

**SPECIFICATION  
FOR  
STORAGE BUILDING CLADDING**

**PREPARED FOR:**

ESSEX REGION CONSERVATION AUTHORITY  
360 FAIRVIEW AVE W., ESSEX, ON

Project No. 224007  
May 10, 2024

**PREPARED BY:**



**CHALL. ENG. Corporation, Consulting Engineers  
12222 Tecumseh Road East, 2<sup>nd</sup> Floor  
Windsor, Ontario, N8N 1L9  
Tel.: (519) 979-7333  
Att.: Jennifer Di Domenico, P.Eng. and Troy Humber, B.Tech.**

**DIVISION 00 – BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS  
OF THE CONTRACT**

Project No. 224007

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SECTION 00 02 00 – FORM OF TENDER

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Submitted by Tenderer: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Contact's Phone No.: \_\_\_\_\_ email: \_\_\_\_\_

To (Owner): Essex Region Conservation Authority  
 For Project: Storage Building Cladding  
 360 Fairview Ave W., Essex, Ontario

Dated: May 10, 2024

General Statement: In accordance with the Contract Documents, including  
 Technical Specifications and Drawings

Documents  
 Prepared by: Chall.Eng. Corporation, Consulting Engineers

No. of Addenda Received: \_\_\_\_\_

We hereby offer to furnish all equipment, labour and material necessary for the proper completion of the above named project, including all prime costs, allowances and Government Sales or other Taxes, as called for in the Technical Specifications, in accordance with the above-mentioned documents as follows:

<b>Tender Price Form – Base Bid</b>				
<b>Item No.</b>	<b>Description of Work</b>	<b>Estimated Quantities</b>	<b>Unit</b>	<b>Price</b>
<b>2</b>	<b>General</b>			
2.1	Mobilization, Access and Demobilization	N/A	Lump Sum	\$
2.2	Out of Town Costs	N/A	Lump Sum	\$
2.3	Protection of Property	N/A	Lump Sum	\$
2.4	Site Restoration and Cleaning	N/A	Lump Sum	\$
2.5	Bonding	N/A	Lump Sum	\$
<b>3</b>	<b>Building Envelope Works</b>			
3.1	Cladding Installation	N/A	Lump Sum	\$
Tender Price (Excluding HST):				
HST (13%):				
<b>TOTAL TENDER PRICE</b> (in lawful money of Canada):				
(Dollars)				
_____				(cents)
(Total Tender Price in Written Form)				

**Optional Prices**

The Owner may accept any of the optional work items and corresponding optional prices in any order or combination, including all or none,

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- (a) the lowest bidder will be determined from the base bid and or with combination of base bid and optional prices whichever is deemed appropriate by the Owner in consultation with the Engineer.
- (b) optional work items and optional prices are open for acceptance by the Owner for the same period of time as the base bid price,
- (c) the Work of the Contract and the Contract Price will reflect the optional work items and optional prices, if any, accepted by the Owner at the time of contract award, and
- (d) acceptance of any optional work items will not affect the base bid contract completion time, unless we have specifically indicated an increase or decrease time, in number of days, on account of a particular optional work item.
- (e) Prices quoted shall remain firm from the date of bid submission to the date the work is fully completed and certified as such by the Engineer. No change in price will be entertained for any reason other than those specified in the bid documents.

<b>Optional Price – Tender Form</b>				
<b>(These costs are not included in the calculation of the base price but will be applied after if the Owner chooses one or more optional prices)</b>				
Item No.	Description of Work	Estimated Quantities	Unit	Price
4.0	<b>Optional Works</b>			
4.1	Pedestrian Door Replacement Works	2	Lump Sum	\$
4.2	Overhead Door Replacement Works	3	Lump Sum	\$

In submitting this Tender, the Tenderer recognizes the right of the Owner to accept or reject any or all Tenders.

In submitting this Tender, the Tenderer recognizes the right of the Owner to accept or reject any or all Tenders.

If this Tender is accepted and the Contract is awarded to us, we, the undersigned, hereby undertake to perform this Contract satisfactorily and guarantee the full performance of the Contract.

We further agree to leave this Tender open for acceptance, for a period of sixty (60) days from the closing date of this Tender.

The following labour rates shall be used for additions or deletions to the Contract Price. These labour rates do not include Harmonized Sales Tax (HST).

