City of Saint John

T E N D E R

Tender # 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

Sealed tenders, hand delivered or couriered, addressed to Monic MacVicar, CCLP, CPPB, Supply Chain Management, 1st Floor – 175 Rothesay Avenue, Saint John, NB, E2J 2B4, and marked on the envelope:

"Tender # 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT"

will be received until 2:30:00 pm, Tuesday, July 18th, 2023 for the supply of all materials, labor and equipment necessary to complete the window replacement project located at the Canada Games Aquatic Centre, in accordance with the enclosed specifications, drawings, terms and conditions.

In light of the current Covid-19 pandemic, there will be no public opening. Tenders will be opened by the Tender Opening Committee, in the first-floor boardroom, 175 Rothesay Avenue, Municipal Operations Complex, immediately following the tender closing time. **Registered bidders may attend remotely via Teams invitation.**

The lowest or any tender not necessarily accepted.

Monic MacVicar, CCLP, CPPB
Supply Chain Management

Issued: Tuesday, June 27th, 2023

T E N D E R
Tender # 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

SCOPE OF WORK:

The City of Saint John is soliciting tenders from qualified bidders to supply all materials, labor and equipment necessary to complete the window replacement project located at the Canada Games Aquatic Centre, as per the specifications, drawings, terms and conditions outlined in this document.

A pre-bid site visit will be held on Wednesday, July 5th, 2023 at 10:00:00AM. We will meet in the lobby of the Canada Aquatic Games Centre. All bidders are strongly urged to attend.

SPECIFICATIONS:

See Appendix A for specifications and drawings.

TERMS AND CONDITIONS

Governing Law, Trade Treaties and Policies

This procurement will be in accordance with the laws of the province of New Brunswick and the federal laws of Canada.

This procurement is also subject to the following Policies, Legislation and Internal Trade Agreement(s) including:

- Atlantic Trade and Procurement Partnership
- Agreement on the Opening of Public Procurement for NB and Québec
- Canadian Free Trade Agreement
- New Brunswick Procurement Act and Regulation 2014-93
- City of Saint John of Saint John Policy for the Procurement of Goods, Services, and Construction

Submission Instructions

Sealed tenders, hand delivered or couriered, addressed to Monic MacVicar, CCLP, CPPB, Supply Chain Management, 1st Floor – 175 Rothesay Avenue, Saint John, NB, E2J 2B4, and marked on the envelope:

"2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT"

will be received until 2:30:00 pm, Tuesday, July 18th, 2023 for the work contemplated in this document and in accordance with the enclosed specifications, drawings, terms and conditions.

Enquiries

Bidders shall promptly examine the bid documents and report any errors, omissions or ambiguities and may direct enquiries or seek additional information in writing by email before the deadline for enquiries to the Authorized Enquiries Contact as set out below. No such communications are to be directed to anyone other than the Authorized Enquiries Contact.

Authorized Enquiries Contact

Monic MacVicar, CCLP, CPPB
Supply Chain Management
City of Saint John
Email: supplychainmanagement@saintjohn.ca

It is the Bidder's responsibility to seek clarification from the City on any matter it considers unclear. The City shall not be responsible for any misunderstanding on the part of the Bidder concerning this bid document or its process.

The City intends to confirm receipt of a bidder's communication by way of an email or facsimile in reply. If a bidder has not received a reply, the bidder may wish to resend its communication as the lack of reply may have resulted from a technical problem. The City is under no obligation to respond to enquiries or provide additional information but may do so at its sole discretion.

Responses to inquiries may be distributed to all bidders on the invitation list as having received the bid documents as of the date the response is prepared. The source of the question will not be identified in the response. Verbal information shall not be binding upon the City. Inquiries received after the deadline for enquiries will not receive a response.

Tender to be Submitted on Prescribed Form

Bidders are to submit their tender on the prescribed form contained in this document. Failure to submit on this form may result in the disqualification of the bid.

Taxes

The bid price shall be all taxes extra. The City of Saint John shall be invoiced for and pay all applicable taxes related to this bid.

Schedule for the Bid Process

Issue Date	TUesday, June 27th, 2023
Pre-Bid Site Visit	**Wednesday, July 5th, 2023 at 10:00:00 am ADT**
Deadline for Enquiries	Friday, July 7th, 2023 at 4:00:00 pm, ADT
Deadline for Issuing Addenda	Tuesday, July 11th, 2023 at 4:00:00 pm, ADT
Submission Deadline	Tuesday, July 18th, 2023 at 2:30:00 pm, ADT
Date of Award	TBD

The Schedule for the bid process is tentative only and may be changed by the City in its sole discretion.

Advisory Notice(s)

Periodically, the City of Saint John is required to issue clarification notices to a bid document in the form of Advisory Notices. Normally these notifications will not have a direct bearing on the cost of a project and will not influence bidding.

Bidders are responsible for obtaining all advisory notice(s) issued by the City. Advisory Notice(s) may be obtained from the City's website (www.saintjohn.ca) under the Menu option, City Hall header, then "Tender and Proposals".

Bidders are instructed to sign the Advisory Notice and return it either by fax to (506) 658-4742 or email to supplychainmanagement@saintjohn.ca prior to the closing date. Failure to comply with the instructions on an advisory may result in rejection of the bid.

Addenda

Periodically, the City of Saint John is required to issue notification of changes or corrections to a bid document by way of addenda. Normally these notifications will have direct bearing on the cost of a project and will influence bidding. Therefore, it is important that the City have assurances that bidders have in-fact received the notification(s).

Bidders are responsible for obtaining all addenda issued by the City. Addenda may be obtained from the City's website (www.saintjohn.ca) under the Menu option, City Hall header, then "Tender and Proposals".

Bidders are required to sign and include all addenda with their bid submission.

Failure to include a copy of all signed addenda with the bid submission may result in rejection of the bid regardless of whether or not the changes noted in the addendum are included in the bid submission.

Mandatory Requirements

Each submission will be evaluated to ensure that it complies with the mandatory requirements and may be rejected if it does not comply. The evaluation of mandatory requirements will confirm that:

- the submission was received prior to the applicable Submission Deadline;
- the bid submission is signed;
- the bid submission is legible;
- the bid submission does not contain a substantive qualification or conditions that are contrary to the terms of the bid document;
- the bid submission does not contain a change in price that was not initialled by the person who signed the submission; and
- the bid submission is in English;

Payment

Payment shall be based on Net 45 Days from date of invoice or receipt of goods/services, whichever is later. Invoices can either be mailed to: City of Saint John, Accounts Payable Department, P.O. Box 1971, Saint John, NB, E2L 4L1, or by email to the Accounts Payable department (accountspayable@saintjohn.ca). Vendors are to ensure invoices are not sent both ways.

Pricing

The tender prices shall include all installation wages, fringe benefits, insurance, transportation, delivery, duty, working tools, equipment costs, and any other charges incurred in order to provide required materials and/or services.

Holdback

A Hold back of 10% of all monies due to the contractor will be retained by the City until 60 days after the substantial completion date of the work, approved by the project manager, and receipt of a statutory declaration.

Substitutes

Substitute products will not be considered (where applicable).

Verbal Agreement

No verbal agreement or conversation with any officer, agent or employee of the owner either before or after execution of the contract shall effect or modify any of the terms or obligations contained in any of the documents comprising the said contract.

Fax Tenders

Tenders received by fax WILL NOT be accepted.

Late Bids

Bids received after the time and date as shown in this document shall not be considered.

Cancelation Clause

In the event that the successful bidder does not comply with the specifications and terms and conditions of this tender, at any time throughout the duration of the contract, the City of Saint John reserves the right to cancel the contract in its entirety.

Basis for Award

A The city does not limit itself to accepting the lowest, or any tender submitted, but reserves the right to award the tender in any manner deemed to be in the City's best interest. It is the City of Saint John's intention to award this agreement to one Vendor.

No guarantee

The City makes no guarantee as to the volume of the Deliverables.

Acceptance, Revocation and Rejection Of Tenders

The bidder agrees that his tender is a firm offer to supply the goods and/or services specified herein at the quoted price, and in accordance with the terms and conditions herein contained. The bidder may revoke his tender at any time prior to the time fixed for tender opening by delivering, or causing to be delivered, written notice of revocation to the designated official at the City of Saint John. Revocation will take effect from the time the notice is actually received. A notice of revocation will not be accepted after the time fixed for tender opening.

The bid shall not be restricted by a statement added to the Tender Form, or by a covering letter, or by alterations to the tender form as supplied, unless otherwise provided herein and further, a tender form that has been altered in any way may be deemed to be a non-confirming bid and, therefore, rejected. Bidders shall be allowed to attach descriptive literature; whose sole purpose is to amplify the bid.

Due Diligence

In the event that a health and safety offence is committed, the onus falls on the employer to prove that it exercised due diligence (i.e. did everything it reasonably could) in order to avoid the offence.

When hiring contractors, the City of Saint John is responsible for ensuring compliance with Health and Safety Legislation and must make sure that the appropriate accident prevention systems are implemented in the workplace.

Therefore, if any contractor is found to be working in an unsafe manner, or outside of current legislation, he will be made to stop work immediately. Any losses which may arise as a result of this work stoppage are the responsibility of the contractor.

Failure to comply with current legislation on the part of the contractor, may lead to cancellation of this contract and any bid deposits that may be in place.

Insurance

The successful contractor shall provide evidence of the following insurance coverage:

General Liability with minimum limits of two million dollars, ($2,000,000.00). The policy shall include:

*operations of the contractor in connection with this tender;
*products and completed operations coverage;
*contractual liability with respect to this tender;
*the City of Saint John added as an additional insured;
*a cross liability clause;
*non-owned automobile;
*thirty (30) days notice of cancellation of this policy "will" be given to the City of Saint John, by the insurers;

Standard automobile insurance for owned automobiles with at least the minimum limits allowed by law. This coverage is to remain in effect for the entire time frame of the contract.

WorksafeNB Certificate and Business Corporations Act Certificate

New Brunswick Tenderers shall provide to the City a WorkSafeNB certificate which confirms proper registration and good standing with WorkSafeNB and a Business Corporations Act Certificate which confirms proper registration and good standing with the Province of New Brunswick - Corporate Affairs within five (5) Working Days following the City's notice of selection.

Out-of-province Tenderers shall provide to the City a WorkSafeNB certificate which confirms proper registration and good standing with WorkSafeNB or a letter or certificate issued under the equivalent applicable legislation in the province of origin of the Tenderer confirming extension of coverage from said legislation to the Province of New Brunswick for the term of the Contract. Subject to paragraph c), out-of-province Tenderers shall also provide a Business Corporations Act Certificate which confirms proper registration and good standing with the Province of New Brunswick - Corporate Affairs within five (5) Working Days following the City's notice of selection.

Tenderers from Nova Scotia may submit the appropriate Business Corporations Act Certificate from the Province of Nova Scotia.

Reserved Rights

The City reserves the right to:

a) Reject an unbalanced bid submission. For the purpose of this section, an unbalanced bid submission is a bid submission containing a unit price which deviates substantially from, or does not fairly represent reasonable and proper compensation for the unit of work bid or one that contains prices which appear to be so unbalanced as to adversely affect the interests of the City.

The City reserves the right to use other bids submitted in response to this bid solicitation or for other like or similar work as a guideline in determining if a bid is unbalanced.

b) Amend or modify the scope of the Work, and/or cancel or suspend the bid award, at any time for any reason;

c) Require bidders to provide additional information after the submission deadline to support or clarify their bid submission;

d) Not accept any or all bids;

e) Not accept a bid submission from a bidder who is itself, or whose principals, owners or directors are also principals, owners or directors of another entity which is, involved in litigation, arbitration or any other similar proceeding against the City;

f) Reject any or all bid submissions without any obligation, compensation or reimbursement to any bidder or any of its team members;

g) Withdraw this bid solicitation and cancel or suspend the bid process;

h) Extend, from time to time, any date, any time period or deadline provided in this bid solicitation (including, without limitation, the submission deadline), upon written notice to all bidders;

i) Assess and reject a bid submission on the basis of:

(i) information provided by references;
(ii) the bidder's past performance on previous contracts;
(iii) the information provided by a bidder pursuant to the City exercising its clarification rights under this bid process;
(iv) the bidder's experience with performing the type and scope of work specified;
(v) other relevant information that arises during this procurement process;

j) Waive formalities and accept bids which substantially comply with the requirements of this bid solicitation;

k) Verify with any bidder or with a third party any information set out in a bid submission;

l) Disqualify any bidder whose bid submission contains misrepresentations or any other inaccurate or misleading information;

m) Disqualify any bidder who has engaged in conduct prohibited by the bid solicitation;

n) Make changes, including substantial changes, to the bid solicitation provided that those changes are issued by way of addenda in the manner set out in this bid document;

o) Select any bidder other than the bidder whose bid submission reflects the lowest cost to the City;

p) Cancel this procurement process at any stage, for any reason;

q) Cancel this procurement process at any stage and issue a new bid solicitation for the same or similar deliverables;

r) Accept any bid submission in whole or in part;

s) Waive minor non-compliance with the mandatory requirements of the bid solicitation and accept the bid submission; or

t) Accept a bid submission which contains the following errors:

(i) error in mathematics – whether this involves the extension of a unit price or an error in addition, the mistake will be corrected and the correct total will be used for evaluation purposes and will be binding on the bidder.
(ii) conflict between the written and numerical bid prices. In all cases, the total bid price will be corrected to reflect the written bid price, whether lump sum or unit price (where applicable).
(iii) failure to include the contingency allowance in the total bid price (where applicable). If the contingency allowance was not included in the addition, the bid price shall be corrected to reflect its inclusion.

and these reserved rights are in addition to any other express rights or any other rights which may be implied in the circumstances and the City shall not be liable for any expenses, costs, losses or any direct or indirect damages incurred or suffered by any bidder or any third party resulting from the City exercising any of its express or implied rights under this bid solicitation.

By submitting a bid, the bidder authorizes the collection by the City of the information set out at paragraph i) in the manner contemplated in that subparagraph.

Limitation of Liability and Waiver

Each bidder, by submitting a bid, agrees that:

a) Neither the City nor any of its employees, agents, advisors or representatives will be liable, under any circumstances, for any Claim arising out of this procurement process including but not limited to costs of preparation of the bid submission, loss of profits, loss of opportunity or for any other Claim; and

b) The bidder waives any Claim for any compensation of any kind whatsoever, including Claims for cost of preparation of the bid submission, loss of profit or loss of opportunity by reason of the City's decision to not accept the bid submitted by the bidder, to award a Contract to any other bidder or to cancel this procurement process, and the bidder shall be deemed to have agreed to waive such right or Claim.

Validity Period

The bid submission constitutes an offer which shall remain open and irrevocable until 90 days after the submission deadline.

Minor Irregularities

The City of Saint John reserves the right to waive minor non-compliances in accordance with Section 120 of the Province of New Brunswick's Regulation 2014-93 under the Procurement Act.

APPENDIX A – SPECIFICATIONS

TENDER No. 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

SAINT JOHN

Murdock • Boyd
ARCHITECTS

CANADA GAMES AQUATIC CENTRE
NEW WINDOW REPLACEMENT
CITY OF SAINT JOHN

Project No. 23-823

Tender Documents
Specification & Schedules

2023 June

ARCHITECT:

MURDOCK & BOYD ARCHITECTS INC.
50 KING STREET, SUITE 200
SAINT JOHN, N.B.
E2L 1G4

TELEPHONE: (506) 646-9200
FACSIMILE: (506) 646-9201
www.architects.nb.ca

2023.06.20

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 02 – Existing Conditions

Division 06 – Finish Carpentry

Division 07 – Thermal & Moisture Protection

Division 08 – Openings

ARCHITECTURAL

A101	Building & Window Elevation
A102	Window Details
A103	Stairwell Section & Misc. Details
A104	Wall Details

PART 1 - GENERAL

1.1 References

.1 National Building Code of Canada (NBC) 2015 including all amendments up to tender closing date.

.2 New Brunswick Building Code Regulations.

.3 Occupational Health and Safety Act Revised Statutes of New Brunswick.

.4 Construction Safety and Industrial Safety regulations made pursuant to the Occupational Health and Safety Act, S.N.B., 1983.

.5 Fall Protection and Scaffolding Regulations made pursuant to the Occupational Health and Safety Act, S.N.B., 1983.

.6 National Fire Code of Canada.

.7 The provisions of all Sections of Division 1 shall apply to each Section of this Project Manual.

1.2 Reference Standards

.1 Meet or exceed requirements of:
- .1 contract documents,
- .2 specified standards, codes and referenced documents.

.2 Where edition date is not specified, consider that references to manufacturer's and published codes, standards and specifications are made to the latest edition approved by the issuing organization, current at the date of this Specification.

.3 Reference standards and specifications are quoted in this Specification to establish minimum standards.

.4 Should the Contract Documents conflict with specified reference standards or specifications the General Conditions of the Contract shall govern.

.5 Where reference is made to manufacturer's directions, instructions or specifications they shall include full information on storing, handling, preparing, mixing, installing, erecting, applying or other matters concerning the materials pertinent to their use and their relationship to materials with which they are incorporated and written to suit this specific project.

.6 Have a copy of each code, standard and specification, and manufacturer's directions, instructions and specifications, to which reference is made in this Project manual, always available at construction site.

.7 Standards, specifications, associations, and regulatory bodies are generally referred to throughout the Project manual by their abbreviated designations. These are:

AISI - American Iron and Steel Institute
ASTM - American Society for Testing of Materials
AWI - Architectural Woodwork Institute
AWMAC- Architectural Woodwork Manufacturer's Association of Canada
CGSB - Canadian General Standards Board
CISC - Canadian Institute of Steel Construction
CPMA - Canadian Paint Manufacturer's Association
CSA - Canadian Standards Association
IAO - Insurer's Advisory Organization
NBC - National Building Code

1.3 Project Manual

.1 See Section 01 70 00.

1.4 Description of Work

.1 Replace windows and doors as outlined in the drawings.

1.5 Codes

.1 Perform work in accordance with National Building Code of Canada (NBC)and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply. The latest edition of all Codes shall apply upon enactment.

1.6 Documents Required

.1 Maintain at job site, one copy each of following:
.1 Contract drawings.
.2 Specifications.
.3 Addenda.
.4 Reviewed shop drawings.
.5 Change orders.
.6 Other modifications to Contract.
.7 Field test reports.

1.7 Work Schedule

.1 The Work should be substantially performed by October 27, 2023.

.2 **Provide schedule of work included to achieve required schedule and anticipated progress stages to final completion of the work.**

.3 Interim reviews of work progress based on work schedule will be conducted as decided by Consultant and schedule updated by Contractor in conjunction with and to approval of Owner and Consultant.

1.8 Material & Equipment

.1 Products specified by manufacturer's name, brand name or catalogue reference shall be the basis of the bid and shall be supplied for the Work without exception in any detail, subject to allowable substitutions as specified.

.2 Where several proprietary products are specified, any one of the several will be acceptable.

.3 For products specified by reference standards, the onus shall be on the supplier to establish that such products meet reference standard requirements. The Consultant may require affidavits from the supplier, as specified in Article 3 of this Section or inspection and testing at the expense of the supplier, or both, to prove compliance. Products exceeding minimum requirements established by reference standards will be accepted for the Work if such products are compatible with and harmless to Work with which they are incorporated.

1.9 Progressive Cleaning

.1 Maintain the Work in tidy condition, free from accumulation of waste products and debris.

.2 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.3 Remove waste material and debris from the site and deposit in waste container at the end of each working day.

.4 Clean exterior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.10 Cost Breakdown

.1 Before submitting first progress claim submit breakdown of Contract price in detail for approval by Consultant. After approval by Consultant cost breakdown will be used as basis for progress payment.

1.11 Contractor's Use of Site

.1 Use of site limited to the following:
.1 Public access to all commercial and all fire exit doorways, is to be maintained at all times.
.2 Materials may be stored in an area as approved by the Owner.
.3 Parking is not available on site.

.2 Contractor to make arrangements for connections for electricity, if demand exceeds safe use of Owners power, and telephone as required for temporary use during construction. Location to approval of Owner. Maintain all temporary facilities. See also Section 01510 - Temporary Utilities.

.3 Do not unreasonably encumber site with materials or equipment.

.4 Maintain public sidewalks and roads clear of construction materials and debris, as per authorities having jurisdiction.

.5 Move stored products or equipment which interfere with the operations of the Owner.

1.12 Project Meetings

.1 See Section 013110 Project Coordination.

1.13 Submittals

.1 See 01 33 00 Submittals

1.14 Quality Control

.1 The Owner and the Consultant shall have access to the Work at all times.

.2 Give timely notice for review if Work is designated for special tests or particular installation.

1.15 Setting Out of Work

.1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.

.2 Provide devices needed to lay out and construct work.

1.16 Cutting and Patching

.1 Cut and patch as required to make work fit.

.2 Make cuts with clean, true, smooth edges.

.3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work as close as possible, to approval of Consultant.
- .1 Make good materials, and prepare surfaces and refinish all finished surfaces damaged, marred, replaced, or otherwise remedied in the existing building.

1.17 Alterations, Additions or Repairs

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

.2 Provide temporary barriers, warning signs in locations where renovation and alteration work is adjacent to areas used by the public or tenants.

.3 Where security has been reduced by work of Contract, provide temporary means to maintain security.

1.18 Additional Drawings

.1 The Consultant may furnish additional drawings for clarification. These additional drawings have same meaning and intent as if they were included with plans referred to in Contract documents.

1.19 Regulatory Agencies, Safety, Fire Prevention and Protection

.10 Safety Document Submission:
- .1 Prior to commencement of Work and delivery of material on-site, submit to the Consultant, in writing, documentation detailing the methods and procedures to be implemented ensuring adherence to the acts, regulations, codes and policies specified in this paragraph.
- .2 The Safety document submission must include information detailing the methods and procedures to:
  - .1 ensure the health and safety of persons at or near the Work
  - .2 ensure the measures and procedures of the regulatory agencies specified are carried out.
  - .3 To ensure every employee, self-employed person and employer performing Work under this contract complies with the regulatory agencies specified.
- .3 Prior to commencement of Work and delivery of material on-site, submit to the Owner, in writing, documentation that the employees working on this project have met training requirements as legislated by the New Brunswick Occupational Health and Safety Act and its Regulations.

END OF SECTION

PART 1 - GENERAL

1.1 Description of Work

.1 Remove existing windows and entrances and replace with new as indicated in the drawings.

1.2 Sequencing of Work

.1 The exterior wall infills within the locker rooms are required to be completed during summer shut down which is the two weeks of August 21 to September 5

.2 The window shown in detail 5/A101 is in a tenant space. The timing of this window replacement will need to be coordinated with the tenant.

.3 A construction schedule to be approved by a city representative and the consultant prior to the work commencing.

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END OF SECTION

PART 1 - GENERAL

1.1 Cooperation

.1 Individual contractors for the work of each trade shall carry out and complete their work with every reasonable cooperation with the Owners and the Contractors of all other trades working in the building or on the premises.

.2 All trade work must keep pace with the general contract work and any trade causing delays and additional expense shall be responsible for such charges.

