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Renovation of the roof - Building A1

Correctional service Canada

Complex Sainte-Anne-Anne-des-Plaines

Architect project no: 112411

Client project no: 343-2534

Technical specifications for tenders

Date : 11 July 2016

Client :

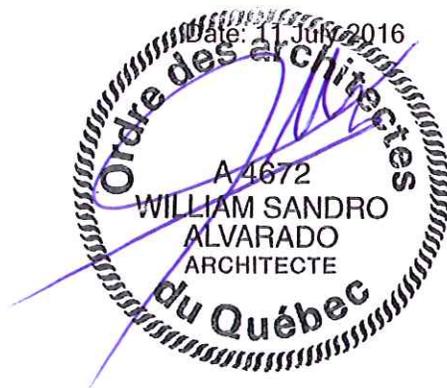
Correctional service Canada

RENOVATION OF THE ROOF - BUILDING A1
CORRECTIONAL SERVICE CANADA
COMPLEX SAINTE-ANNE-ANNE-DES-PLAINES

TECHNICAL SPECIFICATIONS FOR TENDERS

Architect project no: 112411

Client project no: 343-2534



Prepared by :

Sandro Alvarado, architect

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TECHNICAL SPECIFICATIONS

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1. Client

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1. ARCHITECTURE

1. Drawings issued for tenders on the 11th of July 2016 prepared by Le Groupe des Sept, atelier d'architecture inc. (See the front page of the architectural drawings for the list of drawings).
2. Technical specifications issued for tenders on the 11th of July 2016 prepared by Le Groupe des Sept, atelier d'architecture inc.

Renovation of the roof - Building A1
 Correctional service Canada
 Complex Sainte-Anne-des-Plaines
 Architect project n° 112411
 Client project n° 343-2534

ST-01

CONTRACTOR COST BREAKDOWN

Renovation of the roof Building A1

Description	Amount
1 Demolition	
Flashing and roof demolition	\$
2 Roofing	
Insulation	\$
Bituminous membrane	\$
Sealant joints	\$
Miscellaneous repairs and cleaning	\$
Sub-total	\$
Profit and administration	\$
Total	\$
Tax TPS	\$
Tax TVQ	\$
GRAND TOTAL :	\$

LIST OF SUBMITALLS

The present list does not release the contractor of its other obligations. He must jointly read the list of submittals and the contents of each section of the technical specifications.

LIST OF TECHNICAL SPECIFICATIONS SECTIONS AND PRODUCTS	Shop drawings	Technical data sheet	Certificates	Samples	Suppliers guarantee (ans)	Contractor guarantee (ans)	Product specifications	Issuing expected date	Received by the engineer	Received by the architect	Received by the contractor
DIVISION 01 – GENERAL REQUIREMENTS											
01 33 00 Submittal procedures											
01 52 00 Construction facilities											
01 56 00 Temporary barriers and enclosures											
01 61 00 Common products requirements											
01 73 00 Execution											
01 74 00 Cleaning		•									
01 78 00 Closeout submittals	•	•	•								
DIVISION 02 - EXISTING CONDITIONS											
02 41 13 Selective site demolition		•					Waste management procedure				
DIVISION 06 - WOOD, PLASTICS AND COMPOSITES											
06 08 99 Rough carpentry for minor works		•	•								
DIVISION 07 - THERMAL AND MOISTURE PROTECTION											
07 52 00 Modified bituminous membrane roofing					25						
Vapor barrier		•	•								
Insulation		•	•								
Insulation slope board	•	•	•								
Pannel board		•	•								
Base sheet membrane		•	•								
Finishing sheet membrane		•	•								
07 62 00 Sheet metal flashing and trim		•									
07 92 00 Joints sealants		•	•	•	5						

END OF THE LIST OF SUBMITTALS

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit to Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in 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 Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .10 The examination of the shop drawings by the architect and the consultants has for only objective to be ensured of their conformity with the general concept. This examination does not mean that the architect and the consultants approve the detailed design attached to the shop drawings, it remains the contractor responsibility who submits them, and such an examination does not raise the contractor of his responsibility towards all errors or omissions on shop drawings and his responsibility to observe the construction requirements and the contractual documents. Without however limiting the preceding general considerations, the contractor is responsible towards dimensions to confirm and coordinate on the site, towards or the technique manufacturing processes of construction and installation and also towards the coordination of the work of all the subcontractors.
- .11 The transmission of the shop drawings and charts in numerical form will be possible if there is agreement on this subject with the professionals at the time of the operational startup. Only the documents in the form of files pdf presented in the formats "Letter", "Legal" and "Tabloïd (11x17)" will be admissible. Any other format will have to be presented and transmitted in paper format. The reduced and/or illegible documents will be refused. The professionals reserve the right to refuse and ask that the numerical copies of the large documents be resubmitted.
- .12 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 To see also the regulations concerning the workshop drawings included in the general Conditions of this project.
- .2 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.
- .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 To submit the totality of the shop drawings and charts required in the two (2) months following the granting of the contract.
- .5 To submit the shop drawings and the charts requested in the technical sections.
- .6 The charts and the characteristics of product must be in conformity with the requirements stated with the section 01 61 00 – Common product requirements.
- .7 Accompany submissions with transmittal letter, provided by the Architect, containing the following information:
 - .1 Client name.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Identification of product supplier and/or subcontractor.
 - .6 Other pertinent data.

1.3 SAMPLES

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

1.4 MOCK-UPS

- .1 Samples: works carried out on the spot by employing materials and the prescribed procedure.
- .2 To carry out the samples of works at the places considered to be acceptable by the architect.
- .3 Once checked and approved, the samples of works will belong to the work and will be used as standard of quality for purposes of these work.

1.5 CERTIFICATES AND TRANSCRIPTS

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 Summary

- .1 Contents:
 - .1 Construction assistance.
 - .2 Site office.
 - .3 Parking area.
 - .4 Site construction panel.
- .2 Related requirements:
 - .1 Section 01 56 00 – Temporary Barriers and Enclosures

1.2 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2, Stipulated Price Contract.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59, Alkyd Exterior Gloss Enamel.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121, Douglas Fir Plywood.
 - .3 CAN/CSA-Z321, Signs and Symbols for the Occupational Environment.
- .4 Minister Of Transports(MOT) Manuel AK-62-07-050.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.
- .2 To submit, as of the beginning of work, a site plan installations for the approval of the Architect and the Owner. The submitted drawing must illustrate: the site accesses, site fence, contractor and subcontractors parking area, the site office location and any other relevant information.

1.4 INSTALLATION AND REMOVAL

- .1 Provide construction facilities in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Provide and maintain ladders, temporary stairs, swing staging, scaffolding, platforms and ramps.

1.6 HOISTING

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

1.7 ELEVATORS

- .1 Provide protective coverings for finish surfaces of cars and entrances.

1.8 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.

1.9 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.
- .3 Arrange temporary access roads to the places indicated by the Architect and ensure the removal of snow for all the period of work.
- .4 If it is allowed to take the existing roads to reach the building site, ensure the maintenance of these roads during all the duration of the work and, if necessary, repair any damage which could be caused there.

1.10 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.11 OFFICES

- .1 Provide office heated to 20 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

1.12 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.

1.13 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.
- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Architect.

