



**FACILITIES MANAGEMENT**

**OPEN CALL FOR BIDS**

**FOR**

**Arts & Administration Building  
Sloped Glazing Replacement**

Request for Open Call Number: **TFM-024-24**

Issued: May 31, 2024

Submission Deadline: **Thursday, June 20, 2024**  
**@ 3:00PM NDT**

**REQUEST FOR OPEN CALL FOR BIDS INFORMATION SHEET**

Request for Open Call			
Title:	A-506-22, Arts & Administration Building, Sloped Glazing Replacement		
Open Call #:	TFM-024-24	Issue Date:	May 31, 2024
Site Visit:	Location: All request for site visit to be requested through open calls via email ( <a href="mailto:opencalls@mun.ca">opencalls@mun.ca</a> ).		TBD
Questions Deadline:	Eight (8) days prior to closing time, at 3:00pm (NST).	Closing Date & Time:	Thursday June 20, 2024 @ 3:00 pm NDT
		Bid Submission Format:	<a href="mailto:opencalls@mun.ca">opencalls@mun.ca</a>
		Opening Date, Time & Location:	Thursday, June 20, 2024 @ 3:30 pm NDT  <b>Via Conference line:</b> <b>1-416-915-6530 (toll free)</b> <b>Access Code: 2774 521 4546</b> <b>Attendee ID: Please press Pound(#)</b>
Bids Irrevocable Period after Submission Deadline:			45 days (See section 1.6)
<b>Bid Submission: Responses to this solicitation must be submitted by email to <a href="mailto:opencalls@mun.ca">opencalls@mun.ca</a> Email subject line must read: <u>BID SUBMISSION: TFM-024-24 Arts and Atrium Building, Sloped Glazing Replacement</u></b>			

**Inquiries and Communication**

**Inquiries and communication:** Strategic Procurement Office, Memorial University of Newfoundland, [opencalls@mun.ca](mailto:opencalls@mun.ca). Inquiries accepted only via email. No phone calls will be accepted. **Please reference open call Title and Open Call # from above, ie: TFM-024-24 Arts and Atrium Building, Sloped Glazing Replacement** in subject line. Emails not containing this requirement information in the subject line will NOT receive a response.

***Bids submitted by fax, mail, courier, drop off or by any other means of delivery other than by email stated above shall not be accepted.***

## ABOUT MEMORIAL UNIVERSITY

As Newfoundland and Labrador's only university, Memorial has a special obligation to the people of this province. Established as a memorial to the Newfoundlanders who lost their lives on active service during the First and Second World Wars, Memorial University draws inspiration from these shattering sacrifices of the past as we help to build a better future for our province, our country and our world.

We are a multi-campus, multi-disciplinary, public university committed to excellence in teaching and learning, research and scholarship, and to public engagement and service. We strive to have national and global impact, while fulfilling our social mandate to provide access to university education for the people of the province and to contribute to the social, cultural, scientific and economic development of Newfoundland and Labrador and beyond.

The Memorial experience goes beyond academics; it invites a discovery of self, community and place. At Memorial, we celebrate our unique identity through the stories of our people – the work of scholars and educators, the ingenuity of students, the achievements of alumni – and the impact we collectively make in the province, the country and the world. Memorial is the natural place where people and ideas become.

Memorial University has more than 18,500 students and 3,600 faculty and staff spread across four campuses and nearly 100,000 alumni active throughout the world. From local endeavors to research projects of national importance, Memorial's impact is felt far and wide.

### ***Mission, Vision and Values***

#### **Vision**

Memorial University will be one of the most distinguished public universities in Canada and beyond, and will fulfill its special obligation to the people of Newfoundland and Labrador.

#### **Mission**

Memorial University is an inclusive community dedicated to innovation and excellence in teaching and learning, research, scholarship, creative activity, service and public engagement.

Memorial welcomes and supports students and scholars from all over the world and contributes knowledge and expertise locally, nationally and internationally.

#### **Values**

*Excellence:* Encouraging and promoting excellence through innovation and creativity, rigor and pragmatism.

*Integrity:* Being honest and ethical in all interactions, maintaining the highest ethical standards in teaching, research, public engagement and service.

*Collegiality:* Engaging others with respect, openness and trust in pursuit of a common purpose, having regard for individuals, ideals and the institution as a whole.

*Inclusiveness and diversity:* Embracing and acting on responsibility to guarantee diversity and equity.

*Responsiveness:* Being receptive to individuals and communities.

*Accountability:* Accepting responsibility for achievement of common goals and objectives.

*Freedom and Discovery:* Supporting the freedom to pursue knowledge that is based on individual and collective intelligence, curiosity, ingenuity and creativity.

*Recognition:* Acknowledging, tangibly, all aspects of university enterprise including teaching and learning, research, scholarship, creative activity and public engagement.

*Responsibility to place:* Valuing and fulfilling the special obligation to the people of Newfoundland and Labrador by supporting and building capacity for excellence that:

- addresses needs and opportunities for Newfoundland and Labrador;
- engages the university community on matters of national and international significance;
- produces and delivers academic programs of national and international calibre; and,
- Recognizes the dynamic opportunities presented by a multi-campus institution.

*Responsibility to learners:* Recognizing students as a first priority and providing the environment and support to ensure their academic and personal success.

*Interdisciplinary collaboration:* Supporting overarching themes in all pursuits that cut across academic units and address significant opportunities and challenges for which Memorial is particularly well positioned to build nationally and internationally recognized capacity.

*Sustainability:* Acting in a manner that is environmentally, economically and socially sustainable in administration, academic and research programs.

Memorial's exceptional staff and students contribute to the vitality and positive environment of the university through active community engagement. Memorial University has always been a publicly engaged institution. Since the founding of the University in 1949, the work of many of Memorial's students, faculty and staff has emphasized the importance of strong, sustained partnerships with members of the public of Newfoundland and Labrador and beyond.



## **Faculty and Staff**

Memorial is one of the largest employers in the province, with approximately 3,600 faculty and staff. Memorial has been recognized as an Employer of Distinction by the Newfoundland and Labrador Employers' Council, which is reflective of its investment in comprehensive benefits, services such as childcare and recreation facilities, emphasis on work-life balance, and its vibrant work environment.

## **Governance and Administration**

The management, administration and control of the property, revenue, business and affairs of the University are vested in a Board of Regents. The Board is appointed under the *Memorial University Act* and is responsible for the management, administration, and control of the property, revenue, business and affairs of the university. Matters of an academic character are in general charge of the Senate of the University.

For more information on Memorial University of Newfoundland, please visit:  
Memorial's home page: <http://www.mun.ca/>

## **Territory Acknowledgements at Memorial:**

We acknowledge that the lands on which Memorial University's Campus are situated are in the traditional territories of diverse Indigenous groups and we acknowledge with respect the diverse histories and cultures of the Beothuk, *Mi'kmaq*, *Innu*, and *Inuit of this province*.



**SPECIFICATION FOR  
MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
ARTS AND ADMINISTRATION BUILDING  
ATRIUM SLOPE GLAZING REPLACEMENT**

**ISSUED FOR TENDER**

**DATE:**

May 30, 2024

**PREPARED FOR:**

Memorial University  
Elizabeth Avenue  
St. John's, NL A1C 5S7

**PREPARED BY:**

Stantec Architecture Limited  
141 Kelsey Drive  
St. John's, NL A1B 0L2

**SAL REF. NO:** 140132824

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**Memorial University of Newfoundland  
Arts and Administration Building  
Atrium Slope Glazing Replacement**  
Signature Page

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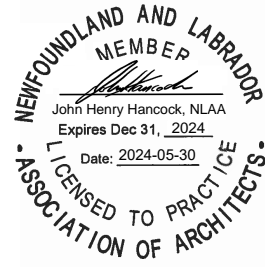
**DISCIPLINE**

**DATE**

**STAMP**

Architectural  
Specifications

2024-05-30



**PROCUREMENT AND CONTRACTING DOCUMENTS GROUP**

**DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS**

Open Call for Bids – Cover Sheet  
Request for Open Call for Bids (OCB) Information Sheet  
About Memorial University  
Section 00 01 10 - Table of Contents  
Section 00 01 15 - List of Drawings

**Open Call for Bids Strategic Procurement Sections**

Part 1 – Submission Instructions  
Part 2 – Evaluation and Award  
Part 3 – Terms and Conditions of the OCB Process  
Part 4 – Environmental Health and Safety Requirements  
Part 5 – General Conditions  
Part 6 – Supplementary Terms and Conditions

Appendix A – Specifications and Drawings  
Appendix B – Submission Form  
Appendix C1 – Pricing Form  
Appendix D – List of Subcontractors

**General Conditions and Agreement between Owner and Contractor for the Stipulated Price Contract**

Index  
General Conditions  
Supplementary General Conditions  
Special Conditions  
Campus Safety and Health Regulations  
Contractor Performance Evaluation

**SPECIFICATIONS GROUP**

**DIVISION 1 - GENERAL REQUIREMENTS**

Section #01 10 00 - Summary for Small Projects  
Section #01 21 00 - Allowances  
Section #01 35 29.06 - Health and Safety Requirements  
Section #01 43 39 - Mock-up Requirements

***Facility Construction Subgroup***

**DIVISION 2 - EXISTING CONDITIONS**

Section #02 41 19.13 - Selective Building Demolition

## **DIVISION 5 – METALS**

Section #05 12 23 - Structural Steel for Buildings

## **DIVISION 6 - WOOD, PLASTICS AND COMPOSITES**

Section #06 10 53 - Miscellaneous Rough Carpentry

## **DIVISION 7 - THERMAL & MOISTURE PROTECTION**

Section #07 21 13 - Board Insulation

Section #07 21 29 - Sprayed Insulation – Polyurethane Foam

Section #07 26 00 - Vapour Retarders

Section #07 27 00.01 - Air Barriers – Descriptive or Proprietary

Section #07 42 13 - Metal Wall Panels

Section #07 52 00 - Modified Bituminous Membrane Roofing

Section #07 62 00 - Sheet Metal Flashing and Trim

Section #07 92 00 - Joint Sealants

## **DIVISION 8 - OPENINGS**

Section #08 44 13 - Glazed Aluminum Curtain Walls

Section #08 80 00 - Glazing

## **DIVISION 9 - FINISHES**

Section #09 21 16 - Gypsum Board Assemblies

Section #09 22 16 - Non-Structural Metal Framing

Section #09 91 23 - Interior Painting

## **APPENDICES**

Appendix A – Hoarding Areas

**ARCHITECTURE**

- A100 SITE PLAN
- A101 CURTAIN WALL ELEVATIONS AND WALL TYPES
- A200 LEVEL 5 REFLECTED CEILING AND ROOF DEMOLITION PLANS
- A201 DEMOLITION VIEWS
- A202 LEVEL 5 - REFLECTED CEILING PLAN & FINISHES PLAN
- A203 ELEVATIONS AND BUILDING SECTIONS
- A300 DETAILS
- A301 DETAILS

## PART 1 – SUBMISSION INSTRUCTIONS

### 1.1 Bids to be Submitted on Time

Bids must be submitted as set out above on or before the Submission Deadline. Bids submitted after the Submission Deadline will be rejected. Onus and responsibility rest solely with the bidder to submit its bid to the email indicated in the Open Call for Bids on or before the Submission Deadline. The Owner does not accept any responsibility for any bids submitted by means other than the email listed above. Bidders making submissions near the deadline do so at their own risk due server availability. The time for the closing will be determined according to the inbox, time stamp on [opencalls@mun.ca](mailto:opencalls@mun.ca).

**Bids received after the closing time based on this time stamp, will NOT be considered.**

### 1.2 Bids to be Submitted in Prescribed Format

- Bidders should submit **one (1)** email submission in PDF format.
- Please note: File size cannot exceed 15 MB. Otherwise server may reject bid submission due to size.
- **Bids submitted by fax, mail, courier, drop off or by any other means of delivery other than by email stated above shall not be accepted.**

### 1.3 Amendment of Bids

Bidders may amend their bids after they have been submitted if, and only if, the amendment is emailed prior to the Submission Deadline marked **BID SUBMISSION AMENDMENT** followed by open call number and name.

**Bidders may revise their bid by email:** [opencalls@mun.ca](mailto:opencalls@mun.ca)

The Owner does not accept any responsibility for amendments submitted by means other than the email listed above. Bidders making submission near the deadline do so at their own risk due to service availability. The time for the closing will be determined according to the inbox, time stamp on [opencalls@mun.ca](mailto:opencalls@mun.ca). Amendments to bids received after the closing time base on this times stamp, will NOT be considered.

Email inquiries and requests for clarification shall be accepted up to eight **(8) days (3:00pm NST)** prior to the closing time. Inquiries and requests for clarification received after this date shall not be addressed. The Strategic Procurement Office will be the only official source of information regarding this Open Call for Bids and information from any other source shall be considered unofficial and may not be correct.

### 1.4 Amendment of Open Call for Bid Documents

To ensure consistency and quality in the information provided to bidders the Owner shall provide, by way of amendment to this Open Call for Bids, in the form of an addendum, any relevant information with respect to the Open Call inquiries received in writing without revealing the source of those inquiries. Bidders are cautioned that it is their responsibility to ensure that they receive all information relevant to this Open Call. The Owner shall not be

responsible for bidders who fail to inform themselves regarding the scope and nature of the work. The Owner shall publish all amendments on Memorial University's current service providers: MERX: [www.merx.com](http://www.merx.com), BIDS: [www.bids.ca](http://www.bids.ca) and PODS: [www.pods.net](http://www.pods.net). In addition, all amendments will be published on [https://www.mun.ca/finance/strategic\\_procurement/](https://www.mun.ca/finance/strategic_procurement/). Bidders should check on a regular basis for Open Call updates. Bidders are solely responsible for ensuring they are aware of and have complied with all amendments by tender closing time. In the event there is a discrepancy between MERX, BIDS, and PODS and the official website [https://www.mun.ca/finance/strategic\\_procurement/](https://www.mun.ca/finance/strategic_procurement/) website, the [https://www.mun.ca/finance/strategic\\_procurement/](https://www.mun.ca/finance/strategic_procurement/) is the official website. Bidders are welcome to register their email address through [opencalls@mun.ca](mailto:opencalls@mun.ca) to receive addendum notifications from Open Calls as a matter of courtesy. This does not relieve any Bidder of their responsibility to ensure all addenda has been received.

### **1.5 Withdrawal of Bids**

Bidders may withdraw their bids prior to the Submission Deadline. To withdraw a bid, a notice of withdrawal must be sent to the [opencalls@mun.ca](mailto:opencalls@mun.ca) email address prior to the Submission Deadline. The Owner is under no obligation to return withdrawn bids.

### **1.6 Bids Irrevocable after Submission Deadline**

Bids shall be irrevocable for a period of **45** days running from the moment that the Submission Deadline passes.

### **1.7 Delivery**

Time is of the essence and delivery schedule(s) are legally binding. Memorial University reserves the right to assess penalties or cancel awards to Bidders who fail to meet the stated delivery or completion dates. Delivery of all materials and services must be DAP (delivered at place) or DDP (delivered duty paid (all locations) and local environs).

### **1.8 Signature**

Memorial University, in consideration of section 11 of the Electronic Commerce Act, confirms its acceptance of electronic signatures, or other acceptable form of electronic consent, in satisfaction of the signature requirement for bid submissions. The electronic form of signature or consent must be directly related to the relevant bid submission at issue and must be reliable, in a manner as determined by Memorial University, for the purpose of identifying the person submitting the bid response. By submitting a bid under this process, the bidder confirms that the signatory has the appropriate and proper authority to bind the bidder to its submission, a confirmation upon which Memorial University relies in the processing of the bid submission.

**Bidders must complete Appendix B –Submission Form. Any bids received without Appendix B completed will be deemed non-complaint.**

### **1.9 Closure**

In the event that the University is closed earlier than normally expected prior to a scheduled open calls closing for that day, or for the full day, the closing date for those open calls will be extended to the next business day for the University at the same time as listed originally.



## **1.10 Corporations Act**

The Corporations Act of Newfoundland and Labrador requires that an extra-provincial company be registered before it begins or carries on business in the Province. If your company is not registered, please apply for the appropriate forms and procedures to:

Commercial Registrations Division

Dept of Government Services, PO Box 8700 St John's, NL Canada A1B 4J6

Phone: 709-729-3317, Fax: 709-729-0232

Website: [http://www.gs.gov.nl.ca/registries/companies/corp\\_art\\_inc.html](http://www.gs.gov.nl.ca/registries/companies/corp_art_inc.html)

**[End of Part 1]**

## **PART 2 – EVALUATION AND AWARD**

### **2.0 Stages of Evaluation**

The Owner will conduct the evaluation of bids in the following stages:

#### **2.1.0 Stage I – Mandatory Submission Requirements**

Stage I will consist of a review to determine which bids comply with all of the mandatory submission requirements. Bids that do not comply with all of the mandatory submission requirements as of the Submission Deadline will, subject to the express and implied rights of the Owner, be disqualified and not evaluated further.

#### **2.1.1 Stage II – Mandatory Technical Requirements**

Stage II will consist of a review to determine which bids comply with all of the mandatory technical requirements. Bids that do not comply with all of the mandatory technical requirements as of the Submission Deadline will, subject to the express and implied rights of the Owner, be disqualified and not evaluated further. The mandatory technical requirements are listed in Appendix A - Specifications.

#### **2.1.2 Stage III – Pricing**

Stage III will consist of a scoring of the submitted pricing of each compliant bid in accordance with the evaluation method set out in the Pricing Form (Appendix C). The evaluation of price will be undertaken after the evaluation of mandatory requirements has been completed.

### **2.2 No Amendment to Forms**

Other than inserting the information requested on the mandatory submission forms set out in the Open Call, a bidder may not make any changes to any of the forms. Any bid containing any such changes, whether on the face of the form or elsewhere in the bid, shall be disqualified.

### **2.3 Selection of Lowest Compliant Bidder as Preferred Supplier**

Subject to the Owner's reserved rights, the compliant bidder with the lowest pricing will be the preferred supplier, and will be selected to enter into the Agreement in accordance with the following section. In the event of a tie, the preferred supplier will be determined by way of a coin toss, in accordance with the Public Procurement Policy. Provincial suppliers, suppliers with a place of business in Newfoundland and Labrador, will be given provincial supplier preference provision. This mandates an allowance of ten percent for provincial suppliers for all procurement below trade agreement thresholds.

Please note, the supplier preference does not apply when the estimated value of the commodity is above the trade agreement threshold shown in the following table.

Public Body	Thresholds			
	Goods	Services	Public Works	Lease of Space
Memorial University	\$133,800	\$133,800	\$334,400	\$100,000

## 2.4 Notice to Bidder and Execution of Agreement

Notice of selection by the Owner to the preferred supplier shall be in writing. The preferred supplier shall execute the Agreement, the form and content of which will be mutually agreed upon between the parties and satisfy any other applicable conditions of this open call within fifteen (15) days of notice of selection. This provision is solely for the benefit of the Owner and may be waived by the Owner.

## 2.5 Failure to Enter into Agreement

If a selected bidder fails to execute the Agreement or satisfy the pre-conditions of award listed in the Open Call Particulars within fifteen (15) days of notice of selection the Owner may, without incurring any liability, proceed with the selection of another bidder and pursue all remedies available to the Owner.

## 2.6 Payment Terms

The University's standard payment terms are net 30 days after delivery of goods, or net 15 days after successful completion of installation as applicable. In the case of services, payment terms are also net 30 days after successful completion of the service. These terms shall also apply in the case of sub-contracted items. Prepayments will not be considered unless the supplier provides an irrevocable standby letter of credit, or the supplier provides a credit reference from its banker (in conjunction with a 50% materials and labour bond and a 50% performance bond) satisfactory to the Director of Financial and Administrative Services.

**[End of Part 2]**

## **PART 3 – TERMS AND CONDITIONS OF THE OCB PROCESS**

### **3.1 Open Call Incorporated into Bid**

All of the provisions of this Open call are deemed to be accepted by each bidder and incorporated into each bidder's bid. A bidder who submits conditions, options, variations or contingent statements to the terms as set out in this Open call, either as part of its bid or after receiving notice of selection, unless otherwise indicated, shall be disqualified.

### **3.2 Bidders to Follow Instructions**

Bidders should structure their bids in accordance with the instructions in this Open call. Where information is requested in this Open Call, any response made in a bid should reference the applicable section numbers of this Open Call.

### **3.3 Bids in English**

All bids are to be in English only.

### **3.4 No Incorporation by Reference**

The entire content of the bidder's bid should be submitted in a fixed form, and links to the content of websites or other external documents referred to in the bidder's bid but not attached will not be considered to form part of its bid.

### **3.5 References and Past Performance**

In the evaluation process, the Owner may consider information provided by the bidder's references and may also consider the bidder's past performance or conduct on previous contracts with the Owner or other institutions.

### **3.6 Information in Open Call Only an Estimate**

The Owner and its advisors make no representation, warranty or guarantee as to the accuracy of the information contained in this Open Call or issued by way of addenda. Any quantities shown or data contained in this Open Call or provided by way of addenda are estimates only, and are for the sole purpose of indicating to bidders the general scale and scope of the Deliverables. It is the bidder's responsibility to obtain all the information necessary to prepare a bid in response to this Open Call.

### **3.7 Bidders to Bear Their Own Costs**

The bidder will bear all costs associated with or incurred in the preparation and presentation of its bid, including, if applicable, costs incurred for interviews or demonstrations.

### **3.8 Bid to be Retained by the Owner**

The Owner will not return the bid or any accompanying documentation or samples submitted by a bidder.

### **3.9 Trade Agreements**

Bidders should note that procurements falling within the scope of the Canadian Free Trade Agreement, and/or the Canada-European Union Comprehensive Economic Trade Agreement are subject to those trade agreements but that the rights and obligations of the parties will be governed by the specific terms of this Open Call.

### **3.10 No Guarantee of Volume of Work or Exclusivity of Contract**

The Owner makes no guarantee of the value or volume of work to be assigned to the preferred supplier. The Agreement will not be an exclusive contract for the provision of the described Deliverables. The Owner may contract with others for goods and services the same as or similar to the Deliverables or may obtain such goods and services internally.

### **3.11 Communication After Issuance of Open Call**

Bidders shall promptly examine all of the documents comprising this Open Call, and

- (a) shall report any errors, omissions or ambiguities; and
- (b) may direct questions or seek additional information in writing by email to [opencalls@mun.ca](mailto:opencalls@mun.ca) on or before the Deadline for Questions. All questions or comments submitted by bidders by email to the Open Call Contact shall be deemed to be received once the email has entered into the Open Call Contact's email inbox. No such communications are to be directed to anyone other than the Open Call Contact, and the Owner shall not be responsible for any information provided by or obtained from any source other than the Strategic Procurement Office. The Owner is under no obligation to provide additional information. It is the responsibility of the bidder to seek clarification from the Open Call Contact on any matter it considers to be unclear. The Owner shall not be responsible for any misunderstanding on the part of the bidder concerning this Open Call or its process.

### **3.12 All New Information to Bidders by Way of Addenda**

This Open Call may be amended only by addendum in accordance with this section. If the Owner, for any reason, determines that it is necessary to provide additional information relating to this Open Call, such information will be communicated to all bidders by addenda. Each addendum forms an integral part of this Open Call and may contain important information, including significant changes to this Open Call. Bidders are responsible for obtaining all addenda issued by the Owner. In the Submission Form (Appendix B), bidders MUST confirm their receipt of all addenda by setting out the number of each addendum in the space provided.

### **3.13 Addenda and Extension of Submission Deadline**

Any addendum issued within four (4) calendar days of the Open Call for Bids closing (Including on closing day) will extend closing by a reasonable period to be determined by Memorial University.

When evaluating bids, the Owner may request further information from the bidder or third parties in order to verify, clarify or supplement the information provided in the bidder's bid. The response received by the Owner shall, if accepted by the Owner, form an integral part of the bidder's bid.

### **3.14 Notification to Other Bidders**

In accordance with section 30 of the *Public Procurement Regulations*, once the Agreement is awarded by the Owner, the outcome of the Open Call will be publicly posted at [https://www.mun.ca/finance/strategic\\_procurement/](https://www.mun.ca/finance/strategic_procurement/). There will be no issuing of regret letters.

### **3.15 Debriefing**

In accordance with the Public Procurement Act and Regulations, unsuccessful bidders may request a debriefing within ten (10) business days after the award has been posted. The request must be sent in writing to the Open call contact. The intent of the debriefing information session is to provide the bidder an overview of their bid and why it was unsuccessful and to help the bidder in presenting a better bid in subsequent procurement opportunities. The debriefing process is not for the purpose of providing an opportunity to challenge the procurement process or its outcome. A debriefing shall not disclose information regarding another bidder's bid.

### **3.16 Supplier Complaint Process**

If a bidder wishes to register a complaint with respect to the Open Call process, the complaint should be provided in writing and within the parameters established by section 25 of the Public Procurement Regulations, as amended. The notice must provide a detailed explanation of the bidder's concerns with the procurement process or its outcome, in addition to such other information as may be required by the *Regulations*. Bidders should note that these complaint procedures are separate and distinct from any dispute resolution processes that may be provided for under applicable trade agreements. If a bidder wishes to dispute a matter under an applicable trade agreement, the bidder must follow the process set out in the trade agreement.

### **3.17 Conflict of Interest and Prohibited Conduct**

The Owner may disqualify a bidder for any conduct, situation or circumstances, determined by the Owner, in its sole and absolute discretion, that constitutes a conflict of interest.

The Owner reserves the right to disqualify any bidder that in the Owner's sole opinion has an actual or potential conflict of interest or an unfair advantage.

For the purposes of this Open Call, the term "Conflict of Interest" includes, but is not limited to, any situation or circumstance where in relation to the Open Call process, the bidder has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including but not limited to: (i) having, or having access to, confidential information of the Owner in the preparation of its bid that is not available to other bidders, (ii) communicating with any person with a view to influencing preferred treatment in the Open Call process (including but not limited to the lobbying of decision makers involved in the Open Call process), or (iii) engaging in conduct that compromises, or could be seen to compromise, the integrity of the open and competitive Open Call process or render that process non-competitive or unfair.

Bidders are required to disclose, to the Open Call Contact, any potential or perceived conflict of interest issues prior to Open Call closing date and time.

### **3.18 Disqualification for Prohibited Conduct**

The Owner may disqualify a bidder, rescind a notification of selection or terminate a contract subsequently entered into if the Owner determines that the bidder has engaged in any conduct prohibited by this Open Call.

### **3.19 Bidder Not to Communicate with Media**

Bidders must not at any time directly or indirectly communicate with the media in relation to this Open Call or any agreement entered into pursuant to this Open Call without first obtaining the written permission of the Open Call Contact.

### **3.20 No Lobbying**

Bidders must not, in relation to this Open Call or the evaluation and selection process, engage directly or indirectly in any form of political or other lobbying whatsoever to influence the selection of the successful bidder(s).

### **3.21 Illegal or Unethical Conduct**

Bidders must not engage in any illegal business practices, including activities such as bid-rigging, price-fixing, bribery, fraud, coercion or collusion. Bidders must not engage in any unethical conduct, including lobbying, as described above, or other inappropriate communications; offering gifts to any employees, officers, agents, elected or appointed officials or other representatives of the Owner; deceitfulness; submitting bids containing misrepresentations or other misleading or inaccurate information; or any other conduct that compromises or may be seen to compromise the competitive process provided for in this Open Call.

### **3.22 Past Performance or Past Conduct**

The Owner may prohibit a supplier from participating in a procurement process based on past performance or based on inappropriate conduct in a prior procurement process, including but not limited to the following:

- (a) illegal or unethical conduct as described above;
- (b) the refusal of the supplier to honor submitted pricing or other commitments; or
- (c) any conduct, situation or circumstance determined by the Owner, in its sole and absolute discretion, to have constituted a Conflict of Interest.
- (d) performance on other contracts, including the efficiency and workmanship as well as the extent to which the Bidders performed the Work in accordance with the contractual clauses and conditions, is sufficiently poor to jeopardize the successful completion of the project being bid on, by way of previous contractor performance evaluations.

In addition, the Owner may suspend the bidding privileges of a supplier with regard to non-compliant or substandard performance in accordance with section 26 of the *Public Procurement Regulations*.

### **3.23 Confidential Information of the Owner**

All information provided by or obtained from the Owner in any form in connection with this Open Call either before or after the issuance of this Open Call:

- (a) is the sole property of the Owner and must be treated as confidential;
- (b) is not to be used for any purpose other than replying to this Open Call and the performance of the Agreement;
- (c) must not be disclosed without prior written authorization from the Owner; and
- (d) must be returned by the bidder to the Owner immediately upon the request of the Owner.

### **3.24 Confidential Information of Bidder**

This procurement process is subject to the *Access to Information and Protection of Privacy Act, 2015 (ATIPPA, 2015)*. A bidder must identify any information in its bid or any accompanying documentation supplied in confidence for which confidentiality is requested to be maintained by the Owner. The confidentiality of such information will be maintained by the Owner, except as otherwise required by law or by order of a court or tribunal. Bidders are advised that their bids will, as necessary, be disclosed, on a confidential basis, to advisers retained by the Owner to advise or assist with the Open Call process, including the evaluation of bids.

The Bidder agrees that any specific information in its submission that may qualify for an exemption from disclosure under subsection 39(1) of the *ATIPPA, 2015* has been identified in its submission. If no specific information has been identified it is assumed that, in the opinion of the proponent, there is no specific information that qualifies for an exemption under the subsection 39(1) of the *ATIPPA, 2015*. The Bidder acknowledges that contracting with the Owner is a public process and any information provided through this process and any records the Bidder supplies to the Owner, including the terms and conditions of any Agreement entered into, may be subject to requests under the *ATIPPA, 2015*. In the event of a request to Memorial for third party business information in its custody and control, information can be withheld only if it meets all parts of the 3-part harms test for non-disclosure as stated in section 39 of the *ATIPPA, 2015*.

Information, including the financial value of a contract resulting from this procurement process, will be publicly released as part of the award notification process, in accordance with section 30 of the *Public Procurement Regulations*.

If a bidder has any questions about the collection and use of personal information pursuant to this Open Call, questions are to be submitted to the Open Call Contact. Further information relating to subsection 39(1) of the *ATIPPA, 2015* is provided in guidance documents available through the Office of the Information and Privacy Commissioner at <https://oipc.nl.ca/guidance/documents>.



### **3.25 Reserved Rights of the Owner**

The Owner reserves the right to:

- (a) make public the names of any or all bidders as well as bid price and value of contract;
- (b) make changes, including substantial changes, to this Open Call provided that those changes are issued by way of addendum in the manner set out in this Open Call; request written clarification or the submission of supplementary written information in relation to the clarification request from any bidder and incorporate a bidder's response to that request for clarification into the bidder's bid. This shall not be an opportunity for bid repair;
- (c) assess a bidder's bid on the basis of: (i) a financial analysis determining the actual cost of the bid when considering factors including quality, service, price and transition costs arising from the replacement of existing goods, services, practices, methodologies and infrastructure (howsoever originally established); and (ii) in addition to any other evaluation criteria or considerations set out in this Open Call consider any other relevant information that arises during this Open call process; and (iii) Unbalanced bids, as determined by the Owner, will be rejected (i.e. prices must fairly represent proper compensation for various items of work to be done).
- (d) waive minor irregularities and formalities and accept bids that substantially comply with the requirements of this Open Call ;
- (e) verify with any bidder or with a third party any information set out in a bid;
- (f) check references other than those provided by any bidder;
- (g) disqualify a bidder, rescind a notice of selection or terminate a contract subsequently entered into if the bidder has engaged in any conduct that breaches the process rules or otherwise compromises or may be seen to compromise the competitive process;
- (h) cancel this Open Call process at any stage;
- (i) cancel this Open Call process at any stage and issue a new Open Call for the same or similar deliverables;
- (j) accept any bid in whole or in part; or
- (k) reject any or all bids;
- (l) not necessarily select the lowest or any bidder;

And these reserved rights are in addition to any other express rights or any other rights that may be implied in the circumstances.

### **3.26 Limitation of Liability**

By submitting a bid, each bidder agrees that:

- (a) neither the Owner nor any of its employees, officers, agents, elected or appointed officials,

advisors or representatives will be liable, under any circumstances, for any claim arising out of this Open Call process including but not limited to costs of preparation of the bid, loss of profits, loss of opportunity or for any other claim; and

- (b) the bidder waives any right to or claim for any compensation of any kind whatsoever, including claims for costs of preparation of the bid, loss of profit or loss of opportunity by reason of the Owner's decision not to accept the bid submitted by the bidder for any reason, the Owner's decision to enter into an agreement with any other bidder or to cancel this bidding process, and the bidder shall be deemed to have agreed to waive such right or claim.

### **3.31 Governing Law and Interpretation**

These Terms and Conditions of the Open Call Process:

- (a) are intended to be interpreted broadly and independently (with no particular provision intended to limit the scope of any other provision);
- (b) are non-exhaustive and shall not be construed as intending to limit the pre-existing rights of the Owner; and
- (c) are to be governed by and construed in accordance with the laws of the Province of Newfoundland & Labrador and the federal laws of Canada applicable therein.

### **3.32 Facility Compliance Requirement**

- (a) Equipment, power tools, instruments and appliances intended for use within Memorial University's facilities must comply with all regulatory requirements related to use and/or installation in University facilities. This includes but is not limited to certification/listing by recognized agencies, Pressure Vessel Act of Newfoundland and Labrador and similar.
- (b) Items provided related to this open call that receive power from the University's electrical system must be certified or listed for use within Canada by a recognized agency such as Canadian Standards Association (CSA) or Underwriter Laboratories Canada (ULC). A full list of agencies recognized by Memorial University is available upon request.
- (c) Equipment, tools, instruments and appliances that generate pressure may require registration as a pressure system with the Province of Newfoundland and Labrador. Compliance with the Boiler, Pressure Vessel and Compressed Gas Regulations under the Public Safety Act of Newfoundland and Labrador and the Boiler, Pressure Vessel, and Pressure Piping Code CSA B51:19 shall be demonstrated.
- (d) The vendor is responsible for all costs associated with ensuring the system is compliant with legislative requirements and for the application and registration processes. Field certifications may be considered but all costs and efforts for such scenarios are the responsibility of the vendor.

**[End of Part 3]**

## **PART 4 – ENVIRONMENTAL HEALTH AND SAFETY REQUIREMENTS**

- 4.1** Maintaining a healthy and safe environment for all members of the campus community, as well as visitors, is a priority with the University. This involves a commitment from all sectors of the campus community and extends to outside agencies having occasion to come on campus to conduct business.

The following requirements will apply to all work undertaken by contractors and service personnel on any University property or for any work undertaken on behalf of the Owner.

### **4.1.0 Regulations, Codes and Standards**

Contractors shall be familiar with and abide by provisions of various safety codes and standards applicable to the work performed and should refer to:

The Contractor shall be completely responsible for the safety of the Work as it applies to protection of the public and property and construction of the Work.

The codes that must be followed and enforced for safety are:

- (a) The National Building Code, Part 8, Safety Measures at Construction and Demolition Sites (Latest Edition);
- (b) Canadian Code for Construction Safety (Latest Edition) as issued by the Associate Committee of the National Building Code;
- (c) The Occupational Health and Safety Act of Newfoundland and Labrador (most current version) and Regulations.

In particular, strict adherence to the Provincial Occupational Health and Safety Act and Regulations and with the National Building Code of Canada, Part 8 is required.

### **4.2.0 General Health and Safety Regulations**

- (a) Contractors/service agencies shall ensure that members of the campus community are not endangered by any work or process in which they may be engaged. Work areas shall be adequately barricaded, and if dust or fumes are generated, suitable enclosures shall be installed to contain such emissions.
- (b) No material shall be stored in such a way as to obstruct walkways or represent a danger to pedestrian or vehicular traffic.
- (c) Adequate protection shall be provided to prevent the possibility of goods falling from scaffolding or elevated areas. Areas where goods are being loaded or off loaded shall be barricaded or otherwise protected to prevent unauthorized entry. Appropriate warning signs must be posted.
- (d) The work areas must be kept reasonably clean and free from debris which could constitute a fire hazard. Care must be taken to ensure that the work process does not activate fire

alarm detection devices. (Generation of dust and fumes can activate smoke detectors causing a false alarm).

- (e) Due consideration shall be given to fire safety in buildings. Flammable goods must be kept away from sources of ignition. No work involving the use of open flame devices must be undertaken around flammable solvents or gases.
- (f) Some University buildings contain asbestos and other hazardous materials. Do not alter or disturb any goods believed to contain asbestos (unless this is a duly authorized part of the project). Consult with University officials before proceeding with any work.
- (g) Safety Data Sheets shall be procured for any hazardous product used on campus. Such sheets shall be made readily available for consultation as required under the Workplace Hazardous Materials Information System (WHMIS).
- (h) **Contractors are required to complete the online training module for Memorial's Zero Energy Isolation Program (ZEIP) before mobilizing on site. Training can be accessed via the link: <https://ooc.citl.mun.ca/enrol/index.php?id=21> .**
  - **First time users must create an account. Click 'Create new account'. Enter required information and click 'Create my new account'.**
  - **A confirmation email will be sent to the email you entered when creating your account. Open that email and click the link it contains.**
  - **Click 'Zero energy isolation Program for Contractors'.**
  - **To enroll in the training, enter the enrollment key: 7653. Click 'Enroll me'.**
  - **Complete the training according to the instructions provided in the course.**
  - **Successful completion certificates shall be available during auditing by Environmental Health & Safety.**

**NOTE:** The above requirements are not to be considered all-inclusive and are considered to be complementary to the safety requirements outlined in the agreement between the University and Supplier. Certain conditions and circumstances may require adherence to additional safety requirements.

As a general requirement, contract/service personnel are expected to conduct all work on campus in a professional and safe manner and to give priority to the safety and welfare of members of the campus community.

#### **4.3.0 Contractor Safety Management**

**4.3.1** All Contractors and Subcontractors to be used by the Contractor in the execution of the Contract shall be required to submit confirmation of a current third party occupational health and safety program certification (Letter of Assurance). These may include, but not be limited to, Certificate of Recognition (COR), OHSAS 18001, and CSA Z.1000.

**4.3.2** All Contractors and Subcontractors shall be required to review and follow all requirements of sections 4.4.5.2. below.

**4.3.3 Prior to Contract award, the Contractor will be required to provide the Information requested in 4.4.5.2. below.**

**4.3.4** The University reserves the right to stop any work or portion of work where no documentation can be produced on site which identifies the hazards presented by a piece of work, safe work procedures for work or certification of employees performing work. The Contractor is liable for any costs incurred by affected parties associated with such a stoppage.

#### **4.4.0 Contractor Safety Management Element**

##### **4.4.1 Purpose**

This element establishes the requirements for the administration and monitoring of contractor health and safety programs and activities at Memorial University. These measures shall ensure that contractors understand their collective responsibility with respect to the Occupational Health & Safety Act and Regulations, Memorial University policy and this element.

##### **4.4.2 Scope**

This procedure shall apply to all work done for Memorial University of Newfoundland with respect to the provision of services as outlined below. Memorial University reserves the right to exempt a Contractor from this element, in whole or in part, based upon an evaluation of the risk of the work being conducted. This evaluation must comply with the hazard identification and risk management element.

##### **4.4.3 Definitions**

**Act:** Newfoundland & Labrador Occupational Health & Safety Act, latest edition.

**Contract:** A documented agreement between Memorial University and a contractor.

**Contractor:** The principal contractor, person, partnership, or corporation bound to execute the work under the contract and defined as such in the agreement is responsible for the supervision of the work so as to ensure the work is carried out in accordance with the contract.

**Project Management Team:** The group assigned by the University to act on behalf of the owner with respect to the execution of Contractor work.

**Principal Contractor:** The person primarily responsible for the carrying out of a contract.

**Regulations:** Newfoundland & Labrador Occupational Health & Safety Regulations, latest edition.

**Subcontractor:** A person, firm or corporation having a direct contract with the Contractor or subcontractor(s) to perform a part or parts of the work included in the contract, or to supply products worked to a special design according to the contract documents, but does not include one who merely supplies products not so worked.

**Owner:** The Owner, Engineer/Architect are the persons, firms or corporation identified as such in the Contract. The term Owner, Engineer/Architect means, respectively, each of the Owner, Engineer/Architect and their authorized representatives as designated by each such party in writing.

**Work:** The services and job procedure completion that is described in the contract.

#### **4.4.4 Roles and Responsibilities**

##### **4.4.4.1 Project Management Team, including Environmental Health & Safety**

Will monitor the Contractor's performance for health and safety compliance. Monitoring activities may include but are not limited to:

- planned and unplanned workplace inspections;
- attendance of meetings;
- communications of safety related issues and topics, as deemed necessary;
- review of contractor records, inspections, work practices and documentation; and
- complete audits to verify that contractors and subcontractors are meeting their legislative, procedural and contractual responsibilities.

##### **4.4.4.2 Contractors**

Will comply with applicable Federal and Provincial legislation and applicable MUN safety procedures. Contractor responsibilities include but not limited to:

- report all incidents immediately to the required University project team followed by a written incident report within 24 hours;
- be responsible for the safety of subcontractors including those not under their employ;
- stop work if the conditions are such that work cannot be performed safely;
- perform evaluation, monitoring of the workplace to identify potential hazards and associated risks and ensure corrective actions are implemented;
- ensure daily task specific hazard assessments are completed; and
- maintain the accountability of persons responsible for the reporting and correction of hazards.

## **4.4.5 Procedure**

### **4.4.5.1 Considerations prior to signing of contract**

Prior to signing of contract, the preferred General Contractor shall provide proof of compliance with 4.4.4.2. within seven (7) calendar days. After a pre-signing start up meeting, the General Contractor shall provide proof of compliance of themselves and their subcontractors with 4.4.4.2. as well as the information requested in Section 4.4.4.2.(a)(b).

### **4.4.5.2 Requirements**

All Contractors, and their Subcontractors, shall be required to submit confirmation of a current third party occupational health and safety program certification (Letter of Assurance). These may include, but not be limited to, Certificate of Recognition (COR), OHSAS 18001, and CSA Z.1000.

Contractors shall also provide the following:

- (a) health and safety policy statement;
- (b) safety program table of contents; and
- (c) site hazard assessment;

The hazard assessment shall be updated by the General Contractor and re-submitted whenever the conditions, work practices or work forces change to the extent that new hazards can be identified.

In lieu of a Subcontractors 3rd party program, Contractors shall be required to integrate the Subcontractor(s) into the Contractors program and provide proof of same.

Memorial reserves the right to request and audit the full safety program of Contractors and Subcontractors and their associated documentation. This documentation may include, but not be limited to the following:

- (a) safety program and/or manual
- (b) applicable documented safe work practices;
- (c) inspection reports and schedules;
- (d) required employee safety training certifications and qualifications; and
- (e) updated list of OHS Committee and/or a worker health and safety representative, or workplace health and safety designate.

Request for submission shall be complied with within 7 calendar days of a written request from Memorial's Environmental Health and Safety unit.

Memorial reserves the right to:

- (a) Reject any Contractor that fails to meet the requirements or schedules outlined herein;
- (b) The University reserves the right to stop any work or portion of work where the risk presents an immediate danger.

#### **4.4.5.3 Schedule of Submissions**

General Contractors and their sub-contractors who have complied with 5.1.1 will be permitted to commence physical work on the site however no work shall be performed by the General Contractor, their sub-contractors until such a time as they comply with 5.1.1.

#### **4.4.6 Post-Contract Evaluation**

Environmental Health & Safety will determine the extent of the evaluation of the Contractor's safety performance at the completion of the contract. This evaluation will be conducted by way of a standard contractor safety evaluation form and will be supported by objective evidence documented during the term of the Contract. The records of the evaluation must be retained with the project owner.

#### **4.5 Access To Site**

**4.5.1** All Contractors and Subcontractors to be used in the execution of the Contract shall give advance notification of when they will be on site. Any work to be performed outside of Regular Time must have advance approval of the Owner.

Any discontinuation of the Work which causes a Contractor or their Subcontractors to suspend operations onsite will require the following:

- Contractor/Subcontractors shall notify the Owner of the stop work date.
- Contractor/Subcontractors shall ensure the site is left in a safe and secure condition.
- Contractor/Subcontractors shall ensure that locks and tags on mechanical and/or electrical systems are removed and, where necessary, replaced by the University.
- Contractor/Subcontractors shall not return to site without expressed prior permission from the Owner.

**[End of Part 4]**



## **PART 5– GENERAL CONDITIONS**

- 5.1** I/We hereby authorize the Owner to release names of Subcontractors, Suppliers and Manufacturers used in my/our Bid including those as listed in Appendix "D", where such information is requested from the Owner.
- 5.2** I/We understand that Bids that do not list major Subcontractors and Suppliers and Manufacturers where required in Appendix "D" may be rejected.
- 5.3** I/We reserve the right to substitute other Subcontractors and/or Suppliers and/or Manufacturers for any Subcontractor or Suppliers or Manufacturer withdrawing their Bid or becoming bankrupt after the date hereof. Any such substitutes shall be subject to the approval of the Owner and contingent upon evidence of withdrawal or bankruptcy satisfactory to the Owner.
- 5.4** I/We agree that upon approval by the Engineer/Architect, the Owner shall have the right to take possession of any part of the work upon its completion, except for minor deficiency items, and that such possession shall not necessarily constitute acceptance of that part of the work.
- 5.5** I/We understand and agree that the Owner may order changes to the work in the form of additions or deletions in accordance with the General Conditions, Supplementary General Conditions and the intent of the Contract Documents.
- 5.6** I/We understand and agree that the Unit Price Table in Appendix "C2" must be completed where indicated and the total amount included in my/our stipulated price for the total performance of the work under Part 4 of the Bid and Acceptance form. I/We understand that the Unit Prices include all costs and charges of every kind, including overhead and profit, to perform the items of work listed in Appendix "A". I/We also understand that these same Unit Prices will be used for additions or deletions to the actual measured quantities.
- 5.7** When Appendix "E" is included in the Open Call, I/we understand that bids which do not list project references, where required in Appendix "E", will be rejected.

### **5.8 Corporations Act**

The Corporations Act of Newfoundland and Labrador requires that an extra-provincial company be registered before it begins or carries on business in the Province. If your company is not registered, please apply for the appropriate forms and procedures to:

Commercial Registrations Division  
Dept. of Government Services, PO Box 8700  
St John's, NL Canada A1B 4J6  
Phone: 709-729-3317, Fax: 709-729-0232  
Website: [http://www.gs.gov.nl.ca/registries/companies/corp\\_art\\_inc.html](http://www.gs.gov.nl.ca/registries/companies/corp_art_inc.html)

**[End of Part 5]**

## **Part 6 – Supplementary Terms and Conditions**

**6.1** The open call document consist of the Open Call and Acceptance Form, General Conditions of Contract, Supplementary General Conditions of Contract, Special Conditions, Campus Safety and Health Regulations, Contractors Performance Evaluation, Drawings, Specifications and any Addenda to the Contract Documents issued before the open call closing period.

### **6.2 Surety**

#### **6.2.1 Bid Surety**

Bids shall be accompanied by a copy of a bid security by way of a Bid Bond from a surety company acceptable to the Owner and which is licensed to do business in the Province of Newfoundland and Labrador or a copy of a cheque in the amount of 10 percent of the bid price. Originals to be delivered to Memorial University post tender closing. Bid security will not be required for a total contract value of \$100,000 or less (**HST Excluded**), unless specifically called for in the contract documents. The bid security will be returned to the bidder upon receipt of the required Performance Bond and Labour and Materials Payment Bond as per 6.2.2 below.

The terms of the bid security will be invoked and the amount retained by the Owner if: the Tenderer fails to enter into a formal agreement, where one is specified, when notified of the award of the Contract within the tender validity period; or fails to provide the required Performance Bond and Labour and Materials Payment Bond within the time specified

#### **6.2.2 Public Work's Surety**

Within seven (7) days of the issuance of the letter of acceptance, the preferred Bidder shall obtain and deliver to the Owner a Performance Bond in the amount of 50 percent of the bid price (**HST Excluded**) which guarantees the successful and complete performance of the Work. The Performance Bond is required as a condition of bid award. In lieu of a Performance Bond an approved certified cheque in the amount of 10 percent of the bid price may, at their option, be accepted for retention by the Owner until the successful completion of the Contract. The certified cheque will be retained until satisfactory completion of the Work including the warranty period after which it will be returned to the Contractor. Performance Bond or other such security will not be required for a contract value of \$100,000 or less. No Work is to be undertaken while the above performance security remains outstanding.

Within seven (7) days of issuance of the letter of acceptance, the preferred Bidder shall obtain and deliver to the Owner a Labour and Materials Payment Bond in the amount of 50 percent of the bid price (**HST Excluded**). The Labour and Materials Payment Bond is required as a condition of the bid award. In lieu of a Labour and Materials Payment Bond, an approved certified cheque in the amount 10 percent of the bid price may, at their option, be accepted for retention by the Owner until successful completion of the Contract. The certified cheque will be retained until substantial completion of the Work as defined by the Mechanics Lien Act and upon receipt of an acceptable statutory declaration form stating that all labour and material obligations due and payable under the Work have been discharged, after which it will then be returned to the Contractor. Labour and Materials

Payment Bond or other such security will not be required for a contract value of \$100,000 or less. No Work is to be undertaken while the above labour and materials security remains outstanding.

No interest will be paid to the preferred Bidder for any certified cheques on deposit during the period of retention.

The cost of all bid, performance and labour and materials security shall be included in the bid price

### **6.3 Site Visit**

A site visit may occur at the time and location identified on the Request for Open Calls for Bids Information Sheet.

Questions will not be answered at the site visit.

Before submitting a bid, Bidders may carefully examine the site of the Proposed Work and fully inform themselves of the existing condition and limitations. It is the responsibility of the Bidder to report any unsatisfactory conditions in writing which may adversely affect the proper completion of the work, to [opencalls@mun.ca](mailto:opencalls@mun.ca), at least **eight (8)** days before the open call closing date. Submission of a bid shall imply acceptance of previously completed Work and the conditions of the site, and the Contractor shall, therefore, be fully responsible for executing the Work in accordance with the Contract Documents.

### **6.4 Substitution of Materials**

**6.4.1** The open call shall be based upon using the materials or products as specified without substitution, unless there is an "or approved alternate" clause. Where two or more brand names are specified, the choice shall be left to the bidder. Where only one brand name is stated, there shall be no substitution.

**6.4.2** Where the Specifications include the "or approved alternate" clause, substitutions may be proposed provided that the request for a substitution is received in writing at least eight (8) days (3:00pm NST) prior to the open call closing date and shall clearly define and describe the product for which the substitution is requested. Submissions shall compare in tabular form, to the characteristics and performance criteria of the specified material.

**6.4.3** It is the Bidder's responsibility to ensure that the substituted article is equivalent to the specified article with regard to design, function, appearance, durability, operation and quality.

**6.4.4** Request for substitutions made after the award of the contract will be subject to the requirements of Clause 2.37.0 MATERIALS AND SUBSTITUTIONS in the General Conditions of the Contract and will only be considered under special circumstances or where it is clear, at the Engineer's/Architect's discretion, that proposed substitution will provide a substantial benefit to the Owner.

**6.4.5** Approval of the substitution shall be in the form of an addendum to the Specifications.

**The decision on substitutions will be final.**

**6.5 Completion date**

**6.5.1** Bidders shall state the time required to complete the Contract from time of open call award. The bidder shall, within seven (7) days after the Contract is award submit a preliminary construction schedule indicating as closely as possible the starting and completion date for the major sections of the Work.

**[End of Part 6]**

**APPENDIX A – SPECIFICATIONS AND DRAWINGS**

**SPECIFICATIONS AND DRAWINGS  
LOCATED AT THE END OF THIS DOCUMENT**

## APPENDIX B – SUBMISSION FORM

### 1. Bidder Information

Please fill out the following form, naming one person to be the bidder's contact for the Open Call process and for any clarifications or communication that might be necessary.	
Full Legal Name of Bidder:	
Any Other Relevant Name under which Bidder Carries on Business:	
Street Address:	
City, Province/State:	
Postal Code:	
Phone Number:	
Fax Number:	
Company Website (if any):	
Bidder Contact Name and Title:	
Bidder Contact Phone:	
Bidder Contact Fax:	
Bidder Contact Email:	

### 2. Offer

The bidder has carefully examined the Open Call documents and has a clear and comprehensive knowledge of the Deliverables required under the Open Call. By submitting a bid, the bidder agrees and consents to the terms, conditions and provisions of the Open Call, including the Form of Agreement, and offers to provide the Deliverables in accordance therewith at the rates set out in the completed Pricing Form (Appendix C1 and/or C2 and/or C3).

### 3. Rates

The bidder has submitted its rates in accordance with the instructions in the Open Call and in the Pricing Form (Appendix C1 and/or C2 and/or C3). The bidder confirms that it has factored all of the provisions of Appendix A, including insurance and indemnity requirements, into its pricing assumptions and calculations.

### 4. Addenda

- 4.1** The bidder is deemed to have read and accepted all addenda issued by the Owner. The onus is on bidders to make any necessary amendments to their bids based on the addenda. The bidder is required to confirm that it has received all addenda by listing the addenda numbers in table below: **(Listing of individually the numbers of each Addendum received in the blank space)**

**NOTE: FAILURE TO COMPLETE “TABLE: ADDENDA RECEIVED” LOCATED BELOW SHALL RESULT IN BID DISQUALIFICATION:**

<b>TABLE 1.10: ADDENDA RECEIVED</b>

Bidders who fail to complete the above table will be deemed to have not received all posted addenda and shall be deemed **non-compliant**.

**5. No Prohibited Conduct**

The bidder declares that it has not engaged in any conduct prohibited by this Open Call.

**6. Disclosure of Information**

The bidder hereby agrees that any information provided in this bid, even if it is identified as being supplied in confidence, may be disclosed where required by law or by order of a court or tribunal. The bidder hereby consents to the disclosure, on a confidential basis, of this bid by the Owner to the advisers retained by the Owner to advise or assist with the Open Call process, including with respect to the evaluation of this bid.

**7. Bid Irrevocable**

The bidder agrees that its tender shall be irrevocable for a period of **45** days running from the moment that the Submission Deadline passes.

**8. Execution of Agreement**

The bidder agrees that in the event its bid is selected by the Owner, in whole or in part, it will finalize and execute the Agreement in the form set out in Appendix A (or in a form mutually acceptable to the parties) to this Open Call in accordance with the terms of this Open Call . Failure to submit this signature section will render the proposal **NON-COMPLIANT** and the proposal will be disqualified.

