Specifications

SEABIRD ISLAND HEALTH CENTRE ROOF AND WINDOW REPLACEMENT

AGASSIZ, BC

Project #5929

ISSUED FOR PRICING DECEMBER 2021

Prepared by:

DNA David Nairne + Associates Ltd.

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1.0	General	.1 The requirements of the Instructions to Bidders, General
		Conditions, Supplementary General Conditions, all Sections of
		these specifications, Drawings, Addenda, and Revisions shall
		govern the entire work. They form a part of each Contract,
		Section and Division and shall be consulted in detail for
		instructions pertaining to the work.

.2 All work shall be carried out in accordance with the British Columbia Building Code, current edition, and all other provincial and local codes, standards or bylaws applicable to this project.

2.0 Contractor's Use of Site .1 Do not unreasonably encumber site with materials or equipment.

- .2 Move stored products or equipment which interfere with operations of Engineer or other contractors.
- .3 Obtain and pay for use of additional storage or work areas needed for operations.
- .4 Maintain reasonable access.
- **3.0 Codes and Standards** .1 Perform work in accordance with British Columbia Building Code current edition, and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
 - .2 Meet or exceed requirements of specified standards, codes and referenced documents.
- **4.0** Setting out the Work .1 Verify dimensions, elevations, grades boundaries shown on drawings and required by the work, and report any errors and inconsistencies to the Consultant before starting work; starting work shall imply that the Contractor has verified them and found them to be correct, and any additional costs arising out of any rectifications shall be borne by the Contractor.
 - .2 All other grade lines, levels and bench marks shall be established and maintained by Contractor who shall be responsible for same.
 - .3 The building, grid lines and elevations shall be set out by a qualified surveyor.
 - .4 As work progresses, layout walls, partitions, ceilings and openings as a guide to all trades.
- **5.0 Existing Conditions** .1 Inspect surfaces and conditions (including temperature and moisture) before commencing work and report defects to the Consultant. No work to commence until conditions are acceptable. Commencement of work will indicate acceptance of surfaces and conditions.
 - 6.0 Location of Equipment and Fixtures .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- **7.0 Concealed Services** .1 Ensure that pipes, conduits, service lines and ducts in finished areas, are concealed in chases behind furring, in floor and ceiling spaces, concrete, or below grade, or as otherwise approved by the Consultant.
 - .2 An inspector is required to be onsite for all underground utility works. Provide a minimum of three (3) working days' notice to the Consultant before backfilling underground utilities to coordinate inspection services. Provide regular updated schedules to the Consultant to assist in planning inspections.
- 8.0 Existing Services .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian and vehicular traffic.
 - .2 Before commencing work establish location and extent of services in the area of work and notify Consultant of findings.
 - .3 Submit and obtain approval from Consultant for any shutdown or closure of active service of facility. Adhere to approved schedule and provide notice to affected parties.
 - .4 Where unknown services are encountered immediately advise Consultant and confirm findings in writing.
 - .5 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by the Consultant.
 - .6 Record locations of maintained, re-routed and abandoned service lines.
- 9.0 Protection of Work and Property
- .1 The Contractor and their Subcontractors shall adequately protect their work and adjoining work at all stages of the operations and shall maintain the protection until their work is completed. They shall remove and replace at their own expense any work and materials damaged due to inadequate protection being provided.
- .2 The Contractor and their Subcontractors shall protect surfaces of completed Work exposed to view from staining, disfigurement and all other damage by restriction of access or by use of physical means suitable to the material and surface location.
- .3 The Contractor and their Subcontractors shall give constant close supervision to roofing and waterproofing membranes following their installation, during the time they are temporarily protected or exposed, to ensure that no damage occurs to them before completion of the building.

- .4 During construction, the Contractor will, where necessary, provide warning signs, lighting, railings and barricades for the protection of all workers, consultants and the owner.
- .5 The Contractor will, where necessary, provide barricades to protect trees, shrubs and landscaping from construction activities.
- .6 Ensure no part of structure or building component is overloaded during construction such that elastic strength limits might be exceeded or concealed damage may occur. Any damage and any claims resulting from such overload shall be made good at the expense of the Contractor or Subcontractor involved. No load-bearing member shall be cut, drilled or sleeved without the consent of the Consultant.
- .7 Weather protection: At all times provide protection against weather, rain, wind, storms, or heat to maintain all work, materials, apparatus and fixtures free from injury or damage. Remove all snow, ice and frost as may be required for the proper protection and/or prosecution of work. At end of day's work, all areas likely to be damaged shall be protected. Take all necessary precautions to allow continuous work throughout contract period.
- .8 Protection against fire: Take special precautions against fire and comply fully with requirements of Authorities having Jurisdiction and Insurance Authorities. Maintain and enforce all regulations imposed and required to secure such protection. Maintain clear emergency exit paths for personnel at all times.
- .9 Combustible building refuse: All broken forms or other combustible refuse shall be removed from building and disposed of daily. Packing cases shall be immediately removed from building. Open fires within structure are prohibited. No combustible materials or supplies shall be stored in areas where combustible forms are in place. Building material storage should be limited to completely fireproof areas. No fires or burning of construction refuse, or burying, shall be allowed on site without prior permission of the owner, and when applicable, only under permit from the local Fire Prevention Authorities.
- .10 Free burning gas flares shall not be used within building or temporary enclosures around work areas. Temporary heat shall be provided by approved construction heating devices with completely enclosed combustion chambers vented to exterior and carefully located clear of all combustible materials.
- .11 Welding, cutting, plumber's torches, tar kettles, etc., or use of other devices of open flame type shall be used only under strict supervision after all combustible material adjacent has been removed or safely covered. During welding or cutting, a watchman with an extinguisher shall be posted for the duration of work and thirty minutes after to guard against fire by spark or

hot metal. All glass adjacent to weld or cutting areas shall be protected to avoid scar by spark.

- .12 Gasoline, oils and other volatile liquids must be kept outside, to be brought into the building in quantities as needed. Such storage shall be in a well-ventilated location, well removed from all open heating and lighting devices. Particular attention must be given to housekeeping in oil storage locations to eliminate spillage and accumulation of oily wastes. Provide approved waste and safety cans and dispensing pumps. Store paint and/or oil covered rags in covered metal containers.
- .13 Provide adequate ventilation for paint spray operations, or other applications using volatile or toxic materials or gasses. Open flame and smoking must be prohibited in these areas. Protective masks, clothing, eye protection must be worn where required by operations or regulations.
- .14 Smoking shall be prohibited inside the workplace.
- .15 Maintain fire extinguishers throughout all accessible locations and where available provide water and hose facilities keeping pace with the construction. Access for heavy fire fighting equipment to the building site shall be provided at the start of construction and maintained to completion. Access to available street fire hydrants, temporary or permanent stand pipes and other such fire fighting equipment must be maintained at all times to the satisfaction of the authorities having jurisdiction.
- .16 Disposal of waste or volatile materials such as oil, paint thinners or mineral spirits into waterways or sewers not permitted.
- .17 As building is enclosed there is inclination to use available areas for storage. Obtain prior approval from the Consultant, observe all reasonable precautions in arranging storage and provide maximum protection possible.
- **10.0 Site Meetings** .1 In order to ensure progress of the work on and off the site, in accordance with the construction progress schedule, the Contractor or the consultant, shall periodically call project meetings. Subcontractors may attend meetings as required. The Contractor shall give 72 hours notice of any meeting requiring the Consultants and/or Owners presence.
 - .2 The Contractor shall establish a location for the project meetings of sufficient size and comfort to accommodate all parties concerned.
 - .3 The Contractor shall record minutes of meetings, and distribute to all parties within seven (7) days of meeting.

11.0 Site Safety Committee .1

- I The Contractor will establish and chair the site safety committee in accordance with WCB regulations and requirements.
- .2 All Subcontractors shall provide to the Site Safety Committee, copies of WHMIS 'material safety data sheets' for any

'controlled product' in accordance with WCB regulations. This information shall be provided prior to the product being used on site.

- .3 The Subcontractor intending to use a controlled product shall be responsible for worker education, training, product labeling, etc. in accordance with WCB regulations.
- .4 All Subcontractors shall immediately notify the Contractor if any safety hazard or accident, apparent or suspected whether or not related to the work of this Contract.

Reference Documents .1 The Contractor shall provide at the site, one (1) copy of each of the following documents for general reference:

- .1 Contract Drawings
- .2 Specifications
- .3 Addenda
- .4 Reviewed Shop Drawings
- .5 Change Orders
- .6 Other Modifications to the Contract
- .7 Field Test Reports and Inspection Reports
- .8 Approved Samples
- .9 National Building Code of Canada 2015, B.C. and National Plumbing Codes, B.C. and Canadian Electrical Codes, together with all supplements, and Occupational Environment Regulations.
- .10 WCB of BC Accident Prevention Regulations
- .11 Copy of all permits issued to the Owner and the Contractor
- .2 Maintain documents in clean, dry, legible condition.
- .3 Make documents available at all times for inspection by Consultant.
- .1 The Contractor shall, from the date of commencement of the Work, maintain a careful daily record of the progress of the Work using standard diary form, with all applicable Subcontractors listed. This record shall be open for the Consultant's review at all reasonable times.
- .2 The diary shall record all pertinent data such as:
 - .1 Daily weather conditions, including maximum and minimum temperatures.
 - .2 Subsurface conditions encountered during excavation.
 - .3 Commencement, progress and completion of various portions of the work.
 - .4 Dates of visits or inspections by the Owner, government, authorities, inspectors, testing agencies, utility companies and any other visitors to the site.
 - .5 Record of work force employed.
 - .6 Information required by Contractor or Subcontractors
 - .7 Materials or information causing delay.
 - .8 Actions or events causing delay.
 - .9 Clarifications or questions, and answers given.

13.0 Daily Diary

14.0 Permits and Regulatory

.1

Requirements

Refer to General Condition 10.2.

- .2 A building Permit is not required.
- .3 The Contractor shall obtain and pay for all other permits, licenses or certificates and pay all monthly fees in connection with the permits required for the Work.
- .4 The contractor shall apply and pay BC Hydro Temporary Power Connection Charges for all fees required for temporary power, temporary water, and temporary telephones at the site. Refer to Section 01500.
- .5 BC Hydro permanent power connection charges will be paid by the Owner (cash allowance). The contractor shall arrange for, and coordinate this power connection with BC Hydro, and shall remove and relocate and/or replace any existing hoarding as required to accommodate the connection of the permanent power supply.
- .6 Notify the appropriate authorities of intention to carry out operations in the vicinity of a utility or structure at least one week prior to the commencement of such operation and obtain approval for access to any operations carried out on adjacent public and private property.

PART	1 - GENERAL		
1.1	General	.1	The "General Conditions" and "Supplementary General Conditions shall form part of their section.
1.2	Shop Drawings	.1	The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other product data which are to be provided by the Contractor to illustrate details of a portion of the Work.
		.2	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 coordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications
		.3	Adjustments made on shop drawings by the Consultant are not intended to change the Contract Price. If adjustments affect the Value of Work, state such in writing to the Consultant prior to proceeding with the Work.
		.4	The Contractor shall review all Shop Drawings prior to submission to the Consultant
		.5	The Contractor shall be responsible for verifying all site
		.6	dimensions and field conditions. All units of measurement are to be metric.
PART	2 - SUBMITTAL		
2.1	Submittals	.1	Submit six (6) sets of shop drawings and product data sheets
			for each requirement requested in this Section and other specification Sections or as the Consultant may reasonably request with date, revision number, project name, supplier and
		.2	Submit samples and colour charts as required or as directed by
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- .4 The Contractor's responsibility for errors and omissions and for deviations in submission is not relieved by the Consultant's review of the submission.
- .5 Submit shop drawings and/or product information including, but limited to, the following items and other items as the Consultant may reasonably require:
 - .1 Structural Steel
 - .2 Miscellaneous Metals
 - .3 SBS Asphalt Shingles Roofing System
 - .4 Roof Edge Protection
 - .5 Windows
 - .6 Doors
- .6 In addition to the above noted items submit shop drawings and/or product information as required by the Sub-Consultants Drawings and Specifications.
- .7 In addition to the above noted items submit material samples as required elsewhere.
- .1 The Contractor shall request a Field Review by the Consultant including, but not limited to, the following and other items as the Consultant may reasonably require <u>prior to concealment</u>:
 - .1 Insulation
 - .2 Vapour Barrier
 - .2 In addition to the above noted items, request Field Reviews prior to concealment as required by the Sub-Consultants Drawings and Specifications.
- 2.3 Samples & Mock-Ups

Field Review Items

2.2

- .1 The Contractor shall prepare field samples and mock-ups including, but limited to, the following items:
 - .1 Installation of Roof Edge Protection.
 - .2 Installation of the weather / air barrier around openings
- .2 Construct field samples mock-ups at locations acceptable to the Consultant.
- .3 Generally, field samples mock-ups shall be constructed to form part of the finished work.
- .4 Construct each sample or mock-up to include the work of all trades required to finish work.
- .5 Reviewed samples or mock-ups will become standard workmanship and material against which installed work will be checked on project.
- .6 All samples or mock-ups which will not become part of the finished work shall be retained on-site for use as directed by the Consultant, to test construction or cleaning procedures, etc., until completion of the Work.
- .7 Where applicable, samples will be returned to the Contractor upon completion of the Work.