1.14 CONSTRUCTION SIGNAGE

- .1 Provide and erect project sign, within three weeks of signing Contract, in a location designated by Architect.
- .2 The panel must measure 1.2 m X 2.4 m, be made of plywood with framework out of wooden and to carry an inscription carried out by a painter in lettering.
- .3 Indicate on sign, name of Owner, Architect and Contractor, of design style as detailed below.
- .4 No other signs or advertisements, other than warning signs, are permitted on site.
- .5 Provide project identification site sign comprising foundation, framing, and one (1200 x 2400) mm signboard as detailed and as described below.
 - .1 Framework and cleats: white spruce, fir tree (Douglas) or red cedar of the west, quality "selected structure".
 - .2 Surface support: Douglas plywood, covered, of average density, in conformity with the standard SCA 0121.
 - .3 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
 - .4 Fasteners: hot-dip galvanized steel nails and carriage bolts.
 - .5 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Architect.
- .6 Locate project identification sign as directed by Architect and construct as follows:
 - .1 Assemble the framework and fix the panel of plywood at the latter according to indications.
 - .2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - .3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- .7 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .8 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by the Architect.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

 .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section contents
 - .1 Barriers and hoardings.
 - .2 Shelters, enclosures and closings against bad weather; protective screens.
 - .3 Devices of traffic control.
 - .4 Access roads for emergency vehicles.
- .2 Related requirements:
 - .1 Section 01 52 00 – Construction facilities.

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1-GP-189M-84, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-O121-M1978, Douglas Fir Plywood.

1.3 INSTALLATION AND REMOVAL

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

1.4 HOARDING

- .1 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.
- .2 Erect temporary site enclosure, around the building site, for all the working hours, a temporary palisade prefabricated out of galvanized steel of type Metal Tech Omega 1830 mm height, the whole in conformity with the requirements of the CSST. Provide lockable gates for the trucks and at least a lockable door for pedestrian gate by site.
- .3 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.5 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.6 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

- .3 Design enclosures to withstand wind pressure [and snow loading].

1.7 DUST TIGHT SCREENS

- .1 Provide dust tight screens or [insulated]partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.8 ACCESS TO SITE

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

1.9 PUBLIC TRAFFIC FLOW

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

1.10 FIRE ROUTES

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

1.11 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

1.12 PROTECTION OF BUILDING FINISHES

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION CONTENTS

- .1 Quality, product availability, storage, handling, protection and transport of the products.
- .2 Manufacturer instructions.
- .3 Implementation, coordination and attaching parts.
- .4 Existing installations.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 The policy of purchase aims at acquiring, at a minimal cost, products with weak emissions of contaminants, such COV and urea, while maintaining levels of performance satisfactory. Refer to the regulations of this section. In the event of contradiction or of absence of regulations in the technical sections of the specifications, the requirements of this section will apply.
- .4 The policy of purchase aims at acquiring, at a minimal cost, ecological products certified, such wood and the products derived from wood, according to eco-certification FSC.
- .5 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.
- .6 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .7 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .8 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 REGIONAL PRODUCTS, RECYCLED CONTENTS, WOOD AND WOOD PRODUCTS ECO-CERTIFIED

- .1 Regional products
 - .1 Choose local sources of provisioning for the prescribed products.
 - .2 Choose regional products, in absence of regulations or indications.

- .3 The products prescribed with the contractual documents have characteristics of recycled contents, when applicable. To make sure that these are the products which are the object of presentation of the “shop drawings” and which are incorporated in the work.
- .4 Choose products with high recycled contents, in absence of regulations or indications.
- .2 Submit the Formulas of products for these products, in accordance with the section 01 33 00 – Submittal procedures.

1.4 PRODUCTS WITH WEAK EMISSIONS

- .1 All the products which are incorporated in the work on the internal side of the air-barrier must present a content of COV (volatile organic compounds) lower than the limits fixed in the following referents.
- .2 Adhesives and cement sealing (for water, air, acoustics and fire barrier) and their finishes must be in conformity with:
 - .1 Rule 1168, of SCAQMD.
- .3 Paintings and coatings, dyeing and varnishes, including the finishes and paintings of final improvements, implemented at the building site must be in conformity, with:
 - .1 GS-11, from Green Seal, January 1997 (paints),
 - .2 GC-03, from Green Seal, May 1993 (rustproof),
 - .3 Rule 1113, from SCAQMD (products not covered by GS-11 and GC-03).
- .4 Resilient carpets and grounds: to refer to the section 09 65 16 - Floor coverings in sheets.
- .5 Binders for plywood, wooden panels, composite panels; and adhesives for laminate: to refer to the section 06 08 99 – Rough carpentry for minor work
- .6 Submit the product formulas for these products, in accordance with the section 01 33 00 – Submittal procedures.

1.5 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .9 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by him. Unload, handle and store such products.

1.8 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 the Architect in writing, of conflicts between specifications and manufacturer's instructions, so that Architect will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Architect to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 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 the Architect if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. The Architect 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 the Architect, whose decision is final.

1.10 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.

1.11 CONCEALMENT

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

1.12 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.

1.13 LOCATION OF FIXTURES

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

1.14 FASTENINGS

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

1.15 FASTENINGS - EQUIPMENT

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

1.16 PROTECTION OF WORK IN PROGRESS

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

- .2 Do not overload any part of the building. Unless otherwise specified, to obtain the written authorization of the Engineer before cutting out or boring a structural element or to pass a sleeve there.

1.17 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, pedestrian and vehicular traffic and building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section contents
 - .1 Requirements and restrictions concerning cutting and finishing work.
- .2 Related requirements
 - .1 Section 01 33 00 – Submittal procedures
 - .2 Relevant technical sections of the specifications, as regards of cutting and finishing related with concerned work. It is important to prevent in advance the other concerned trades.

1.2 LABOUR

- .1 Engage local labors.
- .2 Award contracts to local companies and suppliers, engaging local labours.

1.3 FINISHING QUALITY

- .1 Finishing must be the highest attainable standard, and work must be carried out by craftsmen, qualified in their respective disciplines. To notify the Architect if work to be carried out is such as they will probably not allow obtaining the anticipated results.
- .2 Do not engage non qualified people or not having the necessary provisions to carry out work which is entrusted to them. The Professional reserves the right to prohibit the access to the building site of any person considered to be inefficient or negligent.
- .3 Only the Architect can settle disputes concerning work completion quality and competences of labour, and its decision is irrevocable.

1.4 COORDINATION

- .1 Make sure that labours collaborate between them in the realization of the work. Exert a narrow and constant monitoring of their work.
- .2 It falls on the Contractor to take care of the coordination of work and the installation of the crossings, the sleeves and the accessories.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .2 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.

- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.6 MATERIALS

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

1.7 PREPARATION

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

1.8 EXECUTION

- .1 Execute cutting, fitting, and patching to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .8 Restore work with new products in accordance with requirements of Contract Documents.
- .9 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .10 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with fire barrier material, full thickness of the construction element.
- .11 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

- .12 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.9 EQUIPEMENTS EMBLEMES

- .1 Emplacements indicated for the equipments, socket-outlets and other materials electric or mechanical must be regarded as approximate.
- .2 Notify the Architect of any problem caused by choosing an equipment emplacement and proceed with the installation according to his directives.