1.2 Allocation of Responsibility

.1 Unless otherwise instructed, it shall be the responsibility of the General Contractor to coordinate work of all trades. The responsibility for determining which subcontractor or supplier shall supply labour, material, equipment, services, allowances, protection to complete the work, specified under the various sections, rests solely with the General Contractor.

END OF SECTION

PART 1 - GENERAL

1.1 Requirements Included

.1 Scheduled preconstruction and progress meetings.

1.2 Related Requirements

.1 Project Coordination: Section 01 31 10

1.3 Administrative

.1 Schedule and administer project meetings throughout the progress of the work.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to the Architect and Owner.

.4 Preside at meetings.

.5 Record the minutes. Include significant proceedings and decisions. Identify 'action by' parties.

.6 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, and affected parties not in attendance.

.7 Representatives of contractor, subcontractor and suppliers shall attend these meetings and shall be qualified and authorized to act on behalf of the party each represents.

1.4 Preconstruction Meetings

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Representatives of the Owner, Architect, Contractor, major Subcontractors, field inspectors and supervisors shall be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Agenda to include the following:
- .1 Appointment of official representative of participants in the work.
- .2 Schedule of work, progress scheduling (Section 01 31 10).
- .3 Schedule of submission of shop drawings, samples, colour chips, (Section 01 03 00).
- .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences (Section 01 52 10).
- .5 Delivery schedule of specified equipment (Section 01 31 10).
- .6 Site security (Section 01 52 10).
- .7 Contemplated Change Orders, Change Orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements (CCCA).
- .8 Owner provided products.
- .9 Record Drawings (Section 01 70 00).
- .10 Maintenance Manuals (Section 01 70 00).
- .11 Take over procedures, acceptance, warranties (Section 01 70 00).
- .12 Monthly progress claims, administrative procedures, photographs, holdbacks (CCCA).
- .13 Appointment of inspection and testing agencies or firms (Section 01 45 00).
- .14 Insurances, transcript of policies (CCCA).

1.5 Progress Meetings

.1 During course of work and two weeks prior to project completion, schedule progress meetings bi-weekly.

.2 Contractor, major subcontractors involved in work, Architect, and Owner's representative are to be in attendance.

.3 Notify parties minimum 5 days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within three days of meeting.

.5 Agenda to include the following:
- .1 Review and approval of minutes of previous meeting.
- .2 Review of work progress since previous meeting.
- .3 Field observations, problems, conflicts.
- .4 Problems which impede construction schedule
- .5 Review of off site fabrication delivery schedules.
- .6 Corrective measures and procedures to regain projected schedule.
- .7 Revision to construction schedule.
- .8 Progress, schedule, during succeeding work period.
- .9 Review submittal schedules, expedite as required.
- .10 Maintenance quality standards.
- .11 Pending changes or substitutions.
- .12 Review proposed changes for effect on construction schedule and on completion date.

END OF SECTION

PART 1 - GENERAL

1.1 Requirements Included

.1 Schedule, form content.

.2 Staged/phased construction.

.3 Schedule revisions.

1.2 Schedules Required

.1 Submit the following schedules:
- .1 Construction progress schedule.
- .2 Submit schedule for shop drawings and product data.
- .3 Submittal schedule for samples.
- .4 Product delivery schedule.

1.3 Format

.1 Prepare schedule in the form of a horizontal bar chart.

.2 Provide a separate bar for each trade or operation.

.3 Provide horizontal time scale identifying the first work day of each week.

.4 Format for listings: the chronological order of the start of each item of work.

.5 Identification of listings: by specification subjects.

1.4 Construction Progress Schedule

.1 Include the complete sequence of construction activities.

.2 Include the dates for the commencement and completion of each major elements of construction.

.3 Show projected percentage of completion for each item as if the first day of each month.

.4 Indicate progress of each activity to date of submission of schedule.

.5 Show changes occurring since previous submission of schedule:
- .1 Major changes in scope.
- .2 Activities modified since previous submission.
- .3 Revised projections of progress and completion.
- .4 Other identifiable changes.

.6 Provide a narrative report to define:
- .1 Problem areas, anticipated delays, and the impact on the schedule.
- .2 Corrective action recommended and its effect.
- .3 The effect of changes on schedules of other prime contractors.

1.5 Submittals Schedule

.1 Include schedule for submitting shop drawings, product data, samples.

.2 Indicate dates for submitting, review time, resubmission time, float time, last date for meeting fabrication schedule.

.3 Include dates when delivery will be required for the Owners= furnished products.

.4 Include dates when reviewed submittals will be required from the Architect.

1.6 Staged/Phased Construction

.1 Prepare and submit sub-schedules for each separate stage of work specified in Section 01 32 00.

.2 Provide sub-schedules to define critical portions of prime concern to master schedule.

.3 Describe start and stop times, float time, affected other work.

END OF SECTION

PART 1 - GENERAL

1.1 Requirements Included

.1 Shop drawings and product data.

.2 Samples.

.3 Operating and maintenance manuals.

.4 Record drawings.

.5 Certificates and transcripts.

1.2 Related Requirements

.1 Submission of schedules: Section 01 32 00

.2 Submission of manufacturer's instructions: Section 01 33 00

.3 Submission of contract closeout documents: Section 01 70 00

1.3 Administrative

.1 Submit to Architect submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.

.2 Work affected by the submittals shall not proceed until review is complete.

.3 Review submittals prior to submission to the Architect. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the work and the contract documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected. Submittals not complete as required by each section of the work that are returned stamped “revise and resubmit”, may warrant costs credited against the contract for additional review services by Consultants.

.4 Verify field measurements and affected adjacent work are coordinated, prior to making submission.

.5 Contractor's responsibility for errors and omissions in submission is not relieved by Architect's review of submittals.

.6 Contractor's responsibility for deviations in submission from requirements of contract documents is not relieved by Architect's review.

.7 Keep one reviewed copy of each submission on site.

1.4 Shop Drawings and Product Data

.1 The term shop drawings means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the contractor to illustrate details of a portion of the work. Provide information in the same measure as drawings and specifications.

.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 Architect are not intended to change the contract price. If adjustments affect the value of work, state such in writing to the Architect prior to proceeding with the work.

.4 Make changes in shop drawings as the Architect may require, consistent with contract documents. When resubmitting, notify the Architect in writing of any revisions other than those requested.

.5 Submit one transparency and six (6) prints of shop drawings for each requirement requested in specification sections and as the Architect may reasonably require.

.6 Submit six (6) copies of product data sheets or brochures for requirements requested in specification sections and as the Architect may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

.7 If upon review by the Architect, no error or omissions are discovered or if only minor corrections are made, the transparency will be returned and fabrication and installation of work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation work may proceed.

1.5 Samples

.1 Submit for review samples in duplicate as requested in respective specification sections. Label samples as to origin and intended use in the work.

.2 Deliver samples prepaid to Architect's business address.

.3 Notify the Architect in writing, at the time of submission of deviations in samples from requirements of contract documents.

.4 Adjustments made on samples by the Architect are not intended to change the contract price. If adjustments affect the value of work, state such in writing to the Architect prior to proceeding with the work.

.5 Make changes in samples which the Architect may require, consistent with contract documents.

1.6 Operation and Maintenance Manuals

.1 Two weeks prior to substantial performance of the work, submit to the Architect, 1 hard copy of operation and maintenance manuals and one electronic copy.

.2 Manuals to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Instructions in this manual shall be in simple language so as to guide the Owner in the proper operation and maintenance of building components.

.3 Bind contents in a three ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specification sections.

.4 In addition to information specified, include the following:
- .1 Title sheet, labelled "Operation and Maintenance Instructions", containing project name and date.
- .2 List of names, addresses and phone numbers of subcontractors and suppliers who can effect repair or maintenance on equipment.
- .3 List of contents.
- .4 Final shop drawings and product data of equipment.
- .5 Record drawings of mechanical and electrical installation.
- .6 Full description of building systems and operation.

1.7 Record Drawings

.1 Architect will provide two (2) sets of white prints for record drawing purposes.

.2 Maintain project record drawings and record accurately significant deviations from contract documents caused by site conditions and changes ordered by Architect.

.3 Mark changes in red.

.4 The intent is to amend the contract documents where changes have occurred to produce a record set of "As-Builts" documents. Record any and all changes that have been constructed significantly differently from that indicated on all contract documents. Record information such as:
- .1 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
- .2 Field changes of dimension and detail.
- .3 Changes made by Change Order or Field Order.

.5 At completion of project and prior to interim inspection, neatly transfer notations to one clean set of prints. Each drawing shall be marked "As-Built", stamped, dated and signed by Contractor. Architect's stamps shall not appear. Deliver this clean, fully annotated set of prints to Architect for review and transmission to Owner at Interim Inspection.

.6 Should the Owner, at his own expense, have reproducible copies prepared with all changes recorded on them, the Owner requires the Contractor to sign, stamp and date the reproducible set.

1.8 Certificates and Transcripts

.1 Immediately after award of contract, submit Workers' Compensation Board status, transcription of insurances and specified bonding.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Instructions to Bidders: Section 00010.

1.2 References

.1 New Brunswick Occupational Health and Safety Act (1983).

.2 Canadian Hazardous Products Act.

1.3 Submittals

.1 Make submittals in accordance with Section 01 33 00 - Submittals.

.2 When requested by the Architect/Engineer, provide copies of the following:
.1 Site-specific hazard assessment.
.2 Contractor's safety policy.

.3 Provide name of person designated as Health and Safety Supervisor.

.4 Provide copies of accident and incident reports.

.5 Submit valid copy of Contractor's WHSCC coverage prior to commencement of Work.

.6 Submit copies of reports or directions issued by Federal, Provincial and Municipal health and safety inspectors.

.7 Provide Material Safety Data Sheets (MSDS) for controlled products specified by the regulations made under the Hazardous Materials Act.

1.4 Compliance Requirements

.1 Comply with NB Occupational Health and Safety (OHS) Act and its Regulations.

1.5 Authority Having Jurisdiction

.1 The OHS Act is enforced by the Workplace Health, Safety and Compensation Commission (WHSCC) of New Brunswick.

1.6 Safety Requirements

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial and local statutes, regulations, and ordinances.

1.7 Environmental Requirements

.1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous materials, and regarding the labelling and provision of MSDS data sheets.

1.8 Health and Safety Supervisor

.1 Designate an employee who, in addition to their regular duties, will act as Health and Safety Supervisor, and be;
.1 Responsible for implementing, enforcing and monitoring health and safety provisions.

1.9 Posting of Documents

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of New Brunswick.

1.10 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by WHSCC, Architect/Engineer, Federal, Provincial and Municipal health and safety inspectors.

.2 Provide Architect/Engineer with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Architect/Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

1.11 Powder Actuated Devices

.1 Use powder actuated devices only after receipt of written permission from Architect/Engineer.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 Requirements Included

.1 Inspection and testing, administrative and enforcement requirements.

1.2 Related Requirements

.1 Submission of samples to confirm product quality: Section 01 33 00

.2 Material and workmanship quality, reference standards: Section 01 60 10

1.3 Inspection

.1 The Architect shall have access to the work. If parts of the work are in preparation at locations other than the place of the work, access shall be given to such work whenever it is in progress.

.2 Give timely notice requesting inspection if work is designated for special tests, inspections or approvals by Architect instructions, or the law of the place of the work.

.3 If the contractor covers or permits to be covered work that has been designated for special tests, inspections or approvals before such is made, uncover such work, have the inspections or tests satisfactorily completed and make good such work.

.4 The Architect may order any part of the work to be examined if such work is suspected to be not in accordance with the contract documents. If, upon examination such work is found not in accordance with the contract documents, the Owner will pay the cost of examination and replacement.

1.4 Access to Work

.1 Allow inspection/testing agencies access to the work, offsite manufacturing and fabrication plants.

.2 Cooperate to provide reasonable facilities for such access.

1.5 Procedures

.1 Notify appropriate agency and Architect in advance of the requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the work.

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

1.6 Rejected Work

.1 Remove defective work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the work or not, which has been rejected by the Architect as failing to conform to the contract documents. Replace or re-execute in accordance with the contract documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in the opinion of the Architect it is not expedient to correct defective work or work not performed in accordance with the contract documents, the Owner may deduct from the contract price the difference in value between the work performed and that called for by the contract documents, the amount of which shall be determined by the Architect.

1.8 Reports

.1 Submit 2 copies of inspection and testing reports promptly to the Architect.

.2 Provide copies to subcontractor or work being inspected/tested.

1.9 Mock-up

.1 Prepare mock-up for work specifically requested in the specifications. Include for work of all sections required to provide mock-ups.

.2 Construct in all locations as specified in specific section.

.3 Prepare mock-up for Consultant review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the work.

.4 Failure to prepare mock-up in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.

.5 If requested, the Consultant will assist in preparing a schedule fixing the dates for preparation.

1.10 Mill Tests

.1 Submit mill test certificates as required of the specification sections.

END OF SECTION

PART 1 - GENERAL

1.1 General Description

.1 Work Included:
- .1 Provide all temporary facilities and controls as required for the work including but not limited to: security, temporary barriers, temporary access, temporary safety measures, construction aids, temporary controls.

.2 Related Work Specified Elsewhere:
- .1 Ladders, planks, stagings, hoists and similar items normally furnished by the individual trades for their work (except such items shall comply with pertinent safety regulations specified herein).

1.2 Temporary Utilities

.1 Temporary Sanitary Facilities:
- .1 Provide temporary, clean and suitable sanitary facilities.

1.4 Security

.1 Generally:
- .1 During the entire construction period, comply with the requirements of the conditions specified under this Section for Security, Safety and Fire regulations as well as the requirements pertaining thereto, specified throughout the contract documents.
- .2 Whenever a conflict occurs between the requirements of this Section and the remainder of the Contract Documents, the more stringent requirements or regulation shall govern.
- .3 The Owner’s "Non-Smoking" regulations shall be adhered to by the contractor and his personnel (ie: No Smoking in Building).

.2 Safety Hats:
- .1 Do not allow workmen or visitors on the site without wearing a safety hat, safety eye protection or proper footwear. Maintain on the site a minimum of three (3) approved, clean safety hats and eye protection for the use of visitors.

.3 Fire Extinguishers:
- .1 Furnish and maintain temporary fire extinguishers during the work as required for adequate fire safety and to meet applicable codes and regulations.

.4 Storage and Rubbish Removal:
- .1 Remove rubbish daily from the premises between the hours of 17:00 and 07:30 the following day.
- .2 Remove immediately flammable materials used in packing, empty paint containers and other flammable material.
- .3 Do not store paints, varnishes and volatile oils in or adjacent to the building.

.5 Overloading:
- .1 Do not overload the structure, furnish and install temporary shoring as required.

.6 Welding Watch:
- .1 Notify the Owner and pay all costs for the Owner to provide a "welding watch" during all welding operations.

1.5 Barriers/Safety Measures

.1 Furnish and maintain temporary legal fencing, hoardings, sheeting, shoring, barricades, lights and warning signs as required for safety during the work.

.2 Comply with the requirements of the N.B. Industrial Safety Code, the NBC and all local bylaws and regulations.

.3 Provide temporary railings, and shaft protection to protect openings through slabs.

1.6 Construction Aids

.1 Furnish and maintain temporary scaffolding, hoists, stairs, ladders, runways, derricks, chutes, etc. as required for the proper and safe execution of the work.

.2 Comply with the N.B. Industrial Safety Code, the NBC and all local bylaws and regulations for all such apparatus and equipment.

1.7 Access and Parking

.1 Parking Areas: Parking restricted to area of work. Laydown Area and additional parking will be reviewed by a city representative.

END OF SECTION

PART 1 - GENERAL

1.1 Work Included

.1 Reference standards.

.2 Product quality, availability, storage, handling, protection, transportation.

.3 Manufacturer's instructions.

.4 Workmanship, coordination and fastenings.

.5 Existing facilities.

.6 Whenever products are named in the specification, only products named in the specification or in issued addenda will be acceptable for use on this project.

1.2 Related Sections

.1 Quality Control: Section 01 45 00

1.3 Reference Standards

.1 Within the text of the specifications, reference may be made to the following standards:

ANSI	- American National Standards Institute
ASTM	- American Society of Testing & Materials
CGSB	- Canadian General Standards Board
CLA	- Canadian Lumberman's Association
CSA	- Canadian Standards Association
NAAMM	- National Association of Architectural Metal Manufacturers
NBC	- National Building Code
ULC	- Underwriters' Laboratories of Canada

.2 Conform to these standards, in whole or in part as specifically requested in the specifications.

.3 If there are questions as to whether any product or system is in conformance with applicable standards, the Architect reserves the right to have such products or systems tested to prove or disprove conformance.

.4 The cost for such testing will be borne by the Owner in the event of conformance with Contract Documents or by the Contractor in the event of non-conformance.

.5 Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date or issue is specifically noted.

1.4 Quality

.1 Products, materials, equipment and articles (referred to as products throughout the Specification) incorporated in the work shall be new, not damaged or defective, and of the best quality (compatible with specification) for the purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to the completion of work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should any dispute arise as to the quality or fitness of products, the decision rests with the Architect based upon the requirements of the Contract Documents.

.4 Unless otherwise indicated in the Specification, maintain uniformity of manufacture for any particular or like item throughout the Contract.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.5 Availability

.1 Immediately upon signing contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify the Architect of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of work.

.2 In the event of failure to notify the Architect at commencement of work and should it subsequently appear that work may be delayed for such reason, the Architect reserves the right to substitute more readily available products of similar character, at no increase in contract price.

1.6 Storage, Handling and Protection

.1 Handle and store products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in the work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store sheet materials, lumber and other weather sensitive materials on flat, solid supports and keep clear of ground. Slope to shed moisture.

.5 Remove and replace damaged products at own expense and to the satisfaction of the Architect.

1.7 Transportation

.1 Pay costs of transportation of products required in the performance of work.

.2 Transportation cost of products supplied by the Owner will be paid for by the Owner. Unload, handle and store such products.

1.8 Manufacturer’s Instructions

.1 Unless otherwise indicated in the Specification, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify the Architect, in writing, of conflicts between the specification and manufacturer's instructions, so that the Architect may establish the course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Architect to require removal and reinstallation at no increase in Contract Price.

1.9 Workmanship

.1 Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Architect if required work is such as to make it impractical

to produce required results.

.2 Do not employ any unfit person or anyone unskilled in their required duties. The Architect reserves the right to require the dismissal from the site, workers deemed incompetent, careless, insubordinate or otherwise objectionable.

.3 Decisions as to the quality or fitness of workmanship in cases of dispute rest with the Architect, whose decision is final.

1.10 Coordination

.1 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 Remedial Work

.1 Perform all cutting and remedial work required to make all parts of this work come together.

.2 Should work performed outside this contract necessitate cutting and/or remedial work to this work, the cost of such work will be the subject of a Change Order issued by the Architect.

.3 Perform cutting and remedial work using specialists familiar with the materials affected. Perform in a manner neither to damage nor to endanger any portion of work and carry out no cutting or remedial work to the work of other trades.

1.12 Fastenings

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use noncorrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in the affected specification Section.

.4 Space anchors within their load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 Protection or Work in Progress

.1 Adequately protect work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Architect, at no increase in contract price.

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

END OF SECTION

PART 1 - GENERAL

1.1 Requirements Included

.1 Final cleaning.

.2 Systems demonstration.

.3 Document submission.

.4 Project commissioning.

.5 Inspection and takeover procedures.

1.2 Related Requirements

.1 Submission of record drawings: Section 01 33 00

.2 Operating/Maintenance Manuals: Section 01 33 00

.3 Progressive site cleaning: Section 01 45 00

.4 General Conditions of the Contract: Fiscal provisions, legal submittals, and other administrative requirements.

1.3 Final Cleaning

.1 When the work is substantially performed, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining work.

.2 Remove waste products and debris other than that caused by the Owner, other contractors or their employees, and leave the work clean and suitable for occupancy by the Owner.

.3 When the work is totally performed, remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner.

.4 Remove waste materials and debris from the site at regularly scheduled times or dispose of as directed by the Architect. Do not burn waste materials on site.

.5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.6 Leave the work broom clean before the inspection process commences.

.7 Clean and polish glass.Replace broken, scratched or disfigured glass.

.8 Remove stains, spots, marks and dirt from, walls, and floors.

.9 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.10 Clean floor finishes, as recommended by the manufacturer, no waxing.

.11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

1.4 Documents

.1 Collect reviewed submittals (Section 01 33 00) and assemble documents executed by subcontractors, suppliers and manufacturers.

.2 Submit material prior to final application for payment. For equipment put into use with Owner's permission during construction, submit within 10 days after start up. For items of work delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

.3 Provide warranties and bonds fully executed and notarized.

.4 Execute transition of Performance and Labour and Materials Payment Bond to warranty period requirements.

.5 Submit a final statement of accounting giving total adjusted contract sum, previous payments, and monies remaining due.

.6 Architect will issue a final change order reflecting approved adjustments to contract sum not previously made.

1.5 Project Commissioning

.1 Expedite and complete deficiencies and defects identified by the Architect.

.2 Review maintenance manual contents (operating, maintenance instructions, record "as-built" drawings, spare parts, materials) for completeness.

.3 Review change orders, holdbacks and other contract price adjustments.

.4 Submit required documentation such as Statutory Declarations, Workers' Compensation Certificates, Warranties, Certificates of Approval or acceptance from regulating bodies.

.5 Review inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.

.7 Meet with Architect, to coordinate completion, testing approvals.

.8 Arrange and coordinate instruction of Owner’s staff in care, maintenance and finishes by suppliers or subcontractors.

.9 When partial occupancy of uncompleted project is required by the Owner, coordinate Owner’s uses, requirements, access, with contractor's requirements to complete project.

.10 Provide ongoing review, inspection and attendance to building call back, maintenance and repair problems during the warranty periods.

1.6 Inspection/Takeover Procedures

.1 If the project has been completed in accordance with the terms of the Contract and there are no outstanding deficiencies, a Final Inspection shall be held and a Final Certificate of Performance shall be issued to the Owner by the Architect.

.2 When the work is substantially complete but there are still outstanding deficiencies, the Owner may accept the building on the basis of a Certificate of Substantial Performance.

.3 Where the work is taken over on an Certificate of Substantial Performance, the following shall take place:

.1 When the Architect determines that the work is close to substantial completion, a review is carried out by the Contractor to list deficiencies to be repaired or reinstated prior to arranging a Review to determine Substantial Performance. At this inspection, the Contractor shall submit to the Architect "As-Built" record drawings for review and presentation to the Owner at Review for Substantial Performance.

.2 A date for the Substantial Performance Review shall be agreed upon to permit the Owner to check the work and to add deficiencies which may have been overlooked in previous reviews.

.3 Change Orders, which are part of the Contract, must be completed by this date. Any outstanding Change Orders shall be processed at this time.

.4 When the Contractor has completed the items reviewed from the first inspection and considers the work substantially completed, the Contractor shall in consultation with the Architect, establish a mutually agreed date and time for the Review for Substantial Performance.

.5 Ten days prior to the Review for Substantial Performance, the Contractor will notify, in writing, the following: Architect, Owner, Sub-Contractors to the project, that the contract is complete and ready for the Review for Substantial Performance. These parties, or their representative, must be present at this review.