END OF SECTION

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PART 1.1	1 - GENERAL General	.1	The "General Conditions" and "Supplementary General Conditions shall form part of their section.
1.2	Related Work	.1	Refer to every technical section for waste management and disposal.
1.3	Definitions	.1 .2 .3	 Waste Audit (WA): relates to projected waste generation. Involves controlled separation of waste. Waste Reduction Workplan (WRW): a written report, which addresses opportunities for reduction, re-use or recycling of materials. Materials Source Separation Program (MSSP): consists of a series of ongoing activities to separate re-usable and recyclable waste material into material categories from other types of waste at point of generation.
PART 2.1	2 - MATERIALS Materials	.1	 Before project start-up, prepare Materials Source Separation Program and provide containers to deposit re-usable and/or recyclable materials of the following: .1 Gypsum board .2 Metals .3 Wood .4 Roofing Material .5 Plastics .6 Other materials as indicated in technical sections
PART 3.1	3 - EXECUTION Materials Source Separation	.1 .2 .3	Implement Materials Source Separation Program for waste generated on project in compliance with approved methods and as approved by Consultant. Locate containers in locations, to facilitate deposit of materials without hindering daily operations. Locate separated materials in areas that minimize material damage.
3.2	Diversion of Materials	.1 .2 .3	Create a list of materials to be separate from the general waste stream and stockpiled in separate containers, to the approval of the Consultant and consistent with applicable fire regulations. Clearly indicate materials in each container. Provide instructions on disposal practices.
3.3	Storage, Handling and Application	.1 .2	Do work in compliance with Waste Reduction Workplan. Handle waste materials not re-used, salvaged, or recycled in accordance with appropriate regulations and codes.

WASTE MANAGEMENT AND CONTROL

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- .3 Materials in separated condition: collect, handle, store on site, and transport off-site to an approved and authorized recycling facility.
- .4 Materials must be immediately separated into required categories for re-use or recycling.
- .5 Provide Consultant with receipts indicating quantity and type of material sent for recycling.
- .6 Provide Consultant with receipts indicating quantity of material delivered to landfill.
- .7 Unless specified otherwise, materials for removal become the Contractor's property.
- .8 On-site sale of salvaged/recyclable material is not permitted.

ART 1 1.1	- GENERAL General	.1	The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
1.2	Related Requirements Specified Elsewhere	.1	Particular requirements for inspection and testing to be carried out by testing laboratory designated by Consultant are specified under various Sections.
1.3	Appointment and Payment	.1	 The Consultant will appoint and pay for services of testing except for the following: .1 Inspection and testing required by laws, ordinances, rules, regulations, or orders of public authorities. .2 Inspection and testing performed exclusively for Contractor's convenience. .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems. .4 Mill tests and certificates of compliance. .5 Tests specified to be carried out by Contractor under the supervision of Consultant. Where tests or inspections by designated testing laboratory reveal work not in accordance with Contract requirements, Contractor shall pay costs for additional tests or inspections as Consultant may require to verify acceptability of corrected work.
1.4	Contractor's Responsibilities	.1 .2 .3 .4 END	 Furnish labour and facilities to: 1 Provide access to work to be inspected and tested. 2 Facilitate inspections and tests. 3 Make good work disturbed by inspection and test. 4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples. Notify Consultant sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test. Where materials are specified to be tested deliver representative samples in required quantity to testing laboratory. Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Consultant. OF SECTION

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PART	1 - GENERAL		
1.1	General	.1	The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
1.2	Access	.1 .2	Provide and maintain adequate access to project site. If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.
1.3	Engineer's Site Office	.1	Not Required.
1.4	Storage Sheds	.1	Provide adequate weather tight sheds with raised floors, for storage of materials, tools, and equipment that are subject to damage by weather.
1.5	Sanitary Facilities	.1 .2	Provide sanitary facilities for work force in accordance with governing regulations and ordinances. Post notices and take such precautions as required by local health authorities. Keep areas and premises in sanitary condition.
1.6	Power	.1	Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.
1.7	Water Supply	.1	Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.
1.8	Heating and Ventilating	.1 .2	Maintain minimum temperature of 10°C or higher where specified as soon as finishing work is commenced and maintained until acceptance of structure by Engineer. Maintain ambient temperature and humidity levels as required for comfort of office personnel.
1.9	Temporary fencing	.1	Temporary security fencing shall be provided during construction around the site conforming to insurance policies. Contractor to coordinate with the Owner for temporary fencing locations.
1.10	Security	.1	The Contractor shall be responsible for the security of all sites and materials during the course of the work. The Contractor shall provide adequate barricades and lighting around and adjacent to any open excavation or other potentially dangerous location and of other locations specifically designated by the Band. END OF SECTION

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PART	1 - GENERAL		
1.1	General	.1 .2	The "General Conditions" and "Supplementary General Conditions" shall form part of this section. The Environmental Assessment for this project is attached to the Contract Documents. The mitigative measures identified shall be completed by the Contractor.
1.2	Fires	.1 .2 .3 .4 .5	 Fires and burning of rubbish on site permitted only when approved by the Environmental Monitor. If applicable, permits for burning must be obtained from the Province and implemented. Where fires or burning permitted, prevent staining or smoke damage to structure or materials or vegetation which is to be preserved. Restore, clean and return to new condition stained or damaged work. Where burning is permitted, fires shall be no closer than 100 m from any building. Provide supervision, attendance and fire protection measures, including fire fighting equipment and water truck, as required by
			permit.
1.4	Hazardous Materials Handling and Storage	.1 .2 .3 .4 .5	Hazardous materials including, but not limited to, fuels, bitumens, cement, paints, solvents, cleaners, dust suppressants, used fuel and oil filters, and other construction materials shall be stored and handled to minimise loss and to allow containment and recovery in the event of a spill. The Contractor shall designate area(s) for the transfer and temporary storage of hazardous materials and wastes. The designated area(s) shall be used by the Contractor as a transfer and temporary storage area for potentially hazardous materials and wastes. The area(s) shall be clearly labelled and appropriately controlled. The Contractor shall maintain proper Workplace Hazardous Material Information Systems (WHMIS) labels and Material Safety Data Sheets (MSDS) for all hazardous materials used and stored on site. Discharge of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers is prohibited.
1.5	Special and General Waste, Rubbish and Garbage	.1	Special Waste generated in the course of the construction activities shall be handled and disposed of in compliance with the British Columbia Special Waste Regulation. As defined by these regulations, Special Wastes include, but are not limited

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to, such things as waste asbestos, oils, greases, lubricants, solvents, batteries, polychlorinated biphenyls (PCBs), paints and used spill cleanup materials.

- .2 When handling, storing, and removing Special Wastes, the Contractor shall maintain the following records: Inventories of types and quantities of Special Wastes generated, stored, or removed; manifests identifying Special Waste haulers and disposal destinations; MSDS and disposal certification documents.
- .3 Non-hazardous solid wastes, such as but not limited to, waste wood, asphalt, concrete, and metals shall be disposed of at an approved and licensed disposal facility in compliance with the British Columbia Waste Management Act.
- .4 The Contractor shall establish regular clean up and disposal programs so as to prevent the unnecessary accumulation of excessive solid waste and contain all garbage related to the project.
- .1 The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .2 Pumping of water containing silt in suspension into ditches, watercourses, and sewer and storm water systems is prohibited.
 - .3 The contractor shall ccontrol disposal or runoff of water containing suspended materials or other harmful substances in accordance with Federal, Provincial and Municipal requirements.
 - .1 Protect trees and plants on site and adjacent properties where indicated.
 - .2 Minimize stripping of topsoil and vegetation.
 - .3 Contractor shall provide protective fencing at limits of clearing and maintain it through the construction process.
 - .4 For the protection of the aquatic habitat provide Leave Strip to the limits shown on the drawings. Do not clear, grub, or alter grades in the proposed leave area. Feather and round grades immediately outside the leave area to meet existing adjacent grade.
 - .5 Restrict tree removal to those areas designated by Engineer.
 - .6 Revegetation within and adjacent to Leave Areas should be with native species appropriate to the site.

1.8 Equipment Operation

- .1 The Contractor shall maintain construction equipment in good condition and free of excess oil and grease.
- .2 Maintenance of equipment shall be confined to specific areas such that spills can be contained and collected before contaminants reach ditches, watercourses, and storm water systems.

1.7 Site Clearing and Plant Protection

Drainage

		.3 .4 .5	There shall be no discharge of wash water to ditches, watercourses or storm water systems from trucks and equipment related to concrete supply, pumping, or placing equipment. Waste oils and other materials related to equipment shall be removed from the site upon completion of project. Equipment operation shall be limited to hours acceptable to the community.
		.6	Contractor shall have fuel absorbents on site and shall deal with any spills which should occur immediately.
1.9	Work Adjacent to		
	Waterways	.1	The Contractor must develop and implement an Erosion and Sediment Control Plan and have this plan reviewed by the Engineer prior to site preparation and construction of works involving excavation and fill placement. These facilities must be maintained by the Contractor and be working effectively to control discharges from the site
		.2	Construction and excavation wastes, overburden, soil, or other substances deleterious to aquatic life must be disposed of or placed in such a manner so as to prevent their entry into any ditch watercourse or storm water system
		.3	All excavated material is to be side-cast as far as possible from ditches, trenches, or storm water systems to prevent its re- entry into the watercourse. Spoil must be removed offsite or spread out, levelled and seeded to promote re-vegetation and reduce surface erosion.
		.4	Operation of construction equipment in waterways without Engineer's approval and approval of Fisheries authorities is prohibited.
1.10	Revegetation and		Disturbed areas adjacent to ditabas waters and stores
	Site Restoration	.1	water systems shall be re-seeded to prevent surface erosion and/or downstream water quality impacts.
		.2	Ditches and newly constructed diversion channels shall be seeded and planted with grasses and/or native vegetation, to reduce surface erosion.
1.11	Spill Prevention and		
	Emergency Response	.1	The Contractor shall develop a Spill Prevention and Emergency Response Plan and distribute it to the Consultant and Owners of the project prior to commencing any work.
		.2	The Contractor shall complete a daily visual inspection of all hazardous material and equipment for signs of leakage. Daily visual inspection will include, among other things ensuring that all personal protective equipment and other emergency response equipment is in its place.
		.3	The Contractor shall maintain a readily available supply of spill emergency response material and equipment on site at all

times in effective working condition appropriate to the scale of the project.

- .4 The Contractor shall deal with any spills which occur immediately.
- .5 The Contractor shall report any environmental incident or spill/release of a substance to the Engineer and to the Provincial Emergency Program of the Ministry of Attorney General in accordance with the Spill Reporting Regulations of the Waste Management Act.

END OF SECTION

Consultants:		
David Nairne	& Associates	Ltd.

1.0	General	.1 .2 .3 .4	The "General Conditions" and "Supplementary General Conditions" shall form part of this section. Use new material and equipment unless otherwise specified. Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available. Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.
2.0	Manufacturers' Instructions	.1 .2	Unless otherwise specified, comply with manufacturers' latest printed instructions for materials and installation methods. Notify Consultant in writing of any conflict between these Specifications and manufacturers' instructions. Consultant will designate which document is to be followed.
3.0	Delivery and Storage	.1 .2 .3 .4	 Deliver, store, and maintain package material and equipment with manufacturers' seals and labels intact. Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site. Store material and equipment in accordance with supplier's instructions. Touch-up damaged factory-finished surfaces to Consultant's satisfaction. Use primer or enamel to match original. Do not paint over nameplates.
4.0	Contractor's Options for Selection of Products fo Tendering	r .1 .2 .3	When a material or equipment is specified by Prescriptive or Performance specifications, select any product that meets or exceeds the specification. When a product is specified by Reference standard, select any product that meets or exceeds the reference standard. When a product is referenced under 'Acceptable Products', select any 1 of the indicated manufacturers, or any other manufacturer meeting or exceeding the prescriptive specification.
5.0	Substitution	.1	 Proposals for substitution may be submitted only after award of Contract. Such requests must include statements of respective costs of items originally specified and proposed substitutions. Proposals will be considered by Consultant if: 1 Products selected by Tenderer from those specified are not available; or 2 Delivery date of products selected from those specified would unduly delay completion of Contract; or 3 Alternative products to those specified, which are brought to attention of, and considered by Consultant as

equivalent to those specified and will result in credit of Contract amount.

- .3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for drawing changes required as result of substitution.
- .4 All credits arising from approval of substitutions will be credited to Contract in such amounts as may be determined by Consultant and Contract price will be adjusted accordingly. No substitutions will be permitted without prior written approval of Consultant.