1.10 FASTENING

- .1 Unless otherwise specified, provide accessories and fastening components having same texture, color and finish as the element to be fixed.
- .2 Avoid any electrolytic action between metals or materials of different nature.
- .3 Except if fastening components made of stainless steel or another material are prescribed in the relevant section of the Specifications: Use, to fix the outer works, fasteners and anchors corrosion proof, made of hot-dipped galvanized steel.
- .4 It is important to determine the spacing of anchoring by taking account of limit loads and shear strength in order to ensure a permanent anchoring. Any other organic material or wooden dowels are not accepted.
- .5 Use the least possible of apparent anchors; space them in a uniform way and place them carefully.
- .6 The attaching parts which could cause crumbling or cracking the element in which they are anchored will be refused.
- .7 Materials
 - .1 Use attaching parts of commercial standards forms and size, made of appropriate material and having appropriate finish for the intended use.
 - .2 Unless otherwise specified, use robust high quality attaching parts with hexagonal head. Use stainless steel parts of nuance 304 for external installations.
 - .3 The bolts stem should not exceed the top of the nuts in a length higher than their diameter.
 - .4 Use round washers on apparatuses and materials. Use washers blocking sound with flexible trimming at the places where there are vibrations. Fix apparatuses and materials on stainless steel elements, use resilient washers.

1.11 REPAIRING AND WORK IN A WORK EXISTING OR ADJACENT WITH AN EXISTING WORK.

- .1 Carry out necessary repair work to repair or replace parts or elements found defective or unacceptable. Coordinate work to be carried out on the contiguous affected works, according to needs.
- .2 Repair work must be completed by specialists knowing materials and used outfits; this work must be carried out in manner that no part of the work is damaged or risks to be.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section contents
 - .1 Cleaning during work.
 - .2 Site holding.
- .2 Related section
 - .1 Section 02 41 13 – Selective site demolition

1.2 COMMON REQUIREMENTS

- .1 Carry out cleaning operations and waste management in accordance with local legislations and laws against pollution.
- .2 Do not throw waste, volatile materials, mineral oils, hydrocarbons, painting thinner in a river, a storm-water or municipal sewage.
- .3 Treat domestic waste separately (Kitchen scraps) by using the services of the local municipal garbage collection.
- .4 Do not burn material scrap and construction waste on the site.

1.3 CLEANING DURING CONSTRUCTION

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times.
- .3 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .4 To provide the building site with containers intended for the remains and waste, according to the regulations of this section.
- .5 Clean the work area progressively, until final cleaning.

1.4 PROJECT CLEANLINESS

- .1 Submit a plan of installations on site showing site trailers, storage areas, waste containers, parking and other installations on site according to the section 01 52 00 – Construction facilities.
- .2 Maintain site and contiguous areas clean in accordance with local, provincial and federal laws, safety regulations and fire protection.
- .3 Coordinate cleaning activities with the disposal process in order to prevent the accumulation of dust, dirtinesses, remains, materials waste.
- .4 On daily basis, maintain the site in good order and clean, including the storage and machinery areas, of scrap and waste. Keep the public properties clean of scrap and waste.
- .5 Take proper measures for site holding and submit suggested cleaning procedures of the following elements:

- .1 Snow clearance,
- .2 Drainage,
- .3 Material and circulation,
- .4 Residual and dangerous materials,
- .5 Work producing residues or residual water.

1.5 FINAL CLEANING

- .1 Use only recommended cleaning products by the manufacturer of the material surface to be cleaned, and use them as recommended by the manufacturer of the cleaning product.
- .2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .6 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors.
- .7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .8 Remove dirt and other disfiguration from exterior surfaces.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Architect, two final copies of operating and maintenance manuals in English and French.
- .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 Instructions must be prepared by qualified persons, having necessary knowledge as for the operation and the maintenance of the described products.
- .6 Submitted samples will be returned after the final inspection of the work, with Professional comments.
- .7 If required, re-examine contents of the documents before resubmitting them.
- .8 Defective products will be rejected, even if they were subject of an inspection, and they will have to be replaced without additional expenses.
- .9 Assume the cost of transport of these products.

1.2 FORMAT

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

1.3 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.

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

1.4 AS -BUILT DOCUMENTS AND SAMPLES

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

1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Submit two (2) copies of construction drawings and specifications as follows.
- .2 Record information on the set of black line opaque drawings, and in a copy of Project Manual, to the intention of Consultant.
- .3 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .4 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.

- .5 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 Referenced Standards to related shop drawings and modifications.
- .6 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.
- .7 Other Documents: maintain inspection certifications, field test records, manufacturer's certifications, required by individual specifications sections.
- .8 Provide digital photos, if requested, for site records.

1.6 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.7 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to location as directed; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to consultant.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.
- .2 Extra Stock Materials:
 - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Consultant.
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.
- .3 Special Tools:
 - .1 Provide special tools, in quantities specified in individual specification section.
 - .2 Provide items with tags identifying their associated function and equipment.
 - .3 Deliver to location as directed; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to Consultant.
 - .2 Include approved listings in Maintenance Manual.

1.8 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section contents
 - .1 Selective demolition indicated on the drawings.
 - .2 Decommissioning of existing materials and surface preparation to receive construction work, not limited to, as described on drawings. Contractor must provide labour, tools, lifting machinery and any other necessary feature for the completion of dismantling and surface preparation for a complete work. Contractor must take required action in order to protect and/or handle carefully surfaces and materials to be preserved and/or to be recovered for the completion of the work. Contractor must coordinate with the Owner raising temporary protections, area congestion and suggested safety measures to ensure a secured building. All interior and external building spaces must remain operational, functional and sedentary during all the period construction even if work is carried out in summer period. Contractor must prepare and present to the owner representative and to the professionals his proposition for an intervention and protection plan projected for the completion of the work. The intervention on the interior must include temporary protections and all obligatory measurements to ensure protection of the workmen and the users. The contractor must provide and install, on his expenses, the ventilators and the necessary "Hepa" filters to ensure not to contaminate spaces adjacent to temporary protections of work area. He must also conform to the requirements of this estimate and to the CSST standards.
 - .3 General contractor is charged and responsible of all required borings of more than 75 mm in diameter in partitions and slabs just as the execution of necessary mechanical and electrical passage.

1.2 REFERENCE STANDARDS

- .1 Most recent adopted editions of:
 - .1 CAN/CSA-S269.2, Scaffolding.
 - .2 CAN/CSA-S350, Code of Practice for Safety in Demolition of Structures.
 - .3 CAN/CSA-Z321, Signs and symbols for the workplace.
- .2 Act respecting occupational health and safety (CSST)
- .3 Canadian Environmental Protection Act (CEPA).
- .4 Canadian Environmental Assessment Act (CEAA).
- .5 Motor Vehicle Safety Regulations (MVSR).
- .6 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

1.3 QUALITY ASSURANCE

- .1 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial and National regulations.

1.4 SITE CONDITIONS

- .1 Site Environmental Requirements.
 - .1 Protect existing works which must remain in place as those which must be recovered. If damaged, replace or repair them immediately, free of charge to the Owner satisfaction.
 - .2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
 - .3 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures are maintained throughout the project.
 - .4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
 - .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.
 - .6 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .2 Existing Conditions.
 - .1 Remove contaminated or hazardous materials from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements.

Part 2 Products

2.1 EQUIPMENT

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.
- .2 Material and heavy equipment must be exploited in order to respect or to exceed the requirements of all the relevant standards for meeting emission target.
- .3 Dust laying sprayers, use accessories with water saving devices.
- .4 Use tools as to damage the least possible materials having to be recovered.

Part 3 Execution

3.1 PREPARATION

- .1 Inspect site with Architect and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Protect adjacent joints and load transfer devices.

3.2 REMOVAL OPERATIONS

- .1 Take necessary measures to protect workers health and physical integrity in conformity of the Law on the health and the occupational safety.
- .2 Do not disturb items designated to remain in place.