.6 During the review, the Architect will prepare a deficiency list.

.7 Immediately after the review the Architect, Owner's representatives and the Contractor will determine the amount of money to be held back against repair or restitution of these deficiencies. A completion date shall also be established.

.8 If there are too many deficiencies, as determined by the Architect, the Owner's representative may reject this review and request a second review at a later date. The cost associated with arranging for a second review will be borne by the Contractor.

.9 Following the review, the Architect shall forward to the Owner confirmation of the inspection, a copy of the Certificate of Substantial Performance with list of deficiencies showing the amount of money held back for each deficiency. Copies shall be sent to the Contractor and Owner.

.10 After listed deficiencies are reported as repaired or reinstated, the Architect, Contractor and the Owner shall carry out a further review to confirm total completion. A Final Certificate of Completion will then be issued to the Owner.

.4 One year following the award of Substantial Performance, a review will be held to confirm the repair or restitution of deficiencies and defects and performance of warrantied items or systems. The Architect will advise the Owner by letter, thirty days in advance of year end, of the time and date for the review. On completion of this review the Architect will report his findings to the Owner with copies to the Contractor.

END OF SECTION

PART 1 - GENERAL

1.1 Submittals

.1 Provide duplicate notarized copies of warranties called for in the applicable specifications Sections.

.2 Refer to individual sections of the specifications for specific requirements of the warranties.

.3 Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

.4 Provide a Table of Contents and assemble for inclusion in the Operation and Maintenance Manual specified in Section 01 70 00.

.5 Submit warranties immediately after the issuance of the Certificate of Substantial Performance, to facilitate release of holdback monies.

.6 For items of work delayed beyond the date of Substantial Performance, provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.

.7 If the validity of an extended warranty is related to proper maintenance and servicing of equipment, etc., provide full details in maintenance manuals.

1.2 Maintenance Service

1. Furnish service and maintenance of components indicated in specification sections for the specified time period commencing on the date of Substantial Performance.

2. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

3. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

4. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without the Owner's prior written consent.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Removal of existing construction to permit the construction of the new work. Extent of removals shall encompass everything required to facilitate the creation/construction of what is indicated and intended, as the new work.

.2 Perform all removal of existing materials and assemblies and make good as indicated on the drawings and specified herein. Making good means restoration to the extent that the new work will be complete and finished in all respects.

.4 Demolition notes on the drawings are provided to assist in establishing items to be removed to ensure the new work fits. The new work governs and demolition drawing notes and specifications are to be read in conjunction with the new work requirements.

1.2 Related Sections

.1 Division 1: All Sections

1.3 Codes and Standards

.1 Carry out demolition work in accordance with Canadian Construction Safety Code (latest edition), provincial and local codes, regulations and requirements of insurance carriers providing coverage for this work.

.2 Comply with CSA S350-M1980 Code of Practice for Safety in Demolition of Structures.

.3 Do welding in accordance with CSA W59-1984 unless specified otherwise.

1.4 Protection

.1 Prevent movement, settlement or damage of adjacent construction. Make good damage and be liable for damage or injury caused by demolition.

.2 Provide necessary shoring to protect construction adequately during the demolition process.

.3 Take precautions to support structures and if safety of new or existing construction appears to be endangered, cease operations and notify Architect.

.4 Provide protection from falling debris. Prevent debris from blocking services, exits, etc.

.5 Provide protection to interior finishes.

.6 Provide dust/noise and security protection. Refer to Division 1 requirements.

.7 Protect existing items designated to remain, to be reinstalled and as noted for salvage.

1.5 Recording of Existing Conditions

.1 Prior to demolition, take photographs and make notes to indicate existing conditions, to become familiar with the scope of demolition work.

.2 Obtain signature of Owner’s Representative on notes and photographs and submit two sets of copies to Architect/Engineer.

1.6 Restrictions on Dust, Noise

.1 Comply with requirements of Division 1 to enable continuous occupancy of the facility.

1.7 On-Site Storage of Removal Items

.1 Store, where directed by Owner, items designated for re-use in the renovation work or for use by the Owner otherwise.

1.8 Fees

.1 Pay all required fees, including dumping fees. Store, where directed by Owner, items designated for re-use in the renovation work or for use by the Owner otherwise.

PART 2 - PRODUCTS

2.1 Materials

.1 Unless otherwise specifically approved, use only new, solid lumber, utility grade or better, to construct temporary barricades.

.2 Materials for Falsework: to CSA S269.1-1975.

.3 Materials for Scaffolding: to CSA S269.2-M1987.

.4 Welding Materials: to CSA W59-1984.

PART 3 - EXECUTION

3.1 Preparation

.1 Prior to beginning work, inspect all areas of the work and identify objects designated to be turned over to the Owner or to be re-used in renovation work.

.2 Locate services which may be affected by demolition work and provide required protection. Disconnect services as required by the work using qualified tradesman.

.3 Cooperate with the Owner, provide for continuous access to the pool level to other levels in the building as specified under Division 1.

.4 Comply with Dept. of Health regulations.

3.2 Demolition Work

.1 Demolish and/or remove parts, assemblies and items of existing building as indicated and required, to permit and accommodate the construction and renovation work, and to complete the work of this Contract.

.2 Remove and protect those items identified for reinstallation in the finished assembly or to be handed to the Owner for use otherwise.

.3 Provide containers for the collection of demolished materials which will be discarded.

.4 Remove existing equipment, finished construction, services and obstacles where required for refinishing or making good of existing surfaces to remain exposed and replace as work progresses.

.5 At end of each day's work, leave work in safe condition so that no part or material is in danger of falling or of causing other hazard. Protect interiors from external elements at all times.

.6 Demolish to minimize dusting. Provide dust barrier partitions, the purpose of which is to not permit the passage of any dust.

.7 Carefully remove and lower heavy objects.

.8 Do not disturb adjacent items and surfaces designated to remain in place, unless required to complete new work.

3.3 Disposal

.1 Selling or burning of materials on site is not permitted.

.2 Dispose of all demolished materials not designated for salvage or re-use in the work, off of property. Comply with authorities having jurisdiction.

.3 Remove all debris from site; leave site in a neat, orderly condition. Tarp all containers.

.4 Turn items over to the Owner where indicated at site. Comply with Architect/Engineers direction.

.5 Remove items from building in designated area only or as directed by Architect/Engineer. Provide disposal chutes and dumpsters with suitable tarp coverings only where indicated and/or where approved by Architect/Engineer.

3.4 Miscellaneous Removals and Re-Installation

.1 Remove all miscellaneous items noted and as required to carry out the work of this and other sections. Take precautions to prevent damage to items being re-installed. Remove fastenings. Patch fastener holes prior to the installation of new finishes.

.2 Coordinate with Section 09 91 00 for repainting prior to reinstallation where necessary.

.3 Provide required fastenings. Reinstall unless noted otherwise. Use existing fastener holes where practicable. Drill new holes where required; do not use impact type tools. Reinstall items square, plumb and aligned true to building lines.

.4 Where noted or specified, turn items over to other trades for reinstallation.

3.5 Removal of Existing Interior Finishes

.1 Remove existing finishes to extent indicated, and as required by the work. Patch surfaces which will be exposed in finished work and make good.

3.6 Restoration

.1 Mechanical and electrical disconnection's, removal and reinstallation shall be carried out by their respective trades to the requirements of this Section.

3.7 General Patching and Making Good

.1 Carry out patching and making good of assemblies and finish surfaces to remain in the completed work. Include all openings and damage caused by demolition work of all trades.

.2 Blend patching with existing surfaces. Patching shall be better quality workmanship than adjacent surfaces being blended to.

.3 Patch and restore openings and damage to finish surfaces which will remain exposed in the completed work.

3.8 Reinstallation of Removed Items

.1 Reinstall existing items as indicated except where specified to be reinstalled under other sections.

.2 Protect items for reinstallation. Restore finish where damaged. Re-adjust operating parts for correct operation. Modify as required to suit new work.

END OF SECTION

PART 1 - GENERAL

1.1 Work Included

.1 The work of this Section includes the provision of all labour, materials, equipment and services required to install finish carpentry work, as indicated on the drawings, as specified herein and as required for a complete project.

1.2 Related Work

.1 Section 08 51 13 - Aluminum Windows

.2 Section 08 63 16 – Glazed Aluminum Skylights

1.3 Reference Standards

.1 CSA-B111-M1974, Wire Nails, Spikes and Staples.

.2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CAN/CSA-O80-Series M89, Wood Preservation.

.4 CSA-0115-M1982, Hardwood and Decorative Plywood.

.5 CSA-O121-M1978, Douglas Fir Plywood.

.6 CAN/CSA-O141-91, Softwood Lumber.

.7 CSA-O151-M1978, Canadian Softwood Plywood.

.8 NLGA Standard Grading Rules for Canadian Lumber, 1993 edition.

.9 Quality Standards of the Architectural Woodwork Manufacturer's Association of Canada (AWMAC) 1998.

1.4 Product Delivery, Storage and Handling

.1 Protect materials against dampness during and after delivery.

.2 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

1.5 Samples

.1 Submit samples in accordance with Section 01 33 00.

.2 Submit duplicate samples: sample size 12” (300mm) long unless specified otherwise.

PART 2 - PRODUCTS

2.1 Materials

.1 Softwood lumber: White Pine or Western Hemlock species: AWMAC Custom grade 7% moisture content.

.2 Solid Surface Material:
- .1 Acceptable product by Corian or approved equal.
- .2 Thickness as indicated on drawings.

.3 Plywood:
- .1 Softwood: Douglas Fir Plywood CSA 0121-M1978, G1S or G2S sanded grade, as applicable.
- .2 Hardwood: Birch face veneer to CSA 0115 M82
- .3 MDO Plywood: CSA 0121-M1978, GIS sanded grade for painted exterior finish.

.4 Nails and staples: CSA B111-1974, hot dipped galvanized for exterior work, and areas subject to high humidity, plain finish elsewhere.

.5 Wood screws: to CSA B35.4, electroplated, type and size to suit application.

.6 Sealant: refer to Section 07 92 00.

PART 3 - EXECUTION

3.1 Installation: General

.1 Examine the drawings and execute all finish carpentry work required for a complete project.

.2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.

.3 Form joints to conceal shrinkage.

3.2 Construction

.1 Fastening:
- .1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.
- .2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
- .3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round cleanly cut hole and plug with wood plug to match material being secured.
- .4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

.2 Window, Sills and Aprons:
- .1 On all new aluminum windows, provide new, sills and aprons.
- .2 Fit backs of casing snugly to wall surfaces to eliminate cracks at junction of trim and casing with walls.
- .3 Make joints in trim and casing, where necessary using a 45 degree scarf type joint.
- .4 Install window trim in single lengths without splicing.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Preformed metal siding for walls and soffits; including miscellaneous support framing and furring.

.2 Brake-formed flashings and trim as required for complete system.

.3 Back up substrate wall system as detailed in the drawings.

1.2 Related Work

.1 Section 02 06 00 – Selective Demolition.

1.3 References

.1 ASTM A167 - Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A606 - Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.

.3 ASTM A653/A653M - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.4 ASTM A755/A755M - Steel Sheet, Metallic Coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.

.5 ASTM A792/A792M - Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process.

.6 ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

1.4 System Description

.1 System: Preformed and prefinished metal siding system of specified profile, complete with support framing, channels, insulation, air/vapor barrier, exterior sheathing, metal stud framing and interior painted gypsum board finish.

1.5 Design Requirements

.1 Components: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall.

.2 Movement: Accommodate movement within system without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.

.3 Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.

1.6 Submittals for Review

.1 Sections 01 33 00: Submission procedures.

.2 Shop Drawings: Indicate dimensions, layout, joints, construction details, methods of anchorage, horizontal and vertical flashing reveals and other details at intersections with dissimilar building materials, drips, caps, enclosures and terminations.

.3 Manufacturer's installation guidelines and material data sheets.

1.7 Delivery, Storage and Protection

.1 Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

.2 Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

.3 Prevent contact with materials which may cause discolouration or staining.

PART 2 - PRODUCTS

2.1 Sheet Materials

.1 Pre-painted Galvanized Steel Sheet: ASTM A653/A653M, Coating Designation G90 (Z275); shop precoated. Minimum 20% post-consumer and 5% pre-consumer recycled content.

.2 Cladding Profile: 0.76 mm (24 gauge) base steel thickness, pre-painted galvanized steel sheet;

.3 Type 1 - Acceptable Profile: Agway 7/8" Corrugated, Roll Form Group Standard Corrugated, Vicwest 2-2/3" x 7/8" Corrugated, Ideal Roofing Corrugated 7/8" or approved equal.

.1 Finish and Colour: Vicwest's Weather X equivalent to specified Baycoat colour must be supplied in specified sheet gauge or thicker:

.1 MS-1: Black 56068.

2.2 Components

.1 Supports: Framing, hat channels, Z-girts; 18 gauge galvanized steel, sizes and profiles indicated. Framing for soffits panels by Section 05 41 00. Minimum 20% post-consumer and 25% pre-consumer recycled content.

.2 Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitred to required angles. Mitred internal corners to be back braced with precoated sheet stock to maintain continuity of profile.

.3 Trim, Closure Pieces, Caps, Flashings, Fascias, Infills, Metal Reglet and Counter Flashing: Same material, thickness and finish as exterior sheets; brake formed to required profiles. Trim colours to match adjacent metal siding. Five colours required for trims.

.4 AVB & Transition Flashing

.1 AVB Membrane: Self-adhering, SBS-modified membrane, minimum 1.0 mm thickness:

.1 Use regular or low-temperature formulation depending on site conditions, within temperature ranges specified by membrane manufacturer.

.2 Provide related accessories including primer, and sealant recommended by manufacturer.
.3 Select primer based on environmental and substrate conditions at the time of installation.
.4 Acceptable Products: Bakor Blueskin SA, Grace Perm-A-Barrier, IKO AquaBarrier AVB, Meadows Air-Shield, Sopraseal Stick 1100T or approved equal.

2.1 Rigid Insulation

.1 Type 4 Rigid Extruded Polystyrene Insulation (XPS): to CAN/ULC-S701, Type 4, ship lapped edge for single layer applications, CFC free and HCFC free:

.1 Recycled Content: Minimum 20%
.2 Compressive Strength: General use 210 kPa (30 psi) and high density 415 kPa (60 psi) where indicated.
.3 Thickness: as indicated on Drawings.
.4 Low-emitting Material Testing: Required 3rd party testing as per CDPHv1.2-2017
.5 Acceptable Product:
.1 General Use: Owens Corning Foamular C-300, DOW Styrofoam SM, Soprema SOPRA-XPS 30, or approved equal.

.6 Exterior Sheathing

.1 Water-Resistant Exterior Glass Mat Gypsum Sheathing: to ASTM C1177M:
.1 Thickness and Size: 16 mm minimum, maximum available length in place; ends square cut, edges square.
.2 Acceptable Products: CGC Securock, GP DensGlass Gold, Cabot Gypsum Blueglass, CertainTeed GlasRoc, or approved equal.

.7 Metal Stud framing

.1 18-gauge studs as per ASTM C645 and GA-216.
.2 Sizes as indicated on drawings.

.8 Painted Gypsum board interior finishes.

.1 16mm moisture resistant gypsum
.2 Crackfilled to ASTM C1396
.3 One coat of primer and two top coats of high quality paint.

2.3 Accessories

.2 Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant; colour as selected.

.3 Closures: Foam and metal closures to suit profiles indicated, to provide complete weathertight barrier.

.4 Sealants: Silicone type; refer to Section 07 92 00, colours to match adjacent siding panels.

.5 Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized; fastener cap same colour as exterior panel. Exposed fasteners same finish as panel system.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that building framing members are ready to receive panel system.

3.2 Installation

.1 Install metal siding system on walls in accordance with manufacturer's written instructions.

.2 Provide all flashings, custom brake-formed shapes, trims and accessories for a complete system.

.3 Install metal siding vertical.

.4 Install substrate wall as per industry standards.

3.3 Cleaning

.1 Remove site cuttings from finish surfaces.

.2 Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Preparing substrate surfaces.

.2 Sealant and joint backing.

1.2 Related Work

.1 Section 08 80 10 – Glazing Replacement.

1.3 References

.1 American Society for Testing and Materials (ASTM).

.1 ASTM C834-00e1, Standard Specification for Latex Sealants.
.2 ASTM C919-02, Standard Practice for Use of Sealants in Acoustical Applications.
.3 ASTM C920-02, Standard Specification for Elastomeric Joint Sealants.
.4 ASTM D2369-04, Standard Test Method for Volatile Content of Coatings.
.5 ASTM D5893-96, Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

1.4 Submittals for Review

.1 Submit in accordance with Sections 01 33 00.

.2 Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and colour availability.

.3 Samples: Submit two sample ribbons of sealant, illustrating sealant colours for selection.

.4 Submit laboratory tests or data validating product compliance with performance criteria specified. Include SWRI validation certificate where required.

.5 Closeout Submittals: Sealant applicator to submit copies of the Manufacturer's Warranty.

1.5 Submittals for Information

.1 Submit in accordance with Sections 01 33 00.

.2 Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention, and field quality control testing.

1.6 Quality Assurance

.1 Installer Qualifications: Qualified to perform work specified by reason of experience or training provided by product manufacturer. Submit reference list including minimum three projects of similar size and scope.

.2 Adhesion Pull Tests: the number of adhesion pull tests to be determined by manufacturers weatherseal warranty. Adhesion pull tests to be conducted by or in the presence of manufacturer’s representative. Manufacturer to supply Consultant with results of adhesion pull tests. Sealant installer responsible for repairing areas where adhesion pull tests are conducted, without change to the Contract price.

.3 Manufacturer's Representative: Coordinate with manufacturer's representative to provide access to completed work areas until adhesion pull tests can be completed.

1.7 Delivery, Storage and Handling

.1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

.2 Store products in a location protected from freezing, damage, construction activity, precipitation, and direct sunlight in strict accordance with manufacturer's recommendations.

.3 Condition products to approximately 16 to 21°C for use in accordance with manufacturer's recommendations.

1.8 Environmental and Safety Requirements

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.

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

1.9 Warranty

.1 Provide manufacturer's twenty (20) year material warranty for installed silicone sealant.

PART 2 - PRODUCTS

2.1 Sealant Materials

.1 VOC Limit - Typical for all sealants: < 250 g/l (2.08 lb/gal) when tested in accordance with USEPA Method 24 and ASTM D2369.

.2 Acoustical sealant: to ASTM C919, single component, non-hardening, non-skinning, synthetic rubber. Acceptable products: Tremco Acoustical Sealant, Pecora BA-98.

.3 Acrylic latex: to ASTM C 834, single component general purpose siliconized acrylic latex sealant. Acceptable product: BASF Sonnolastic Sonolac, GE L100, Tremco Tremflex 834, Pecora AC-20 + silicone.

.4 Silicone, one part: to ASTM C 920, Type S, Grade NS, Class 25, single component neutral cure silicone sealant, plus minus 50% joint movement capability. Acceptable product: Dow Corning 795, Tremco Spectrum 2, BASF Omniseal 50, Pecora 895NST.

.5 Silicone, mildew resistant: to ASTM C 920, single component mildew resistant silicone sealant, +/- 25% movement capability. Acceptable product: Tremco Tremsil 200, Dow Corning 786, BASF Omniplus.

2.2 Accessories

.1 Primer: Type recommended by the sealant manufacturer and compatible with joint forming materials.

.2 Joint Cleaner: Non-corrosive and non-staining type recommended by sealant manufacturer and compatible with joint forming materials.

.3 Soft Backer Rod: to ASTM C 1330, non-gassing, reticulated closed-cell polyethylene rod designed for use with cold-applied joint sealants. Size required for joint design.

.4 Closed-Cell Backer Rod: to ASTM C 1330, closed-cell polyethylene rod designed for use with cold-applied joint sealants for on-grade or below-grade applications. Size required for joint design.

.5 Joint Filler: closed-cell polyethylene joint filler designed for use in cold joints, construction joints, or isolation joints wider than 6 mm. Size required for joint design.

.6 Bond Breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

2.3 Colours

.1 Unless indicated otherwise in respective technical specification sections, colour selection is at the option of the Consultant.

2.4 Sealant Schedule

.1 Perimeters of exterior openings where frames meet exterior facade of building. All other exterior applications.

.1 Sealant type: Silicone, one part.

.2 Perimeters of interior door/window frames and surfaces at jambs, heads and where frames meet floor.

.1 Sealant type: Acrylic latex. Colour match to frame.

.3 Building envelope applications (vapour barrier/vapour barrier, vapour barrier/wall opening, etc):

.1 Sealant type: Acoustical sealant.

.4 For locations not included in this schedule, consult with Architect for proper selection of sealants.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that substrate surfaces and joint openings are clean, dry, and free of frost and ready to receive work.

.2 Verify that joint backing and release tapes are compatible with sealant.

3.2 Preparation

.1 Remove loose materials and foreign matter which might impair adhesion of sealant.

.2 Clean and prime joints in accordance with sealant manufacturer's written instructions.

.3 Perform preparation in accordance with sealant manufacturer's written instructions.

.4 Protect elements surrounding the work of this section from damage or disfiguration.

3.3 Installation

.1 Install sealant in accordance with sealant manufacturer's written instructions.

.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.

.3 Measure joint dimensions and size materials to achieve required 2:1 width/depth ratios.

.4 Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.

.5 Install bond breaker where joint backing is not used.

.6 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

.7 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

.8 Tool joints concave.

3.4 Field Quality Control

.1 Joint Sealants: Perform adhesion tests in accordance with manufacturer's written instructions.

.2 Perform test 21 days after installation at a rate of one test every 300 m of installed sealant.

.3 Remove sealants failing adhesion test, clean substrates, reinstall sealants and perform retesting.

.4 Maintain test log and submit report to Consultant indicating tests, locations, dates, results, and remedial actions.

3.5 Cleaning

.1 Clean adjacent soiled surfaces.

3.6 Protection of Finished Work

.1 Remove masking tape and excess sealant.

.2 Protect sealants until cured.

END OF SECTION

PART 1 - GENERAL

1.1 Work Included

.1 Exterior steel frame and door.

1.2 Related Work

.1 Section 07 92 00 - Joint Sealants.

.2 Section 08 41 13 - Door Hardware.

1.3 References

.1 Canadian Steel Door and Frame Manufacturers Association - Manufacturing Standard for Steel Doors and Frames.

.2 Canadian Steel Door and Frame Manufacturers Association – Manufacturing Specifications for Steel Doors and Frames.

.3 Canadian Steel Door and Frame Manufacturers Association - Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.4 CAN/ULC-S701-05 - Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.5 CAN/ULC-S710.1-05 - Standard for Thermal Insulation - Bead-Applied One Component Polyurethane Air Sealant Foam, Part 1.

.6 CAN4-S104-M80 (R1985) - Fire Tests of Door Assemblies.

.7 CAN4-S105-85 (R1992) - Fire Door Frames Meeting the Performance Required by CAN4-S104.

.8 NFPA 80-1999 - Standard for Fire Doors and Fire Windows.

1.4 Submittals for Review

.1 Submit in accordance with Sections 01 33 00.