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1.0	Construction Safety		
	Measures	.1	Observe and enforce construction safety measures required by Canadian Construction Safety Code, Provincial Government, Workmen's Compensation Board, Workplace Hazardous Materials Information System Requirements, including training of all workers on the job site, and municipal status and authorities.
		.2	In event of conflict between any provisions of above authorities the most stringent provision will apply.
2.0	References	.1	Canada Labour Code, Canada Occupational Safety and Health Regulations.
		.2	 American National Standards Institute (ANSI): .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
		.3	Canadian Standards Association (CSA): .1 CSA S269.1-1975 (R1998), Falsework for Construction Purposes. 2 CSA S260.2 M87 (P1008) Access Scotfolding for
		.4	 Construction Purposes. Fire Commissioner of Canada (FCC): 1 FCC No. 301-1982, Standard for Construction Operations.
		.5	 PCC No. 302-1982, Standard for Weiding and Cutting. British Columbia Building Code, current edition: Part 8, Safety Measures at Construction and Demolition Sites.
		.6	Province of British Columbia: .1 Workers Compensation Act (Occupational Health & Safety), Amendment Act, B.C. Reg. 185/99, herein referred to as the Workers Compensation Act (WCA).
3.0	Related Sections	.1	Refer to the following sections as required: .1 Submittals procedures: Section 01330
4.0	Workers' Compensation Board Coverage	.1	Comply fully with the Worker's Compensation Act, Regulations and orders made pursuant thereto, and any amendments up to the completion of the work
		.2	Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.
5.0	Compliance with Regulations	.1	It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

		.2	 Submit the following: 1 Health and Safety Plan. 2 Copies of reports or directions by federal and provincial health and safety inspectors. 3 Copies of incident and accident reports. 4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials information System (WHMIS) requirements. 5 Emergency procedures.
		.3	The Consultant will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 10 days after receipt of the plan. Revise the plan as appropriate and resubmit to
		.4	 Submission of the Health and Safety Plan, and any revised version, to the Consultant are for information and reference purposes only. It shall not: Be construed to imply approval by the Consultant. Be interpreted as a warranty of being complete, accurate and legislatively compliant. Relieve the Contractor of his legal obligations for the provision of health and safety on the project.
7.0	Responsibility	.1	 Be responsible for: The safety of persons and property on site; and The protection of persons off site, and the environment to the extent that they may be affected by the conduct of the work.
8.0	Regulatory Requirements	.1 .2	Comply with specified codes, acts, bylaws, standards, and regulations to ensure safe operations at site. In event of conflict between any provisions of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Consultant will advise on the course of action to be followed.
9.0	Filing of Notice	.1	The Prime Contractor is to complete and submit a Notice of Project as required by provincial authorities.
10.0	Health and Safety Plan	.1	Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.

.1

Perform submittals in accordance with Section 01330.

Submittals

- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job-specific safe work, procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety Committee/Representative procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.
- .3 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
- .4 List hazardous materials to be brought on site as required by work.
 - .1 Indicate Consultation and administrative control measures to be implemented at the site for managing identified risks and hazards.
 - .2 Identify personal protective equipment (PPE) to be used by workers.
 - .3 Identify personnel and alternates responsible for site safety and health.
 - .4 Identify personnel training requirements and training plan, including site orientation for new workers.
- .5 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of sub-contractors are included in the hazard assessment and are reflected in the plan.
- .6 Revise and update Health and Safety Plan as required, and resubmit to the Consultant.
- **y Procedures** .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. name/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulations.
 - .3 Local emergency resources.

.2

- Include the following provisions in the emergency procedures:
 - .1 Notify workers and the first aid attendant, of the nature and location of the emergency.
 - .2 Evacuate all workers safety.
 - .3 Check and confirm the safe evacuation of all workers.

11.0 Emergency Procedures .1

- .4 Notify the fire department or other emergency responders.
- .5 Notify adjacent workplaces or buildings which may be affected if the risk extends beyond the workplace.
- .6 Notify Consultant.
- .3 Revise and update emergency procedures as required, and resubmit to the Consultant.
- .4 Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.
- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Consultant.
- **13.0 Hazardous Products** .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Consultant and in accordance with the Canada Labour Code.
 - .2 Where use of hazardous and toxic products cannot be avoided:
 - .1 Advise Consultant beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as indicated.
 - .2 Provide adequate means of ventilation in accordance with Section 01500.
- 14.0 Electrical Safety Requirements

Electrical Lock-Out

Monitoring

12.0

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
 - .1 Before undertaking any work, co-ordinate required energizing and de-energizing of new and existing circuits with the Consultant.
 - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.
- .1 Develop, implement and enforce use of established procedures to provide electrical lock-out and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have the procedures available for review upon request by the Consultant.

		.3	Keep the documents and lockout tags at the site and list in a logbook for the full duration of the Contract. Upon request, make such data available for viewing by Consultant or by any authorized safety representative.
16.0	Overloading	.1	Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.
17.0	Falsework	.1	Design and construct falsework in accordance with CSA S269.1.
18.0	Scaffolding	.1	Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CAN/CSA S269.2.
19.0	Powder-Actuated Devices	.1	The floor slabs are reinforced concrete. Use powder-actuated devices to core new holes in accordance with ANSI A10.3 only after receipt of written permission from the Consultant.
20.0	Fire Safety and Hot Work	.1	Obtain Consultant's authorization before any welding, cutting or any other hot work operations can be carried out on site.
21.0	Fire Safety Requirements	.1 .2	Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis. Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada
22.0	Fire Protection and Alarm Systems	.1 .2 .3	 Fire protection and alarm systems shall not be: .1 Obstructed. .2 Shut off. .3 Left inactive at the end of a working day or shift. Do not use fire hydrants, standpipes and hose systems for purposes other than fire fighting. Be responsible/liable for costs incurred from the fire department and the building owner (and tenants), resulting from false alarms.
23.0	Unforeseen Hazards	.1	Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Consultant verbally and in writing.

24.0 Posted Documents

.1

- Post legible versions of the following documents on site:
 - .1 Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project.
 - .6 Floor plan(s).
 - .7 Notice as to where a copy of the Worker's Compensation Act and Regulations are available on the work site for review by employees and workers.
 - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 Names of Joint Health and Safety Committee members, or Health and Safety Representatives, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupies areas.

25.0 Correction of Non-Compliance

- .1 Immediately address health and safety non-compliance issues identified by the Consultant.
- .2 Provide Consultant with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Consultant may issue a "stop work order" if noncompliance of health and safety regulations is not corrected immediately or within posted time. The Prime Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

1.0	General	.1	The	"General	Conditions"	and	"Supplementary	General
			Cond	itions" shal	form part of t	his se	ction.	

2.0 Record Drawings .1 Contractor to provide to Consultant two (2) sets of full sized "as built" drawings, and a digital copy (on cd) of the "as built" drawings, specifications, and all approved shop drawings.

- .2 Maintain project record drawings and record accurately significant deviations, including out of sight deviations, from Contract Documents caused by site conditions and changes ordered by Consultant.
- .3 Mark record changes in red.
- .4 Record following information:
 - .1 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
 - .2 Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - .3 Field changes of dimension and detail.
 - .4 Changes made by Change Order or Field Order.
 - .5 At completion of project and prior to final inspection, neatly transfer record notations to second set and submit both sets to Consultant.

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Maintenance Manual

.1

1.0 General

2.0

- .1 The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
 - On completion of project, submit to Consultant four (4) copies of Operations Data + Maintenance Manual in English and 1 digital copy (on CD):
 - .1 Bind data in vinyl hard covered, 3-ring loose leaf binder for 215 x 280 mm size paper.
 - .2 Title sheet labeled "Operation Data and Maintenance Manual", project name, date, and list of contents.
 - .3 Organize contents into applicable Sections of work to parallel project specification break-down. Mark each Section by labeled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- .2 Include following information plus data specified.
 - .1 Maintenance instruction for finished surface + materials.
 - .2 Description, operation and maintenance instructions for equipment and systems, including complete list of equipment and parts list. Indicate nameplate information such as make, size, capacity, and serial number.
 - .3 Names, addresses and phone numbers of subcontractors and suppliers.
 - .4 Guarantees, warranties and bonds showing:
 - .1 Name and address of projects.
 - .2 Guarantee commencement date of Final Certificate of Completion.
 - .3 Duration of guarantee.
 - .4 Clear indication of what is being guaranteed and what remedial action will be taken under guarantee.
 - .5 Signature and seal of Contractor.
 - .6 Additional material used in project listed under various Sections showing name of manufacturer and source of supply.
- .3 Neatly type lists and notes. Use clear Drawings, diagrams or manufacturers' literature.
- .4 Include one complete set of final shop Drawings bound separately indicating corrections and changes made during fabrication and installation.
- .1 Where supply of maintenance materials is specified, deliver to Owner as follows:
 - .1 Materials in unbroken cartons, or if not supplied in cartons, they shall be strongly packaged.
 - .2 Clearly mark as to content.
 - .3 If applicable give colour, room number or area where material used.

END OF SECTION

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3.0 Maintenance Materials

PART	1 - GENERAL		
1.1	General	.1	The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
		.2	Contractor to refer to Structural Note Sheet.
1.2	Reference Standard	.1	Do carpentry work in accordance to CSA-O86 and Part 9 of British Columbia Building Code, latest editions, for residential construction, other associated supplements, and as indicated or required.
		.2	Provide Douglas Fir Plywood Grades CSA O121-M, CSA O151-M Western Softwood Plywood Grades, and Council of Forest Industries of BC 78-276 and 75-227
		.3	Wood preservation shall be in accordance with CSA-O80-M standards.
PART	2 - PRODUCTS		
2.1	Materials	.1 .2	See General Structural Notes in structural drawings. Damp course shall be 20 kg asphalt felts to CSA A123.3. or 6 mm $(1/4^{"})$ x wall thickness
		.3	Building Paper shall be as specified under Section 07670.
		.4	Vapour Barrier shall be as specified under Section 07270.
		.5	Floor sheathing adhesive shall be PL-400 as manufactured by BF Goodrich, or approved equal.
		.6	Nails shall be to current NBC and Residential Standards. Galvanized nails shall be used for exterior and exposed area application. Nail size and spacing shall be as shown on
		.7	Protection board shall be Vibreflex type 70 waterproof
		.8	Floor underlayment shall be 9 mm (3/8") particle board such as
		.9	Wall board and underlayment under ceramic tile to be 12 mm (1/2") Wonderboard as supplied by Cerco Industries.
2.2	Pressure Treatment	.1	Pressure treated wood shall conform to CSA O322-02 Procedure for Certification of Pressure-Treated Wood Materials
		.2	Wood preservative shall conform to CSA O80 series of Wood
		.3	All pressure treating to be a copper-based waterborne
			preservative either: ACQ-C or ACQ-D (Alkaline Copper Quaternary) or CA-B (Copper azole). CCA (Chromated Copper
		.4	Metals used in contact with ACQ pressure treated wood shall be copper, stainless steel (types 304 or 316), hot dip galvanized conforming to ASTM A153. Carbon steel, aluminum, red brass and bronze shall not be used in contact with ACQ pressure treated wood.

		.5	Fasteners used with ACQ pressure treated wood shall be copper, stainless steel (types 304 or 316) or hot dip galvanized connectors should be manufactured from steel either galvanized in accordance with ASTM A653, G185 designation, or be galvanized after manufacture in accordance with ASTM A123.
2.3	Storage & Handling	.1	See General Structural Notes.
2.4	Finishes	.1	See Section 09999 Colour and Finish Schedule.
PART 3.1	3 - EXECUTION Framing	.1 .2 .3 .4 .5 .6 .7 .8	 Framing to be cut square, closely fitted and accurately set to all lines and levels, and set plumb. Lumber in contact with concrete shall be preservative treated and laid on dampcourse to width of plates. Framing members to be framed, anchored, fastened, tied, braced together providing strength and rigidity necessary for use. All columns, posts shall be anchored with steel connections to resist uplift and lateral movement. Notching, drilling of framing members will not be allowed without approval by the Consultant, except <u>as indicated on the drawings</u>. Nails shall be long enough that half their length penetrates second member. Stagger nails in direction of grain, keep nails well in from edges. Beams shall have at least 100 mm (4") bearing at end supports. Framing under built-up beams shall have studs or cripples for support, equal in number to the built-up beam or as indicated.
3.2	Floor Joists	.1 .2	Set joists with crown up and reject twisted joists. Provide minimum 50 mm (2") bearing on plates, beams or joist hangers. Provide blocking for end supports and bridging as indicated. Framing to openings shall be as noted on the Drawings. Joists to be bridged at intervals of 2.1 m (7') maximum.
3.3	Wall Studs	.1 .2 .4	Wall studs shall not be spliced unless indicated or approved by Consultant.Do not notch or drill through load-bearing studs without prior approval from the engineer.Wall framing shall have corners and intersections framed with three studs; other openings to be framed with double studs.Wall plates shall be the same size as studs, unless otherwise indicated, and will include one bottom plate and two top plates, except where wall contains a continuous lintel or wall is non load-bearing. Joints in wall top plates to be staggered at least one stud space. Top plates in load-bearing walls shall not be

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			notched, drilled, or reduced in depth to less than 50 mm (2") unless suitably reinforced.
3.4	Sheathing	.1 .2 .3	Roof and wall sheathing shall be applied to structural members using nails and minimum spacing as shown on drawings. Floor sheathing shall be glued and nailed using continuous glue bead on all joists and ring nails. Install sheathing face grain at right angles to floor joists. Nail plywood using nails with minimum nailing as shown on drawings. Underlayment to be installed at right angles to plywood sub- floor.
3.5	Strapping	.1 .2	Provide solid strapping at points for fastening other finishes, joints, equipment, and fixtures as required. Finished strapping surfaces to be plumb, level, square, and true, measured with 2100 mm (7') long straight edge, wedge as required. Block edges of all panel surfaces around all projections.
3.6	Lintels	.1	Lintels to be two or more pieces of 38 mm x 235 mm ($2" \times 10"$) lumber separated with spacers to width of studs, and nailed together as one unit. Bear minimum 30 mm ($1 \times 1/4"$) on cripples.
3.7	Furring and Blocking	.1 .2 .3 .4	Services, piping, ductwork, and other items projecting from finished surfaces shall be furred out as required. Furring to be a minimum of 38 mm x 38 mm (2" x 2") at 400 mm (16") centres. Install furring and blocking as required to space-out and support casework, cabinets, bumper rails, wood doors and frames, coat hook, mirrors, grab bars, washroom accessories, toilet partitions, handrails, chalk and tackboards, facings, wall and ceiling finishes, fascia, soffit, siding and other work as required. <u>Refer to drawings for additional blocking and furring.</u> Align and plumb faces of furring and blocking to tolerance of 1:600. Install rough bucks, nailers and linings to grounds and rough openings as required to provide backing for frames and other work.
3.8	Building Paper	.1	Cover exterior wall sheathing with specified Building Paper. Refer to Section 07260.
3.9	Vapour Barrier	.1	Install Vapour Barrier as per Section 07270.
3.10	Protection Board	.1	Install over waterproofing membranes, butt boards tight and stagger joints
3.11	Cants, Curbs,		