NO.	DESCRIPTION	LABOUR / MATERIAL RATE
1	<b>Foreman</b>	\$ /hr
2	<b>Journeyman</b>	\$ /hr
3	<b>Labourer</b>	\$ /hr
4	<b>Project Manager</b>	\$ /hr
5	<b>Other</b>	\$ /hr
7	<b>Materials</b>	<b>20%</b>

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**SUBCONTRACTORS AND SUPPLIERS**

1. The undersigned agrees that the following Subcontractors and/or Suppliers will be employed on the project.
2. Following is a list of Subcontractors that we propose to use for the performance of the identified portions of the Work.
3. Only one (1) Subcontractor shall be listed for each identified portion of the Work. Work to be performed by Contractor is indicated by the words "BY OWN FORCES".
4. We agree that changes to this list will not be allowed without the express written permission of the Owner.
5. We acknowledge that Subcontractors on this list may be so notified by the Owner.

Access:	
Overhead Doors:	
Overhead Door (manufacturer):	
Pedestrian Doors:	
Pedestrian Doors (manufacturer):	
Caulking:	
Metal Cladding and Trim:	

**ACCEPTANCE AND CONTRACT**

If awarded the contract for this work within Sixty (60) calendar days or less of the date set for receipt of Tenders, the undersigned agrees:

To commence the work by: \_\_\_\_\_

To complete the work by: \_\_\_\_\_

No. of full time Site Personnel: \_\_\_\_\_

Forman Name / Years of Experience: \_\_\_\_\_

**LEGAL NAME OF COMPANY:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**POSTAL CODE:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

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**FAX NUMBER:** \_\_\_\_\_

**EMAIL ADDRESS:** \_\_\_\_\_

**SIGNATURE OF AUTHOURIZED OFFICER(S):** \_\_\_\_\_

**NAME AND POSITION OF  
SIGNING OFFICER(S):** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

In the case of a Limited Company, the Company seal shall be affixed to their Tender where the signature of the Signing Officer(s) of the Company appears, as well as the legal and registered name of the company.

**END OF SECTION**

**Part 1      Scope of Work****1.1      SCOPE OF WORK**

- .1      The Work as specified below and as noted on the attached Schedule No. 1 shall form the basis of this Contract to carry out the installation of siding on all elevations of this building and replace the exterior doors at 360 Fairview Ave W., Essex, Ontario.

**Part 2      General****2.1      MOBILIZATION, ACCESS, AND DEMOBILIZATION:**

- .1      The Contractor is to provide and undertake the following:
  - .1      Mobilize to the site and provide all access, materials, tools, and equipment necessary to facilitate and carry out works.
  - .2      Maintain the work area in an organized manner, clean site of debris daily and dispose to a suitable location off site on a weekly basis.
  - .3      Provide notice to the Owner two (2) weeks prior to mobilization to facilitate notice to Suite Tenants.
  - .4      Provide access to the Owner and Engineer to inspect the work area prior to work, through-out progress and upon completion.
  - .5      Maintain a full copy of all project documents on site at all times.
  - .6      Provide portable washroom facilities at the site building for use by the Contractor's forces at no additional cost to the Owner.
- .2      Payment of this item will be released in equal amounts with the first and last payment.

**2.2      OUT OF TOWN COSTS:**

- .1      Should the Contractor not have an office / shop located within 100 km of Windsor Essex County, the Contractor is to include a breakout of their out of town costs, including labour housing, meals, and travel.
- .2      Payment of this item will be released in equal payments, based on the anticipated schedule and the Contract Value.

**2.3      PROTECTION OF PROPERTY:**

- .1      The Contractor is to provide and undertake the following:
  - .1      Take all measures to protect the site and existing site finishes and façade elements from damage by the Contractor's work.
  - .2      Erect and maintain fencing, hoarding, dust barriers and construction signage at the perimeter of the work / staging areas, and at entrance / exit doors, as required to

undertake the work in accordance with Technical Specification Section 01 56 00 Temporary Works.

- .3 Post traffic signs and barriers which may include, but are not limited to, snow fencing, plywood, barrels, plastic sheeting and supports, saw horses and caution tape.
- .4 Advise Owner / Engineer of proposed barriers. Maintain all pedestrian and vehicle traffic flow around the site at all times during the work.
- .2 Payment of this item will be released in equal payments, based on the anticipated schedule and the Contract Value.