**BIDDER SIGNATURE FORM:**

**BIDDERS MUST COMPLETE THE BIDDER SIGNATURE FORM. ANY BIDS RECEIVED WITHOUT THE BIDDER CONTACT FORM COMPLETED WILL BE DEEMED NON-COMPLIANT**

*(See Part 1 section 1.8 for Electronic Signature acceptance)*

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Signature of Bidder Representative

\_\_\_\_\_  
Name of Witness

\_\_\_\_\_  
Name of Bidder Representative

\_\_\_\_\_  
Title of Bidder Representative

\_\_\_\_\_  
Date

***I have the authority to bind the bidder.***

**IN SIGNING THIS PAGE AND  
SUBMITTING YOUR PROPOSAL, THE  
PROONENT ACKNOWLEDGES  
HAVING READ, UNDERSTOOD AND  
AGREED TO THE TERMS AND  
CONDITIONS OF THIS DOCUMENT**



## APPENDIX C1 – PRICING FORM

### 1. INSTRUCTIONS ON HOW TO COMPLETE THE PRICING FORM

- Rates must be provided in Canadian Dollars
- Rates quoted by the bidder must be all-inclusive and must include all labor and material costs, all travel and carriage costs, all insurance costs, all costs of delivery to the Owner, all costs of installation and set-up, including any pre-delivery inspection charges, and all other overhead, including any fees or other charges required by law
- Owner: Having carefully examined the site and all conditions affecting the proposed work as well as the Bid Documents including the Drawings and Specifications, all Addenda and the Instructions to bidders, I/We, the undersigned, hereby offer to furnish all necessary labour, materials, superintendence, plant, tools, equipment, etc., required to complete all work requisite and necessary for the proper execution of this Contract, expeditiously and in the satisfactory manner and accept in full payment therefore a stipulated sum of:

The scope of work for Price A, Price B, Price C, and Price D is outlined in the contract documents - see specification section 01 10 00 Summary for Small Projects. The Owner reserves the right to delete any or all parts of this tender and award individual and/or combined parts.		
<b>Contract Bid (HST Excluded)</b>		
<b>Price A: Subtotal</b>		HST EXCLUDED
<b>Price B: Subtotal</b>		HST EXCLUDED
<b>Price C: Sum of Allowances (Section 01 21 00)</b>	\$21,739.13	HST EXCLUDED
<b>Price D: Total: [(A+C)]</b>		HST EXCLUDED
<b>Price E: Total: [(A+B+C)]</b>		HST EXCLUDED

I/We agree to commence work within two (2) weeks after the acceptance of my/our Bid and complete the work in \_\_\_\_\_ weeks from the acceptance of the Bid and to coordinate the scheduling of our work with that of all Subcontractors working on the Project. The time of completion indicated herein is required and will be a significant factor in assessing bids.

### 2. THE DELIVERABLES:

A-506-22 Arts and Administration Building, Sloped Glazing Replacement  
as per specifications listed in Appendix A

### 3. MANDATORY SUBMISSION REQUIREMENTS

**(a) Submission Form (Appendix B)**

Each bid must include a Submission Form (Appendix B) completed and signed by an authorized representative of the bidder.

**(b) Each bid must include Pricing Form (Appendix C1) as per instructions on form.**



**APPENDIX D - LIST OF SUBCONTRACTORS**

Herewith is the list of Subcontractors, Suppliers and/or Manufacturers referred to in Section no. **5.1 of Part 5 of the Open Call and Acceptance Form**. The Subcontractors and Suppliers whose bids have been used in the preparation of this Bid must be listed in full including work to be done by own forces (B.O.F.). By Own Forces will be considered valid and satisfactory only if, prior to award, the supplier provides three (3) current (< 3 years) references of satisfactory completion of trade work of similar **scale, scope and complexity** as that described within the Bid documents. Trade certifications may be requested in addition to the references above. The determination of suitability is entirely at the discretion of the owner and shall be based on submitted documentation. The owner may use their knowledge and understanding of experience and performance of the Contractor on past work in lieu of this submission. The list will be subject to the approval of the Owner.

**NOTE: FAILURE TO COMPLETE THIS PORTION OF THE BID SUBMISSION SHALL RESULT IN DISQUALIFICATION.**

The trades below, if listed, have been identified by the owner, however it is the Bidder’s responsibility to identify all applicable subtrades.

TRADE/DIVISION	SUBCONTRACTOR - SUPPLIER - MANUFACTURER
Demolition	
Crane/Lift	
Roofing	
Glazing	
Scaffolding/Access	
Metal Stud & Gypsum Board	
Plaster & Paint	
Other	





**DEPARTMENT OF FACILITIES MANAGEMENT**

**GENERAL CONDITIONS**

**AND**

**AGREEMENT BETWEEN OWNER AND CONTRACTOR**

**FOR**

**THE STIPULATED PRICE CONTRACT**

May 2023



**GENERAL CONDITIONS AND AGREEMENT  
BETWEEN OWNER AND CONTRACTOR FOR THE STIPULATED PRICE CONTRACT**

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## **1.0 GENERAL CONDITIONS**



## **1.1.0 DEFINITIONS**

### **1.1.1 Contract Documents**

The Contract Documents consist of the Instructions to bidders, Executed Agreement between the Owner and the Contractor, General Conditions of Contract, Supplementary General Conditions of Contract, Special Conditions, Campus Safety and Health Regulation, Contractor Performance Evaluations, Specifications, Drawings and such other documents forming part of the open call, including all amendments thereto incorporated before their execution and subsequent amendments thereto made pursuant to the provisions of the Contract or agreed upon between the parties. The successful bid and any Addenda to the Specifications issued during the bidding period shall also form part of the Contract Documents.

### **1.1.2 Owner, Engineer/Architect, Contractor**

The Owner, Engineer/Architect and Contractor are the persons, firms or corporation identified as such in the Agreement. The term Owner, Engineer/Architect and Contractor means the Owner, Engineer/Architect and Contractor or their authorized representatives as designated by each party in writing.

### **1.1.3 Subcontractors**

A Subcontractor is a person, firm or corporation having a direct contract with the Contractor to perform a part or parts of the Work included in the Contract, or to supply products worked to a special design according to the Contract Documents, but does not include one who merely supplies products not so worked.

### **1.1.4 The Project**

The Project is the total construction contemplated of which the Work performed under the Contract Documents may be the whole or a part.

### **1.1.5 The Work**

The Work means the total construction and related services required by the Contract Documents.

### **1.1.6 Place of Work**

The Place of Work is the designated site or location of the project of which the Work may be the whole or a part.

### 1.1.7 Products/Materials/Equipment

The term Products/Materials/Equipment means all materials, machinery, equipment and fixtures forming the Work as required by the Contract Documents but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work and normally referred to as construction machinery and equipment.

### 1.1.8 Other Contractor

The term Other Contractor means any persons, firm or corporation employed by or having a separate contract directly or indirectly with the Owner for Work other than that required by the Contract Documents.

### 1.1.9 Time

- a) The Contract Time is the time stated in the Open Call for Bid and Acceptance Form for substantial performance of the Work.
- b) The date of substantial performance of the Work is the date certified by the Engineer/Architect.
- c) The term day, as used in the Contract Documents, shall mean the calendar day.
- d) The term working day means any day observed by the construction industry in the area of the place of the Work.

### 1.1.10 Substantial Performance of the Work

A Contract shall be deemed to be substantially performed:

- a) When the Work or a substantial part thereof is ready for use or is being used for the purpose intended; and
- b) When the Work to be done under the Contract is capable of completion or correction at a cost of not more than:
  - (i) 3% (Three per centum) of the first two hundred and fifty thousand dollars (\$250,000) of the Contract Price;
  - (ii) 2% (Two per centum) of the next two hundred and fifty thousand dollars (\$250,000) of the Contract Price; and
  - (iii) 1% (One per centum) of the balance of the Contract Price.
- c) When the Work or a substantial part thereof is ready for use or is being used for the purpose intended and where the Work cannot be completed expeditiously for

reasons beyond the control of the Contractor, the value of the remaining Work to be completed shall be deducted from the Contract Price in determining substantial performance.

**1.1.11 Total Performance of the Work**

Total Performance of the Work shall mean when the entire Work except those items arising from the provision **2.26.0 WARRANTY** has been performed to the requirements of the Contract Documents and is so certified by the Engineer/Architect.

**1.1.12 Changes in the Work**

Changes in the Work means additions, deletions or other revisions to the Work within the general scope of Work as contemplated by the Contract Documents.

**1.1.13 Extra Work**

Extra Work means any additional work or service, the performance of which is beyond the scope of Work as contemplated by the Contract Documents.

**2.2.0 DOCUMENTS**

**2.2.1** The Contract Documents shall be signed in triplicate by the Owner and the Contractor.

**2.2.2** Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

**2.2.3** In the event of conflicts between Contract Documents, the following shall apply:

- a) Documents of later date shall govern;
- b) Figured dimensions shown on the drawings shall govern even though they may differ from scaled dimensions on the same drawing;
- c) Drawings of larger scale shall govern over those of smaller scale of the same date;
- d) Specifications shall govern over drawings;
- e) Special Conditions shall govern over Specifications;
- f) The General Conditions of Contract shall govern over Specifications;
- g) Supplementary General Conditions shall govern over the General Conditions of the Contract;

h) The Executed Agreement between the Owner and the Contractor shall govern over all documents.

**2.2.4** The Contractor will be provided, without charge, up to twelve (12) sets of Contract Documents or parts thereof as are reasonably necessary for the performance of the Work.

**2.2.5** The Contractor shall keep a copy of all current Contract Documents and shop drawings on the site, in good order and available to the Engineer/Architect and or their representatives. This requirement shall not be deemed to include the executed Contract Documents.

**2.2.6** Drawings, specifications, models and copies thereof furnished to the Contractor are to be used only with respect to the Work. Such documents and models are not to be otherwise used or revised in any manner without the written authorization of the Owner.

**2.2.7** Models furnished by the Contractor at the Owner's expense are the property of the Owner.

**2.3.0 ADDITIONAL INSTRUCTIONS AND SCHEDULE OF WORK**

**2.3.1** During the progress of the Work, the Engineer/Architect shall furnish to the Contractor such additional instructions as may be necessary to supplement the Contract Documents. All such instructions shall be consistent with the intent of the Contract Documents.

**2.3.2** Additional instructions may include minor changes to the Work which affect neither the Contract Price nor the Contract Time.

**2.3.3** Additional instructions may be in the form of drawings, samples, models or written instructions.

**2.3.4** Additional instructions will be issued by the Engineer/Architect with reasonable promptness and in accordance with any schedule agreed upon for such instructions.

**2.3.5** The Contractor shall prepare and update, as required, a construction schedule indicating the timing of major activities of the Work. The schedule shall be designed to conform with the Contract Time. The schedule shall be submitted to the Engineer/Architect within seven (7) days of the date of the Owner's letter of award. The contractor shall monitor the progress of the Work relative to the schedule and advise the Engineer/Architect of any revisions required as a result of delays, as provided for in **2.5.0 DELAYS**, and indicating what action will be taken to complete the Work within the Contract Time.

#### **2.4.0 ENGINEER/ARCHITECT'S DECISIONS**

- 2.4.1** The Engineer/Architect, in the first instance, shall decide on questions arising under the contract Documents and interpret the requirements therein. Such decisions shall be given in writing.
- 2.4.2** The Contractor shall notify the Engineer/Architect in writing within fourteen (14) days of receipt of a decision of the Engineer/Architect referred to in 2.4.1, should they hold that a decision by the Engineer/Architect is in error and/or at variance with the Contract Documents. Unless the Contractor fulfils this requirement, subsequent claims by them for extra compensation arising out of the decision will not be accepted.
- 2.4.3** If the question of error and/or variance is not resolved immediately, and the Engineer/Architect decides that the disputed work shall be carried out, the Contractor shall act according to the Engineer/Architect's written decision.

Any questions of change in Contract Price and/or extension of Contract Time due to such error and/or variance shall be decided as provided in **2.11.0 DISPUTES**.

#### **2.5.0 DELAYS**

- 2.5.1** If it can be clearly shown that the Contractor is delayed in the performance of the Work by any act or fault of the Owner, Engineer/Architect, then the Contract Time shall be extended for such reasonable time as the Engineer/Architect may decide in consultation with the Owner and the Contractor. The Contractor shall be entitled to be reimbursed for any costs incurred by them as a result of such a delay occasioned by the act or fault, provided that it can be clearly shown that the Contractor's forces cannot work efficiently elsewhere on the project and that the incurred cost is limited to that which could not reasonably have been avoided.
- 2.5.2** If the Contractor is delayed in the performance of the Work by a Stop Work Order issued by any court or other public authority and providing that such order was not issued as the result of any act or fault of the Contractor or of anyone employed by them directly or indirectly then the Contract Time shall be extended for such reasonable time as the Engineer/Architect may decide in consultation with the Contractor.
- 2.5.3** If the Contractor is delayed in the performance of the Work by civil disorders, labour disputes, strikes, lockouts, (including lockouts decreed or recommended for its members by a recognized Contractor's Association, of which the Contractor is a member) fire, unusual delay by common carriers or unavoidable casualties, or without limit to any of the foregoing, by any cause of any kind whatsoever beyond the Contractor's control, then the Contract Time shall be extended for such reasonable time as may be decided by the Engineer/Architect in consultation with the Owner and the Contractor, but in no case shall the extension of time be less than the time lost as the result of the event causing the delay, unless such shorter extension of time be agreed to by the Contractor.



**2.5.4** No extension shall be made for delays unless written notice of claims is given to the Engineer/Architect within fourteen (14) days of its commencement, providing that in the case of the continuing cause of delay one notice shall be necessary.

**2.5.5** If no schedule is provided under **2.3.0 ADDITIONAL INSTRUCTIONS AND SCHEDULE OF WORK**, no claim for delay will be considered because of failure to furnish instructions until fourteen (14) days after a demand for such instructions had been made and not then unless such claim is reasonable.

**2.6.0 OWNER'S RIGHT TO PERFORM WORK, STOP WORK AND/OR TERMINATE CONTRACT**

**2.6.1** If the Contractor should be adjudged bankrupt or makes a general assignment for the benefit of creditors because of their insolvency or if a Receiver is appointed on account of their insolvency, the Owner may, without prejudice to any other right or remedy they may have, by giving the Contractor or Receiver or Trustee in Bankruptcy written notice, terminate the Contract. If a Performance Bond has been provided by the Contractor guaranteeing faithful performance of the Work, the Owner shall give written notice to the Surety invoking the terms of the bond.

**2.6.2** The Owner may notify the Contractor in writing that they are in default of their contractual obligations, if the Contractor:

- a) Fails to proceed regularly and diligently with the Work; or
- b) Without reasonable cause wholly suspends the carrying out of the Work before the completion thereof; or
- c) Refuses or fails to supply sufficient, properly skilled workmen for proper workmanship, products or construction machinery and equipment for the scheduled performance of the Work within five (5) working days of receiving written notice from the Engineer/Architect except in those cases provided in **2.5.0 DELAYS**; or
- d) Fails to make payments due to their Subcontractors, their Suppliers for their workmen; or
- e) Persistently disregards laws or ordinances, or the Engineer/Architect's instructions; or
- f) Otherwise violates the provisions of their Contract to a substantial degree.

Such written notice by the Owner shall instruct the Contractor to correct the default within five (5) working days from the receipt of the written notice. If a Performance Bond has been provided by the Contractor, a copy of such written notice will be provided to the Surety.

- 2.6.3** If the correction of the default cannot be completed within the five (5) working days specified, the Contractor shall be considered to be in compliance with the Owner's instruction if they:
- a) Commence the correction of the default within the specified time; and
  - b) Provide the Owner with an acceptable schedule for such correction; and
  - c) Complete the correction in accordance with such schedule.
- 2.6.4** If the Contractor fails to correct the default within the time specified or subsequently agreed upon, the Owner may, without prejudice to any other right or remedy they may have:
- a) Correct such default and deduct the cost thereof as certified by the Engineer/Architect from any payment due under the Contract; or
  - b) Terminate the Contract by written notice to the Contractor. If a Performance Bond has been provided by the Contractor, the Owner will provide the Surety with a copy of such notice.
- 2.6.5** If the Owner terminates the Contract under the conditions set out above, they are entitled to:
- a) Take possession of the premises and products and utilize the temporary buildings, plants, tools, construction machinery and equipment, goods and materials, intended for, delivered to and placed on or adjacent to the Work and may complete the Work by whatever method they may deem expedient but without undue delay or expense;
  - b) Withhold any further payments to the Contractor until the Work is finished;
  - c) Upon total performance of the Work, charge the Contractor the amount by which the full cost of finishing the Work as certified by the Engineer/Architect including compensation to the Engineer/Architect for their additional services and a reasonable allowance to cover the cost of any corrections required by **2.26.0 WARRANTY** exceeds the unpaid balance of the Contract Price; or if such cost of finishing the Work is less than the unpaid balance of the Contract Price, pay the Contractor the difference;
  - d) On expiry of the warranty period, charge the Contractor the amount by which the cost of corrections under **2.26.0 WARRANTY** exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the Contractor the difference;

e) Invoke the terms of the Performance Bond if such Bond has been provided under the Contract.

**2.6.6** The Contractor's obligation under the Contract as to the performance of the Work up to the time of termination will remain in force after such termination.

**2.7.0 CONTRACTOR'S RIGHT TO STOP WORK AND/OR TERMINATE CONTRACT**

**2.7.1** If the Owner should be adjudged bankrupt or makes a general assignment for the benefit of creditors or if a Receiver is appointed on account of their insolvency, the Contractor may, without prejudice to any other right or remedy they may have, by giving the Owner written notice, terminate the Contract.

**2.7.2** If the Work should be stopped or otherwise delayed for a period of thirty (30) days or more under an order of any court or other public authority and providing that such order was not issued as the result of any act or fault of the Contractor or of anyone directly or indirectly employed by him, the Contractor may, without prejudice to any other right or remedy they may have, by giving the Owner fifteen (15) days' written notice, terminate the Contract.

**2.7.3** The Contractor may notify the Owner in writing that the Owner is in default of their contractual obligations if:

a) The Engineer/Architect fails to issue a certificate in accordance with **2.16.0 CERTIFICATES AND PAYMENTS;**

b) The Owner fails to pay the Contractor when due any amount certified by the Engineer/Architect and verified by the audit of the Owner;

c) The Owner violates the provisions of the Contract to a substantial degree.

Such written notice shall advise the Owner that if such default is not corrected within fifteen (15) days from the receipt of the written notice, the Contractor may, without prejudice to any other right or remedy they may have, stop the Work and/or terminate the Contract.

**2.7.4** If the Contractor terminates the Contract under the conditions set out above, they shall be entitled to be paid for all work performed including reasonable overhead and profit and for any loss sustained upon products, construction machinery and equipment and other damages as the Contractor may have sustained as a result of the termination of the Contract.

**2.8.0 OTHER CONTRACTORS**

- 2.8.1** The Owner reserves the right to let separate contracts in connection with the project of which the Work is part or do certain work by their own forces.
- 2.8.2** The Owner shall, in such cases, coordinate the Work and insurance coverage of other Contractors as it affects the Work of this Contract.
- 2.8.3** The Contractor shall coordinate their work with that of other Contractors and connect as specified or shown in the Contract Documents. Any change in the costs incurred by the Contractor in the planning and performance of such work which was not shown or included in the Contract Documents as of the date of signing the Contract, shall be evaluated as provided under **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK** and authorized as provided in **2.13.0 CHANGES IN THE WORK AND EXTRA WORK**.
- 2.8.4** The Contractor shall report to the Engineer/Architect any apparent deficiencies in other Contractor's work which would affect this Contract immediately as they come to their attention and shall confirm such report in writing. Failure by the Contractor to so report shall invalidate any claims against the Owner by reason of the deficiencies of other Contractor's work except as to those of which they were not reasonably aware.

**2.9.0 ASSIGNMENT**

- 2.9.1** The Contractor shall not assign the Contract or any part thereof or any benefit or interest therein or thereunder without the written consent of the Owner.

**2.10.0 SUBCONTRACTORS**

- 2.10.1** The Contractor agrees to preserve and protect the rights of the Owner under the Contract with respect to any work to be performed under subcontract. The Contractor shall:
- a) Require their Subcontractors to perform their work in accordance with and subject to the terms and conditions of the Contract Documents; and
  - b) Be fully responsible to the Owner for acts and omissions of their Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by them.

The Contractor, therefore, agrees that they will incorporate all the terms and conditions of the Contract Documents into all Subcontractor Agreements they enter into with their Subcontractors.

- 2.10.2** The Contractor shall employ those Subcontractors proposed by them in writing and accepted by the Owner prior to the signing of the Contract for such portions of the Work as may be designated in the bidding requirements.
- 2.10.3** The Owner may, for reasonable cause, object to the use of a proposed Subcontractor and require the Contractor to employ one of the other Subcontractors.
- 2.10.4** In the event that the Owner requires a change from any proposed Subcontractor, the Contract price shall be adjusted by the difference in cost occasioned by such required change.
- 2.10.5** The Contractor shall not be required to employ as a Subcontractor any person or firm to whom they may reasonably object.
- 2.10.6** The Engineer/Architect may, upon reasonable request and at their discretion, provide to a Subcontractor information as to the percentage of the Subcontractor's work which has been certified for payment.
- 2.10.7** Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner.

**2.11.0 DISPUTES**

- 2.11.1** Differences between the parties to the Contract as to the interpretation, application or administration of this Contract or any failure to agree where agreement between the parties is called for, herein collectively called disputes, which are not resolved in the first instances by decision of the Engineer/Architect pursuant to the provisions of **2.4.0 ENGINEER/ARCHITECT'S DECISIONS** shall be settled in accordance with the requirement of the General Conditions.
- 2.11.2** The Claimant shall give written notice of such dispute to the other party no later than fourteen (14) days after the receipt of the Engineer/Architect's decisions given under **2.4.0 ENGINEER/ARCHITECT'S DECISIONS**. Such notice shall set forth particulars of the matters in dispute, the probable scope, extent and value of the dispute and relevant provisions of the Contract Documents. The other party shall reply to such notice no later than fourteen (14) days after they receive or are considered to have received it, setting out in such reply their grounds and other relevant provisions of the Contract Documents.
- 2.11.3** Pending settlement of the dispute, the Engineer/Architect will give such instructions as, in their opinion, are necessary for the proper performance of the Work or to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by so doing neither party will jeopardize any claim they may have. If it is subsequently determined that such instructions were in error or at variance with the Contract Documents, the Owner shall pay the Contractor cost incurred by the Contractor in carrying out such instructions which they were

required to do beyond what the Contract Documents correctly understood and interpreted would have required them to do, including costs resulting from interruption of the Work.

**2.11.4** It is agreed that no act by either party shall be construed as a renunciation or waiver of any of their rights or recourse, provided they have given the notices in accordance with Paragraph 2.11.2 and have carried out the instructions as provided in Paragraph 2.11.3.

**2.11.5** If the dispute or claim cannot be resolved to the satisfaction of both parties, either party may refer the matter to such judicial tribunal as the circumstances require.

**2.11.6** In recognition of the obligation of the Contractor to perform the disputed work as provided in Paragraph 2.11.3, it is agreed that settlement of dispute proceedings may be commenced immediately following the dispute in accordance with the foregoing settlement of dispute procedures.

## **2.12.0 INDEMNIFICATION**

**2.12.1** Except as provided in Paragraph 2.10.2, the Contractor shall be liable for and shall indemnify and hold harmless the Owner and the Engineer/Architect, their agents and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings whatsoever arising under any statute or Common law.

a) In respect of personal injury to or the death of any person whomsoever arising out of or in the course of or caused by the carrying out of the Work; and

b) In respect of any injury or damage whatsoever to any property, real or personal or any chattel real, insofar as such injury or damage arises out of or in the course of or by reason of the carrying out of the Work.

**2.12.2** The Contractor shall not be liable under Paragraph 2.12.1 if the injury, death, loss or damage is due to any act or neglect of the Owner or Engineer/Architect, their agents or employees.

## **2.13.0 CHANGES IN THE WORK AND EXTRA WORK**

**2.13.1** The Owner may, without invalidating the Contract, make changes by altering, adding to or deducting from the Work, with the Contract Price and the Contract Time being adjusted accordingly; and

**2.13.2** No change in the Work shall be made without prior written order from the Owner, and no claim for an addition or deduction to the Contract Price or change in the Contract Time shall be valid unless so ordered and at the same time valued or agreed to be valued as provided in **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**. Signed faxed copies are acceptable at the discretion of the Owner.

**2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**

**2.14.1** The value of any change shall be determined in one or more of the following methods:

- a) By estimate and acceptance in a lump sum;
- b) By unit prices subsequently agreed upon;
- c) By cost and a fixed or percentage fee.

In the case of changes in the Work valued as outlined in Paragraph 2.14.1(a) (as will be the usual case), the Contractor will submit an itemized estimate of all materials and labour (including Subcontractor's work) to complete the change.

In the case of changes in the Work as valued in Paragraph 2.14.1 (c), the Contractor shall submit detailed invoices, vouchers and time sheets for all materials and labour to complete the change.

The submissions in both cases shall be in the manner acceptable to the Engineer/Architect and will show separately the following percentages for overhead and profit:

- (i) Subcontractors shall include, in the breakdown, their 15 percent mark-up (10 percent of the estimated cost for the overhead and 5 percent for profit).
- (ii) The Contractor shall include, in the breakdown, the percentages as outlined in (i) for the overhead and profit on their portion of the Work.
- (iii) The Contractor shall add 10 percent to the Subcontractor's pricing for their own profit and overhead combined.

**2.14.2** Notwithstanding the provisions of Paragraph 2.14.1, in case of changes in the Work, the amount charged for equipment rentals shall be that provided in the rental Contract, and no additional amount shall be paid as markup for overhead or profit for the Contractor or Subcontractor.

**2.14.3** When a change in the Work is proposed or required, the Contractor shall present to the Engineer/Architect for approval their claim for the change in the Contract Price and/or change in the Contract Time in a form acceptable to the Engineer/Architect and including the appropriate documentation. The Engineer/Architect shall satisfy themselves as to the correctness of such claim, and when approved by the Owner, a change order will be issued to the Contractor to proceed with the change. The value of Work performed in the change shall be included for payment with the regular certificates for payment.

- 2.14.4** In the case of changes in the Work to be paid for under methods (b) and (c) of Paragraph 2.14.1, the form of presentation of costs and methods of measurement shall be agreed to by the Engineer/Architect and Contractor before proceeding with the change. The Contractor shall keep accurate records, as agreed upon, of quantities or costs and present an account of the cost of the change in the Work, together with vouchers where applicable.
- 2.14.5** If the method of valuation, measurement and the change in Contract Price and/or change in Contract Time cannot be promptly agreed upon, and the change is required to be proceeded with, then the valuation, measurement and the change in Contract Price and/or Contract Time will be subject to final determination in the manner set out in **2.11.0 DISPUTES**. In this case, the Engineer/Architect shall, with the consent of the Owner, issue a written authorization for the change setting out the method of valuation and, if by lump sum, their valuation of the change in Contract Price and/or Contract Time.
- 2.14.6** In the case of a dispute in the valuation of a change authorized in the Work and pending final determination of such value, the Engineer/Architect shall certify the value of the Work performed in accordance with their own evaluation of the change and include the amount with the regular certificates for payment. The Contractor shall keep accurate records of quantities and cost of such work.
- 2.14.7** It is intended in all matters referred to above that both the Engineer/Architect and Contractor shall act promptly.
- 2.14.8** Should the Owner direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Document, an equitable deduction from the Contract amount by the Architect/Engineer shall be made to compensate the Owner for the uncorrected or uncompleted work.
- 2.14.9** Credits will be based on the net cost of material and labour or the net difference in the unit price quantities.
- 2.15.0 APPLICATION FOR PAYMENT**
- 2.15.1** Applications for payment on account may be made monthly as the Work progresses.
- 2.15.2** Applications for payment shall be made monthly on a date to be agreed upon between the Owner and the Contractor, and the amount claimed shall be for the value proportionate to the amount of the Contract, of the Work performed and products delivered to the site at that date.
- 2.15.3** The Contractor shall submit to the Engineer/Architect, before the first application for payment, a schedule of values of the various parts of the Work aggregating the total amount of the Contract Price and divided so as to facilitate evaluation of applications for payment.



- 2.15.4** This schedule shall be made out in such form and supported by such evidence as to its correctness as the Engineer/Architect may reasonably direct and, when approved by the Engineer/Architect, shall be used as the basis for application for payment.
- 2.15.5** When making application for payment, the Contractor shall submit a statement based upon this schedule. Claims for products delivered to the site but not yet incorporated into the Work shall be supported by such evidence as the Engineer/Architect may reasonably require to establish the value and delivery of the products.
- 2.15.6** With each monthly claim for payment, except the first, the Contractor shall submit a Statutory Declaration attesting that they have made all payments to Subcontractors, Suppliers, and workmen on behalf of whom amounts were included in the previous claim for payment.
- 2.15.7** Applications for release of holdback monies following the substantial performance of the Work and the application for final payment shall be made at the time in the manner set forth in **2.16.0 CERTIFICATES AND PAYMENTS**.
- 2.15.8** For **all** projects, it should be clearly understood that the University's policy is as follows:
- a) Each Progress Claim must be accompanied by a breakdown indicating amounts included for each Subcontractor;
  - b) When the University makes a Progress Payment, it is made in prorated amounts on behalf of those Subcontractors for whom amounts have been included in the corresponding Progress Claim;
  - c) The Contractor submitting the Progress Claim **must** make payment of the amounts included for the various Subcontractors to the various Subcontractors within ten (10) working days of issuance of the Progress Payment by the University.
  - d) Monthly payment amounts are not final or conclusive as to their value or quality of work performed and are subject to reopening and readjustment
- 2.15.9** Contractors not following the above procedures will be considered to be in default of their Contract, and the University may proceed in accordance with **Article 2.6.0 OWNER'S RIGHT TO PERFORM WORK, STOP WORK AND/OR TERMINATE CONTRACT** Subsection **2.6.2 (d)** of the General Conditions.

## **2.16.0 CERTIFICATES AND PAYMENTS**

**2.16.1** The Engineer/Architect shall, within ten (10) days of receipt of an application for payment from the Contractor submitted in accordance with **2.15.0 APPLICATION FOR PAYMENT**, issue a certificate for payment in the amount applied for or such amount as they shall determine to be properly due. If the Engineer/Architect amends the application, they shall promptly notify the Contractor in writing, giving their reason(s) for the amendment.

**2.16.2** The Owner shall, within thirty (30) days of receipt and approval by the Owner of a certificate for payment from the Engineer/Architect, make payment to the Contractor on account.

**2.16.3** Notwithstanding any other provisions of the Contract:

- a) Where legislation permits and where, upon application by the Contractor, the Engineer/Architect has certified that a Subcontract has been totally performed to their satisfaction prior to the Substantial Performance of this Contract, the Owner may, at their discretion, pay the Contractor the holdback retained for such Subcontractor on the day following the expiration of the Statutory Limitations Period stipulated in the Mechanic's Lien Act applicable to the place of the Work and subject to the following conditions:
  - (i) A copy of the Contract between the Subcontractor and the General Contractor must be submitted.
  - (ii) The Subcontract is completed without deficiencies.
  - (iii) The warranty for the Subcontract will not start until Substantial Performance of the General Contract.
  - (iv) The General Contractor provides an approved Statutory Declaration that all monies have been paid to the said Subcontractor.
  - (v) The General Contractor provides an approved Waiver of Lien from this Subcontractor.
  - (vi) The Contractor and the Subcontractor provide an approved Waiver of Claim for all work associated with this Subcontractor.
  - (vii) A certificate is issued by the Engineer/Architect indicating that the Subcontract has been totally completed to their satisfaction.
  - (viii) The Owner will, at that time, release the total amount specified on the Subcontractor's Contract.

- 2.16.4** Notwithstanding the provisions of Paragraph 16.3 (a) and notwithstanding the wording of such certificate, the Contractor shall ensure that such work is protected pending the Total Performance of the Contract and be responsible for the correction of any defects in it regardless of whether or not they were apparent when such certificates were issued.
- 2.16.5** The Engineer/Architect shall within ten (10) days of receipt of an application from the Contractor for a Certificate of Substantial Performance make an inspection and assessment of the Work to verify the validity of the application. The Engineer/Architect shall within seven (7) days of their inspection notify the Contractor of their approval or the reasons for their disapproval of the application. When the Engineer/Architect finds the Work to be substantially performed, they shall issue such a certificate. The date of this certificate shall be the date of Substantial Performance of the Contract. Immediately following the issuance of the Certificate of Substantial Performance, the Engineer/Architect, in consultation with the Contractor, shall establish a reasonable date for the Total Performance of the Contract.
- 2.16.6** Following the issuance of the Certificate of Substantial Performance and upon receipt from the Contractor of all documentation called for in the Contract Documents, the Engineer/Architect shall issue a Certificate for Payment of holdback monies, providing that no lien or privilege claims against the Work exists, that the Contractor has submitted to the Owner a sworn statement that all accounts for labour, Subcontracts, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Substantial Performance of the Work and for which the Owner might in any way be held responsible, have been paid in full and that the Contractor has submitted to the Owner a waiver of all claims associated with this project except holdback monies properly retained. The holdback monies will become due and payable on the day following the expiration of the Statutory Limitation Period stipulated in the Mechanic's Lien Act applicable to the place of buildings. The Owner may retain out of such holdback monies any sum required by law to satisfy any liens against the Work or other monetary claims against the Contractor which may be enforceable against the Owner.
- 2.16.7** The Engineer/Architect shall, within ten (10) days of receipt of an application from the Contractor for payment upon Total Performance of the Contract, make an inspection and assessment of the Work to verify the validity of the application. The Engineer/Architect shall, within seven (7) days of their inspection, notify the Contractor of their approval or the reasons for their disapproval of the application. When the Engineer/Architect finds the Work to be totally performed to their satisfaction, they shall issue a Certificate of Total Performance and certify for payment the remaining monies due to the Contractor under the Contract, less any holdback monies which are required to be retained. The date of this certificate shall be the date of Total Performance of the Contract. The Owner shall, within thirty (30) days of issuance of such certificate, make payment to the Contractor in accordance with the provisions of the Contract.
- 2.16.8** The release of any remaining holdback monies shall become due and payable on the day following the expiration of the Statutory Limitation period stipulated in the

Mechanics' Lien Act of the place of building provided that no claims against the Work exists and that the Contractor has submitted to the Owner a sworn statement that all accounts for labour, Subcontractors, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Total Performance of the Work and for which the Owner might in any way be held responsible have been paid in full, except holdback monies properly retained.

**2.16.9** No certificate for payment, any payment made thereunder or any partial or entire use of occupancy of the Work by the Owner shall constitute an acceptance of any work or products not in accordance with the Contract Documents.

**2.16.10** As of the date of Total Performance of the Work as set out in the Certificate of Total Performance of the Work, the Owner expressly waives and releases the Contractor from all claims against the Contractor including, without limitation, those that might arise from the negligence or breach of Contract by the Contractor except one or more of the following:

- a) Those made in writing prior to the date of the Total Performance of the Work and still unsettled;
- b) Those arising from the provisions of **2.12.0 INDEMNIFICATION** or **2.26.0 WARRANTY**;
- c) Those made in writing within a period of six (6) years from the date of Substantial Performance of the Work, as set out in the Certificate of Substantial Performance of the Work or within such shorter period as may be prescribed by any Limitation Statute of the Province of Newfoundland and Labrador and arising from any liability of the Contractor for damages resulting from their performance of the Contract with respect to substantial defects or deficiencies in the Work for which the Contractor is proven responsible.

As used herein, "substantial defects or deficiencies" means those defects or deficiencies in the Work which affect the Work to such an extent or in such manner that a significant part or the whole of the Work is unfit for the purpose intended by the Contract Documents.

**2.16.11** As of the date of Total Performance of the Work, as set out in the Certificate of Total Performance of Work, the Contractor expressly waives and releases the Owner from all claims against the Owner including, without limitation, those that might arise from the negligence or breach of Contract by the Owner except those made in writing prior to the Contractor's application for payment upon Total Performance of the Work and still unsettled.

**2.16.12** In the event of conflict between the provisions of the General Conditions and **2.24.0 DAMAGES AND MUTUAL RESPONSIBILITY**, the provisions of this General Condition shall govern.

**2.16.13** The holdback to be used by the Engineer/Architect when issuing certificates of payment will be ten (10) percent of the value of the Work completed at the date of Contractor's claim.

**2.16.14** Notwithstanding any other provision of this Contract, the Owner may:

- a) In the event of a claim by the Owner against the Contractor for damages arising out of the performance or non-performance of the Contract, withhold payment of any amount equal to the alleged damages until the liability for damages is established, and no amount of interest will be paid on amounts held under this Clause;
- b) Set-off amounts owing by the Contractor to the Owner;
- c) Following the issuance of the Certificate of Substantial Performance, withhold payment of an amount equal to twice the cost as estimated by the Engineer/Architect of remedying deficiencies until the issuance of a Certificate of Total Performance, and no amount of interest will be paid on amounts held under this Clause.

#### **2.17.0 TAXES AND DUTIES**

**2.17.1** Unless otherwise stated in the Supplementary General Conditions, the Contractor shall pay all applicable government sales taxes, goods and services taxes, customs duties and excise taxes with respect to the Contract.

**2.17.2** Any increase or decrease in costs to the Contractor due to changes in such taxes and duties after the date of the Agreement and up to the agreed date of completion shall increase or decrease the Contract Price accordingly. If the Owner so desires, the Contractor is to cooperate with the Engineer/Architect and Owner and permit access to books and records in order to establish the amount of such taxes involved.

**2.17.3** The Contractor shall maintain full records of their estimates and of actual costs to them of the Work, together with all proper open calls, quotations, contracts, correspondence, invoices, receipts, payments to Subcontractors and Suppliers and vouchers relating thereto and shall make them available to audit and inspection by the Owner, the Auditor General for Newfoundland and Labrador or by persons acting on their behalf and shall furnish them with any information which they may require from time to time in connection with such records.

#### **2.18.0 LAWS, NOTICES, PERMITS AND FEES**

**2.18.1** The laws of the Province of Newfoundland and Labrador shall govern the Work.

**2.18.2** The Contractor shall obtain all permits, licenses and certificates and pay all fees required for the performance of the Work which are in force at the date of open call closing with the following exceptions:

- a) The Contractor shall obtain building permits for the Work but are not required to pay for said permits.
- b) The Contractor shall not include the obtaining of permanent easements or rights of servitude.

**2.18.3** The Contractor shall give all required notices and comply with all laws, ordinances, rules, regulations, codes and order of all authorities having jurisdiction relating to the Work, to the preservation of the public health and construction safety which are or become in force during the performance of the Work.

**2.18.4** The Contractor shall not be responsible for verifying that the Contract Documents are in compliance with the applicable laws, ordinances, rules, regulations and codes relating to the Work. If the Contract Documents are a variance therewith or changes which necessitate modifications to the Contract Documents are required by the authorities having jurisdiction subsequent to the Open call closing date, the Contractor shall notify the Engineer/Architect in writing requesting direction immediately when any such variance or change is observed by them. The Engineer/Architect will make the changes required to the Contract Documents, and the Contract Price and/or Contract Time shall be adjusted in accordance with **2.13.0 CHANGES IN THE WORK AND EXTRA WORK** and evaluated in accordance with **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**.

**2.18.5** If the Contractor fails to notify the Engineer/Architect in writing and obtain their direction as required in 2.18.4 and performs any work knowing it to be contrary to any laws, ordinances, rules, regulation, codes and orders of any authority having jurisdiction, they shall be responsible for and shall correct any violations thereof and shall bear all costs, expense and damages, attributable to their failure to comply with the provisions of such laws, ordinances, rules, regulations, codes and orders.

## **2.19.0 PATENT FEES**

**2.19.1** The Contractor shall pay all royalties and patent license fees required for the performance of the Contract and such royalties or fees shall be deemed to have been included in the Contract Price. They shall hold the Owner harmless from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the Contractor's performance of the Contract which are attributable to an infringement or an alleged infringement of any patent or invention by the Contractor or anyone for whose acts they may be liable.

**2.19.2** The Owner shall hold the Contractor harmless against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the Contractor's performance of the Contract which are attributable to an infringement or an alleged

infringement of any patent or invention in executing anything for the purpose of the Contract, the model, plan or design of which was supplied to the Contractor by the Owner.

## **2.20.0 WORKERS' COMPENSATION**

**2.20.1** The Contractor shall be registered with and shall remain in good standing with the Workplace Health and Safety Compensation Commission during the term of their Contract.

**2.20.2** At any time during the term of the Contract when requested by the Owner, the Contractor shall provide evidence of compliance by themselves and any or all of their Subcontractors.

## **2.21.0 LIABILITY INSURANCE**

### **2.21.1 Comprehensive General Liability Insurance**

- a) Without restricting the generality of **2.12.0 INDEMNIFICATION**, the Contractor shall provide and maintain, either by way of a separate policy or by an endorsement to their existing policy, Comprehensive General Liability Insurance acceptable to the Owner and subject to limits set out in detail below, inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof.
- b) The insurance shall be in the joint names of the Contractor and the Owner. It shall also cover as named Insureds all Subcontractors and anyone employed directly or indirectly by the Contractor or their Subcontractors to perform a part or parts of the Work but excluding Suppliers whose only function is to supply and/or transport products to the project site.
- c) The insurance shall also include as Named Insureds the architectural and engineering consultants of the Owner and Engineer/Architect.
- d) The insurance shall preclude subrogation claims by the Insurer against anyone insured thereunder.
- e) The Comprehensive General Liability Insurance will not be limited to, but shall include coverage for:
  - (i) Premises and Operations Liability
  - (ii) Products or Completed Operations Liability
  - (iii) Blanket Contractual Liability

- (iv) Cross Liability
- (v) Elevator and Hoist Liability
- (vi) Contingent Employer's Liability
- (vii) Personal Injury Liability arising out of false arrest, detention or imprisonment or malicious prosecution, libel, slander or defamation of character, invasion of privacy or wrongful entry
- (viii) Shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunnelling and grading, as applicable
- (ix) Liability with respect to non-owned, licensed vehicles.

**2.21.2** The Contractor shall provide and maintain liability insurance in respect of owned licensed vehicles subject to limits set out in detail in Article **2.21.0 LIABILITY INSURANCE** subsection **2.21.6**.

**2.21.3** All liability insurance shall be maintained continuously until twelve (12) months after the date the Engineer/Architect issues a Certificate of Substantial Performance.

**2.21.4** The Contractor shall provide the Owner with evidence of all liability insurance prior to the commencement of the Work and shall promptly provide the Owner with a certified true copy of each insurance policy.

**2.21.5** All liability insurance policies shall contain an endorsement to provide all Named Insureds with prior notice of changes and cancellations. Such endorsements shall be in the following form:

"It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way nor cancelled until thirty (30) days after written notice of such change or cancellation shall have been given to all Named Insureds."

**2.21.6** The Contractor shall protect themselves and indemnify and save the Owner harmless from any and all claims which may arise from the Contractor's performance or failure of performance of the Contract and for this purpose shall, without restricting the generality of the foregoing, maintain insurance acceptable to the Owner to the following limits:

- a) Where the contract value exceed \$100,000 (inclusive of HST)
  - Comprehensive General Liability = \$3,000,000.00;
  - Standard Automobile Policy Liability = \$3,000,000.00.



- b) Where the contract value is less than \$100,000 (inclusive of HST)
  - Comprehensive General Liability = \$2,000,000.00;
  - Standard Automobile Policy Liability = \$2,000,000.00.

Prior to the commencement of any work hereunder, the Contractor shall file with the Owner a copy of each insurance policy and certificate required.

## **2.22.0 PROPERTY INSURANCE**

**2.22.1** The Contractor shall provide and maintain property insurance acceptable to the Owner insuring the full value of the Work in the amount of the replacement cost or the Contract value, whichever is greater, and the full value as stated of products for incorporation into the Work. The insurance shall be in the joint names of the Contractor, the Owner, the Subcontractors as Unnamed Insured or, if they specifically request, as Named Insured. The policies shall preclude subrogation claims by the Insurer against anyone insured thereunder.

**2.22.2** Such coverage shall be provided by EITHER an ALL RISKS Builders' Risk Policy OR by a combination of a Coverage and Malicious Damage Endorsements and a Builder's Risk Difference in Conditions Policy providing equivalent coverage of Piers, Wharves and Docks, Government Structures Policy.

**2.22.3** The policies shall insure against all risks of direct loss or damage. Such coverage shall apply to:

- a) All products, labour and supplies of any nature whatsoever, the property of the Insureds or of others for which the Insureds may have assumed responsibility, to be used in or pertaining to the site preparations, demolition of existing structures, erections and/or fabrication and/or reconstruction and/or repair of the insured project, while on the site or in transit, subject to the exclusion of the property specified.
- b) The installation, testing and any subsequent use of machinery and equipment including boilers, pressure vessels or vessels under vacuum.
- c) Damage to the Work caused by an accident to and/or the explosion of any boiler(s) or pressure vessel(s) forming part of the Work.

Such coverage shall exclude construction machinery, equipment, temporary structural and other temporary facilities, tools and supplies used in the construction of the Work and which are not expendable under the Contract.

**2.22.4** The Contractor shall provide the Owner with evidence of all insurance prior to the commencement of the Work and shall promptly provide the Owner with a certified true copy of each insurance policy.

Policies provided shall contain an endorsement to provide all Named Insureds with prior notice of changes and cancellations. Such endorsements shall be in the following form:

**"It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way or cancelled until thirty (30) days after written notice of such change or cancellation shall have been given to all Named Insureds."**

**2.22.5** All such insurance shall be maintained continuously until ten (10) days after the date the Engineer/Architect issues a certificate of Total Performance. All such insurance shall provide for the Owner to take occupancy of the Work or any part thereof during the terms of this insurance. Any increase in the cost of this insurance arising out of such occupancy shall be at the Owner's expense.

**2.22.6** The policies shall provide that, in the event of a loss, payment for damage to the Work shall be made to the Owner and the Contractor as their respective interests may appear. Damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to such reasonable extension of time for Substantial and Total Performance of the Work as the Engineer/Architect may decide.

**2.22.7** The Contractor and/or their Subcontractors, as may be applicable, shall be responsible for any deductible amounts under the policies and for providing such additional insurance as may be required to protect the Insureds against loss on items excluded from the policies.

**2.22.8** When this Contract pertains to a new building or structure with a total bid amount greater than \$25,000.00, the Contractor shall maintain All Risk Builder's Risk Insurance acceptable to the Owner in the joint names of the Owner and Contractor in the amount of 100 percent of the total value of the Work done and material delivered to the site and payable to the Owner and Contractor as their respective interest may appear.

## **2.23.0 PROTECTION OF WORK AND PROPERTY**

**2.23.1** The Contractor shall protect the property adjacent to the project site from damage as the result of their operations under the Contract.

**2.23.2** The Contractor shall protect the Work and the Owner's property from damage and shall be responsible for any damage which may arise as the result of their operations under the Contract except damage which occurs as the result of:

- a) Errors in the Contract documents; and/or
- b) Acts or omissions by the Owner, their agents, employees or other Contractors.

**2.23.3** Should the Contractor, in the performance of this Contract, damage the Work and/or Owner's property and/or property adjacent to the place of the Work, the Contractor shall be responsible for making good such damage at their own expense or pay all costs incurred by others in making good such damage.

**2.23.4** Should any damage occur to the Work and/or Owner's property for which the Contractor is not responsible as provided in of **2.12.0 INDEMNIFICATION**, they shall make good such damage to the Work and, if the Owner so directs, to the Owner's property, and the contract Price and Contract Time shall be adjusted in accordance with in **2.13.0 CHANGES IN THE WORK AND EXTRA WORK** and evaluated in accordance with in **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**.

**2.23.5** The Contractor shall be completely responsible for the safety of the Work as it applies to protection of the public and property and construction of the Work.

The codes that must be followed and enforced for safety are:

- a) The National Building Code, Part 8, Safety Measures at Construction and Demolition Sites (Latest Edition);
- b) Canadian Code for Construction Safety (Latest Edition) as issued by the Associate Committee of the National Building Code;
- c) The Occupational Health and Safety Act (1979) and Regulations.

**2.23.6** Any person not following stipulated safety regulations shall be dismissed.

## **2.24.0 DAMAGES AND MUTUAL RESPONSIBILITY**

**2.24.1** If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or anyone employed by them then they shall be reimbursed by the other party for such damages. The party reimbursing the other party shall be subrogated to the rights of the other party in respect of such wrongful act or neglect if it be that of a third party.

**2.24.2** Claims under this Contract shall be made in writing to the party liable within two (2) weeks after the first observance of such damage and may be adjusted by agreement or in the manner set out in **2.11.0 DISPUTES**.

**2.24.3** If the Contractor has caused damage to any other Contractor on the Work, the Contractor agrees upon due notice to settle with such other Contractor by agreement or arbitration, if they will so settle. If such other Contractor sues the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor and may require the Contractor to defend the action at the Contractor's expense. If

any final order or judgment against the Owner arises therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

**2.24.4** If the Contractor becomes liable to pay or satisfy any final order, judgment or award against the Owner then the Contractor, upon undertaking to indemnify the Owner against any and all liability for costs, shall have the right to appeal in the name of the Owner such final order or judgment to any and all courts of competent jurisdiction.

**2.24.5** Should the Contractor fail to meet the date to substantially perform the Work, as indicated in the Agreement between the Owner and the Contractor, and is unable to provide justification acceptable to the Owner for the delay then the Contractor will be held liable for any liquidated damage amount indicated in **3.0 SUPPLEMENTARY GENERAL CONDITIONS** and may be held liable for payment to the Owner for other damages and losses suffered by the Owner as a result of the Contractor's delay including additional costs for Engineering/Architectural supervision.

## **2.25.0 BONDS**

**2.25.1** The Contractor shall promptly provide the Owner the surety bonds called for in the Open call Documents.

**2.25.2** All such bonds shall be issued by a duly incorporated surety company approved by the Owner and authorized to transact a business or surety-ship in the Province of Newfoundland and Labrador.

**2.25.3** If bonds are called for in the and Acceptance form, Instructions to Bidders or Supplementary General Conditions, the costs attributable to providing such bonds shall be included in the bid price.

**2.25.4** Should the Owner require the provision of a bond or bonds by the Contractor other than those provided for under 2.25.3, the Contract Price shall be increased by all costs attributable to providing such bonds.

## **2.26.0 WARRANTY**

**2.26.1** The Contractor shall be responsible for the proper performance of the Work to the extent that the design and specifications permit such performance.

**2.26.2** Subject to Paragraph 2.26.1, the Contractor agrees to correct promptly, at their own expense, defects or deficiencies in the Work which appear prior to and during the period of one (1) year from the date of Substantial Performance of the Work or such longer periods as may be specified for certain products or work.

**2.26.3** The Contractor shall correct and/or pay for any damage to other work resulting from any corrections required under the conditions of Paragraph 2.26.2.

**2.26.4** Neither the Engineer/Architect's final certificate nor payment thereunder shall relieve the Contractor from their responsibility hereunder.

**2.26.5** The Owner and/or Engineer/Architect shall give the Contractor written notice of observed defects promptly.

**2.27.0 CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK**

**2.27.1** The Contractor shall have complete control of the Work and shall effectively direct and supervise the Work so as to ensure conformance with the requirements of the Contract Documents. They shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all parts of the Work under the Contract.

**2.27.2** The Contractor shall have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structural and other temporary facilities and the design and execution of construction methods required in their use. The Contractor shall engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform these functions where required by law or by the Contract Documents and, in all cases, where such temporary facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

**2.27.3** Notwithstanding the provision of Paragraphs 2.27.1 and 2.27.2 above or any provisions to the contrary elsewhere in the Contract Documents where such Contract Documents include designs for temporary structural and other temporary facilities or specify a method of construction in whole or in part, such facilities and methods shall be deemed to comprise part of the overall design of the Work, and the Contractor shall not be held responsible for that part of the design or the specified method of construction. The Contractor shall, however, be responsible for the execution of such design or specified method of construction in the same manner that they are responsible for the execution of the Work.

**2.27.4** The Contractor shall carefully examine the Contract Documents and shall promptly report to the Engineer/Architect any error, inconsistency or omission they may discover. The Contractor shall not be held liable for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents which they may discover, and they shall not proceed with the Work affected until they have received corrected or missing information from the Engineer/Architect.

**2.28.0 PROJECT MANAGER AND SUPERINTENDENCE**

**2.28.1** The Contractor shall employ a competent Project Manager and necessary assistants who shall be in attendance at the Work site at all times while the Work is being performed.

- 2.28.2** The Project Manager shall be satisfactory to the Engineer/Architect and shall not be changed except for good reason and only then after consultation with an agreement by the Engineer/Architect.

The Project Manager shall have a minimum of ten (10) years' experience on construction projects of similar scale, complexity, type and value.

**The project manager shall submit a resume and cover letter.**

- 2.28.3** The Superintendent shall represent the Contractor at the place of work and instructions given to them by the Engineer/Architect shall be held to have been given to the Contractor. Important instructions shall be confirmed to the Contractor in writing, other instructions will be so confirmed if requested.

The superintendent shall have a minimum of ten (10) years' experience on construction projects of similar scale, complexity, type and value.

## **2.29.0 LABOUR AND PRODUCTS**

- 2.29.1** Unless otherwise stipulated elsewhere in the Contract Documents, the Contractor shall provide and pay for all labour, products, tools, construction equipment and machinery, water, heat, light, power, transportation and other facilities and services necessary for the requirements of the Contract Documents.
- 2.29.2** All products provided shall be new unless otherwise specified in the Contract Documents. Any products which are not specified shall be of a quality best suited to the purpose required, and their use shall be subject to the approval of the Engineer/Architect.
- 2.29.3** In carrying out their duties under this Contract, the Contractor shall comply with all Provincial and Federal legislation respecting labour and the employment of labour, where applicable, including the Labour Standards Code and shall not operate in conflict with the Human Rights legislation. In the employment of labour, preference should be given to persons normally residing in Newfoundland and Labrador.
- 2.29.4** The Contractor and Subcontractors shall maintain and keep available for inspection by the Owner, a record of the names and addresses of all persons employed on the project.
- 2.29.5** The Contractor shall maintain good order and discipline among their employees engaged on the Work and shall employ on the Work only employees skilled in their various trades.
- 2.29.6** There shall be no discrimination in the selection of workers for employment on the project in respect to race, religion, views or political affiliation, and the office of the Canada Manpower will be used in the recruitment of workers wherever possible.

- 2.29.7** The Contractor shall pay fair wages and shall pay rates of wages and allowances to the various classes of labour not less favourable than those prevailing in the area where the Work is being performed.
- 2.29.8** The Contractor shall be aware that the majority of hourly-paid and maintenance workers employed within the University are unionized. It is of utmost importance that

any labour force used by the Contractor neither disrupts or be disrupted by any labour conditions existing on the University campus. Failure by the Contractor to familiarize themselves with labour conditions on Campus or disruptions to the Contractor's own labour force because of labour conditions on Campus will not relieve them of their obligations to furnish all labour and materials necessary to carry out the requirements of the Contract.

### **2.30.0 SUBSURFACE CONDITIONS**

**2.30.1** The Contractor shall promptly notify the Engineer/Architect in writing if, in their opinion, the subsurface conditions at the project site differ materially from that indicated or reasonably inferred from the Contract Documents.

**2.30.2** After prompt investigation, should the Engineer/Architect determine that conditions do differ materially, they shall issue appropriate instructions for changes in the Work as provided for in **2.13.0 CHANGES IN THE WORK AND EXTRA WORK**.

### **2.31.0 USE OF THE WORK**

**2.31.1** The Contractor shall confine their apparatus, the storage of products and the operations of their employees to limits indicated by laws, ordinances, permits or by instructions of the Engineer/Architect and shall not unreasonably encumber the premises with their products.

**2.31.2** The Contractor shall not load or permit to be loaded any part of the Work with a weight or force that will endanger its safety.