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2 1 2	Nailers Backing	.1	Install wood cants, wood backing, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
3.12	Sieepers	. I	install sleepers as indicated on the drawings.
3.13	Fasteners	.1	Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
		.2	countersink bolts where necessary to provide clearance for other work.
3.14	Electrical Equipment		
	Backboard	.1	Provide backboards for mounting electrical equipment as indicated. Use 19 mm thick plywood on 19 x 38 mm furring around perimeter and at maximum 300 mm intermediate spacing.
3.15	Poly Plate	.1	Install strips of 6 mil Polyethylene Vapour Barrier (see Section 07270) over, under or around all framing members as necessary. Provide minimum 150 mm (6") flap to ensure continuity of final Vapour Barrier installation.
			END OF SECTION

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Part 1 Part 2	PART 1 - GE 1.1 GENE	NERAL RAL .1 .2	The "General Conditions" and "Supplementary Genera Conditions" shall form part of this section. Employ skilled applicators approved by membrane manufacturer.
1.2	REFERENCE		
	STANDARD	.1	Roofing and sheet metal work will be performed i conformance with the roofing manufacturer's writte
		.2	Submit a document issued by the CSA certifying that the roofing system offered meets the requirements of CAN/ULC S107-03 "Standard Methods of Fire Tests of Roof Covering Class C
		.3 .4	CSA A123.4-04, Asphalt for Constructing Built-Up Roc Coverings and Waterproofing Systems. Prefabricated membrane, complies with CAN/CGSB 37-GF
			56M (9th draft)-1985, Membrane Modified, Bituminous Prefabricated, and Reinforced for Roofing.
		.5	CAN/ULC-S702-97 Thermal Insulation, Mineral Fibre, Board
		.6	CAN/ULC-S704-2001 Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Fixed.
		.7	All membrane roofing systems installed shall conform to the CSA A123.21-14 Standard test method for the dynamic wind
		.8	uplift resistance of membrane roofing systems. Conform to the latest "Minimum Standards" of the Roofing Contractors Association of British Columbia (RCABC) a published in the "RCABC Roofing Practices Manual" for a <u>five</u> (5) year guarantee. Conform to the appropriate CCMC, CSA CGSB, FM and ASTM Standards for the materials used in the roofing system specified; materials to be listed on RCABC Accepted Materials List (Section 2.2, Roofing Practice Manual) Submit a report, issued by a certified materials testim- laboratory, attesting that the specified roofing system wa tested in accordance with CSA A123.21-14, <i>Standard test method for the dynamic wind uplift resistance of membrane</i> <i>roofing systems</i> .
Part 3	1.3 COMF	PATIBILITY .1	All waterproofing materials will be provided by the same
Part 4 Part 5	1.4 INSPE GUAF	ECTION AND RANTEE .1 .2 .3 .4	Perform using an independent inspection company acceptable to RCABC and Roofing Manufacturer. Inspection costs paid for directly by the Roofing Contractor. Provide to the Owner the "RCABC Roofing System Record upon completion of this contract. Provide the standard Roofing Contractors Association of British Columbia (RCABC) <u>five (5) year guarantee</u> .

Dort 6		.5	The product manufacturer to issue a written and signed document in the owner's name, certifying that the roofing membranes are free of manufacturing defects for a period of five (5) years, starting from the date of acceptance. This warranty will cover the removal and replacement of defective roof membrane products, including labour. The warranty must remain a full warranty for the duration of the period specified. No letter amending the manufacturer's standard warranty will be accepted and the warranty certificate must reflect these requirements.
Part 7	1.5 SHOP DRAWING	s	1 Submit shop drawings in conformance with Section 01330
		-	requirements.
		.2	Provide details of flashing, penetration, parapet wall, and
		.3	Submit drawings locating and identifying sloped insulation
			blocks.
Part 8	1.6 CONTRACTOR QUALIFICATION		
		.1	Roofing contractors and sub-contractors must, when tendering or performing work, possess a roofing contractor operating license
		.2	Only qualified, certified installers employed by a company with
			the appropriate equipment may execute the roofing work.
		.3	Roofing contractors and sub-contractors must also be members of RCABC and provide the architect with a certificate to this effect before beginning any roofing work
1.7	MANUFACTURER'S		to this check before beginning any rooming work.
	REPRESENTATIVE		
		.1	The roofing product manufacturer can delegate a representative to visit the work site at the start of roofing installation.
		.2	The contractor must at all times enable and facilitate access to the work site by said representative
1.8	STORAGE AND		
-	DELIVERY		
		.1	All materials will be delivered and stored in conformance with the requirements described in the manufacturer's manual; they must remain in their original packaging, displaying the manufacturer's name, product name, weight, and reference
		.2	standards, as well as all other indications or references considered standard. At all times, materials will be adequately protected and stored in a dry and properly ventilated area, away from any welding flame or spark and sheltered from the elements or any harmful substance. Only materials destined for same-day use can be removed from this storage area. In cold weather, these materials should be stored in a heated area at a minimum
			temperature of +100C and removed prior to application. If rolls

cannot be stored in a heated environment, they may be preconditioned before installation. For precise description, please consult manufacturer's "Roofers' Guide" on membrane application procedures.

- .3 Store adhesives and emulsion-based waterproofing mastics at a minimum +50C. Store adhesives and solvent-based mastics at sufficient temperatures to ensure ease of application.
- .4 Materials delivered in rolls will be carefully stored upright; flashing will be stored to avoid creasing, buckling, scratches or any other possible damage.
- .5 Avoid material overloads which may affect the structural integrity of specific roof areas.

1.9 FIRE PROTECTION

- .1 Prior to the start of work, conduct a site inspection to establish safe working practices and make sure that all procedures and proposed changes are approved to minimize the risk of fires.
- .2 Respect safety measures described in the manufacturer's Specifications Manual as well as R.C.A.B.C. recommendations.
- .3 At the end of each workday, use a heat detector gun to spot any smouldering or concealed fire. Job planning must be organized to ensure workers are still on location at least one hour after torch application.
- .4 Never apply the torch directly to old and wood surfaces.
- .5 Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher within 6 metres of each roofing torch. Respect all safety measures described in technical data sheets. Torches must never be placed near combustible or flammable products. Torches should never be used where the flame is not visible or cannot be easily controlled.

PART 2 – PRODUCTS

- 2.1 PERFORMANCE
- .1 Quality Standard: Conform to the "Minimum Standards" of the RCABC Roofing Practices Manual applicable to roofing warranty indicated
- .2 Roofing system uplift design: Design roofing system to comply with the requirements for wind uplift in accordance with requirements of applicable code, and tested by a qualified testing agency to resist wind uplift pressures at corners, perimeters, and field of roof, for each roof area, in accordance with CSA A123.21.
- .3 Syste, Design: Provide positive slf-draining assembly; mostiure to drain to exterior
.4 Delegate Design: Engage a qualified professional engineer to design snow guards, including attachment to building, based on the following:

- .1 Roof snow load.
- .2 Snow drifting
- .3 Roof slope.
- .4 Roof type.
- .5 Roof dimensions.
- .6 Roofing substrate type and thickness.
- .7 Coefficient of Friction Between Snow and Roof Surface: 0.
- .8 Factor of safety.

2.1 VAPOUR RETARDER

2.2

.1 Self-adhesive Air/Vapour Barrier:

- .1 Description: Self-adhesive air/vapour barrier membranes composed of bitumen modified with thermoplastic polymers and high-density polyethylene film. The width of the membrane shall be 1.14 metres (45 inches) to allow the membrane to fit on the top flute of most structural steel decks. The self-adhesive underface is covered with a silicone release sheet. Water vapour permeability: 0.92 ng/Pa.s.m2 (0.016 Perm).
- .2 Specified product: SOPRAVAPOR'R by SOPREMA or approved alternate.
- .1 Polyisocyanurate Insulation Minimum R-40:
 - .1 Description: Closed-cell Polyisocyanurate rigid board, both faces finished with glass reinforcing mat, staggered. Polyisocyanurate insulation slope package (in addition to minimum R-value) sloped to drain at 2% as indicated on drawings.
 - .2 Specified product: 2 layers, staggered each direction, of 76mm (140mm total) SOPRA-ISO PLUS by SOPREMA, Atlas Manufacturing, AC Foam III or IKO Therm III, Hunter Panels H-Shield CG or approved equal Isocyanurate.

2.3 LAMINATED STRIP ASPHALT SHINGLES

INSULATION

.1 Laminated Strip Asphalt Shingles: ASTM D3462/D3462M, laminated, multi-ply, overlay construction, glass-fibre reinforced, surfaced with UV resistant mineral algae-resistant granules, and self-sealing.

Product: Subject to compliance with requirements provide asphalt shingles manufactured by one of the following:

- Malarkey
- GAF.
- IKO Industries Ltd.

Colours: as selected by Consultant from manufacturer's full range To match existing

- 2.4 UNDERLAYMENT MATERIALS
- .1 Breathable Underlayment (Slip-Sheet): Breathable synthetic underlayment with hydrophyllic performance to provide permeability in only an outwards

performance to provide permeability in only an outwards direction. Membrane to provide permeability of 30 as per ASTM E96 test. Minimum thickness 30 mils Product: Provide one of the following:Malarkey

- Hydra by FT Synthetics
- Breathex by HAL Industries
- SRP AirOutshield ROOF by SRP Canada
- Or approved comparable product.

.2 Self-Adhering Sheet Underlayment:

Slip-resistant polyethylene film top surface laminated to a layer of SBS-modified asphalt adhesive, with release-paper backing. Provide primer according to written recommendations of underlayment manufacturer. Products:

Product: Provide one of the following:Malarkey

- Malarky "Arctic Seal Breathex by HAL Industries
- Grace Ice & Water Shield by GCP Applied Technologies, Inc.
- Lastobond Shield by Soprema Inc.
- Protecto Jiffy Seal Ice & Water Guard by Protecto Wrap.
- Or approved comparable product.

2.5 ACESSORIES

- .1 Asphalt Roofing Cement: ASTM D4586, Type II, asbestos free.
- .2 Bituminous Plastic Cement: Cutback asphalt and asbestos fibre mixture to CGSB 37-CP-5M, Domtar Fibergum, Plastic Cement.
- .3 Caulking: Tremco "Dymeric" or approved alternate
- .4 Roofing Nails: Standard round wire shingle type aluminum or hot dipped zinc coated steel type, of sufficient length to penetrate through roof sheathing, and penetrate 19 mm (3/4 inch) into solid wood decking.
- .5 Snow Guards: Product: SMS10 by Snow Management Systems Ltd.

		.6 .7 .8	Material: Powder coated steel. Colour: Selected by Consultant from Manufacturer's full colour range. Emulsion: Febrated asphalt emulsion to 37-GP-28. Asphalt Primer Paint: Filled cutback to CGSB.37-GB. Adhesive: "Lexsuco" R-908-T or pre-approved equivalent.
2.1	AUXILISAY MATERIALS	.1	Framing: .1 Description: Dimensional lumber framing, pressure treated
2.1	METAL FLAHING		.1 Drip Edge and Sheet Metal flashings shall be 24 gauge galvanized iron, factory enameled, to standard Weststeel colour.
			.2 Vent Pipe Flashings: Prefabricated roof penetration flashings
			.3 Bituminous Paint: Acid and alkali resistant type;
			.4 Nails: Standard round wire roofing type, hot dipped zinc coated steel; of sufficient length to penetrate through roof sheathing, and penetrate 13 mm (1/2 inch) into solid wood substrates.
PART 3.1	3 – EXECUTION SURFACE EXAMINATIO AND PREPARATION	N	
		.1 .2	Surface examination and preparation must be completed in conformance with recommendations in the SOPREMA Specifications Manual, particularly for fire safety precautions. Before roofing work begins, the owner's representative and

- 2 Before roofing work begins, the owner's representative and roofing foreman will inspect and approve deck conditions (including slopes and wood blocking) as well as upstands and parapets, construction joints, roof drains, plumbing vents, ventilation outlets and others. If necessary, a non-conformity notice will be issued to the contractor so that required corrections can be made. The start of roofing work will mean roofing conditions are acceptable for work completion.
- .3 Do not begin any work before surfaces are smooth, dry, and free of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.
- .4 Be sure plumbing, carpentry and all other work has been duly completed.

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		.5	No materials will be installed during rain or snowfall.
2.0			
3.2	INSTALLATION	.1	Prepare surfaces and complete waterproofing work in conformance with roofing manufacturer requirements, and the "Roofers' Guide"
		.2	Install roofing elements on clean and dry surfaces, in conformance with manufacturer's instructions and recommendations.
		.3	Roofing work must be completed in a continuous fashion as surfaces are readied and weather conditions permit. installed if any moisture is present at/in the base sheet seams.
		.4	Inspect and ensure that all work upon which this work depends is satisfactory. Correct any defects
		.5	Knotholes and cracks in decks shall be considered as defects and must be covered with sheet metal nailed in place.
		.6	Do not start roofing until surfaces are smooth, dry, and free from dirt and foreign materials, including oil and grease.
		.7	Ensure vents, curbs, drains, and other projections through the roof are properly secure in position.
		.8	Deliver and store all materials in original packages with all labels and seals intact. Prevent damage from the elements, moisture intrusion etc.
		9	Protect walls and finished roofing from damage
		.10	Do not overload structure by storing materials in concentrated
			areas.
		.11	Ensure waterproofing conditions for roofs at all times, including protection during installation work by other trades and progressive protection as work is completed (e.g. vents, drains,

SBS LAMINATED ASHPHALT SHINGLES

07540

3.3 SITE PROTECTION .1 Protect finished work to avoid damage during roof installation and material transportation. Install protective boardwalks over installed roofing materials to enable passage of people and products. Assume full responsibility for any damage.

etc.).

