform weld..
- .7 Roof penetrations:
- .1 Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with manufacturer's recommendations and details.
- .8 Metal flashings:
- .1 Provide all metal flashings as shown and required, minimum 24 gauge pre-finished steel, colour to match existing. Site confirm.
 - .2 Secure flashings with sheet metal screws. Daub heads with roofing gum.
 - .3 All joints to be S-locked joints.
 - .4 All exposed edges shall be hemmed. No exposed cut edges will be accepted.
 - .5 All outside corners shall be bent with straight, sharp edge. Minimum length of return leg 600 mm.
 - .6 All fixing shall be concealed to maximum extent possible. Where exposed fasteners are unavoidable, they shall be neatly aligned, evenly spaced, and finished to match adjacent surface.

- .9 Plumbing vent flashing:
 - .1 Install plumbing vent flashing per manufacturer's recommendations.
 - .2 Extend existing vent pipes to minimum 200 above roof membrane as shown on drawings.
 - .3 Extensions to be PVC pipe with adapters as required to suit existing piping material.

3.10 CLEANING

- .1 Remove bituminous markings from finished surfaces.
- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their instructions.
- .3 Repair or replace defaced or disfigured finishes caused by work of this section.

END OF SECTION

1 GENERAL**1.02 REFERENCE STANDARDS**

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 19-GP-5M-[1984], Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .1 SCAQMD Rule 1168-[A2005], Adhesives and Sealants Applications.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for 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 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures].
- .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.

1.04 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.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect joint sealants from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

1.06 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.

1.07 ENVIRONMENTAL REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.

2 PRODUCTS

2.02 SEALANT MATERIAL DESIGNATIONS

- .1 Acrylics one part: to CGSB 19-GP-5M.
- .2 Preformed compressible and non-compressible back-up materials:
 - .1 Polyethylene, urethane, neoprene or vinyl foam:
 - .1 Extruded closed cell foam backer rod.
 - .2 Size: oversize 30 to 50 %.

2.04 JOINT CLEANER

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

3 EXECUTION**3.02 SURFACE PREPARATION**

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

3.03 PRIMING

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

3.04 BACKUP MATERIAL

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

3.06 APPLICATION

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

3.07 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

- .1 Leave Work area clean at end of each day.
- .2 Clean adjacent surfaces immediately.
- .3 Remove excess and droppings, using recommended cleaners as work progresses.
- .4 Remove masking tape after initial set of sealant.

3.08 PROTECTION

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

END OF SECTION