.2 Shop Drawings:

.1 Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
.2 Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing and finishes.

1.6 Quality Assurance

.1 Conform to requirements of Canadian Steel Door and Frame Manufacturers Association standards.

1.7 Regulatory Requirements

.1 Fire Rated Door and Frame Construction: Labelled and listed to CAN4-S104M.

.2 Installed Door and Frame Assembly: Conform to NFPA 80 for fire rated class as indicated.

1.8 Delivery, Storage and Protection

.1 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.

.2 Store in vertical position, spaced with blocking to permit air circulation between components.

.3 Store materials on planks or dunnage, out of water and covered to protect from damage.

.4 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc rich primer.

1.9 Coordination

.1 Coordinate the work with frame opening construction, door, and hardware installation.

.2 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

PART 2 - PRODUCTS

2.1 Materials

.1 Sheet Steel: Galvanized steel to ASTM A653/A653M, commercial grade (CS), Type B,

.2 Reinforcement Channel: To CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

2.2 Door Core Materials

.1 Honeycomb Core: Structural small cell 25.4 mm maximum kraft paper honeycomb, sanded to required thickness.

2.3 Adhesives

.1 Cores and Steel Components: Heat resistant, structural reinforced epoxy, resin based adhesive.

.2 Lock Seam: Reinforced epoxy resin, high viscosity, thixotropic sealant.

2.4 Accessories

.1 Primer: Zinc chromate type.

.3 Foam Sealant: CAN-ULC-S710.1, single component, expanding polyurethane foam.

.4 Joint Sealers - Interior: Acrylic, to Section 07 92 00.

.5 Joint Sealers - Exterior: Silicone, to Section 07 92 00; colour to match adjacent wall finish.

.6 Door Silencers: Single stud rubber/neoprene.

2.5 Fabrication - Doors

.2 Longitudinal Edges: Mechanically interlocked, fully welded and sanded smooth.

.3 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.

.4 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware.

.5 Top and Bottom Channels: Inverted, recessed, welded steel channels.

.6 Exterior Door: Inverted, recessed, welded steel channels.

.7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

2.7 Welded Stiffener Construction

.1 Exterior Doors: Both face sheets 1.5 mm (16 gauge) steel.

.2 Reinforce doors with vertical stiffeners, welded to each face sheet at 150 mm on center maximum.

.3 Fill voids between vertical stiffeners with polystyrene insulation.

2.8 Fabrication – Frames

.1 Frames: 1.5 mm (16 gauge) thick base metal thickness.

.1 Door Frames and Window Assemblies: Welded type construction.
.2 Sidelight Assemblies: Welded type construction.

.2 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.

.2 Reinforce frames wider than 1200 mm with roll formed steel channels fitted tightly into frame head, flush with top.

.3 Prepare frames for silencers. Provide three single silencers for single doors and mullions of double doors on strike side. Provide two silencers on frame head at double doors without mullions.

2.10 Finish

.1 Doors and Frames: ZF120 (A-40) galvanneal.

.2 Finish: Field painted with high quality paint.

PART 3 - EXECUTION

3.1 Examination

.1 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.

.2 Verify doors and frames are correct size, swing, rating and opening number.

.3 Remove temporary shipping spreaders.

3.2 Installation

.1 Install doors and frames to CSDMA.

.2 Install fire-rated doors and frames in accordance with NFPA 80, and local authority having jurisdiction.

.3 Coordinate with wall construction for anchor placement.

.4 Coordinate installation of glass and glazing.

.5 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.

.6 Set frames plumb, square, level and at correct elevation.

.7 Secure anchorages and connections to adjacent construction.

.8 Brace frames rigidly in position while building-in. Install wood spreaders at third points of frame rebate height to maintain frame width. Provide vertical support at centre of head for openings exceeding 1200 mm in width.

.9 Remove wood spreaders after frames have been built-in.

.10 Make allowance for deflection to ensure structural loads are not transmitted to frame product.

.11 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.

.12 Adjust operable parts for correct clearances and function.

3.3 Erection Tolerances

.1 Maximum Diagonal Distortion: 3 mm measured with straight edges, crossed corner to corner.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Aluminum frames and doors for exterior applications.
.2 Hollow metal door and psf frame for stairwell as per section 08 11 13.
.3 Door Hardware

1.2 Source Quality Control

.1 Provide products specified this Section from the same manufacturer as Section 08 44 13.

1.3 Related Work

.1 Section 08 80 00 - Glazing.

1.4 References

.1 AA (Aluminum Association) - Designation System for Aluminum Finishes.

.2 AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.3 AAMA 611 - Specification for Anodized Architectural Aluminum.

.4 AAMA RPC - Rain Penetration Control.

.5 AAMA SFM-1 - Aluminum Store Front and Entrance Manual.

.6 ASCE 7 - Calculation of Wind Loads.

.7 ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

.8 ASTM B221-08 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.9 ASTM E283 - Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

.10 ANSI A117.1-2003, Accessible and Useable Buildings and Facilities.
.11 CAN-ULC-S710.1-05, Standard for Thermal Insulation - Bead - Applied One Component Polyurethane Air Sealant Foam, Part 1.

1.5 System Description

.1 Aluminum Framed Entrance system includes thermally broken tubular aluminum sections, shop fabricated, factory finished, vision glass, related flashings, anchorage and attachment devices.

1.6 Performance Requirements

.1 System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall.

.2 Seismic Loads: Design and size components to withstand seismic loads and sway displacement.

.3 Deflection: Limit mullion deflection to flexure limit of glass with full recovery of glazing materials.

.4 System Assembly: Accommodate without damage to system, components or deterioration of seals, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, deflection of structural support framing, tolerance of supporting components.

.5 Air Infiltration: Limit air infiltration through assembly to 0.03 l/s/sq m of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.

.6 Vapour Seal: Limit vapour seal with interior atmospheric pressure of 25 mm, 22 degrees C, 40 percent RH without seal failure.

.7 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 95 degrees C over a 12 hour period without causing detrimental affect to system components.

.8 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.9 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

.10 Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

1.7 Submittals for Review

.1 Submit in accordance with Sections 01 33 00.

.2 Product Data:
- .1 Provide component dimensions, describe components within assembly, anchorage and fasteners, glass, internal drainage details.
- .2 Submit for each glazing unit located in exterior wall assemblies, as supplied by this Section. Indicate visible light transmittance.
- .3 Submit product data for each sealant used. Identify VOC content.

.3 Design Data: Provide framing member structural and physical characteristics, calculations, dimensional limitations.

.4 Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work and expansion and contraction joint location and details.

.5 Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.8 Quality Assurance

.1 Perform Work in accordance with AAMA SFM-1 and AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.2 Conform to requirements of ANSI A117.1.

.3 Manufacturer and Installer: Company specializing in manufacturing aluminum glazing systems with minimum three years documented experience.

1.9 Delivery, Storage and Protection

.1 Protect finished aluminum surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.10 Project Conditions

.1 Coordinate the Work with installation of air barrier, vapour retarder, and blocking components or materials.

PART 2 - PRODUCTS

2.1 Manufacturers

.1 Frames:
  .1 Exterior frames, thermally broken.
    .1 Acceptable Products: Kawneer 451UT Series, Anotec 60i Series, Alumicor Flush Glaze BF3400 Series, Prevost Series 65 or approved equal.

.2 Doors:
  .1 Exterior thermally broken, with minimum 260 mm high mid-rail and minimum 150mm high top rail.
    .1 Acceptable Products: Kawneer 360 Insulcald, Anotec Insuldoor Series 22, Alumicor 600A-INS Canadiana Series InsulDoor, Prevost or approved equal.

2.2 Materials

.1 Extruded Aluminum: ASTM B221/B221M; 6063 alloy, T5 temper.

.2 Sheet Aluminum: ASTM B209/B209M; AA1100-H14 alloy, anodizing quality.

.3 Steel Reinforcement: to CSA G40.21, Grade 300W.

.4 Fasteners: DT2000 coated or stainless steel.

2.3 Components

.1 Frame: 50 mm x dimension indicated; centre plane glazed; drainage holes; internal weep drainage system. Frames for interior glazing need not to be thermally broken.

.2 Transition Membrane.

.3 Flashings: 0.80 mm thick aluminum, finish to match framing sections where exposed, secured with concealed fastening method.

.4 Hardware: By Section 08 71 00; Coordinate preparation of doors and frames using templates provided by hardware supplier.

.5 Snap Trims: Aluminum two-piece snap trims 65mm deep x 20mm high installed on interior side of aluminum door frames in exterior wall assemblies at head and jambs.

.6 Construction Adhesive: Low VOC polyurethane construction adhesive, resistant to freezing; VOC Limit: <70 g/L

(0.58 lb/gal) when tested in accordance with USEPA Method 24 and ASTM D2369.

2.4 Glass and Glazing Materials

.1 Glass and Glazing Materials: As scheduled; Refer to Section 08 80 00.

.2 Aluminum Infill Panel: fully adhered 0.81 mm black anodic finished aluminum sheet over two layers of 13 mm CSP sheathing grade plywood. Infill panels to have aluminum sheet both sides.

2.5 Sealant Materials

.1 Sealant and Backing Materials:

.1 Perimeter Sealant: Silicone as specified in Section 07 92 00, colour to match framing
.2 Sealant Used Within System (Not Used for Glazing): Butyl as specified in Section 07 92 00.

.2 Protective Backing Paint: Bituminous, maximum 100g/l VOC.

2.6 Fabrication

.1 Fabricate components 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 to receive anchor devices. Fabricate anchors.

.4 Arrange fasteners and attachments to conceal from view.

.5 Reinforce interior horizontal head rail to receive surface mounted window treatments.

.6 Reinforce framing members for imposed loads.

2.7 Finishes

.1 Exposed Aluminum Surfaces: .1 AA-M10C21A44, Class I Black Anodic Coating (Kawneer #29), both externally and internally.

.2 Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

Hardware Sets

Set: 1.0

Pair D001, 1830 x 2135 x 51, Aluminum x Aluminum,

1	Continuous Hinge	CFM x Door Height x SLF-HD1		PE
1	Continuous Hinge	CFM x Door Height x SLF-HD1 PT		PE
1	Removable Mullion	L980A	US28	SA
1	Rim Exit Device, Exit Only	31 AD8510 EO	US32D	SA
1	Rim Exit Device, Storeroom	31 55 56 AD8504 ETL	US32D	SA
1	Mortise Cylinder	42	US32D	SA
2	Conc Overhead Stop	1-X36	630	RF
2	Surface Closer	PS2800ST (Push Side)	689	NO
1	Threshold	253x3AFG x Door Width		PE
1	By Aluminum Door Supplier	Weatherstripping	Std	00
2	Sweep	3452CNB x Door Width		PE
1	Electric Power Transfer	EL-CEPT	630	SU
1	Door Raceway ElectroLynx Harness	QC-C200(P) Use Pins Where Required		MK
1	Frame Wiring ElectroLynx Harness	QC-C2500(P) Use Pins Where Required		MK
1	Power Supply	AQD2-8C8R1		SU
1	Existing to be Re-Used	Keypad Reader		00
1	Existing to be Re-Used	Controller		00
1	Wiring Diagrams	Wiring Diagrams (Elevations & Point to Point)	Std	SA

Notes:
EXISTING KEYPAD READER TO BE REUSED.
REQUIRES 120VAC POWER TO POWER SUPPLY LOCATION BY THE ELECTRICAL CONTRACTOR.
REQUIRES LOW VOLTAGE FROM POWER OPERATOR TO ELECTRIC LATCH RETRACTION LOCATION.
REQUIRES COMMUNICATION WIRE FROM THE READER TO THE JUNCTION BOX LOCATION.
REQUIRES CONDUIT TO BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
REQUIRES WIRE AND WIRE PULL BY THE ELECTRICAL CONTRACTOR.
REQUIRES WIRE CHASE IN THE DOOR.

MODE OF OPERATION:
DOORS TO BE SECURED BY EXIT DEVICE AT ALL TIMES. ACCESS BY AUTHORIZED CARD OR KEY.
ACCESS BY AUTHORIZED CARD WILL ACTIVATE THE ELECTRIC LATCH RETRACTION FOR THE DOOR TO BE MANUALLY PULLED OPEN. FREE EXIT AT ALL TIMES.

Set: 2.0

Single D028, 915 x 2135 x 51, Aluminum x Aluminum,

1	Continuous Hinge	CFM x Door Height x SLF-HD1		PE
1	Deadlatch	4900 x Backset x Door Thickness x Strike	628	AD
1	Paddle Operator	4591 x Hand x Door Thickness	628	AD
1	Mortise Cylinder	42 112	US32D	SA
2	Door Pull	BF157 Mtg-Type 16HD	US32D	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Surface Closer	PS2800ST (Push Side)	689	NO
1	Threshold	253x3AFG x Door Width		PE
1	By Aluminum Door Supplier	Weatherstripping	Std	00
1	Sweep	3452CNB x Door Width		PE

Set: 3.0

Single D027, 915 x 2135 x 51, Aluminum x Aluminum,

1	Continuous Hinge	CFM x Door Height x SLF-HD1		PE
1	Deadlatch	4900 x Backset x Door Thickness x Strike	628	AD
1	Paddle Operator	4591 x Hand x Door Thickness	628	AD
1	Mortise Cylinder	42 112	US32D	SA
2	Door Pull	BF157 Mtg-Type 16HD (Marine Grade)	US32D-316	RO
1	Conc Overhead Stop	1-X36	630	RF
1	Cover Plate	1431J	EN	SA
1	Surface Closer	PS2800ST (Push Side) (SRI)	600 x 689	NO
1	Threshold	253x3AFG x Door Width		PE
1	By Aluminum Door Supplier	Weatherstripping	Std	00
1	Sweep	3452CNB x Door Width		PE

Set: 4.0

Pair D003, 1830 x 2135 x 45, Existing x Existing,

2	Continuous Hinge	CFM x Door Height x SLF-HD1		PE
1	Removable Mullion	L980S	PC	SA
2	Rim Exit Device, Exit Only	CPC 8810 EO x WP (Special - Weep Hole Spar NC-35)	US32D	SA
1	Surf Overhead Stop	8-336	630	RF
2	Surface Closer	PRO 7500 (SRI Finish)	600 x 689	NO
2	Kick Plate	K1050 203mm x 50mm LDW CSK BEV	US32D-	RO

	(Marine Grade Stainless)	316	
1 Threshold	253x3AFG x Door Width		PE
1 Threshold	1842APK x Door Width		PE
1 Gasketing	2891AS x 3 Sides		PE
1 Gasketing	2891AS x Door Height (Mullion)		PE
2 Bracket	BKT050SP		PE
2 Sweep	3452CNB x Door Width		PE
2 Astragal	18061CNB x Door Height		PE

Notes:
WEATHERSEAL NOT TO BE BROKEN. MOUNT HARDWARE TO THE SURFACE OF THE WEATHERSEAL.
MOUNTING BRACKET BKT050SP TO BE USED TO SUPPORT CLOSER FOOT IF REQUIRED.

PART 3 - EXECUTION

3.1 Examination

.1 Verify dimensions, tolerances, and method of attachment with other work.

.2 Verify openings and adjoining air and vapour seal materials are ready to receive work of this Section.

3.2 Installation

.1 Install system in accordance with manufacturer's instructions and AAMA Metal Curtain Wall, Window, Store Front and Entrance Guide Specifications Manual.

.2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

.3 Provide alignment attachments and shims to permanently fasten system to building structure.

.4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances.

.5 Provide thermal isolation where components penetrate or disrupt building insulation.

.6 Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

.7 Coordinate attachment and seal of perimeter air and vapour barrier materials.

.8 Apply foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.9 Install flashings.

.10 Install glass in accordance with Section 08 80 00, to glazing method required to achieve performance criteria.

.11 Install infill panels.

.12 Install perimeter sealant to method required to achieve performance criteria and installation criteria in accordance with Section 07 92 00.

.13 Install snap trims to aluminum door frames in exterior wall assemblies.

.14 Install a small bead of perimeter sealant between block opening and snap trim.

3.3 Cleaning

.1 Remove protective material from pre-finished aluminum surfaces.

.2 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

.3 Remove excess sealant by method acceptable to sealant manufacturer.

3.4 Protection of Finished Work

.1 Protect finished Work from damage.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Aluminum framing system; glazed as scheduled.

.2 Perimeter sealant.

1.2 Related Sections

.1 Section 08 80 00 - Glazing.

1.3 References

.1 Aluminum Association

.1 Designation System for Aluminum Finishes.

.2 Canadian Standards Association (CSA)

.1 CSA PKG.A440-00, Windows.

.3 ASTM-E83-02 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 1

.4 ASTM-E1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 15.

1.4 Submittals

.1 Submit in accordance with Section 01 33 00.

.2 Submit Shop Drawings: Indicate materials and details in scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes, fasteners and caulking.

.3 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
- .1 Windows classifications.
- .2 Anodized finish, weathering characteristics.
- .3 Insect screens.
- .4 Air tightness.
- .5 Water tightness.
- .6 Wind load resistance.
- .7 Sash strength and stiffness.
- .8 Ease of operation – windows with operable lights.
- .9 Forced entry resistance.
- .10 Mullion deflection – combination and composite windows.

.4 Product Data:
- .1 Submit product data for each type of unit as supplied by this Section.
- .2 Submit product data for each type of sealant supplied by this section. Indicate VOC content.

PART 2 - PRODUCTS

2.1 Acceptable Products

.1 Aluminum Windows:
- .1 Fixed and operable windows as per window schedule, manufacturer's standard operating hardware for and hopper venting units, insect screens, and opening limiting devices.
- .2 Frame dimensions as shown.
- .3 Acceptable Products:
  - .1 Kawneer Series 518 Isoport with 526 Vent.
  - .2 Anotec Series 80.
  - .3 Alumicor series 970 with 1350 Vent.

2.2 Materials

.1 Materials: to CSA PKG.A440-00 supplemented as follows:

- .1 Extruded Aluminum: ASTM B221; Minimum 25% total recycled content (post-consumer + ½ pre-consumer recycled content).
- .2 Sheet and Plate Aluminum: ASTM B209, anodizing quality.

.2 All windows by same manufacturer.

.3 Sash: thermally broken aluminum.

.4 Main frame: thermally broken aluminum.

.5 Snap trims: Aluminum two-piece snap trims 65mm deep x 20mm high installed on interior side of windows at sill, jambs, and head of window frame.

.6 Glass: in accordance with Section 08 80 00 and as scheduled.

.7 Screens: to CAN/CGSB-79.1-M91.

- .1 Type: 1 – standard duty.
- .2 Class: C – fixed.
- .3 Style: manufacturer's standard.
- .4 Insect screening mesh count: manufacturer's standard.
- .5 Screen frames: aluminum, colour to match window frames.

.8 Sealants as per 07 92 00

2.3 Window Types and Classification

.1 Classification rating: to CSA PKG.A440-00:

- .1 Air tightness: Fixed.
- .2 Water tightness: B7.
- .3 Wind load resistance: C5.
- .4 Forced Entry: F2.

2.4 Hardware

.1 General: Provide manufacturer's standard hardware.

.2 Hinges: Heavy duty friction type, stainless steel 4-bar adjustable hinges with integral limiting device to restrict hinge travel and limit opening to 100 mm clear opening.

.3 Locking Handle: High pressure zinc die cast housing and locking handle, with stainless steel keeper and screws, finish to match anodized aluminum; 2 per operating vent.

.4 Roto operator: Integral device using nylon washer between knob handle, nylon and stainless steel pivot shoes in self-cleaning track. Baked enamel finish to match anodized finish, 1 per operating vent.

.5 Add latch and lock for windows providing access to roof.

2.5 Fabrication

.1 Fabricate in accordance with CSA PKG.A440-00 supplemented as follows:

.1 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
.2 Face dimensions detailed are maximum permissible sizes.
.3 Brace frames to maintain squareness and rigidity during shipment and installation.
.4 Finish steel clips and reinforcement with 380 g/m² zinc coating to CAN/CSA-G164.

2.6 Finishes

.1 Finish Coatings: Conform to AAMA 611.

.2 Exposed Aluminum Surfaces: .1 AA-M10C21A44, Class I Black Anodic Coating (Kawneer #29), both externally and internally.

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2.7 Accessories

.1 Perimeter Sealant: .8 Silicone Type 1 - one part: to ASTM C 920, Type S, Grade NS, Class 25, single component neutral cure silicone sealant, plus minus 50% joint movement capability. Acceptable product: Dow Corning 795, Tremco Spectrem 2, BASF Omniseal 50, Pecora 895NST.

.2 Expanding Foam Insulation and Sealant: .1 Expanding Foam Insulation and Sealant: CAN/ULC-S710.1, single component, low expanding polyurethane foam. Compatible with specified rigid insulation.

.1 Low-emitting Material Testing: Required 3rd party testing as per CDPHv1.2-2017
.2 Acceptable Products: DAPtex latex Multi-Purpose, DOW Enerfoam, Hilti CF812 or approved equal.

PART 3 - EXECUTION

3.1 Window Installation

.1 Install in accordance with CSA PKG.A440-00.

.2 Fabricate and install sill and jamb covers as indicated.

.3 Arrange components to prevent abrupt variation in colour.

.4 Foam fill perimeter of window framing to seal air/vapour barrier and stud cavity as indicated.

3.2 Caulking

.1 Seal joints between windows and masonry opening with sealant over foam backer rod.

.2 Apply sealant in accordance with Section 07 92 00. Conceal sealant within window units except where exposed use is permitted by Engineer-Architect.

.3 Seal exterior joints between windows and flashings using silicone sealant.

.4 Seal interior joints around window using silicone sealant.

.5 Install a small bead of perimeter sealant between block opening and snap trim.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Aluminum tube framing system; glazed as scheduled.

.2 Perimeter sealant.

1.2 Source Quality Control

.1 Provide products specified this Section from the same manufacturer as Section 08 44 13.

1.3 Related Work

.1 Section 07 92 00 - Joint Sealants

.2 Section 08 80 00 - Glazing.

1.4 Definitions

.1 Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufactures Association (AAMA) – AAMA Glossary (AAMA AG).

1.5 References

.1 AA (Aluminum Association) - Designation System for Aluminum Finishes.

.2 AAMA (American Architectural Manufacturers' Association) - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.3 AAMA - Aluminum Curtain Wall Design Guide Manual.

.4 AAMA CW-10 -Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum from Shop to Site.

.5 AAMA 501 - Methods of Test for Exterior Walls.

.6 AAMA 611 - Specifications for Anodized Architectural Aluminum.

.7 ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

.8 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.9 ASTM E283 - Test Method For Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

1.6 Performance Requirements

.1 General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Glazed aluminum skylights shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads. Failure also includes the following:
   - .1 Thermal stresses transferring to building structure.
   - .2 Glass breakage.
   - .3 Loosening or weakening of fasteners, attachments, and other components.
   - .4 Failure of operating units.

.2 Delegated Design: Design glazed aluminum skylights, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

.3 Wind loads: Provide Skylight system; include anchorage, capable of withstanding wind load design pressures of 11.5 psf (0.55kPa) inward and 25.5 psf (1.22 kPa) outward. The design pressures are based on the National Building Code, 2015 Edition.