**2.31.3** Unless otherwise provided, the Contractor shall, at their own expense and without expense to the Owner, make suitable provision to accommodate all traffic, either pedestrian or vehicular, over or around the project upon which work is being performed in a manner satisfactory to the Engineer/Architect.

**2.31.4** The Contractor shall provide and maintain at their own expense such fences, barriers, signs, lights and watchmen as may be necessary to prevent avoidable accidents to University Users or to the public generally.

**2.31.5** All work shall be executed with the least possible interference with or disturbance to personnel and the Public. The Contractor shall cooperate with the person in charge of the premises. The Contractor shall ascertain from the Owner's representative the hours during which the work shall be performed, conform to the directions of the representative and to the directions of the said representative in determining the order in which the work shall be done.

**2.31.6** The Contractor shall carry out all work required to maintain the building services and to provide necessary access for personnel and vehicles whenever new work affects occupied portions of the building.



**2.31.7** Before final completion of the work, the Owner shall be entitled to make use of any portion of the work which is completed and fit for use for the installation of equipment, storage and furniture, supplies, etc., and for occupancy, if such can be arranged without interfering with the progress of the work.

#### **2.32.0 CUTTING AND REMEDIAL WORK**

**2.32.1** The Contractor shall do all cutting and remedial work that may be required to make the several parts of the Work come together properly and shall coordinate the Work to ensure that this requirement is kept to a minimum.

**2.32.2** Should the Owner, the Engineer/Architect, other contractors or anyone employed by them, be responsible for ill-timed work necessitating additional cutting and/or remedial work to be performed, it shall be valued as provided in **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK** and added to the Contract Price.

**2.32.3** Cutting and remedial work shall be performed by specialists familiar with the materials affected and shall be performed in a manner to neither damage nor endanger any work.

#### **2.33.0 INSPECTION OF WORK**

**2.33.1** The Owner, the Engineer/Architect and their authorized representatives shall have access to the Work for inspection wherever it is in preparation or progress. The Contractor shall cooperate to provide reasonable facilities for such access.

**2.33.2** If parts of the Work are designated for special tests, inspections or approvals in the Contract Documents or by the Engineer/Architect's instructions or the laws or ordinances of the place of the Work, the Contractor shall give the Engineer/Architect timely notice requesting inspection. Inspection by the Engineer/Architect shall be made promptly. The Contractor shall arrange for inspections by other authorities and shall notify the Engineer/Architect with timely notice of the date and time.

**2.33.3** If the Contractor covers or permits to be covered any of the Work that is designated for special tests, inspections or approvals, before such special tests, the Contractor shall, if so instructed by the Engineer/Architect, uncover the Work, have the inspection satisfactorily completed and make good the Work at their own expense.

**2.33.4** The Engineer/Architect may order any part of the Work to be specifically examined, should they believe such work not to be in accordance with the requirements of the Contract Documents. If upon examination such work is found not to be in accordance with the requirements of the Contract Documents, the Contractor shall correct such work and pay the cost of examination and correction. If such work is found to be in accordance with the requirements of the Contract Documents, the Owner will pay the cost of examination and replacement.

**2.33.5** The Contractors shall furnish promptly to the Engineer/Architect two (2) copies of all certificates and inspection reports relating to the Work.

**2.34.0**      ***REJECTED WORK***

**2.34.1** Defective work, whether the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the Contractor and whether incorporated in the Work or not which has been rejected by the Engineer/Architect as failing to conform to the Contract Documents, shall be removed promptly from the premises by the Contractor and replaced and/or re-executed promptly in accordance with the Contract Documents at the Contractor's expense.

**2.34.2** Other contractors' work destroyed or damaged by such removals or replacements shall be made good promptly at the Contractor's expense.

**2.34.3** If, in the opinion of the Engineer/Architect, it is not expedient to correct defective work not done in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work as done and that called for by the Contract, the amount of which shall be determined in the first instance by the Engineer/Architect.

**2.35.0**      ***SHOP DRAWINGS AND SAMPLES***

**2.35.1** 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.

**2.35.2** The Contractor shall arrange for the preparation of clearly identified shop drawings as called for by the Contract Documents or as the Engineer/Architect may reasonably request.

**2.35.3** Prior to submission to the Engineer/Architect, the Contractor shall review all shop drawings. By this review, the Contractor represents that they have determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data, or will do so, and that they have checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each shop drawing shall be indicated by stamp, date and signature of a responsible person.

**2.35.4** The Contractor shall submit shop drawings to the Engineer/Architect for their review with reasonable promptness and in orderly sequence so as to cause no delay in the Work or in the Work of other contractors. If either the Contractor or the Engineer/Architect so requests, they shall jointly prepare a schedule fixing the dates for submission and return of shop drawings. Shop drawings shall be submitted in the form

of reproducible transparencies or prints as the Engineer/Architect may direct. At the time of the submission, the Contractor shall notify the Engineer/Architect in writing of any deviations in the shop drawings from the requirements of the Contract Documents.

**2.35.5** The Engineer/Architect will review and return shop drawings in accordance with any schedule agreed upon or otherwise with reasonable promptness so as to cause no delay. The Engineer/Architect's review will be for conformity to the design concept and for general arrangements only, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents unless a deviation on the shop drawings has been approved in writing by the Engineers/Architects.

**2.35.6** The Contractor shall make any changes in shop drawings which the Engineer/Architect may require consistent with the Contract Documents and resubmit, unless otherwise directed by the Engineer/Architect. When resubmitting, the Contractor shall notify the Engineer/Architect in writing of any deviations other than those requested by the Engineer/Architect.

**2.35.7** The Contractor shall submit for the Engineer/Architect's approval such standard manufacturer's samples as the Engineer/Architect may reasonably require. Samples shall be labeled as to origin and intended use in the Work and shall conform to the requirements of the Contract Documents.

**2.35.8** The Contractor shall provide samples of special products, assemblies or components when so specified. The cost of such samples not specified shall be authorized as an addition to the Contract Price as provided in **2.13.0 CHANGES IN THE WORK AND EXTRA WORK**.

**2.36.0 TESTS AND MIX DESIGNS**

**2.36.1** The Contractor shall furnish to the Engineer/Architect test results and mix designs as may be requested. The testing company must first be approved by the Engineer/Architect.

**2.36.2** The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by law, ordinances, rules and regulations relating to the Work and the preservation of public health, shall be authorized as an addition to the Contract Price as provided in **2.13.0 CHANGES IN THE WORK AND EXTRA WORK**.

**2.37.0 MATERIALS AND SUBSTITUTIONS**

**2.37.1** Materials described and named in the specifications with "or approved equal" clause after the Manufacturer's name are so described as to the establish quality only, and substitutions of a similar materials may be made before the award of the Contract provided the Engineer/Architect's approval is obtained. Substitutions after the award

may be considered under special circumstances as indicated in Subsection 1.7.4 in the **INSTRUCTIONS TO Bidders**

**2.37.2** Requests for substitutions must be accompanied by sufficient information in the form of shop drawings, manufacturer's literature, samples and other data to permit proper investigation of the substitutes proposed, together with any increase or decrease in price.

**2.37.3** Whenever a substitute is proposed for approval, the Contractor shall guarantee that such proposed substitute will not adversely affect the space requirements allocated on the drawings for the material specified, and they shall agree to bear any additional expense incurred due to their use of the proposed substitute.

**2.37.4** The Engineer/Architect may accept or reject any or all of the proposed substitutions as they see fit, and their decision on a question of equality shall be final.

**2.38.0 TIME OF ESSENCE AND SCHEDULE**

**2.38.1** Time is of the essence of the Contract.

**2.39.0 CASH ALLOWANCE**

**2.39.1** The Contract Price includes cash allowances, if any, stated in the Contract Documents.

**2.39.2** Cash allowances, unless otherwise specified, cover the entire cost to the Contractor of services, products, construction machinery and equipment, freight, unloading, handling, storage, installation and other authorized expenses incurred in performing the Work stipulated under the cash allowances. This also includes the Contractors overhead and profit in connection with such cash allowance.

**2.39.3** The cash allowance shall not include HST.

**2.39.4** Where costs under a cash allowance exceed the amount of the allowance, the Contractor shall be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in **2.14.0 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**.

**2.39.5** The Contract Price shall be adjusted by written order to provide for any excess or deficit to each cash allowance.

**2.39.6** Progress payments on account of Work authorized under cash allowance shall be included in the Engineer/Architect's monthly certificates for payment.

**2.39.7** A schedule shall be prepared jointly by the Engineer/Architect and Contractor to show the items called for under Cash Allowances. They must be authorized by the Owner for ordering purposes so that the progress of the Work will not be delayed.

**2.40.0 CLEANUP AND FINAL CLEANING OF THE WORK**

**2.40.1** The Contractor shall maintain the Work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, other contractors or their employees.

**2.40.2** When the Work is substantially performed, the Contractor shall remove their surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work. They shall also 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, unless otherwise specified.

**2.40.3** When the Work is totally performed, the Contractor shall remove their surplus products, tools, construction machinery and equipment. They shall also remove waste products and debris other than that caused by the Owner, other contractors or their employees.



### **3.0 SUPPLEMENTARY GENERAL CONDITIONS**





## **SUPPLEMENTARY GENERAL CONDITIONS**

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## **4.0 SPECIAL CONDITIONS**



#### **4.1.0 LAYOUT OF WORK**

- 4.1.1** Other than the original lot lines and a bench mark, both shown on the drawings, establish and maintain all grades, lines, levels and well-built batter boards at all corners of the building. As work progresses, lay out on the forms or rough flooring the exact location of all partitions as a guide to all trades.
- 4.1.2** Verify all grades, lines, levels and dimensions as shown on the drawings and report any errors or inconsistencies in the above to the Engineer/Architect before commencing Work.

#### **4.2.0 JOB SIGN**

- 4.2.1** At the start of the job, erect two painted signs as detailed and where located by the Engineer/Architect. This will be the only sign or advertisement permitted on the site unless instructed otherwise by the Engineer/Architect.
- 4.2.2** The signs shall be 8'0" x 8'0" plywood, properly supported. It shall be painted and shall show the names of the building, Owner, Prime Consultant, Major Subconsultants, Contractor and Major Subcontractors. A drawing of the signs to be erected will be supplied by the Engineer/Architect.

#### **4.3.0 TEMPORARY OFFICES AND SHEDS**

- 4.3.1** Construct and maintain, until completion of the Contract temporary offices and storage sheds in approved locations on site for the use of staff.
- 4.3.2** Buildings shall be of weatherproof wood stud and plywood construction completely equipped with adequate lighting, heating and ventilation, and in addition, the Contractor's office shall be fully furnished with desks, plan tables, storage cabinets, file drawers, chairs, stools and plan racks.
- 4.3.3** Provide storage sheds for small tools, equipment, perishable materials, etc., as necessary. All buildings shall be equipped with windows for natural light and doors properly fitted and equipped with locks.
- 4.3.4** Maintain offices and storage sheds in good condition to the approval of the Engineer/Architect from start of Work until final completion of Work or, when directed by the Engineer/Architect, remove offices and sheds from the site and leave areas free of debris and waste materials and in a clean and tidy condition.
- 4.3.5** Offices and storage sheds required by Trade Contractors, such as mechanical and electrical, shall be provided by the trade requiring them.

**4.3.6** Provide an office approximately 120 square feet for the absolute use of the Owner or their representative(s). It shall be properly fitted and furnished with light, heat, telephone, lock and key, shelving, table and chairs and plan rack. The building shall be removed from the site at the completion of the Work.

**4.4.0** **TEMPORARY SERVICES**

**4.4.1** Light and Power

Furnish all temporary light and power required to provide such intensity of light and sufficient power as necessary for the Work to be carried out under the best conditions. Obtain and pay for all permits and inspection tests required by Provincial and/or Municipal authorities. Pay all charges and maintain fixtures and equipment in good working order. **This shall include electric heat.**

**4.4.2** Telephone

Install and pay for the operation of one job telephone and one telephone for the use of the Engineer/Architect for the duration of the Contract. Subcontractors requiring individual telephones shall have them installed at their expense. Long distance calls will be at the expense of the party making the calls.

**4.4.3** Toilets

At the start of operations, provide and maintain in sanitary condition sufficient temporary toilets and washing facilities for the use of personnel on the job. Conform to requirements of the Department of Health and other authorities having jurisdiction. Supply adequate quantities of disinfectant and toilet paper. When building toilets and washing facilities are operable, they may be used under the same conditions as the temporary toilets with the latter being removed, leaving all surfaces and areas hygienically clean and in immaculate condition.

**4.4.4** Heat

Provide and maintain in good condition a temporary heating system for use when the building is closed in until the project has been handed over to the Owner. Pay for fuel and maintenance of the system. Maintain temperatures at a minimum of 50° F, (higher if required for special trades). Heating equipment not adequately protected or operated in conditions other than those intended by the manufacturer shall be regarded as temporary. Remove all such equipment and replace with new permanent equipment.

When ready for operation, the permanent heating equipment may be used for temporary heating purposes, subject to the conditions of the Mechanical Division of the specifications. Protect all permanent heating equipment used for temporary heating purposes. Provide satisfactory site conditions for the proper operation of this equipment.

#### 4.4.5 Water Supply

Provide in two convenient locations outside the building line a fresh water supply for the use of all trades.

Where connection cannot be made to an existing water supply, provide adequate size tanks and keep them filled for use of all trades.

#### 4.5.0 PLANT AND MACHINERY

4.5.1 Provide all framework, scaffolding, ladders, cranes, derricks, planks, screens, gantries, tarpaulins, tools, equipment and machinery for the proper execution of the Work. Scaffolding shall be erected without damage of the structure or the finishes, be removed to suit the installation of work of other trades and be promptly removed at completion.

4.5.2 Where it is the normal practice for the trade to provide its own scaffolding, it shall be included in the Subcontract.

#### 4.6.0 PROTECTION OF PUBLIC AND WORKMEN

4.6.1 Part 8 of the National Building Code of Canada, latest edition, shall apply to this project in its entirety. This covers fencing, barricades, Fire protection, excavation, use of streets or public property, control of vehicular traffic and mechanical methods of demolition.

4.6.2 The latest edition of Canadian Construction Safety Code shall also apply to all phases of this project.

4.6.3 The Workers' Compensation Board Regulations shall also apply to all phases of this project.

#### 4.7.0 CONSTRUCTION SCHEDULE

4.7.1 The Contractor shall, within seven (7) days after the Contract is awarded, prepare for the use of the Engineer/Architect and Owner, a construction schedule. It shall indicate as closely as possible the starting and completion dates for the major sections of the Work, together with the Subcontractors' names.

4.7.2 With each monthly progress claim, submit one (1) copy of the original construction schedule marked in red to show the actual construction progress on the date of the submission of the claim.

**Weekly schedule updates shall be provided.**

**Provide updated construction schedule demoting the original.**

#### **4.8.0 PROGRESS PHOTOGRAPHS**

**4.8.1** Submit with monthly progress claim digital progress photographs taken from points designated by the Engineer/Architect. In the lower right-hand corner of the prints show the date and name of the project.

#### **4.9.0 OPERATIONS AND MAINTENANCE DATA**

**4.9.1** On completion of the project, submit to the Engineer/Architect two (2) copies of Operations and Maintenance Data and one (1) electronic copy as original editable format.

- a) Bind data in vinyl hard covered, 3-ring, loose-leaf binder for 215 x 280 mm size paper.
- b) Enclose title sheet, labelled "Operation and Maintenance Data", project number, project name, date and list of contents.
- c) Organize contents into applicable sections of work to parallel project specifications breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- d) Provide electronic document in CD or DVD as original editable file format or, at the direction of the Owner, pdf format.

**4.9.2** Include the following information plus data specified in Division 15 and 16:

- a) Maintenance instruction for finished surface and materials.
- b) Copy of hardware schedules.
- c) Description, operation and maintenance instructions for equipment and systems, including complete list of equipment and parts list. Indicate nameplate information such as make, size capacity and serial number.
- d) Names, addresses, phone and fax numbers of Subcontractors and Suppliers.
- e) Guarantees, warranties and bonds showing:
  - (i) Name and address of project;
  - (ii) Guarantee commencement date (date of Final Certification of Completion).
  - (iii) Duration of guarantee.



(iv) Clear indication of what is being guaranteed and what remedial action will be taken under guarantee.

(v) Signature and Seal of Contractor.

f) Additional materials used in project listed under various sections showing name of manufacturer and source of supply.

**4.9.3** Neatly type lists and notes. Use clear drawings, diagrams or manufacturer's literature.

**4.9.4** The final certificate will not be issued until the data books have been received and approved by the Engineer/Architect.

#### **4.10.0 COORDINATION OF WORK**

**4.10.1** The Contractor will coordinate the Work of their Subcontractors and provide necessary instructions and scheduling so as to permit continuous progress in the Work by all trades. They will coordinate work between the Subcontractors on the site to ensure that anchor bolts, plates, attachments, etc., are provided and set in place in a timely manner. They will lay out partitions and assist Subcontractors in establishing the actual location of the fixtures, pipes, outlets, duct conduit, etc., so as to limit the interference of one trade with another. Locations shown on the drawings are approximate. If interference problems are encountered which cannot be resolved on the site, advise the Engineer/Architect before proceeding with the Work. Conceal all mechanical and electrical work unless otherwise indicated.

#### **4.11.0 TRAFFIC MAINTENANCE**

**4.11.1** Do not close or obstruct streets, sidewalks, driveways, etc., without permission from authorities having jurisdiction. Do not place or store materials in street, sidewalks, parking areas, etc., unless so authorized.

#### **4.12.0 FIRE PROTECTION**

**4.12.1** Fire protection measures shall include:

- a) An adequate fire alarm signal, the use of fire resistant tarpaulins, the daily inspection of temporary heating system by competent staff and regular fire patrol;
- b) All temporary wiring shall be done by electricians qualified under the applicable local regulations;
- c) Supply and maintenance of fifteen (15) pounds dry chemicals and/or five (5) gallons soda-acid fire extinguishers in such locations that no working crew has to

travel more than fifty (50) feet to an extinguisher station. In any case, there shall be not less than one (1) fully charged extinguisher(s) at the job at any time.

#### **4.13.0 JOB MEETINGS**

**4.13.1** Where the value of the contract exceeds \$100,000 (HST included) job meetings shall occur at definitely prescribed times (minimum once a month), which will be determined after commencement of work, the Contractor shall organize job meetings and send out notices stating time and place to the Owner's representative, the Engineer/Architect, Subconsultants, to all Subcontractors and to other persons whose presences are required at the meetings. They shall take note of all persons attending these meetings and shall, within one (1) week after each job meeting, submit to the Owner, the Engineer/Architect, the Subconsultants and others present, minutes of the meeting which must show any major decisions made and any instructions or information required.

**4.13.2** Where the value of the contract is less than \$100,000 (HST included) job meetings shall occur at the discretion of the University Project Coordinator but shall not occur fewer than once per month.

#### **4.14.0 AS-BUILT DRAWINGS**

**4.14.1** The Engineer/Architect will issue to the Contractor three (3) sets of prints of architectural, mechanical and electrical drawings for the sole purpose of providing "as-built" drawings. The Contractor shall pass these to the relevant Subcontractor who shall keep two (2) sets in their office and one (1) set on the job. As changes occur, the Subcontractor shall make them on the field set. Upon completion of the project, the Subcontractor shall accurately transfer all changes to the two (2) office sets in red ink and pass them to the Engineer/Architect, through the Contractor, for approval. If they are not approved, the Subcontractor shall prepare new sets for resubmission (purchasing additional white prints for this purpose).

**4.14.2** As-built drawings shall be white prints and shall indicate all changes in Architectural, Mechanical and Electrical work, including any changes in location of piping, ducts, panels, etc.

**4.14.3** Provide electronic as-builts in CD or DVD as original editable file format or, at the direction of the Owner, pdf format.

**4.14.4** The Certificate of Total Performance will not be issued until such drawings have been received and approved.

#### **4.15.0 COMPLETION TIME**

**4.15.1** The project shall be ready for the use and occupancy by the Owner within the time stated in the **Open Call and Acceptance Form.**

**4.15.2** Prior to the acceptance by the Owner of the Substantial Performance, the Contractor and the Owner shall sign a list of deficiencies as prepared by the Engineer/Architect for prompt correction and/or completion.

**4.16.0 CLOSE DOWN OF WORK**

**4.16.1** Should the Work be closed down for any cause, the Contractor shall assume all responsibility for its proper protection during such period. They must protect all foundation work and other work liable to be damaged.

**4.17.0 BROKEN GLASS**

**4.17.1** The Contractor shall be held responsible for any damaged, broken or scratched glass and at completion shall replace all such glass at no additional cost to the Owner.

**4.18.0 HOARDING**

**4.18.1** Before starting excavating, construct and thereafter maintain all necessary hoarding required by Municipal or Provincial regulations or by other authorities having jurisdiction.

**4.19.0 COMMISSIONING**

**4.19.1** The Contractor is responsible for commissioning the Work to ensure that the various parts are operating in a manner as intended by the Contract Documents. Even through individual components and/or parts of the Work may have been tested and approved prior to the substantial completion, the Contractor must coordinate a final commissioning of the complete Work, including at the place of the Work all their major Subcontractors and Suppliers. The final commissioning will be carried out by the appropriate trades working together in a complementary manner such that the successful operation of the whole Work is completed properly to the satisfaction of the Engineer/Architect. The Substantial Performance Certificate will not be issued until the final commissioning of the Work has been successfully completed.

**4.20.0 FINAL CLEAN-UP**

**4.20.1** At the end of the job, thoroughly clean the building of all rubbish and surplus materials.

**4.20.2** Make good all damaged areas in the building caused as a result of the Work of this Contract.

**4.20.3** Do final cleaning, waxing and polishing of resilient flooring.



## **5.0 CAMPUS SAFETY AND HEALTH REGULATIONS**



Maintaining a healthy and safe environment for all members of the campus community, as well as visitors, is a priority with the University. This involves a commitment from all sectors of the campus community and extends to outside agencies having occasion to come on campus to conduct business.

The following regulations will apply to all work undertaken by contractors and service personnel on any University property.

### **5.1.0 REGULATIONS, CODES AND STANDARDS**

Contractors shall be familiar with and abide by provisions of various safety codes and standards applicable to the work performed and should refer to Article **23. PROTECTION OF WORK AND PROPERTY** in the **General Conditions**.

In particular, strict adherence shall be required to the Provincial Occupational Health and Safety Act and Regulations and the National Building Code of Canada, Part 8.

### **5.2.0 GENERAL SAFETY REGULATIONS**

- a) Contractors/service agencies shall ensure that members of the campus community are not endangered by any work or process in which they may be engaged. Work areas shall be adequately barricaded, and if dust or fumes are generated, suitable enclosures shall be installed to contain such emissions.
- b) No material shall be stored in such a way as to obstruct walkways or represent a danger to pedestrian traffic.
- c) Adequate protection shall be provided to prevent the possibility of materials falling from scaffolding or elevated areas. Areas where materials are being loaded or offloaded shall be barricaded or otherwise protected to prevent unauthorized entry. Where necessary, appropriate warning signs shall be posted.
- d) The work areas must be kept reasonably clean and free from debris which could constitute a fire hazard. Care must be taken to ensure that the work process does not activate fire alarm detection devices. (Generation of dust and fumes can activate smoke detectors causing a false alarm).
- e) Due consideration shall be given to fire safety in buildings. Flammable materials must be kept away from sources of ignition. No work involving the use of open flame devices must be undertaken around flammable solvents or gases.
- f) Do not alter or disturb any materials believed to contain asbestos materials (unless this is a duly authorized part of the project). Should suspect materials be encountered, consult with University officials before proceeding.

- g) Material Safety Data Sheets shall be procured for any hazardous product used on campus. Such sheets shall be made readily available for consultation as required under the Workplace Hazardous Materials Information System.

**NOTE:** The above regulations are not to be considered all inclusive and are considered to be complementary to the safety requirements outlined in the agreement between the Owner and the Contractor/Service Agency. Certain conditions and circumstances may require adherence to additional safety regulations.

As a general requirement, contract/service personnel are expected to conduct all work on campus in a professional and safe manner and to give priority to the welfare of members of the campus community.



## **6.0 CONTRACTOR PERFORMANCE EVALUATION**



- 6.1.0 The purpose of this process is to maintain an acceptable level of performance with external contractors carrying out work for the Department of Facilities Management.
- 6.2.0 A record of the performance of external contractors will be maintained to identify the following:
- a) Those contractors who by virtue of satisfactory performance will continue to be eligible to submit bids for work at the University;
  - b) Those contractors whose performance is considered unsatisfactory and will be advised of the need to improve performance to remain eligible to submit bids for work at the University;
  - c) Those contractors whose record of unsatisfactory performance will render them ineligible to submit bids for work at the University.
- 6.3.0 Contractors' performance will be evaluated on a points rating system relative to quality of work performed, timeliness in completing work and management/administration of contracts/work and safety parameters.

## **PART 1 - GENERAL**

### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### **1.2 SUMMARY**

- A. Types of items described in this Section:
  - 1. Work Covered By the Contract Documents.
  - 2. Type of Contract.
  - 3. Work Phases.
  - 4. Work Under Other Contracts.
  - 5. Products Ordered In Advance.
  - 6. Owner-Furnished Products.
  - 7. Use of Premises.
  - 8. Owner's Occupancy Requirements.
  - 9. Work Restrictions.
  - 10. Interpretation Of Documents
  - 11. Specification Formats and Conventions.
  - 12. Project Management and Coordination.
  - 13. Construction Progress Documentation.
  - 14. Photographic Documentation.
  - 15. Substitution Procedures.
  - 16. Submittal Procedures.
  - 17. Environmental Procedures.
  - 18. Wildlife Protection.
  - 19. Quality Requirements.
  - 20. Regulatory Requirements.
  - 21. Temporary Facilities and Control.
  - 22. Temporary Barriers and Enclosures.
  - 23. Product Requirements.
  - 24. Execution.
  - 25. Construction Waste Management And Disposal.
  - 26. Closeout Procedures.
  - 27. List of Incomplete Items (Punch List)
  - 28. Operation and Maintenance Data.
  - 29. Project Record Documents.
  - 30. Demonstration and Training.
  
- B. Types of items you will not find described in this Section:
  - 1. Health and Safety Requirements

### **1.3 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification: Arts and Administration Building, Atrium Slope Glazing Replacement
  - 1. Project Location: Main Campus, Memorial University, St. John's, NL.
- B. Owner: Memorial University
  - 1. Owner's Representative: Department of Facilities Management, Tel. 709-864-8725
- C. The Work consists of the following:
  - 1. The Work includes general construction renovation of Atrium Sloped Glazing Assembly, and associated work, located at Memorial University, Arts and Administration Building; and further identified as Atrium Slope Glazing Replacement.
    - a. Price A: Fixed Price all work of this Contract.
    - b. Price B: Fixed Price less interior finishes: Cost associated with removal of existing bulkhead and construction of new bulkhead as outlined in detail 2 A300.

### **1.4 TYPE OF CONTRACT**

- A. Project will be constructed under a single stipulated price contract.

### **1.5 WORK PHASES**

- A. The Work shall be conducted in one(1) phase.
- B. Before commencing Work, submit a schedule showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

### **1.6 WORK UNDER OTHER CONTRACTS**

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Preceding Work: Owner has awarded / will award separate contract(s) for the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.
  - 1. No proceeding work planned.

- C. Concurrent Work: Owner has awarded / will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
  - 1. No concurrent work planned.
  
- D. Future Work: Owner has awarded / will award separate contract(s) for the following additional work to be performed at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.
  - 1. No future work planned.

### **1.7 PRODUCTS ORDERED IN ADVANCE**

- A. List of Products Ordered in Advance:
  - 1. None.

### **1.8 OWNER-FURNISHED PRODUCTS**

- A. Owner-Furnished Products:
  - 1. No Owner-furnished products.

### **1.9 USE OF PREMISES**

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
  
- B. Use of Site: Limit use of premises to areas under construction. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
  - 2. Driveways and Entrances: Keep driveways parking garage, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
  
- C. Use of Existing Building: If the work involves construction in an existing building, maintain the existing building in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

### **1.10 OWNER'S OCCUPANCY REQUIREMENTS**

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
  2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

### 1.11 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours, Monday through Friday, except otherwise indicated.
1. Weekend Hours: **Contractor to notify Owner's representative 48hrs prior to scheduling.**
  2. Early Morning Hours: **Contractor to notify Owner's representative 48hrs prior to scheduling.**
  3. Hours for Utility Shutdowns: **Dependant on Scope of shutdown. Contractor to notify Owner's representative 2 weeks prior to scheduling.**
  4. Hours for Core Drilling and other noise generating activities: **To be scheduled after regular work hours. Contractor to notify Owner's representative 48hrs prior to scheduling.**
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Owner's Representative not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Owner's Representative's written permission.
- C. No smoking is permitted on MUN Campus.

### 1.12 INTERPRETATION OF DOCUMENTS

- A. In the event of discrepancies or conflicts in interpreting the Plans (drawings) and Specifications,
1. Supplementary General Conditions take precedence over all other documents.
  2. General Conditions take precedence over drawings and specifications.

3. Division 1 Sections take precedence over technical specification sections in other Divisions;
  4. Legends and schedules take precedence over drawings and Specifications, whether they are bound with the specifications or integral with the drawings;
  5. Specifications take precedence over all other drawings;
- B. Plans (drawings) and Specifications are complementary. When work is shown or mentioned on the drawings but is not indicated in the Specifications, or when work is indicated in the Specifications but is not shown or mentioned on the Drawings, it shall nevertheless be included in the Contract.

### **1.13 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's *MasterFormat* numbering system.
1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
- C. The words *shall*, *shall be*, or *shall comply with*, depending on the context, are implied where a colon (:) is used within a sentence or phrase.

### **1.14 PROJECT MANAGEMENT AND COORDINATION**



- A. Coordination
  - 1. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  
- B. Administrative and supervisory personnel
  - 1. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
  - 2. Maintain same superintendent on Project for duration of Project. Immediately notify Owner`s Representative if superintendent should become unavailable to work and immediately replace with an alternate person acceptable to the Owner`s Representative.
  
- C. Project meetings
  - 1. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
  - 2. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Owner`s Representative, within three days of the meeting.
  - 3. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.

**1.15 REQUESTS FOR INTERPRETATION (RFIS)**

- 1. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
  - a. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- 2. Allow seven working days for Owner`s Representative's response for each RFI.
- 3. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner`s Representative in writing within 10 days of receipt of the RFI response.

**1.16 CONSTRUCTION PROGRESS DOCUMENTATION**

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice of Award.
  - 1. Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2. At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

**B. Reports**

1. Daily Construction Reports: Prepare a daily construction report and submit to Owner's Representative each week recording the following information concerning events at Project site:
  - a. List of subcontractors at Project site.
  - b. List of separate contractors at Project site.
  - c. Approximate count of personnel at Project site.
  - d. Equipment at Project site.
  - e. Material deliveries.
  - f. High and low temperatures and general weather conditions.
  - g. Accidents.
  - h. Meetings and significant decisions.
  - i. Unusual events.
  - j. Stoppages, delays, shortages, and losses.
  - k. Meter readings and similar recordings.
  - l. Emergency procedures.
  - m. Orders and requests of authorities having jurisdiction.
  - n. Change Orders received and implemented.
  - o. Construction Change Directives received and implemented.
  - p. Services connected and disconnected.
  - q. Equipment or system tests and start-ups.
  - r. Partial Completions and occupancies.
  - s. Substantial Completions authorized.
2. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

**1.17 PHOTOGRAPHIC DOCUMENTATION**

- A. Preconstruction Photographs: Before starting construction take, digital photographs of Project site and surrounding areas, including existing items to remain during construction, from different vantage points.
- B. Periodic Construction Photographs: Take digital photographs weekly, with timing each month adjusted to coincide with the cut-off date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- C. E-mail or otherwise submit photos to Owner's representative on monthly basis to coincide with the each Application for Payment.

## 1.18 SUBSTITUTION PROCEDURES

- A. Substitution Requests: Submit PDF copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. Certificates and qualification data, where applicable or requested.
    - g. List of similar installations for completed projects with project names and addresses and names and addresses of Owner's Representatives and owners.
    - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - i. Research reports evidencing compliance with building code in effect for Project.
    - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
    - k. Cost information, including a proposal of change, if any, in the Contract Sum.
    - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

- m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  - 2. Owner's Representative's Action: If necessary, Owner's Representative will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Owner's Representative will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Forms of Acceptance: Change Order, Construction Change Directive, or Owner's Representative's Supplemental Instructions for minor changes in the Work.
    - b. Use product specified if Owner's Representative does not issue a decision on use of a proposed substitution within time allocated.
- B. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
- 1. Conditions: Owner's Representative will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Owner's Representative will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.
    - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- C. Substitutions for Convenience: Owner's Representative will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Owner's Representative.
- 1. Conditions: Owner's Representative will consider Contractor's request for substitution when the following conditions are satisfied. If the following

conditions are not satisfied, Owner's Representative will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume.
- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Substitution request is fully documented and properly submitted.
- e. Requested substitution will not adversely affect Contractor's construction schedule.
- f. Requested substitution has received necessary approvals of authorities having jurisdiction.
- g. Requested substitution is compatible with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.

#### **1.19 SUBMITTAL PROCEDURES**

##### **A. Contractor's Review**

1. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner's Representative.

##### **B. Electronic copies preferred.**

1. Where paper submittals are necessary provide paper submittals on sheets no less than 8 ½ x 11" Whenever practical, provide paper submittals on sheet size not greater than 11 x 17". In all cases ease of readability of submittal content by Engineer shall take precedent over providing information on preferred sheet size.

##### **C. Submittal Procedures**

1. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  - a. Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
2. Submit electronic copies of each submittal, unless otherwise indicated. The Owner's Representative will return no copies on any submittals but

instead will e-mail a web link to a web site which will host PDFs of the reviewed documents.

3. Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner`s Representative's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  - a. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner`s Representative will advise Contractor when a submittal being processed must be delayed for coordination.
  - b. Resubmittal Review: Allow 15 days for review of each resubmittal.
  - c. Sequential Review: Where sequential review of submittals by Owner`s Representative's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
4. Owner`s Representative will review each submittal, make marks to indicate corrections or modifications required, and return it. Owner`s Representative will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:
  - a. REVIEWED – NO COMMENTS
  - b. REVIEWED WITH COMMENTS. REVISE & RESUBMIT PRIOR TO START OF WROK.
  - c. REVIEWED WITH COMMENTS. PROCEED WITH WORK SUBJECT TO IMPLEMENTATION OF NOTED COMMENTS, REVISE AND RESUBMIT.
  - d. NOT ACCEPTED.

## **1.20 ENVIRONMENTAL PROCEDURES**

- A. Definitions
  1. Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- B. Fires and burning of rubbish on site not permitted.
- C. Store, handle, and dispose of hazardous materials in accordance with applicable federal and provincial laws, regulations, codes and guidelines. Store in location that will prevent spillage into the environment
- D. Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
  1. Do not pump water containing suspended materials into waterways, sewer or drainage systems.

- E. Protect any trees and plants on site and adjacent properties that are in immediate area of construction.
  - 1. Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
  - 2. Restrict tree removal to areas indicated or designated by Owner's Representative.
  
- F. Minimize stripping of topsoil and vegetation.

### **1.21 WILDLIFE PROTECTION**

- A. Should nests of migratory birds (Seagulls) be encountered during work, immediately notify Owner's Representative for directives to be followed.
  - 1. Do not disturb nest site and neighbouring vegetation until nesting is completed.
  - 2. Minimize work immediately adjacent to such areas until nesting is completed.
  - 3. Protect these areas by following recommendations of Canadian Wildlife Service.

### **1.22 QUALITY REQUIREMENTS**

- A. Conflicting Requirements
  - 1. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Owner's Representative for a decision before proceeding.
  - 2. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner's Representative for a decision before proceeding.
  
- B. Quality Control
  - 1. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
    - a. Payment for these services will be made by the Owner.
    - b. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

2. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  - a. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  - b. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  - c. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

### **1.23 REGULATORY REQUIREMENTS**

- A. Perform Work in accordance with National Building Code of Canada (NBC) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- B. Meet or exceed requirements of:
  1. Contract documents.
  2. Specified standards, codes, and referenced documents.

### **1.24 TEMPORARY FACILITIES AND CONTROLS**

- A. Temporary Utility Installation
  1. General: Install temporary service or connect to existing service.
    - a. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  2. Sanitary Facilities: If the Owner has existing toilet facilities these may be used as long as these facilities are kept cleaned and maintained in a condition acceptable to the Owner. Otherwise provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  3. Water Service: If the Owner has existing water service it may be used as long as it does not impact on the Owner's need. Otherwise install water service and distribution piping in sizes and pressures adequate for construction.
  4. Sewers and Drainage: Provide temporary utilities as required to remove effluent lawfully.
  5. Heating: Provide temporary heating as required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity.



Select equipment that will not have a harmful effect on completed installations or elements being installed.

6. Ventilation and Humidity Control: Provide temporary ventilation as required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
7. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - a. Install electric power service overhead, unless otherwise indicated.
  - b. If the Owner has an existing power source, the contractor may access it for temporary power provided it does not impact the Owner's needs.
8. Lighting: Provide temporary lighting with local switching as required to provide adequate illumination for construction operations, observations, inspections, and traffic conditions.
9. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
10. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
11. Tree and Plant Protection: Install temporary fencing as required to protect trees and plants intended to remain. Install protection outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
12. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner as required to prevent people and animals from easily entering site except by entrance gates.

B. Operation, Termination, and Removal

1. Maintain facilities in good operating condition until removal.
2. Remove each temporary facility when need for its service has ended.

## **1.25 TEMPORARY BARRIERS AND ENCLOSURES**

A. Hoarding

1. Refer to Appendix A – Hoarding Areas.
2. For overhead protection and barrier from the work area.
3. For work involving the excavation for new foundations or the erection of new structures outside of an enclosure, provide hoarding.

- B. Weather Enclosures
  - 1. Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
  
- C. Dust Tight Screens
  - 1. Refer to Appendix A – Hoarding Areas.
  - 2. Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
  
- D. Protection Of Building Finishes
  - 1. Provide protection for finished and partially finished building finishes and equipment during performance of work.
  - 2. Provide necessary screens, covers, and hoardings.
  - 3. Be responsible for damage incurred due to lack of or improper protection.

## **1.26 PRODUCT REQUIREMENTS**

- A. Manufacturer's Instructions
  - 1. Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
  - 2. Notify Owner's Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Owner's Representative may establish course of action.
  
- B. Quality
  - 1. Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source, and quality of products provided.
  - 2. Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
  - 3. Should any dispute arise as to quality or fitness of products, decision rests strictly with Owner's Representative based upon requirements of Contract Documents.
  - 4. Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
  
- C. Product Warranties

1. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

D. Product Selection Procedures

1. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

## 1.27 EXECUTION

A. Materials

1. Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
2. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Owner's Representative for the visual and functional performance of in-place materials.

B. Construction Layout

1. Where work involves construction outside of an existing footprint, engage a land surveyor to lay out the Work using accepted surveying practices.
2. On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified location certificate showing dimensions, locations, angles, and elevations of construction and site work.

C. Installation

1. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - a. Make vertical work plumb and make horizontal work level.
  - b. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - c. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  - d. Maintain minimum headroom clearance of 2440 mm in occupied spaces and in unoccupied spaces.
2. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
3. Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size

and type of attachments are not indicated, verify size and type required for load conditions.

- a. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Owner`s Representative.

**D. Cutting And Patching**

1. Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - a. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
2. Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

- E. Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.**

**F. Progress Cleaning**

1. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
2. Site: Maintain Project site free of waste materials and debris.

**G. Correction Of The Work**

1. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
2. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
3. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

**H. Protection Of Installed Construction**

1. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
2. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

**1.28 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**A. Waste Reduction**

1. Reduce construction waste during installation work. Undertake practices which will minimize waste and optimize full use of new materials on site, such as:
  - a. Use of a central cutting area to allow for easy access to off-cuts;
  - b. Use of off-cuts for blocking and bridging elsewhere.
  - c. Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut materials (such as gypsum board, plywood, ceiling tiles, insulation etc...) to allow for easy incorporation into
  
- B. Material Source Separation Process
  1. Perform demolition and removal of existing building components and equipment following a systematic deconstruction process.
  2. Separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:
    - a. Reinstallation into the work where indicated.
    - b. Salvaging reusable items not needed in project which Contractor may sell to other parties. Sale of such items not permitted on site.
    - c. Sending as many items as possible to locally available recycling facility.
    - d. Segregating remaining waste and debris into various individual waste categories for disposal in a *non-mixed state* as recommended by waste processing/landfill sites.
  
- C. Disposal Requirements
  1. Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.

## **1.29 CLOSEOUT PROCEDURES**

- A. Substantial Completion
  1. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
    - a. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
    - b. Advise Owner of pending insurance changeover requirements.
    - c. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
    - d. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
    - e. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs,

- damage or settlement surveys, property surveys, and similar final record information.
- f. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - g. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - h. Complete start-up testing of systems.
  - i. Submit test/adjust/balance records.
  - j. Terminate and remove temporary facilities from Project site, along with mock-ups, construction tools, and similar elements.
  - k. Advise Owner of changeover in heat and other utilities.
  - l. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - m. Complete final cleaning requirements, including touch-up painting.
  - n. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
2. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner's Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner's Representative, that must be completed or corrected before certificate will be issued.
  3. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- B. Final Completion
1. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
    - a. Submit a final Application for Payment according to the General Conditions.
    - b. Submit certified copy of Owner's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner's Representative. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
    - c. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
    - d. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  2. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner's

Representative will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

- a. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

C. Final Cleaning

1. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
2. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

**1.30 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
  1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Owner's Representative.
    - d. Name of Contractor.
    - e. Page number.
  4. Submit list of incomplete items in the following format:
    - a. Three paper copies of product schedule or list, unless otherwise indicated.

**1.31 WARRANTIES**

- A. Submittal Time: Submit written warranties on request of Owner's Representative for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 215-by-280-mm paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title *WARRANTIES*, Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

### **1.32 OPERATION AND MAINTENANCE DATA**

- A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- C. Manual Contents: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
1. Where applicable, clarify and update reviewed manual content to correspond to modifications and field conditions.
- D. **Format: Submit operations and maintenance manuals in the following format:**
1. **PDF electronic file. Assemble each manual into a composite electronically-indexed file. Submit on digital media acceptable to Owner's Representative.**
    - a. **Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically-linked operation and maintenance directory.**
    - b. **Enable inserted reviewer comments on draft submittals.**

### **1.33 PROJECT RECORD DOCUMENTS**

- A. Record Drawings



1. Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
2. Mark Record Prints to show the actual installation where installation varies from that shown originally.
3. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
  - a. Accurately record information in an understandable drawing technique.
  - b. Record data as soon as possible after obtaining it. Record and check the mark-up before enclosing concealed installations.
4. Content: Types of items requiring marking include, but are not limited to, the following:
  - a. Dimensional changes to Drawings.
  - b. Revisions to details shown on Drawings.
  - c. Depths of foundations below first floor.
  - d. Locations and depths of underground utilities.
  - e. Revisions to routing of piping and conduits.
  - f. Revisions to electrical circuitry.
  - g. Actual equipment locations.
  - h. Duct size and routing.
  - i. Locations of concealed internal utilities.
  - j. Changes made by Change Order or Change Directive.
  - k. Changes made following Owner`s Representative`s written orders.
  - l. Details not on the original Contract Drawings.
  - m. Field records for variable and concealed conditions.
  - n. Record information on the Work that is shown only schematically.
5. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
6. Mark record sets with erasable, red-coloured pencil. Use other colours to distinguish between changes for different categories of the Work at same location.
7. Mark important additional information that was either shown schematically or omitted from original Drawings.
8. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
9. Submit record drawings to Owner`s Representative prior to requesting Substantial Completion inspection.

#### **1.34 DEMONSTRATION AND TRAINING**

- A. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, and maintenance of each item of maintenance of each item of equipment.

- B. Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.
- C. Review contents of manual in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.
- E. The GC shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED DOCUMENTS**

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

### **1.2 SUMMARY**

- .1 Types of items described in this Section:
  - .1 Administrative and procedural requirements governing allowances.
    - .1 Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.
  - .2 Types of allowances include the following:
    - .1 Revise list below to suit Project.
    - .2 Lump-sum allowances.
    - .3 Unit-cost allowances.
    - .4 Quantity allowances.
    - .5 Contingency allowances.
    - .6 Testing and inspecting allowances.
- .2 Types of items you will not find described in this Section:
  - .1 Procedures for using unit prices.
  - .2 Procedures governing the use of allowances for testing and inspecting.
  - .3 Divisions 02 through 49 Sections for items of Work covered by allowances.

### **1.3 SELECTION AND PURCHASE**

- .1 At the earliest practical date after award of the Contract, advise Owner's Representative of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- .2 At Owner's Representative's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- .3 Purchase products and systems selected by Owner's Representative from the designated supplier.

#### **1.4 SUBMITTALS**

- .1 Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- .2 Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- .3 Submit time sheets and other documentation to show labour time and cost for installation of allowance items that include installation as part of the allowance.
- .4 Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

#### **1.5 COORDINATION**

- .1 Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

#### **1.6 QUANTITY ALLOWANCES**

- .1 Allowance shall include cost to Contractor of specific products and materials selected by Owner's Representative under allowance and shall include freight, and delivery to Project site.
- .2 Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labour, installation, overhead and profit, and similar costs related to products and materials selected by Owner's Representative under allowance shall be included as part of the Contract Sum and not part of the allowance.
- .3 Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
  - .1 If requested by Owner's Representative, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

#### **1.7 CONTINGENCY ALLOWANCES**

- .1 Use the contingency allowance only as directed by Owner's Representative for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- .2 Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.

- .3 Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- .4 At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.
- .5 The cash allowance shall not include HST.

## **1.8 TESTING AND INSPECTING ALLOWANCES**

- .1 Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- .2 The allowance does not include incidental labour required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labour to assist the testing agency shall be included in the Contract Sum.
- .3 At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

## **1.9 ADJUSTMENT OF ALLOWANCES**

- .1 Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  - .1 Include installation costs in purchase amount only where indicated as part of the allowance.
  - .2 If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  - .3 Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- .2 Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labour, installation, overhead, and profit.
  - .1 Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  - .2 No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- .1 Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

**3.2 PREPARATION**

- .1 Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

**3.3 SCHEDULE OF ALLOWANCES**

- .1 General Cash Allowance:
  - .1 Include an allowance of \$21,739.13 for use according to Owner's instructions.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### **1.2 SUMMARY**

- A. Types of items described in this Section:
  - 1. Health and safety requirements for projects located in Newfoundland and Labrador.

### **1.3 REFERENCES**

- A. Code and standards referenced in this section refer to the latest edition thereof.
- B. Canadian Standards Association (CSA)
  - 1. CSA S269.1 Falsework for Construction Purposes.
  - 2. CAN/CSA-Z259.1 Safety Belts and Lanyards.
  - 3. CAN/CSA-Z259.10 Full body Harnesses.
  - 4. CAN/CSA-Z259.11 Shock Absorbers for Personal Fall Arrest Systems.
  - 5. CAN/CSA-Z259.2, Fall Arresting Devices, Personnel Lowering Devices and Lifelines.
  - 6. FCC No. 301 Standard for Construction Operations.
  - 7. CSA Z275.2 Occupational Safety Code for Diving Operations.
  - 8. CSA Z275.4 Competency Standard for Divers Operations.
- C. FCC No. 302 Standard for Welding and Cutting.
- D. Transportation of Dangerous Goods Act Regulations.
- E. Newfoundland Occupational Health and Safety Act, Amended
- F. Consolidated Newfoundland and Regulations 1149 WMIS Regulations Under the Occupational Health and Safety Act
- G. Consolidated Newfoundland and Regulations 1165 Occupational Health and Safety Regulations under the Occupational Health and Safety Act.

- H. Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- I. National Building Code of Canada.

#### **1.4 SUBMITTALS**

- A. At least 10 (ten) working days prior to commencing any site work: submit to Owner's Representative copies of:
  - 1. A complete Site Specific Hazard Assessment and Safety Program Table of Contents.
  - 2. **Including requirements as outlined by the Department of Environmental Health & Safety, See APPENDIX A.**
- B. Acceptance of the Project Health and Safety Hazard Assessment and Management Plan and other submitted documents by the Owner's Representative shall only be viewed as acknowledgement that the contractor has submitted the required documentation under this specification section.
- C. Owner's Representative makes no representation and provides no warranty for the accuracy, completeness and legislative compliance of the Project Health and Safety Hazard Management Plan and other submitted documents by this acceptance.
- D. Responsibility for errors and omissions in the Project Health and Safety Hazard Assessment and Management Plan and other submitted documents is not relieved by acceptance by Owner's Representative.

#### **1.5 OCCUPATIONAL HEALTH AND SAFETY (PROJECT HEALTH AND SAFETY HAZARD ASSESSMENT AND MANAGEMENT PLANS)**

- A. Conduct operations in accordance with latest edition of the Newfoundland Occupational Health and Safety (OH&S) Act and Regulations.
- B. Prepare a detailed Project Health and Safety Hazard Assessment and Management Plan for the Owner. Assessment shall identify, evaluate and control job specific hazards and the necessary control measures to be implemented for managing hazards.
- C. Provide a copy of the Project Health and Safety Hazard Assessment and Management Plan upon request to Occupational Health and Safety Branch, Department of Labour, Province of Newfoundland and Labrador and the Owner.
- D. The written Health and Safety Hazard Assessment and Management Plan shall incorporate the following:



1. A site-specific health and safety plan, refer to clause 1.6 Site-Specific Health and Safety Hazard Assessment and Management Plan of this section for requirements.
  2. An organizational structure which shall establish the specific chain of command and specify the overall responsibilities of contractor's employees at the work site.
  3. A comprehensive work plan which shall:
    - a. define work tasks and objectives of site activities/operations and the logistics and resources required to reach these tasks and objectives
    - b. establish personnel requirements for implementing the plan, and
    - c. establish site specific training and notification requirements and schedules.
  4. A personal protected equipment (PPE) Program which shall detail PPE:
    - a. Selection criteria based on site hazards.
    - b. Use, maintenance, inspection and storage requirements and procedures.
    - c. Decontamination and disposal procedures.
    - d. Inspection procedures prior to during and after use, and other appropriate medical considerations.
    - e. Limitations during temperature extremes, heat stress and other appropriate medical consideration.
  5. An emergency response procedure, refer to Clause 1.7 Supervision and Emergency Response Procedure of this section for requirements.
  6. A hazard communication program for informing workers, visitors and individuals outside of the work area as required.
  7. A diving program which shall contain standard operating procedures to be followed in the diving operation.
  8. A health and safety training program.
  9. General safety rules.
- E. Periodically review and modify as required each component of the Project Health and Safety Hazard Assessment and Management Plan when a new hazard is identified during completion of work and when an error or omission is identified in any part of the Project Health and Safety Hazard Assessment and Management Plan.
- F. Implement all requirements of the Project Health and Safety Hazard Assessment and Management Plan.
1. Ensure that every person entering the project site is informed of requirements under the Project Health and Safety Hazard Assessment and Management Plan.

2. Take all necessary measures to immediately implement any engineering controls, administrative controls, personal protective equipment required or termination of work procedures to ensure compliance with the Project Health and Safety Hazard Assessment and Management Plan.

## **1.6 SITE SPECIFIC HEALTH AND SAFETY PLAN**

- A. Prepare a detailed site Specific Project Health and Safety Plan which shall:
  1. Contain certain hazard assessment results.
  2. Identify engineering and administrative demonstrative controls (work-practices and procedures) to be implemented for managing identified and potential hazards, and comply with applicable federal and provincial legislation and more stringent requirements that have been specified in these specifications.
- B. Review for completeness the hazard assessment results immediately prior to commencing work, when a new hazard is identified during completion of work and when an error or omission is identified.
  1. Be solely responsible for investigating, evaluation and managing any report of actual or potential hazards.
  2. Retain copies of all completed hazard assessments at the project site and make available to the Owner's Representative immediately upon request.

## **1.7 SUPERVISION AND EMERGENCY RESCUE PROCEDURE**

- A. Carry out work under the direct supervision of competent persons responsible for safety by ensuring the work complies with the appropriate section of OH&S Act and Regulations
- B. Assign a sufficient number of supervisory personnel to the work site.
- C. Provide a suitable means of communications for workers required to work alone.
- D. Develop an emergency rescue plan for the job site and ensure that supervisors and workers are trained in the emergency rescue plan.
- E. The emergency response plan shall address, as a minimum:
  1. Pre-emergency planning.
  2. Personnel roles, lines of authority and communication.
  3. Emergency recognition and prevention.
  4. Safe distances and places of refuge.
  5. Site security and control

6. Evacuation routes and procedures
7. Decontamination procedures which are not covered by the site specific safety and health plan.
8. Emergency medical treatment and first aid.
9. Emergency alarm, notification and response procedures including procedures for reporting incidents to local, provincial and federal government departments.
10. PPE and emergency equipment.
11. Procedures for handling emergency incidents.
12. Site specific emergency response training requirements and schedules.
13. For diving operation, include procedures for:
  - a. Managing deteriorating environmental conditions.
  - b. Managing unexpected weather or sea-state condition.
  - c. Evacuation of diver(s) under pressures greater than atmospheric pressure.
  - d. In-water emergency transfers.
  - e. Managing failing of equipment below the surface that impairs the ability of a diver to complete a dive.
  - f. Managing failure of any major component of diving plant or equipment.
  - g. Emergency signalling between divers involved in the diving program and between the diver(s) and the attendants using umbilical, tethers or other suitable methods.
  - h. Mobilizing stand-by divers.
  - i. Mobilizing crafts, stand-by boats and any other devices to be used for rescue.
  - j. Contacting evacuation, rescue, treatment facilities and medical services that will be used in the diving program.
  - k. Operation of emergency power and lighting facilities.

- F. The emergency response procedures shall be rehearsed regularly as part of the overall training program.
- G. Provide adequate first aid facilities for the jobsite and ensure that a minimum number of workers are trained in first aid in accordance with the First Aid Regulations.

## **1.8 CONTRACTORS SAFETY OFFICER**

- A. The contractor's Safety Officer will be solely responsible for the implementation and monitoring of the Project Health and Safety Hazard Assessment and Management Plan, and will have the authority to implement health and safety changes as directed by the Owner's Representative. The Safety Officer shall have as a minimum:

1. Completed training in hazardous occurrence management and response/protocols.
2. Completed training in the use, maintenance of fall protection systems.
3. Completed training in the design and construction of scaffolding.
4. Completed training in confined space entry protocols and techniques.
5. Completed training in First Aid.
6. Have working knowledge of occupational safety and health regulations.
7. Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
8. Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
9. Be on site during execution of Work and report directly to and be under direction of site supervisor.

### **1.9 HEALTH AND SAFETY COMMITTEE**

- A. Establish an Occupational Health and Safety Committee where ten or more workers are employed on the job site as per the OH&S Act and Regulations. 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.
- C. Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

### **1.10 RESPONSIBILITY**

- A. 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.
- B. Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

### **1.11 UNFORESEEN HAZARDS**

- A. Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction. Advise Owner's Representative verbally and in writing.