3.3 RESTORATION

- .1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning of Work.
- .2 Consult all construction plans in order to include/understand the range and the content of demolition.
- .3 During demolition, grant a great care to connections and to materials assemblies. Carry out work according to rules, in order to damage the least possible materials, devices and systems preserved and recovered.
- .4 Carry out demolitions so that the preserved materials remain intact and complete. If elements are modular, prolong demolition to the extent in a way to dismantle complete elements easily retouchable and reparable.
- .5 Carry out right features of cut, level and balance. According to the situation, align the features of cut with the existing works and to come.
- .6 Consider adjacent existing finishes and preserved on ground at the ceiling and the walls to adjust the limits of demolitions.

3.4 CLEANING

- .1 Remove debris, trim surfaces and leave work site clean, upon completion of Work
- .2 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section contents
 - .1 Parapets, roof bases and other works on roof.
 - .2 Any other required complementary work.
 - .3 Assembly panels for mechanical, electrical equipment or telecommunication, according to the indications on architectural, mechanical or electrical drawings.

1.2 RELATED REQUIREMENTS

- .1 Section 07 52 00 – Modified bituminous membrane roofing.
- .2 Section 07 62 00 – Sheet metal flashing and trim

1.3 REFERENCE STANDARDS

- .1 CSA International
 - .1 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
 - .2 CSA O121-[08], Douglas Fir Plywood.
 - .3 CSA O141-[05(R2009)], Softwood Lumber.
 - .4 CSA O151-[09], Canadian Softwood Plywood.
 - .5 CAN/CSA-O325.0-[07], Construction Sheathing.
 - .6 CAN/CSA-Z809-[08], Sustainable Forest Management.
 - .7 Canadian wood council; grading manual for canadian lumber.
 - .8 CAN/CSA-O80 Séries-M89, Wood preservation.
 - .9 CAN/CSA-O80.201-M89, Hydrocarbon solvents for preservatives.
 - .10 AWPA.M2-81, Inspection of Treated Timber Products.
 - .11 AWPA.M4-80, Care of Preservative – Treated Wood Products.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 In case of materials impregnated under pressure of a preservative, submit the following information, after being certified by an authorized representative of the treatment plant:
 - .1 The information appearing in standard AWPA.M2 and the modifications stated in the standards Series CAN/CSA-O80, under the heading Additional Requirements to standard AWPA.M2, applying to the prescribed treatment;
 - .2 The percentage of moisture once finished consecutive drying with the treatment carried out by means of a water-soluble preservative;
 - .3 Acceptable types of paintings, dyeing and colourless products of finishes which can be applied to treated materials.

1.5 QUALITY ASSURANCE

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

Part 2 Products

2.1 MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 CAN/CSA-Z809 or FSC or SFI certified.
- .2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.
 - .4 Manufacturing process must be in conformity with the evaluation rules of the cycle of life (LCA) stated in standard LCA Z760-94 of the SCA.
- .3 Panel Materials:
 - .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
 - .1 Urea-formaldehyde free.
 - .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
 - .1 Urea-formaldehyde free.
 - .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
 - .1 Urea-formaldehyde free.
- .4 Except for the parts located above the bridging of the roof and the parapets, all the plywood panels used outside and/or incorporated in the outer jacket of the building must be of external type treated damp-proof in factory. No pesticide of wood applied to the building site will be to tolerate on these panels but the protection of the cut out edges.

2.2 ACCESSORIES

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

- .4 Galvanized metal: galvanized fastenings according to the standard SCA 164 for outer works, interior works in wet areas, wood works treated under pressure fireproofed.

2.3 PRESERVATION TREATMENT

- .1 Treat wood under pressure in accordance with the standards Series CAN/CSA-O80 by using a preservative with chromate copper arsenate.
- .2 Preservative of wood for final improvements: for application on the surface, coloured containing naphthenate of copper, or solution at 5% of pentachlorophenol.

Part 3 Execution

3.1 INSTALLATION

- .1 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.
- .2 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .5 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using [steel] [galvanized] fasteners.
- .6 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation for roof hopper.
- .7 Install sleepers as indicated.
- .8 Install necessary backing in the walls, the partitions and the ceilings intended for the installation of various equipment embedded or posed on surface.
- .9 Wood treatment applied on the surface:
 - .1 Before installing wooden treated under pressure elements, touch up them with a brush by applying a preservative to all surfaces which were sawn, drawn up or bored on site.

3.2 MOUNTING

- .1 Assemble, anchor, fix, attach and brace the elements so as to ensure necessary solidity and rigidity.
- .2 If required, mill the holes so that the heads of bolt do not protrude.

3.3 SWITCHGEAR, MECHANICAL AND TELECOMMUNICATION PANELS

- .1 Provide and install necessary panels to switchgear, according to indications. Use new plywood panels of Oregon fir, 19 mm thickness, fireproof, respecting organizations requirements and regulations, posed on a framework of 19 X 38 mm, reinforced with same size elements posed with intervals of 300 mm or more.
- .2 Provide and install, same way, all necessary panels to the assembly of telephone equipment, telecommunication, mechanics or others.

- .3 Coordinate the installation of these panels, paint them before the installation of equipment.

END OF SECTION

PART 1. GENERAL

1.1 RELATED SECTIONS

- .1 Section 06 08 99 – Rough Carpentry
- .2 Section 07 62 00 - Sheet Metal and Trim
- .3 Section 07 92 00 - Joint Sealants

1.2 REFERENCES

- .1 American Society of Civil Engineers (ASTM)
 - .1 ASCE 7-05, Minimum Design Loads for Buildings and Other Structures.
- .2 American Society for Testing and Materials (ASTM)
 - .1 ASTM C 36-95b, Specification for Gypsum Wallboard.
 - .2 ASTM D41, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.
 - .3 ASTM D312, Standard Specification for Asphalt Used in Roofing.
 - .4 ASTM D451, Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.
 - .5 ASTM D1079, Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.
 - .6 ASTM D1227, Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
 - .7 ASTM D1863, Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.
 - .8 ASTM D2178, Standard Specification for Asphalt Glass Felt Used as a Protective Coating for Roofing.
 - .9 ASTM D2822, Standard Specification for Asphalt Roof Cement.
 - .10 ASTM D2824, Standard Specification for Aluminum-Pigmented Asphalt Roof Coating.
 - .11 ASTM D4601, Standard Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing.
 - .12 ASTM D5147, Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

- .13 ASTM D6162, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
- .14 ASTM D6163, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
- .15 ASTM E108, Standard Test Methods for Fire Test of Roof Coverings.
- .3 Factory Mutual Research (FM) :
 - .1 Roof Assembly Classifications.
- .4 National Roofing Contractors Association (NRCA) :
 - .1 Roofing and Waterproofing Manual.
- .5 Underwriters Laboratories. Inc. (UL) :
 - .1 Fire Hazard Classifications.
- .6 Warnock Hersey (WH) :
 - .1 Fire Hazard Classifications.
- .7 American National Standards Institute and Single Ply Roofing Institute (ANSI/SPRI) :
 - .1 ANSI/SPRI ES-1 Testing and Certification Listing of Shop Fabricated Edge Metal.
- .8 Canadian General Standards Board(CGSB)
 - .1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
- 1.
 - .2 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Damp proofing and Waterproofing.
 - .3 CGSB 37-GP-15M-76, Application of Asphalt Primer for Asphalt Roofing, Damp proofing and Waterproofing
 - .4 CGSB 37-GP-19M-76, Mastic plastique de goudron fluxé.
 - .5 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound
 - .6 CGSB 37-GP-56M-80, Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
 - .7 CAN/ULC-S701-97, Isolant thermique en polystyrène, panneaux et revêtements de tuyauterie.
 - .8 CAN/CGSB-51.26-M86, Isolant thermique en uréthane et en isocyanurate, panneaux revêtus.