.4 Snow loads: Provide Sloped Glazing system; include anchorage, capable of withstanding the most critical case for each element from specified snow load design pressures based on the National Building Code; 2015 Edition.

- .1 Case 1: Full Uniform Snow Load: Uniform Snow Load = 64.3 psf (3.08 kPa)
- .2 Case 2: Unbalanced Snow Loads: On the upwind side of the roof peak, Snow Load = 12.5 psf (0.6 kPa). On the downwind side of the roof peak, Snow Load = 80.4 psf (3.85 kPa). This case shall be repeated for all directions to determine governing effects of all members.

.5 Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft2 (.0003 m3/s·m2) at a static air pressure differential of 6.24 PSF (300 Pa) or CAN/CSA-A440 fixed rating.

.6 Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 547. There shall be no leakage at static air pressure differentials of 15 PSF (718 Pa) minimum or CAN/CSA-A440 B7 rating.

.7 Uniform Load: A static air design load of 40 PSF (1916 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur or CAN/CSA-A440 C5 rating.

.8 Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 67frame and 65glass (clear).

.9 System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall.

.10 Seismic Loads: Design and size components to withstand seismic loads and sway displacement.

.11 Deflection: Limit mullion deflection to flexure limit of glass with full recovery of glazing materials.

.12 System Assembly: Accommodate without damage to system, components or deterioration of seals, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, deflection of structural support framing, tolerance of supporting components.

.13 Air Infiltration: Limit air infiltration through assembly to 0.03 l/s/sq m of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.

.14 Vapour Seal: Limit vapour seal with interior atmospheric pressure of 25 mm, 22 degrees C, 40 percent RH without seal failure.

.15 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 95 degrees C over a 12 hour period without causing detrimental affect to system components.

.16 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.17 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

.18 Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

1.7 Submittals for Review

.1 Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow drainage diagrams.

.2 Design Data: Provide framing member structural and physical characteristics, calculations, climatic data and dimensional limitations. Design data to be stamped by a Professional Structural Engineer licensed at the place where the Project is located.

.3 Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work. Indicate drainage and condensation paths within assembly.

.4 Indicate system dimensions, reinforcing, connections to structure, framed opening requirements and tolerances, anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required. Shop drawings to be stamped by a Professional Structural Engineer licensed at the place where the Project is located.

.5 Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed skylight systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
1. Joinery
2. Glazing

1.8 Quality Assurance

.1 Installer Qualifications: Installer who has had successful experience with installation of the same or similar systems required for the project and other projects of similar size and scope.

.2 Manufacturer Qualifications: A manufacturer capable of fabricating exterior sunshades, and glazed aluminum curtain wall and storefront systems, that meet or exceed performance requirements.

.3 Source Limitations: Obtain glazed aluminum skylights, curtain wall systems and storefront systems through one source from a single manufacturer.

.4 Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

.5 Perform Work in accordance with AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.6 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

.7 Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

.8 Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at the place where the Project is located.

1.9 Pre-Installation Meeting

.1 Section 01 30 00: Pre-Administrative Requirements.

.2 Convene one week before starting work of this section.

1.10 Delivery, Storage and Protection

.1 Section 01 60 00: Transport, handle, store, and protect products.

.2 Handle work of this Section in accordance with AAMA - Curtain Wall Manual CW-10.

.3 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

1.11 Environmental Requirements

.1 Do not install sealants when ambient temperature is less than 5 degrees C.

.2 Maintain this minimum temperature during and after installation of sealants.

1.12 Coordination

.1 Section 01 30 00: Coordination with other work having a direct bearing on work of this section.

.2 Coordinate the Work with installation of air barrier placement and vapour retarder placement.

1.13 Warranty

.1 Manufacturer’s Warranty: Submit, for Owner’s acceptance, manufacturer’s standard warranty.

1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

.2 Provide a five (5) year warranty to include coverage for complete system for failure to meet specified requirements.

1.14 Project Conditions

.1 Field Measurements: Verify actual locations of structural supports for sunshades by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 Manufacturers

.1 Basis of Design: Anotec Sloped Glazing System - Series 3600, System 64 x 130, externally glazed pressure plate system.

.1 Alternate Manufacturers: Kawneer 2000 Skylight System 64 x 142, or approved equal. Alternate manufacturers to provide systems compatible in design and performance to the satisfaction of the Architect prior to tender.

2.2 Materials

.1 Aluminum Extrusions: Alloy and temper recommended by glazed aluminum skylight manufacturer for strength, corrosion resistance, and application of required finish and each framing member shall provide structural strength to meet specified performance requirements and complying with ASTM B 221: 6063-T6 alloy and temper.

.2 Aluminum sheet alloy: Shall meet the requirements of ASTM B209.

.3 Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.

.4 Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

.5 Pressure Plate: Pressure plate shall be aluminum and fastened to the mullion with stainless steel screws.

.6 Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

.7 Thermal Barrier: Thermal separator shall be extruded of a silicone compatible PVC (Poly Vinyl Chloride).

.8 Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of glazed skylight members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 Sloped Glazing Framing

.1 Framing Members: Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Glazing System: 4 sided captured.
2. Glazing Plane: Front.

.2 Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

.3 Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.

.4 Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.4 Miscellaneous Components

.1 Insulated Metal Panels: Assembly consisting of 3 mm extruded aluminum panel, semirigid mineral wool insulation, and back pan. Reinforce aluminum panel with internal stiffeners welded to assembly. Refer to Drawings for locations.

1. Semi-rigid insulation: Mineral wool to ASTM C612, R-value 10.
2. Back pans: Depth as indicated; Both Aluminum pans with anodized finish to match framing and galvanized metal, as scheduled on drawings. Reinforce back pans with stiffeners welded to pan assembly.

2.5 Sealant Materials

.1 Sealant and Backing Materials: as specified in Section 07 92 00; of types described below.

1. Perimeter Sealant: Silicone; colour to match aluminum framing.
2. Structural Silicone: SSG Silicone as recommended by curtain wall manufacturer; colour to match aluminum framing.

2.6 Glass and Glazing Materials

.1 Glass Materials: Insulating glass units for exterior locations, tempered single pane glazing for interior locations; refer to Section 08 80 00.

.2 Glazing Materials: Type to suit application to achieve weather, moisture, and air infiltration requirements.

.3 Glazing Gaskets: Gaskets to meet the requirements of ASTM C864.

.4 Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

.5 Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

.5 Glazing Sealants: As recommended by manufacturer for joint type.

2.7 Fabrication

.1 Form or extrude aluminum shapes before finishing.

.2 Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints.
3. Physical and thermal isolation of glazing from framing members.
4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Provisions for field replacement of glazing from exterior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
7. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum skylight to exterior.

.3 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal. Utilize deflection track framing where indicated or otherwise required by design.

.4 Provide dead load anchors and clips to attach curtain wall assembly to floor slab and supporting structural steel; including suspended assemblies not bearing on foundations or footing.

.5 Provide reinforcing steel within tubular extrusions where required by design.

.6 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

.7 Prepare components to receive anchor devices. Fabricate anchors.

.8 Arrange fasteners and attachments to ensure concealment from view.

.9 Reinforce interior horizontal head rail to receive drapery track brackets and attachments.

.10 Reinforce framing members for external imposed loads.

2.8 Finishes

.1 Finish Coatings: Conform to AAMA 611.

.2 Exposed Aluminum Surfaces:

.1 Finish and Colour selected by Architect from the following;
.1 AA-M10C21A44, Class I Black Anodic Coating (Kawneer #29), both externally and internally.

.3 Shop and Touch-Up Primer for Steel Components: SPCC Paint 25 red oxide.

.4 Concealed Steel Items: Primed with iron oxide paint.

.5 Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

PART 3 - EXECUTION

3.1 Examination

.1 Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

.3 Verification of existing conditions before starting work.

.4 Verify dimensions, tolerances, and method of attachment with other work.

.5 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.

3.2 Installation

.1 General: Install skylight systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
.1 Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
.2 Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" (228.6) on center.
.3 Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

.2 Install curtain wall system in accordance with manufacturer's written instructions.

.3 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other

irregularities.

.4 Provide alignment attachments and shims to permanently fasten system to building structure.

.5 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.

.6 Provide thermal isolation where components penetrate or disrupt building insulation.

.7 Install sill flashings.

.8 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.

.9 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.10 Install glass in accordance with Section 08 80 00, to glazing method required to achieve performance criteria.

.11 Install perimeter sealant to method required to achieve performance criteria.

.12 Do not install curtain wall components when other trades are conducting operations that may be detrimental to curtain wall components. Steel filings from pipe threading operations is one example, as these may blown onto surface of components.

3.3 Erection Tolerances

.1 Maximum Variation from Plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.

.2 Maximum Misalignment of Two Adjoining Members Abutting in Plane: 0.8 mm.

.3 Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 19 mm and minimum of 6 mm.

3.4 Cleaning

.1 Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

.2 Cleaning: 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 Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

.4 Remove protective material from pre-finished aluminum surfaces.

.5 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

.6 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.5 Field Quality Control

.1 Field Tests: Architect shall select skylight 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.

.1 Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.

.1 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.

.2 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 8 psf (383 Pa).

.2 Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Aluminum framing system; glazed as scheduled.

.2 Perimeter sealant.

1.2 Related Sections

.1 Section 08 80 00 - Glazing.

1.3 References

.1 Aluminum Association

.1 Designation System for Aluminum Finishes.

.2 Canadian Standards Association (CSA)

.1 CSA PKG.A440-00, Windows.

.3 ASTM-E83-02 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 1

.4 ASTM-E1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 15.

1.4 Submittals

.1 Submit in accordance with Section 01 33 00.

.2 Submit Shop Drawings: Indicate materials and details in scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes, fasteners and caulking.

.3 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
- .1 Windows classifications.
- .2 Anodized finish, weathering characteristics.
- .3 Insect screens.
- .4 Air tightness.
- .5 Water tightness.
- .6 Wind load resistance.
- .7 Sash strength and stiffness.
- .8 Ease of operation – windows with operable lights.
- .9 Forced entry resistance.
- .10 Mullion deflection – combination and composite windows.

.4 Product Data:
- .1 Submit product data for each type of unit as supplied by this Section.
- .2 Submit product data for each type of sealant supplied by this section. Indicate VOC content.

PART 2 - PRODUCTS

2.1 Acceptable Products

.1 Aluminum Windows:
- .1 Fixed and operable windows as per window schedule, manufacturer's standard operating hardware for and hopper venting units, insect screens, and opening limiting devices.
- .2 Frame dimensions as shown.
- .3 Acceptable Products:
  - .1 Kawneer Series 518 Isoport with 526 Vent.
  - .2 Anotec Series 80.
  - .3 Alumicor series 970 with 1350 Vent.

2.2 Materials

.1 Materials: to CSA PKG.A440-00 supplemented as follows:

- .1 Extruded Aluminum: ASTM B221; Minimum 25% total recycled content (post-consumer + ½ pre-consumer recycled content).
- .2 Sheet and Plate Aluminum: ASTM B209, anodizing quality.

.2 All windows by same manufacturer.

.3 Sash: thermally broken aluminum.

.4 Main frame: thermally broken aluminum.

.5 Snap trims: Aluminum two-piece snap trims 65mm deep x 20mm high installed on interior side of windows at sill, jambs, and head of window frame.

.6 Glass: in accordance with Section 08 80 00 and as scheduled.

.7 Screens: to CAN/CGSB-79.1-M91.

- .1 Type: 1 – standard duty.
- .2 Class: C – fixed.
- .3 Style: manufacturer's standard.
- .4 Insect screening mesh count: manufacturer's standard.
- .5 Screen frames: aluminum, colour to match window frames.

.8 Sealants as per 07 92 00

2.3 Window Types and Classification

.1 Classification rating: to CSA PKG.A440-00:

- .1 Air tightness: Fixed.
- .2 Water tightness: B7.
- .3 Wind load resistance: C5.
- .4 Forced Entry: F2.

2.4 Hardware

.1 General: Provide manufacturer's standard hardware.

.2 Hinges: Heavy duty friction type, stainless steel 4-bar adjustable hinges with integral limiting device to restrict hinge travel and limit opening to 100 mm clear opening.

.3 Locking Handle: High pressure zinc die cast housing and locking handle, with stainless steel keeper and screws, finish to match anodized aluminum; 2 per operating vent.

.4 Roto operator: Integral device using nylon washer between knob handle, nylon and stainless steel pivot shoes in self-cleaning track. Baked enamel finish to match anodized finish, 1 per operating vent.

.5 Add latch and lock for windows providing access to roof.

2.5 Fabrication

.1 Fabricate in accordance with CSA PKG.A440-00 supplemented as follows:

.1 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
.2 Face dimensions detailed are maximum permissible sizes.
.3 Brace frames to maintain squareness and rigidity during shipment and installation.
.4 Finish steel clips and reinforcement with 380 g/m² zinc coating to CAN/CSA-G164.

2.6 Finishes

.1 Finish Coatings: Conform to AAMA 611.

.2 Exposed Aluminum Surfaces: AA-M12C22A31, Class II Clear Anodic Coating.

2.7 Accessories

.1 Perimeter Sealant: .8 Silicone Type 1 - one part: to ASTM C 920, Type S, Grade NS, Class 25, single component neutral cure silicone sealant, plus minus 50% joint movement capability. Acceptable product: Dow Corning 795, Tremco Spectrem 2, BASF Omniseal 50, Pecora 895NST.

.2 Expanding Foam Insulation and Sealant: .1 Expanding Foam Insulation and Sealant: CAN/ULC-S710.1, single component, low expanding polyurethane foam. Compatible with specified rigid insulation.

.1 Low-emitting Material Testing: Required 3rd party testing as per CDPHv1.2-2017
.2 Acceptable Products: DAPtex latex Multi-Purpose, DOW Enerfoam, Hilti CF812 or approved equal.

PART 3 - EXECUTION

3.1 Window Installation

.1 Install in accordance with CSA PKG.A440-00.

.2 Fabricate and install sill and jamb covers as indicated.

.3 Arrange components to prevent abrupt variation in colour.

.4 Foam fill perimeter of window framing to seal air/vapour barrier and stud cavity as indicated.

3.2 Caulking

.1 Seal joints between windows and masonry opening with sealant over foam backer rod.

.2 Apply sealant in accordance with Section 07 92 00. Conceal sealant within window units except where exposed use is permitted by Engineer-Architect.

.3 Seal exterior joints between windows and flashings using silicone sealant.

.4 Seal interior joints around window using silicone sealant.

.5 Install a small bead of perimeter sealant between block opening and snap trim.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Aluminum tube framing system; glazed as scheduled.

.2 Perimeter sealant.

1.2 Source Quality Control

.1 Provide products specified this Section from the same manufacturer as Section 08 44 13.

1.3 Related Work

.1 Section 07 92 00 - Joint Sealants

.2 Section 08 80 00 - Glazing.

1.4 Definitions

.1 Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufactures Association (AAMA) – AAMA Glossary (AAMA AG).

1.5 References

.1 AA (Aluminum Association) - Designation System for Aluminum Finishes.

.2 AAMA (American Architectural Manufacturers' Association) - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.3 AAMA - Aluminum Curtain Wall Design Guide Manual.

.4 AAMA CW-10 -Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum from Shop to Site.

.5 AAMA 501 - Methods of Test for Exterior Walls.

.6 AAMA 611 - Specifications for Anodized Architectural Aluminum.

.7 ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

.8 ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

.9 ASTM E283 - Test Method For Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

1.6 Performance Requirements

.1 General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Glazed aluminum skylights shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads. Failure also includes the following:
   - .1 Thermal stresses transferring to building structure.
   - .2 Glass breakage.
   - .3 Loosening or weakening of fasteners, attachments, and other components.
   - .4 Failure of operating units.

.2 Delegated Design: Design glazed aluminum skylights, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

.3 Wind loads: Provide Skylight system; include anchorage, capable of withstanding wind load design pressures of 11.5 psf (0.55kPa) inward and 25.5 psf (1.22 kPa) outward. The design pressures are based on the National Building Code, 2015 Edition.

.4 Snow loads: Provide Sloped Glazing system; include anchorage, capable of withstanding the most critical case for each element from specified snow load design pressures based on the National Building Code; 2015 Edition.

- .1 Case 1: Full Uniform Snow Load: Uniform Snow Load = 64.3 psf (3.08 kPa)
- .2 Case 2: Unbalanced Snow Loads: On the upwind side of the roof peak, Snow Load = 12.5 psf (0.6 kPa). On the downwind side of the roof peak, Snow Load = 80.4 psf (3.85 kPa). This case shall be repeated for all directions to determine governing effects of all members.

.5 Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft2 (.0003 m3/s·m2) at a static air pressure differential of 6.24 PSF (300 Pa) or CAN/CSA-A440 fixed rating.

.6 Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 547. There shall be no leakage at static air pressure differentials of 15 PSF (718 Pa) minimum or CAN/CSA-A440 B7 rating.

.7 Uniform Load: A static air design load of 40 PSF (1916 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur or CAN/CSA-A440 C5 rating.

.8 Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 67frame and 65glass (clear).

.9 System Design: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall.

.10 Seismic Loads: Design and size components to withstand seismic loads and sway displacement.

.11 Deflection: Limit mullion deflection to flexure limit of glass with full recovery of glazing materials.

.12 System Assembly: Accommodate without damage to system, components or deterioration of seals, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, deflection of structural support framing, tolerance of supporting components.

.13 Air Infiltration: Limit air infiltration through assembly to 0.03 l/s/sq m of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.

.14 Vapour Seal: Limit vapour seal with interior atmospheric pressure of 25 mm, 22 degrees C, 40 percent RH without seal failure.

.15 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 95 degrees C over a 12 hour period without causing detrimental affect to system components.

.16 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.17 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

.18 Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

1.7 Submittals for Review

.1 Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow drainage diagrams.

.2 Design Data: Provide framing member structural and physical characteristics, calculations, climatic data and dimensional limitations. Design data to be stamped by a Professional Structural Engineer licensed at the place where the Project is located.

.3 Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work. Indicate drainage and condensation paths within assembly.

.4 Indicate system dimensions, reinforcing, connections to structure, framed opening requirements and tolerances, anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required. Shop drawings to be stamped by a Professional Structural Engineer licensed at the place where the Project is located.

.5 Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed skylight systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
1. Joinery
2. Glazing

1.8 Quality Assurance

.1 Installer Qualifications: Installer who has had successful experience with installation of the same or similar systems required for the project and other projects of similar size and scope.

.2 Manufacturer Qualifications: A manufacturer capable of fabricating exterior sunshades, and glazed aluminum curtain wall and storefront systems, that meet or exceed performance requirements.

.3 Source Limitations: Obtain glazed aluminum skylights, curtain wall systems and storefront systems through one source from a single manufacturer.

.4 Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

.5 Perform Work in accordance with AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

.6 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

.7 Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

.8 Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at the place where the Project is located.

1.9 Pre-Installation Meeting

.1 Section 01 30 00: Pre-Administrative Requirements.

.2 Convene one week before starting work of this section.

1.10 Delivery, Storage and Protection

.1 Section 01 60 00: Transport, handle, store, and protect products.

.2 Handle work of this Section in accordance with AAMA - Curtain Wall Manual CW-10.

.3 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

1.11 Environmental Requirements

.1 Do not install sealants when ambient temperature is less than 5 degrees C.

.2 Maintain this minimum temperature during and after installation of sealants.

1.12 Coordination

.1 Section 01 30 00: Coordination with other work having a direct bearing on work of this section.

.2 Coordinate the Work with installation of air barrier placement and vapour retarder placement.

1.13 Warranty

.1 Manufacturer’s Warranty: Submit, for Owner’s acceptance, manufacturer’s standard warranty.

1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

.2 Provide a five (5) year warranty to include coverage for complete system for failure to meet specified requirements.

1.14 Project Conditions

.1 Field Measurements: Verify actual locations of structural supports for sunshades by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 Manufacturers

.1 Basis of Design: Anotec Sloped Glazing System - Series 3600, System 64 x 130, externally glazed pressure plate system.

.1 Alternate Manufacturers: Kawneer 2000 Skylight System 64 x 142, or approved equal. Alternate manufacturers to provide systems compatible in design and performance to the satisfaction of the Architect prior to tender.

2.2 Materials

.1 Aluminum Extrusions: Alloy and temper recommended by glazed aluminum skylight manufacturer for strength, corrosion resistance, and application of required finish and each framing member shall provide structural strength to meet specified performance requirements and complying with ASTM B 221: 6063-T6 alloy and temper.

.2 Aluminum sheet alloy: Shall meet the requirements of ASTM B209.

.3 Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.

.4 Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

.5 Pressure Plate: Pressure plate shall be aluminum and fastened to the mullion with stainless steel screws.

.6 Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

.7 Thermal Barrier: Thermal separator shall be extruded of a silicone compatible PVC (Poly Vinyl Chloride).

.8 Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of glazed skylight members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 Sloped Glazing Framing

.1 Framing Members: Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Glazing System: 4 sided captured.
2. Glazing Plane: Front.

.2 Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

.3 Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.

.4 Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.4 Miscellaneous Components

.1 Insulated Metal Panels: Assembly consisting of 3 mm extruded aluminum panel, semirigid mineral wool insulation, and back pan. Reinforce aluminum panel with internal stiffeners welded to assembly. Refer to Drawings for locations.

1. Semi-rigid insulation: Mineral wool to ASTM C612, R-value 10.
2. Back pans: Depth as indicated; Both Aluminum pans with anodized finish to match framing and galvanized metal, as scheduled on drawings. Reinforce back pans with stiffeners welded to pan assembly.

2.5 Sealant Materials

.1 Sealant and Backing Materials: as specified in Section 07 92 00; of types described below.

1. Perimeter Sealant: Silicone; colour to match aluminum framing.
2. Structural Silicone: SSG Silicone as recommended by curtain wall manufacturer; colour to match aluminum framing.

2.6 Glass and Glazing Materials

.1 Glass Materials: Insulating glass units for exterior locations, tempered single pane glazing for interior locations; refer to Section 08 80 00.

.2 Glazing Materials: Type to suit application to achieve weather, moisture, and air infiltration requirements.

.3 Glazing Gaskets: Gaskets to meet the requirements of ASTM C864.

.4 Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

.5 Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

.5 Glazing Sealants: As recommended by manufacturer for joint type.

2.7 Fabrication

.1 Form or extrude aluminum shapes before finishing.

.2 Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints.
3. Physical and thermal isolation of glazing from framing members.
4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Provisions for field replacement of glazing from exterior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
7. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum skylight to exterior.

.3 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal. Utilize deflection track framing where indicated or otherwise required by design.

.4 Provide dead load anchors and clips to attach curtain wall assembly to floor slab and supporting structural steel; including suspended assemblies not bearing on foundations or footing.

.5 Provide reinforcing steel within tubular extrusions where required by design.

.6 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

.7 Prepare components to receive anchor devices. Fabricate anchors.

.8 Arrange fasteners and attachments to ensure concealment from view.

.9 Reinforce interior horizontal head rail to receive drapery track brackets and attachments.

.10 Reinforce framing members for external imposed loads.

2.8 Finishes

.1 Finish Coatings: Conform to AAMA 611.