## **1.12 INSTRUCTION AND TRAINING**

- A. Workers shall not participate in or supervise any activity on the work site until they have been trained to a level required by this job function and responsibility. Training shall as a minimum thoroughly cover the following:
1. Federal and Provincial Health and Safety Legislation requirements including roles and responsibilities of workers and person(s) responsible for implementing, monitoring and enforcing health and safety requirements.
  2. Safety and health hazards associated with working on a contaminated site including recognition of symptoms and signs which might indicate over exposure to hazards.
  3. Limitations, use, maintenance and disinfection-decontamination of personal protective equipment associated with completing work.
  4. Limitations, use, maintenance and care of engineering controls and equipment.
  5. Limitations and use of emergency notifications and response equipment including emergency response protocol.
  6. Work practices and procedures to minimize the risk of an accident and hazardous occurrence from exposure to a hazard.
- B. Provide and maintain training of workers, as required, by Federal and Provincial legislation.
- C. Provide copies of all safety training certificates, upon request, to Owner's Representative for review, and to be maintained on the worker when they enter the work site.
- D. Authorized visitors shall not access the work site until they have been:
1. Notified of the names of persons responsible for implementing, monitoring and enforcing the Health and Safety Hazard Assessment and Management Plan.
  2. Briefed on safety and health hazards present on the site.
  3. Instructed in the proper use and limitations of personal protective equipment.
  4. Briefed as the emergency response protocol including notification and evacuation process.
  5. Informed of practices and procedures to minimize risks from hazards and applicable to activities performed by visitors.

## **1.13 CONSTRUCTION SAFETY MEASURES**

- A. Observe construction safety measures of National Building Code, latest edition, Provincial Government, OH&S Act and Regulations, Workplace Health and

Safety and Compensation Commission and Municipal Authority provided that in any case of conflict or discrepancy more stringent requirements shall apply.

- B. Administer the project in a manner that will ensure, at all times, full compliance with Federal and Provincial Acts, regulations and applicable safety codes and the site Health and Safety Hazard Assessment and Management Plan.
- C. Provide Owner's Representative with copies of all orders, directions and any other documentation, issued by the Provincial Department of Government Services, Occupational Health and Safety branch immediately after receipt.

#### **1.14 POSTING OF DOCUMENTS**

- A. Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province and authority having jurisdiction, and in consultation with Owner's Representative.

#### **1.15 HEALTH AND SAFETY MONITORING**

- A. Periodic inspections of the contractor's work may be carried out by the Owner's Representative to maintain compliance with the Health and Safety Program. Inspections will include visual inspections as well as testing and sampling as required.
- B. The contractor shall be responsible for any and all costs associated with delays as a result of contractor's failure to comply with the requirements outlined in this section.

#### **1.16 CORRECTION OF NON-COMPLIANCE**

- A. Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner's Representative.
- B. Provide Owner's Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- C. Owner's Representative may stop work if non-compliance of health and safety regulations is not corrected.

#### **1.17 WHMIS**

- A. Ensure that all controlled products are in accordance with the Workplace Hazardous Materials Information System (WHMIS) Regulations and Chemical

Substances of the OH&S Act and Regulations regarding use, handling, labelling, storage, and disposal of hazardous materials.

- B. Deliver copies of relevant (Material) Safety Data Sheets (SDS) to job site and the Owner's Representative. The SDS must be acceptable to Labour Canada and Health and Welfare Canada for all controlled products that will be used in the performance of this work.
- C. Train workers required to use or work in close proximity to controlled products as per OH&S Act and Regulations.
- D. Label controlled products at jobsite as per OH&S and Regulations.
- E. Provide appropriate emergency facilities as specified in the SDS where workers might be exposed to contact with chemicals, e.g. eye-wash facilities, emergency shower.
  - 1. Workers to be trained in use of such emergency equipment.
- F. Contractor shall provide appropriate personal protective equipment as specified in the SDS where workers are required to use controlled products.
  - 1. Properly fit workers for personal protective equipment
  - 2. Train workers in care, use and maintenance of personal protective equipment.
- G. No controlled products are to be brought on-site without prior approved SDS.
- H. The SDS are to remain on site at all times.

### **1.18 OVERLOADING**

- A. Ensure no part of work or associated equipment is subjected to loading that will endanger its safety or will cause permanent deformation.

### **1.19 FALSEWORK**

- A. Design and construct falsework in accordance with CSA S269.1.

### **1.20 SCAFFOLDING**

- A. Design, erect and maintain scaffolding in accordance with CSA S269.2 and Sections 91-97 of the OH&S Act and Regulations.

- B. Ensure that fall-restraint or fall-arrest devices are used by all workers working at elevations greater than 3.05 metres above grade or floor level in accordance with CSA Z259.

### **1.21 PERSONAL PROTECTIVE EQUIPMENT**

- A. Ensure workers on the jobsite use personal protective equipment appropriate to the hazards identified in the Hazard Assessment and Management Plan and those workers are trained in the proper care, use, and maintenance of such equipment.
- B. PPE selections shall be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, task-specific conditions, duration and hazards and potential hazards identified on site.
- C. Provide workers and visitors to the site with proper respiratory protection equipment.
  - 1. No work shall be performed in an area where an airborne contaminant exceeds one half ( $\frac{1}{2}$ ) the IDLH concentration.
  - 2. Respiratory protection shall be provided in accordance with the requirements of the Occupational Health and Safety Branch, Department of Labour of the Province of Newfoundland and Labrador and these specifications.
  - 3. Establish, implement and maintain a respirator inspection and maintenance program.
  - 4. Copies of all respirator owners' maintenance manuals shall be kept at all times at the contractor's site office.
- D. Provide and maintain a supply of dermal protection equipment to allow visitors and all workers proper dermal protection.
  - 1. Dermal protection shall be sufficient to act as a protective barrier between the skin and an airborne contaminant or hazardous material. Dermal protection shall also be provided for all physical hazards.
  - 2. Dermal protection equipment shall not be used after exceeding 75% of the break through time. The break through time shall be based on the contaminant which requires the least amount of time to break through the protective equipment
  - 3. Copies of all dermal protection user specifications, owners and maintenance manuals shall be kept at all times at the contractor's site office.
  - 4. Establish, implement and maintain air inspection program to ensure proper dermal protection in accordance with CSA, NIOSH, U.S. EPA and manufacturer's requirements.



- E. Provide all workers and up to two (2) visitors to the site with proper hearing protection. Workers and visitors shall not be exposed to noise levels greater than 85 dB (A) over an eight hour shift without proper hearing protection.
- F. Provide all workers and up to two (2) visitors to the site with CSA approved eye protection sufficient to act as a protective barrier between the eye and airborne contaminants, hazardous materials and physical hazard.
- G. Provide workers and up to two (2) visitors to the site with CSA approved hard hats.

## **1.22 EXCAVATION SAFETY**

- A. Protect excavations more than 1.25 metres deep against cave-ins or wall collapse by side wall sloping to the appropriate angle of repose, an engineered shoring/sheathing system or an approved trench box.
  - 1. Provide a ladder which can extend from the bottom of the excavation to at least 0.91 metres above the top of the excavation.
- B. Ensure that all excavations less than 1.25 metres deep are effectively protected when hazardous ground movement may be expected.
- C. Design trench boxes, certified by a registered Professional Engineer, and fabricated by a reputable manufacturer. Provide the manufacturer's Depth Certificate Statement permanently affixed. Use trench boxes in strict accordance with manufacturer's instructions and depth certification data.
- D. For excavations deeper than six (6) metres, provide a certificate from a registered Professional Engineer stating that the protection methods proposed have been properly designed in accordance with accepted engineering practice. The engineer's certificate shall verify that the trench boxes, if used, are properly designed and constructed to suit the depth and soil conditions.
  - 1. Ensure that the superintendent and every crew chief, foreperson and lead hand engaged in trenching operations or working in trenches have in his/her possession a copy of the Department of Labour's "Trench Excavation Safety Guide".

## **1.23 CONFINED SPACE WORK**

- A. Comply with requirements of Canada Occupational Safety and Health Regulations, Part XI and Consolidated Regulations Newfoundland and Labrador (CRNL) OH&S 1165/96.

- B. Provide approved air monitoring equipment where workers are working in confined spaces and ensure any test equipment to be used is calibrated, in good working order and used by trained persons.
- C. Develop a confined space entry program specific to the nature of work performed and in accordance with OH&S Act and Regulations and ensure supervisors and workers are trained in the confined space entry program.
  - 1. Ensure that personal protective equipment and emergency rescue equipment appropriate to the nature of the work being performed is provided and used.
- D. Provide and maintain training of workers, as required by the Federal and Provincial Legislation.
- E. Provide Owner's Representative with a copy of an "Entry Permit" for each entry into the confined space to ensure compliance with Federal and Provincial Legislation.

#### **1.24 HAZARDOUS MATERIALS**

- A. Should material resembling hazardous materials (asbestos/mould) be encountered during the execution of work and notify Owner's Representative. Do not proceed until written instructions have been received from Owner's Representative.
- B. Unless otherwise noted, for hazardous materials abatement and repair, employ the services of a recognized Environmental Consultant to provide all air monitoring and testing services for regulatory requirements.

#### **1.25 HEAVY EQUIPMENT**

- A. Ensure mobile equipment used on jobsite is of the type specified in OH&S Act and Regulations fitted with a Roll Over Protective (ROP) Structure.
- B. Provide certificate of training in Power Line Hazards for operators of heavy equipment.
- C. Obtain written clearance from the power utility where equipment is used in close proximity to (within 5.5 metres) overhead or underground power lines.
- D. Equip cranes with:
  - 1. A mechanism which will effectively prevent the hook assembly from running into the top boom pulley.
  - 2. A legible load chart.

3. A maintenance log book.

**1.26 WORK STOPPAGE**

- A. Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations of Work.

**PART 2 - PRODUCTS (NOT APPLICABLE)**

**PART 3 - EXECUTION (NOT APPLICABLE)**

**APPENDIX “A” Contractor Safety Management Element – November 2018**



# Contractor Safety Management Element

November 2018

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## **1.0 Purpose**

This element establishes the requirements for the administration and monitoring of contractor health and safety programs and activities at Memorial University. These measures shall ensure that contractors understand their collective responsibility with respect to the Occupational Health & Safety Act and Regulations, Memorial University policy and this element.

## **2.0 Scope**

This procedure shall apply to all work done for Memorial University of Newfoundland with respect to the provision of services as outlined below. Memorial University reserves the right to exempt a Contractor from this element, in whole or in part, based upon an evaluation of the risk of the work being conducted. This evaluation must comply with the hazard identification and risk management element.

## **3.0 Definitions**

**Act:** Newfoundland & Labrador Occupational Health & Safety Act, latest edition.

**Contract:** A documented agreement between Memorial University and a contractor.

**Contractor:** The principal contractor, person, partnership, or corporation bound to execute the work under the contract and defined as such in the agreement is responsible for the supervision of the work so as to ensure the work is carried out in accordance with the contract.

**Project Management Team:** The group assigned by the University to act on behalf of the owner with respect to the execution of Contractor work.

**Principal Contractor:** The person primarily responsible for the carrying out of a contract.

**Regulations:** Newfoundland & Labrador Occupational Health & Safety Regulations, latest edition.

**Subcontractor:** A person, firm or corporation having a direct contract with the Contractor or subcontractor(s) to perform a part or parts of the work included in the contract, or to supply products worked to a special design according to the contract documents, but does not include one who merely supplies products not so worked.

**Owner:** The Owner, Engineer/Architect are the persons, firms or corporation identified as such in the Contract. The term Owner, Engineer/Architect means, respectively, each of the Owner, Engineer/Architect and their authorized representatives as designated by each such party in writing.

**Work:** The services and job procedure completion that is described in the contract.

## **4.0 Roles and Responsibilities**

### **4.1 Project Management Team**

Will monitor the Contractor's performance for health and safety compliance. Monitoring activities may include but are not limited to:

- planned and unplanned workplace inspections;
- attendance of meetings;
- communications of safety related issues and topics, as deemed necessary;
- review of contractor records, inspections, work practices and documentation; and
- complete audits to verify that contractors and subcontractors are meeting their legislative, procedural and contractual responsibilities.

### **4.2 Contractors**

Will comply with applicable Federal and Provincial legislation and applicable MUN safety procedures. Contractor responsibilities include but not limited to:

- report all incidents immediately to the required University project team followed by a written incident report within 24 hours;
- be responsible for the safety of subcontractors including those not under their employ;
- stop work if the conditions are such that work cannot be performed safely;
- perform evaluation, monitoring of the workplace to identify potential hazards and associated risks and ensure corrective actions are implemented;
- ensure daily task specific hazard assessments are completed; and
- maintain the accountability of persons responsible for the reporting and correction of hazards.

## **5.0 Procedure**

### **5.1 Considerations prior to signing of contract**

**5.1.1** Prior to signing of contract, the preferred General Contractor shall provide proof of compliance with 5.2.1.

Within seven (7) calendar days after a pre-signing start up meeting the General Contractor shall provide proof of compliance of themselves and their subcontractors with 5.2.1 as well as provide the information requested in Section 5.2.2(a) (b).

## 5.2 Requirements

5.2.1 All Contractors, and their Subcontractors, shall be required to submit confirmation of a current third party occupational health and safety program certification (Letter of Assurance). These may include, but not be limited to, Certificate of Recognition (COR), OHSAS 18001, and CSAZ.1000.

5.2.2 Contractors shall also provide the following:

- (a) health and safety policy statement;
- (b) safety program table of contents; and
- (c) site hazard assessment;

The hazard assessment shall be updated by the General Contractor and re-submitted whenever the conditions, work practices or work forces change to the extent that new hazards can be identified.

5.2.3 In lieu of a Subcontractors 3rd party program, Contractors shall be required to integrate the Subcontractor(s) into the Contractors program and provide proof of same.

5.2.4 Memorial reserves the right to request and audit the full safety program of Contractors and Subcontractors and their associated documentation. This documentation may include, but not be limited to the following:

- (a) safety program and/or manual
- (b) applicable documented safe work practices;
- (c) inspection reports and schedules;
- (d) required employee safety training certifications and qualifications; and
- (e) updated list of OHS Committee and/or a worker health and safety representative, or workplace health and safety designate.

Request for submission shall be complied with within 7 calendar days of a written request from Memorial's Environmental Health and Safety unit.

5.2.5 Memorial reserves the right to:

- (1) Reject any Contractor that fails to meet the requirements or schedules outlined herein;
- (2) The University reserves the right to stop any work or portion of work where the risk presents an immediate danger.

## 5.3 Schedule of Submissions

5.3.1 General Contractors and their sub-contractors who have complied with 5.1.1 will be permitted to commence physical work on the site however no work shall be performed by the General Contractor, their sub-contractors until such a time as they comply with 5.1.1.





## **6.0 Post-Contract Evaluation**

The Project Management Team will determine the extent of the evaluation of the Contractor's safety performance at the completion of the contract. This evaluation will be conducted by way of a standard contractor safety evaluation form and will be supported by objective evidence documented during the term of the Contract. The records of the evaluation must be retained with the project owner.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            SUMMARY**

- .1      This Section includes general requirements for constructing field mock ups. Refer to technical sections for more product-specific mock up requirements.
- .2      Requirements for mock ups are supplemental to requirements for samples and field samples as specified in individual technical sections.

**1.2            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects

**1.3            DEFINITIONS**

- .1      Mock ups: Full-size, physical example assemblies, constructed on-site, to illustrate finishes and materials. Mock ups are used to:
  - .1      Verify selections made under Sample submittals;
  - .2      Demonstrate aesthetic effects and, where indicated, qualities of materials and execution;
  - .3      Review construction, coordination, testing or operation;
  - .4      Show interference between dissimilar materials; and
  - .5      Demonstrate compliance with specified installation tolerances.
- .2      Mock ups are not Samples.

**1.4            QUALITY ASSURANCE**

- .1      Before installing portions of the Work requiring mock ups, build mock ups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed work:
  - .1      Build mock ups in location and of size and profile indicated, or if not indicated, as directed by Owner.
  - .2      Provide Owner minimum five (5) working days advance notice of dates and times when mock ups will be constructed and able to be inspected.
  - .3      Failure to prepare mock-ups 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.
  - .4      Allow five (5) working days for Owner's initial review and re-review of each mock up.

- .5 Do not complete production of materials for final Project site until Owner's review of mock up has been obtained.
- .6 Where mock up is rejected, replace, rebuild and/or modify mock up as directed by the Owner.
- .7 Demonstrate the proposed range of aesthetic effects and workmanship.
- .8 Employ supervisory personal to oversee mock up construction. Employ same workers that will be employed during the construction of the Project.
- .9 Unless otherwise indicated, accepted mock ups establish the standard by which the Work will be judged.
- .10 Maintain mock ups during construction in an undisturbed condition as a standard of judging the completed Work.
- .11 Mock ups may remain part of the finished product, unless otherwise indicated.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**END OF SECTION**

**Mock Up Schedule  
Required Sections**

<b>Mock Up Schedule</b>				
<b>Section</b>	<b>Contractor Verification – Mock Up Complete</b>	<b>Date</b>	<b>Contractor Verification – Mock Up Review Requested</b>	<b>Date</b>
07 21 29 - Sprayed Insulation – Polyurethane Foam				
07 26 00 - Vapour Retarders				
07 27 00.01 - Air Barriers – Descriptive or Proprietary				
07 46 13 – Preformed Metal Siding				
07 52 00 - Modified Bituminous Membrane Roofing				
07 92 00 - Joint Sealants				
08 44 13 - Glazed Aluminum Curtain Walls				
08 80 00 - Glazing				
09 21 16 - Gypsum Board Assemblies				
09 91 23 - Interior Painting				

**PART 1      GENERAL**

**1.1            SUMMARY**

- .1      This Section includes requirements for the following:
  - .1          Demolition and removal of selected portions of exterior building components or structural elements.
  - .2          Demolition and removal of selected portions of interior bulkhead and ceiling assemblies.
  - .3          Repair procedures for selective demolition operations.

**1.2            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects
- .2      Section 01 35 29.06 - Health and Safety Requirements

**1.3            REFERENCES**

- .1      American National Standards Institute (ANSI)
  - .1          ANSI A10.8 2011, Safety Requirements for Scaffolding
- .2      Canadian Standards Association (CSA).
  - .1          CSA S350, Code of Practice for Safety in Demolition of Structures
  - .2          CSA Z797 – Code of Practice for Access Scaffold.
- .3      Department of Justice Canada (Jus)
  - .1          Impact Assessment Act (IAA)
  - .2          Canadian Environmental Protection Act (CEPA)
- .4      National Fire Protection Association (NFPA)
  - .1          NFPA 241-13, Standard for Safeguarding Construction, Alteration, and Demolition Operations
- .5      National Research Council Canada (NRC)
  - .1          National Building Code of Canada (NBC)

**1.4            ADMINISTRATIVE REQUIREMENTS**

- .1      Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions

with all elements in planes as drawn, maintaining their relationships with all other building elements.

- .2 Coordinate with Owner for the material ownership as follows:
  - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property. Demolished materials shall become Contractor's property and shall be removed from Project site.
  - .2 Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during demolition remain Owner's property:
    - .1 Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
    - .2 Coordinate with Owner, who will establish special procedures for removal and salvage operations.
- .3 Convene pre-demolition meeting one week prior to beginning work of this section to confirm extent of salvaged and demolished materials; and to review Contractor's demolition plan.

## **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 10 00 – Summary for Small Projects.
- .2 Provide the following submittals before starting any work of this Section.
- .3 Submit schedule of demolition activities indicating:
  - .1 Detailed sequence of demolition and removal work, with starting and ending dates for each activity.
  - .2 Coordinate with Owner's ongoing site operations, and limit the number of interruptions during regular business hours.
  - .3 Interruption of utility services.
  - .4 Coordination for shutoff, capping, and continuation of utility services.
  - .5 Use of elevator and stairs.
  - .6 Locations of temporary partitions and means of egress, including for others affected by selective demolition operations.
  - .7 Coordination with Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

- .4 Submit a plan of demolition area indicating extent of temporary facilities and supports, methods of removal and demolition prepared by a professional engineer in accordance with requirements of Authority Having Jurisdiction.
- .5 Submit information for companies and personnel indicating their capabilities and experience to perform work of this Section including but not limited to, lists of completed projects with project names and addresses, for work of similar complexity and extent.

## **1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials in accordance with Section 01 10 00 – Summary for Small Projects.

## **1.7 EXISTING CONDITIONS**

- .1 Owner will occupy portions of building immediately adjacent to selective demolition area:
  - .1 Conduct selective demolition so that Owner's operations will not be disrupted.
  - .2 Provide not less than three (3) days' notice to Owner of activities that will affect Owner's operations.
- .2 Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities and as follows:
  - .1 Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- .3 Should material resembling spray or trowel applied asbestos or any other designated substance be encountered in course of demolition, stop work, take preventative measures, and notify Owner immediately. Do not proceed until written instructions have been received.
- .4 Structures to be demolished to be based on their condition on date that tender is accepted.
- .5 Salvage items identified by Owner. Remove, protect and store salvaged items as directed by Owner. Deliver to Owner as directed.
- .6 Storage or sale of removed items or materials on site will not be permitted.
- .7 Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

- .8 Maintain fire protection facilities in service during selective demolition operations.
- .9 Modification to be made to HVAC/plumbing as required to maintain Owner's operations, without compromising air or domestic water quality.

## **1.8 RODENT CONTROL**

- .1 Engage the services of a professional Pest Control Firm to survey the building and immediate areas to ascertain presence of any pests that would be impacted by removal and demolition activities. The Pest Control Firm will take measures to properly abate any such noted pests in accordance with regulatory requirements and provide certification that building areas are free and clear prior to commencement of building abatement and removal activities.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Design temporary support structures required for demolition work and underpinning and other foundation supports necessary for the project using a qualified professional engineer registered and licensed in province of the Work.
  - .1 Design, specifications, work procedures, or other records created for this work to be submitted to the Owner for review prior to commencement of work.
- .2 Use repair materials identical to existing materials:
  - .1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - .2 Use materials whose installed performance equal or surpasses that of existing materials.
  - .3 Comply with material and installation requirements specified in individual technical specification Sections.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that utilities have been de-energized, disconnected and capped.



- .2 Survey existing conditions and correlate with requirements indicated to determine extent of structure demolition required.
- .3 Inventory and record the condition of items to be removed and reinstalled, and items to be removed and salvaged.
- .4 When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element.
- .5 Perform engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during structure demolition operations.
- .6 Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### **3.2 UTILITY SERVICES**

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

### **3.3 PREPARATION**

- .1 Do work in accordance with 01 35 29.06 – Health and Safety Requirements.

- .2 Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
  - .1 Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner's. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
  - .2 Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - .3 Protect existing site improvements, appurtenances, and landscaping to remain.
  - .4 Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- .3 Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain in accordance with Sections 01 51 00 and 01 56 00, and as follows:
  - .1 Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - .2 Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - .3 Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - .4 Cover and protect furniture, furnishings, and equipment that have not been removed.
- .4 Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities in accordance with Sections 01 51 00 and 01 56 00.
  - .1 Provide temporary weather tight enclosure for building exterior.
  - .2 Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures.
  - .3 Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

- .5 Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise in accordance with Section 01 10 00.
- .6 Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished:
  - .1 Strengthen or add new supports when required during progress of selective demolition.

### **3.4 POLLUTION CONTROLS**

- .1 Provide temporary enclosures or other suitable methods reviewed and accepted by the Owner to limit spread of dust and dirt. Comply with governing environmental protection regulations, and as limited below:
  - .1 Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
  - .2 Wet mop floors to eliminate tracking of dirt, wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- .2 Remove and transport debris to prevent spillage on adjacent surfaces and areas.
- .3 Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- .4 Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

### **3.5 SELECTIVE DEMOLITION**

- .1 Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - .1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - .2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage

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- construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
- .3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - .4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame cutting operations. Maintain fire watch and portable fire suppression devices during flame cutting operations.
    - .1 A hot work permit is required to be completed by the contractor and submitted to the Owner for review for hot works such as welding, cutting or open flames or sparks, prior to the commencement of such work each day.
  - .5 Maintain adequate ventilation when using cutting torches.
  - .6 Remove decayed, vermin infested, or otherwise dangerous or unsuitable materials and promptly dispose of off site.
  - .7 Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  - .8 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - .9 Dispose of demolished items and materials promptly.
  - .10 Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- .2 Comply with Owner's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
  - .3 Existing Items to Remain:
    - .1 Protect construction indicated to remain against damage and soiling during selective demolition.
    - .2 Items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
  - .4 Concrete:
    - .1 Demolish in small sections.

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- .2 Cut concrete full depth at junctures with construction to remain and at regular intervals, using power driven saw, then remove concrete between saw cuts.
- .3 Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition.
- .4 Neatly trim openings to dimensions indicated.
- .5 Concrete Slab Reinforcing:
  - .1 Locate location of reinforcing steel in concrete slabs prior to cutting or coring using non destructive, non ionizing radio frequency locators.
  - .2 Core concrete slabs to avoid reinforcing steel, electrical conduit or water pipes; adjust core location and coordinate with Owner where slab features interfere with core drilling.
  - .3 Notify the Owner immediately for further instructions where coring or cutting will damage existing slab features.
- .6 Concrete Slabs on Grade: Saw cut perimeter of area to be demolished, then break up and remove.
- .7 Below Grade Construction: Demolish foundation walls and other below grade construction including; but not limited to, the following:
  - .1 Basements.
  - .2 Foundation walls.
  - .3 Footings.
  - .4 Piles: to depths indicated.
- .8 Masonry:
  - .1 Demolish in small sections.
  - .2 Cut masonry at junctures with construction to remain, using power driven saw, then remove masonry between saw cuts.
- .9 Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to applicable Division 7 Section for new roofing requirements.
- .10 Air Conditioning Equipment: Remove equipment without releasing refrigerants. Recharge any lost refrigerants.

**3.6 PEST CONTROL**

- .1 Engage the services of a professional Pest Control Firm to survey the building and immediate areas to ascertain the presence of any pests that would be impacted by demolition and removal activities.
- .2 Pest Control Firm to take measures to properly abate any such noted pests in accordance with regulatory requirements and provide certification that the building areas are free and clear prior to commencement of building abatement and removal activities.

**3.7 CLOSEOUT ACTIVITIES**

- .1 Promptly repair damage to adjacent construction caused by selective demolition operations and as follows:
  - .1 Patch to produce surfaces suitable for new materials where repairs to existing surfaces are required,
  - .2 Completely fill holes and depressions in remaining existing masonry walls remain with an approved masonry patching material applied according to manufacturer's written recommendations.
  - .3 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- .2 Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre):
  - .1 Promptly dispose of demolished materials.
  - .2 Do not allow demolished materials to accumulate onsite.
  - .3 Do not burn demolished materials.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects
- .2      Section 09 91 23 - Interior Painting.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials International (ASTM)
  - .1      ASTM A36/A36M, Standard Specification for Carbon Structural Steel.
  - .2      ASTM A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
  - .3      ASTM A325M, Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength [Metric].
- .2      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-85.10, Protective Coatings for Metals.
- .3      Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturer's Association (CPMA)
  - .1      Handbook of the Canadian Institute of Steel Construction.
  - .2      CISC/CPMA 2, Quick-Drying, Primer for use on Structural Steel.
- .4      Canadian Standards Association (CSA)
  - .1      CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2      CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3      CAN/CSA-S16, Limit States Design of Steel Structures.
  - .4      CAN/CSA-S136, North American Specifications for the Design of Cold Formed Steel Structural Members.
  - .5      CSA W47.1, Certification of Companies for Fusion Welding of Steel.
  - .6      CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
  - .7      CSA W55.3, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
  - .8      CSA W59, Welded Steel Construction (Metal Arc Welding).

- .5 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International
  - .1 NACE No. 1/ SSPC SP 1, Solvent Cleaning.
  - .2 NACE No. 7/SSPC SP-7, Brush-Off Blast Cleaning.

### **1.3 SHOP DRAWINGS**

- .1 Submit shop drawings including fabrication and erection documents and materials list.
- .2 On erection drawings: indicate details and information necessary for assembly and erection purposes such as, description of methods, sequence of erection, type of equipment used in erection and temporary bracings. Show detail of all non-standard connections such as bracing connections, truss connections, moment connections and hanger assemblies and other non-standard connections as requested by the Owner.
- .3 Erection drawings to be stamped by a qualified professional Engineer licensed to practice in the Province of Newfoundland and Labrador. The erection drawings are to contain a clause stating that the professional Engineer who stamped the erection drawings is responsible for all fabricator designed assemblies, components and connections required for this project.
- .4 Drawings for all fabricator designed assemblies, components and connections are to be stamped and signed by the professional Engineer who stamped the erection drawings.

### **1.4 SAMPLES**

- .1 Prepare sample of typical exposed structural connections in accordance with approval of Owner. Samples to be judged upon alignment of surfaces, uniform contact between surfaces, smoothness and uniformity of finished welds. When approved, sample units will serve as a standard for workmanship, appearance and material acceptable for entire project.

### **1.5 DESIGN REQUIREMENTS**

- .1 Design details and connections in accordance with requirements of CAN/CSA-S16 and CAN/CSA-S136 with CSA-S136.1 to resist forces, moments, shears and allow for movements indicated.
- .2 Unless noted otherwise on the drawings or in the specifications connection design is the responsibility of the structural steel fabricator.



Fully detailed connections shown on the contract drawings including bolt and welded sizes are deemed to have been designed by the Owner.

- .3 If connection for shear only (standard connection is required):
  - .1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction".
  - .2 If shears are not indicated, select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam.
- .4 For non-standard connections, submit sketches and design calculations stamped and signed by qualified professional Engineer licensed in the Province of Newfoundland and Labrador.

## **1.6 SOURCE QUALITY CONTROL**

- .1 If requested submit on certified copy of mill reports covering chemical and physical properties of steel used in this work.

## **1.7 QUALITY ASSURANCE**

- .1 At least 2 weeks prior to fabrication of structural steel submit to Owner a letter from the fabricators Welding engineer stating the Welding engineer is responsible for welding procedures and practices for this project as outlined in CSA S47.1
- .2 Provide certificate of Quality Compliance from steel fabricator upon completion of structural steel fabrication stating that the work has been designed and fabricated in accordance with the requirements of the contract documents.
- .3 If requested, submit to the Owner one copy of all approved welding procedures for this project.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Structural steel: to CAN/CSA-G40.20/G40.21 Grade as indicated, 300W and/or CAN/CSA-S136.
- .2 Cold formed structural members: to CAN/CSA S-136.

- .3 Anchor bolts: to CAN/CSA-G40.20/G40.21, Grade 300W.
- .4 Bolts, nuts and washers: to ASTM A325M
- .5 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.
- .6 Shop paint primer:
  - .1 To CISC/CPMA 1 for interior steel.
  - .2 To CISC/CPMA 2 for exterior steel.
- .7 Hot dip galvanizing: galvanize steel for exterior steel to CAN/CSA-G164, minimum zinc coating of 600 g/m<sup>2</sup>.

## **2.2 FABRICATION**

- .1 Fabricate structural steel in accordance with CAN/CSA-S16 and in accordance with approved reviewed shop drawings.
- .2 Install shear studs in accordance with CSA W59.
- .3 Continuously seal members by continuous welds where indicated.
- .4 Provide holes in top bottom flanges for attachment of wood nailers.

## **2.3 SHOP PAINTING**

- .1 Clean, prepare surfaces and shop prime structural steel in accordance with CAN/CSA-S16 except where members to be encased in concrete.
- .2 Clean members, remove loose mill scale, rust, oil, dirt and other foreign matter. Prepare surface by solvent cleaning to SSPC SP 1, followed by brush-off blast cleaning to SSPC SP 7.
- .3 Apply one coat of primer in shop to steel surfaces except:
  - .1 Surfaces to be encased in concrete.
  - .2 Surfaces to receive field installed stud shear connections.
  - .3 Surfaces and edges to be field welded.
  - .4 Faying surfaces of friction-type connections.
  - .5 Below grade surfaces in contact with soil.
- .4 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5° C.

- .5 Maintain dry condition and 5°C minimum temperature until paint is thoroughly dry.
- .6 Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry.

### **PART 3      EXECUTION**

#### **3.1            GENERAL**

- .1 Structural steel work: in accordance with CAN/CSA-S16.
- .2 Welding: in accordance with CSA W59.
- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

#### **3.2            CONNECTION TO EXISTING WORK**

- .1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Owner for direction before commencing fabrication.

#### **3.3            MARKING**

- .1 Mark materials in accordance with CAN/CSA G40.20/G40.21. Do not use die stamping. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.
- .2 Match marking: shop mark bearing assemblies and splices for fit and match.

#### **3.4            ERECTION**

- .1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16 and in accordance with approved reviewed erection drawings.
- .2 Field cutting or altering structural members: to approval of Owner.
- .3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.
- .4 Continuously seal members by continuous welds where indicated. Grind smooth.

**3.5 FIELD PAINTING**

- .1 Paint in accordance with Section 09 91 23 – Interior Painting.
  - .1 Touch up damaged surfaces and surfaces without shop coat with primer to SSPC SP 7 except as specified otherwise. Apply in accordance with CAN/CGSB 85.10.

**3.6 FIELD QUALITY CONTROL**

- .1 Inspection and testing of materials and workmanship will be carried out by an Inspection and Testing company designated by Owner.
- .2 The Inspection and Testing Company will carry out vertical and horizontal alignment checks, torque testing and inspection of representative connection welds.
- .3 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Owner.
- .4 Submit test reports to Owner within 2 weeks of completion of inspection.
- .5 Owner will pay costs of inspection and testing. Costs for any reinspection and/or re-testing as a result of deficient work will be paid for by the contractor, by credit change order
- .6 Prior to inspection & testing by the Inspection and Testing company the structural steel erection contractor will carry out an inspection of the work and make the inspection results available to the Owner and the Inspection and Testing company. The inspection report will identify the areas of work inspected, deficiencies identified and measures taken to correct the deficiencies.
- .7 Test shear studs in accordance with CSA W59.
- .8 Copies of test reports and inspections to be included in Commissioning Manual

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects
- .2      Section 07 52 00 - Modified Bituminous Membrane Roofing
- .3      Section 07 92 00 - Joint Sealants.
- .4      Section 09 21 16 - Gypsum Board Assemblies.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials (ASTM)
  - .1      ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2      ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3      ASTM C578, Specification for Rigid, Cellular Polystyrene Thermal Insulation.
  - .4      ASTM C1396/C1396M, Standard Specification for Gypsum Board.
  - .5      ASTM D5055, Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
  - .6      ASTM F1667, Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .2      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-71.26, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .3      Canadian Wood Council
  - .1      Wood Design Manual.
  - .2      Engineering Guide for Wood Frame Construction.
- .4      Canadian Standards Association (CSA)
  - .1      CSA A123.2, Asphalt Coated Roofing Sheets.
  - .2      CSA B111, Wire Nails, Spikes and Staples.
  - .3      CSA 0112.9, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).

- .4 CSA O121, Douglas Fir Plywood.
- .5 CSA-O141, Softwood Lumber.
- .6 CSA O151, Canadian Softwood Plywood.
- .7 CSA-O325.0, Construction Sheathing.
- .5 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber.
- .6 National Research Council Canada (NRC)
  - .1 National Building Code of Canada (NBC).

### **1.3 QUALITY ASSURANCE**

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 10 00 – Summary for Small Projects.
- .2 Submit proof of compatibility between Alkaline Copper Quaternary (ACQ) pressure treated lumber and fasteners to be utilized.
- .3 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Include manufacturer's pre-engineered floor, ceiling and roof joist span charts, and manufacturer's pre-engineered installation details.
  - .3 Submit certified test reports for prefabricated structural members from approved independent laboratory indicating compliance with specifications for specified performance characteristics and physical properties.
  - .4 Submit CCMC Product Evaluation Report for engineered wood products.
  - .5 Submit manufacturer's installation instructions.
- .4 Shop Drawings:

- .1 For structural applications or conditions beyond the scope of the manufacturer's pre-engineered design information, submit drawings stamped and signed by professional engineer registered or licensed in the Province of Newfoundland and Labrador.
- .2 Include on drawings:
  - .1 Design data in accordance with CAN/CSA-O86 and CWC Engineering Guide for Wood Frame Construction.
  - .2 Indicate configuration and spacing of joists, hanger and connector types, fasteners, locations and design values; bearing details.
  - .3 Submit stress diagrams or print out of computer design indicating design loads for members. Indicate allowable load and stress increase.
  - .4 Indicate arrangement of webs or other members to accommodate ducts and other specialties

## **1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 10 00 – Summary for Small Projects.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store materials off ground with moisture barrier at both ground level and as a cover forming a well-ventilated enclosure, with drainage to prevent standing water.
  - .3 Store wood I-beams and I-joists on edge.
  - .4 Stack, lift, brace, cut and notch engineered lumber products in strict accordance with manufacturer's instructions and recommendations.
  - .5 Store and protect architecturally exposed lumber from nicks, scratches, and blemishes.
  - .6 Replace defective or damaged materials with new.
  - .7 Store separated reusable wood waste convenient to cutting station and work areas.

**PART 2      PRODUCTS**

**2.1            STRUCTURAL FRAMING**

- .1 Lumber: unless specified otherwise, softwood, No. 1 or No. 2 grade, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
  - .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2
- .3 Framing and board lumber: in accordance with NBC.
- .4 Furring, blocking, nailing strips, grounds, rough bucks, fascia backing and sleepers:
  - .1 Board sizes: "Standard" or better grade.
  - .2 Dimension sizes: "Standard" light framing or better grade.
  - .3 Post and timbers sizes: "Standard" or better grade.
- .5 Pressure treated material to be Alkaline Copper Quaternary (ACQ).
- .6 Where indicated, provide pressure treated materials for furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers in accordance with Section 06 05 73.

**2.2            PANEL MATERIALS**

- .1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.
- .2 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .4 Insulating fiberboard sheathing: to CAN/CSA-A247.
- .5 Expanded polystyrene sheathing: to Section 07 21 13 – Board Insulation.
- .6 Gypsum sheathing: to 09 21 16 – Gypsum Board Assemblies.

**2.3            ACCESSORIES**

- .1 Exterior wall sheathing paper: to Section 07 27 00.01 - Air Barriers – Descriptive or Proprietary.



- .2 Polyethylene film: to Section 07 26 00 – Vapour Retarders.
- .3 Sill Gasket Air seal: closed cell polyurethane or polyethylene.
- .4 Sealants: Section 07 92 00 – Joint Sealants.
- .5 General purpose adhesive: to CSA O112.9.
- .6 Nails, spikes and staples: to CSA B111.
- .7 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .8 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

## **2.4 FASTENER FINISHES**

- .1 Galvanizing: to ASTM A123/A123M, ASTM A653, use galvanized fasteners for exterior work, interior highly humid areas and fire-retardant treated lumber.

## **2.5 WOOD PRESERVATIVE**

- .1 Surface-applied wood preservative: clear or copper naphthenate or 5% pentachlorophenol solution, water repellent preservative. (Site applied wood preservatives are not permitted for use on materials that could be in contact with roofing, or weather barrier, membranes.)

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- .1 Treat surfaces of material with wood preservative, before installation.
- .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
- .4 Treat all material as indicated as follows:

- .1 Wood fascia, backing, curbs, nailers.
- .2 Wood furring for sheeting/siding on outside surface of exterior masonry concrete walls.
- .3 Wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill.

### **3.2 SYSTEMS INTEGRATION**

- .1 Install air barrier and vapour retarder sheeting around framing members to ensure continuity of protection and to lap and seal to main sheets.
- .2 Install insulation in exterior wall framing cavities that will not be accessible after completion of framing. (Mineral Wool, or Closed Cell Foam)
- .3 Install sill plate gasket in continuous lengths between concrete surfaces and wood framing.

### **3.3 INSTALLATION**

- .1 Comply with requirements of NBC latest edition, Part 9 supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
- .6 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .7 Countersink bolts where necessary to provide clearance for other work.
- .8 Install specified panel product for each application.
- .9 Install wall sheathing in accordance with manufacturer's printed instructions.
- .10 Install roof sheathing in accordance with requirements of NBC.

- .11 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.
- .12 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
  - .1 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .13 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .14 Install wood , fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners. Coordinate height of roof curbs with Section 07 52 00 – Modified Bituminous Membrane Roofing.
- .15 Install sleepers as indicated.
- .16 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

### **3.4 SCHEDULES**

- .1 Exterior wall sheathing:
  - .1 Plywood, DFP or CSP sheathing grade or (SHG) grade, T&G edge, 16 mm thick, unless otherwise indicated.
  - .2 Expanded polystyrene sheathing, Type 1, RSI indicated, shiplapped edges, thickness as indicated.
  - .3 Gypsum sheathing, Section 09 21 16 – Gypsum Board Assemblies.

### **3.5 PROTECTION**

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

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects
- .2      Section 06 10 53 – Miscellaneous Rough Carpentry.
- .3      Section 07 26 00 - Vapour Retarders.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials International, (ASTM).
  - .1      ASTM C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .2      Canadian Standards Association (CSA)
  - .1      CSA B149 PACKAGE, Consists of B149.1 Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.
- .3      Canadian General Standards Board (CGSB).
  - .1      CGSB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
- .4      Underwriters Laboratories of Canada (ULC).
  - .1      CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
  - .2      CAN/ULC-S702, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
  - .3      CAN/ULC-S704, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.

**1.3            SUBMITTALS**

- .1      Product Data:
  - .1      Submit manufacturer's printed product literature, specifications and data.
  - .2      Submit copy of WHMIS SDS - Safety Data Sheets. Indicate VOC's insulation products and adhesives.
- .2      Manufacturer's Instructions:

- .1 Submit manufacturer's installation instructions.

#### **1.4 QUALITY ASSURANCE**

- .1 Provide certificate of quality compliance from insulation manufacturer.

### **PART 2 PRODUCTS**

#### **2.1 INSULATION**

- .1 Expanded polystyrene (EPS): for use below grade and exterior walls: to CAN/ULC-S701 Type 2, RSI 0.70 per 25 mm, total thickness as indicated on drawings.
- .2 Urethane (Isocyanurate): Faced, to CAN/ULC-S704 foil facing, RSI 1.05 per 25 mm, total thickness as indicated on drawings.
- .3 Mineral fibre board: to CAN/ULC-S702, Type 2, semi-rigid, density 17.6 kg/m<sup>2</sup>, flexible spinbonded olefin facing, RSI 0.70 per 25 mm, total thickness as indicated on drawings.
- .4 Extruded polystyrene (XPS): to CAN/ULC S701 Type 3, RSI 0.88 per 25 mm, total thickness as indicated on drawings.
- .5 Insulation types not indicated on drawings to be expanded polystyrene (EPS), Type 2 as a default, as per article 2.1.1.

#### **2.2 ADHESIVE**

- .1 Adhesive suitable for bonding polystyrene and mineral fibre insulation to substrates as indicated.

#### **2.3 ACCESSORIES**

- .1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Joint sealing tape: air resistant pressure sensitive adhesive tape as recommended by insulation manufacturer.

## **2.4 THERMAL SPACERS**

- .1 Low conductivity fibreglass reinforced plastic clips designed to be installed intermittently to support horizontal and vertical z-girts in exterior wall assembly. Manufacturer to recommend maximum spacing allowable to support assembly, withstand loads as per the NBCC, and achieve highest effective RSI Value of wall assembly.
  - .1 Acceptable fibreglass reinforced thermal spacers include:
    - .1 Cascadia Clip as marketed by Cascadia windows and Doors.
    - .2 TAC Thermal Clip as marketed by Exterior Technologies Group.
  - .2 Low conductivity, thermally broken aluminum clip System: Die cut aluminum extruded clip, adjustable to plumb structure, galvanized zinc-coated steel to ASTM A653. System to provide compliance to ASHRAE 90.1. Manufacturer to recommend maximum spacing allowable to support assembly, withstand loads as per the NBCC, and achieve highest effective RSI Value of wall assembly.
    - .1 Acceptable thermally broken aluminium spacers include:
      - .1 TcLip Thermally Broken Facade Substructure as marketed by Engineered Assemblies.

## **PART 3 EXECUTION**

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

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions and data sheets.

### **3.2 WORKMANSHIP**

- .1 Install insulation after building substrate materials are dry.
- .2 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
- .4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and CSA B149.1 and CSA B149.2 type B and L vents.

- .5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .6 Offset both vertical and horizontal joints in multiple layer applications.
- .7 Do not enclose insulation until it has been inspected and approved by Owner.

### **3.3 EXAMINATION**

- .1 Examine substrates and immediately inform Owner in writing of defects.
- .2 Prior to commencement of work ensure:
  - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

### **3.4 RIGID INSULATION INSTALLATION**

- .1 Apply adhesive to insulation board in accordance with manufacturer's recommendations.
- .2 Imbed insulation boards into vapour barrier type adhesive, applied as specified, prior to skinning of adhesive.
- .3 In addition to adhesive install mineral fibre insulation boards with insulation clips and disk, 2 per 600 x 1200 mm board minimum, fit boards tight, cut off fastener spindle 3 mm beyond disk.
- .4 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide 0.15 mm modified bituminous membrane over expansion and control joints using compatible adhesive and primer before application of insulation.
- .5 Carefully inspect for continuity of air barrier prior to placement of insulation.

### **3.5 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 07 26 00 –Vapour Retarders.
- .4      Section 07 27 00.01 – Air Barriers - Descriptive or Proprietary.

**1.2            REFERENCES**

- .1      ASTM International (ASTM)
  - .1      ASTM C1029, Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.
- .2      Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .3      Underwriters' Laboratories of Canada (ULC)
  - .1      CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.
  - .2      CAN/ULC-S705.1, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification. Includes Amendment 1.2.
  - .3      CAN/ULC-S705.2, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

**1.3            SUBMITTALS**

- .1      Product Data:
  - .1      Submit manufacturer's printed product data literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2      Submit two copies of WHMIS SDS –Safety Data Sheets.
- .2      Test Reports
  - .1      Submit certified test reports, from approved independent testing laboratories verifying qualities of insulation meet or exceed requirements of this specification.



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- .2 Submit test reports in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.
- .3 Submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

**1.4 QUALITY ASSURANCE**

- .1 Installer to conform to CUFCA Quality Assurance Program or an equivalent recognized quality assurance and training program.
- .2 Qualifications:
  - .1 Installer: person specializing in sprayed insulation installations with minimum 5 years experience approved by manufacturer.
  - .2 Manufacturer: company with minimum 5 years experience in producing of material used for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.

**1.5 MOCK-UP**

- .1 Construct mock-up in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Construct mock-up 10 m<sup>2</sup> minimum, of spray in place urethane foam insulation including one inside corner and one outside corner. Mock-up may be part of finished work.

**1.6 SAFETY REQUIREMENTS**

- .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
  - .1 Workers must wear gloves, respirators, dust masks, eye protection, protective clothing when applying foam insulation.
  - .2 Workers must not eat, drink or smoke while applying foam insulation.

**1.7 PROTECTION**

- .1 Ventilate area in accordance with Section 01 10 00 - Summary for Small Projects .
- .2 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain non-toxic, unpolluted, safe working conditions.

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- .3 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.
- .4 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.
- .5 Dispose of waste foam daily in location designated by Owner and decontaminate empty drums in accordance with foam manufacturer's instructions.

**1.8 ENVIRONMENTAL REQUIREMENTS**

- .1 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

**1.9 WARRANTY**

- .1 Provide a written guarantee, signed and issued in the name of the owner, stating the sprayed polyurethane foam insulation shall remain free from defects in materials and workmanship for a period of one (1) year from the date of Substantial Completion.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Insulation: spray polyurethane foam to CAN/ULC-S705.1, thickness and RSI Value as indicated on drawings.
  - .1 Initial thermal resistance: minimum RSI 2.5 per 50 mm.
  - .2 Long term thermal resistance: minimum RSI 2.0 per 50 mm.
  - .3 Density: 28 kg/m<sup>3</sup>, to ASTM D1622.
  - .4 Air barrier properties: to ASTM E2178.
    - .1 @75 Pa: maximum 0.05 L/s.
  - .5 Water Vapour Permeance, to ASTM E96:
    - .1 50 mm thick: maximum 60 ng/(Pa.s.m<sup>2</sup>).
  - .6 Tensile Strength: minimum 200 kPa, to ASTM D1621.
  - .7 Flame Spread: to CAN/ULC-S102, in accordance with the latest edition of the National Building Code.
  - .8 Water Absorption by volume: maximum 4%, to ASTM D2842.
- .2 Primers: in accordance with manufacturer's recommendations for surface conditions.

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**2.2 EQUIPMENT**

- .1 Spray equipment: in accordance with CAN-ULC-S705.2 and the equipment manufacturer's recommendations for specific type of application.
- .2 Provide a separate proportioner unit for each spray gun.

**PART 3 EXECUTION**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.2 PROTECTION OF IN-PLACE CONDITIONS**

- .1 Mask and cover adjacent areas to protect from over spray.
- .2 Ensure any required foam stop or back up material are in place to prevent over spray and achieve complete seal.
- .3 Seal off existing ventilation equipment. Install temporary ducting and fans to ensure exhaust fumes. Provide for make-up air.
- .4 Erect barriers, isolate area and post warning signs to advise non-protected personnel to avoid the spray area.

**3.3 SURFACE PREPARATION**

- .1 Clean all surfaces free of oil, grease, dust and debris. Ensure surfaces are clean, dry and properly fastened to ensure adhesion of the foam to the substrate.
- .2 Ensure that all work by other trades that may penetrate through the insulation is in place and complete

**3.4 APPLICATION**

- .1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.
- .2 Apply primer to surfaces where recommended by manufacturer. Apply primer in accordance with manufacturer's instructions.

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- .3 Spray apply insulation to maintain continuity of thermal protection to building elements and spaces.
- .4 Spray apply insulation to primed surfaces in accordance with CAN-ULC-S705.2.
- .5 Spray apply insulation to final thickness as indicated on drawings. Apply in consecutive passes to thicknesses as recommended by manufacturer. Minimum thickness: 15 mm. Maximum thickness: 50 mm.
- .6 Spray insulation to seal perimeter of electrical boxes, pipes, ducts, frames and other objects into or passing through insulation.
- .7 Keep insulation away from heat emitting devices such as recessed light fixtures, chimneys and furnace vents. Maintain minimum distances as recommended by manufacturer's instructions.
- .8 Finished surface of foam insulation to be free of voids and imbedded foreign objects.
- .9 Remove masking materials and over spray from adjacent areas immediately after foam surface has hardened. Ensure cleaning methods do not damage work performed under other sections.
- .10 Trim, as required, any excess thickness that would interfere with the application of cladding system by other trades.
- .11 Do not enclose insulation until it has been inspected and approved by Owner.

**3.5 TOLERANCES**

- .1 Maximum variation from indicated thickness: minus 6.0 mm, plus 10 mm but not universally high or low.

**3.6 PROTECTION**

- .1 Protect installed products and accessories from damage during construction.
- .2 Protect the spray foam from ultraviolet in accordance with manufacturer's requirements.
- .3 Cover the spray foam with an appropriate thermal barrier as detailed.

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**3.7 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

**3.8 CLEANING**

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 06 10 53 – Miscellaneous Rough Carpentry.
- .4      Section 07 52 00 – Modified Bituminous Membrane Roofing
- .5      Section 07 92 00 - Joint Sealants.

**1.2            REFERENCES**

- .1      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.
- .2      Underwriters Laboratories Canada (ULC)
  - .1      CAN/ULC S102, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

**1.3            SUBMITTALS**

- .1      Submit manufacturer's printed product literature, specifications and datasheet and include:
  - .1      Product characteristics.
  - .2      Performance criteria.
  - .3      Limitations.
- .2      Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Safety Data Sheets (SDS).
- .3      Quality assurance submittals:
  - .1      Certificates: submit certificates certifying that materials comply with specified performance characteristics and physical properties.
  - .2      Instructions: submit manufacturer's installation instructions and comply with written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

**1.4        MOCK-UPS**

- .1        Provide a mock-up in accordance with requirements of Section 01 43 39 – Mock Up Requirements.
- .2        Construct mock-up of sheet vapour barrier installation including one lap joint, one inside corner and at one electrical box. Mock-up may be part of finished work.
- .3        Mock-up will be used to judge workmanship, substrate preparation, and material application.

**PART 2        PRODUCTS**

**2.1        SHEET VAPOUR RETARDER**

- .1        Polyethylene film: to CAN/CGSB-51.34, 0.15mm thick with a water vapour permeance of not greater than 45 ng/(P·s·m<sup>2</sup>), flame spread rating of less than 150 to CAN/ULC S102.

**2.2        ACCESSORIES**

- .1        Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.
- .2        Sealant: compatible with vapour retarder, recommended by vapour retarder manufacturer, to Section 07 92 00 - Joint Sealants.
- .3        Staples: minimum 6 mm leg.
- .4        Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

**PART 3        EXECUTION**

**3.1        INSTALLATION**

- .1        Ensure services are installed and inspected prior to installation of retarder.
- .2        Install sheet vapour retarder on warm side of exterior wall and ceiling space assemblies prior to installation of gypsum board to form continuous retarder.

- .3 Install Sheet Vapour retarder under stone cover in crawl space to form continuous retarder.
- .4 Use sheets of largest practical size to minimize joints.
- .5 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

### **3.2 EXTERIOR SURFACE OPENINGS**

- .1 Cut sheet vapour retarder to form openings and ensure material is lapped and sealed to frame.

### **3.3 PERIMETER SEALS**

- .1 Seal perimeter of sheet vapour barrier as follows:
  - .1 Apply continuous bead of sealant to substrate at perimeter of sheets.
  - .2 Lap sheet over sealant and press into sealant bead.
  - .3 Install staples through lapped sheets at sealant bead into wood substrate.
  - .4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

### **3.4 LAP JOINT SEALS**

- .1 Seal lap joints of sheet vapour barrier as follows:
  - .1 Attach first sheet to substrate.
  - .2 Apply continuous bead of sealant over solid backing at joint.
  - .3 Lap adjoining sheet minimum 150 mm and press into sealant bead.
  - .4 Install staples through lapped sheets at sealant bead into wood substrate.
  - .5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

### **3.5 ELECTRICAL BOXES**

- .1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:
  - .1 Install moulded box vapour barrier or wrap boxes with film sheet providing minimum 300 mm perimeter lap flange.



- .2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

**3.6 CLEANING**

- .1 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            SECTION INCLUDES**

- .1      Materials and installation methods providing primary air/vapour barrier materials and assemblies.
- .2      Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations.

**1.2            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 07 52 00 - Modified Bituminous Membrane Roofing
- .4      Section 07 92 00 - Joint Sealants.

**1.3            REFERENCES**

- .1      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-19.13M, Sealing Compound, One Component, Elastomeric Chemical Curing.
  - .2      CAN/CGSB-19.18M, Sealing Compound, One Component, Silicone Base Solvent Curing.
  - .3      CAN/CGSB-19.24M, Multi-Component, Chemical Curing Sealing Compound.
  - .4      CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.
- .2      National Building Code of Canada (NBCC)
  - .1      NBCC, Part 5 - Environmental Separation
- .3      Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

**1.4            SUBMITTALS**

- .1      Submit manufacturer's product data sheets.
- .2      Submit manufacturer's installation instructions.

**1.5 QUALITY ASSURANCE**

- .1 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.
- .2 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.
- .3 Manufacturer's Representative:
  - .1 Inspect substrate prior to commencement of work, twice during application of membrane and at commissioning to ascertain that air/vapour barrier system is installed according to membrane manufacturer's most current published specifications and details.
  - .2 Provide technical assistance to applicator and assist where required in correct installation of membrane.
  - .3 Provide certificate of quality compliance upon satisfactory completion of installation.
- .4 Maintain one copy of documents on site.