- .1 The work site must be routinely cleared of rubbish and other materials which may hinder roof installation, performance, or present a fire hazard.
- .2 Carefully collect all roofing debris and dispose of in accordance with Section 01355
- **3.5 EQUIPMENT FOR WORK EXECUTION** .1 Maintain all roofing equipment and tools in good working order.

CLEANING

3.4

Consultants:

3.6 INSTALLATION OF VAPOUR RETARDER

- .1 Beginning at the bottom of the slope, without adhering the membrane, unroll onto the substrate for alignment. Do not immediately remove the silicone release sheet.
- .2 Align the roll parallel to the edge of the deck. Make sure the membrane overlaps are supported along their entire length.
- .3 Peel back one end of the silicone release sheet and adhere this part of the membrane to the substrate. Peel back the remaining release sheet at a 45° angle to avoid wrinkles in the membrane.
- .4 If the membrane is not properly aligned, do not try to adjust it. Instead, cut the roll and start again, making sure that it is properly aligned and that it overlaps the end of the misaligned piece by 150 mm.
- .5 Overlap adjacent membranes by 75 mm. Overlap end laps by 150 mm. Stagger end laps by at least 300 mm.

3.7 INSULATION INSTALLATION

- .1 [Apply insulation to vapour retarder or to adjoining board with specified adhesive applied in 2 cm. wide bands every 33 cm. OR in 10 cm. diameter spots (9 spots per square metre) at a rate of 2 to 3 kg. per square metre.].
- .2 For adhered insulation, attach insulation with Duotack by Soprema in conformance with manufacturer's recommendations. During installation, it is important to immediately place the boards over the applied adhesive. Try to avoid uneven surfaces, to ensure proper adhesion to the substrate. For most projects, the required amount of adhesive varies from zone to zone. For more details, consult the Wind Uplift Resistance Testing reports according to Canadian standard CSA A123.21-14. Polyisocyanurate insulation to be adhered.
- .4 All vertical joints between two rows of insulation board will be staggered.

self-adhesive and heat-welded side laps). Heat weld 100mm (4 in) of side laps.

- .6 Seal end laps by welding a 330-mm (13-in) wide protection strip centered on the joint. End laps to be staggered, cover strips are not required.
- .7 Avoid the formation of wrinkles, swellings or fishmouths.

3.8 IINSTALLATION OF

		SBS LAMINATED ASHPHALT SHINGLES
Consult <u>David N</u>	ants: Iairne + Associates	.td. 07540 Page 9
U	INDERLAYMENT	.1 Apply sheet membrane over the entire roof surface, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 152 mm (6 inches) staggered 610 mm (24 inches) between courses. Overlap side edges not less than 3-1/2
3.9 I S	INSTALLATION OF	 Apply eave shield protection membrane to a point at least 600mm (24") inside of exterior (heated) walls unless noted otherwise on drawings.
		.1 Install shingles according to manufacturer's written instructions, and referenced quality standard. Comply with requirements for wind uplift.
		.2 Place shingles in straight coursing pattern with 125 mm (5 inch) weather exposure.
		.3 Project first course of shingles 19 mm (3/4 inch) beyond fascia boards.
		.4 Extend shingles not less than 13 mm (1/2 inch) beyond face of gable edge fascia boards.
		.5 Extend shingles on one slope across valley and fasten. Trim shingles from other slope 50 mm (2 inches) from valley centre line to achieve closed cut valley, concealing the valley protection.
		.6 Cap hips with individual shingles, maintaining 125 mm (5 inch) weather exposure. Place to avoid exposed nails.
		.7 Locations: Roof peaks, terminations at gables and roof openings.
		.8 Coordinate installation of roof mounted components or work projecting through roof with weathertight placement of counter flashings.
		.9 Complete installation to provide weathertight service.

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3.10	SHEET METAL		
	FLASHING	.1	Sheet metal flashings shall be 24 gauge, 1 1/4 oz. coated galvanized steel sheet metal c/w factory enameled finish to match existing. Provide samples to Constultant for Approval
		.2	Back paint all flashings and metals in contact with dissimilar metals, concrete or masonry with one coat bitumastic paint.
		.3	End joints shall be either "S" locked and caulked or standing seam and caulked.
		.4	All exposed edges of flashings shall be hemmed a minimum of 12mm (1/2") for rigidity.
		.5	Flashings shall be neatly fabricated with all breaks true and sharp
		.6	Edges shall be turned to form a drip where applicable.
		.7	Proper allowance shall be made for expansion and contraction, expansion joints shall be 75mm (3") loose-locked seams filled with caulking compounds maximum
			3 660mm (12') o c
		.8	Clips or cleats shall be of 22 ga. galvanized steel sheet metal and a minimum of 50 mm (2") wide. Clips shall be used on all copings and base flashings, and shall be installed at 600 mm (2') o.c. All clips shall be carried down a minimum of 12 mm (1/2") past the bottom edge of all flashings and turned over back into the face. All soldering shall be done slowly with metal well-heated so as to heat the seam thoroughly and fill it completely with solder. Caulking to joints in flashings and fascias shall be Tremco "Dymeric" applied to manufacturer's directions.
3.11	ROOF DRAINAGE	.1	Ensure positive drainage to all roofs.
		.2	Where snow build-ups and dams could occur, such as in valleys, ensure installation of roof membrane is designed to prevent leaks from back-up water.
3.12	WATERPROOFING FOR VARIOUS DETAILS		
		.1	Install waterproofing membranes in conformance with

various roofing details illustrated in the manufacturer's manual.

END OF SECTION

Consultants:	
David Nairne & Associates Ltd.	

PART 1.1	1 - GENERAL General	.1	The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
1.2	Standards	.1 .2	British Columbia Building Code, current edition. Perform all work in accordance with the RCABC "Roofing Practices Manual".
PART 2.1	2 - PRODUCTS Products	.1 .2 .3 .4 .5	Prefinished Metal Flashings + Trim: 24 ga. prefinished galvalume steel. Fasteners: Concealed unless approved by Consultant. Solder and Flux: type recommended for materials in use. Sealant: Dymeric by Tremco, PRC Rubber Caulk 5000. Colour to be approved by Consultant. Colour to match existing and approved by Consultant.
PART 3.1	3 - EXECUTION Execution	.1 .2 .3 .4 .5 .6 .7 .8 END	 Fabricate flashings in maximum lengths on bending brake. Shape and trim in shop as far as practical. Hem all exposed edges. Allow for expansion/contraction. Construct flashing joints using flat 'S' lock seam, caulked. Fabricate corners minimum 18"x18" (450 mm x 450 mm), mitred and soldered, sealed as one piece. Form and install flashings square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance. Backpaint flashings in contact with cementitious materials or dissimilar metals with bituminous paint. Paint the underside of all flashings to match flashing colour. Flash all locations where there is a horizontal joint in siding materials without any overlap. Do not join sections of flashing at less than 24" from the end of the run/length of flashing. Straighten, repair and clean all flashings at the end of the project.

		SEALANT AND CAULKING
Consultants: <u>David Nairne & Associa</u>	tes Ltd.	07920 Page 1
PART 1 - GENERAL 1.1 General 1.2 Standards	.1 .1 .2	The "General Conditions" and "Supplementary General Conditions" shall form part of this section. National Building Code of Canada, current edition. CGSB Specifications
PART 2 - PRODUCTS		
2.1 Materials	.1 .2 .3 .4	 Sealants: 1 CGSB 19-GP-5M, one component, acrylic base, sealing compound. Acceptable Product: Tremco Mono 555 sealant. 2 CAN/CGSB-19.13, one component, elastomeric, chemical curing sealing compound. Acceptable Product: Dow 795 Weatherproof Sealant. 3 CAN/CGSB-19.17, one component, acrylic emulsion base sealing compound. Acceptable Product: Tremco Tremflex 834 Sealant. 4 CAN/CGSB-19.24, multi component, chemical-curing sealing compound Acceptable Product: Tremco THC-900 Sealant. 5 Single component synthetic sealing and bedding compound. Acceptable Product: Tremco Acoustical Sealant. 6 Single component Silicone w/ anti-fungal properties. Acceptable Product: GE Sanitary 1700 Silicone. Joint backing: closed cell round polyethylene. Primers: as recommended by sealant manufacturer. Colour from manufacturer's standard range to match adjacent surfaces. Submit colour to Consultant for review.
PART 3 – EXECUTION		
3.1 Location	.1 .2	 Apply CGSB 19-GP-5M sealant to the following exterior locations: .1 Between window/door frames and adjacent building as required by manufacturer. .2 Around perimeter of exterior wall penetrations. .3 At junction of dissimilar materials. Apply CAN/CGSB-19.13 sealant to the following locations:

SEALANT AND CAULKING

Consultants: <u>David Nairne & Associates Ltd.</u>

.1 Around window/door frames as required by manufacturer

- .2 Around perimeter of exterior wall penetrations.
- .3 At junction of dissimilar materials.
- .4 Around fixtures, piping and conduits
- .5 At concrete edges, joints and penetrations.
- .3 Apply CAN/CGSB-19.17 sealant to the following interior locations:

.1 Between window/door frames and adjacent building as required by manufacturer

- .2 Around perimeter of wall penetrations.
- .3 At junction of dissimilar materials.
- .4 Apply rubber acoustic sealant around perimeter of wall and at penetrations of concealed acoustic and vapour barrier applications.
- .5 Apply silicon sealant to floor and wall junctions of plumbing fixtures, to form a sanitary finished seal.

.1 Joints and spaces must be clean, dry, free from dust, paint, loose mortar and other foreign materials.

- .2 Clean ferrous metals of all rust, mill scale and or coatings by wire brush, grinding or sandblasting: remove oils and grease from ferrous and non-ferrous metals with xylol, tuluol or methylethyl ketone.
- .3 Joints and spaces to receive sealant: 6 mm (¼") deep minimum, 2 mm (3/32") wide minimum and 25 mm (1") wide maximum. Where these requirements are not met, obtain written permission from Consultant before proceeding.
- .4 Fill joints where more than 12 mm (½") deep, to within 12 mm (½") of surface with a joint backing. Install backing under compression of not less than 25%.
- .5 Mask adjacent surfaces with tape prior to priming and caulking. Remove tape after joint has been tooled.
- .6 Apply sealant with a gun, with proper size nozzle, or knife as required.
- .7 Use sufficient pressure to fill all voids and joints solid, superficial pointing with a skin bead will not be accepted.
- .8 Surface of sealant shall form a full bead, smooth, free from ridges, wrinkles, sages, air pockets and embedded impurities.
- .9 Neatly tool surface to a slight concave.
- .10 Clean adjacent surfaces immediately and leave work neat and clean: Remove excess and droppings using recommended cleaners as work progresses.

3.2 Application

- .11 Do not apply when temperature is below 5°C.
- .12 Colour to approximate adjacent surface.
- .13 Sealed joints to be water-tight.

END of SECTION

`PART 1 - GENERAL

1.1	General	.1 .2	The "General Conditions" and "Supplementary General Conditions" shall form part of this section. See related work in sections 08700 Finish Hardware and division 16 Electrical.
1.2	References	.1	National Building Code of Canada, current edition.
1.3	Submittals	.1 .2 .3	Submit shop drawings in accordance with Section 01330. Indicate materials and large scale detail for all members and profiles of components; elevations, sections and plans of installation; types and location of fasteners; types of finishes; sealant materials, glazing methods; type of construction including joinery, fabrication and erection tolerances. Quality Assurance/Control Submittals: submit certified test reports showing compliance with specified performance characteristics.
1.4	Quality Assurance	.1 .2 .3	Installer Qualifications: Installer experienced five years to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer. Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method. Contractor to conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.
1.5	Delivery, Storage Handling	.1 .2 .3	Ordering: Comply with manufacturer's ordering instructions and lead- time requirements to avoid construction delays. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle entrance doors and components to avoid damage. Protect entrance doors against damage from elements, construction activities, and other hazards before, during and after entrance installation.
PART 2.1	2 - PRODUCTS Acceptable Manufacturers	.1	Exterior Doors: Alumicor Insuldoor 400A Swing doors, thermally broken, Medium Stile, 44 mm thick or Kawneer 360 Insulclad.
	5929	Q	eahird Island Health Centre Roof and Window Replacement