- .9 CAN/CGSB-51.31-M84, Isolant thermique, panneaux en fibres minérales pour toitures terrasses.
- .10 CAN/CGSB-51.33-M89, Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
- .11 CAN/CGSB-51.34-M86, Pare-vapeur en feuille de polyéthylène pour bâtiments.
- .12 CAN/CGSB-51.38-92, Isolant thermique en verre alvéolaire.
- .9 Association canadienne de normalisation (CSA)
 - .1 CSA A123.3-M1992, Asphalt or Tar Saturated Roofing Felt.
 - .2 CSA A123.4-M1992, Bitumen for Use in Construction of Built-Up Roof Coverings and Dampproofing and Waterproofing Systems.
 - .3 CSA A231.1-1972, Precast Concrete Paving Slabs.
 - .4 CAN/CSA-A247-M86, Insulating Fibreboard.
 - .5 CSA A284-1976, Mineral Aggregate Thermal Roof Insulation.
 - .6 CSA O121-M1978,
 - .7 CSA O151-M1978, Canadian Softwood Plywood.
- .10 Canadian Roofing Contractors Association (CRCA).
 - .1 Roofing Specification Manual
- .11 Association des Maîtres Couvresseurs du Québec (AMCQ)
 - .1 Devis (couvertures)

1.3 PRODUCT DATA

- .1 Provide manufacturer's technical product data for each type of roofing product specified as per section 01 33 00.
- .2 Include data substantiating that materials comply with specified requirements. Product data must indicate as following:
 - .1 product characteristics;
 - .2 performance criteria;
 - .3 limitations.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start per section 01 33 00
- .2 Provide manufacturer's technical product data for each type of roofing product specified as per section 01 33 00.
- .3 Provide flashing details and tapered insulation
- .4 Provide tapered insulation arrangement

1.5 STORAGE AND HANDLING

- .1 Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure.
- .2 Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).
- .3 Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.
- .4 Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 10 degree C minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.
- .5 Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application.

1.6 PROJECT CONDITIONS

- .1 Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements. Do not apply bituminous membranes under -10°C taking account of wind factor.
- .2 Solvant adhesive must be applied at a temperature equal or over - 5°C.
- .3 Do not apply roofing insulation or membrane to damp deck surface.
- .4 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
- .5 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 FIRE SAFETY

- .1 Portable fire extinguishers: keep a fire extinguisher at permanent pressure on the roof, for each torch, rechargeable, fitted with a nozzle of projection, size 9 kg, per the indications, peer ULC for use against fires of classes A, B and C. The extinguisher must be placed within 3 m of the blowtorch.
- .2 Maintain fire guardian for 1 hour after the end of the working day. The guardian shall have in his possession an infrared heat detector, to locate and detect fires nests.

1.8 COMPATIBILITY

- .1 Any material submitted for this project must comply with all technical, performance, warranty and manufacturer's field services requirements set out within these specifications. Submit to Architect proof of system compatibility. Any systems submittal that does not comply with these specifications will be rejected.

1.9 QUALITY ASSURANCE

- .1 Submit reports of laboratory tests, in accordance with the 01 33 00
- .2 Submit reports of laboratory tests certifying that bituminous materials and membrane are consistent with this section requirements.

1.10 QUALIFICATIONS

- .1 Installer: Company specializing in modified bituminous roofing installation, authorized by roofing system manufacturer as qualified to install manufacturer's roofing materials and member in good standings of the l'Association des Maîtres Couvreur du Québec.
- .2 Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site with a minimum of 5 years experience and a minimum of five staff members. Other workman must have certificate of competence during all phases of roofing work while roofing work is in progress.

1.11 REFERENCES

- .1 Install modified bitumen membranes and flashings in accordance with manufacturer's instructions as well as with the recommendations provided by the Roofing Manual of the l'Association des Maîtres Couvreur du Québec.

1.12 FIELD QUALITY CONTROL

- .1 Inspections during the work that are described in this section and relevant tests will be provided by the manufacturer of the system offering the warranty.
- .2 Inspection fees are at the expense of the manufacturer
- .3 The inspection shall in all points respect the procedure of the Association des Maîtres Couvreur du Québec as well as the requirements of the manufacturer of the system offering the warranty.
- .4 Inspections during the work must be carried out on a daily basis and free of charge. The manufacturer shall issue a written progress report on weekly basis consolidated with photos. The manufacturer must convey to the client and the architect of any refusal to comply by the roofer contractor as well as any situation not considered in this specification
- .5 After the acceptance of the work, the manufacturer representative will issue the roofer contractor a certificate attesting the quality of work and respect of installation requirements, which will serve as a document prior to the final issuance of the twenty-five (25) years warranty from the date of work acceptance of the completion work.

1.13 WARRANTY

- .1 Upon completion of installation, and acceptance by the Owner and Architect, the manufacturer will supply to the Owner, in accordance of the Canadian standards, a twenty-five (25) year from final acceptance date of completed work.
- .2 Installer will submit a five (5)-year warranty to the membrane manufacturer with a copy directly to the Owner.
- .3 The system manufacturer shall provide an inclusive 25-year warranty covering all components of the roof as well as labor. The warranty should be full, non-prorated with no dollar limit and taking effect from the date of the reception with reserve of work.
- .4 Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition. Membrane manufacturer will provide an annual inspection by request of the owner for the life of the warranty. To include in his price the recording of the project at the program of quality assurance of the A.M.C.Q.

PART 2. Products

2.1 PREPARATION AND REPARATION OF THE SUPPORT

- .1 Mortar repair concrete compatible with all components of the composition of the roof - submit data sheets for approval before proceeding with the work

2.2 ASPHALT PRIMER FOR BASE LAYER

- .1 Bitumen for base layer: standard CGSB 37-GP-9Ma.
.1 Acceptable product: Garla-Prime VOC from Garland Canada or equivalent approved by the Architect.

2.3 VAPOUR BARRIER

- .1 Bituminous membrane with two layers in full adherence to the deck.
.1 Two layers of organic felt No. 15, in accordance with CSA A123.3 standard.
Acceptable product: As manufactured by IKO Industries Ltd. or equivalent approved by the architect.

2.4 MEMBRANES

- .1 **BASE PLY- FIELD OF THE ROOF:**
.1 Modified bituminous membrane, in accordance with CGSB 37-GP - 56M standard, armed with a composite polyester and fiber glass, in accordance with standard ASTM D 6162, Type III, Grade S and tested by the method ASTM D 5147. Minimum nominal thickness of 80mils, impregnated and coated with 100% of modified bitumen.
Minimum performance of the field base sheet membrane should be equal or exceed standards Type III of ASTM D 6162 when tested with the method ASTM D 5147:
a. Tear Strength:
50mm/min @ 23 ± 3°C
L/T: 1245 N
b. Tensile Strength:
L/T: 44 KN/m
c. Elongation: 3%
d. Low Temperature Flexibility: -18°C
Acceptable product: FlexBase Plus 80 as manufactured by Garland Canada or equivalent approved by the Architect.