**1.6 QUALIFICATIONS**

- .1 Applicator: Company specializing in performing work of this section with minimum 5 years documented experience with installation of air/vapour barrier systems. Complete installation must be approved by the material manufacturer.
- .2 Applicator: Company who is currently licensed by certifying organization must maintain their license throughout the duration of the project.

**1.7 MOCK-UP**

- .1 Construct mock-up in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Construct typical panel, 10 m<sup>2</sup> minimum, incorporating wall openings, insulation, building corner condition, illustrating materials interface and seals.
- .3 Locate where directed.

**1.8 PRE- INSTALLATION MEETINGS**

- .1 Convene one week prior to commencing work of this section.

**1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions. Deliver membrane materials in factory wrapped packaging indicating name of manufacturer and product.
- .3 Avoid spillage. Immediately notify Owner if spillage occurs and start clean up procedures.
- .4 Clean spills and leave area as it was prior to spill.
- .5 Store roll materials on end in original packaging.
- .6 Store primers at temperatures of 5°C and above to facilitate handling. Keep solvent away from open flame and excessive heat.

**1.10 PROJECT ENVIRONMENTAL REQUIREMENTS**

- .1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.
- .2 Ventilate enclosed spaces in accordance with Section 01 10 00 - Summary for Small Projects.
- .3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

**1.11 WARRANTY**

- .1 Provide a written warranty for work of this section from Manufacturer for failure due to defective materials and from contractor for failure due to defective installation workmanship for ten (10) years respectively from the date of Substantial Completion.
- .2 Include coverage of installed sealant and sheet materials which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion or do not cure.

**PART 2      PRODUCTS**

**2.1      SHEET MEMBRANE AIR BARRIER (TYPE 1)**

.1 Sheet Seal: Self-Adhesive bitumen laminated to high-density polyethylene film, nominal total thickness of 1.0 mm.

.1 Membrane Physical Properties

.1	Application	min 5°C
.2	Service Temperature	-40°C to 70°
.3	Elongation	min 200%
.4	Tensile strength	min 2.4 Mpa
.5	Puncture Resistance	min 178 N
.6	Water vapour transmission	2.8mg/Pa.s.m <sup>2</sup> (0.05 perms)
.7	Moisture Absorption	0.1%
.8	Air Leakage at 75 Pa	0.02L/Sm <sup>2</sup>
.9	Air Leakage of the 3000 Pa test	No change

.2 Sheet Seal: Self-Adhered Elastomeric Film Air Vapour Barrier Membrane with high tack acrylic adhesive, nominal total thickness of 0.25 mm. Primer not required on most construction surfaces.

.1 Membrane Physical Properties

.1	Application	min -18° C
.2	Service Temperature	-40° C to 80° C
.3	Elongation	ASTM D882 – min 700%
.4	Tensile Strength	min 12 Mpa
.5	Water Vapour Transmission	8 ng/Pa.s.m <sup>2</sup> (0.14 perms)
.6	Moisture Absorption	0.1%
.7	Air Leakage at 75 Pa	0.01 L/Sm <sup>2</sup>
.8	Air Leakage of the 3000 Pa Test	No Change

**2.2      SHEET MEMBRANE VAPOUR PERMEABLE AIR BARRIER (TYPE 4)**

.1 Self-adhering reinforced modified polyolefin tri-laminate water resistive, vapour permeable, air barrier membrane to the following properties:

.1	Weight:	160 g/m <sup>2</sup>
.2	Water Vapour Transmission:	202 g/m <sup>2</sup>
.3	Tensile Strength:	182N MD and 129N CD
.4	Water Vapour Permeance:	1658 ng/Pa.m <sup>2</sup> .s

- .5 Air Leakage: <0.02 L/s/m<sup>2</sup>
- .6 Average Dry Breaking Force: 565N MD and 405N CD

### **2.3 SEALANTS**

- .1 Sealants in accordance with Section 07 92 00 - Joint Sealants.
- .2 Primer: recommended by sealant manufacturer.
- .3 Primer for Type 4 Air Barrier: quick setting, synthetic rubber based adhesive aerosol.

### **2.4 SCHEDULE**

- .1 Type 1 Air Barrier: for installation on any solid surface.
- .2 Type 4 Air Barrier: for installation on any solid surface approved by manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that surfaces and conditions are ready to accept the Work of this section.
- .2 Ensure all surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.
- .3 Report any unsatisfactory conditions to the Owner in writing.
- .4 Do not start work until deficiencies have been corrected.

### **3.2 PREPARATION**

- .1 Remove loose or foreign matter which might impair adhesion of materials.
- .2 Ensure all substrates are clean of oil or excess dust; all masonry joints struck flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.
- .3 Ensure all substrates are free of surface moisture prior to application of membrane and primer.
- .4 Ensure metal closures are free of sharp edges and burrs.

- .5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

### **3.3 INSTALLATION (SHEET MEMBRANE)**

- .1 Install materials in accordance with manufacturer's instructions.
- .2 Over the properly prepared substrate surface apply primer, as per manufacturer's recommendations, with a roller and allow drying to a tacky surface. Prime only area to be covered in a working day. Re-prime area not covered with membrane within 24 hours.
- .3 After primer has dried, using a hand roller firmly press the entire membrane onto the primed surface, in strict accordance with membrane manufacturer's written instructions.
- .4 Ensure complete coverage of and adhesion of all substrates to receive membrane, including wall penetrations. Co-operate with other trades to ensure continuity of membrane.
- .5 Overlap membrane 50mm and carefully smooth out with a roller to ensure full continuous bond throughout overlaps without fissures or fishmouthing.
- .6 It is important that a complete air seal be achieved. Be responsible for the completeness of membrane wherever it is not specifically detailed. Consult with Owner if there is any doubt as to the integrity of membrane, whether detailed or not.
- .7 In order to ensure a complete seal, seal membrane to all penetrations in an approved manner.
- .8 Apply a trowelled bead of mastic to all terminations of the membrane at the end of a day's work.
- .9 Do not enclose membrane until it has been inspected and approved by Owner. Inform Owner two (2) working days prior to required inspection.

### **3.4 PROTECTION OF WORK**

- .1 Protect finished Work in accordance with 01 10 00 - Summary for Small Projects .
- .2 Do not permit adjacent work to damage work of this section.
- .3 Ensure finished Work is protected from climatic conditions.

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**3.5 INSPECTION**

- .1 Carefully inspect for continuity of air barrier prior to placement of insulation.
- .2 Repair all deficient membrane areas.
- .3 Misaligned or inadequately lapped seams, punctures or other damage must be repaired with a patch of air barrier membrane extending 50mm in all directions from edge of damaged areas.
- .4 Cover membrane immediately after Owner's inspection to protect from damage by other trades.

**END OF SECTION**



**PART 1**      **GENERAL**

**1.1**            **RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects
- .2      Section 06 10 53 - Miscellaneous Rough Carpentry.
- .3      Section 07 21 13 – Board Insulation
- .4      Section 07 27 00.01 – Air Barriers
- .5      Section 07 52 00 – Modified Bituminous Membrane Roofing.
- .6      Section 07 62 00 - Sheet Metal Flashing and Trim.
- .7      Section 07 92 00 - Joint Sealants.

**1.2**            **REFERENCES**

- .1      American Society of Mechanical Engineers (ASME)
  - .1      ASME B18.6.3, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).
- .2      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
  - .2      CAN/CGSB-93.4, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
  - .3      CGSB 93.5, Installation of Metal Residential Siding, Soffits and Fascia.
- .3      Canadian Standards Association (CSA)
  - .1      CSA B111, Wire Nails, Spikes and Staples.

**1.3**            **SUBMITTALS**

- .1      Product data: submit manufacturer's printed product literature, specifications, and data sheet.
  - .1      Submit two copies of WHMIS SDS - Safety Data. Indicate VOC's for caulking materials during application and curing.
- .2      Submit duplicate 300 x 300 mm samples of siding material, of colour and profile specified.
- .3      Shop drawings to indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, metal furring, site specific details, and related work.
- .4      Submit manufacturer's installation instructions.

**1.4 MAINTENANCE MATERIAL**

- .1 Provide a minimum of 10% extra material for each colour of horizontal and vertical siding. (Full length pieces)

**1.5 WARRANTY**

- .1 Provide a written guarantee, signed, and issued in the name of the owner, covering the metal cladding/siding material for 10 (ten) years and workmanship for a period of 2 (years) years from the date of Substantial Completion.
- .2 Areas which prove to be defective in any way shall be repaired or replaced and any damage to other work as a result of such defects shall be repaired at no cost to the Owner.

**PART 2 PRODUCTS**

**2.1 STEEL CLADDING AND COMPONENTS**

- .1 Corrugated Metal Panel: Agway 7/8" corrugated metal siding. Or pre-approved alternate.
  - .1 Finish coating: Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
    - .1 Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, Z275 coating designation; structural quality.
    - .2 Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZM150 coating designation, Grade 275; structural quality.
    - .3 Surface: Smooth, flat finish.
    - .4 Exposed Coil-Coated Finish for a Coastal Environment:
      - .1 4-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both colour coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      - .2 Acceptable finishes include but are not limited to:
        - .1 Flurothane Coastal as marketed by Valspar
        - .2 10000 Series as marketed by Baycoat
      - .5 Concealed Finish: Apply pretreatment and manufacturer's standard white or light-coloured acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.013 mm.
    - .2 Colour: Stone Grey colour from Manufacturer's Perspectra Plus Series colour range.
    - .3 Gloss: medium.
    - .4 Thickness: minimum 0.9 mm (20 gauge) base metal thickness.

- .5 Profile: 7/8" Corrugated Metal, overlapping joints, exposed fastening system, as marketed by Agway Metals Inc, or approved alternate.
- .2 Fascia facings and exposed trim: to CGSB 93.4, Class plain
  - .1 Finish coating and colour: Finish and colour of metal flashing and trims are to be coordinated with and match the finish and colour of the metal siding. This may result in a custom or special order depending on manufacturer. Owner will not pay extra to obtain specified finish after tender award.
  - .2 Gloss: medium.
  - .3 Thickness: minimum 0.61 mm base metal thickness.

## **2.2 ACCESSORIES**

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, under sill trim, starter strip and window/door trim of same material, colour, and gloss as cladding, with fastener holes pre-punched. Use preformed corner pieces only. Double back exposed edges.
- .2 Closures: Foam and Metal closures to suit profiles selected, to manufacturers recommendations.

## **2.3 FASTENERS**

- .1 Nails: to CSA B111. Screws to ASME B18.6.3. Acceptable fasteners include purpose made aluminum alloy, stainless steel or cadmium plated steel with nylon heads to match colour of panel.

## **2.4 CAULKING**

- .1 Sealants: Section 07 92 00 – Joint Sealants.

## **2.5 SHEATHING MEMBRANE**

- .1 Exterior wall sheathing membrane: Self-Adhered Elastomeric Film Air Vapour Barrier Membrane. Section 07 27 00.01 .2.1.2

# **PART 3 EXECUTION**

## **3.1 INSTALLATION**

- .1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions
- .2 Install one layer exterior wall sheathing membrane Installed vertically, adhered to substrate.
- .3 Install membrane flashings at interface with adjacent assemblies.
- .4 Install Z-bars / framing and insulation.

- .5 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .6 Install outside corners, fillers and closure strips with carefully formed and profiled work.
- .7 Install soffit and fascia cladding as indicated.
- .8 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .9 Attach components in manner not restricting thermal movement.
- .10 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

**3.2 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools, and equipment barriers.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED WORK**

- .1      Section 01 10 00 - Summary for Small Projects
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 06 10 53 - Miscellaneous Rough Carpentry.
- .4      Section 07 62 00 - Sheet Metal Flashing and Trim.
- .5      Section 07 92 00 - Joint Sealants.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials (ASTM)
  - .1      ASTM C 1177/C1177M, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
- .2      NRC Wind Load Calculator NBCC 2020
- .3      Canadian General Standards Board (CGSB).
  - .1      CGSB 37-GP-19M, Cement, Plastic, Cutback Tar.
  - .2      CAN/CGSB-37.29, Rubber- Asphalt Sealing Compound.
  - .3      CAN/CGSB - 51.33 Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
- .4      Canadian Roofing Contractor's Association (CRCA)
  - .1      CRCA Specification Manual.
- .5      Underwriters Laboratories' of Canada (ULC)
  - .1      CAN/ULC-S701, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .2      CAN/ULC-S702.2, Standard for Mineral Fibre Thermal Insulation for Buildings.
  - .3      CAN/ULC-S704, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

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**1.3            SECTION INCLUDES**

- .1      Removal of stone cover, membrane, membrane flashing, metal counter flashing, deck sheathing, and air/vapour barrier, exposing existing deck.
- .2      Provision of new deck sheathing, air/vapour barrier, insulation, membrane, membrane flashing and metal counter flashing.

**1.4            SHOP DRAWINGS**

- .1      Indicate in shop drawings site specific flashings, control joints, tapered insulation details, roof drains and all required roofing materials.
- .2      Provide layout for tapered insulation.

**1.5            STORAGE AND HANDLING**

- .1      Refer to Section 01 10 00 - Summary for Small Projects for storage and handling requirements.
- .2      Store materials off-ground in weatherproof storage.
- .3      Store materials in upright position. Store membrane rolls with selvage edge up, store as per manufacturer's requirements to meet warranty.
- .4      Remove only in quantities required for same day use.
- .5      Place plywood runways over work to protect work and enable work flow.
- .6      Store sealants at +5°C minimum.
- .7      Store insulation protected from daylight, weather and deleterious materials.

**1.6            ENVIRONMENTAL REQUIREMENTS**

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

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**1.7 PROTECTION**

- .1 Protect the exposed surfaces of finished and existing work to avoid damage during roof installation and material transportation. Install walkways made of rigid boards over installed roofing materials to enable passage of people and transport of products. Assume full responsibility for any damage.
- .2 Fire Extinguishers: maintain one stored pressure rechargeable type with hose and shut-off nozzle, ULC labeled for A, B and C class protection. Size 9 gal on roof per torch applicator, within 10 m of torch applicator.
- .3 Contractor to provide safety person on site at all times during the roofing process and shall remain on site two (2) hours after work has ceased or after torching has stopped. Safety person shall scan the perimeter and roof penetration details with a hand-held infrared gun.
- .4 Remove only as much existing roofing as can be replaced by the end of each working day.
- .5 Contractor to verify existing under deck mounted electrical conduits prior to installing mechanically fastened roof assembly.

**1.8 WARRANTY**

- .1 Provide a written guarantee signed and issued in the name of The Owner by the Roofing System Manufacturer stating that roofing membrane is free from manufacturing defects and that the system will stay in place and remain leak proof for a period of ten (10) years from date of Substantial Certificate of Completion, subject to the standard limitations and conditions of the manufacturer.
- .2 Provide a written guarantee, signed and issued in the name of the Owner by the Contractor, stating that the roofing application has been performed in compliance with the plans and specifications, and for two (2) years from the date of Substantial Certificate of Completion, the Contractor shall repair, at no expense to the Owner, any defects which result of a failure to comply with the plans and specifications.
- .3 Defective work shall include, but not limited to: leaking, wind uplift, delamination of roofing materials, reduction of thermal value due to moisture in insulation, crazing and ridging.
- .4 Warranty to be non-prorated.

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**1.9 COMPATIBILITY**

- .1 Compatibility between components of roofing system is essential. Provide written declaration to Owner stating that materials and components, as assembled in system, meet this requirement.

**1.10 QUALITY ASSURANCE**

- .1 Provide certificate signed by roofing manufacturer verifying that installer is approved, authorized and/or licensed by manufacturer to install specified products and is eligible to obtain the specified warranty of the section.
- .2 Applicators: minimum 5 years proven experience.
- .3 Manufacturer's representative:
  - .1 Inspect roofing system at the start of construction, midway and as required for commissioning. Additional inspections may be carried out at the discretion of the Roofing System Manufacturer.
  - .2 Provide technical assistance where required to correct installation of roofing system.
  - .3 Provide manufacturer's written acceptance of roofing installation based on specified inspections.
- .4 Refer to Section 01 10 00 - Summary for Small Projects for submission procedures.
- .5 Submit laboratory test reports certifying compliance of bitumens and membranes with specification requirements.

**1.11 MOCK-UP**

- .1 Two mandatory mock ups are required for the work of this Section.
  - .1 At the top of the curtainwall assembly interface with the roofing assembly.
  - .2 At the bottom of the curtainwall assembly interface with the roofing assembly.
- .2 Construct mock ups in accordance with Section 01 43 39 – Mock Up Requirements.
- .3 Mock ups to be 2 linear meters.
- .4 Accepted mock ups may form part of complete Work.



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- .5 Allow 48 hours for inspection of mock ups by Owner's Representative before proceeding with roofing work.

**PART 2      PRODUCTS**

**2.1      THERMAL BARRIER AND AIR/VAPOUR BARRIER**

- .1 Thermal Barrier: Pre-primed glass mat faced gypsum panel non-asphaltic, highly filled proprietary heat-cured coating on one side, to ASTM C1177, 12.7 mm thick.
- .2 Air/Vapour Barrier: Self adhering peel and stick air/vapour barrier composed of Styrene-Butadiene-Styrene (SBS) modified bitumen reinforced with high density polyethylene film, anti slip surface, minimum thickness 1.0 mm.

**2.2      INSULATION AND COVER BOARD COMPONENTS**

- .1 For flat roof decks or roof structures, provide custom designed tapered insulation with minimum slope of 2.0 mm in 100 mm (2%). Taper insulation to drain, minimum RSI value at drain to be 1.3.
- .2 Extruded Polystyrene Insulation (XPS) and two layers of Asphalt Recover Board:
  - .1 Extruded Polystyrene Insulation (XPS):
    - .1 To CAN/ULC-S701, Type 2, square edged.
    - .2 Insulation value thickness per cm based on values listed in the latest edition of NRC - Evaluation Listings.
    - .3 Provide two layers of insulation installed with staggered joints.
  - .2 One layer of Asphalt Recover Board: Semi-rigid asphalt roofing substrate composed of mineral core between glass fibre mats, 1200 x 1500mm sheets, minimum thickness 6.0mm
- .3 Polyisocyanurate Insulation and Asphalt Recover Board:
  - .1 Polyisocyanurate Insulation:
    - .1 To CAN/ULC-S704, glass reinforced felt facers, square edged and containing no CFC.
    - .2 Insulation value thickness per cm based on values listed in the latest edition of NRC - Evaluation Listings.
    - .3 Provide two layers of insulation installed with staggered joints.

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- .2 Asphalt Recover Board: Semi-rigid asphalt roofing substrate composed of mineral core between glass fibre mats, 1200 x 1500mm sheets, minimum thickness 6.0mm
- .4 Total assembly RSI value:
  - .1 Minimum average RSI value of assembly insulation components to be 7.24. Insulation assembly components to consist of thermal barrier, insulation and cover board.

### **2.3 BASE SHEET**

- .1 Base Sheet: Base sheet: to CGSB-37.56-M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, non woven, polyester reinforcement, weighing 180 g/m<sup>2</sup>.
  - .1 Type 2, fully adhered.
  - .2 Class P-plain surfaced.
  - .3 Grade 2.
  - .4 Top and bottom surfaces:
    - .1 Polyethylene/polyethylene.
  - .5 Base sheet membrane properties:
    - .1 Strain energy (longitudinal/transversal): 9.0/7.0 kN/m.
    - .2 Breaking strength (longitudinal/transversal): 17.0/12.5 N/5 cm.
    - .3 Ultimate elongation (longitudinal/transversal): 60/65 %.
    - .4 Tear resistance: 60 N.
    - .5 Cold bending at -30 degrees C: no cracking.
    - .6 Static puncture resistance: > 400.
    - .7 Dimensional Stability: -0.3 / 0.3 %.

### **2.4 CAP SHEET**

- .1 Cap sheet: to CGSB-37.56-M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass, polyester reinforcement, weighing 250 g/m<sup>2</sup>.
  - .1 Type 2, fully adhered.
  - .2 Class G-granule surfaced.
  - .3 Grade 2.
  - .4 Bottom surface polyethylene.
  - .5 Colour to be light grey unless otherwise indicated.
  - .6 Cap sheet membrane properties:

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- .1 Strain energy (longitudinal/transversal): 10.0/10.0 kN/m.
  - .2 Breaking strength (longitudinal/transversal): 18.0/10.0 kN/m.
  - .3 Ultimate elongation (longitudinal/transversal): 60/65 %.
  - .4 Tear resistance: 75 N.
  - .5 Cold bending at -30 degrees C: No cracking.
  - .6 Static puncture resistance: > 420.
  - .7 Dimensional Stability: -0.8 / -0.2 %.
- .2 Minimum total thickness if base sheet and cap sheet combined to be 5.8 mm. Cap sheet and base sheet to be of same manufacturer.

## **2.5 BASE SHEET FLASHING**

- .1 To CGSB-37.56-M, Type 2, Class C, Grade 2, non-woven polyester reinforced 180g/m<sup>2</sup>, self-adhesive membrane with polyethylene top face and release film under face.

## **2.6 SEALERS**

- .1 Mastic made of synthetic rubbers, plasticized with bitumen and solvents with aluminum pigments to provide greater resistance to U.V.

## **2.7 PRIMERS**

- .1 For self-adhesive membranes: A blend of elastomeric bitumen, volatile solvents and adhesive enhancing resins used to prime porous and non-porous substrates such as gypsum board, wood, concrete or metal to enhance the adhesion of self-adhesive membranes at temperatures above -10° C.
- .2 For heat welded membranes: A blend of elastomeric bitumen, volatile solvents and adhesive enhancing additives used to prime concrete or metal substrates to enhance the adhesion of torch-applied membranes.

## **2.8 FASTENERS**

- .1 Fasteners: minimum #14 mechanical fasteners made of case-hardened carbon steel with corrosion resistance coating, complying with FM standards. 75 mm diameter round or hexagon stress plates complying with CSA B35.3 and FM 4470 approval standards, diameter and lengths as required to suit total assembly thickness. Ensure fasteners have the following deck penetration:

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- .1 For concrete decks: minimum 25 mm.
  - .2 For wood decks: minimum 25 mm.
  - .3 For metal decks: minimum 19 mm and maximum 25 mm longer than assembly being secured. Fasteners to engage metal deck top flange. At gymnasium locations, fastener points of all fasteners to be removed.
- .2 Roofing adhesive: single-component, moisture cured, solvent free polyurethane adhesive, dispensed from a portable disposable pre-pressurized container.

**PART 3      EXECUTION**

**3.1      WORKMANSHIP**

- .1 Do roofing work in accordance with applicable, standard in Canadian Roofing Contractors Association (CRCA) Roofing Specifications Manual, except where specified otherwise.

**3.2      PROTECTION**

- .1 Cover walls and adjacent work where materials hoisted or used.
- .2 Use warning signs and barriers. Maintain in good order until completion of work.
- .3 Clean off drips and smears of bituminous material immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected. Refer to Section 01 10 00 - Summary for Small Projects for site drainage requirements.
- .5 Protect roof from traffic and damage.
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage.
- .7 Install insulation promptly to avoid possibility of condensation beneath vapour retarder.
- .8 Take necessary measures ensuring no penetration of the elements will occur to the building after commencement of work, including but not limited to water.

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- .9 Only remove quantities of existing roofing material and install quantities of new roofing materials per day that can be covered with waterproofing membranes.
- .10 Protect the exposed surfaces of finished work to avoid damage during roof installation and material transportation. Install walkways made of rigid boards over installed roofing materials to enable passage of people and transport of products. Assume full responsibility for any damage.

### **3.3 EXAMINATION ROOF DECKS**

- .1 Examine roof decks and immediately inform of Owner in writing of defects.
- .2 Prior to commencement of work ensure:
  - .1 Decks are firm, straight, smooth, dry, and free of snow, ice or frost, and swept clean of dust and debris.
  - .2 Curbs have been built. Coordinate height of roof curbs with Section 06 10 53 – Miscellaneous Rough Carpentry.
  - .3 Roof drains have been installed at proper elevations relative to finished roof surface.
  - .4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated.
- .3 Do not install roofing materials during rain or snowfall.

### **3.4 EXPOSED MEMBRANE ROOFING APPLICATION (METAL ROOF DECK)**

- .1 Thermal Barrier and Air/Vapour Barrier:

#### **Option 1**

- .1 Place thermal barrier with long axis of each sheet transverse to steel deck ribs, with end joints staggered and fully supported on ribs.
- .2 Secure thermal barrier to metal deck using one (1) fastener per board, located at the centre of the board, fasteners to be FMRC approved. **OR**, apply beads of roofing adhesive to metal deck in accordance with manufacturer's written instructions. Adhere thermal barrier in adhesive and walk-in thermal barrier to insure maximum contact with adhesive.
- .3 Fit butt edge joints in firm contact with one another.

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- .4 Prime all surfaces of thermal barrier to receive self-adhering modified bituminous sheet air/vapour barrier as per manufacturer's instructions.
- .5 Apply self-adhering modified bituminous sheet air/vapour barrier to thermal barrier in an overlapping shingle fashion. Stagger all vertical joints.
- .6 Align modified bituminous sheet air/vapour barrier, remove protective film and press firmly into place. Ensure minimum 50 mm overlap at all ends and side laps. Roll membrane, including seams, with counter top roller to ensure full contact.

**Option 2**

- .1 Fasten laminated thermal barrier and air/vapour barrier in accordance with manufacturers illustrated specifications manual. **OR**, apply beads of roofing adhesive to metal deck in accordance with manufacturer's written instructions. Adhere thermal barrier in adhesive and walk-in thermal barrier to insure maximum contact with adhesive.
  - .2 Install boards by butting edges snugly and without warping, as level to each other as possible, and perfectly adhered to the substrate.
  - .3 Because of the nature of the system, air/vapour barrier membrane joints can be aligned (no staggering) to facilitate the installation of the reinforcing band.
  - .4 To avoid infiltrations, adhere the first 75 mm of the self-adhesive side laps using a roller, then heat-weld the last 25 mm.
  - .5 Seal the end joints by welding a 300 mm wide protection band centered on the joint.
- .2 Insulation
- .1 Loosely lay layer of insulation over thermal barrier and air/vapour barrier. **OR** apply beads of roofing adhesive to air/vapour barrier in accordance with manufacturer's written instructions. Adhere insulation in adhesive and walk-in insulation boards to insure maximum contact with adhesive.
  - .2 Place boards in parallel rows with ends staggered, and in firm contact with one another.
  - .3 Cut end boards to suit.
  - .4 Install tapered insulation in accordance with shop drawings.
  - .5 OR

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- .3 Cover Board Components (Polyisocyanurate (Polyiso)):
  - .1 Cover Polyiso insulation with one layer of asphalt recover board.
  - .2 Place boards in parallel rows with ends staggered and in firm contact with one another.
  - .3 Cut end boards to suit.
  - .4 Mechanically fasten asphalt recover board with plates and fasteners. **OR**, apply beads of roofing adhesive to insulation in accordance with manufacturer's written instructions. Adhere asphalt recover board in adhesive and walk-in asphalt recover boards to insure maximum contact with adhesive.
  - .5 Fit boards tight together. Install fasteners/adhesive based on design wind uplift securement requirements, for the building site location, for insulation and cover board, in accordance with manufacturer's recommendations.
- .4 Base Sheet Application:
  - .1 Starting at low point of roof, perpendicular to slope, unroll base sheet, align and reroll from both ends.
  - .2 Unroll and torch base sheet onto recover board taking care not to burn membrane or its reinforcement.
  - .3 Lap sheets 75 mm minimum for side and 150 mm minimum for end laps.
  - .4 Application to be free of blisters, wrinkles and fishmouths.
- .5 Cap Sheet Application:
  - .1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.
  - .2 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.
  - .3 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm minimum from those in base sheet.
  - .4 Application to be free of blisters, fishmouths and wrinkles.
  - .5 Do membrane application in accordance with manufacturer's recommendations.
- .6 Flashings:

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- .1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.
- .2 Torch, base and cap sheet onto substrate in 1 metre wide strips.
- .3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by torch welding.
- .4 Lap flashing cap sheet to membrane cap sheet 250 mm minimum and torch weld.
- .5 Provide 75 mm minimum side lap and seal.
- .6 Properly secure flashings to their support, without sags, blisters, fishmouths or wrinkles.
- .7 Do work in accordance with manufacturer's recommendations.

**3.5 CLEANING**

- .1 Perform in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Check drains to ensure cleanliness and proper function, and remove debris, equipment and excess material from site.

**END OF SECTION**



**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects
- .2      Section 06 10 53 – Miscellaneous Rough Carpentry.
- .3      Section 07 52 00 – Modified Bituminous Membrane Roofing.
- .4      Section 07 92 00 – Joint Sealants.

**1.2            REFERENCES**

- .1      The Aluminum Association Inc. (AA)
  - .1      AA Aluminum Design Manual, Part VIII Guidelines for Aluminum Sheet Metal Work in Building Construction.
  - .2      AA DAF45, Designation System for Aluminum Finishes.
- .2      American Society for Testing and Materials (ASTM International)
  - .1      ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2      ASTM A755/A755M, Standard Specification for Steel Sheet, Metallic coated by the Hot-Dip Process and Pre-painted by the Coil-Coating Process for Exterior Exposed Building Products.
  - .3      ASTM A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
  - .4      ASTM D523, Standard Test Method for Specular Gloss.
- .3      Canadian Roofing Contractors Association (CRCA)
  - .1      Roofing Specifications Manual.
- .4      Canadian Standards Association (CSA International)
  - .1      CSA A123.3, Asphalt Saturated Organic Roofing Felt.
  - .2      CSA B111, Wire Nails, Spikes and Staples.
- .5      Canadian Sheet Steel Building Institute (CSSBI)
  - .1      CSSBI S8, Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.

- .2 CSSBI B17, Barrier Series Prefinished Steel Sheet: Product Performance & Applications.
- .3 CSSBI Sheet Steel Facts #12, Fastener Guide for Sheet Steel Building Products.

### **1.3 ACTION AND INFORMATION SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature including product specifications and technical data sheets for sheet metal flashing fasteners and accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit shop drawings for all sheet metal fabrications.
  - .2 Indicate sheet thickness, flashing dimensions and fastenings. Include anchorage, expansion joints and other provisions for thermal movement.
  - .3 Submit manufacturer's catalogue cut sheets for manufactured items.
- .4 Samples:
  - .1 Submit 50 x 50 mm samples of each type of sheet metal material, finishes and colour.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.

## **PART 2 PRODUCTS**

### **2.1 SHEET METAL MATERIALS**

- .1 Provide sheet metal in base metal thickness specified. Where no thickness specified, provide base sheet metal in thickness recommended in SMACNA Architectural Sheet Metal Manual for type of

item being fabricated, but not less than the thickness required by the authority having jurisdiction.

- .2 Aluminum-zinc alloy coated steel sheet: to ASTM A792/A792M, commercial quality, grade 33 with AZ150 coating, regular spangle surface, 0.60 mm base metal thickness. Pre-painted to CGSB –GP-71.

## **2.2 PREFINISHED STEEL SHEET**

- .1 Prefinished steel with factory applied two-coat polyvinylidene fluoride resin on specified steel sheet substrate conforming to ASTM A755.
  - .1 Class F1S
  - .2 Colour as selected by Owner from manufacturer's standard range.
  - .3 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
  - .4 Exposed coating thickness: dry film coating system thickness not less than 22 micrometres.
  - .5 Resistance to accelerated weathering for caulk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
    - .1 Outdoor exposure period 2500 hours.
    - .2 Humidity resistance exposure period 5000 hours.

## **2.3 ACCESSORIES**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3.
- .3 Sealants: Section 07 92 00 – Joint Sealants.
- .4 Cleats: Minimum 18 ga , sheet metal, minimum 100 mm wide.
- .5 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.
- .6 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .7 Touch-up paint: as recommended by prefinished material manufacturer.

**2.4 FABRICATION**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details as indicated.
- .2 Fabricate aluminum flashings and other sheet aluminum work in accordance with Aluminum Association Aluminum Sheet Metal Work in Building Construction.
- .3 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .4 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.
- .5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .6 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

**2.5 METAL FLASHINGS**

- .1 Form flashings, copings and fascias to profiles indicated of 0.60 mm thick prefinished steel.

**PART 3 EXECUTION**

**3.1 INSTALLATION**

- .1 Install sheet metal work in accordance with CRCA FL series details and as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.
- .4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips, as detailed.
- .5 Lock end joints and caulk with sealant.
- .6 Where flashing installed with mechanical fasteners, install fasteners in slots or oversize holes to allow expansion and contraction of flashings.

- .7 Provide isolation coating or impervious self-adhesive membrane to separate aluminum items from concrete and masonry.

**3.2 CLEANING**

- .1 Proceed in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            SECTION INCLUDES**

- .1            Materials, preparation and application for caulking and sealants.
- .2            Text to complete other various Sections containing sealant or caulking specifications, including Section 07 52 00 - Modified Bituminous Membrane Roofing.

**1.2            RELATED SECTIONS**

- .1            Section 01 10 00 - Summary for Small Projects.
- .2            Section 01 43 39 – Mock Up Requirements.

**1.3            REFERENCES**

- .1            American Society for Testing and Materials International, (ASTM)
  - .1            ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.
- .2            Canadian General Standards Board (CGSB)
  - .1            CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
  - .2            CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .3            CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
  - .4            CAN/CGSB-19.17, One-Component Acrylic Emulsion Base Sealing Compound.
  - .5            CAN/CGSB-19.24, Multi-component, Chemical Curing Sealing Compound.
- .3            Department of Justice Canada (Jus)
  - .1            Canadian Environmental Protection Act (CEPA).
- .4            Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1            Safety Data Sheets (SDS).

- .5 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act (TDGA).

#### **1.4 SUBMITTALS**

- .1 Manufacturer's product to describe.
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
  - .4 Installation instructions, surface preparation and product limitations.
- .2 Submit duplicate samples of each type of material and colour.
- .3 Cured samples of exposed sealants for each color where required to match adjacent material.
- .4 Manufacturers' instructions to include installation instructions for each product used.

#### **1.5 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications: company engaged in the manufacturing of products specified in this section with a minimum of ten (10) years documented experience.
- .2 Applicator Qualifications: Experienced installer equipped and trained for application of joint sealant required for this project with record of successful completion of projects of similar scope.
  - .1 Applicator to be approved by sealant manufacturer.
  - .2 Applicator to submit documentation of a minimum three (3) successfully completed projects of similar size, scope and complexity.

#### **1.6 MOCK-UP**

- .1 Construct mock-up in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant. Mock-up may be part of finished work.
- .3 Mock-up will be used:

- .1 To judge workmanship, substrate preparation, operation of equipment and material application.

## **1.7 FIELD ADHESION/COHESION TESTS**

- .1 Test Frequency:
  - .1 Perform a field test each type of sealant and substrate combination, for all interior and exterior sealants associated with the building envelope.
  - .2 Perform three (3) additional tests for each failed test.
- .2 Locate test joints as directed by Owner. Tests to be performed in the presence of the Owner and/or manufacturer's representative.
- .3 Notify Owner seven (7) days prior to dates tests are to be performed.
- .4 Test joint sealants by hand-pull methods #1 and # 2. Record test results in Field Adhesion/Cohesion Test Form.
  - .1 Test Method #1:
    - .1 Make a knife cut horizontally from one side of the joint to the other.
    - .2 Make two (2) vertical cuts (from the horizontal cut) approximately 75 mm long on each side of the joint.
    - .3 Pry out flap created from cuts.
    - .4 Firmly grasp flap and slowly pull at 90° from sealant plane.
    - .5 Pull flap until adhesive or cohesive failure occurs.
      - .1 Adhesive failure will be evidenced by the sealant pulling off clean from the substrate.
      - .2 Cohesion failure will be evidenced by the sealant ripping or failing within itself, leaving well-adhered sealant to the substrate.

**(Cohesive failure is considered a positive result).**
  - .2 Test Method # 2:
    - .1 Follow steps one (1) through four (4) of Test Method # 1.
    - .2 Mark a benchmark on the sealant 25 mm (1") from the plane of the installed sealant.
    - .3 Firmly grasp the flap and pull slowly, while holding a ruler parallel to the sealant flap. Note the position of the benchmark on the ruler.
    - .4 Refer to manufacturer's printed literature for each sealant tested for the required extension factor pass criteria; (i.e.: if



the 25 mm (1") benchmark on the sealant can be pulled to 100 mm (4") and held with no failure of sealant, 400% elongation is achieved.)

- .5 **If no failure occurs prior to the manufacturer's stated extension factor, the test is successful.** Extension factor should be three (3) times the movement capability of the sealant.

- .5 Inspect joints for:
  - .1 Complete fill,
  - .2 Absence of voids,
  - .3 Primer,
  - .4 Proper width/depth ratio, and
  - .5 Back up material.
- .6 Repair sealants pulled in test area by applying new sealants following same procedures used to original seal joints.
- .7 Contractor shall repair test areas at no additional cost to the Owner.

## **1.8 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with Section 01 10 00 - Summary for Small Projects .
- .2 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.
- .3 Condition products to approximately 16 to 20 degrees C for use in accordance with manufacturer's recommendations.
- .4 Handle all products with appropriate precautions and care as stated on the Material Safety Data Sheet.

## **1.9 PROJECT CONDITIONS**

- .1 Environmental Limitations:
  - .1 Do not proceed with installation of joint sealants under following conditions:
    - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4°C.

- .2 When joint substrates are wet.
  - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .2 Joint-Width Conditions:
- .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
- .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

## **PART 2      PRODUCTS**

### **2.1      SEALANT MATERIALS**

- .1 Sealants and Caulking compounds must:
  - .1 Meet or exceed all applicable governmental and industrial safety and performance standards; and
  - .2 Be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).
- .2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, barium or their compounds, except barium sulphate.
- .3 Sealant and caulking compounds must not contain a total of volatile organic compound (VOC's) in excess of 100 grams per litre as calculated from records of the amounts of constituents used to make the product.
- .4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

- .5 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .6 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.
- .7 Where sealants are qualified with primers use only these primers.
- .8 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

## **2.2 SEALANT MATERIAL DESIGNATIONS**

- .1 Single component, low odor, moisture cure, medium modulus, low VOC sealant for use in sealing air/vapour barrier penetrations, to ASTM C920, Type S, Grade NS, Class 35.
  - .1 ASTM C719:  $\pm 35\%$ .
  - .2 Ultimate Elongation: 450 - 550%.
  - .3 Modulus, 100%: 275 - 345 kPa.
  - .4 Shore A Hardness:  $25 \pm 5$ .
  - .5 Tensile Strength: 1034 – 1378 kPa.
  - .6 Maximum VOC: 5 g/L.
- .2 Single component, medium modulus, high-performance, neutral-cure silicone sealant for general purpose exterior use, to ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A and O.
  - .1 ASTM C719:  $\pm 25\%$ .
  - .2 Ultimate Elongation: 550%.
  - .3 Modulus, 50% extension: 380 kPa.
  - .4 Shore A Hardness:  $25 \pm 5$ .
  - .5 Tensile Strength: 1240 kPa.
  - .6 Maximum VOC: 35 g/L.
  - .7 Colour to be selected from manufacturer's standard range.
- .3 Single component, low modulus, neutral-cure silicone sealant for general purpose masonry use, to ASTM C920, Type S, Grade NS, Class 50, Use T, NT, M, G, A and O.
  - .1 ASTM C719:  $\pm 50\%$ .

- .2 Ultimate Elongation: 1600%.
  - .3 Modulus, 50% extension: 193 kPa.
  - .4 Shore A Hardness: 15.
  - .5 Tensile Strength: 690 kPa.
  - .6 Maximum VOC: 22 g/L.
  - .7 Colour to be selected from manufacturer's standard range.
- .4 Two-component, high modulus, neutral-cure flexible silicone rubber sealant for use with aluminum window and curtain wall fabrication, assembly and glazing installation, to ASTM C1184 and ASTM C920, Type M, Grade NS, Class 12 ½, Use NT.
- .1 ASTM C719: ± 25%.
  - .2 Ultimate Elongation: 120%.
  - .3 Shore A Hardness: 30 - 40.
  - .4 Tensile Strength: 2000 kPa.
  - .5 Maximum VOC: < 18 g/L.
- .5 Single component, medium modulus, neutral-cure silicone sealant for general roofing applications, to ASTM C920, Type S, Grade NS, Class 50, Use NT, G, A and O.
- .1 ASTM C719: ± 50%.
  - .2 Shore A Hardness: 35.
  - .3 Tensile Strength: 415 kPa.
  - .4 Maximum VOC: 28 g/L.
  - .5 Colour to be selected from manufacturer's standard range.
- .6 Single component, chemical cure, silicone rubber sealant, for use with plumbing fixtures, showers, sinks, tubs, and junction of counter tops and adjacent wall finishes, to ASTM C920, Type S, Grade NS, Class 25, Use NT.
- .1 Shore A Hardness: 25.
  - .2 Tensile Strength: 2100 kPa.
  - .3 Maximum VOC: 36 g/L.
  - .4 Colour to be selected from manufacturer's standard range.
- .7 Single component, high-performance, elastomeric polyurethane sealant, paintable, for general purpose interior use, to ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A, T, O and I.
- .1 ASTM C719: 35%.
  - .2 Ultimate Elongation: 800%.

- .3 Shore A Hardness: 25 - 30.
- .4 Tensile Strength: 2400 kPa.
- .5 Maximum VOC: 35 g/L.
- .6 Colour to be selected from manufacturer's standard range.
- .8 Single component, non-skinning, non-hardening, synthetic rubber sealant for use in acoustical applications, to CAN/CGSB 19.21.
  - .1 Shrinkage: maximum 20%.
  - .2 Maximum VOC: 53 g/L.
  - .3 Sag: Maximum 4.0 mm.
- .9 Two-component, non-sag, tamper resistant, elastomeric polyurethane sealant, for use in interior joints, penetrations, doors, windows, perimeters of fixtures, where a flexible security sealant is required due to idle tampering or vandalism, to ASTM C920, type M, Grade NS, Class 12.5, Use T<sub>1</sub>, M and O.
  - .1 Ultimate Elongation: 175 - 200%.
  - .2 Shore A Hardness: 40 - 45.
  - .3 Tensile Strength: 2000 to 2400 kPa.
  - .4 Maximum VOC: Activator - < 25 g/L, Base - < 100 g/L.
  - .5 Colour to be selected from manufacturer's standard range.

### **2.3 ACCESSORIES**

- .1 Primer: Type as recommended by sealant manufacturer. Primer to be 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 Preformed Compressible and Non-Compressible back-up materials.
  - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
    - .1 Extruded closed cell foam backer rod.
    - .2 Size: oversize 30 to 50 %.
  - .2 Neoprene or Butyl Rubber.
    - .1 Round solid rod, Shore A hardness 70.
  - .3 High Density Foam.
    - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup>

density, or neoprene foam backer, size as recommended by manufacturer.

- .4 Bond Breaker Tape.
  - .1 Polyethylene bond breaker tape which will not bond to sealant.

### **PART 3      EXECUTION**

#### **3.1            PROTECTION**

- .1 Protect installed Work of other trades from staining or contamination.

#### **3.2            SURFACE PREPARATION**

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

#### **3.3            PRIMING**

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

#### **3.4            BACKUP MATERIAL**

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

**3.5 MIXING**

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

**3.6 APPLICATION**

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

**3.7 CLEANING**

- .1 Clean adjacent surfaces immediately and leave Work neat and clean.
- .2 Remove excess and droppings, using recommended cleaners as work progresses.
- .3 Remove masking tape after initial set of sealant.

**END OF SECTION**



**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 05 12 23 – Structural Steel for Buildings.
- .4      Section 06 10 53 – Miscellaneous Rough Carpentry.
- .5      Section 07 21 13 – Board Insulation.
- .6      Section 07 26 00 – Vapour Retarders.
- .7      Section 07 27 00.01 – Air Barriers–Descriptive or Proprietary.
- .8      Section 07 52 00 – Modified Bituminous Membrane Roofing
- .9      Section 07 62 00 – Sheet Metal Flashing and Trim.
- .10     Section 07 92 00 – Joint Sealants.
- .11     Section 08 80 00 – Glazing.

**1.2            REFERENCES**

- .1      Aluminum Association Designation System for Aluminum Finishes (AA).
  - .1      DAF 45, Designation System for Aluminum Finishes.
- .2      American Architectural Manufacturers Association (AAMA).
  - .1      AAMA 501, Methods of Test for Exterior Walls
  - .2      AAMA 502, Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
  - .3      AAMA 503, Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems.
- .3      American Society for Testing and Materials (ASTM)
  - .1      ASTM B209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - .2      ASTM B221, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.

- .3 ASTM E330, Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
- .4 Canadian General Standards Board (CGSB)
  - .1 CGSB 1-GP-40M Primer, Structural Steel, Oil Alkyd Type.
- .5 Canadian Standards Association (CSA)
  - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
  - .2 CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CAN/CGSB-12.1, Tempered or Laminated Safety Glass.

### **1.3 SYSTEM DESCRIPTION**

- .1 Sloped glazing system includes thermally broken tubular aluminum sections with supplementary support, framing, shop fabricated, factory prefinished, vision glass, insulated metal panel, spandrel infill; related flashings, anchorage and attachment devices.
- .2 Assembled system to permit re-glazing of individual glass (and infill panel) units without requiring removal of structural mullion sections.

### **1.4 PERFORMANCE REQUIREMENTS**

- .1 Design and size components to withstand dead and live loads caused by pressure and suction of wind, snow, and hail for sloped glazing, acting normal to plane of system as calculated in accordance with NBC.
- .2 Limit deflection of mullions to maximum 1/175th of clear span when tested to ASTM E330 under wind loads for building capacity as ascertained by NBC supplement No. 1 Climatic Information for Building Design in Canada, with full recovery of glazing materials.
- .3 Provide system to accommodate, without damage to components or deterioration of seals:
  - .1 Movement within system.
  - .2 Movement between system and perimeter framing components.
  - .3 Dynamic loading and release of loads.
  - .4 Deflection of structural support framing.
  - .5 Shortening of building concrete structural columns.
  - .6 Creep of concrete structural members.
- .4 Thermal resistance of system (excluding vision areas): RSI as indicated.

- .5 Air infiltration through assembly shall not exceed  $0.5 \text{ L/s}\cdot\text{m}^2$ , measured at a reference differential pressure across assembly of 75 Pa as per AAMA 501.
- .6 Vapour seal with interior atmospheric pressure of 25 mm sp, 22° C, 40% RH: No failure.
- .7 Water leakage: none, when measured in accordance with AAMA 503.
- .8 System to provide for expansion and contraction within system components caused by a cycling temperature range of 95°C over a 12 hour period without causing detrimental affect to system components.
- .9 Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.
- .10 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.
- .11 Submit certificate of tests performed.
- .12 Classification Ratings:
  - .1 St. John's
    - .1 Design Pressure: 2640 Pa.
    - .2 Water Penetration Resistance Pressure: 620 Pa.
    - .3 Canadian Air Infiltration/Exfiltration: A3 Level
    - .4 Condensation Resistance: I54

## **1.5 SUBMITTALS**

- .1 Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.
- .2 Frame sample to show glazing stop, door stop, jointing detail, finish and wall trim.
- .3 Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details.
- .4 Indicate each type of curtain wall extrusion profiles, method of assembly, section and hardware reinforcement, locations of exposed fasteners, finishes and location of manufacturer's nameplates.

- .5 Submit catalogue details for type of curtain wall illustrating profiles, dimensions and methods of assembly.
- .6 Each drawing submitted shall bear the proof professional stamp and signature of a qualified Professional Engineer registered in the province of Newfoundland and Labrador.
- .7 Provide framing member structural and physical characteristics, dimensional limitations, special installation requirements.

**1.6 MAINTENANCE DATA**

- .1 Provide maintenance data for cleaning and maintenance of aluminium finishes for incorporation into manual specified in Section 01 10 00 - Summary for Small Projects .

**1.7 MOCK-UP**

- .1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Provide mock-up including intermediate mullion, vision glass light, and insulated infill panel. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.
- .3 Locate where directed.
- .4 Construct mock-up of one (1) of each curtain wall system type in its final location for review by the Owner before proceeding with the remainder of the Work.

**1.8 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store, handle and protect materials in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Apply temporary protective coating to finished surfaces. Remove coating after erection. Do not use coatings that will become hard to remove or leave residue.
- .3 Leave protective covering in place until final cleaning of building.

**1.9 WARRANTY**

- .1 Provide a written guarantee in the name of the owner stating that the curtain wall system; including but not limited to frames, glazing, panels, flashings, etc., is guaranteed against material and workmanship for a period for ten (10) years from the date of Substantial Completion.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Aluminum Extrusions: to ASTM B221, thermosetting quality.
- .2 Sheet Aluminum: to ASTM B209, thermosetting quality.
- .3 Steel Reinforcement: to CSA-G40.20/G40.21M, grade 300 W.
- .4 Fasteners: cadmium plated steel finished to match adjacent material.

**2.2 ALUMINUM CURTAIN WALL**

- .1 Construct thermally broken frames of aluminum extrusions with minimum wall thickness of 3.0 mm. Reinforce as required to meet the requirements of NBCC for location of building.
- .2 Curtain Wall sizes:
  - .1 Window mullions: 50.8 mm x 401.6 mm deep.
  - .2 Exterior cap: 50.8 mm x 19.1mm.
  - .3 Overall: 153.9 mm.
- .3 Kawneer 1600 sloped glazing system, or pre-approved alternate.
- .4 Glazing: Refer to Section 08 80 00 – Glazing.

**2.3 ALUMINUM FINISHES**

- .1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.
  - .1 Factory applied thermosetting fluoropolymer coating to AAMA 6205 specification for Curtain Wall and Spandrel Face Panels.
  - .2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

- .3 Colour for Curtain Wall: as selected from manufacturer's standard color range. Colour to closely match existing adjacent.

**2.4 STEEL FINISHES**

- .1 Finish steel clips and reinforcing steel with steel primer to CGSB 1-GP-40M.

**2.5 AIR VAPOUR BARRIER**

- .1 Self-adhering sheet membrane: as specified in Section 07 27 00.01 – Air Barriers—Descriptive or Proprietary.

**2.6 FABRICATION**

- .1 Provide structural steel reinforcement as required.
- .2 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- .3 Fit joints tightly and secure mechanically. Make joints flush, hairline, and weatherproof.
- .4 Prepare components to receive anchor devices. Install anchors.
- .5 Arrange fasteners and attachments to ensure concealment from view.
- .6 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.
- .7 Visible manufacturer's identification labels not permitted.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Verify dimensions, tolerances, and method of attachment with other work.
- .2 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this section.

**3.2 INSTALLATION**

- .1 Install curtain wall system in accordance with manufacturer's instructions.

- .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. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.
- .4 Set frames plumb, square, level at correct elevation in alignment with adjacent work.
- .5 Provide thermal isolation where components penetrate or disrupt building insulation.
- .6 Anchor securely.
- .7 Install sill flashings.
- .8 Adjust operable parts for correct function.
- .9 Co-ordinate attachment and seal of perimeter air barrier and vapour retarder materials.
- .10 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .11 Make allowances for deflection of structure to ensure that structural loads are not transmitted to frames.

### **3.3 GLAZING**

- .1 Glaze curtain wall in accordance with Section 08 80 00 - Glazing.

### **3.4 CAULKING**

- .1 Seal joints to provide weathertight seal at outside and air vapour seal at inside.
- .2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within the aluminum work except where exposed use is permitted by Owner.

### **3.5 CLEANING**

- .1 Remove protective material from prefinished 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 moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

### **3.6 TESTING**

- .1 Provide water penetration resistance test and air leakage resistance test to AAMA 503.
- .2 Water penetration and air leakage testing, as directed by Owner and paid for by Contractor, will be performed by professional testing agency for three locations selected at random for curtain wall/wall assembly.
- .3 Construct a temporary test chamber sealed to the exterior side of the curtain wall assembly before the installation of gypsum wall board, insulation or other finish materials, in such a manner as to apply a pressure differential to all joinery conditions with the wall. Test chamber to be minimum 9.3 m<sup>2</sup>. Air is to be supplied to the test chamber at the rate necessary to establish and maintain the desired air pressure differential across the window/wall assembly.
- .4 Water penetration resistance test:
  - .1 Apply maximum pressure equal to two-thirds of the prescribed water penetration resistance pressure for the location identified, but not less than 200 Pa.
  - .2 Through a calibrated spray rack, apply water to the outside surface, with all operable portions closed and locked. Observe for any water penetration on the interior.
  - .3 **No penetration of uncontrolled water beyond the plane of the curtain walls innermost edges is considered a pass.**
  - .4 Contractor to provide:
    - .1 Minimum 19 mm diameter hose for water supply, of adequate length to reach testing location.
    - .2 Access to 120V, 15A power, complete with adequate length grounded power cord.
  - .5 Maintain testing environment above 10° C. If outside temperatures are not consistently above 5° C, Contractor to supply and install hoarding (minimum clearance of 610 mm around the entire test chamber). Enclosed area and curtain wall framing to be kept dry for testing setup prior to water penetration test.



- .5 Air leaking resistance test:
  - .1 Apply a minimum uniform static test pressure of 75 Pa to the test chamber.
  - .2 The acceptable air infiltration rate is limited to 0.5 L/s•m<sup>2</sup>.
  - .3 Air leakage resistance testing to be conducted before water penetration resistance test is performed.
- .6 Testing will be witnessed by Owner and test reports will be signed by Tester, Site Representative and Contractor.
- .7 Inform Owner two (2) working days prior to required testing.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 07 92 00 – Joint Sealants.
- .4      Section 08 44 13 – Glazed Aluminum Curtain Walls

**1.2            REFERENCES**

- .1      American National Standards Institute (ANSI).
  - .1      ANSI/ASTM E330, Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .2      American Society for Testing and Materials (ASTM)
  - .1      ASTM C542, Specification for Lock-Strip Gaskets.
  - .2      ASTM D2240, Test Method for Rubber Property – Durometer Hardness.
- .3      Canadian General Standards Board (CGSB).
  - .1      CAN/CGSB-12.1, Tempered or Laminated Safety Glass.
  - .2      CAN/CGSB-12.3, Clear Float Glass
  - .3      CAN/CGSB-12.8, Insulating Glass Units.
- .4      Canadian Standards Association (CSA).
  - .1      CSA A440.2, Energy Performance Evaluation of Windows and Sliding Glass Doors.
  - .2      CSA Certification Program for Windows and Doors.
- .5      Glass Association of North American (GANA)
  - .1      GANA Glazing Manual.
  - .2      GANA Laminated Glazing Reference Manual.

**1.3            SYSTEM DESCRIPTION**

- .1      Performance Requirements:

- .1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
  - .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
  - .2 Size glass to withstand wind loads, dead loads and positive and negative live loads as measured in accordance with ANSI/ASTM E330 and NBC latest edition.
  - .3 Limit glass deflection to 1/200 with full recovery of glazing materials.

#### **1.4 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet.
- .2 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.
- .3 Closeout Submittals:
  - .1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 10 00 - Summary for Small Projects.

#### **1.5 QUALITY ASSURANCE**

- .1 Perform work in accordance with GANA Glazing Manual and Laminated Glazing Reference Manual for glazing installation methods. Provide shop inspection and testing for glass.
- .2 Provide certificate of quality compliance from manufacturer.