.2 Exposed Aluminum Surfaces:

.1 Finish and Colour selected by Architect from the following;
.1 AA-M12C22A31, Class II Clear Anodic Coating (Kawneer #17), both externally and internally.

.3 Shop and Touch-Up Primer for Steel Components: SPCC Paint 25 red oxide.

.4 Concealed Steel Items: Primed with iron oxide paint.

.5 Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

PART 3 - EXECUTION

3.1 Examination

.1 Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

.3 Verification of existing conditions before starting work.

.4 Verify dimensions, tolerances, and method of attachment with other work.

.5 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.

3.2 Installation

.1 General: Install skylight systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
.1 Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
.2 Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" (228.6) on center.
.3 Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

.2 Install curtain wall system in accordance with manufacturer's written instructions.

.3 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other

irregularities.

.4 Provide alignment attachments and shims to permanently fasten system to building structure.

.5 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.

.6 Provide thermal isolation where components penetrate or disrupt building insulation.

.7 Install sill flashings.

.8 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.

.9 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

.10 Install glass in accordance with Section 08 80 00, to glazing method required to achieve performance criteria.

.11 Install perimeter sealant to method required to achieve performance criteria.

.12 Do not install curtain wall components when other trades are conducting operations that may be detrimental to curtain wall components. Steel filings from pipe threading operations is one example, as these may blown onto surface of components.

3.3 Erection Tolerances

.1 Maximum Variation from Plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.

.2 Maximum Misalignment of Two Adjoining Members Abutting in Plane: 0.8 mm.

.3 Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 19 mm and minimum of 6 mm.

3.4 Cleaning

.1 Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

.2 Cleaning: 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 Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

.4 Remove protective material from pre-finished aluminum surfaces.

.5 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

.6 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.5 Field Quality Control

.1 Field Tests: Architect shall select skylight 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.

.1 Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.

.1 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.

.2 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 8 psf (383 Pa).

.2 Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Glass and glazing for sections referencing this section for products and installation.

1.2 Related Work

.1 Section 08 41 13 - Aluminum Framed Entrances

.2 Section 08 51 13 - Aluminum Windows

.3 Section 08 63 16 – Glazed Aluminum Skylights

1.3 Reference Standards

.1 IGMAC (Insulated Glass Manufacturers Association of Canada) - Quality Standard Specification.

.2 GANA - Glazing Manual and Glazing Sealing Systems Manual.

.3 CAN/CGSB 12.1-M90 - Tempered or Laminated Safety Glass.

.4 CAN/CGSB 12.8-97 - Insulating Glass Units.

.5 CAN/CGSB 12.11-M90 - Wired Safety Glass.

1.4 System Description

.1 Glass and glazing materials of this section shall provide continuity of building enclosure air barrier and vapour retarder.

.2 Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass.

.3 Limit glass deflection to flexure limit of glass with full recovery of glazing materials, whichever is less.

1.5 Submittals

.1 Submit in accordance with Section 01 33 00.

.2 Glazing Schedule: Submit glazing schedule indicating installed locations of materials supplied by this Section for review by Architect at least 4 weeks prior to ordering materials of this Section but not before approval of submitted samples.

.3 Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size limitations, and special handling or installation requirements.

.4 Samples: Submit two samples of each specified glazing type 300 x 300 mm in size, illustrating unit coloration and design. Mark each sample with glass type designation as specified by this Section.

1.6 Quality Assurance

.1 Perform Work in accordance with GANA Glazing Manual and IGMAC for glazing installation methods.

.2 Select glazing compounds and sealants in accordance with glass manufacturer's instructions.

1.7 Warranty

.1 Provide a five (5) year warranty.

.2 Warranty: Include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 - PRODUCTS

2.1 Glass Materials

.1 Glazing Units:

GL1 – Insulating Glass Unit, 25mm total thickness, for windows and doors.

.1 Outer Pane:Dark Grey tempered glass, LoE 272, on surface No.3, 6 mm thick
.2 Interpane Space: 13 mm, argon gas filled, low conductivity spacers.
.3 Inner Pane: Clear tempered glass, 6 mm thick.

2.2 Glazing Compounds

.1 Sealant and Adhesives: manufacturer's VOC compliant product required to attain specified performance criteria. Sealants with VOC limit of 250 g/l.

2.3 Glazing Accessories

.1 Channels, Framing and Retainers: Aluminum extrusions to capture glazing for partitions and smoke baffles. Profiles and sizes shown. Clear anodized finish unless noted otherwise.

.2 Setting Blocks: Neoprene, EPDM or Silicone, 80 to 90 Shore A durometer hardness.

.3 Spacer Shims: Neoprene, Silicone, 50 to 60 - Shore A durometer hardness.

.4 Glazing Tape: Preformed butyl compound with integral resilient tube spacing device.

.5 Glazing Splines: Resilient silicone extruded shape.

.6 Insulating Glass Spacer: RMax

PART 3 - EXECUTION

3.1 Examination

.1 Verify that openings for glazing are correctly sized, within tolerance and clean.

3.2 Preparation

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 Glazing Methods

.1 Verify that selected sealants and glazing tapes are compatible.

.2 Perform glazing as required by frame manufacturer to achieve specified performance criteria.

.3 Completed exterior glazed assemblies to provide full perimeter air and vapour seal to the glazed frames and be pressure equalized.

3.4 Confirmation of Glazing Placement

.1 Provide permanent id on glazing unit to indicate glazing type.

.2 Provide certification that different glazing types have been installed in appropriate locations.

3.5 Testing

.1 Testing and reporting will be carried out by an independent testing agency selected by the Architect.

.2 Coordinate and assist testing agency, and allow access to the Work.

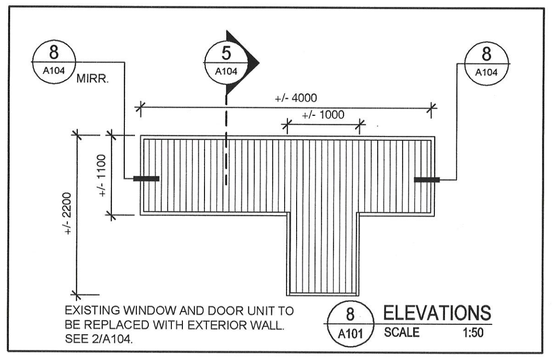
3.6 Cleaning

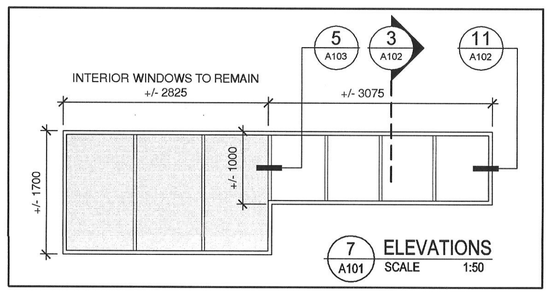
.1 Remove glazing materials from finished surfaces.

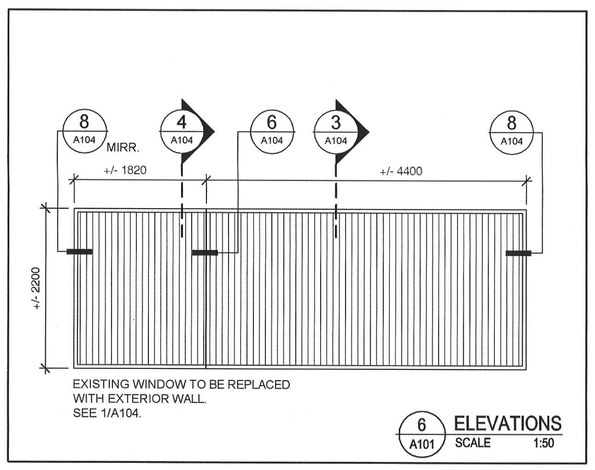
.2 Remove labels after work is completed.

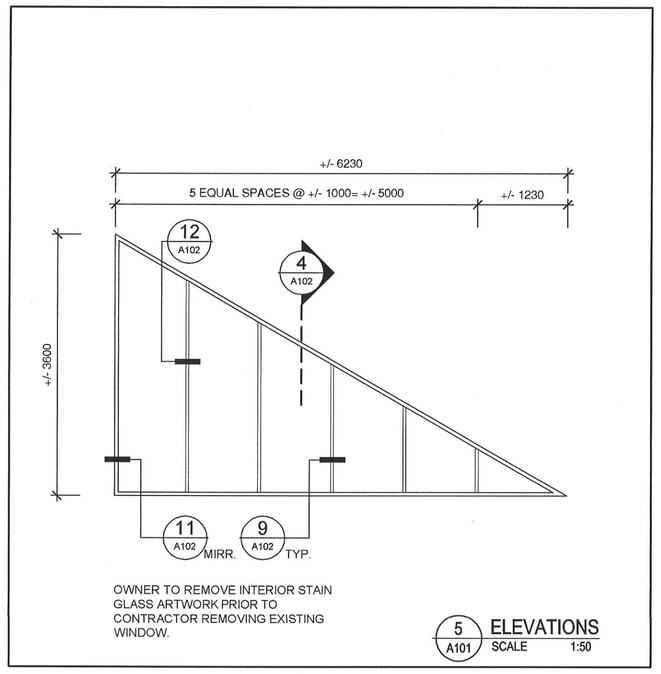
.3 Clean glass.

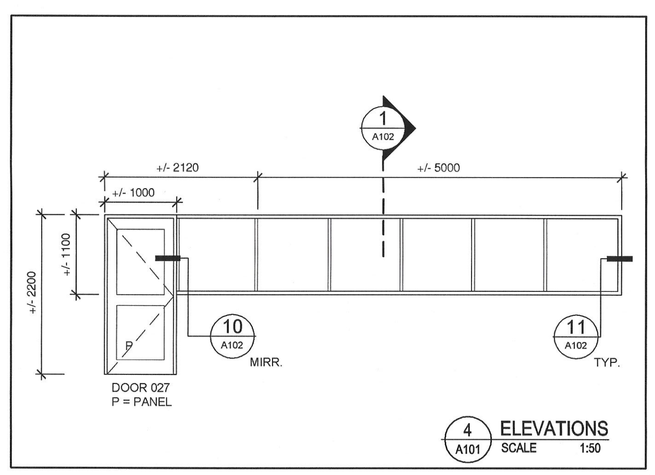
END OF SECTION

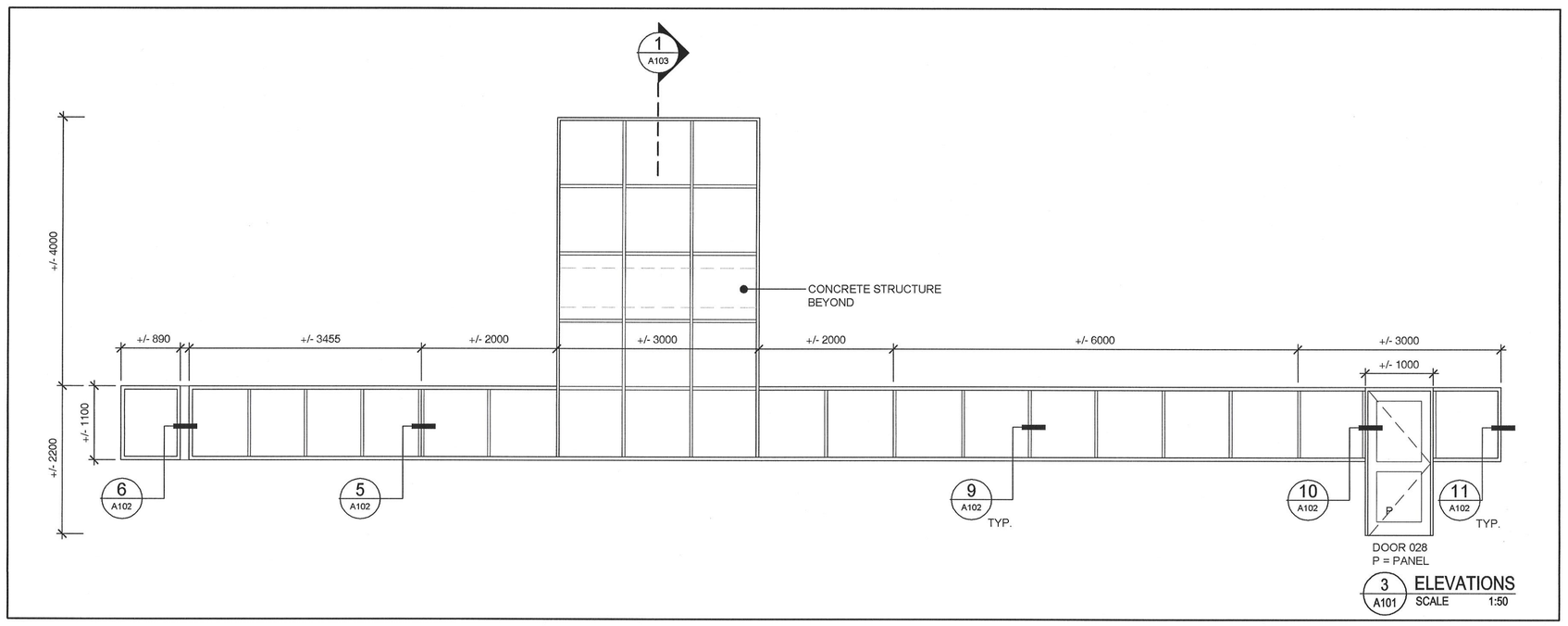


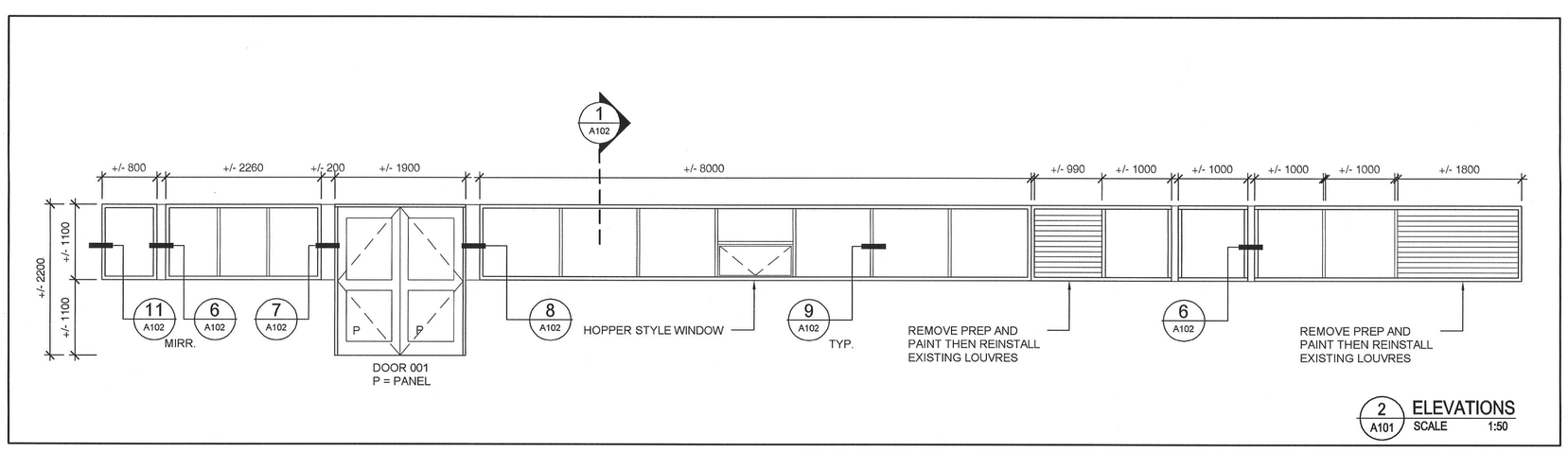


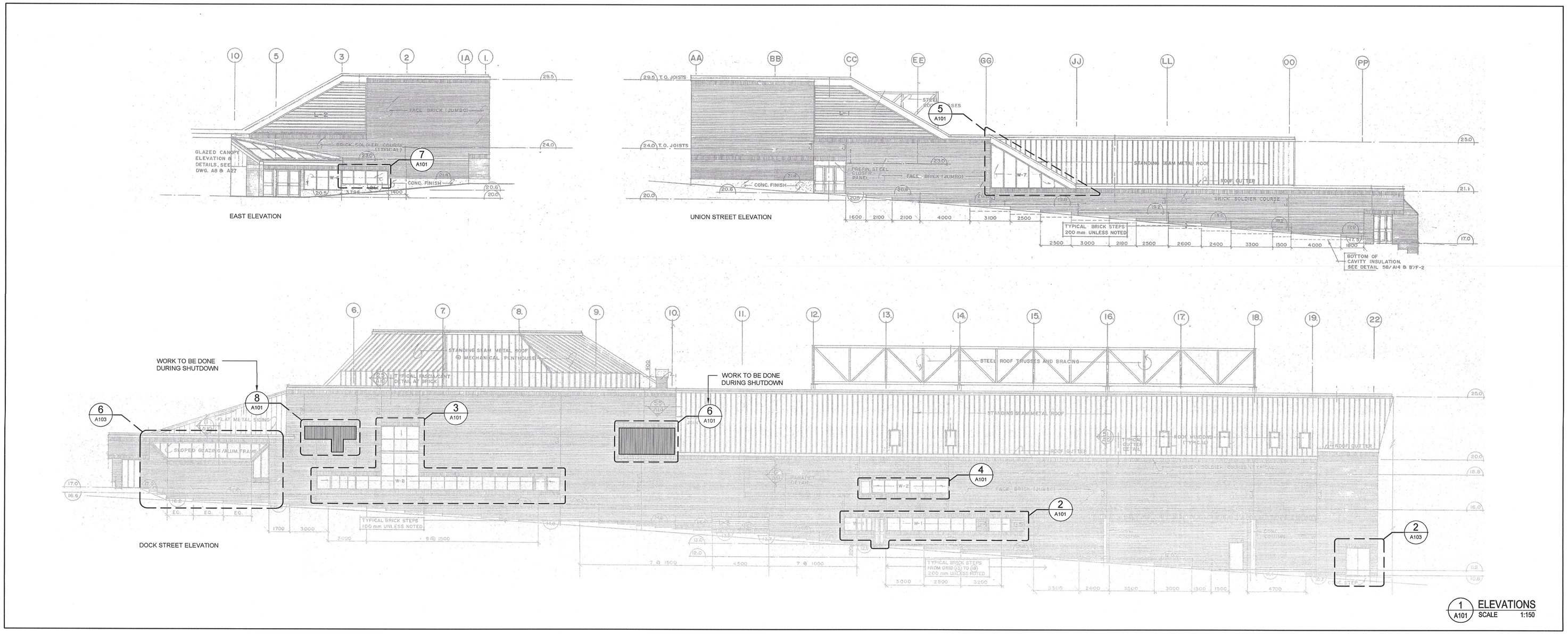












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Murdock ◦ Boyd
ARCHITECTS
50 KING STREET, SUITE 200
SAINT JOHN, NEW BRUNSWICK
CANADA, E2L 1G4
TEL (506) 646-9200 FAX (506)646-9201
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Revisions / Revisions	No/Nº	Date
ISSUED FOR TENDER	1	2023.06.19

Consultant / Expert-conseil

Project Title / Titre du projet

CANADA GAMES AQUATIC CENTRE WINDOW REPLACEMENT

50 UNION STREET
SAINT JOHN, NEW BRUNSWICK

Sheet title / Titre de la feuille

BUILDING & WINDOW ELEVATIONS

Date / Date	2023.06.19
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Approved by / Approuvé par	MRB
Consultant reference number / Numéro de référence de l'expert-conseil	

Stamp / Sceau

22001 CERTIFICATE of PRACTICE
Malcolm R. Boyd
MURDOCK & BOYD ARCHITECTS INC.
ARCHITECTS ASSOCIATION of NEW BRUNSWICK

2023.06.20

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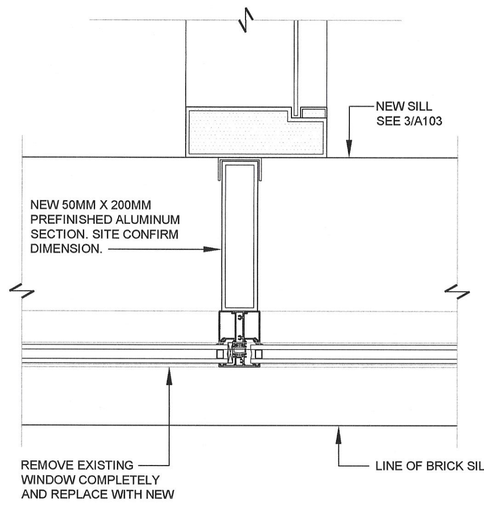
23-822	A101



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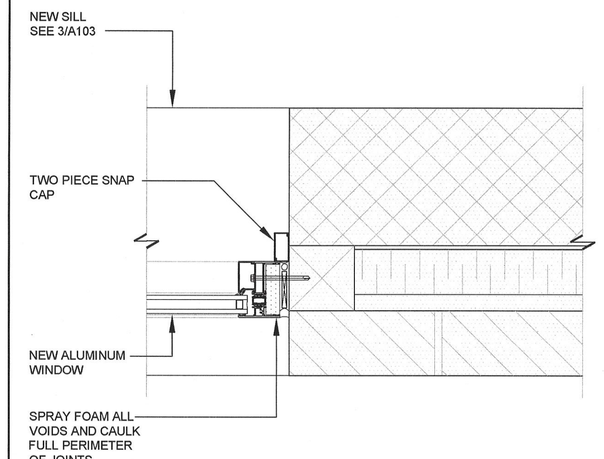

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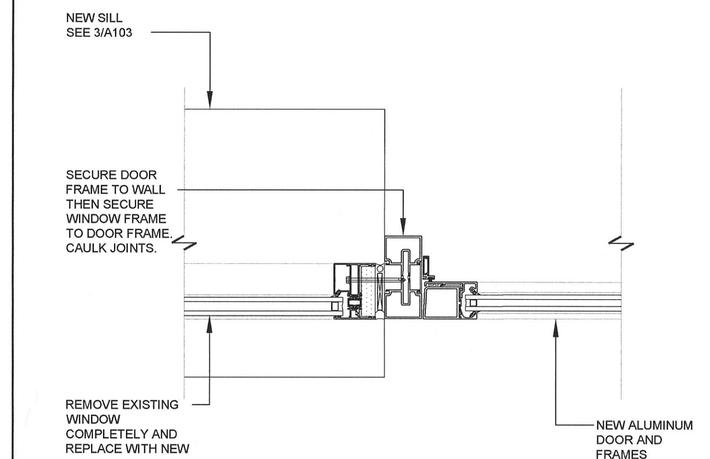