.2 **BASE FLASHING PLY :**

- .1 Modified bituminous membrane, in accordance with CGSB 37-GP - 56M standard, armed with a composite polyester and fiber glass, in accordance with standard ASTM D 6162, Type III, Grade S and tested by the method ASTM D 5147. Minimum nominal thickness of 60mils, impregnated and coated with 100% of modified bitumen.

Minimum performance of the field base sheet membrane should be equal or exceed standards Type III of ASTM D 6162 when tested with the method ASTM D 5147:

- a. Tear Strength:
50mm/min @ 23 ± 3°C
L/T : 1245 N
- b. Tensile Strength:
L/T : 44 KN/m
- c. Elongation: 3%
- d. Low Temperature Flexibility: -18°C

Acceptable product: TriBase Premium HPR as manufactured by Garland Canada or equivalent approved by the Architect.

.3 **CAP SHEET PLY – FIELD OF THE ROOF :**

1. Modified bituminous membrane, in accordance with CGSB 37-GP - 56M standard, armed with dual fiber glass reinforcement, in accordance with standard ASTM D 6163, Type III, Grade S and tested by the method ASTM D 5147. Minimum nominal thickness of 80mils, impregnated and coated with 100% of modified bitumen.

Minimum performance of the field cap sheet membrane should be equal or exceed standards Type III of ASTM D 6163 when tested with the method ASTM D 5147:

- a. Tear Strength:
50mm/min @ 23 ± 3°C
L/T : 934 N
- b. Tensile Strength:
L/T : 26 KN/m
- c. Elongation : 3%
- d. Low Temperature Flexibility: -15°C

Acceptable product: StressPly as manufactured by Garland Canada or equivalent approved by the Architect.

.4 **CAP FLASHING PLY:**

1. Modified bituminous membrane, in accordance with CGSB 37-GP - 56M standard, armed with a composite polyester and fiber glass, in accordance with standard ASTM D 6162, Type III, Grade S and tested by the method ASTM D 5147. Minimum nominal thickness of 115mils, impregnated and coated with 100% of modified bitumen.

Minimum performance of the field cap sheet membrane should be equal or exceed standards Type III of ASTM D 6162 when tested with the method ASTM D 5147:

- a. Tear Strength:
50mm/min @ 23 ± 3°C_
L/T : 1245 N
- b. Tensile Strength:
L/T : 44 KN/m
- c. Elongation : 3%
- d. Low Temperature Flexibility: -18°C

Acceptable product: StressPly E as manufactured by Garland Canada or equivalent approved by the Architect.

2.5 RECOVERY BOARDS :

- .1 High density wood fiberboard: standard CAN/ULC-S706, Type I, Grade 3, for roofing, impregnated with bitumen, 48 x 48 maximum and 1 inch thick, Shiplap edge.

Acceptable product: BP ESGARD as manufactured by BP Canada or SECURPan as manufactured by Matériaux Louiseville or equivalent approved by the Architect

2.6 BITUMEN

- .1 Generic asphalt Type III in accordance with CSA A123.4 standard.

2.7 THERMAL INSULATION AND TAPPERED INSULATION

- .1 Rigid Polyisocyanurate insulation in accordance with standards ASTM C 1289, Type II, Class I, Grade 2 and CAN/ULC S704, Type 2. At least 138 Kpa according to ASTM D 1621 compressive strength. Thickness: 7 inches average; Board dimensions: 1.22 m x 1.22 m (4'X 4').

- .2 Install insulation according to the existing slope of the roof and produce a slope of 2% with a minimum thickness of 0.5 inch at the drains.
- .3 Tapered insulation must have the same properties as the flat rigid insulation.

Acceptable product: Enrgy 3 as manufactured by Johns Manville or AC-Foam-II as manufactured by Atlas Roofing or equivalent approved by the Architect

2.8 SEALANTS

- .1 Asphalt Roofing Mastic: in accordance with standards V.O.C ASTM D2822, Type II.
Acceptable product: Flashing Bond from Garland or equivalent approved by the Architect.
- .2 Asphalt Roofing Mastic: elastomeric, asphaltic mastic formulated from a special weather and ozone resistant thermoplastic rubber, selected plasticizing oils, in accordance with CAN/CGSB-37.29.
Acceptable product: Garla-Flex from Garland or equivalent approved by the Architect.
- .3 Other products: in accordance with Section 07 92 00.

2.9 NAILS AND FASTENERS

- .1 Fastening of gypsum panels [and/or insulation] support: fasteners and plates must conform to standard 4470 of Factory Mutual, in terms of resistance to corrosion and wind uplift requirement

Acceptable products : fasteners of appropriate length and 26 gauge galvanized steel plates, produced by Tru Fast or equivalent approved by the Architect.

2.10 ROOF DRAINS

- .1 New drain system will be in copper with "U-Flow".

Apron copper measuring 600 mm x 600 mm, 0.7 mm thick (20 oz), downspout copper 0.7 mm thick (20 oz) x diameter for the existing piping.

The apron is welded waterproof to the downspout. The downspout has a rubber gasket that makes the tightness with the existing piping to its perimeter

Copper and welding in accordance with the following standards:
 - .1 ASTM B32-87, specification for solder metal.
 - .2 ASTM B370-88, specification for copper sheet and strip for building construction.
Strainer in stainless steel or copper

2.11 SURFACINGS

- .1 Snow white reflective calcite aggregate gravel having an SRI rating equal or greater than 85%.

PART 3. INSTALLATION

3.1 QUALITY OF EXECUTION

- .1 Unless otherwise stated, install modified bitumen membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors Association's Roofing & Waterproofing Manual, the Factory Mutual (FM) specifications, in accordance with the standards of the Association des Maîtres Couvresseurs du Québec, the Asphalt Roofing Manufacturers Association, and applicable codes.
- .2 Apply bitumen in accordance with the standard CGSB 37-GP-15M.

3.2 PROTECTION MEASURES

- .1 Protect walls and neighbouring works of the places where you must raise or implement, equipment or materials
- .2 Provide signs and security barriers, and keep them in good condition until the end of the work.
- .3 Remove immediately drops and smears of bitumen.
- .4 Ensure that rainwater is drained to the periphery of the roof, as far as possible of the building walls, and so, until the drains have been installed and connected.
- .5 Protect roof sections that are not subject to this project from traffic and damage caused by the construction work. Install one layer of protection with panel plywood where traffic should continue, in places where there is no work or when they are completed. Take necessary precautions considered by the Architect
- .6 At the end of each work day or when work is suspended because of bad weather, protect the finished surfaces and the materials that have been removed for storage space.
- .7 Take the necessary steps to ensure to switch-off any operating air equipment, in order to avoid the entry of dust and debris and to prevent the distribution of dangerous or unpleasant odors in the occupied premises.

3.3 EXAMINATION OF ROOF DECK

- .1 Verify deck cover support and inform the architect of failure, without delay and in writing
- .2 Before starting work, make sure:
 - .1 that deck support is solid, level, dry, and free of snow, ice and frost, and it has been clean of all dust and debris with a broom;
 - .2 that curbs and area dividers are in place
 - .3 verify that deck is clean and smooth, free of depressions, projections or ripples, and is properly sloped to drains
 - .4 that plates of nailing plywood or lumber have been installed on the walls and parapets, as indicated

3.4 DECK PREPARATION AND REPARATION

- .1 Verify that all welds are good, that deck is in plane and that it is free from damage and deflection. Clean and properly repair the surfaces of the concrete support before the application of the base layer and the vapour barrier - follow the manufacturer's recommendations - standardize the surfaces properly. Submit the data sheet for approval before proceeding with the work.