#### **1.6 MOCK-UPS**

- .1 Construct mock-ups in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Construct mock-up to including glass glazing, and perimeter air barrier and vapour retarder seal.
- .3 Construct mock-up where directed.

**1.7 WARRANTY**

- .1 Provide ten (10) year warranty for glazing units from the date of Substantial Completion.

**1.8 ENVIRONMENTAL REQUIREMENTS**

- .1 Install glazing when ambient temperature is 10°C minimum. Maintain ventilated environment for 24 hours after application.
- .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

**PART 2 PRODUCTS**

**2.1 MATERIALS: FLAT GLASS**

- .1 Float glass: to CAN/CGSB-12.3, Glazing quality, 5 mm minimum thickness.
- .2 Safety glass: to CAN/CGSB-12.5, transparent, 6 mm thick.
  - .1 Type 1, Laminated, Type 2 - tempered
  - .2 Class B - float
  - .3 Category 11
- .3 Vitroglass Solarban 70 insulated glass units – Tint Colour Azuria, or pre-approved alternate.

**2.2 MATERIALS: SEALED INSULATING GLASS**

- .1 Insulating glass units: to CAN/CGSB-12.8, double unit, minimum \_\_\_\_\_ mm overall thickness (as per NBCC for window area and climatic conditions.)
  - .1 Glass: to CAN/CGSB-12.3
  - .2 Glass thickness: minimum \_\_\_\_\_ mm each light (as per NBCC calculations for window area and climatic conditions.)
  - .3 Inter-cavity space thickness: 13 mm.
  - .4 Glass coating: surface number 2 (inside surface of outer light), low “E”.
  - .5 Inert gas: argon.
  - .6 Light transmittance: minimum 0.70.

**2.3 MATERIALS**

- .1 Sealant: 07 92 00 – Joint Sealants.

**2.4 ACCESSORIES**

- .1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.
- .2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .3 Glazing tape:
  - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; black colour.
- .4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, colour as selected.
- .5 Glazing clips: manufacturer's standard type.
- .6 Lock-strip gaskets: to ASTM C542.

**PART 3 EXECUTION**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

**3.2 EXAMINATION**

- .1 Verify that openings for glazing are correctly sized and within tolerance.
- .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

**3.3 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.

**3.4 INSTALLATION: EXTERIOR – WET/DRY METHOD (PREFORMED TAPE AND SEALANT)**

- .1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.
- .2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.
- .3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.
- .4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .5 Rest glazing on setting blocks and push against tape and heel of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.
- .6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line.
- .7 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.
- .8 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

**3.5 INSTALLATION: INTERIOR DRY METHOD (TAPE AND TAPE)**

- .1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.
- .2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.
- .3 Place setting blocks at 1/4 with edge block maximum 150 mm from corners.

- .4 Rest glazing on setting blocks and push against tape with sufficient pressure to attain full contact at perimeter of light or glass unit.
- .5 Place glazing tape on free perimeter of glazing in same manner described in 3.4.3. Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.
- .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- .7 Knife trim protruding tape.

### **3.6 CLEANING**

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking.
- .3 Remove glazing materials from finish surfaces.
- .4 Remove labels after work is complete.
- .5 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacture's instructions.
- .6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

### **3.7 PROTECTION OF FINISHED WORK**

- .1 After installation, mark light with an "X" by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.
- .2 Repair damage to adjacent materials caused by glazing installation.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects.
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 06 10 53 – Miscellaneous Rough Carpentry.
- .4      Section 07 21 16 - Blanket Insulation.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials, (ASTM)
  - .1      ASTM C475, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
  - .2      ASTM C514, Specification for Nails for the Application of Gypsum Board.
  - .3      ASTM C840, Specification for Application and Finishing of Gypsum Board.
  - .4      ASTM C954, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
  - .5      ASTM C1002, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
  - .6      ASTM C1047, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
  - .7      ASTM C1280, Standard Specification for Application of Gypsum Sheathing.
  - .8      ASTM C1177/C1177M, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
  - .9      ASTM C1178/C1178M, Standard Specification for Glass Mat Water-Resistant Gypsum Backing Board.
  - .10     ASTM C1396/C1396M, Standard Specification for Gypsum Wallboard.
  - .11     ASTM C1629, Standard Classification for Abuse Resistant Nondecorated Interior Gypsum Panel Products and Fibre Reinforced Cement Panels.



- .12 ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- .13 ASTM E90, Standard Test method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- .2 Association of the Wall and Ceilings Industries International (AWCI)
  - .1 AWC Levels of Gypsum Board Finish.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .4 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.

### **1.3 SUBMITTALS**

- .1 Submit 300 mm size samples of corner and casing beads insulating strip.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

### **1.5 SITE ENVIRONMENTAL REQUIREMENTS**

- .1 Maintain temperature minimum 10° C, maximum 21° C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

**1.6 QUALIFICATIONS**

- .1 Dry wall installers: minimum 5 years proven experience.

**1.7 MOCKUPS**

- .1 Submit Mock-Ups in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 Construct mock up gypsum board wall installation including one inside corner and one outside corner. Mock-up may be part of finished work.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Moisture and mold resistant gypsum board: to ATSM D3273, moisture-resistant gypsum core enclosed in 100% recycled moisture and mold resistant papers, regular and Type X, thicknesses as indicated on drawings, 1200 mm wide x maximum practical length, ends square cut, long edges tapered.
- .2 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30 galvanized.
- .3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .4 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .5 Nails: to ASTM C514.
- .6 Steel drill screws: to ASTM C1002.
- .7 Stud adhesive: to CAN/CGSB-71.25.
- .8 Laminating compound: as recommended by manufacturer, asbestos-free.
- .9 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, metal, zinc-coated by hot-dip process 0.5 mm base thickness, perforated flanges, one piece length per location.
- .10 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
- .11 Acoustic sealant: to CGSB 19-GP-21M.

- .12 Polyethylene: to CAN/CGSB-51.34, Type 2.
- .13 Insulating strip: rubberized, moisture resistant, 3.0 mm thick cork strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .14 Joint compound: to ASTM C475, asbestos-free.

## **2.2 FINISHES**

- .1 Texture finish: asbestos-free standard white texture coating and primer-sealer, recommended by gypsum board manufacturer.

## **PART 3 EXECUTION**

### **3.1 ERECTION**

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing to ASTM C1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, and other protrusions.
- .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .10 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.

- .11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

### **3.2 APPLICATION**

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single/double layer gypsum board to wood or metal furring or framing using screw fasteners. Maximum spacing of screws 300 mm oc.
  - .1 Single-Layer Application:
    - .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
    - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
  - .2 Double-Layer Application:
    - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
    - .2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
    - .3 Apply base layers at right angles to supports unless otherwise indicated.
    - .4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .3 Apply single layer gypsum board to concrete or concrete block surfaces, where indicated, using laminating adhesive.
  - .1 Comply with gypsum board manufacturer's recommendations.
  - .2 Brace or fasten gypsum board until fastening adhesive has set.
  - .3 Mechanically fasten gypsum board at top and bottom of each sheet.
- .4 Apply water-resistant gypsum board where wall tiles are to be applied and adjacent to slop sinks janitors closets. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

- .5 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
- .6 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .7 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .8 Install gypsum board with face side out.
- .9 Do not install damaged or damp boards.
- .10 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

### **3.3 INSTALLATION**

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm oc using contact adhesive for full length.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Construct control joints of two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.
- .6 Provide continuous polyethylene dust barrier behind and across control joints.
- .7 Locate control joints at changes in substrate construction.
- .8 Install control joints straight and true.

- .9 Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
- .10 Install expansion joint straight and true.
- .11 Install access doors to electrical and mechanical fixtures specified in respective sections.
  - .1 Rigidly secure frames to furring or framing systems.
- .12 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .13 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
  - .1 Levels of finish:
    - .1 Level 2: Embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable. (For use where water resistant gypsum backing board is used as a substrate for tile.)
    - .2 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .14 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .15 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .16 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .17 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

- .18 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
- .19 Mix joint compound slightly thinner than for joint taping.
- .20 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
- .21 Allow skim coat to dry completely.
- .22 Remove ridges by light sanding or wiping with damp cloth.
- .23 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 - Summary for Small Projects.
- .2      Section 07 92 00 – Joint Sealants.
- .3      Section 09 21 16 - Gypsum Board Assemblies.

**1.2            REFERENCES**

- .1      American Society for Testing and Materials International, (ASTM).
  - .1      ASTM C645, Specification for Nonstructural Steel Framing Members.
  - .2      ASTM C754, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .2      The Master Painters Institute (MPI).
  - .1      Architectural Painting Specification Manual, MPI #26, Primer, Galvanized Metal, Cementitious.

**PART 2      PRODUCTS**

**2.1            MATERIALS**

- .1      Non-load bearing channel stud framing: to ASTM C645, roll formed hot dipped galvanized steel sheet, 0.55 mm thickness for stud lengths up to 3500 mm, 0.91 mm thickness for stud lengths greater than 3500 mm, unless indicated otherwise on the drawings, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
  - .1      Stud sizes shall be as indicated on the drawings
  - .2      Bottom track: single piece.
  - .3      Top track: single piece track or double track or slotted single top track. (double track or slotted single top track to accommodate deflection).
- .2      Acoustical sealant: to Section 07 92 00 – Joint Sealants.
- .3      Insulating strip: rubberized, moisture resistant 3.0 mm thick cork foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.



- .4 Dampproof course: closed cell, polyethylene foam, 6.3 mm thick, 89 mm wide.

### **PART 3      EXECUTION**

#### **3.1      ERECTION**

- .1 Align partition tracks at floor and ceiling and secure at 600 mm o.c maximum.
- .2 Allow minimum deflection gap of 16.5 mm for double track **or** slotted single top track.
- .3 Install damp proof course under stud shoe tracks of partitions on slabs on grade.
- .4 Place studs vertically at 400 mm o.c. and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .5 Erect metal studding to tolerance of 1:1000.
- .6 Attach studs to bottom and ceiling track using screws.
- .7 Co-ordinate erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .8 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .9 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

- .12 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
- .13 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .14 Extend partitions to ceiling height except where noted otherwise on drawings.
- .15 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.
- .16 Install continuous insulating strips to isolate studs from uninsulated surfaces, where applicable.
- .17 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.

### **3.2 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**

**PART 1      GENERAL**

**1.1            RELATED SECTIONS**

- .1      Section 01 10 00 – Summary for Small Projects
- .2      Section 01 43 39 – Mock Up Requirements.
- .3      Section 09 21 16 – Gypsum Board Assemblies.

**1.2            REFERENCES**

- .1      Environmental Protection Agency (EPA)
  - .1      EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).
  - .2      SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
- .2      Master Painters Institute (MPI)
  - .1      MPI Architectural Painting Specifications Manual.
- .3      Society for Protective Coatings (SSPC)
  - .1      SSPC Painting Manual, Volume Two, Systems and Specifications Manual.
- .4      National Fire Code of Canada.

**1.3            QUALITY ASSURANCE**

- .1      Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.
- .2      Qualified journeymen shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.
- .3      Conform to latest MPI requirements for interior painting work including preparation and priming.

**1.4 ENVIRONMENTAL PERFORMANCE REQUIREMENTS**

- .1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.
- .2 Where indoor air quality (odour) is a problem, use only MPI listed materials having a minimum E2 or E3 rating.

**1.5 SCHEDULING**

- .1 Submit work schedule for various stages of painting to Owner for approval. Submit schedule minimum of two (2) working days in advance of proposed operations.
- .2 Obtain written authorization from Owner for any changes in work schedule.
- .3 Schedule painting operations to prevent disruption of occupants in and about the building.

**1.6 SUBMITTALS**

- .1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be
- .2 Submit product data for the use and application of paint thinner.
- .3 Submit WHMIS SDS - Safety Data Sheets. Indicate VOCs during application and curing.
- .4 Upon completion, submit records of products used, records to be included in Operating and Maintenance Manuals. List products in relation to finish system and include the following:
  - .1 Product name, type and use
  - .2 Manufacturer's product number
  - .3 Colour numbers
  - .4 MPI Environmentally Friendly Classification System Rating
  - .5 Manufacturer's Safety Data Sheets (SDS)
- .5 Submit full range colour sample chips to indicate where colour availability is restricted.
- .6 Submit duplicate 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to

MPI Painting Specification Manual standards submitted on the following substrate materials:

- .1 3.0 mm steel plate for finishes over metal surfaces.
- .2 13 mm birch plywood for finishes over wood surfaces.
- .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
- .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
- .7 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

## **1.7 QUALITY CONTROL**

- .1 Provide mock-up in accordance with Section 01 43 39 – Mock Up Requirements.
- .2 When requested by Owner, prepare and paint designated surface, area, room or item (in each colour scheme) to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.

## **1.8 DELIVERY, HANDLING AND STORAGE**

- .1 Deliver, store and handle materials in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Deliver and store materials in original containers, sealed, with labels intact.
- .3 Labels shall clearly indicate:
  - .1 Manufacturer's name and address.
  - .2 Type of paint or coating.
  - .3 Compliance with applicable standard.
  - .4 Colour number in accordance with established colour schedule.
- .4 Remove damaged, opened and rejected materials from site.
- .5 Provide and maintain dry, temperature controlled, secure storage.

- .6 Observe manufacturer's recommendations for storage and handling.
- .7 Store materials and supplies away from heat generating devices.
- .8 Store materials and equipment in a well ventilated area with temperature range 7° C to 30° C.
- .9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Owner. After completion of operations, return areas to clean condition to approval of Consultant.
- .11 Remove paint materials from storage only in quantities required for same day use.
- .12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .13 Fire Safety Requirements:
  - .1 Provide minimum one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
  - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
  - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

## **1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 10 00 - Summary for Small Projects.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Place materials defined as hazardous or toxic in designated containers.
- .4 Ensure emptied containers are sealed and stored safely.
- .5 Unused paint, coating materials must be disposed of at official hazardous material collections site as approved by Owner.

- .6 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal.
- .7 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
- .8 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .9 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground follow these procedures:
  - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
  - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
  - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
  - .4 Dispose of contaminants in approved legal manner in accordance with hazardous waste regulations.
  - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).

**1.10 SITE CONDITIONS**

- .1 Heating, Ventilation and Lighting:
  - .1 Ventilate enclosed spaces.
  - .2 Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10° C for 24 hours before, during and after paint application until paint has cured sufficiently.
  - .3 Where required, provide continuous ventilation for seven days after completion of application of paint.
  - .4 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:

- .1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:
    - .1 Ambient air and substrate temperatures are below 10° C.
    - .2 Substrate temperature is over 32° C unless paint is specifically formulated for application at high temperatures.
    - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
    - .4 The relative humidity is above 60% or when the dew point is less than 3° C variance between the air/surface temperature.
  - .2 Perform no painting work when the maximum moisture content of the substrate exceeds:
    - .1 12% for concrete and masonry (clay and concrete brick/block).
    - .2 15% for wood.
    - .3 12% for plaster and gypsum board.
  - .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".
  - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .3 Surface and Environmental Conditions:
- .1 Apply paint finish only in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
  - .2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
  - .3 Apply paint only when previous coat of paint is dry or adequately cured.
- .4 Additional Interior Application Requirements:
- .1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
  - .2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.



**PART 2      PRODUCTS**

**2.1            MATERIALS**

- .1      Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2      Paint materials for paint systems shall be products of a single manufacturer.
- .3      Low odor products. Whenever possible, select products exhibiting low odor characteristics. If two products are otherwise equivalent, select the product with the lowest odor. Only qualified products with E2 or E3 "Environmentally Friendly" rating are acceptable for use on this project.
- .4      Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, shall:
  - .1      be water-based, water soluble, water clean-up.
  - .2      be non-flammable.
  - .3      be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
  - .4      be manufactured without compounds which contribute to smog in the lower atmosphere.
  - .5      do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .5      Water-borne surface coatings must be manufactured and transported in a manner that steps of process, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).
- .6      Water-borne surface coatings must not be formulated or manufactured with aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .7      Water-borne surface coatings must have a flash point of 61.0°C or greater.
- .8      Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:
  - .1      Matter in undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a

natural watercourse or a sewage treatment facility lacking secondary treatment.

.2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

.9 Water-borne paints and stains, and water borne varnishes must meet a minimum "Environmentally Friendly" E2 rating.

## **2.2 COLOURS**

.1 Owner will provide Colour Schedule after contract award.

.2 Selection of colours will be from manufacturers full range of colours.

.3 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

.4 Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

.5 For deep and ultra-deep colours; 4 coats may be required.

## **2.3 MIXING AND TINTING**

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Owner written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Owner.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

## 2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following values:

<b>Gloss Level Category</b>	<b>Units @ 60°</b>	<b>Units @ 85°</b>
G1 - matte finish	max. 5	max. 10
G2 - velvet finish	max. 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

- .2 Gloss level ratings of painted surfaces shall be as specified herein.

## 2.5 INTERIOR PAINTING SYSTEMS

- .1 The following paint formulas requires a three coat finish as indicated in the MPI Architectural Painting Specifications Manual.
- .2 Concrete Vertical Surfaces: including horizontal soffits
- .1 INT 3.1A Latex G5 finish (over sealer).
- .3 Concrete Horizontal Surfaces: floors and stairs
- .1 INT 3.2B Alkyd floor enamel low gloss finish.
- .4 Clay Masonry Units: pressed and extruded brick
- .1 INT 4.1A Latex G5 finish.
- .5 Concrete Masonry Units: smooth and split face block and brick.
- .1 INT 4.2A Latex G5 finish.
- .6 Structural Steel and Metal Fabrications: columns, beams, joists, etc.
- .1 INT 5.1E Alkyd G5 finish.
- .7 Galvanized Metal: doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.
- .1 INT 5.3A Latex G5 finish.
- .8 Dimension Lumber: columns, beams, exposed joists, underside of decking, etc.
- .1 INT 6.2D Latex G5 finish (over latex primer).

- .9 Dressed Lumber: including doors, door and window frames casings, mouldings, etc.
  - .1 INT 6.3T Latex G5 finish (over latex primer).
- .10 Wood Paneling and Casework: partitions, panels, shelving, millwork, etc.
  - .1 INT 6.4C Semi-transparent stain finish.
- .11 Wood Floors and Stairs: including hardwood flooring, etc.
  - .1 INT 6.5B Polyurethane varnish gloss finish (over stain).
  - .2 INT 6.5C Polyurethane varnish gloss finish.
- .12 Plaster and Gypsum Board: gypsum wallboard, drywall, “sheet rock type material”, etc and textured finishes:
  - .1 INT 9.2A Latex G5 finish (over latex sealer) for walls.
  - .2 INT 9.2A Latex G1 finish (over latex sealer) for ceilings.
- .13 Canvas and Cotton coverings:
  - .1 INT 10.1B Alkyd G5 finish.
- .14 Painting of interior game line layouts with colours as noted on approved game line layout drawing on interior resilient (gymnasium) flooring to be by others in accordance with MPI Architectural Painting Specification.

### **PART 3      EXECUTION**

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

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

#### **3.2      GENERAL**

- .1 Perform preparation and operations for interior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.
- .2 Apply all paint materials in accordance with paint manufacturer's written application instructions.

### **3.3 PROTECTION**

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Owner.
- .2 Cover or mask floors, windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.
- .3 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .4 Protect factory finished products and equipment.
- .5 Protect passing pedestrians, building occupants and general public in and about the building.
- .6 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories and other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for re-installation after painting is completed.
- .7 As painting operations progress place “WET PAINT” signs in occupied areas to approval of Owner.

### **3.4 EXAMINATION**

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Owner all damage, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple “cover patch test” and report findings to Owner. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
  - .1 Plaster and wallboard: 12%
  - .2 Masonry/Concrete: 12%
  - .3 Concrete Block/Brick: 12%
  - .4 Wood: 15%

### **3.5 CLEANING AND PREPARATION**

- .1 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
  - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
  - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
  - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
  - .4 Allow surfaces to drain completely and allow to dry thoroughly.
  - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
  - .6 Use trigger operated spray nozzles for water hoses.
  - .7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.
- .2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .3 Sand existing surfaces with intact, smooth, high gloss coatings to provide adequate adhesion for new finishes.
- .4 Where possible, prime surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
  - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
  - .2 Apply wood filler to nail holes and cracks.
  - .3 Tint filler to match stains for stained woodwork.
- .5 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .6 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces,

pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air, or vacuum cleaning.

- .7 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.
- .8 Do not apply paint until prepared surfaces have been accepted by Owner.

### **3.6 APPLICATION**

- .1 Method of application to be as approved by Owner. Apply paint by brush, roller, air sprayer, airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
  - .1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.
  - .2 Work paint into cracks, crevices and corners.
  - .3 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple.
  - .4 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
  - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray application:
  - .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
  - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
  - .3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
  - .4 Brush out immediately all runs and sags.
  - .5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

- .4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Owner.
- .5 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 Finish tops of cupboards, cabinets and projecting ledges, both above and below sight lines as specified for surrounding surfaces.
- .9 Finish closets and alcoves as specified for adjoining rooms.
- .10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .11 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

### **3.7 MECHANICAL/ELECTRICAL EQUIPMENT**

- .1 In finished areas: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.
- .2 In boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 In other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.



- .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 Paint all fire protection piping red.
- .10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .11 Do not paint interior transformers and substation equipment.

### **3.8 PARTITION MARKING AND IDENTIFICATION**

- .1 Contractor to stencil on both sides of fire rated separations, fire barriers, smoke barriers and smoke partitions the fire rating for that assembly and wall type (i.e.: **1 HOUR FIRE SEPARATION**).
- .2 Stenciled fire ratings and wall types to be minimum 100 mm high **RED** letters, minimum 150 mm above finished ceilings, and minimum 2400 mm o.c. along partition.

### **3.9 FIELD QUALITY CONTROL**

- .1 Field inspection of interior painting operations to be carried out by Owner.
- .2 Advise Owner when each applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .3 Co-operate with Owner and provide access to all areas of the work.
- .4 Standard of Acceptance:
  - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
  - .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
  - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

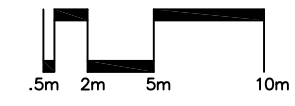
### **3.10 RESTORATION**

- .1 Clean and re-install all hardware items removed before undertaken painting operations.

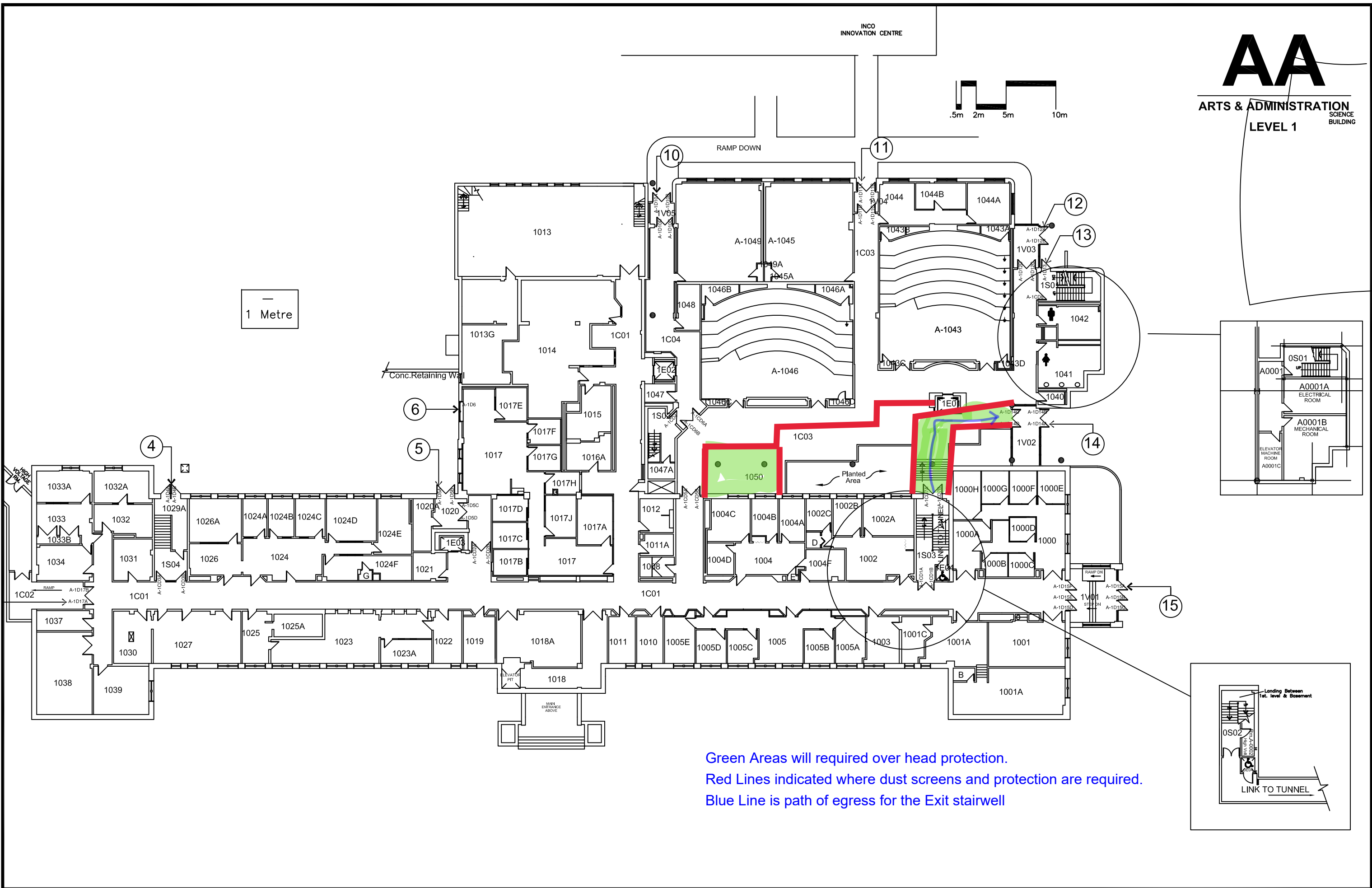
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Owner. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Owner.

**END OF SECTION**

**APPENDIX A**  
**Hoarding Areas**



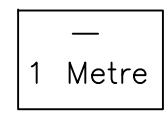
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# AA

## ARTS & ADMINISTRATION

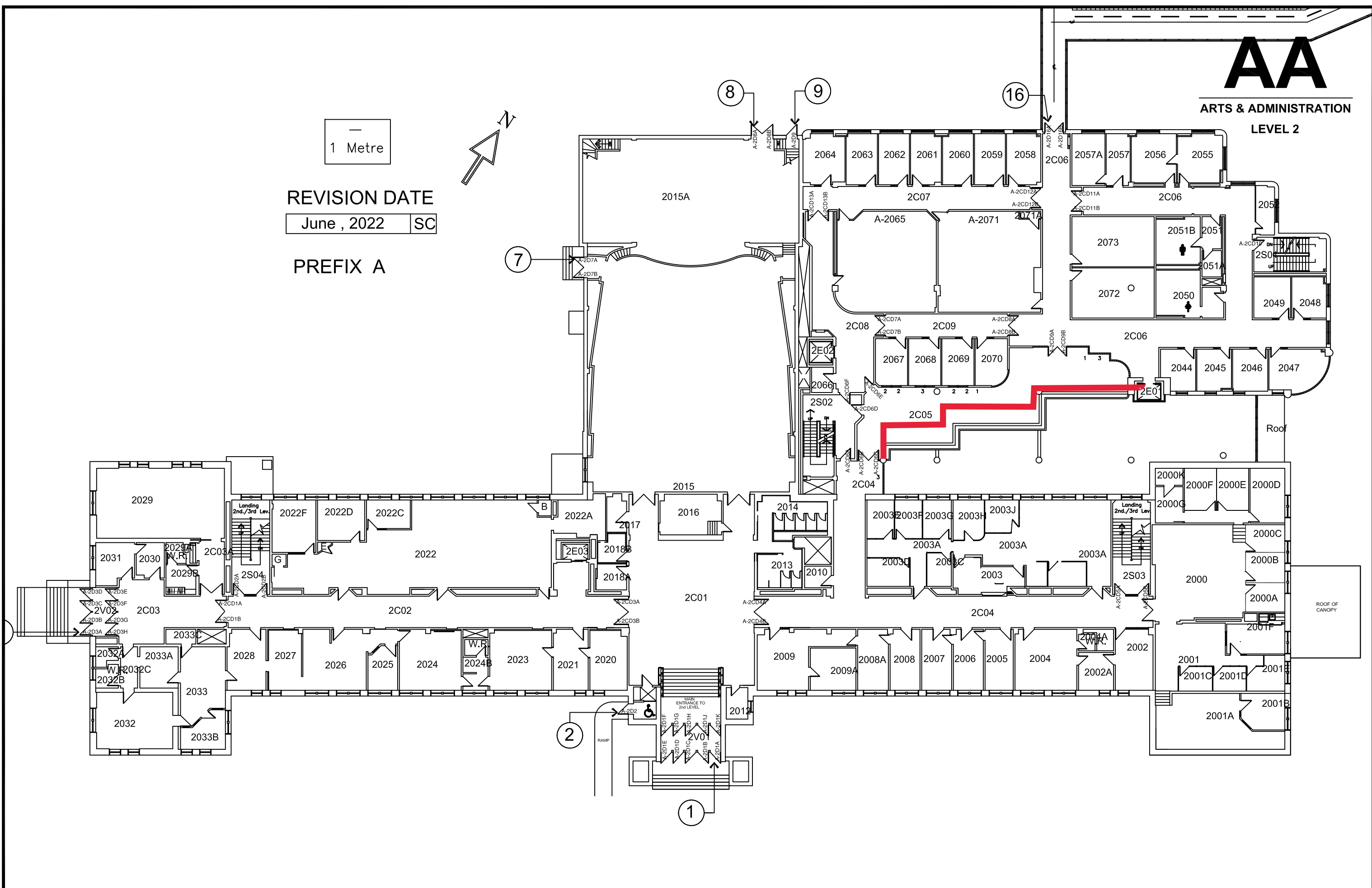
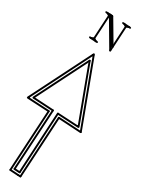
### LEVEL 2



REVISION DATE

June , 2022 SC

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Landing 2nd./3rd Lev

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## ARTS & ADMINISTRATION LEVEL 3

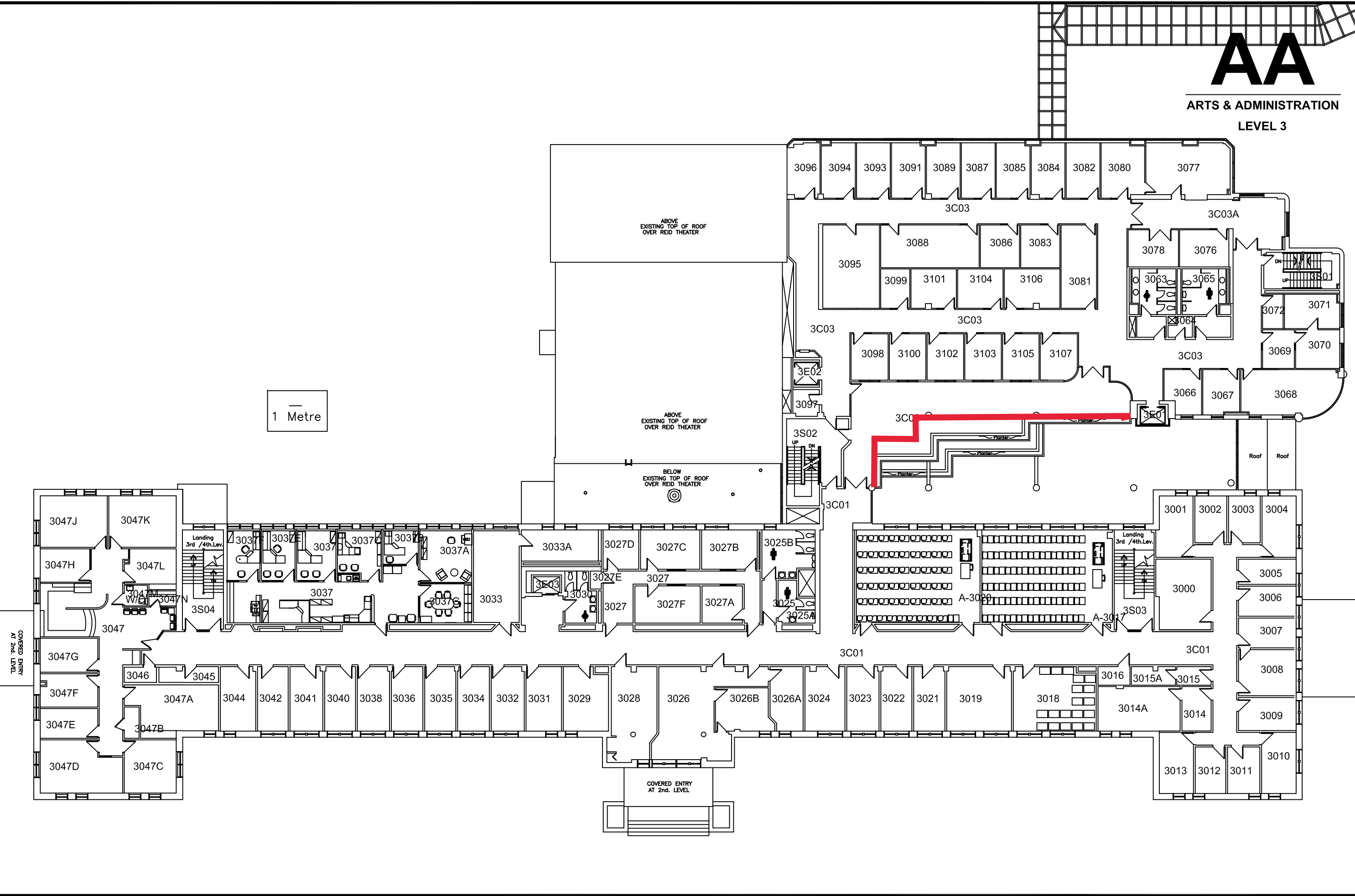
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ABOVE  
EXISTING TOP OF ROOF  
OVER REID THEATER

ABOVE  
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EXISTING TOP OF ROOF  
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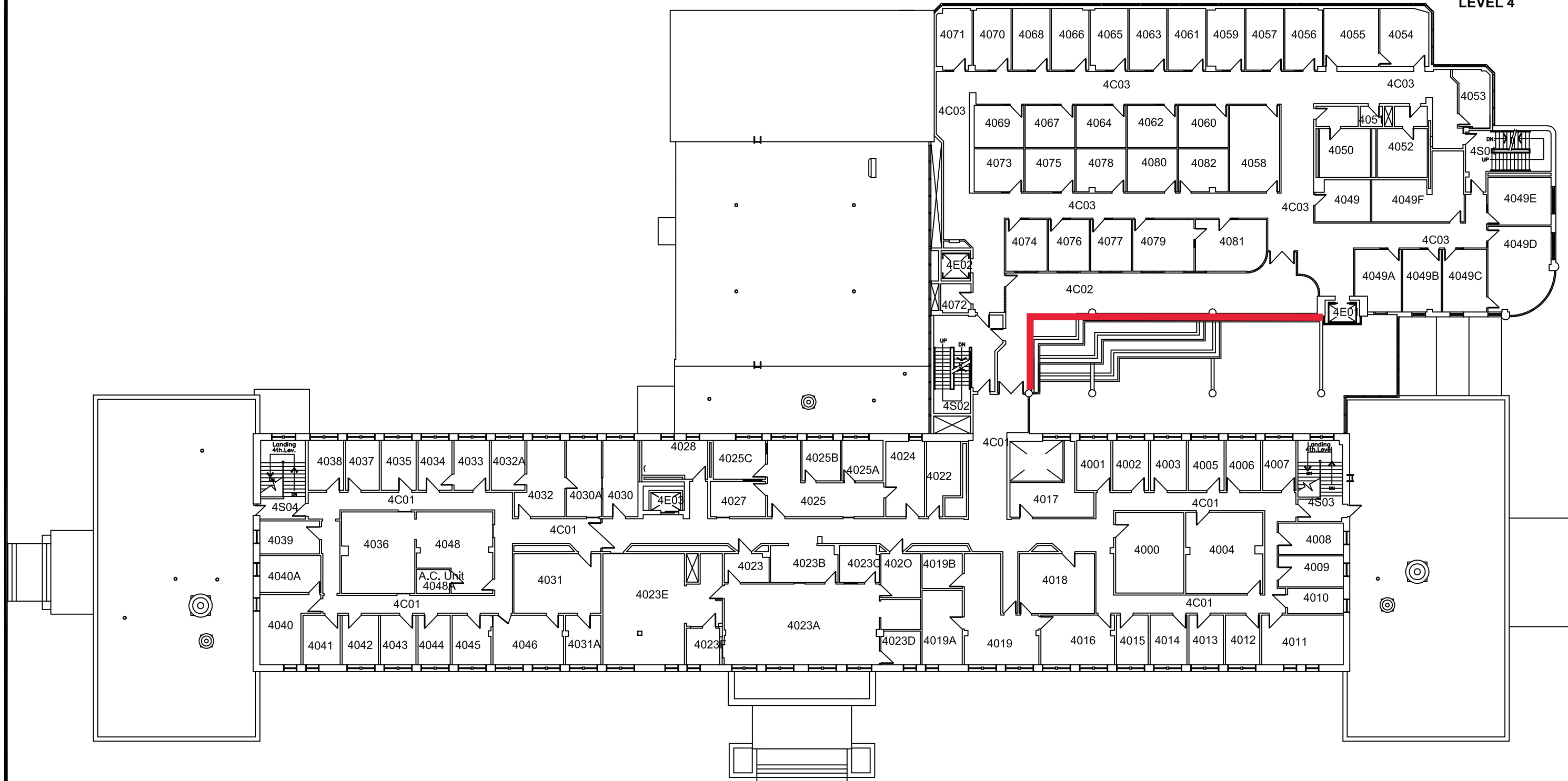
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ARTS & ADMINISTRATION

LEVEL 4

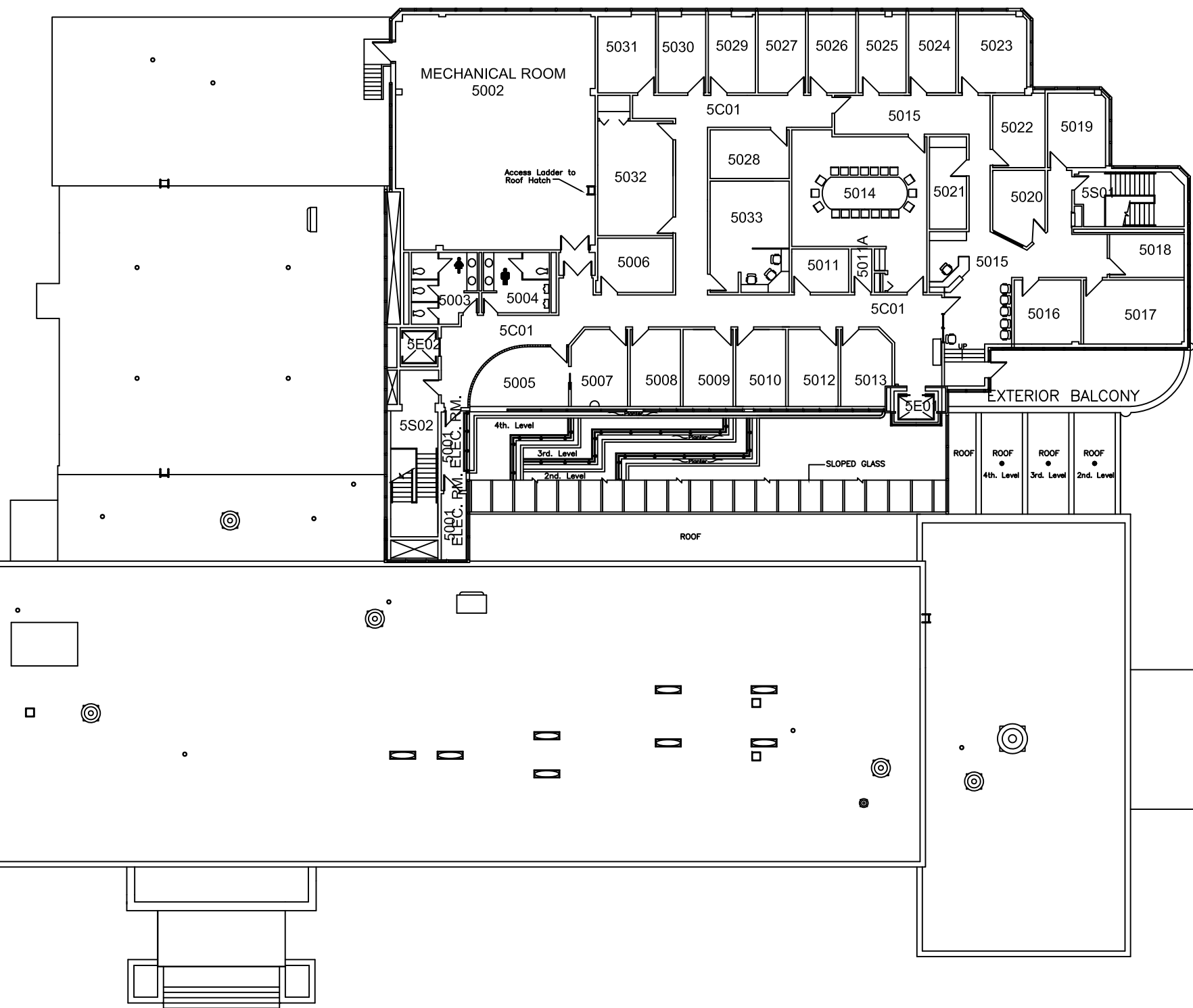


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ARTS & ADMINISTRATION

LEVEL 5

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# Memorial University of Newfoundland

## ARTS AND ADMINISTRATION BUILDING ATRIUM SLOPE GLAZING REPLACEMENT ST. JOHN'S CAMPUS, ST. JOHN'S, NL

ISSUED FOR TENDER  
2024.05.30

Stantec Project Number: 140132824

### DEPARTMENT OF FACILITIES MANAGEMENT

*This University was raised by the people of Newfoundland as a memorial  
to the fallen in the great wars, 1914-1918, 1939-1945, that in freedom of learning,  
their cause and sacrifice might not be forgotten.*

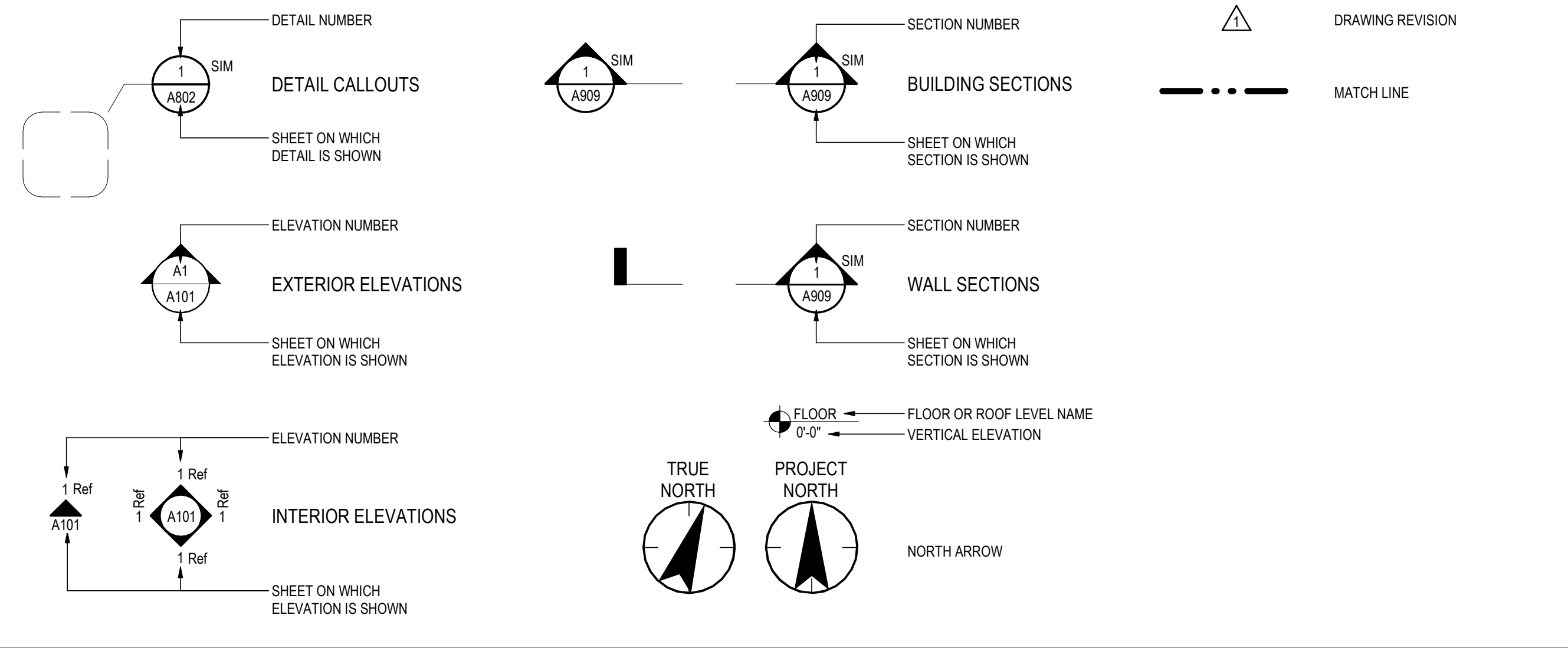
- Dedication plaque, Arts & Administration Building, St. John's Campus

SHEET LIST	
Sheet Number	Sheet Name
A100	SITE PLAN
A101	CURTAIN WALL ELEVATIONS AND WALL TYPES
A200	LEVEL 5 REFLECTED CEILING AND ROOF DEMOLITION PLANS
A201	DEMOLITION VIEWS
A202	LEVEL 5 - REFLECTED CEILING PLAN & FINISHES PLAN
A203	ELEVATIONS AND BUILDING SECTIONS
A300	DETAILS
A301	DETAILS

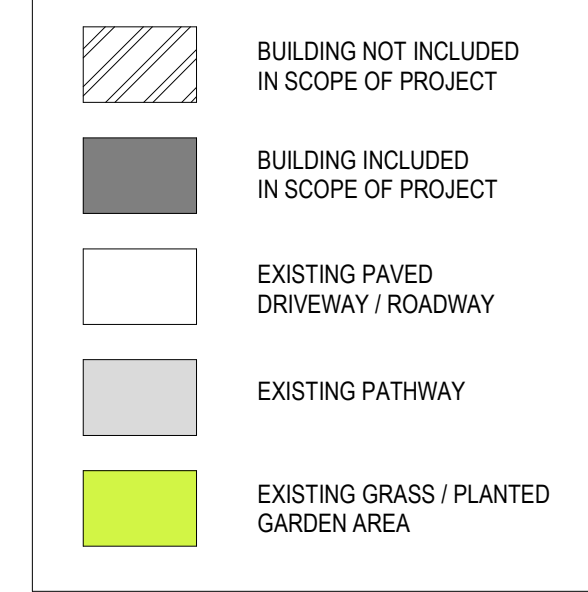
ISSUED FOR TENDER



# GENERAL SYMBOLS LEGEND



# SITE PLAN LEGEND



A - DETAIL		A	
B - LOCATION/DRAWING No.		B	
C - DRAWING No.		C	

No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

- ### GENERAL NOTES
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  - DO NOT SCALE FROM DRAWINGS.
  - THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO SUBMISSION OF TENDERS.
  - ALL DEFICIENCIES FOUND IN THIS DRAWING IS TO BE BROUGHT TO THE ATTENTION OF THE FACILITIES ENGINEERING AND DEVELOPMENT OFFICE OF THE DEPARTMENT OF FACILITIES MANAGEMENT, MEMORIAL UNIVERSITY OF NEWFOUNDLAND PRIOR TO THE SUBMISSION OF THE TENDERS.

Permit/Seal

Stantec Architecture Ltd.  
 141 Kelsey Drive  
 St. John's, NL A1B 0L2  
 Tel: (709) 576-1458 • www.stantec.com

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**MEMORIAL UNIVERSITY**  
 Department of Facilities Management  
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 - Dedication plaque, Arts & Administration Building, St. John's Campus

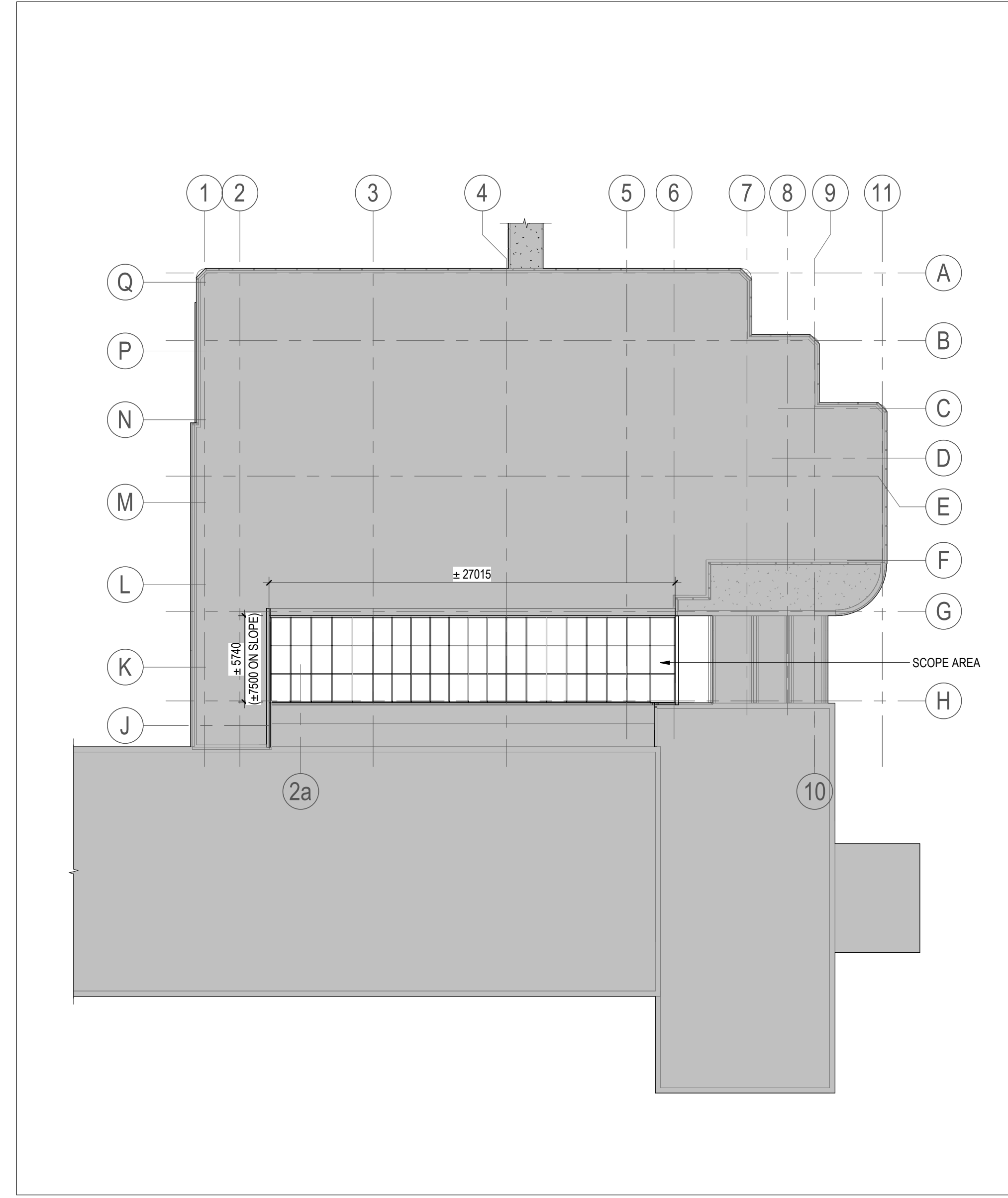
PROJECT NAME:  
**ARTS AND ADMINISTRATION BUILDING ATRIUM SLOPED GLAZING REPLACEMENT**

**230 Elizabeth Ave, St. John's NL**

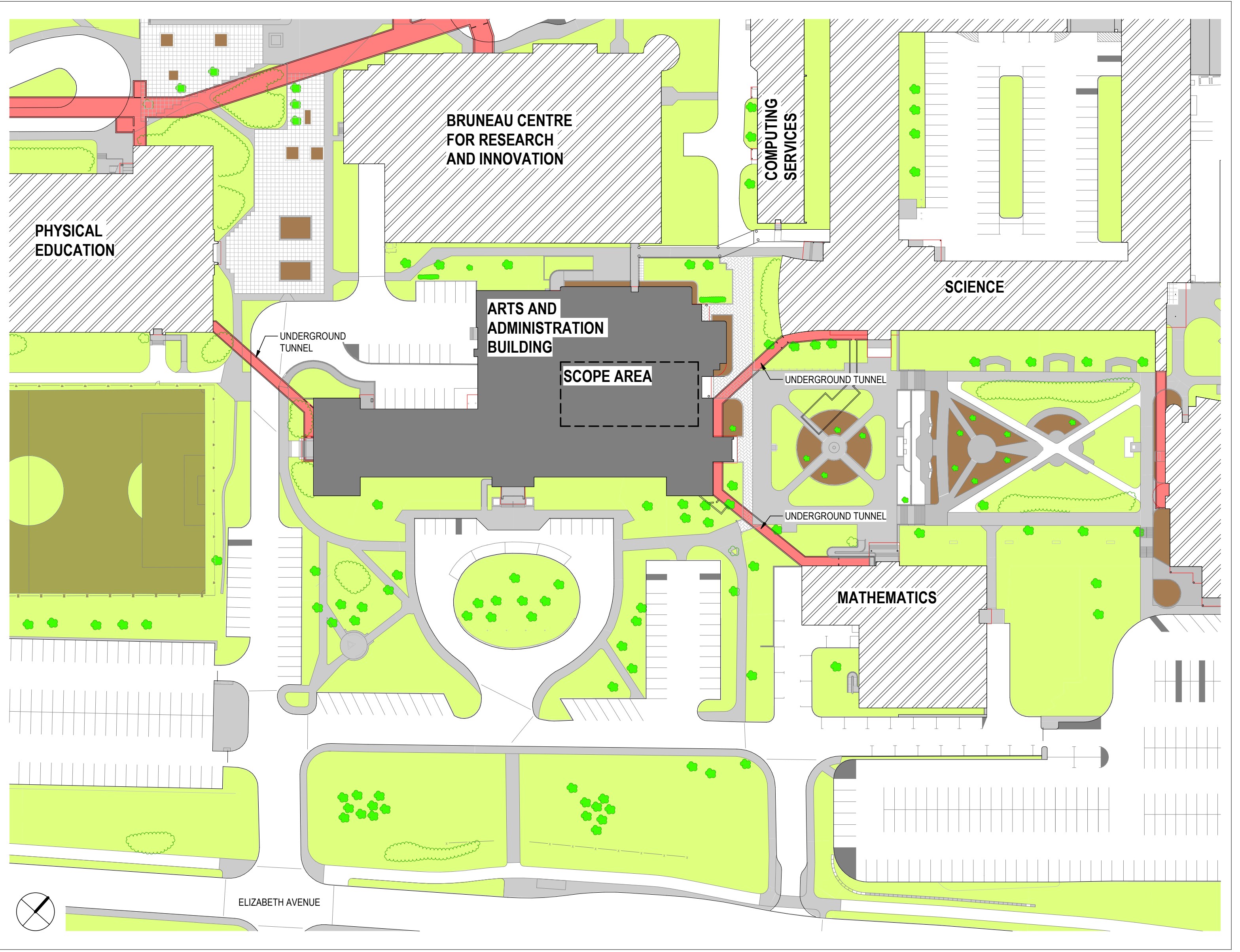
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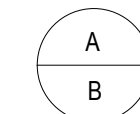
DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A100</b>



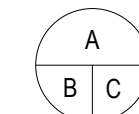
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**1 SITE PLAN**  
 A100 1:800



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B - LOCATION/DRAWING No.  
C - DRAWING No.