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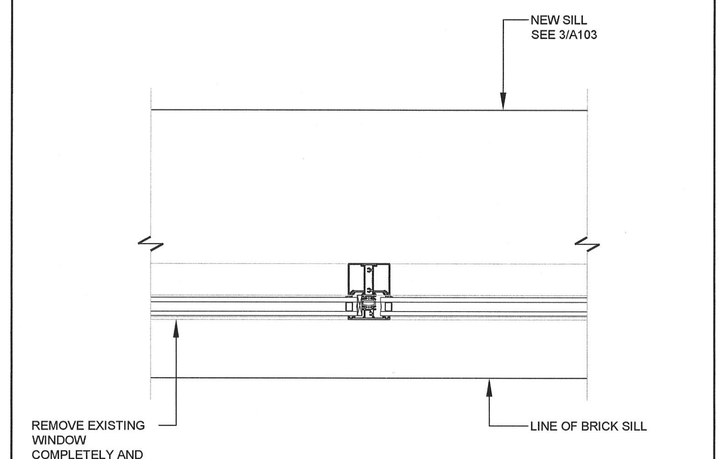

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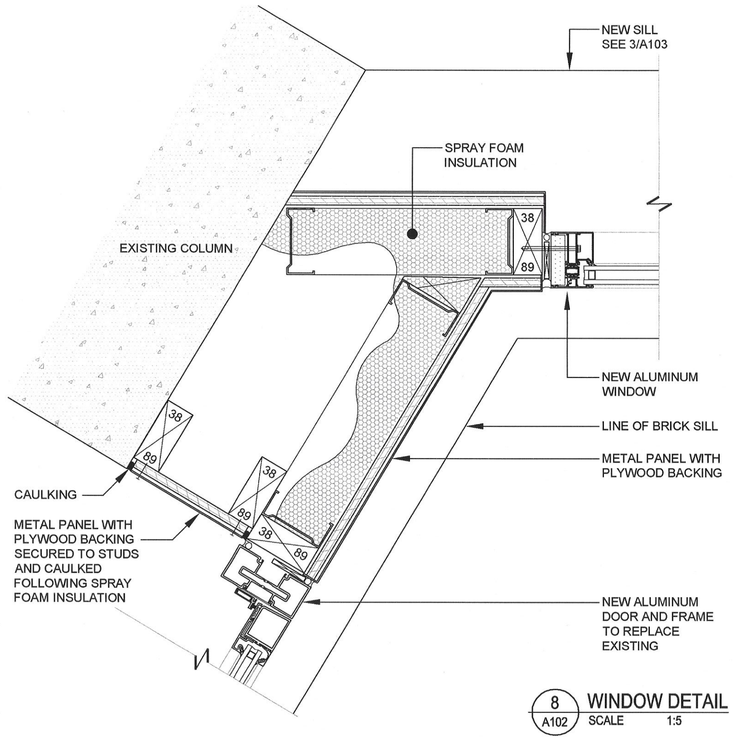

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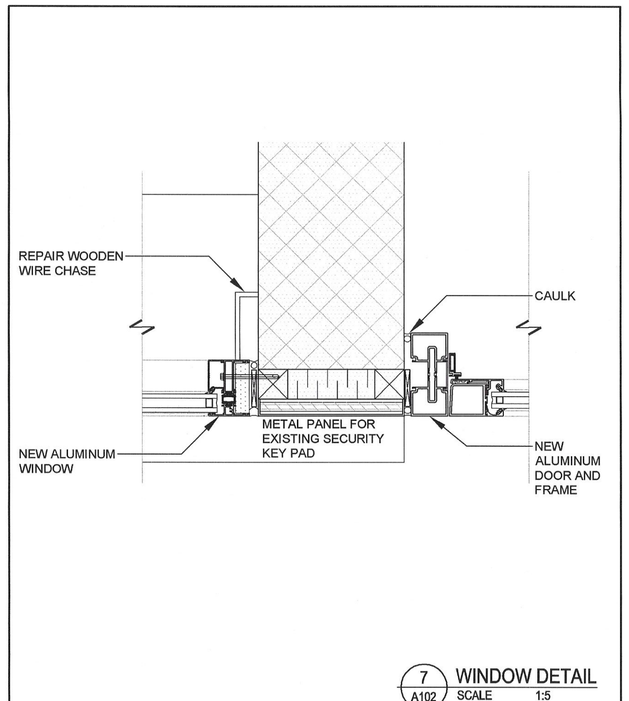

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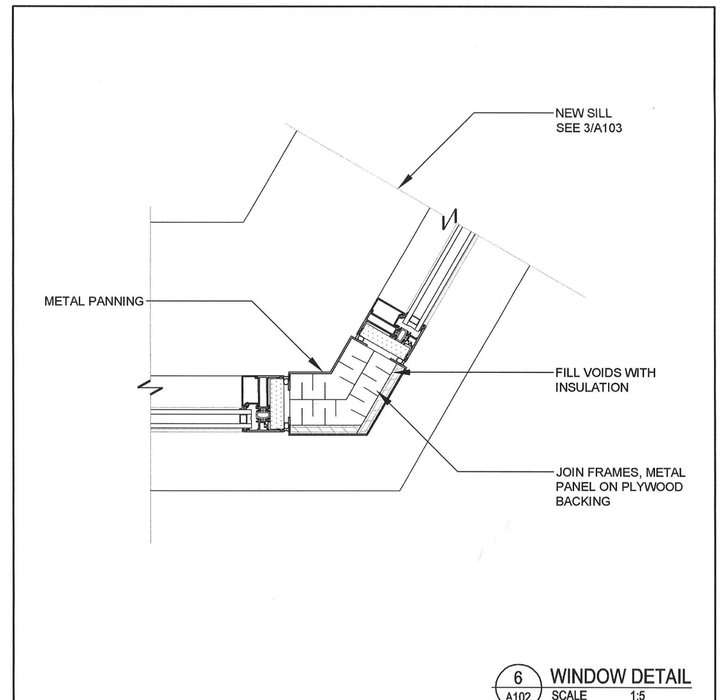

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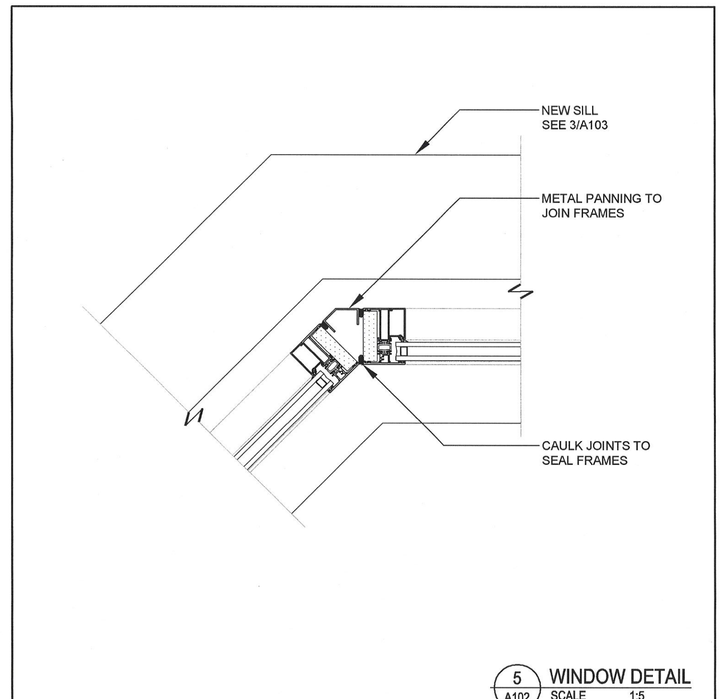

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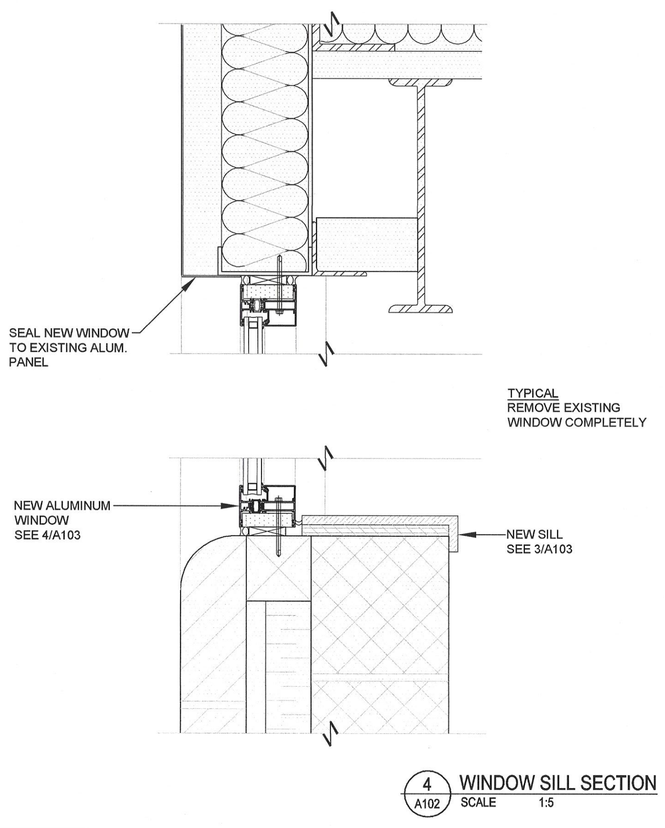

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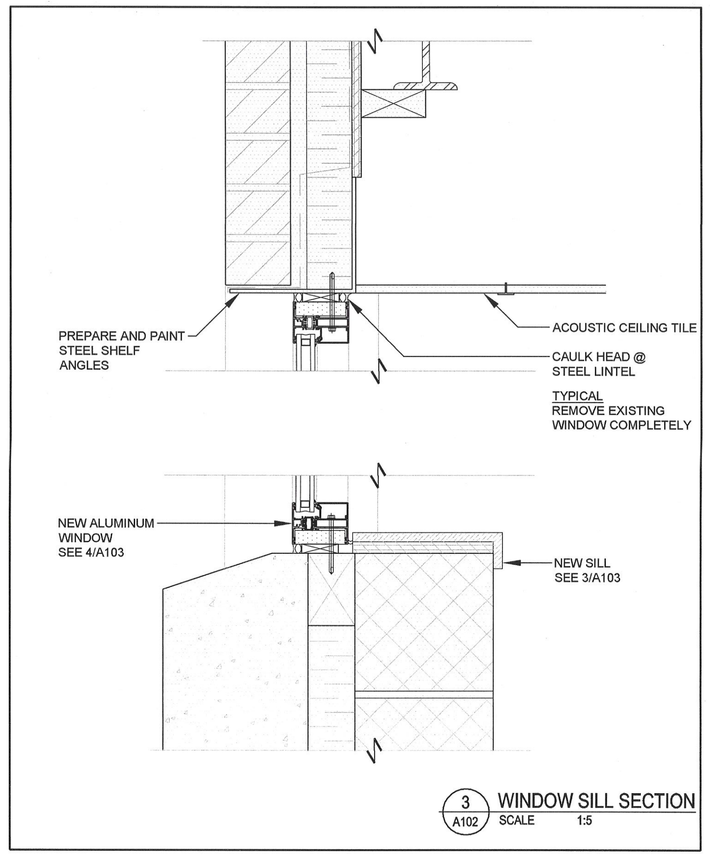

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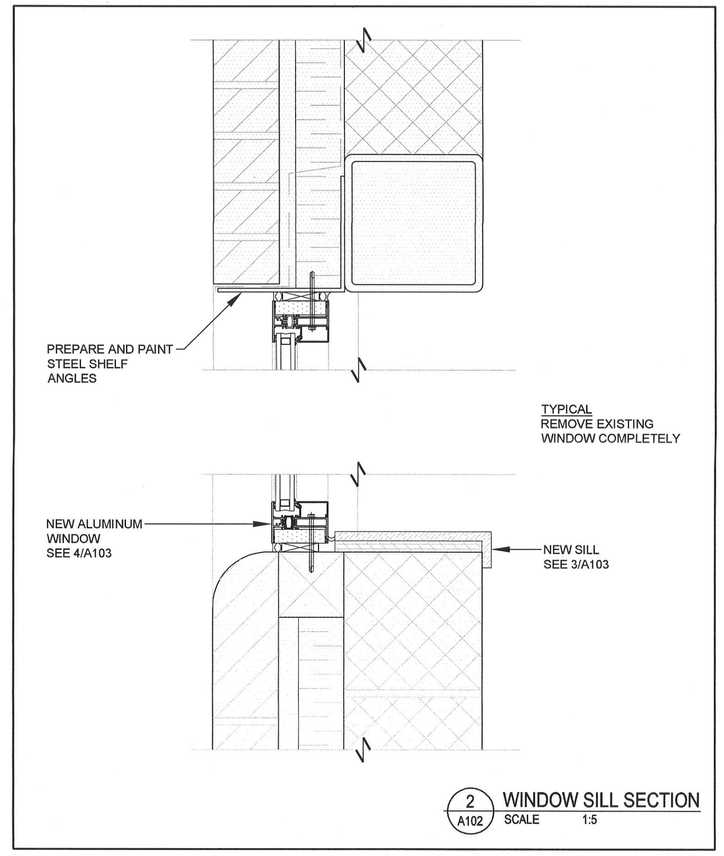

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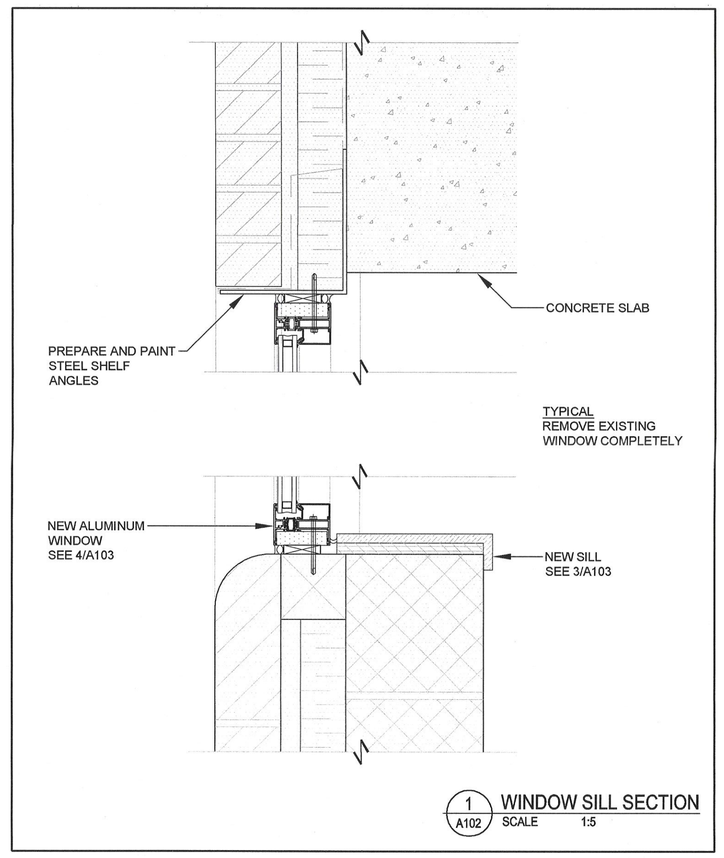

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SAINT JOHN

Murdock ◦ Boyd
ARCHITECTS
50 KING STREET, SUITE 200
SAINT JOHN, NEW BRUNSWICK
CANADA, E2L 1G4
TEL (506) 646-9200 FAX (506)646-9201
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CANADA GAMES AQUATIC CENTRE WINDOW REPLACEMENT

50 UNION STREET
SAINT JOHN, NEW BRUNSWICK

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WINDOW DETAILS

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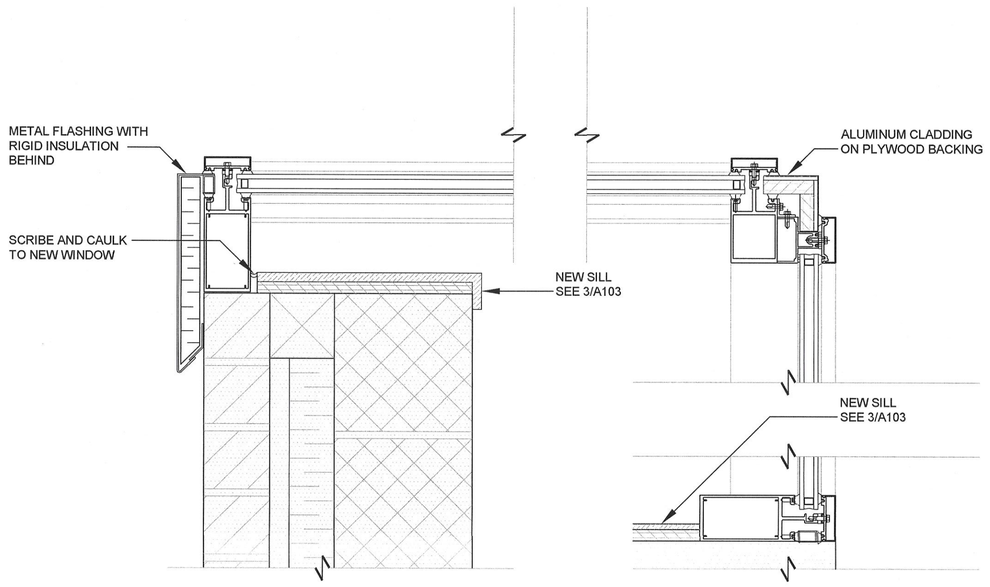
Project No. / Nº du projet	Sheet No. / Nº de la feuille
23-822	A102



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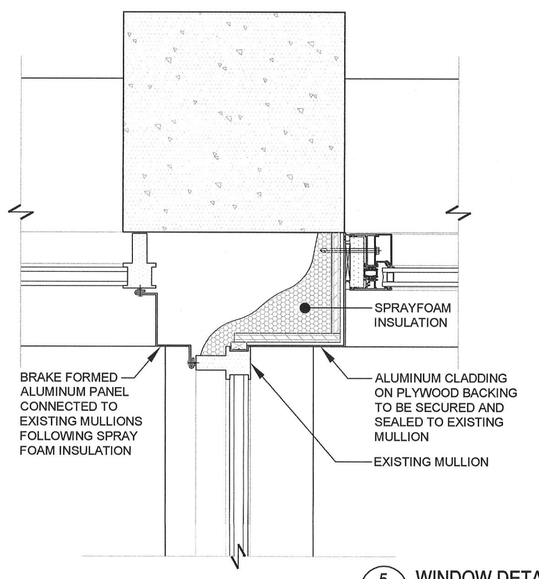

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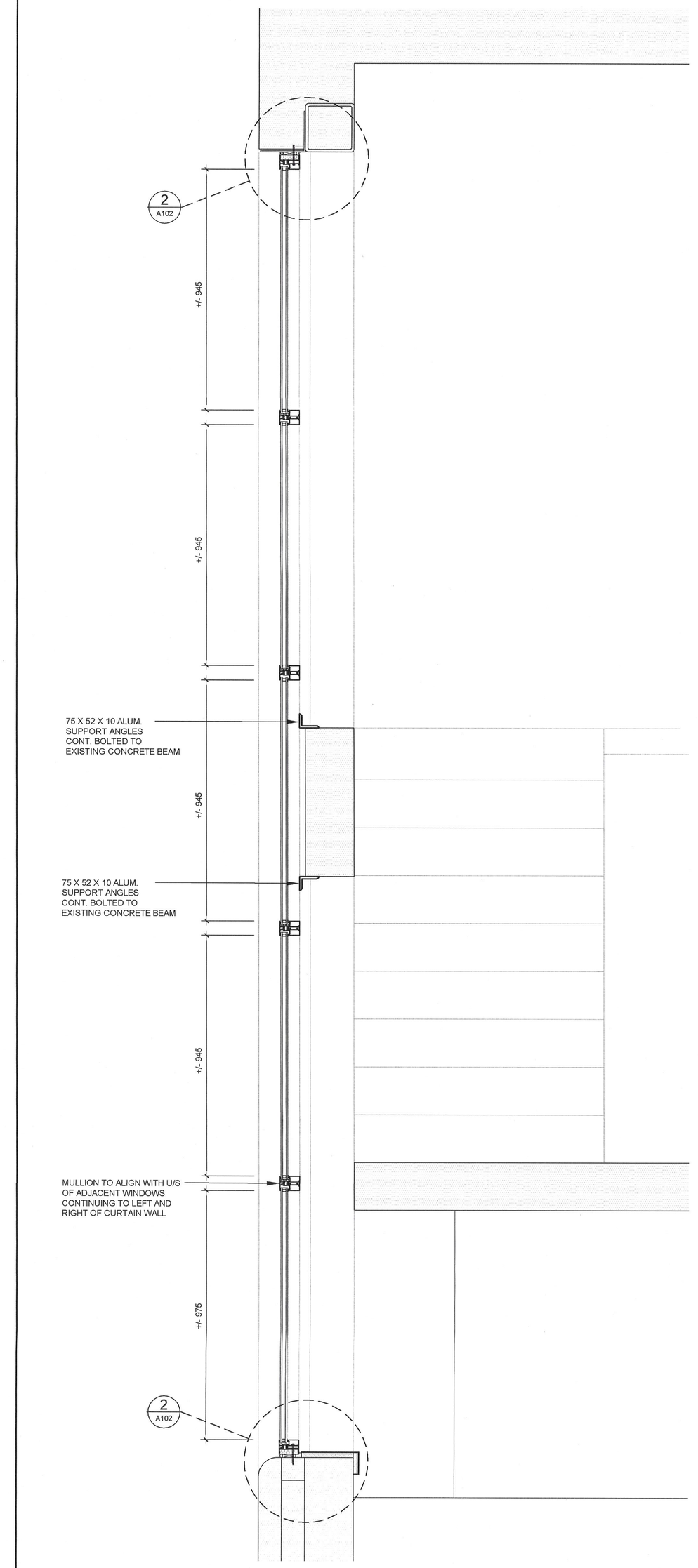

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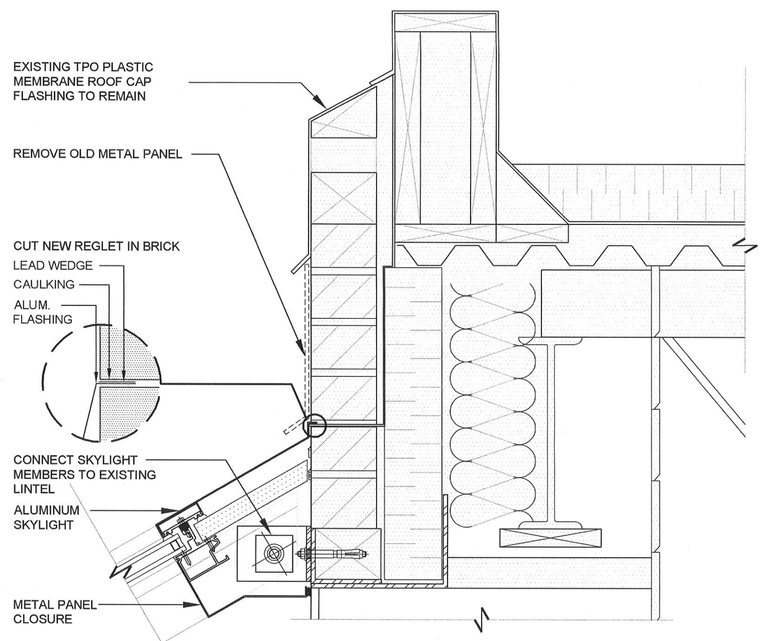