3.5 VAPOUR BARRIER

- .1 Supply and install 2 ply of felt organic No. 15 in hot asphalt applied at a rate of 1 kg/m².
- .2 Ensure an overlap with the existing vapour barrier of at least 100 mm.

3.6 MODIFIED MEMBRANE APPLICATION

- .1 Install Polyisoanurate insulation in type III asphalt.
 - .1 Step all boards into place immediately after placement to ensure full adhesion.
 - .2 Tightly brace all seams to allow no gaps in insulation. All joint are to be staggered.
- .2 Install 1.0" high density, asphalt coated fiberboard insulation in full moppings of hot type III asphalt.

- .1 Step all boards into place immediately after placement to ensure full adhesion.
- .2 Tightly brace all seams to allow no gaps in insulation. All joints must be staggered and offset between layers of insulation.
- .3 Install a wood fibre cant in hot asphalt.
- .4 Base Ply Installation:
 - .1 Install base sheet in twenty five (25) lbs (11.3kg) per square of bitumen shingled uniformly to achieve one or more plies over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof. Do not step on base rolls until asphalt has cooled, fish mouths should be cut and patched.
 - .2 Lap ply sheet ends 8 inches (203 mm). Stagger end laps 2 inches (304mm) minimum.
 - .3 Extend plies 2 inches beyond top edges of cants at wall and projection bases.
 - .4 Install base flashing ply to all perimeter and projection details after cap sheet membrane application. Allow the one ply of base sheet to cure at least 30 minutes before installing the modified membrane. However, the modified membrane must be installed the same day as the base plies.
 - .5 **Before the installation of the cap sheet, perform tests of dripping of water to drains. Fill holes where water accumulates and test again. Send photos to the architect and confirm in writing that after the fix no ponding water and accumulation of water is apparent on the surface**
 - .6 Solidly bond the modified cap membrane to the base layers with specified material at the rate of 25 to thirty 30 lbs. (11-13kg) per 100 square feet.
 - .7 Roll must push a puddle of hot material in front of it with material slightly visible at all side laps. Use care to eliminate air entrapment under the membrane. Exercise care during application to eliminate air entrapment under the membrane.
 - .8 Apply pressure to all seams to ensure that the laps are solidly bonded to substrate.
 - .9 Install subsequent rolls of modified membrane as above with a minimum of 4 inch (101 mm) side laps and 8 inch (203 mm) end laps. Stagger end laps. Apply membrane in the same direction as the previous layers but stagger the laps so they do not coincide with the laps of the base layers.
 - .10 Apply hot material no more than 5 feet (1.5 m) ahead of each roll being embedded.
 - .11 Extend membrane 2 inches (50 mm) beyond top edge of all cants in full mopping of the specified hot material

- .12 Seal all curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
 - .13 Prepare all walls, penetrations, expansion joints to be flashed with asphalt primer at the rate of one hundred (100) square feet per gallon. Allow primer to dry tack free.
 - .14 Use the modified membrane as the flashing membrane. Adhere to the underlying base flashing ply with specified asphalt unless otherwise noted in these specifications. Nail off at a minimum of eight (8) inches o.c. from the finished roof at all vertical surfaces.
 - .15 Solidly adhere the entire sheet of flashing membrane to the substrate.
 - .16 Seal all vertical laps of flashing membrane with a three-course application of trowel-grade mastic and fiberglass mesh.
 - .17 Coordinate counter flashing, cap flashings, expansion joints, and similar work with modified bitumen roofing work as specified.
 - .18 Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work.
- .5 Roof penetrations
- .1 Install sleeves, events as well as the other penetrations of roof flashings, then seal them to the membrane in accordance to details and recommendations of the manufacturer.
- .6 Application of Surfacing - White aggregate
- .1 Uniformly embed aggregate in a flood coat of bitumen at a rate of sixty (60) to seventy (70) lbs. (27-32kg) per square coverage after felt flashings, tests, repairs, and corrective actions have been completed and approved.

3.7 FIELD QUALITY CONTROL

- .1 Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system. A copy of the specification should also be always on site. Perform field inspection by manufacturer as required.
- .2 Inspections during the work must be free of charge, performed by employee of the manufacturer of the warranty, on a daily basis. The manufacturer shall issue a written weekly progress report consolidated with photos. The manufacturer representative must report without delay to the owner and architect of any refusal to comply on the part of the contractor on the roof as well as any situation not considered in this specification.

3.8 FINAL INSPECTION

- .1 At completion of roofing installation and associated work, meet with Contractor, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.
- .2 Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.
- .3 The roofing system manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor.
- .4 If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.
- .5 Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- .6 Notify the Owner's representative & Owner upon completion of corrections.
- .7 Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.
- .8 The system manufacturer must annually inspect roofs without charges for the duration of the warranty and issue a detailed condition report

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Parapets flashing, bases of apparatuses at the roof and sleeves.
- .2 Any other required complementary work.

1.2 RELATED REQUIREMENTS

- .1 Section 06 08 99 – Rough carpentry for minor works.
- .2 Section 07 52 00 – Modified bituminous membrane roofing.

1.3 REFERENCE STANDARDS

- .1 The Aluminum Association Inc. (AAI)
 - .1 AAI-Aluminum Sheet Metal Work in Building Construction.
 - .2 AAI DAF45-[03], Designation System for Aluminum Finishes.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A167-94a, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A 591/A 591 M-89(1994), Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.
 - .3 ASTM A606-91a(1993), Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
 - .4 ASTM A653/A 653M-95, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM A792/A 792M-95, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .6 ASTM B32-95b, Standard Specification for Solder Metal.
 - .7 ASTM B370-92, Standard Specification for Copper Sheet and Strip for Building Construction.
 - .8 ASTM D523-89(1994), Standard Test Method for Specular Gloss.
 - .9 ASTM D822-89, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .3 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.32-[M77], Sheathing, Membrane, Breather Type.
 - .2 CAN/CGSB-93.1-[M85], Sheet Aluminum Alloy, Prefinished, Residential.
 - .3 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
- .5 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-M1979, Asphalt Saturated Organic Roofing Felt.

- .2 AAMA/WDMA/CSA 101/I.S.2/A440-M90, Standard/Specification for Windows, Doors, and Unit Skylights.
- .3 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
- .6 Québec Master Roofers Association (QMRA)
 - .1 Specifications (roofing)

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.
- .2 Samples:
 - .1 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, finishes and colours.

Part 2 Products

2.1 SHEET METAL MATERIALS

- .1 Zinc coated steel sheet: to ASTM A591/A591M, commercial quality, 0.64 mm thick, zinc Z275.

2.2 PREFINISHED STEEL SHEET

- .1 Prefinished steel with factory applied polyvinylidene fluoride.
 - .1 Class F1S.
 - .2 Color selected by the Architect from manufacturer's standard range.
 - .3 Specular gloss: 30 units +/- in accordance with ASTM D523.
 - .4 Coating thickness: not less than 22 micrometres.
 - .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D822 as follows:
 - .1 Outdoor exposure period 2500 hours.
 - .2 Humidity resistance exposure period 5000 hours.

2.3 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5-M89.
- .3 Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3.
- .4 Sealants: see Section 07 92 00.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
- .6 Fasteners: of same material as sheet metal, to CSA B111, flat head roofing nails of length and thickness suitable for metal flashing application.
- .7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .8 Solder: to ASTM B32.