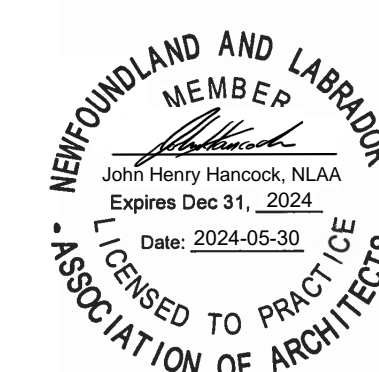


No.	REVISION	DATE
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Permit/Seal



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- Dedication plaque, Arts & Administration Building, St. John's Campus

PROJECT NAME:  
**ARTS AND ADMINISTRATION BUILDING  
ATRIUM SLOPED GLAZING  
REPLACEMENT**  
**230 Elizabeth Ave, St. John's NL**

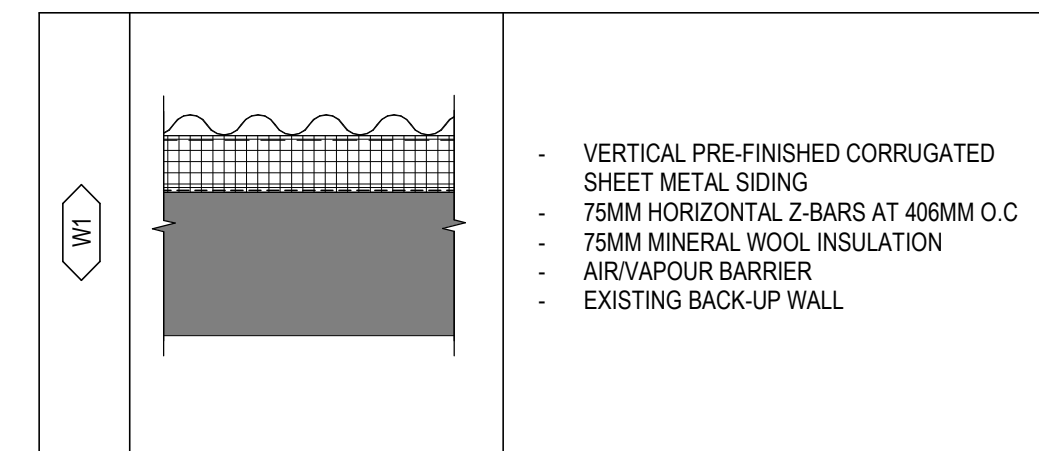
Project #: **A-506-22**

DRAWING TITLE:  
**CURTAIN WALL ELEVATIONS AND  
WALL TYPES**

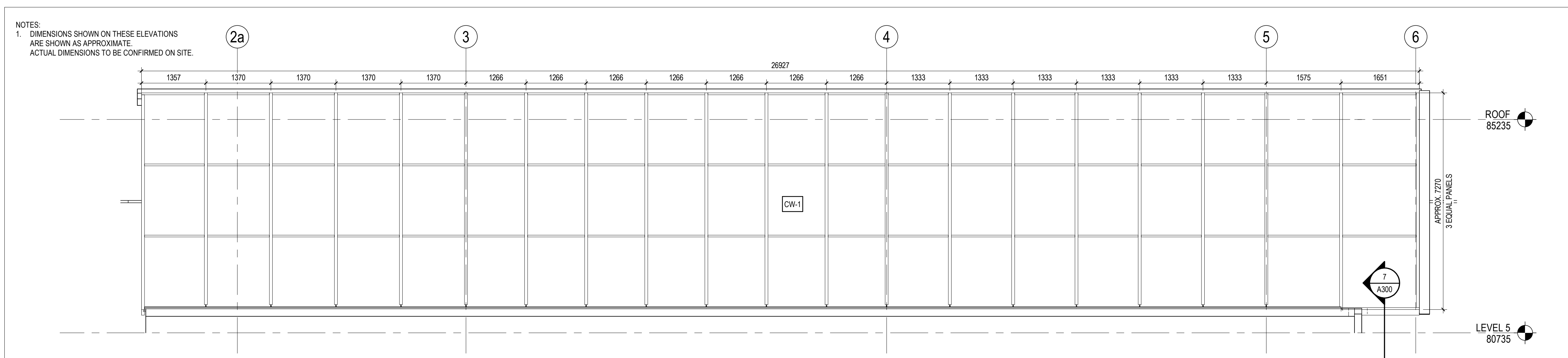
DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A101</b>

**CURTAIN WALL SCHEDULE**

<b>ELEVATION AND SIZE</b>	
<b>SYMBOL</b>	CW-1
<b>TYPE</b>	GLASS AND ALUMINUM CURTAIN WALL PROFILE SIMILAR TO KAWNEER 1600 SERIES SLOPED GLAZING SYSTEM 152.4MM SYSTEM DEPTH, 63.5MM SIGHTLINE
<b>MATERIAL</b>	ALUMINUM
<b>FINISH</b>	CLEAR ANODIZED
<b>GLAZING</b>	SOLARBAN-70 DOUBLE GLAZED SEALED UNIT 5MM TEMPERED GLASS WITH LOW-E COATING AND AZURIA TINT, AIR (10%) AND ARGON (90%) MIX FILLED SPACE, 5mm CLEAR TEMPERED
<b>NOTES</b>	

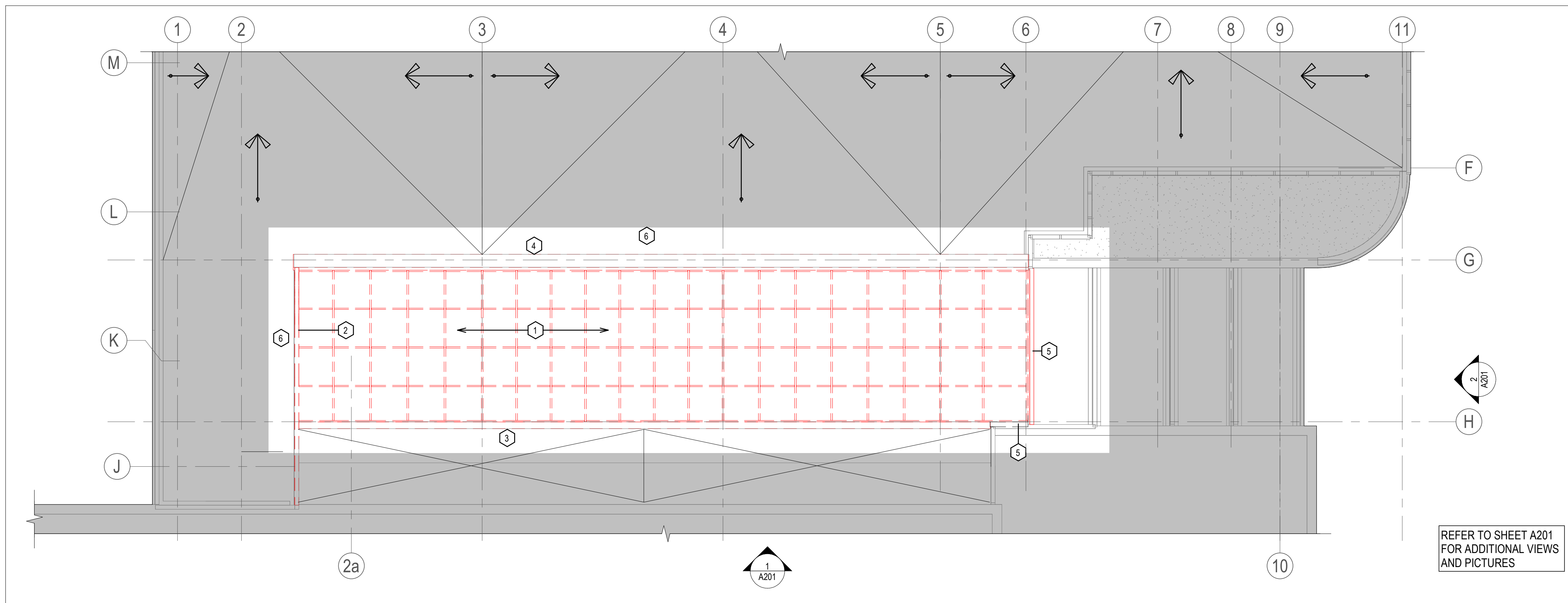


**WALL TYPES**

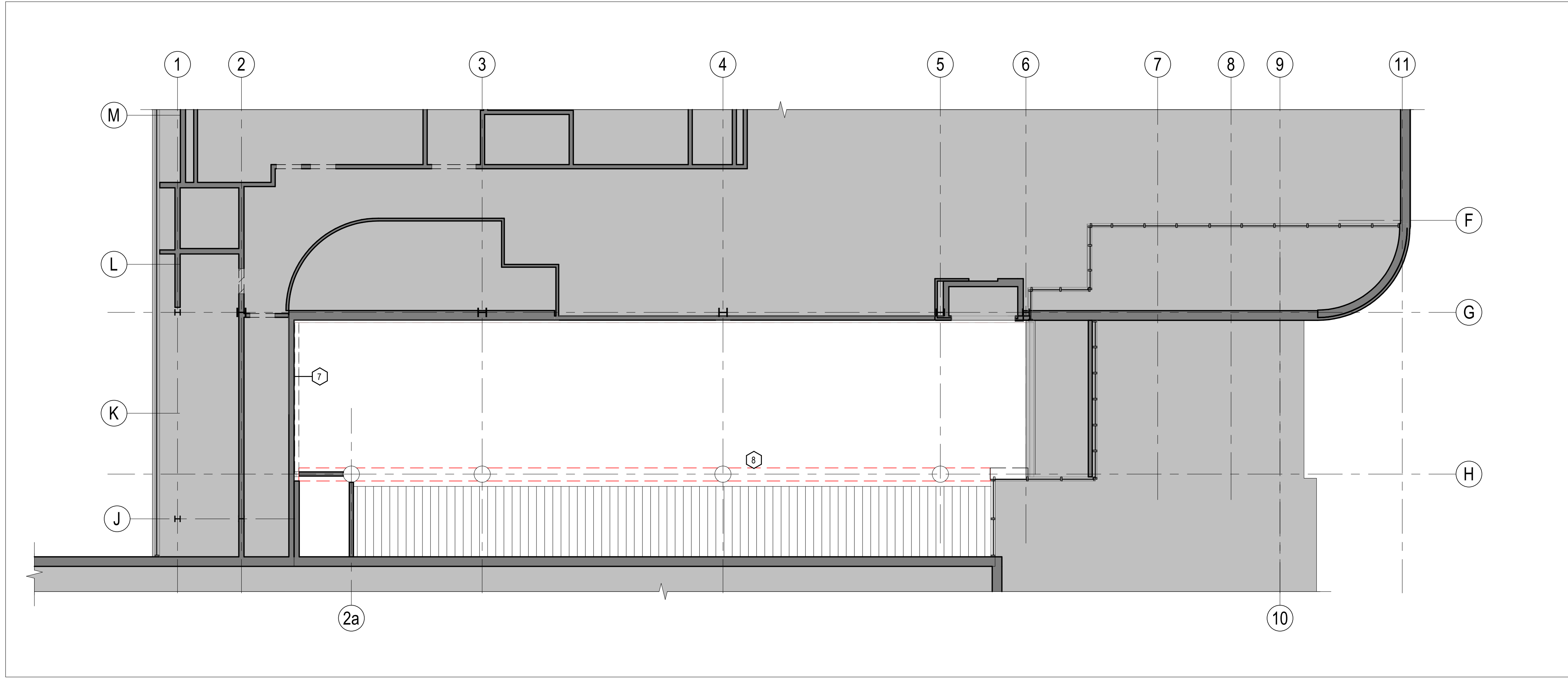


**1 SLOPED CURTAINWALL ELEVATION**  
A101 1 : 50





**2 ROOF PLAN - DEMOLITION**  
A200 1:100



**1 REFLECTED CEILING PLAN - DEMOLITION LEVEL 5**  
A200 1:100

**SHEET NOTES**

THESE NOTES APPLY ONLY TO THE WORK ILLUSTRATED ON THIS SHEET

- DEMOLITION AND REINSTATEMENT NOTES**
- EXAMINE ALL CONTRACT DOCUMENTS AND VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION WORK AND CUTTING, TRENCHING, AND PATCHING REQUIRED FOR THE EXECUTION OF THE WORK IN THIS CONTRACT.
  - PERFORM DEMOLITION WORK SHOWN AND/OR REQUIRED TO COMPLETE THE WORK. DO NOT ASSUME DEMOLITION DRAWINGS SHOW THE FULL EXTENT OF DEMOLITION WORK REQUIRED.
  - REINSTATE AND/OR MAKE GOOD ALL EXISTING SURFACES AFFECTED BY THE WORK OF CUTTING, TRENCHING AND PATCHING AND PREPARE THEM TO RECEIVE NEW FINISHES. IF SPECIFIED, OTHERWISE REFINISH TO MATCH EXISTING.
  - WHEREVER EXCESSIVE DEMOLITION OCCURS OR IF DAMAGE OCCURS TO ADJACENT SURFACES NOT INTENDED FOR DEMOLITION OR REMOVAL, REINSTATE ALL AFFECTED SURFACES AND PREPARE THEM TO RECEIVE NEW FINISHES. IF SPECIFIED, OTHERWISE REFINISH TO MATCH EXISTING. FINISH ENTIRE SURFACES WHERE EXCESSIVE DAMAGE HAS OCCURRED, IN THE CASE OF WALLS REFINISH TO THE NEAREST CORNERS.
  - FILL HOLES AND REPAIR THOSE SURFACES LEFT IN AN UNFINISHED STATE AFTER THE REMOVAL OF OBSOLETE MECHANICAL AND ELECTRICAL EQUIPMENT, INCLUDING RECESSED OUTLET BOXES, PANELS, DUCTS, PIPES, AND CONDUIT. PREPARE SURFACE TO RECEIVE NEW FINISHES. IF SPECIFIED, OTHERWISE REFINISH TO MATCH EXISTING.
  - PREPARE SURFACES AS NECESSARY TO RECEIVE NEW FINISHES SPECIFIED, INCLUDING BUT NOT LIMITED TO REMOVAL OF EXISTING FINISHES AND ADHESIVES, AND GRINDING, PATCHING, AND LEVELING SURFACES.
  - ALL WORK INTENDED TO MATCH EXISTING SHALL BE PERFORMED TO THE SATISFACTION OF THE ENGINEER.

REFER TO SHEET A201 FOR ADDITIONAL VIEWS AND PICTURES

**KEYNOTES**

THESE NOTES APPLY ONLY TO PARTICULAR WORK IDENTIFIED BY KEYNOTE MARKERS

- DEMOLISH EXISTING SLOPED CURTAIN WALL ROOF AND PREPARE ADJACENT CONDITIONS FOR REPLACEMENT SLOPED CURTAIN WALL
- DEMOLISH EXISTING CURTAIN WALL ASSEMBLY AND PREPARE ADJACENT CONDITIONS FOR REPLACEMENT WALL ASSEMBLY
- DEMOLISH EXISTING CURB MEMBRANES, INSULATION AND FRAMING AND PREPARE TO RECEIVE REPLACEMENT INSULATION AND MEMBRANE TO TIE INTO SLOPED GLAZING SYSTEM
- DEMOLISH EXISTING CAP FLASHING, MEMBRANES, SHEATHING AND INSULATION TO CURB AT TOP OF CURTAIN WALL
- REMOVE AND REPLACE CAP AND PRESSURE PLATE FROM EXISTING VERTICAL CURTAIN WALL TO ALLOW REPLACEMENT OF PRE-FINISHED METAL FLASHING AND SEALANT
- REMOVE STONE BALLAST FROM EXISTING ROOF AS REQUIRED TO INSTALL NEW MEMBRANES WITH SUITABLE LAPS
- DEMOLISH EXISTING GYPSUM BOARD FROM WALL AND PREPARE FRAMING TO RECEIVE NEW GYPSUM BOARD.
- DEMOLISH EXISTING GYPSUM BULKHEAD INCLUDING METAL STUD FRAMING
- CONTRACTOR RESPONSIBLE TO PROTECT EXISTING ROOF AND WALKWAYS DURING CONSTRUCTION
- EXISTING METAL CEILING TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. CONTRACTOR TO CLEAN ONCE CONSTRUCTION HAS BEEN COMPLETED.

**LEGEND**

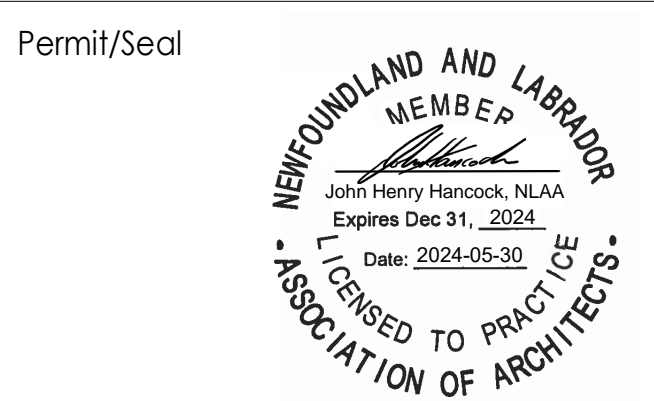
- DENOTES ITEMS TO BE DEMOLISHED
- DENOTES ITEMS TO REMAIN
- DENOTES AREAS NOT IN SCOPE
- ↘ DENOTES DIRECTION OF ROOF SLOPE. DOWNWARDS DIRECTION
- ⊕ DENOTES EXISTING ROOF DRAIN

A - DETAIL		A - LOCATION/DRAWING No.	
B		C - DRAWING No.	
B		C	

No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

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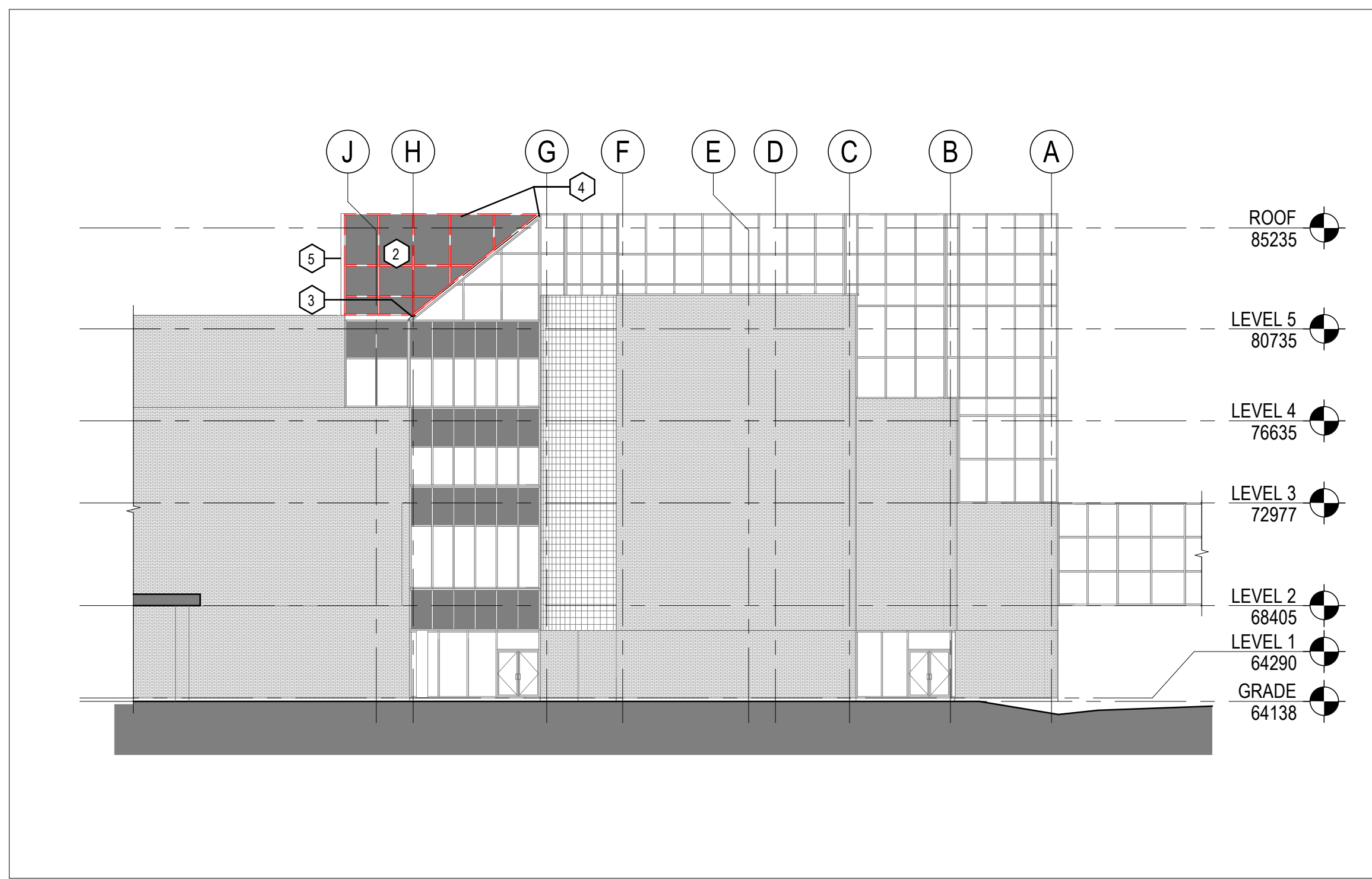
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REPLACEMENT**  
**230 Elizabeth Ave, St. John's NL**  
**Project #: A-506-22**

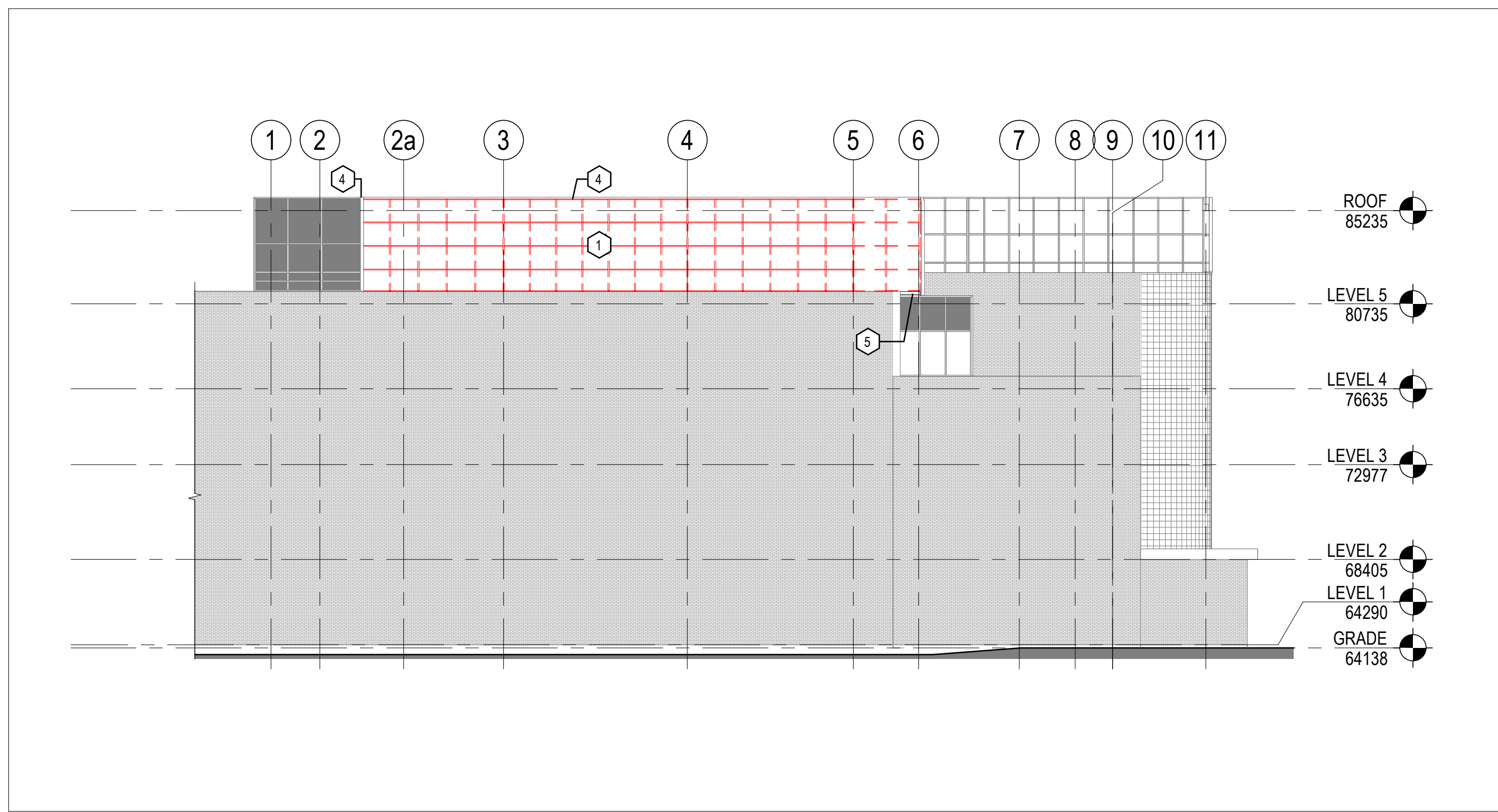
DRAWING TITLE:  
**LEVEL 5 REFLECTED CEILING AND  
ROOF DEMOLITION PLANS**

DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A200</b>

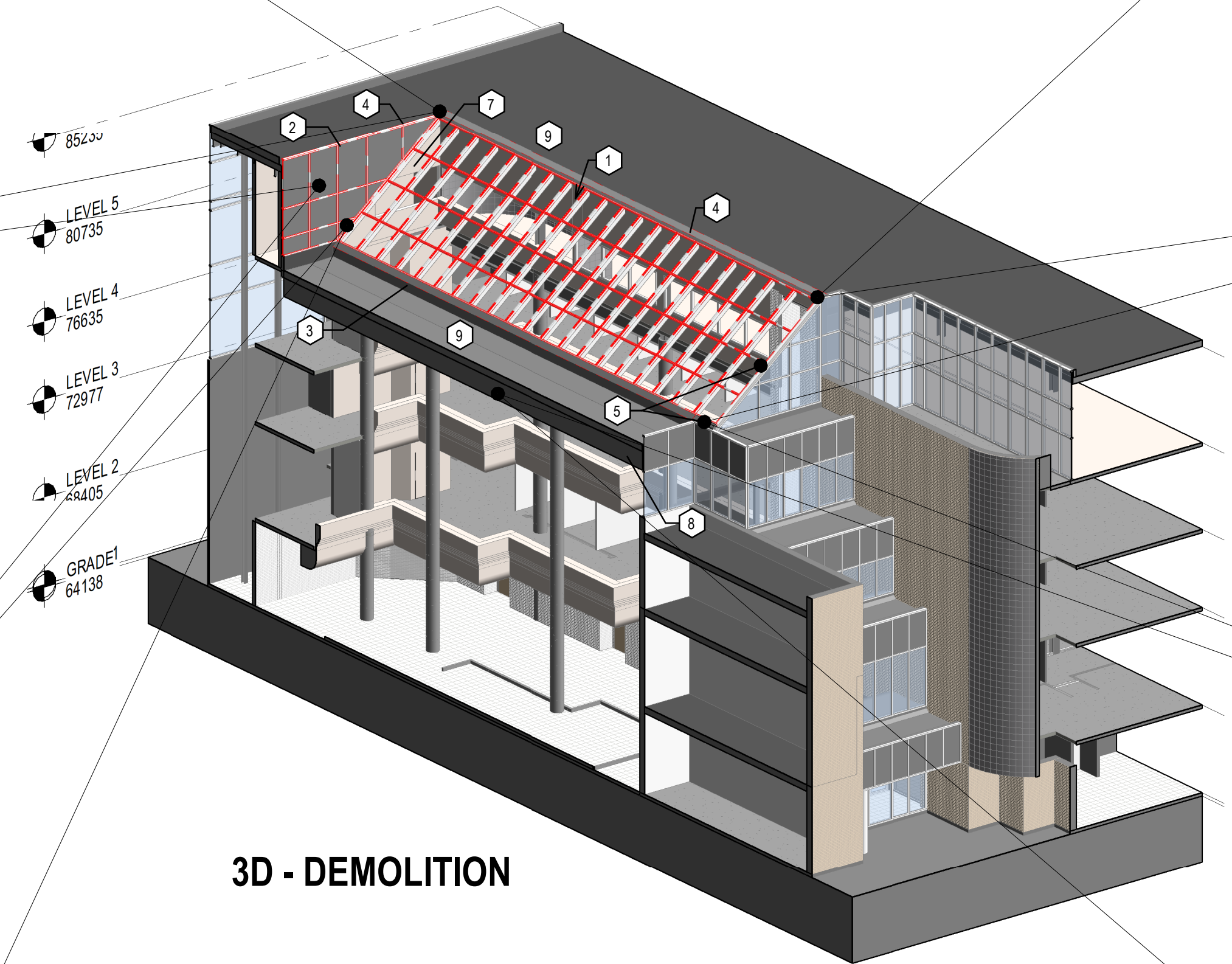




**2 NORTH ELEVATION - DEMOLITION**  
A201 1:200



**1 EAST ELEVATION - DEMOLITION**  
A201 1:200



**3D - DEMOLITION**



**KEYNOTES** (X)

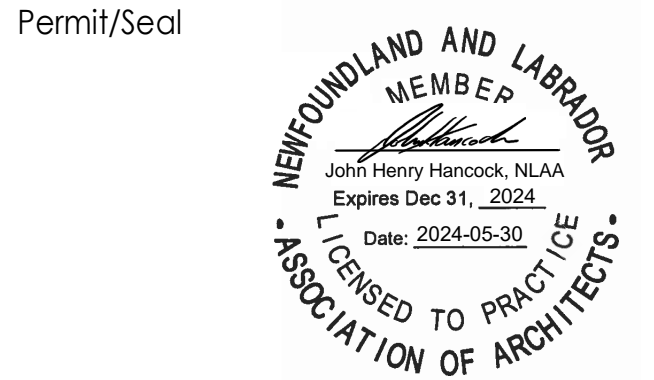
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- 2 DEMOLISH EXISTING CURTAIN WALL ASSEMBLY AND PREPARE ADJACENT CONDITIONS FOR REPLACEMENT WALL ASSEMBLY
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- 4 DEMOLISH EXISTING CAP FLASHING, MEMBRANES, SHEATHING AND INSULATION TO CURB AT TOP OF CURTAIN WALL
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- 6 REMOVE STONE BALLAST FROM EXISTING ROOF AS REQUIRED TO INSTALL NEW MEMBRANES WITH SUITABLE LAPS
- 7 DEMOLISH EXISTING GYPSUM BOARD FROM WALL AND PREPARE FRAMING TO RECEIVE NEW GYPSUM BOARD
- 8 DEMOLISH EXISTING GYPSUM BULKHEAD INCLUDING METAL STUD FRAMING
- 9 CONTRACTOR RESPONSIBLE TO PROTECT EXISTING ROOF AND WALKWAYS DURING CONSTRUCTION
- 10 EXISTING METAL CEILING TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. CONTRACTOR TO CLEAN ONCE CONSTRUCTION HAS BEEN COMPLETED.

No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

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2. DO NOT SCALE FROM DRAWINGS.
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4. ALL DEFICIENCIES FOUND IN THIS DRAWING IS TO BE BROUGHT TO THE ATTENTION OF THE FACILITIES ENGINEERING AND DEVELOPMENT OFFICE OF THE DEPARTMENT OF FACILITIES MANAGEMENT, MEMORIAL UNIVERSITY OF NEWFOUNDLAND PRIOR TO THE SUBMISSION OF THE TENDERS.



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PROJECT NAME:  
**ARTS AND ADMINISTRATION BUILDING ATRIUM SLOPED GLAZING REPLACEMENT**

**230 Elizabeth Ave, St. John's NL**

**Project #: A-506-22**

DRAWING TITLE:  
**DEMOLITION VIEWS**

DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A201</b>



**GENERAL ROOF PLAN NOTES**

- 1- THE CONTRACTOR IS REQUIRED TO PROVIDE ADEQUATE PROTECTION MEASURES TO MAINTAIN THE ENVIRONMENTAL PERFORMANCE OF ALL BUILDING ASSEMBLIES IMMEDIATELY ADJACENT TO OR ABUTTING ASSEMBLIES THAT ARE CONTAINED WITHIN THE SCOPE OF THIS PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO, EXISTING ROOF MEMBRANES, ROOF CURBS AND PARAPETS AND ADJACENT CURTAIN WALLING AND GLAZING.

**GENERAL INTERIOR FINISHES NOTES**

- 1- WHERE A PRODUCT IS REQUIRED TO MATCH ANOTHER PRODUCT, THE DECISION ON THE ACCEPTABILITY OF THE MATCH SHALL SOLELY RESIDE WITH THE DESIGN CONSULTANT.
- 2- WHERE A PRODUCT IS SPECIFIED AS HAVING TO MATCH FINISHES BOARD, THIS BOARD IS AVAILABLE FOR VIEWING DURING REGULAR BUSINESS HOURS AT THE OFFICE OF THE DESIGN CONSULTANT.
- 3- DRAWINGS MAY NOT SHOW ALL INTERIOR SURFACES REQUIRED TO BE PAINTED. SCOPE OF WORK INCLUDES PAINTING ALL EXPOSED-TO-VIEW AND SEMI-EXPOSED-TO-VIEW UNFINISHED SURFACES, INCLUDING GALVANIZED METALS AND M&E CONSTRUCTION. REFER TO DIVISION 9 PAINTING SPEC FOR FURTHER DETAILS.
- 4- HAVE OWNER'S REPRESENTATIVE SELECT PAINT GLOSS LEVELS ON A SURFACE-BY-SURFACE BASIS DURING CONSTRUCTION.

**MATERIALS LEGEND**

**PT1 INTERIOR PAINT**  
PAINT COLOUR AS SELECTED BY OWNERS REPRESENTATIVE.

**PT2 INTERIOR PAINT**  
PAINT COLOUR AS SELECTED BY OWNERS REPRESENTATIVE.

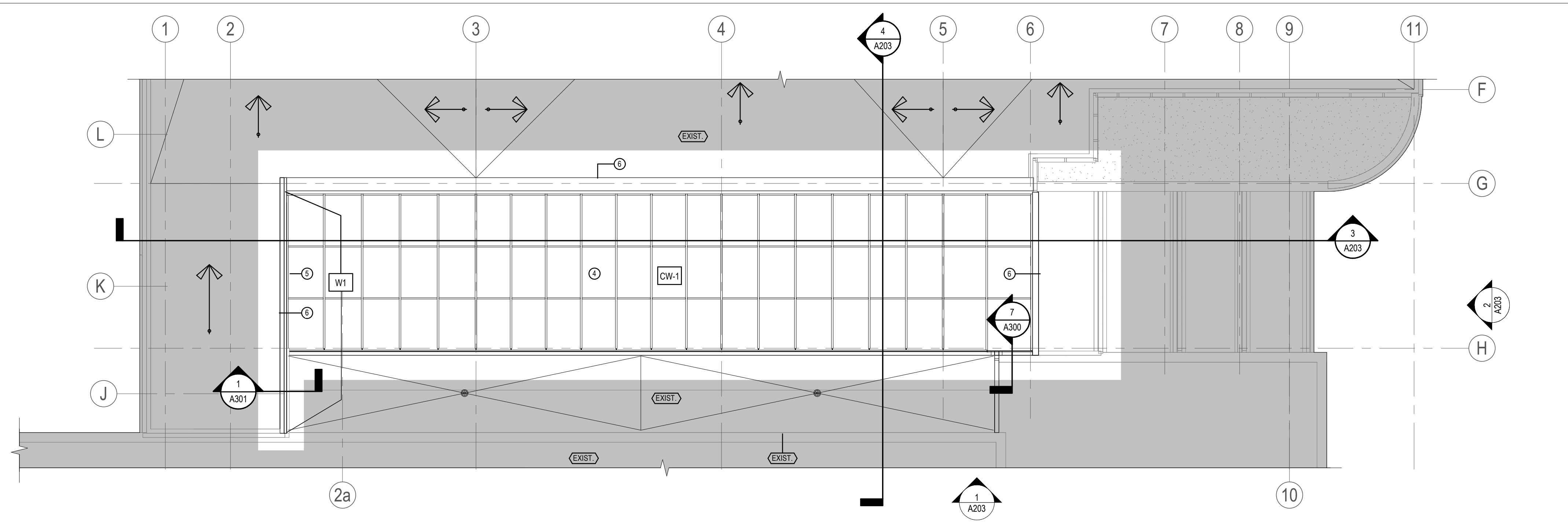
**SHEET NOTES**

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A - DETAIL		A	
B - LOCATION/DRAWING No.		B C	
C - DRAWING No.			

No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

ROOM FINISH SCHEDULE						
No.	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
101	ATRIUM	EXIST.	EXIST.	GWB/PT1	GWB/PT1	FINISHES APPLY TO GYPSUM BULKHEAD AND AREAS DAMAGED / AFFECTED BY WORK



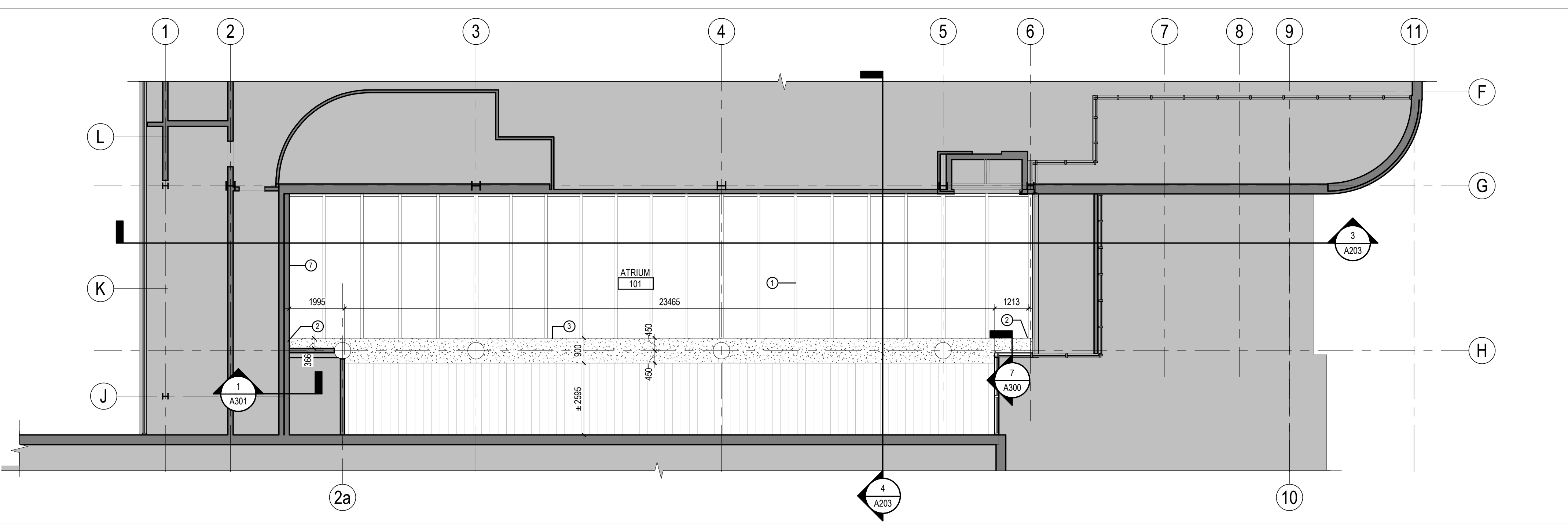
**LEGEND**

- AREA NOT IN CONTRACT
- GYPSUM BOARD BULKHEAD ON 92MM METAL STUD FRAMING. SEE DETAILS FOR CEILING HEIGHTS
- SUSPENDED WOOD SLAT CEILING LPC1
- DIRECTION OF ROOF SLOPE. DOWNWARDS DIRECTION
- EXISTING ROOF DRAIN

**KEYNOTES**

- THESE NOTES APPLY ONLY TO PARTICULAR WORK IDENTIFIED BY KEYNOTE MARKERS
- 1 THOROUGHLY CLEAN, PREPARE AND PAINT ALL EXISTING HSS RAFTERS PT2
  - 2 TIE IN NEW BULKHEAD TO EXISTING ADJACENT WALL
  - 3 GYPSUM BULKHEAD. PAINT FINISH TO MATCH EXISTING
  - 4 NEW SLOPED CURTAIN WALL SYSTEM
  - 5 NEW VERTICAL CORRUGATED METAL SIDING WALL ASSEMBLY
  - 6 NEW PRE-FINISHED METAL CAP FLASHING
  - 7 NEW GYPSUM BOARD TO WALL AND UNDERSIDE OF WALL. PAINT FINISH TO MATCH PT1

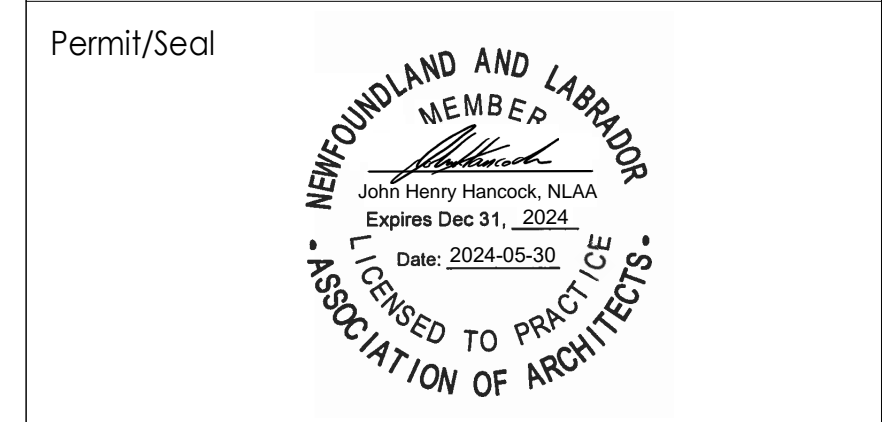
**2 ROOF PLAN**  
A202 1 : 100



**1 REFLECTED CEILING PLAN / FINISHES PLAN - LEVEL 5**  
A202 1 : 100

**GENERAL NOTES**

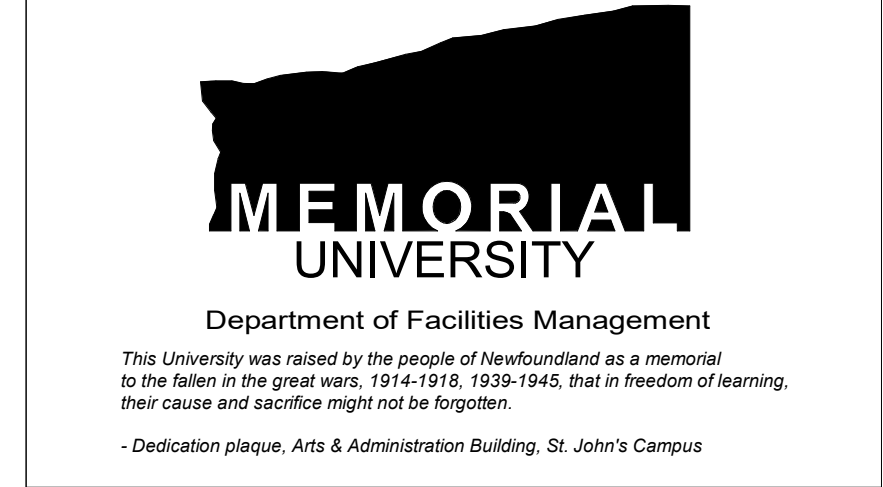
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PROJECT NAME:  
**ARTS AND ADMINISTRATION BUILDING ATRIUM SLOPED GLAZING REPLACEMENT**

**230 Elizabeth Ave, St. John's NL**

**Project #: A-506-22**

DRAWING TITLE:  
**LEVEL 5 - REFLECTED CEILING PLAN & FINISHES PLAN**

DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A202</b>

**LEGEND**

AREA NOT INCLUDED IN CONTRACT

A - DETAIL  
B - LOCATION/DRAWING No.  
C - DRAWING No.

No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

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Permit/Seal

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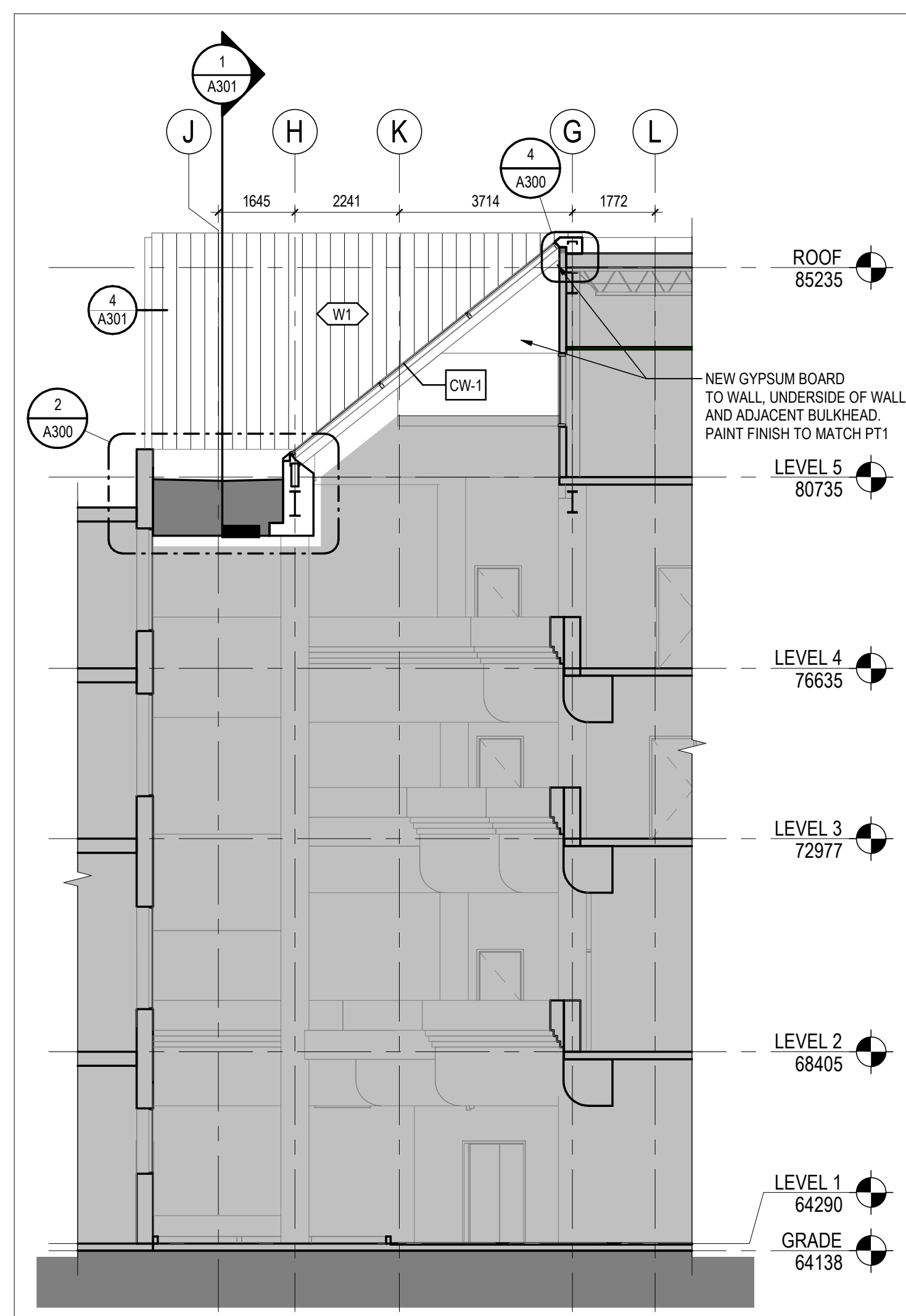
PROJECT NAME:  
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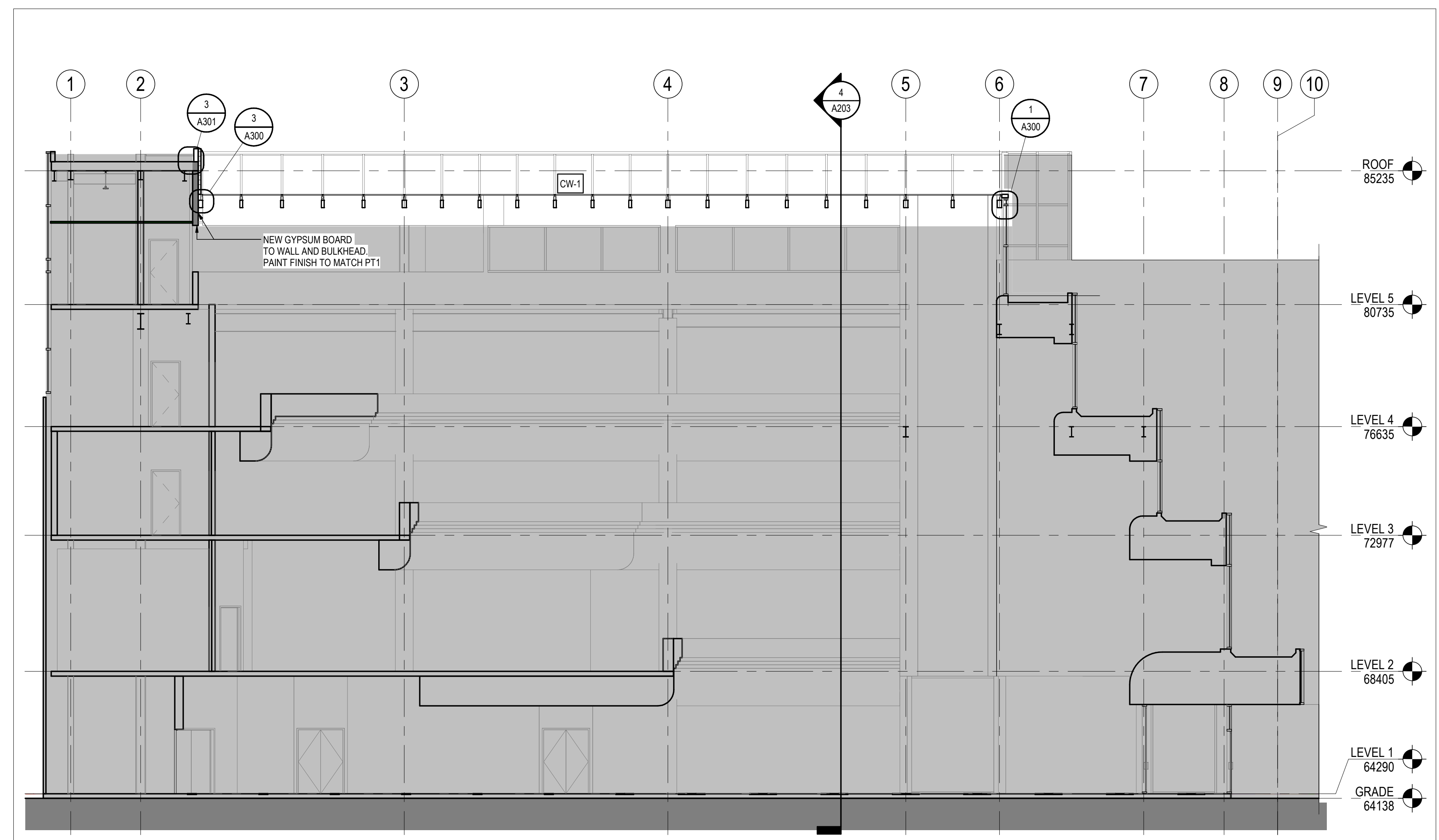
Project #: **A-506-22**

DRAWING TITLE:  
**ELEVATIONS AND BUILDING SECTIONS**

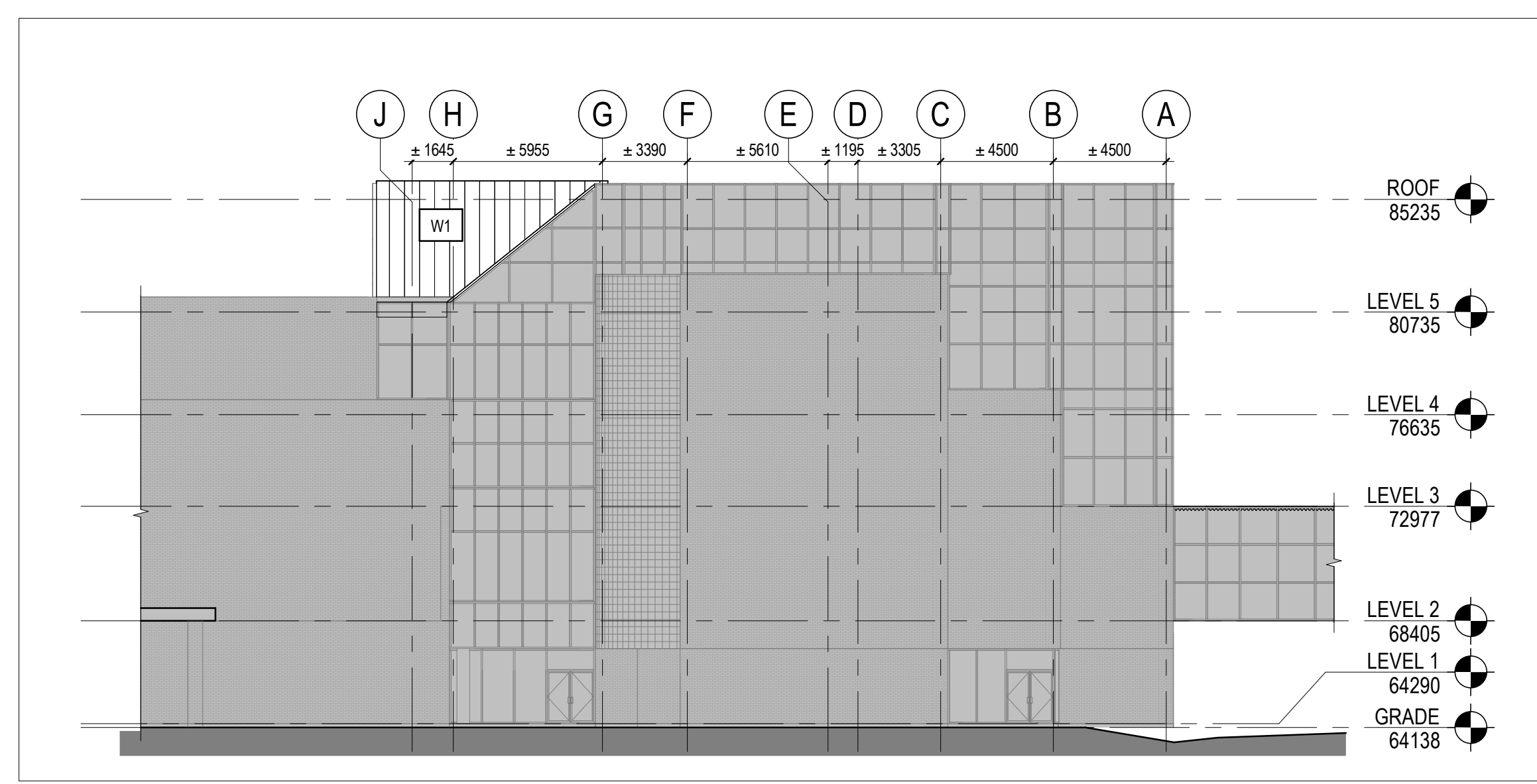
DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A203</b>