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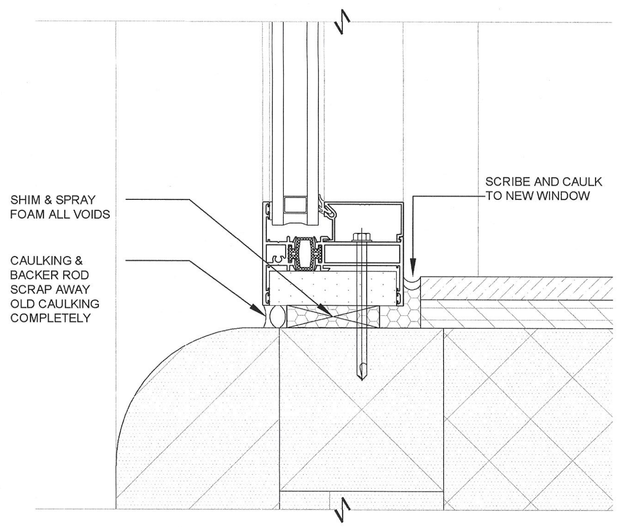

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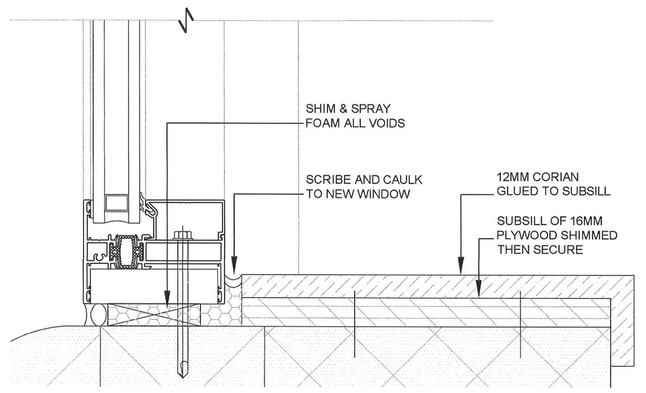

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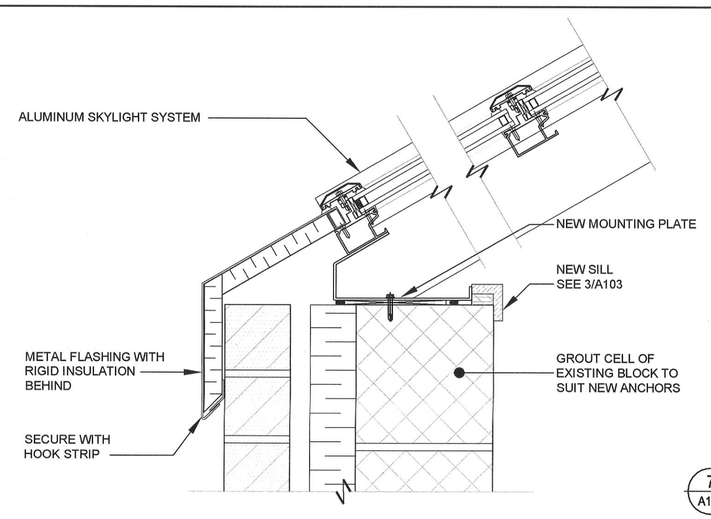

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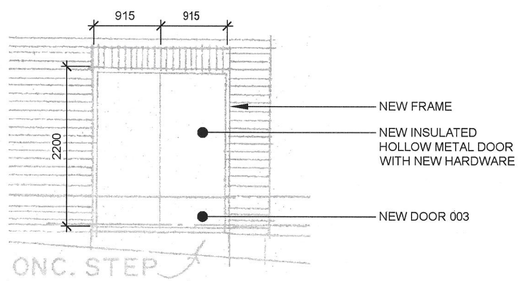

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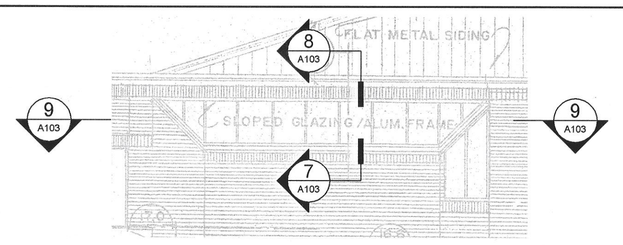

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CANADA GAMES AQUATIC CENTRE WINDOW REPLACEMENT

50 UNION STREET
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STAIRWELL SECTION & MISC. DETAILS

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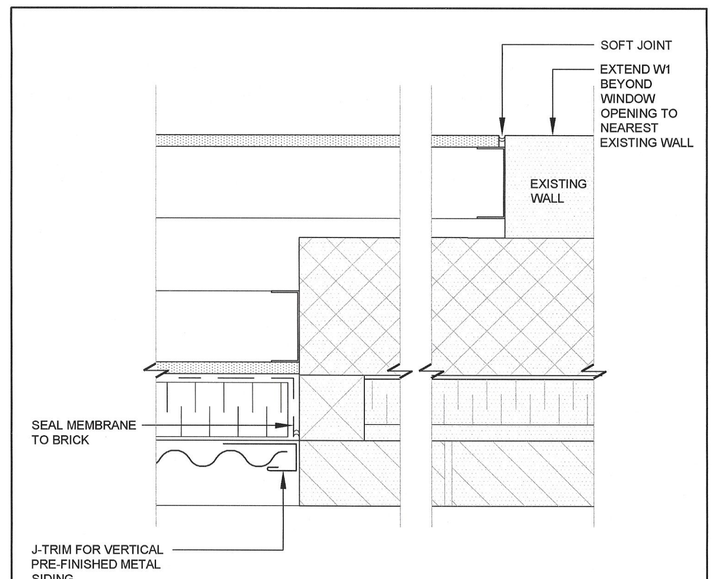
23-822	A103



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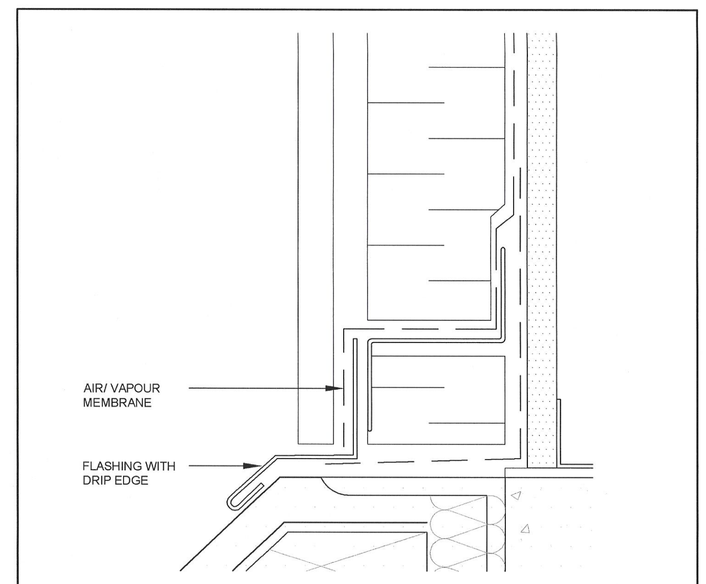

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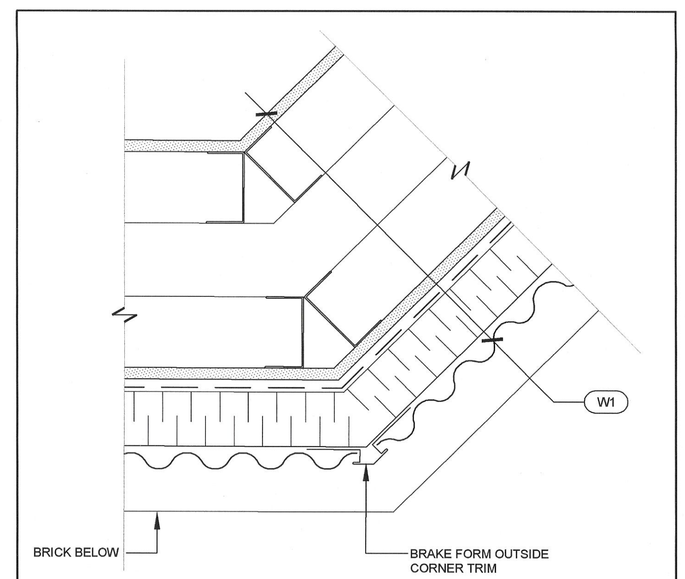

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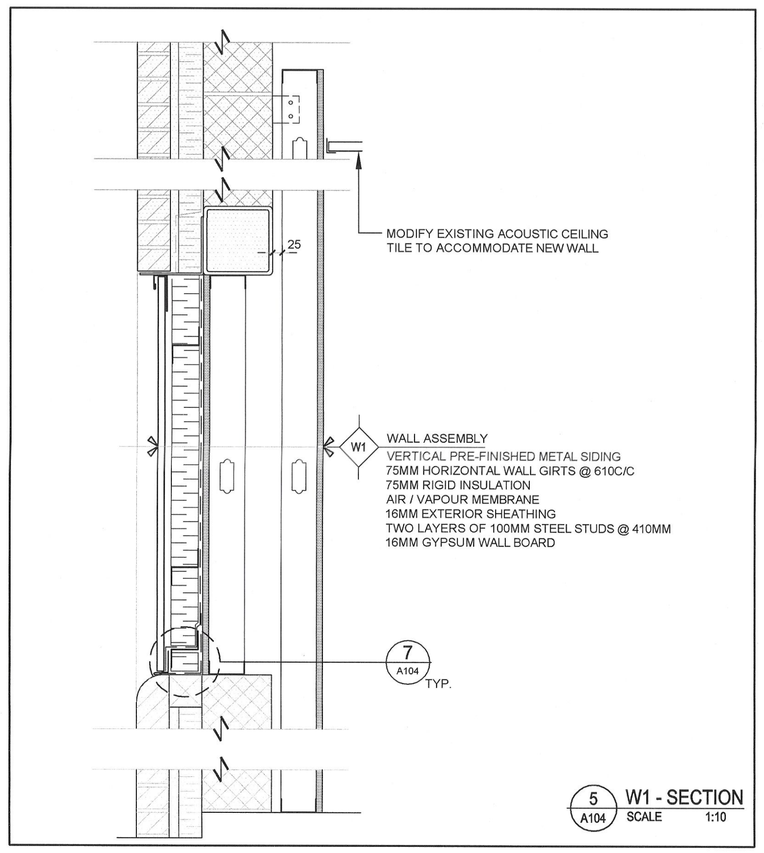

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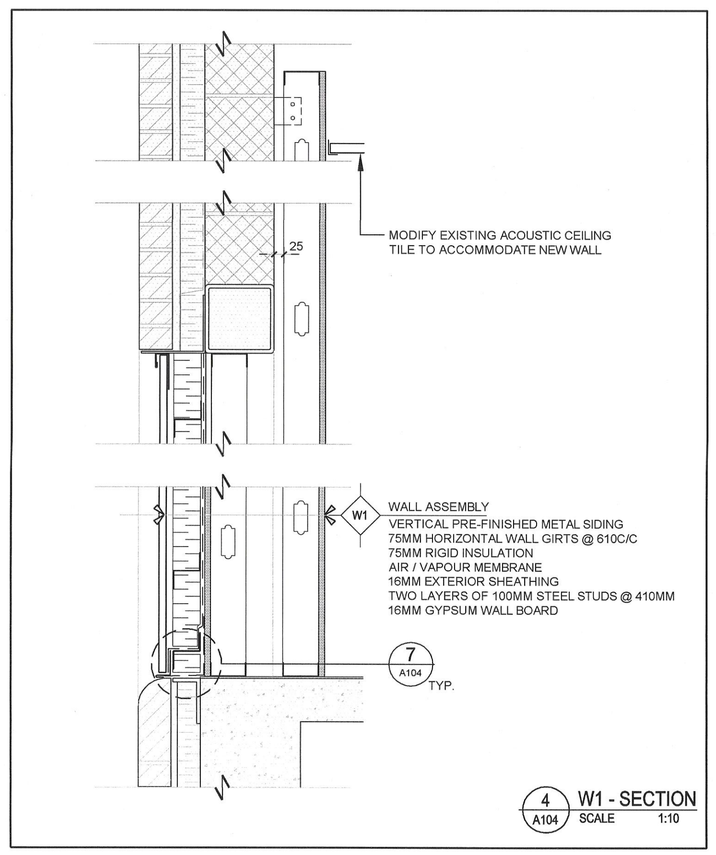

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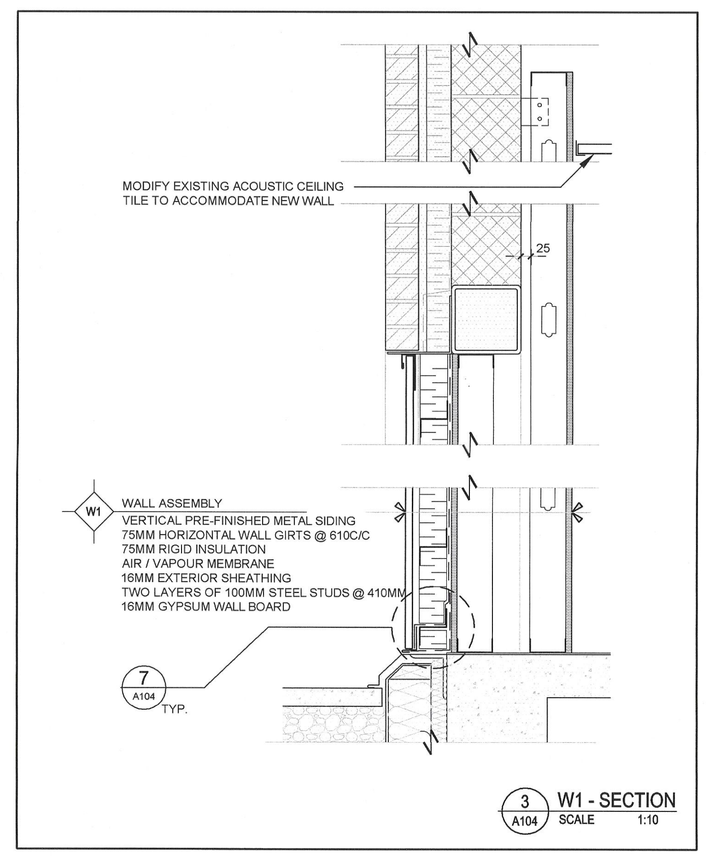

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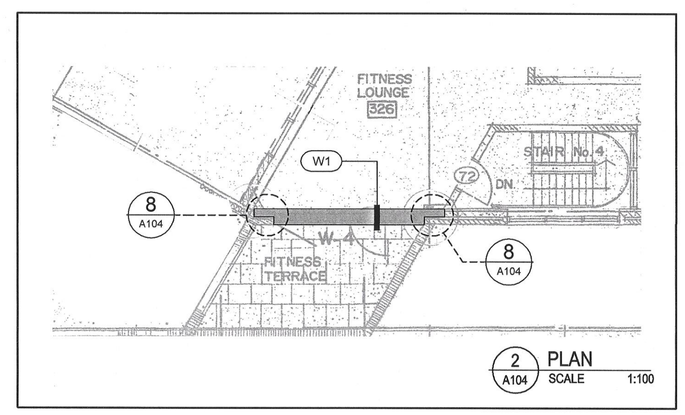

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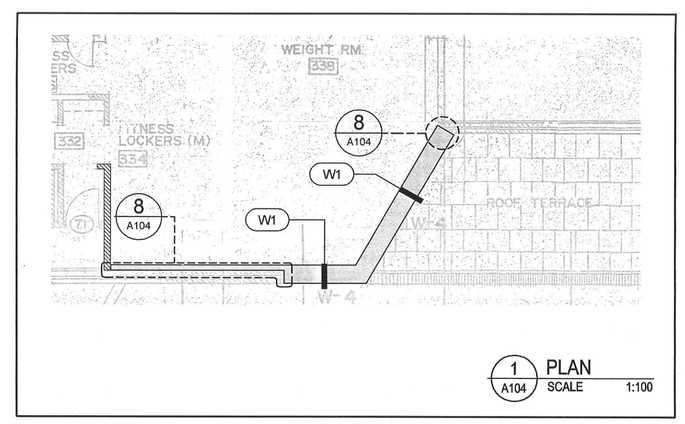

1 A104 PLAN SCALE 1:100

SAINT JOHN

Murdock ◦ Boyd
ARCHITECTS
50 KING STREET, SUITE 200
SAINT JOHN, NEW BRUNSWICK
CANADA, E2L 1G4
TEL (506) 646-9200 FAX (506)646-9201
www.architects.nb.ca

NOTES:

DIMENSIONS SHOWN ARE APPROXIMATE FRAME SIZES. MASONRY OPENINGS AND EXACT FRAME SIZES TO BE CONFIRMED ON SITE.

SCRAPE AND PAINT ALL EXISTING LINTELS ABOVE WINDOWS BEING REPLACED.

ISSUED FOR TENDER	1	2023.06.19
Revisions / Revísions	No/Nº	Date

Consultant / Expert-conseil

Project Title / Titre du projet

CANADA GAMES AQUATIC CENTRE WINDOW REPLACEMENT

50 UNION STREET
SAINT JOHN, NEW BRUNSWICK

Sheet title / Titre de la feuille

WAIL DETAILS

Date / Date	2023.06.19
Scale / Échelle	AS NOTED
Drawn by / Dessiné par	EAS
Approved by / Approuvé par	MRB
Consultant reference number / Numéro de référence de l'expert-conseil	

Stamp / Sceau

22001
CERTIFICATE of PRACTICE
Malcolm R. Boyd
MURDOCK & BOYD ARCHITECTS INC.
ARCHITECTS ASSOCIATION of NEW BRUNSWICK

2023-06-20

Project No. / Nº du projet	Sheet No. / Nº de la feuille
23-822	A104

APPENDIX B – FORM OF TENDER

TENDER No. 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

FORM OF TENDER

2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

The undersigned bidder has carefully examined the specifications and scope of work, and also visited the premises to become familiar with the conditions, character and extent of work.

The undersigned bidder has determined the quality and quantity of labour, materials and equipment required, and has the capability to comply with the terms and conditions herein described.

The undersigned bidder further agrees to provide all necessary equipment, tools, labour and materials which are necessary to complete the work in accordance with the contract and agrees to accept, therefore, in payment in full, in accordance with the terms, conditions, specifications, and drawings, the sum of:

$_____

Total Cost (All Taxes Extra)

*Pricing is to be bid in Canadian Funds and FOB Saint John, NB prepaid. The tender pricing shall include all installation wages, fringe benefits, insurance, transportation, delivery, duty, working tools, equipment costs, and any other charges incurred in order to provide required materials and/or services.

COMPANY: **E-MAIL:**	**SIGNATURE:_____** **NAME:_____** **(print)**
Date:	**Tel #** **Fax #**
H.S.T. Reg.#	**Remarks:**

APPENDIX C – FORM OF AGREEMENT

TENDER No. 2023-085102T
CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT made in triplicate between **THE CITY OF SAINT JOHN** herein (and in the Specifications) called the "Owner" or the "City"

AND

_____

herein (and in the Specifications) called the "Contractor".

WITNESSETH: That the Owner and the Contractor agree as follows:

(a) The Contractor shall provide all the materials and perform all the work shown on the drawings and described in the Contract Specifications titled:

Contract No: __2023-085102T_____

Title: CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

(b) The Contractor shall do and fulfill everything indicated by this Agreement; and

(c) The Contractor shall Substantially Complete the Work no later than Friday, October 27th, 2023.

CONTRACT DOCUMENTS

General Specifications

General Specifications, City of Saint John, New Brunswick,
with all applicable divisions, as updated and as listed in the Table of Contents of the Contract Specifications.

Contract Specifications

Contract specifications for

Contract No: __2023-085102T_____

Title: CANADA GAMES AQUATIC CENTRE – WINDOW REPLACEMENT

City of Saint John, New Brunswick,

Drawings

A101	BUILDING & WINDOW ELEVATIONS
A102	WINDOW DETAILS
A103	STAIRWELL SECTION & MISC. DETAILS
A104	WALL DETAILS

ADDENDA

The Contractor agrees that he has received addenda ___ to ___ inclusive, and that the tender price

includes the provisions set out in the addenda.

CONTRACT PRICE

The Owner shall pay to the Contractor, in lawful money of Canada for the performance of the Contract, the amounts determined for each of the items of work completed at the unit prices as listed in the Schedule of Quantities and Unit Prices, plus applicable taxes, submitted with the tender, which is to be attached with this Agreement, for the total tender price of:

_____

_____

_____

If the Engineer orders in writing the performance of any work not covered by the drawings or included in the specifications that cannot be classified as coming under any of the contract units and for which a unit price can be agreed upon, then such additional work shall be paid for as described under the General Administration of Contract, Division 6.

PAYMENT

The Owner shall pay on account of thereof upon the Engineer's Certificate, as invoiced by the Contractor and approved by the Engineer, in the manner described in the Specifications.

AGREEMENT DOCUMENTS

The General Administration of Contract, Division 6 and the aforesaid Specifications and Drawings are all to be read into and form part of this Agreement and the whole shall constitute the Contract between the parties and it shall inure to the benefit of and be binding upon them and their successors, executors, administrators, and subject to the General Administration of Contract, their assigns.

EXECUTION OF AGREEMENT

In Witness Whereof the parties hereto have executed this Agreement.

	) SIGNED, SEALED AND DELIVERED
	)
	) this _____ day of _____, _____
	)
	) by _____
	) (Contractor)
	)
_____	) _____
(Witness)	) (Signature)
	)
_____	) _____
(Name and Title)	) (Name and Title)
	)
	) _____
	) (Signature)
	)
	) _____
	) (Name and Title)
	)
	)
	) *PLACE SEAL HERE*

	)
	)
	) SIGNED, SEALED AND DELIVERED
	)
	) this _____ day of _____, _____
	)
	) by THE CITY OF SAINT JOHN.
	)
	)
	) _____
	) MAYOR
	)
	) _____
	) COMMON CLERK
	)
	)
	)
	) *PLACE SEAL HERE*

AFFIDAVIT OF CORPORATE EXECUTION

CANADA
PROVINCE OF NEW BRUNSWICK
CITY OF SAINT JOHN

I, _____, of the _____
in the County of _____, and Province of New Brunswick
MAKE OATH AND SAY:

(1) THAT I am the _____ of _____, and _____ is the _____ of the said Company, as such I am/we are duly authorized officer(s) of the said Company to execute the foregoing instrument.

(2) THAT the signature _____ subscribed to the within instrument is my signature and in my own proper handwriting and that the signature _____ so subscribed is his signature made thereto by him in my presence.

(3) THAT the Seal affixed to the said instrument purporting to be the Corporate Seal of the said _____ is the Corporate Seal of the said Company and was affixed to the said instrument by me and by order of the Board of Directors of the Company.

SWORN TO BEFORE ME at the_____)
)
of _____)
)
in the Province of _____)
)
this _____ day of _____ A.D., _____.)
)
_____) _____
COMMISSIONER OF OATHS) CONTRACTOR
)

Note: The blank spaces are to be filled in with the name or names of the signing officer(s).