		ALU	MINUM DOORS AND FRAMES
0812	0		Consultants:
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		.2	Refer to Materials and Equipment 01600 for procedures and
			submission requirements for substitutions.
2.2	Materials	.1	Aluminum (Entrances, Storefront, and Components).
		.2 .3 .4	Material Standard: ASTM B 221; 6063-T6 alloy and temper. Member Wall Thickness: Each framing member shall provide structural strength to meet specified performance requirements. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data
		.5	Provide adjustable glass jacks to help centre the glass in the door opening.
		.6 .7	Sealants: Refer to Sealants Section 07920 Glass: Refer to Glass and Glazing Section 08800
2.3	Accessories	.1	Fasteners: Where exposed, shall be aluminum, stainless steel or plated steel.
		.2	Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
		.3	Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
		.4	Thermal separators for door cladding shall be rigid polyvinylchloride (PVC) extrusions.
2.4	Entrance Hardware	.1	 Weatherstripping: .1 Meeting stiles on pairs of doors shall be equipped with an adjustable astragal utilizing wool pile with polymeric fin. .2 The door weathering on a single acting offset pivot or butt hung door and frame (single or pairs) shall be equipped with the manufacturer's approved weatherstripping. This is comprised of a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing.
		.2	Sill Sweep Strips: EPDM blade gasket sweep strip in an aluminum extrusion applied to the interior exposed surface of the bottom rail with concealed fasteners (Necessary to meet specified performance tests).
		.3	Threshold: Extruded aluminum, one piece per door opening, with ribbed surface.
		.4	Hinge: Continuous Hinge KCFM 95 HD1
		.5	Locks / Latches: Glynn- Johnson, Adams Rite, or Kawneer
		.6	Panic Hardware complete with dogging cylinder shall be Von Duprin for each exterior Aluminum Door.
		.7	Closers: Von Duprin.
		.8	Automatic Handicap Door Operator: LCN concealed overhead. (Required at Curtain Wall Entry Doors 100A and 100B located at Entry Vestibule 100).
	5000		

		.9 .10	Pull Handles for exterior side of all aluminum doors; with specialty 48" pull handles as per section 08700 (for doors 100A,100B,101,102,103, and 115, and push side of 136. Fixed Horizontal Push Bar only for interior side of interior vostibule doors 100P.
		.12	Exterior aluminum door frames shall be prepared for installation of electric door strikes and conduiting for installation of access control security hardware. See section 08120 Finish Hardware and Division 16000 Electrical.
		.10	
2.5	Entrance System	1	Eabricate system in accordance with reviewed shop drawings
		.2	Fabricate system in accordance with reviewed shop drawings. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
		.2	Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
		.3	Prepare components with internal reinforcement for door hardware. Prepare components to receive anchor devices. Fabricate anchors
		.4	Arrange fasteners and attachments to conceal from view.
2.6	Finishes	.1	Finish: aluminum components in accordance with Aluminum Association Designation System for:
			Clear Anodized finish to AA-M10C21A31, Class 2 (Clear Anodized for Interior Storefronts: ISF 2,3,4 and 5 and sliding door D154 – See Dwgs A901 and A902).
			Black Anodized finish to AA-M10C21A44, Class 1 (Black anodized finish to all other Storefront and Curtain Wall areas including associated Doors - See Dwgs A901 and A902).
		2	Finish steel reinforcing using CG SB 1-GP-40M primer
		.2	Finish: See Colour and Finish Schedule Section 09999.
27	Source Quelity		
2.1	Control	.1	Provide aluminum entrances specified herein from a single
		.2	Building Enclosure System: When aluminum storefront is part of a building enclosure system, including entrances, entrance hardware, windows, curtain wall system and related products, provide building enclosure system products from a single source manufacturer
		.3	Fabrication Tolerances: Fabricate aluminum storefront in accordance with framing manufacturer's prescribed tolerances.
DNA	5929	S	eabird Island Health Centre Roof and Window Replacement

PART 3 - EXECUTION

3.1	Examination	.1 .2	Contractor to verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive storefront system and sill plate is level in accordance with manufacturer's acceptable tolerances. Contractor to verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.
3.2	Installation	.1	General: Install framing system in accordance with manufacturer's instructions and AAMA storefront and entrance guide specifications manual
		.2	Dissimilar Materials: Provide separation of aluminum materials
		.3	Weather Tight Construction: Install sill members and other
			members in a bed of sealant or with joint filler or gaskets, to provide weather tight construction. Coordinate installation with wall flashings and other components of construction.
		.4	Attach to structure to permit sufficient adjustment to
		.5	Provide alignment attachments and shims to permanently fasten system to building structure
		.6	Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.
		.5	Set thresholds in bed of mastic and secure.
		.6	Install thresholds full width of openings using 1 piece per location.
		.7	Install doors and hardware in accordance with hardware templates and manufacturers' directions. Adjust operating hardware for smooth operation.
		.8	Fasten all components securely, tightly and permanently with neat, close hairline joints.
		.9	Anchor installations securely. Fix directly to building structural system to transfer wind loading into building structure; provide extensions and bracing required to connect framing system to building structure.
		.10	Make allowances for deflection of structure using slip joints to ensure that structural loads are not transmitted to framing
		.11	Temporary Locking: by screwdriver operated plastic plugs in locks, or temporary cylinders and keys for security of area, on completion installed permanent cylinders supplied.

- **3.3 Cleaning and Protection** .1
- Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 - .2 Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
 - .3 Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.4 Field Quality Control

- .1 Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
 - Testing: Testing shall be performed by a qualified independent testing agency. Refer to "Testing" Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
 - a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft2, which ever is greater.
 - b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 psf (300 Pa).
- .2 Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.5 Glazing

- .1 Glaze doors and frames using methods described and glass scheduled in Section 08800.
- .2 Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

- .1 Seal joints between frame members using sealant to provide air/vapour seal at interior.
 - .2 Apply sealants in accordance with Section 07920.

END OF SECTION

Consultants:	
David Nairne + Associates Ltd.	

PART	1 - GENERAL		
1.1.	General	.1	Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.
1.2	Standards	.1 .2 .3 .4	National Building Code of Canada, current edition. CAN/CSA-A-440-00 CAN3-S147 "Strength Design in Aluminum" CAN/CSA W59.2-[M1991(R2003)], Welded Aluminum Construction.
1.3	Submittals	.1 .2 .3	Submit Shop Drawings in accordance with Section 01330. Shop Drawings: For each product specified, including details of construction relative to materials, dimensions of individual components, profiles, elevations of unit, anchorage details, location of isolation coating, description of related components including air and water barrier, and exposed finishes and fastener, sealant material, glazing methods; type of construction including joinery, fabrication and eraction tolerance. Quality Assurance: include certification from established independent testing agency that windows will meet required CAN/CSA-A440 classification ratings.
1.4	Maintenance Data	.1	Provide maintenance data for cleaning and maintenance of aluminum windows for incorporation into maintenance manual described in sections 01330, 01830.
1.5	Warranty	.1 .2	Provide manufacturers warranty in writing aluminum window against leakage, defects, and malfunction under normal usage for a period of 1 year from date of Substantial Performance of Work. Refer to Section 08800 for insulating glass units warranty.
PART	2 - PRODUCTS		
2.1	Materials	.1	Aluminum windows shall be based on thermally broken:
			Kawneer 5500 Series Window Wall/Kawneer AA900Vent. Or Alumicor Trueline 900 Series/Univent 1350 series.
			Performance Requirements:.1 Air Tightness:A3.2 Water Tightness:B3.3 Wind Load Resistance:C3

ALUMINUM WINDOWS

		.2 .3 .4 .5	Screws, nuts, bolts, washers, etc stainless steel or plated with material not harmful to aluminum Glazing bead - Snap-in aluminum extruded type. Sealant - Tremco or approved alternate: .1 General: Monolastomeric .2 Couplings: Small joint sealer clear .3 Heel Bead: Monolastomeric Insect screens to CGSB 79-SP-1M Type 1, Style 1, Class 18 x 14 mesh to be supplied for all openings. insect screen with CAN/CSA-A440 classification rating.
2.2	Aluminum Windows	.1 .2 .3 .4	 Window and sash frames - mitred and mechanically jointed at corners, resin thermal break. Windows to withstand a wind load of 20 lbs. per sq. ft. without deflection sufficient to break glazing seal. Glazing: interior windows to be single glazed, exterior windows to be double glazed sealed units. Refer to Section 08800. Open Vents: awning and casement types extruded aluminum dripcaps as required hinges to be cadmium plated steel adjustable friction hinges.
opene	rs.	.5 .6	 .4 Vents to have heavy duty rotary crank handle .5 insect screens. .7 thermally broken operable awnings and casements. Windows shall be shop assembled complete with hardware and glazing prior to delivery. Weatherstrip: .1 Double P.V.C. extrusion fitted integrally to fixed and moving frame to provide continuous pliable contact around ventilator perimeter in addition to two-point metal to metal contact.
2.3	Air Infiltration	.1 .2	Vents to fit tightly to frame on entire perimeter. Air infiltration measured in cu. ft. per minute per ft. of crack length when window subject to static air pressure equal to pressure exerted by wind at velocity of 25 mph.
2.4	Hardware	.1 .2	Hardware to be stainless steel. Aluminum sections to which hardware fastened to min. thickness of 0.125 inches. Fastening screws secured with stainless steel countersunk nuts. Tapping of aluminum not permitted. Provide Roto Operator where bug screen impinges outswing casement.

ultants: Sect <u>1 Nairne + Associates Ltd.</u>	tion 08520 <u>Page 3</u>
Finish .1 Finish aluminum components in accordance with Association Designation System. AAMA 611, A Class I Clear Anodic Coating (Color #14 Clear)	Aluminum rchitectural
Isolation Coating.1Isolate aluminum from following components, of isolation coating: .1 Dissimilar metals except stainless steel, zinc, bronze of small area .2 Concrete .3 Wood.2Spacers, Setting Blocks, Gaskets, and Bond Manufacturer's standard permanent, non-migrating hardness recommended by manufacturer, compare sealants, and suitable for system performance require	by means or white Breakers: types in atible with ements.
3 EXECUTION	
 Installation .1 Erect in prepared openings by experienced workr .2 Set plumb and true, properly aligned and anchored. .3 Correctly adjust ventilators before glazing. .4 Caulk joints at mullions, between connecting contacts with windows and sills. Caulk perimete sealant within aluminum work. .5 Seal joints between frame members and or operating components with sealant to provide w seal at outside and air/vapour seal at inside. 	nen. securely windows, r. Conceal ther non- athertight
Anchors.1Standard anchors, clips or lugs as required2Galvanized steel or aluminum.	
 Glazing .1 Apply 3 mm x 10 mm butyl tape to glazing legs and lap glass upon tape. Maintain min. clearance at edges of glass. .2 Apply setting blocks under lower edge of glass. .3 Install heel bead at glass perimeter. .4 Snap glazing bead in place and roll in vinyl betwand glass. 	of frame e of 3 mm veen head

ALUMINUM WINDOWS

END of SECTION

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PART 1 - GENERAL

1.1	General	1 Drawings and general provisions of the Contract, in General and Supplementary Conditions and Divis Specifications Sections, apply to this section.	icluding sion 1
1.2	References	 National Building Code of Canada, current edition. CAN/CSA-A-440-00 	
1.3	System Description	1 General: Commercial Grade Architectural Aluminum Wi including glass and glazing, metal panels, perimeter trin and stools, window installation hardware and access shims and anchors, and perimeter sealing of window uni	indows, ns, sills ssories, ts.
1.4	Submittals	 Submit shop drawings in accordance with Section 01330 Product Data: For each product specified, include de construction relative to materials, dimensions of ind components, profiles, and finishes. Shop Drawings: Show details of fabrication and instaincluding plans, elevations, sections, details of comp provisions for expansion and contraction, glazing detain attachments to other work. Samples: Provide samples of each type of product sections exposed finish required in manufacturer's standard sizes. Test Reports: Submit certified test reports showing com with specified performance characteristics. Submit signed and sealed letter of assurance and signal drawings by curtain wall engineer.). etails of dividual allation, onents, ils, and ion and s. pliance tamped
1.5	Quality Assurance	 Installer Qualifications: Installer experienced five (5) y perform work of this section who has specialized installation of work similar to that required for this proje who is acceptable to product manufacturer. Manufacturer capable of providing field service represeduring construction, approving acceptable installed approving application method. Contractor to conduct pre-installation meeting to verify requirements, substrate conditions, manufacturer's instructions, and manufacturer's warranty requirements. 	ears to in the ect and entation er and project tallation
1.6	Delivery, Storage Handling	 Ordering: Comply with manufacturer's ordering instruction lead-time requirements to avoid construction delays. Packing, Shipping, Handling, and Unloading: Deliver m in manufacturer's original, unopened, undamaged cor with identification labels intact. Storage and Protection: Store materials protected exposure to harmful weather conditions. Handle materials 	ons and aterials ntainers d from als and
DNA	5929	Seabird Island Health Centre Roof and Window Replace	rement

2.2

components to avoid damage. Protect materials against damage from elements, construction activities, and other hazards before, during and after installation.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

.1

- 1. <u>Curtain wall systems: Alumicor 2200 Series System</u> (2"x 5" profile) or <u>Kawaneer 1602 System</u> (2"x5-1/2" profile)
- 2. Curtainwall glassvent/operable windows.
- 3. Verify and provide required frame depth per wind load requirement
- 4. Provide internal steel reinforcing as required by curtain wall engineer.
- .2 Refer to Materials and Equipment 01600 for procedures and submission requirements for substitutions.
- Materials .1 Aluminum (Windows and Components): Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.
 - .1 Extruded Material Standard: ASTM B 221, 6063-T6 alloy and temper.
 - .2 Steel Reinforcement: Complying with ASTM A 36/ A 36M for structural shapes, plates and bars; ASTM A 611 for cold-rolled sheet and strip or ASTM A 570/ A 570M for hot-rolled sheet and strip.
 - .3 Weather-stripping: Ventilators shall be weather-stripped with extruded EPDM in accordance with ASTM C864.
 - .4 Glazing Gaskets: Dry glazing gaskets shall be an extruded EPDM in accordance with ASTM C864.
 - .5 Glazing Sealant: Wet glazing material shall be a 100 percent silicone, neutral-cure sealant in accordance with AAMA 805.2-94, Group A.
 - .6 Fasteners: Where exposed, shall be 300 Series Stainless Steel.
 - .7 Thermal Barrier: The thermal barrier shall be extruded of a silicone compatible elastomer that provides for silicone adhesion.
 - .8 Insulated Spandrel Panels: Sheet metal backpans and air barriers: .091mm (20Guage) thickness, galvanized sheet steel to ASTM A653/A653M-06a, Designation G90/Z275. Fasteners: Corrosion resistant, zing plated, covered and sealed to sheet metal with silicone sealant. Dielectric Separator: 10mil vinyl membrane. Internal sealant and air barrier sealant (continuous to perimeter and capping beads): One-part, neutral cure, high

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performance silicone sealant complying with ASTM C920-11, Type S,Grade NS, Class 25, capable of sustaining dynamic movements, SWR1 sealant validated.