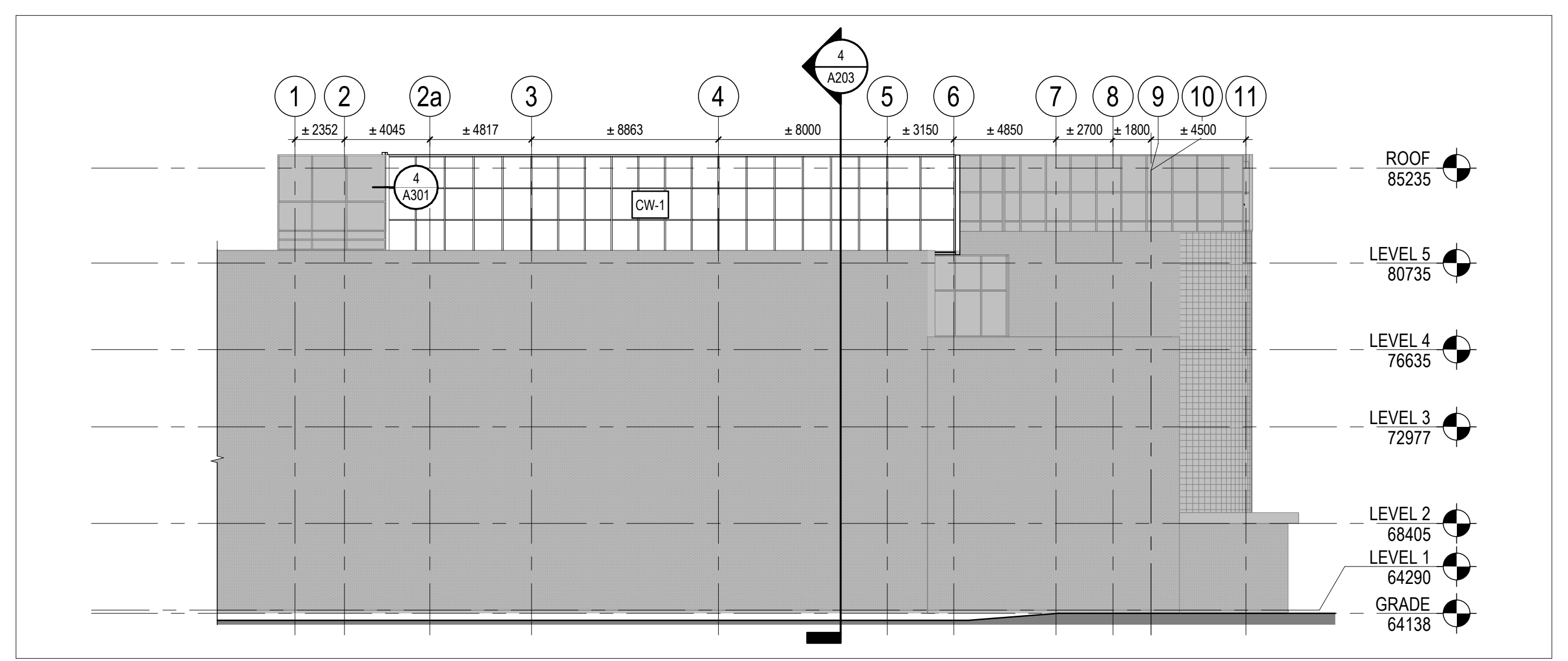
**4 CROSS SECTION THROUGH ATRIUM**  
A203 1:100



**3 LONG SECTION THROUGH ATRIUM**  
A203 1:100



**2 NORTH ELEVATION**  
A203 1:200

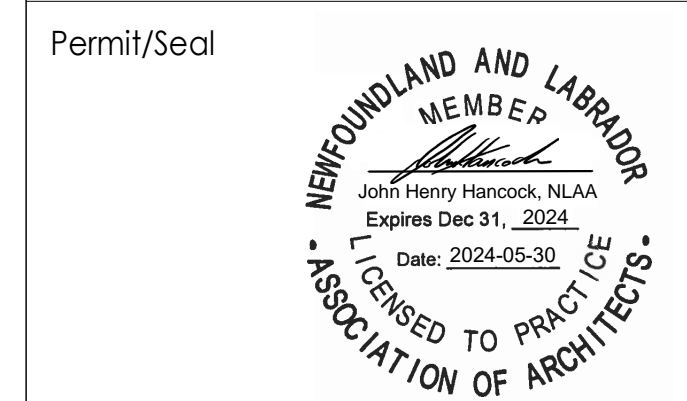


**1 EAST ELEVATION**  
A203 1:200

No.	REVISION	DATE
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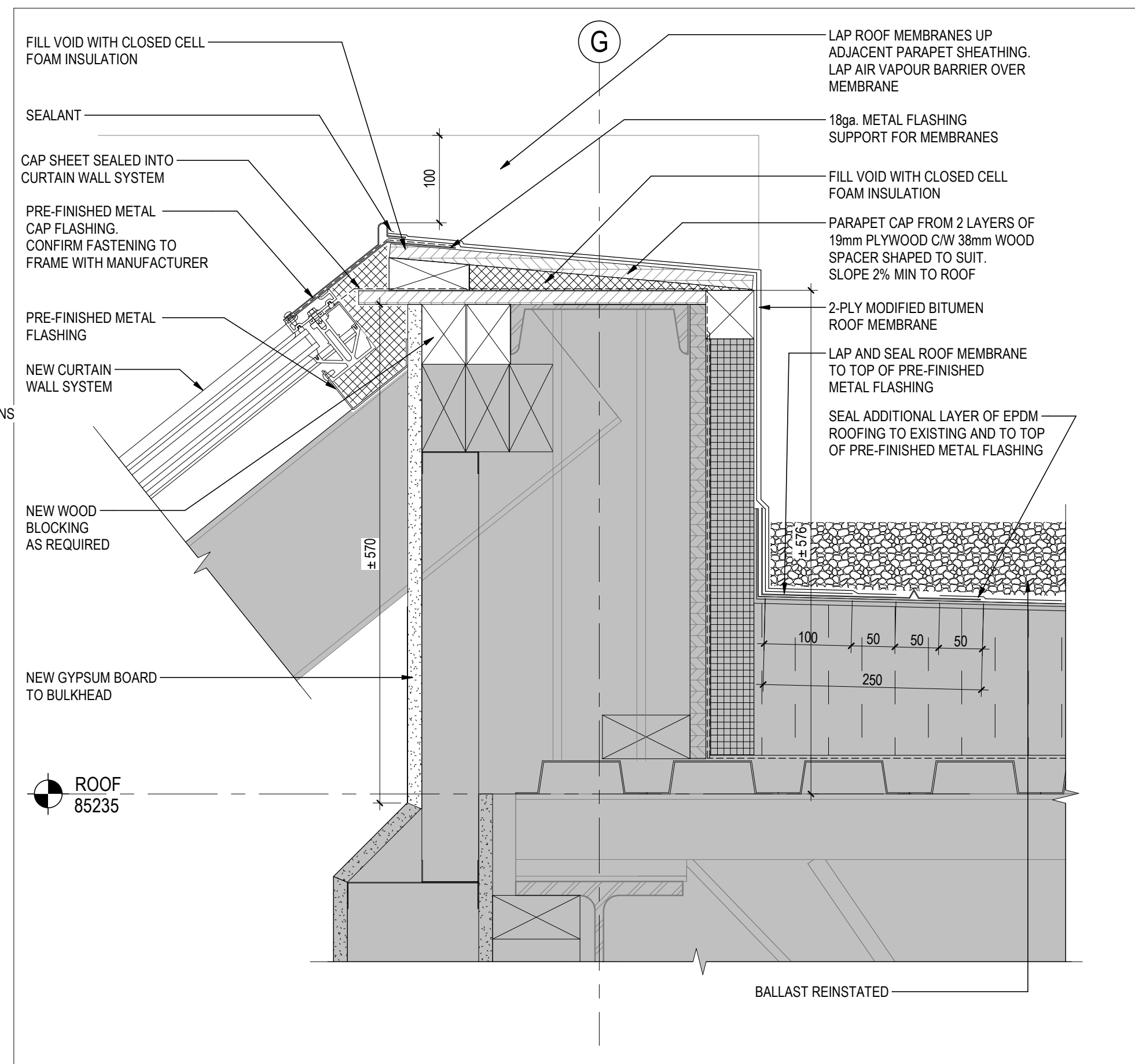
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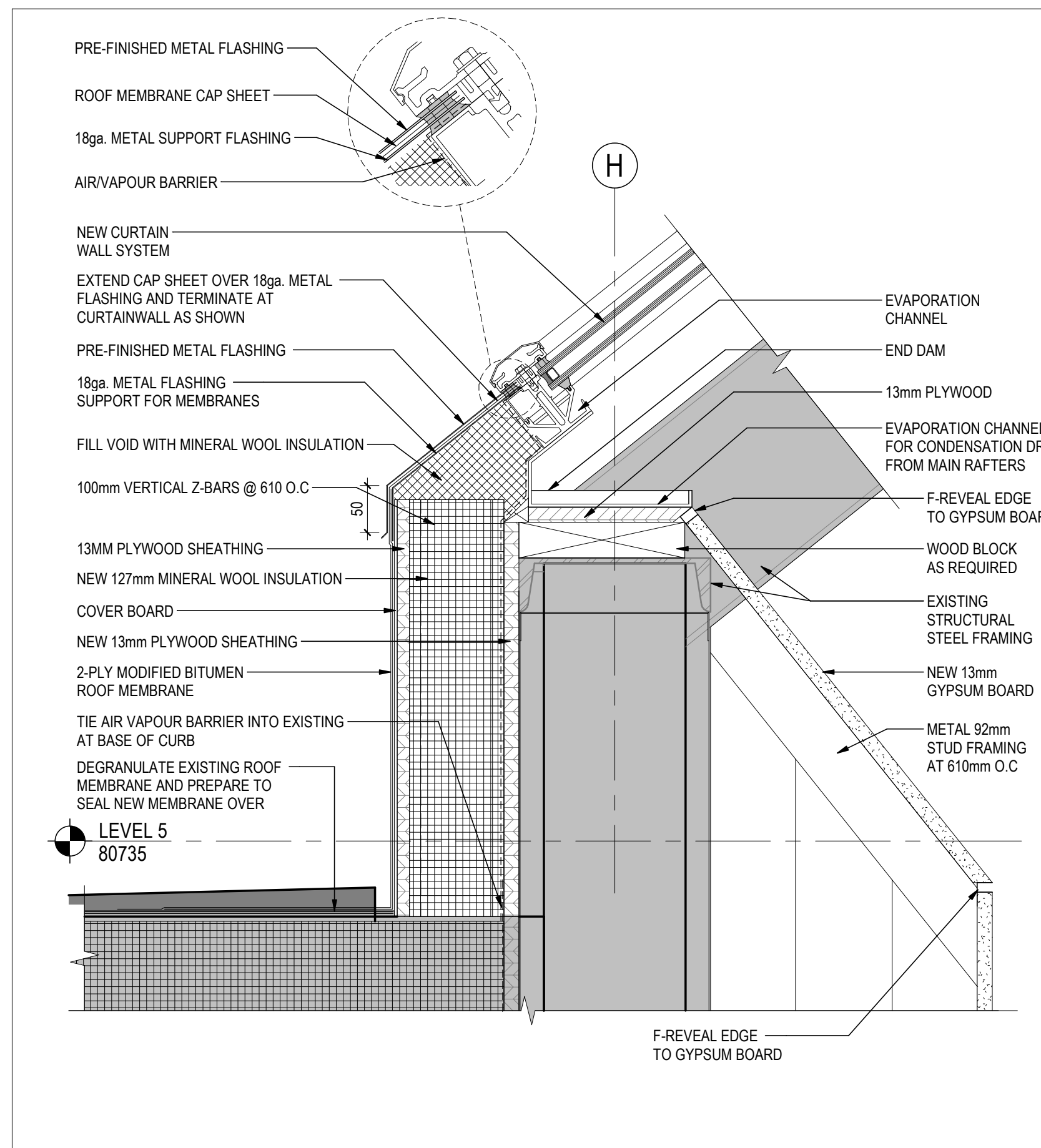
Project #: A-506-22

DRAWING TITLE:  
**DETAILS**

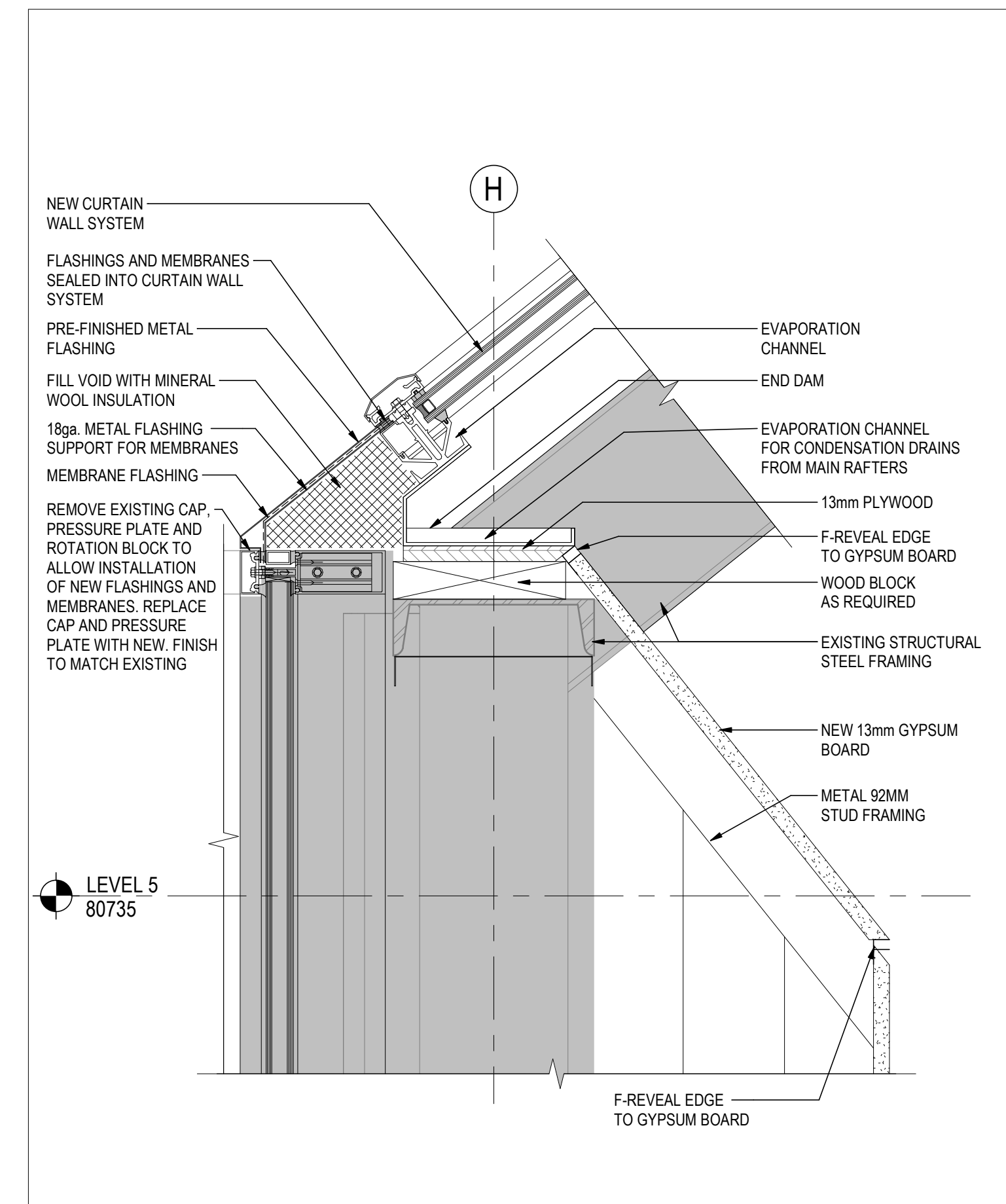
DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A300</b>



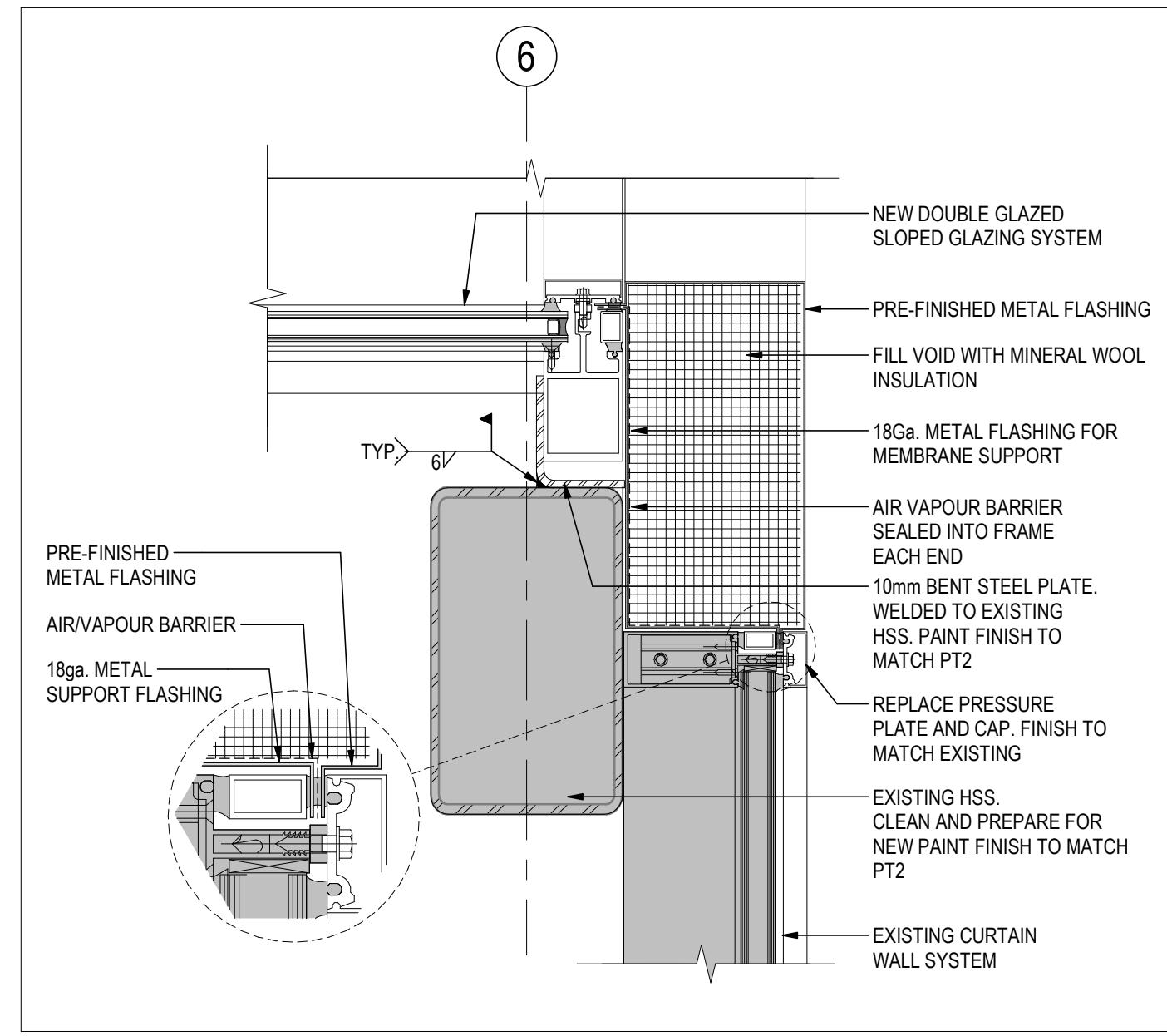
**4 SECTION DETAIL - TOP OF CURTAIN WALL**  
 A300 1:5



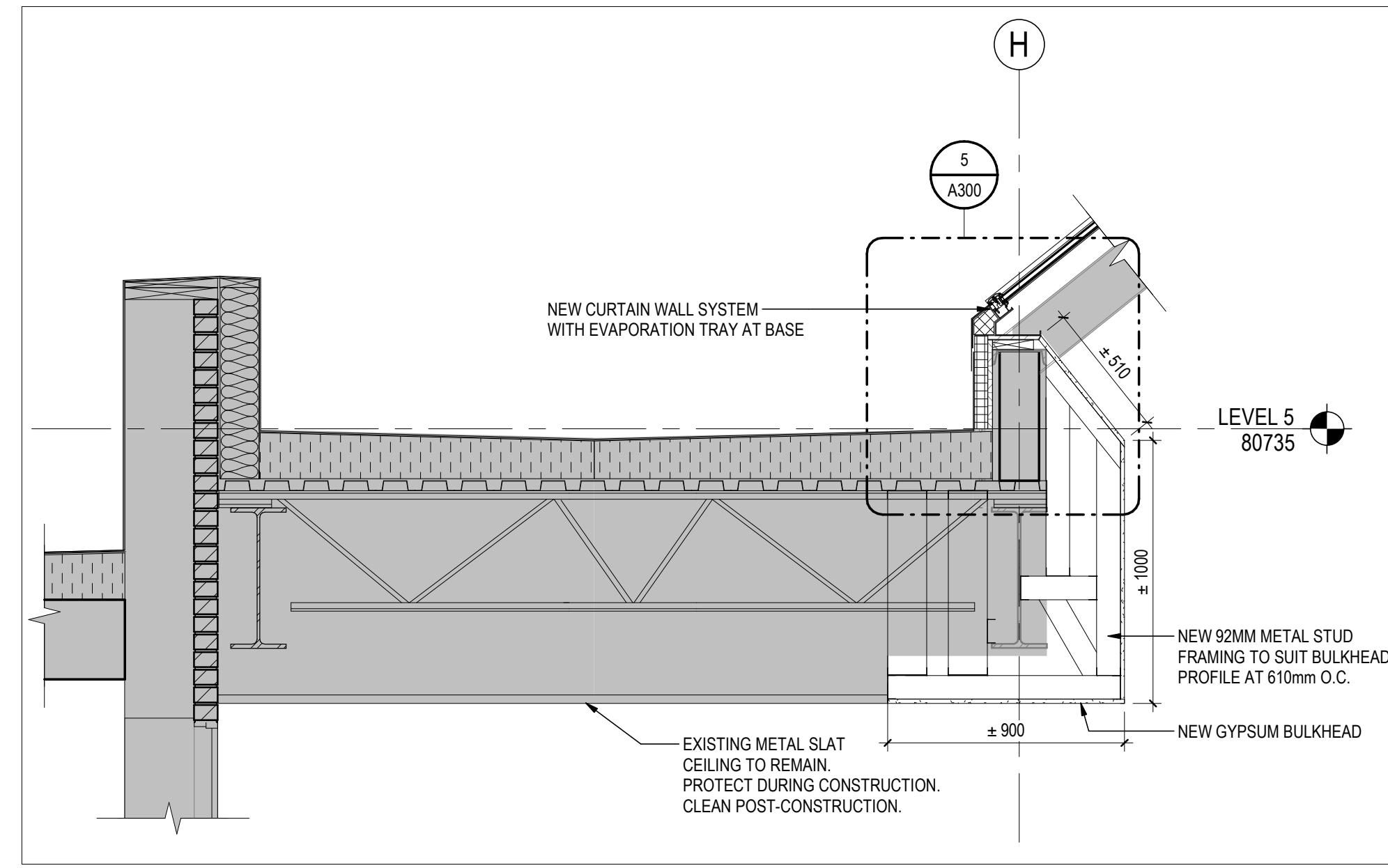
**5 SECTION DETAIL - SLOPED GLAZING TO CURB**  
 A300 1:5



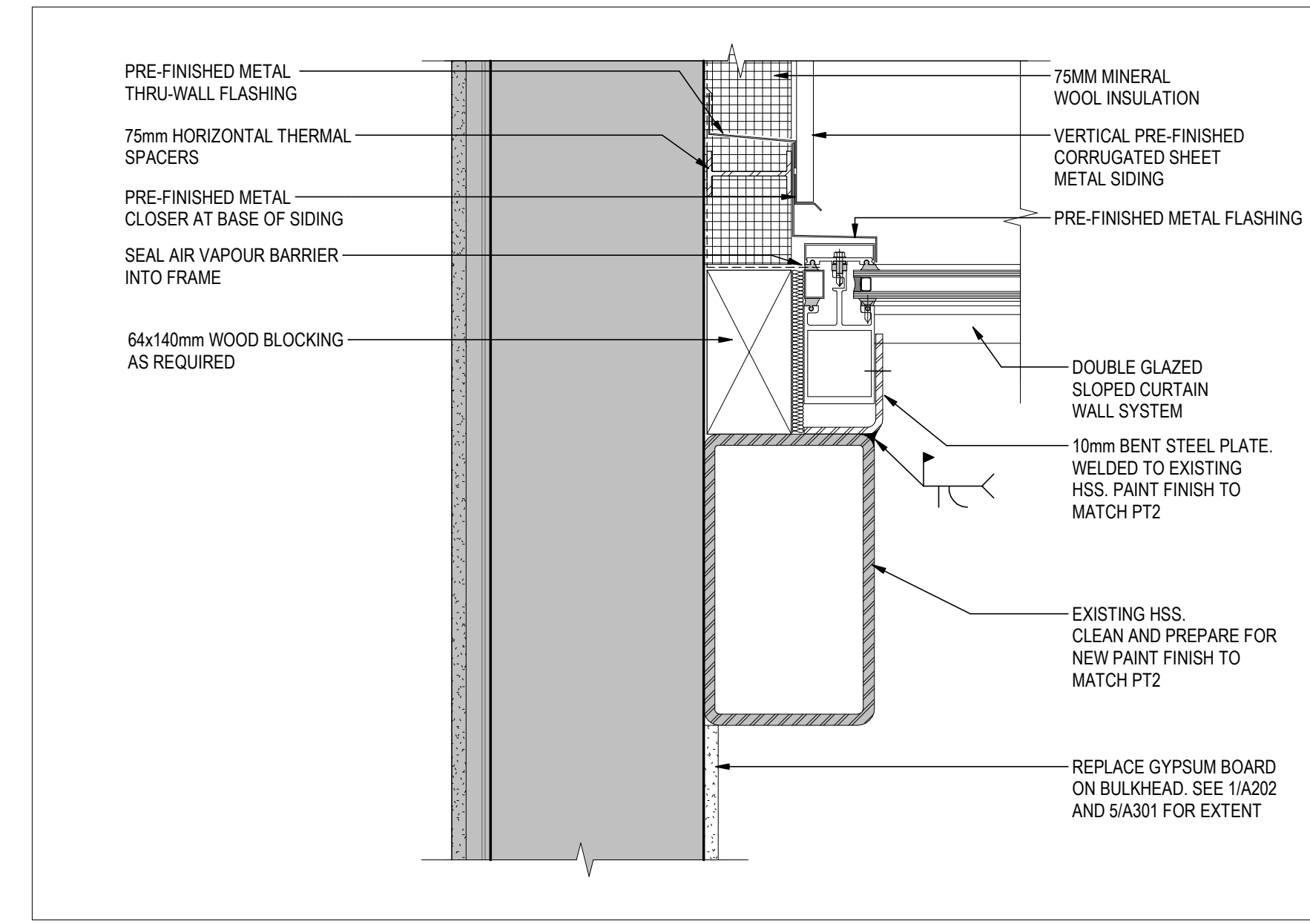
**7 SECTION - SLOPED GLAZING TO CURTAIN WALL**  
 A300 1:5



**1 SECTION - ABUTMENT AT NORTH END**  
 A300 1:5

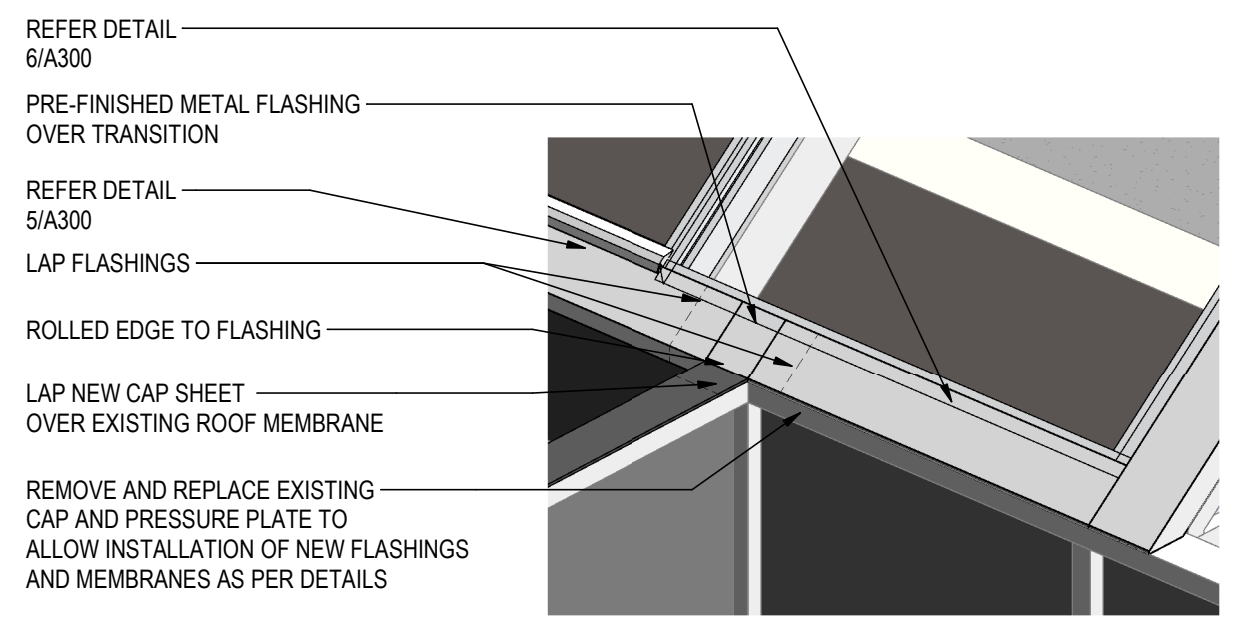


**2 SECTION - BASE OF CURTAIN WALL**  
 A300 1:20



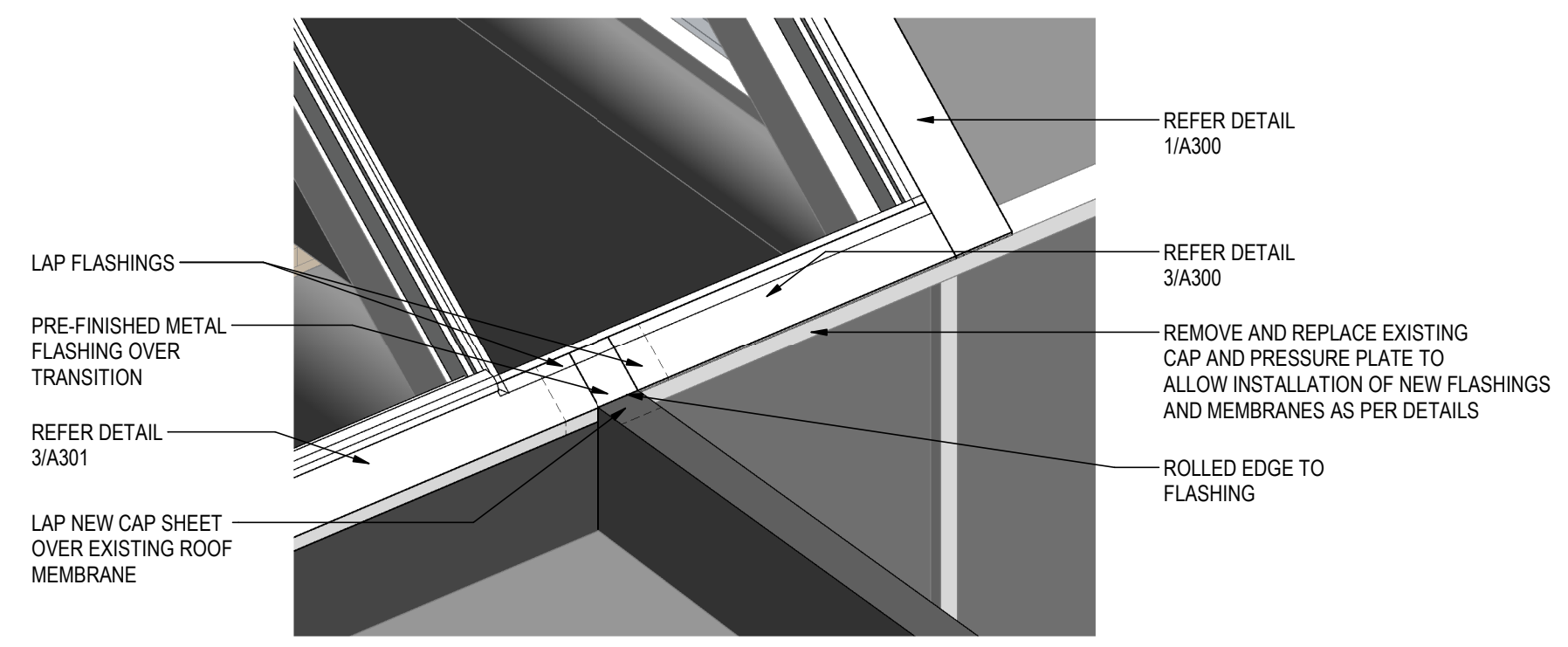
**3 SECTION - ABUTMENT AT SOUTH END**  
 A300 1:5





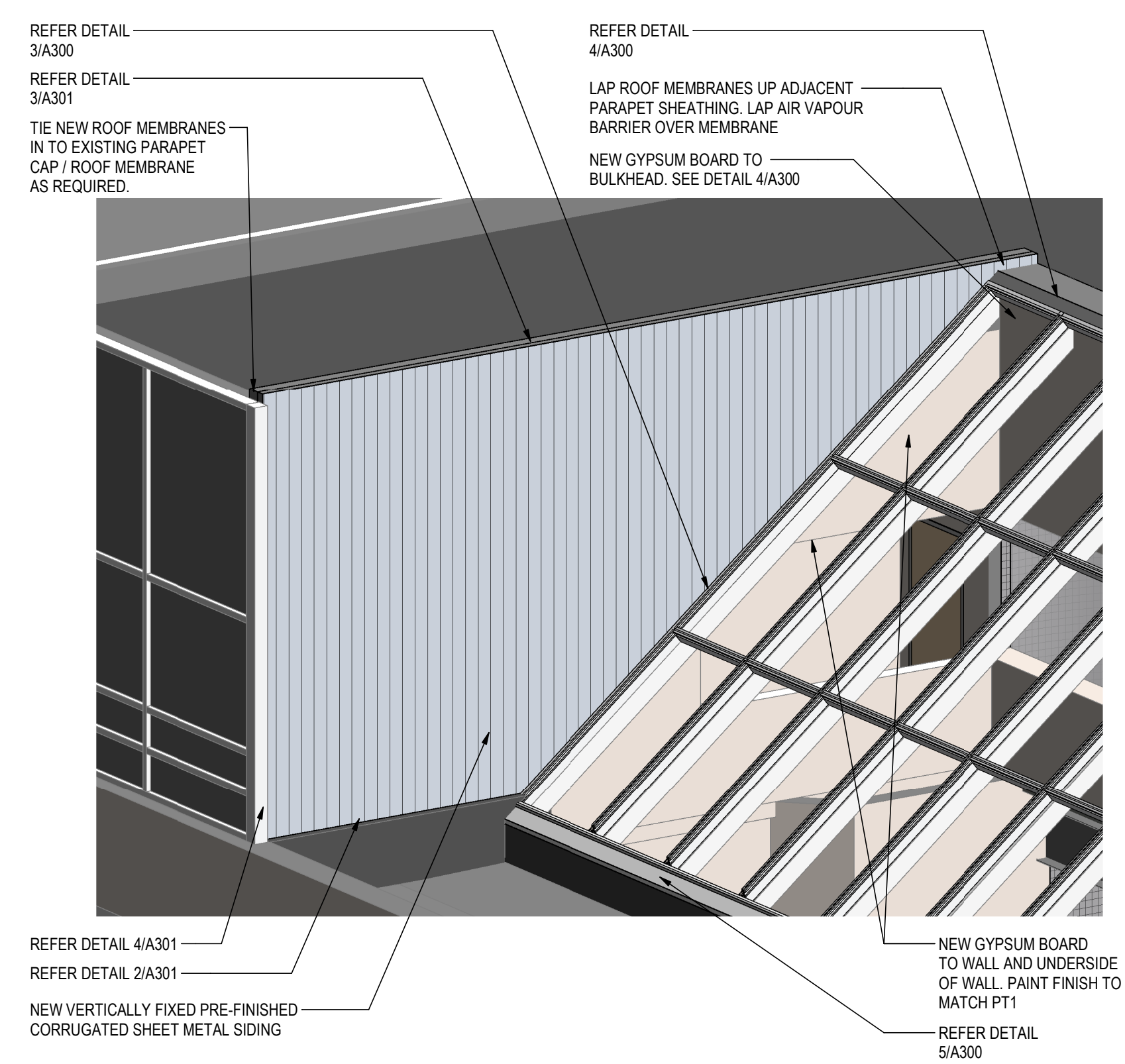
**6 3D - NEW CURTAIN WALL BASE VIEW 2**

A301



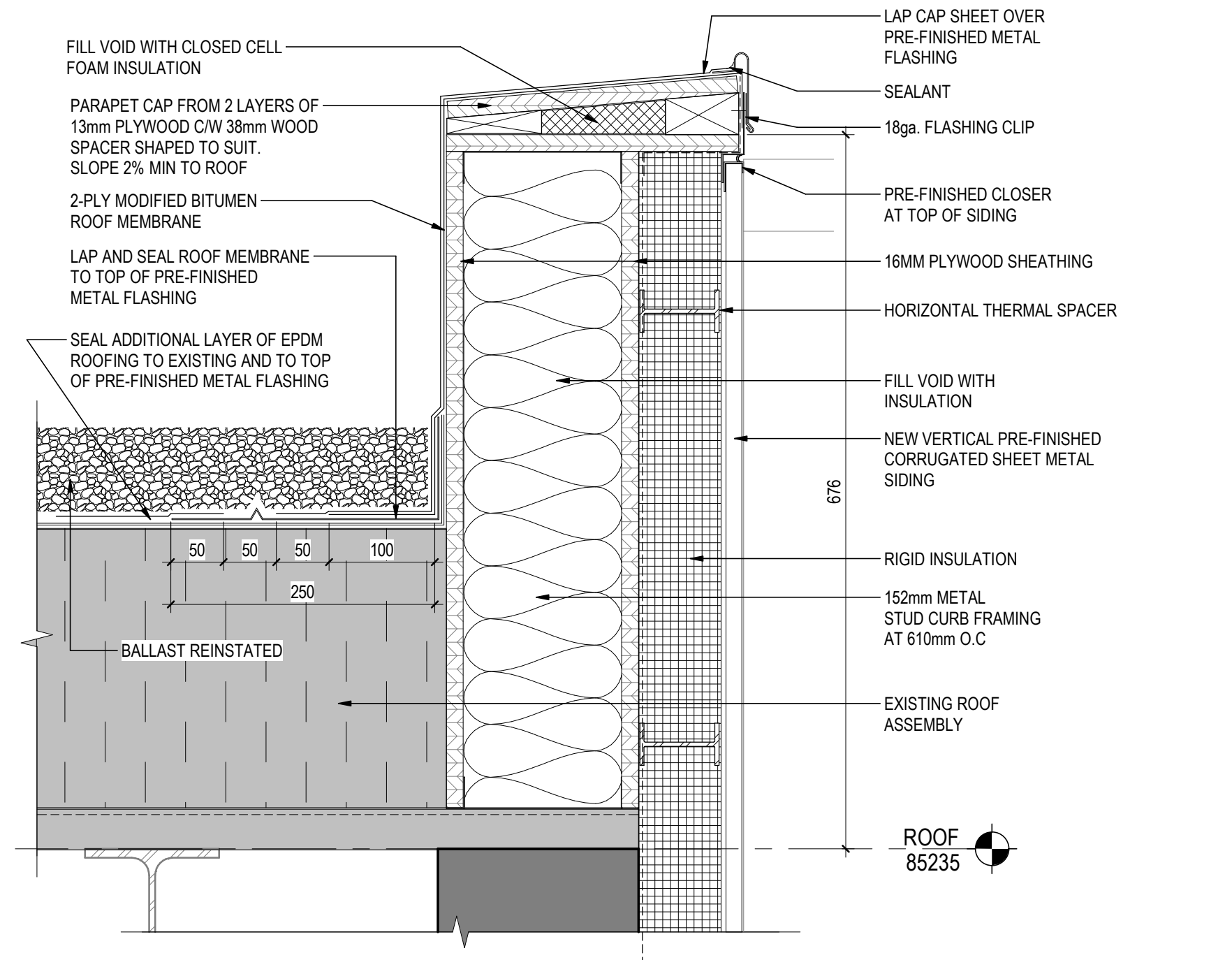
**7 3D - NEW CURTAIN WALL BASE VIEW**

A301



**5 3D - NEW PENTHOUSE WALL ASSEMBLY**

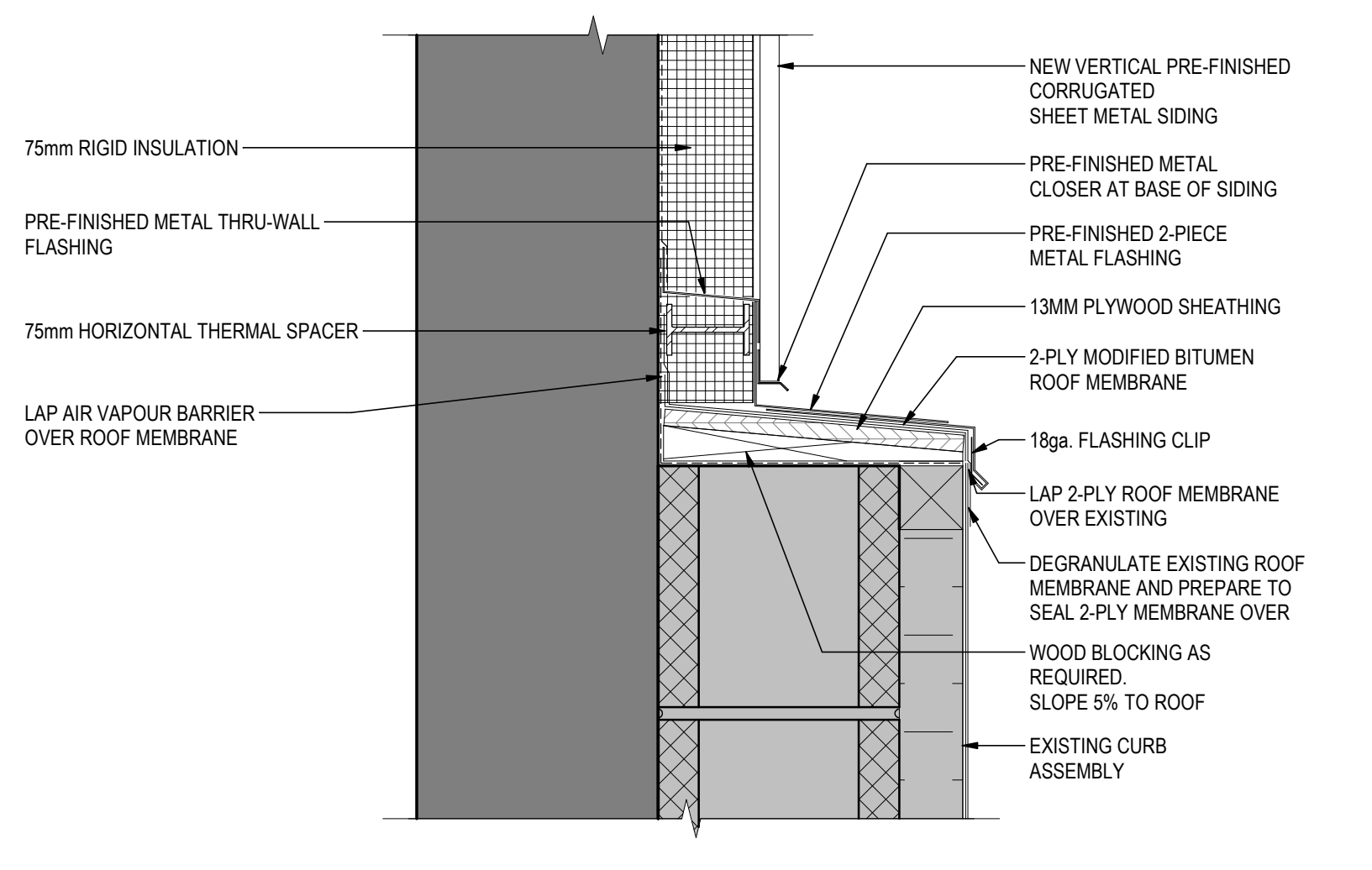
A301



**3 SECTION DETAIL - PARAPET CAP**

A301

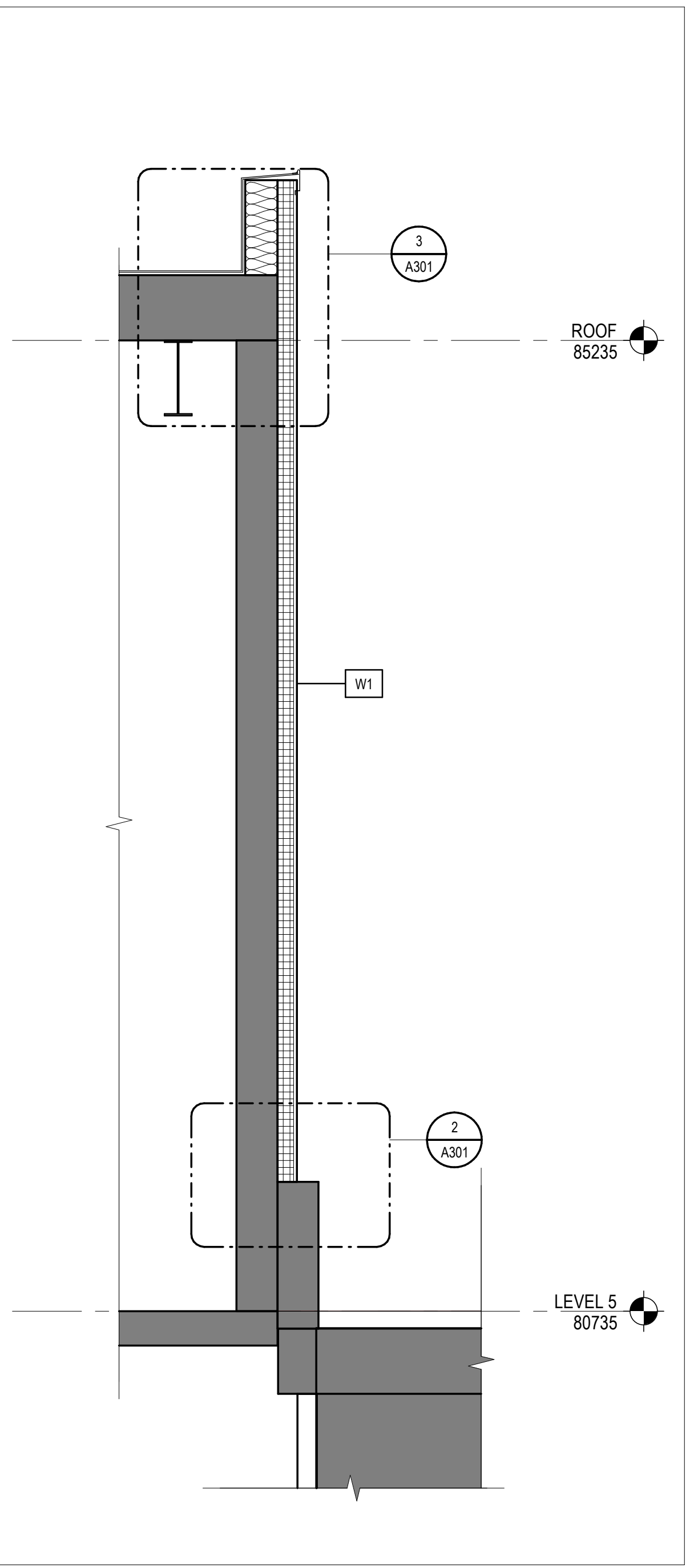
1:5



**2 SECTION DETAIL - TOP OF ROOF CURB**

A301

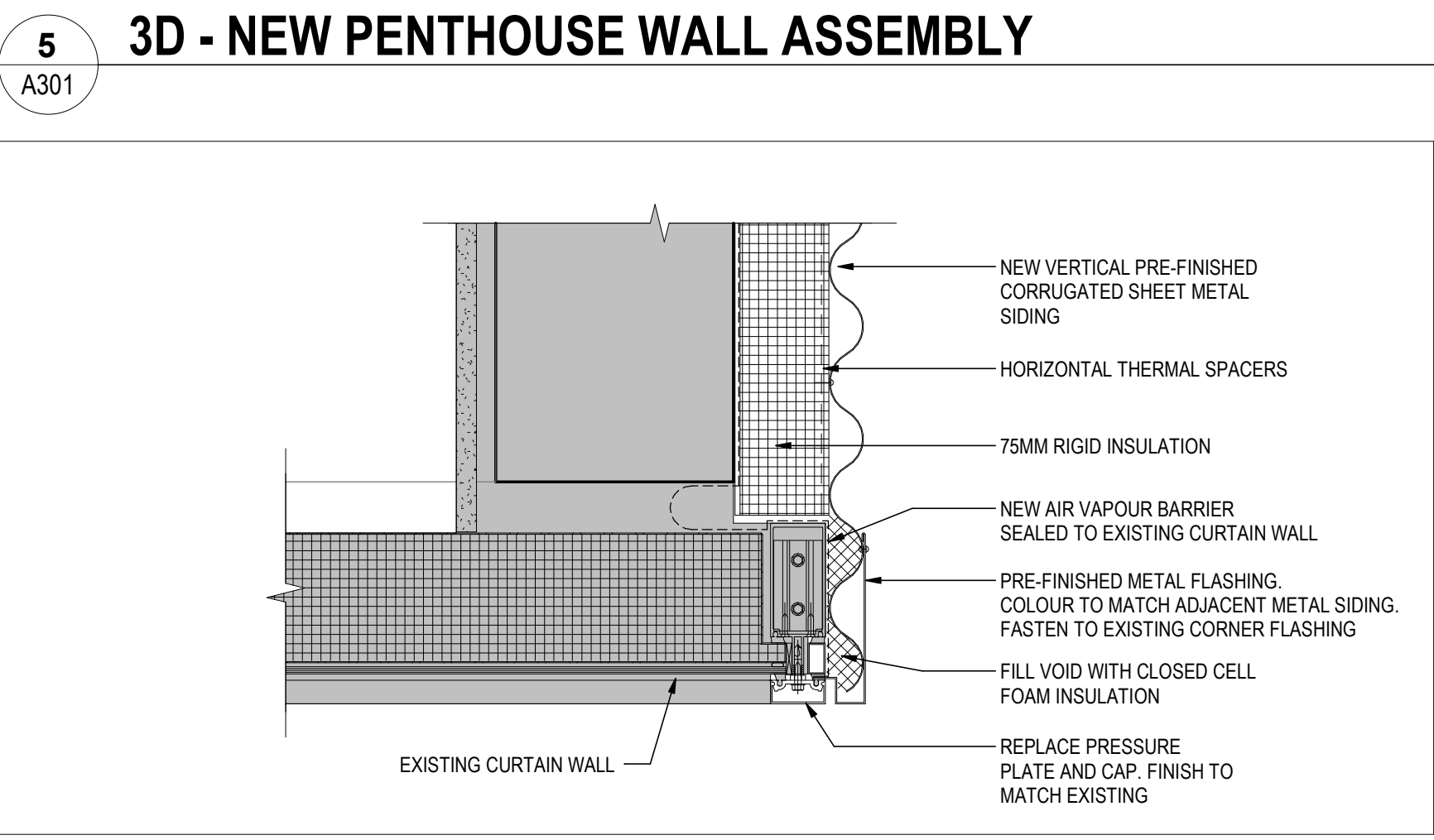
1:5



**1 WALL SECTION 1**

A301

1:20



**4 PLAN DETAIL - CURTAIN WALL ABUTMENT WITH EXISTING**

A301

1:5

A B	A - DETAIL B - LOCATION/DRAWING No. C - DRAWING No.	A B C
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No.	REVISION	DATE
0	ISSUED FOR TENDER	2024.05.30

**GENERAL NOTES**

- DRAWINGS TO BE READ AS A SET.
- DO NOT SCALE FROM DRAWINGS.
- THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO SUBMISSION OF TENDERS.
- ALL DEFICIENCIES FOUND IN THIS DRAWING IS TO BE BROUGHT TO THE ATTENTION OF THE FACILITIES ENGINEERING AND DEVELOPMENT OFFICE OF THE DEPARTMENT OF FACILITIES MANAGEMENT, MEMORIAL UNIVERSITY OF NEWFOUNDLAND PRIOR TO THE SUBMISSION OF THE TENDERS.

Permit/Seal

**Stantec**

Stantec Architecture Ltd.  
141 Kelsey Drive  
St. John's, NL A1B 0L2  
Tel: (709) 576-1458 • www.stantec.com

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**MEMORIAL UNIVERSITY**

Department of Facilities Management

*This University was raised by the people of Newfoundland as a memorial to the fallen in the great wars, 1914-1918, 1939-1945, that in freedom of learning, their cause and sacrifice might not be forgotten.*

- Dedication plaque, Arts & Administration Building, St. John's Campus

PROJECT NAME:  
**ARTS AND ADMINISTRATION BUILDING  
ATRIUM SLOPED GLAZING  
REPLACEMENT**

**230 Elizabeth Ave, St. John's NL**

**Project #: A-506-22**

DRAWING TITLE:  
**DETAILS**

DESIGNED: JHH	DRAWN: NH
REVIEWED: LS	APPROVED: JHH
SCALE: As indicated	DATE: MAY, 2024
STANTEC PROJECT No. 140132824	DRAWING No. <b>A301</b>