- .9 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- .10 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 FABRICATION

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

2.5 METAL FLASHINGS

- .1 Form flashings, copings and fascias to profiles indicated of 0.64 mm thick prefinished weathering galvanized steel

2.6 PANS

- .1 Form pans to receive roofing plastic with minimum 75 mm upstand above finished roof and 100 mm continuous flanges with no open corners.
 - .1 Solder joints.
 - .2 Make pans minimum 50 mm wider than member passing through roof membrane.

2.7 SCUPPERS

- .1 Form scuppers from aluminum metal sheet.
- .2 Sizes and profiles as indicated.
- .3 Provide necessary fastenings.
- .4 Form 600 x 600 mm splash pans from prefinished sheet metal.

Part 3 Execution

3.1 INSTALLATION

- .1 Install sheet metal work as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal.
 - .1 Secure in place and lap joints 100 mm.
- .4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.

- .1 Flash joints forming tight fit over hook strips.
- .5 Lock end joints and caulk with sealant.
- .6 Install surface mounted reglets true and level, and caulk top of reglet with sealant.
- .7 Insert metal flashing under cap flashing to form weather tight junction.
- .8 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
- .9 Caulk flashing at cap flashing with sealant.
- .10 Install pans, where shown around items projecting through roof membrane.

3.2 SCUPPERS

- .1 Install scuppers as indicated.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section contents (but not limited to)
 - .1 All works of joints and other openings sealing, except for the openings to be sealed using fire and smoke barriers sets.
 - .2 All necessary sealing to supplement work.
- .2 Related requirements
 - .1 Section 07 52 00 – Modified bituminous membrane roofing
 - .2 Section 07 62 00 – Sheet metal flashing and trim

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM C794, Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 - .2 ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.
 - .3 ASTM C920, Specification For Elastomeric Joint Sealant.
 - .4 ASTM C1248, Standard Test Method for Staining of Porous Substrate by Joint Sealants.
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 19-GP-5, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
 - .2 CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Chemical Curing.
 - .3 CGSB 19-GP-14, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
 - .4 CAN/CGSB-19.17, One-Component Acrylic Emulsion Base Sealing Compound.
 - .5 CAN/CGSB-19.24, Multi-component, Chemical Curing Sealing Compound.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for 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 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.

1.4 QUALIFICATIONS AND SKILLS

- .1 Company specialized in the completion of the work, having 5 years of documented experience.
- .2 In addition to the manufacturers' instructions, make sure that the sealing respects the requirements of the Applicator Training Manual, of Sealant, Waterproofing & Restoration Institute (SWR Institute).

1.5 QUALITY CONTROLE

- .1 Samples must be subject to show the real dimensions, profile and depth of the joints on site, including joint's backing, primer as well as the water-proofing and sealing joint components.
- .2 Samples will be used for:
 - .1 Work quality evaluation, preparation of the support, proper equipments and materials operation.
- .3 Carry out samples at the spots indicated by the Architect.
- .4 Wait 24 hours before undertaking work of sealing in order to allow the Person in charge for work to inspect the samples.
- .5 Once accepted, samples will constitute the minimal standard to meet for sealing work. They could be integrated into the finished work.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00- Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in a dry location and in accordance with the manufacturer's recommendations.
 - .2 Replace defective or damaged materials with new.

1.7 MANAGEMENT AND WASTE DISPOSAL

- .1 It is forbidden to pour unutilised joint-sealing compounds in the sewers, river, lake, on the ground or at any other place where that could present a health environmental hazard.

1.8 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.

1.9 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 Arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants. Ventilate area of work as directed by Consultant by use of approved portable supply and exhaust fans.

Part 2 Products

2.1 SEALANT MATERIALS

- .1 Use a single type of sealing-joints provided by the same manufacturer.
- .2 Where sealants are qualified with primers use only these primers.
- .3 Unless otherwise specified, the Architect will choose sealing colors from the manufacturer standard colors.

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Type 1: multi-components polyurethane sealant, meets CAN/CGSB-19.24.
 - .1 Acceptable products :
 - .1 Dymeric 240 - Tremco.
 - .2 Sikaflex 2c NS/SL - Sika.
 - .2 Typical applications :
 - .1 exterior sealing joints, at vertical and horizontal surfaces not subjected to circulation, such as joints between curtain walls, windows, door frames and other metal component, with adjacent surfaces, in particular metal panels, masonry, thresholds, barges, plaster fillings and others shaped and metal mouldings;
 - .2 interior sealing joints on vertical and horizontal surfaces not subjected to circulation, such as joints between curtain walls and adjacent surfaces, in

- particular structural steel, metal panels, masonry, gypsum panels, door and window frames, thresholds, barges, plaster fillings, shelves and others shaped and metal mouldings, except for the joints to be sealed using fire and smoke barrier products;
- .3 interior and exterior joints for masonry ;
 - .4 interior and exterior joints for concrete finishes;
 - .5 interior and exterior expansion joints for masonry;
 - .6 joints between masonry and structure;
 - .7 joints with support angles of masonry or external panels;
 - .8 joints of metal flashings;
 - .9 interior visible acoustical joints;
 - .10 all required joints presents on drawing but not covered by other sections.
- .2 Type 3 : two polysulfure components sealant, non shrinkable, meets ASTM C920 or CAN/CGSB-19.13.
- .1 Acceptable products :
 - .1 Sikaflex 1c SL - Sika.
 - .2 THC 900 - Tremco.
 - .2 Typical applications:
 - .1 Horizontal joints subjected to pedestrian circulation, such as joints with doors thresholds, in the flagstones of concrete, and false-joints in floor coatings.
- .3 Type 8 : vapor-barrier sealant, with EcoLogo label, content of COV less than 5% in weight, without asbestos, compatible with the used vapour barrier, and recommended by the manufacturer of the latter.

2.3 PREFORMED, COMPRESSIBLE AND NONCOMPRESSIBLE JOINTS

- .1 Backings must be appropriate for the suitable joint-sealing compounds and to be as recommended by the manufacturer
- .1 Vinyl or neoprene, urethan, polyethylene foam elements
 - .2 Rods of extruded foam.
 - .3 Oversize elements of 30 % à 50 %.
- .2 Neoprene or rubber-butyle elements.
- .1 Round and full rods, of a Shore hardness A of 7
- .3 High density foam elements
- .1 Elements made of PVC extruded cellular foam, extruded cellular polyethylene foam, of a Shore hardness A of 20 and having a tensile strength of 140 kPa at 200 kPa, made of extruded polyolefin foam, of a density of 32 kg/m³, or made of neoprene, of size recommended by the manufacturer.
- .4 Tape
- .1 Polyethylene ribbon tape not adhering to sealing-joint compound.

2.4 JOINT CLEANER

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

Part 3 Execution

3.1 SURFACE PREPARATION

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

3.2 PRIMING

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

3.3 BACKUP MATERIAL

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

3.4 MIXING

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

3.5 APPLICATION

- .1 Sealant:
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.

- .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
- .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
 - .2 Do not cover up sealants until proper curing has taken place.

3.6 CLEANING

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

3.7 PROTECTION

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

3.8 LISTING

- .1 Sealing-joint compounds by type of use
 - .1 Circumference of external walls openings(out of bricks, blocks or prefabricated elements of masonry), and whose frames are contiguous with the coating of completion: product of type 1.
 - .2 Joints of metal sheet, crowning and joints crowning, edges and external wall linings: product of type 1
 - .3 Horizontal surface joints (cornices, drips): product of type 1
 - .4 To seal vapor-barrier membrane: product of type 8.

END OF SECTION



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