- .9 Insulation at spandrels, closures and flashings: ASTM C612-10, Type IVB, noncombustible to CAN/ULC-S. Acceptable Products: Roxul Curtainrock, Owens Corning Fiberglass Type 703.
- **2.3** Accessories .1 Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
 - .2 Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
 - .3 Sealants and joint fillers for joints at perimeter of window system as specified in Section 07920 Sealants and Caulking.
 - .4 Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
 - .5 Optional Muntin Grids: Extruded aluminum profiles, 6063-T6 alloy and temper and as follows:
 - .1 True muntins.
 - .2 Between the glass muntins.
 - .6 Glazing: Site Glazing as required and specified in Section 08800 Glazing.
 - .7 Optional Perimeters and Trims: Extruded aluminum, 6063-T5 alloy and temper, extruded to profiles and details indicated. Seal exterior joints with manufacturer's standard sealant to assure water-tight joints.
 - .8 Coupling Mullions: Shall be extruded aluminum of 6063-T6 alloy and temper of profile and dimensions indicated on drawings. Mullions shall provide structural properties to resist wind pressure required by performance criteria and standards.
- 2.5 Components
- .1 The frame and ventilator depth shall be not less than 67mm.
 - .2 All frame and ventilator members shall have minimum wall thickness of 1.8mm and shall provide the structural strength sufficient to meet the specified performance requirements.
 - .3 Glazing beads shall be extruded aluminum and shall be a minimum thickness of 1.5mm.
 - .4 Reference to tolerances for wall thickness and other crosssectional dimensions of window members are nominal and in compliance with AA Aluminum Standards and Data.
 - .5 All references to dimensions for wall thicknesses and other cross-sectional dimensions of window members are nominal and in compliance with CGSB 82-GP-3M.
 - .6 All ventilators shall be tubular.

2.6	Fabrication	.1 .2 .3	General: Fabricate components per manufacturer's installation instructions. When assembled, components Shall be accurately fitted joints to produce hairline joints. Window Frame Joinery: Mitered and mechanically clipped and/or staked. Factory sealed frame and vent corner joints.
2.7	Finishes	.1	Finish: aluminum components in accordance with Aluminum Association Designation System for: AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear)
2.8	Hardware	.1 .2	Hardware to be stainless steel. Aluminum sections to which hardware fastened to min. thickness of 0.125 inches. Fastening screws secured with stainless steel countersunk nuts. Tapping of aluminum not permitted. Provide Roto Operator where bug screen impinges outswing casement.
2.9	Quality Control	.1 .2 .3	Provide aluminum windows specified herein from a single source. Building Enclosure System: When aluminum windows are part of a building enclosure system, including entrances, entrance hardware, curtain walls, storefront systems, sliding glass doors, slope glazing, and related products, provide building enclosure system products from a single source manufacturer. [Structural tie-backs where required shall be reviewed and sign off by curtain wall engineer.]
PART	3 – EXECUTION		
3.1	Examination	.1	Contractor to verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive window system and sill plate is level in accordance with manufacturer's acceptable tolerances. Do not proceed with installation until unsatisfactory conditions have been corrected. Contractor to verify actual measurements/openings by field measurements before fabrication; show recorded measurements, fabrication schedule with construction progress to avoid construction delays.

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3.2	Installation	.1	Install window units plumb, level, and true to line, without warp or rack of frames or sash with manufacturer's prescribed
		.2	tolerances. Provide support and anchor in place. Dissimilar Materials: Provide separation of aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points by complying with AAMA 101, Appendix, titled "Dissimilar Materials."
		.0	members in a bed of sealant or with joint filler or gaskets, to provide weather tight construction. Coordinate installation with wall flashings and other components of construction
		.4	Ensure air/vapour barrier is continuous along entire envelope from window frame to u/s roof and to foundations to ensure weather tight seal at outside and air/vapour seal at inside.
3.3	Field Quality Control	.1	Field Tests: Consultant shall select window units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall
		.2	Testing: Testing shall be performed by a qualified independent testing agency. Refer to Section 01450 – Testing Laboratory Services for payment of testing and testing requirements. Testing Standard shall be per AAMA 502 including reference to CGSB/CCMC for Air Infiltration Test and CGSB/CCMC for
			 Air Infiltration Test. Air Infiltration Tests: Conduct in accordance with ASTM E 783. Tests shall be conducted at a minimum uniform static test pressure of 1.57 psf or a specified, but not to exceed 6.24 psf. The maximum allowable rates of air leakage for field testing shall not exceed 1.5 times the project specifications.
			.2 Water Penetration Tests: a. <u>Curtain Wall systems:</u> Water penetration tests shall be conducted at a static test pressure of 8 psf (=383Pa) for Architectural (AW).
			b. <u>Curtainwall glassvent windows:</u> water penetrations tests shall be conducted at a static test pressure of 6.0 psf for Heavy Commercial.

.3 Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

- **3.4 Cleaning and Protection** .1 Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 - .2 Protect installed product's finish surfaces from damage during construction. Protect aluminum windows from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants. Remove and replace damaged aluminum windows at no extra cost.
 - .3 Protect adjacent work areas and finish surfaces from damage during product installation.

END OF SECTION

PART 1 - GENERAL

General

1.1

.1	The	"General	Conditions"	and	"Supplementary	General
	Cond	litions" shal	I form part of t	his se	ction.	

- .2 Furnish all labour and materials for the supply only of all mechanical finish hardware.
- .3 Furnish all labour and materials for the supply and installation of all electrified hardware and automatic operators.
- .4 All wiring for the system shall be supplied, installed, terminated, and labeled by this section. All specified electrified devices shall be made fully operational by this section.

1.2 Quality Assurance .1 Hardware shall be installed by qualified trades people, regularly engaged in the installation of electrified security hardware. Installers shall have a minimum of five (5) years documented experience in the installation of hardware of the type required for the work. Installers shall have worked on at least two (2) projects of similar character and magnitude as required for the specified work. If requested, provide a written statement within (30) thirty days of Contract award outlining installer's experience, projects, and contact references. Any changes to the approved installation crews shall require written approval of the Consultant.

- .2 Meet all requirements of the National Building Code, current edition, and all other applicable regulations.
- .3 Products listed in Part 2 of this specification establish the minimum requirements for this project. Deviation from specified products will require the supply and installation of correct products.
- .4 Qualified suppliers must have in their employ a Certified A.H.C. (Architectural Hardware Consultant) as licensed by the Door and Hardware Institute. The supplier must have a minimum of two (2) years experience furnishing hardware for similar projects. Only firms that can extend manufacturers warranty to the project are to be considered as suppliers. A Certified A.H.C. will do inspection of supplied Finishing Hardware. A complete Site Inspection Report will be issued to the Consultant.
- .5 Only heavy duty or "Institutional Type/Grade" hardware is acceptable on this project.

1.3 Approvals .1 Request for approvals to be received by the Consultant a minimum of 14 days before closing of tender.

- .2 Applications for approvals to be made in writing clearly requesting equivalents and proving necessary relevant information.
- .3 Only approvals issued by addenda will be acceptable.

- .4 All substituted items or not approved items will be replaced with specified items and all related costs will be borne by the Contractor.
- .5 Refer to Materials and Equipment 01600 for procedures and submission requirements for substitutions.

1.4 Submittals

- .1 Submit shop drawings in accordance with Section 01330.
- .2 Upon request of the Consultant and/or Owner, provide mounted samples of hardware items to be supplied.
- .3 Prepare and submit three (3) copies of a detailed hardware schedule listing product numbers, size and finishes. Include two (2) sets of catalog cuts.
- .4 Furnish other sections with two (2) complete sets of hardware templates for related fabricating and installation.
- .5 Where electrical hardware is to be supplied, provide wiring diagrams showing all wire termination points. Where electrical hardware is to be supplied and installed provide the contractor with riser diagrams listing the correct wire runs and back box sizes as well as 115 VAC requirements.
- .6 Provide two (2) operating manuals for the Owners use as per Section 01830. Include copies of the hardware schedule, templates, installation instructions and all maintenance data.
- .7 Submit six (6) copies of shop drawings including: system block diagrams indicating all components, interconnection and cabling; complete detailed system point to point circuit and riser diagrams, conduit and cable allocations, enclosure and back box types; and all required information to provide a detailed review of functional criteria and equipment assessment. Provide conduit drawings specific to each door application for coordination with Division 16.
- .8 Provide (2) two sets of maintenance manuals. Include copies of the as installed hardware schedule, templates, installation instructions, maintenance data, and as installed wiring diagrams including installed wire color codes.
- 1.5 Product Delivery, Handling and Storage
- .1 Deliver each hardware item in its original package complete with all fasteners, keys, templates, and installation instructions required for installation.
- .2 Clearly mark each container with the door opening number and the hardware schedule item or heading number.
- .3 The contractor must store hardware delivered in a secure area. The storage area must contain adequate shelf space to hold all the hardware off the floor. Ensure the area is kept dry and clean.
- .4 When requested, package items of hardware separately for delivery to other fabricators for the installation.

1.6	Coordination	.1 .2	All electrified hardware applications and products have been Specified to allow for all available options and the exact operation is deemed to be a site configurable variable. It will be the responsibility of the Contractor to determine the exact functionality and operational requirement for all electrified hardware as well as the exact requirements for interface to related systems prior to commencing work. Coordinate final conduit system design, device locations and electrical service allocations and requirements with all affected trades. Division 16 contractors shall be responsible for the supply and installation of all conduit, standard back boxes, junction boxes, device boxes, and terminal panels to provide a complete conduit system. Provide all power supplies and application specific enclosures to Division 16 Contractor for installation as part of the conduit system. Substantial corrosion resistant pull strings to be installed in all conduit runs. Coordinate hardware components with door and frame manufacturers to ensure correct door and frame preparation. Inform manufacturers where conduit may by required within their respective assemblies and provide all required templates for door and frame preparation. Ensure that frames have been prepared correctly and that appropriate back boxes for conduit termination have been provided at correct locations prior to frame installation. Ensure that doors have been prepared correctly for all devices and that doors contain flexible conduit where required.
		.4	Coordinate with aluminum door trade to ensure the proper preparation and fabrication of aluminum doors and frames. Coordinate frame preparation during fabrication where the installation of wiring or conduit within frame assemblies may be required for electrified hardware. Provide physical samples rather than paper templates if requested. If any devices are required to be installed in door or frame assemblies in the shop or during assembly or fabrication, provide such items direct to manufacturers in ample time to allow for work to be completed in accordance with construction schedule
1.7	Warranty	_	
		.5	Manufacturer's Warranty: Refer to Conditions of the Contract.

- 1 Hinges: Lifetime.
- Cylindrical Locksets & Cylinders: Three years. Mortise Locks: Lifetime. 2
- 3
- Closers: Ten years. 4
- Exit Devices: Five Years. 5
- All other Hardware: Two years. 6

PART - 2 PRODUCTS

2.1 Materials

- .1 Supply material as specified on hardware list and as approved by the Consultant.
- .2 Shall be Grade 1, perfect fit, uniform in colour, free from defects. Use BHMA 626 finish throughout project.
- .3 Hardware installed in rated closures shall be U.L.C. approved.
- .4 Catalogue numbers and trade names listed herein are given as a means of describing the standard of acceptance - type, materials strength, design, quality, weight, mechanical construction, operation of items and requirements to which such hardware shall conform.
- .5 Hardware:
 - .1 Butt hinges:
 - .1 Exterior doors shall be stainless steel: Hager BB1191NRP 4¹/₂" x 4". Acceptable alternate: Stanley FBB191, McKinney TA2314 NRP, Dorma BB NRP.
 - .2 Interior doors: N/A
 - .2 Closers: shall be Grade 1 in 626 finish, LCN "Smoothee" 4110N CUSH. Acceptable alternate: Stanley D-4551-S, Sargent EN351-P9, Dorma 8900 Series.
 - .3 Exterior Lock Sets: shall be Grade 1 Mortise Lock Sets ANSI Function F20 in 626 finish, shall be Schlage L series LV Vandlgard with L06 lever, N Escutcheon and EZ Turn thumb turn, ANSI function F20 Entrance Lock. Acceptable alternates:

Stanley 40H series 47H high security with L15 lever, M Escutcheon, or Sargent 9200 high security with L lever, LS Escutcheon, or Sargent 8200 w/ trim ETL.

- .4 Interior Lock Sets: N/A
- .5 Deadbolts: Deadbolts: shall be Schlage B660 Series, Grade I.

Acceptable alternate: Stanley T Series 83T, Sargent 480 Series 485.

- .6 Stops: shall be Hagar or HA1121X or HA1205X, Gallery Speciality Hardware 200 or 218.
- .7 Threshold: shall be Pemko 200-5AV and to be supplied 25 mm (1") longer than door or opening width.
- .8 Weatherstripping: shall be Pemko 316 AV.
- .9 Flush mortise bolts: Glynn Johnson, Hagar, Gallery Speciality Hardware 401
- .10 Push and pull:
 - .1 Exterior Aluminum Doors: N/A
- .11 Door Hold open device: Stanley Hardware S750-114 Chrome
- .12 Push Paddle: Adams Rite/ Assa Abloy 4590 Paddle

			FINISH HARDWARE
Cons	ultants:		08700
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2.2	Fastening	.1	Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation of hardware.
2.3	Keying	.1 .2	 For the purpose of tendering: 1 Locksets to be Grand Master Keyed. 2 Final keying including establishing Master Key Groups will be as per Owners instructions. 3 Successful supplier must be prepared to co-operate with the Owner re: final keying. 4 Provide two (2) keys per lock - keyed differently. 5 Provide one (1) key per lock - keyed alike. 6 Keys to be stamped "Do Not Duplicate". 7 Locksets to be construction master keyed. Master and Grand Master Keys to be delivered directly to the Owners.
PAR	73 - EXECUTION		
3.1.	Inspection	.1 .2 .3 .4	The hardware supplier must inspect all the door openings to ensure that installation is complete and that all items are operating as intended. When requested, provide a written report on all site inspections made. Inspect surfaces and conditions on site prior to commencing work. Verify that all door and frame assemblies have been prepared correctly prior to commencing work. Commencement of work assumes acceptance of site conditions. Verify that all conduit, back boxes, junction boxes, device boxes, and terminal panels have been installed where required prior to commencing work. Prior to final inspection verify that all hardware has been installed according to the approved hardware schedule and manufacturers instructions, and ensure correct operation.
3.2.	Installation	.1 .2 .3	The general contractor shall obtain a copy of ANSI/DHI A115.1G-94, "Installation Guide for Doors and Hardware". It is the intent of this document to be used as a reference guide in the proper handling, storage, and installation of finishing hardware, and doors and frames. This document can be obtained through the Door and Hardware Institute. Other trades installing hardware must follow all manufacturers instructions including door closer adjustment, handing of locksets as required, and degree of door swing. Advise the consultants if doorframes are not square and plumb and prevent proper door installation. Mount hardware to suit door elevations. Unless otherwise directed by the consultant, install hardware at the following mounting heights: Locksets 40" (1015mm)

		.4 .5 .6 .7 .8	 Exit device 40" (1015mm) Push/Pull 42" (1065mm) Deadlock 48" (1200mm) When requested, the hardware supplier will instruct the installer as to how various newer or unusual items that are required to be installed for proper performance. Install controller electronics and electrified hardware in accordance with approved shop drawings and manufacturers installation instructions. Install and terminate all wiring from hardware controllers to the door devices. Refer to Division 8 hardware devices and Division 16 hardware devices shall take place at the master terminal strip at each door location or at centralized power supplies if specified. All wiring shall be neatly installed and terminated on terminal strips provided. All terminal blocks and wiring shall be tagged and labeled. Weatherstripping is not to be installed until final coat of paint has been applied to the door and frame and is completely dry.
3.3.	Testing and Commissioning	.1	Prior to final inspection verify that all hardware has been
	J	in: .2	stalled according to the approved hardware schedule and manufacturers instructions. Test all electrical hardware and monitoring devices to ensure that hardware is fully operational in stand-alone mode. Provide point-by-point verification list to Division 16 Security Contractor that all devices are installed, connected, tested and
		.3	Commissioning shall be performed for both stand alone and integrated operations. Access and egress control functions of the electrified hardware shall be demonstrated in stand-alone mode without the interface to the access control system. Door position monitoring and request to exit functions shall be demonstrated by a circuit continuity test from the device to the interface terminal strip. Coordinate commissioning of integrated operations with Division 16 Security Contractor to complete the door and security requirements to a fully operational state including; control, monitoring, alarm and reset functions, as well as free or delayed egress exit related functions.

END of SECTION

GLAZING						
Consu	ıltants:		08800			
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PART	1 - GENERAL					
1.1.	General	.1	The "General Conditions" and "Supplementary General			
			Conditions" shall form part of this section.			
1.2.	References	.1	National Building Code of Canada, current edition.			
		.2	CSA. standard A440-00.			
1.3	Warranty	.1	Provide a written guarantee, signed and issued in the name of			
			the Owner, stating that the hermetically sealed glass units			
			described in this Section are guaranteed against interpane			
			dusting or misting for a period of (5) years from the date of			
			Substantial Performance and that any defective units will be			
			replaced, including making good of adjacent glazing frame,			
			without cost to the Owner, during the one year Building			
			Guarantee Period. After that period, replacement units will be			
			supplied to the Owner for installation by him.			
1.4	Submittals	.1	Submit shop drawings in accordance with Section 01330.			
		.2	Product Data: For each product specified, include details of			
			construction relative to materials, dimensions of individual			
		0	components, profiles, and finishes.			
		.3	Shop Drawings: Show details of fabrication and installation,			
			including plans, elevations, sections, details of components,			
			provisions for expansion and contraction, glazing details, and			
		4	Allachments to other work.			
		.4	Samples: Provide samples of each type of product section and			
		Б	Toot Departe: Submit certified test reports showing compliance			
		.5	with specified performance characteristics			
PART			with specified performance characteristics.			
2.1	Materials	1	Float Glass: Glazing quality, conforming to CAN/CGSB 12.3-			
		••	M91, minimum thickness as indicated or as required by Code			
			Sheet glass (float) Double strength - better guality.			
		.2	Safety glass:			
			.1 Laminated: to CAN/CGSB-12.1-M90 Type 1. Class A			
			6mm thick.			
			.2 Tempered: to CAN/CGSB 12.11-M90 Type 2. tempered:			
			Class B, float or plate glass, clear.			
		.3	Exterior Windows/Doors: All Exterior Doors and Exterior			
			Curtain Wall Side Light Glazing to be tempered glass, double-			
			glazed sealed units, and all Exterior Windows and Curtain Wall			
			Glazing to be tempered glass, double glazed sealed units in			
			Pre-Manufactured Windows, or Curtain Wall or Storefront. It is			
			the responsibility of the glazing contractor's specialty engineer			
			to meet the all structural and wind load requirements Refer to			
			Section 08520.			
		.4	Double Glazed Sealed Units:			
			.1 Outer lite minimum 6 mm thick or as per minimum wind			
			load requirement, clear, fully tempered glass unless			

noted otherwise on the drawings. Low-E2 soft coating on No.2 surface "solarban 60 by PPG" or approved equal.

- .2 Inner lite minimum 5 mm thick or as per minimum wind load requirement, clear, fully annealed glass for punched windows. Inner lite minimum 5 mm thick or as per minimum wind load requirement, clear, fully tempered glass for Curtain Wall, Storefront and Exterior Glazed Doors. Interior clerestory glass above 3.660m in elevation (at main entry vestibule and community health room) to be laminated glass.
- .3 Air space to be 12 mm (Argon Filled).
- .4 Spacer Bar. Warm Edge Technology or black triseal.
- .5 Performance of the sealed units shall meet or exceed:
 - a. U Value 0.19 imperial
 - b. Visible Light Transmittance: 65%
 - c. Visible Reflectance: IN 10%: Out 11%
 - d Solar Heat Gain Coefficient: 0.36
- .4 Curtain Wall Spandrel Glass: Silicone-coated spandrel glass: Heat Strengthened float Glass. Thickness 6mm; Coating location: Second Surface. Fallout Resistance: Passes ASTM C1048-12e1 for an assembly of glass and adhered reinforcing material. Silicone spandrel coating Product: Opaci-Coat-300 by Industrial Control Development Inc. Colour: Custom Colour to be selected by Architect.
- .5 Interior Windows and Interior Doors with glazing and vision panels: N/A
- .6 It is the responsibility of the glazing contractor to meet the wind load.
- .7 Interior Windows and Interior Doors used in fire separations: $N\!/\!A$
- .8 Mirrors: N/A
- .9 Joint Fillers and Setting Blocks:
 - .1 General: Compatible with primers and sealants, out sized 30% to 50%.
 - .2 Neoprene or Vinyl: Extruded closed cell foam, shore A hardness 70 90, tensile strength 20 30 psi.
- .8 Glazing Compounds: Oil type to CGSB 19-GP-6 gun grease. Sealant: Silicone base, one component, to CGSB 19-GP-9 of colour to match framing. Dow-Corning 781 or approved equal.
- .9 Glazing Tape: of pre-formed butyl tape, 10-15 durometer hardness, paper release, 3 mm thick x width of glazing stop. Tremco #440 or approved alternate. Colour to match framing.
- .1 All glass shall be new material, the best of its kind, and shall be free from cracks, flaws, or other defects. Each individual piece of glass shall bear a label by the manufacturer, giving the manufacturer's name and trademark, the quality of glass, thickness designation, direction of draw, if required, and

PART 3 - EXECUTION 3.1 Glazing country of manufacture. All labels shall be left on the glass until removal is authorized by the Consultant.

- .2 All glazing shall be installed in accordance with the standards of the Flat Glass Jobbers Association Glazing Manual.
- .3 No glazing shall be performed in temperatures below 4.5°C, nor before all surfaces, where required, are back-painted.

3.2 Protection .1 Mark installed glass with whiting or labels and take necessary precautions to protect installed work against damage.

GLAZING

.2 Remove and replace damaged, scratched or cracked glass prior to acceptance of building.

Cleanup .1 On completion, clean up whiting, labels, excess glazing compound finger marks, etc., and leave glass clean. .2 Remove all excess material and debris from site.

END of SECTION

PART 1 - GENERAL

1.1	General	.1	The "General Conditions" and "Supplementary General Conditions" shall form part of this section.
1.2	Reference Standards	.1 .2 .3 .4	National Building Code of Canada, current edition. CSA. A82.31-M1980 CSA. A82.27-M1991 AWCC Specifications Standards Manual-2003
1.3	Product Delivery & Storage	.1 .2 .3 .4 .5	All materials shall be delivered to the site in their original containers and packaging with all labels intact and legible at their time of use. All materials shall be stored in off-ground areas close by where they are to be installed. Ensure temperature of interior areas are within the recommended range of 12°C to 21°C, 24 hours prior and during entire installation. Ensure proper ventilation to eliminate excess moisture. All damaged goods shall be removed from the site and replaced with new material.
PARI	2 - PRODUCTS		
2.1	Materials	.1 .2 .3 .4 .5 .6 .7 .8 .9 .10 .11	 Gypsum wallboard ULC rated 1 Fire rated 16 mm (5/8") ProRoc, or approved equivalent, Type X, shall be to CSA. A82.27. Gypsum wallboard: 1 16 mm (5/8") ProRoc, or approved equivalent wallboard to CSA. A82.27 Abuse Resistant Gypsum wallboard: 1 16 mm (5/8") ProRoc Abuse Resistant, or approved equivalent wallboard to CSA. A82.27 Joint filler and cement shall be as manufactured by Synkoloid, Westroc or approved alternative. Shall be asbestos-free. Drywall adhesive to be waterproof organic type, gun applied to studs for wall application. Drywall corner bead and casing bead, one piece length per location shall be Pedlar Nos. 4408 and 4411, or equal. To suit wallboard thickness. Screws: Drywall screws, self-tapping, self-drilling, length: 1 30 mm (1¼") for 12 mm (½") board 2 40 mm (1-5/8") for 16 mm (5/8") board Nails: 1 rust-proof annular grooved steel 2 6 mm (¼") flat head 3 48 mm (1-7/8") long for 16 mm (5/8") board Drywall furring screw channel: 12 mm (½"). Corner: Galvanized Metal. Fill type galvanized metal to ASRM C1047.
PART 3 - EXECUTION

3.1	Inspection of Surfaces	.1 .2 .3	Prior to the installation, all areas to receive the work of this Section shall be inspected to confirm they are ready to receive the gypsum wallboard coverings. All deficiencies in the work found by this inspection both in the building construction requirements and the conditions which will affect the work of this Section shall be corrected prior to the commencement of the work of this Section. Commencement of work by the Contractor shall imply his acceptance of all construction and surfaces. Defects found in the work of this Section shall be the responsibility of the Contractor.
3.2	Installation	.1 .2 .3 .3 .5 .6	All work to be done to AWCC Standards, by experienced tradesmen. All interior boards shall be 1220mm width by length of installation up to 3600mm. All boards to be installed vertically, one board per total height requirements unless otherwise noted. Single layer application: .1 horizontal method - boards at right angles to bearing. .2 screw fixing to be at 150 mm (6") o.c. for ceilings .3 fixing to be at 400 mm (16") o.c. for walls .4 adhesive to be applied on all studs Corner and casing beads as detailed and to BCWC Standards. All beads and corners to be screwed on. Provide corner beads at all outside corners, and casing bead (J mold) to all free edges of gypsum board, where drywall abuts against a surface having no trim concealing its juncture, and where shown on the drawings. Allow for GWB. returns at all window heads and jambs. Refer to Architectural Drawings.
3.2	Finish	.1 .2 .3	Apply tape and joint filler and taping cement in accordance with Domtar "Drywall Finishing" directives. Taping and filling may be done either manually or by mechanical means. The finished work shall be smooth, seamless, plumb, true and flush with square neat corners.
3.3	Cleanup	.1	Remove all waste, debris, and excess materials as work proceeds. END of SECTION