## **2.4 SITE RESTORATION AND CLEANING:**

- .1 The Contractor is to provide and undertake the following:
  - .1 Prior to mobilization to the site, document site conditions.
  - .2 Take preconstruction photographs and distribute copies to the Owner.
  - .3 Take care to protect the building from dust and fume infiltration during the work, utilizing dust enclosures, exhaust fans and curtains to control dust.
  - .4 Protect adjacent surfaces during construction operations, including equipment and storage of materials.
  - .5 Take all measures possible to protect the existing buildings and finishes during the construction.
  - .6 Restore the suite finishes (interior and exterior) to their preconstruction condition or better prior to demobilizing from each suite.
  - .7 Restore the site finishes to their preconstruction condition or better prior to final demobilization.
- .2 Payment of this item will be released with the final application for payment.

## **2.5 BONDING**

- .1 Arrange, obtain and submit bonds specified in Technical Specification .Section 00 21 13 to the Engineer.
- .2 Payment of this item will be released with the first invoice following submission of specified bonds.

## **Part 3 Building Envelope Works**

### **3.1 CLADDING INSTALLATION**

- .1 Provide all access, labour, materials, equipment, site safety, and supervision to install metal siding on all elevations of the building including, but not limited to, the following:
  - .1 Remove the existing chain link fencing on the south side of the building as required and reinstall after siding installation has been completed.
  - .2 Remove existing bollards at locations as shown on Drawings E1 and E2 and replace with new bollards after siding installation has been completed. New bollards to match



- existing in size and location from finished building. This work includes preparing for painting, 1 coat of primer and 2 coats of safety yellow finish paint.
- .3 Remove all existing light fixtures at locations as shown on Drawings E1 and E2 and replace with new light fixtures (RSXF1 LED floodlight by Lithonia or approved equal) after siding installation has been completed.
  - .4 Remove all existing exhaust fans and vents from the building, store on site and reinstall after siding installation has been completed. This work includes extending the ductwork as required to suit the thickness of the new cladding assembly.
  - .5 Extend all piping penetrations as required to suit the thickness of the new cladding assembly.
  - .6 Remove the existing signage on the west elevation of the building and turn over to Owner.
  - .7 Remove existing hose hanger on east elevation of building, store on site and reinstall after siding installation has been completed.
  - .8 Remove the existing eavestrough and downspouts at location as shown on Drawing E1, and replace with new eavestrough and downspouts in accordance with Technical Specification Section 07 42 43 and Drawing D1 after siding installation has been completed.
  - .9 Repair all existing lintels at locations as shown on Drawings E1 and E2. This work includes cleaning and removing all loose debris and painting with a zinc rich primer. Colour to match trim colour as selected by the Owner.
  - .10 At locations as shown on Drawings E1 and E2, install air barrier, insulation, “Z” girts, stiffeners and metal siding, including all associated metal flashings and trim on the all elevations of the building in general conformance with Technical Specification Sections 07 42 43 Sheet Metal Siding and 07 62 00 Sheet Metal Flashing and Trim, and Drawings D1 to D3.
  - .11 Apply sealants at the termination of the siding with adjacent dissimilar materials and masonry, and around the metal door frames, openings, and penetrations as per Technical Specification Section 07 90 00 Sealants, Drawings E1 and E2, and manufacturer’s printed instructions.
- .2 Payment will be released monthly based on percentage of work completed at the end of the month.

#### **Part 4 Optional Works**

##### **4.1 PEDESTRIAN DOOR REPLACEMENT WORKS**

- .1 Provide all access, labour, materials, equipment, site safety, and supervision to remove and replace all existing hollow metal doors and frames on all elevations of the building in accordance with Technical Specification Section 08 11 00 and Drawings E1 and E2. Doors to match existing size and style, with colour as selected by the Owner.

**4.2 OVERHEAD DOOR REPLACEMENT WORKS**

- .1 Provide all access, labour, materials, equipment, site safety, and supervision to remove and replace all existing hollow metal doors and frames on all elevations of the building in accordance with Technical Specification Section 08 11 00 and Drawings E1 and E2. Doors to match existing size and style, with colour as selected by the Owner.

**END OF SECTION**

**Part 1            General****RELATED SECTIONS**

- .1 Section 00 02 00 – Form of Tender

**OWNER**

- .1 Owner shall mean Essex Region Conservation Authority (ERCA).

**ENGINEER**

- .1 Engineer shall mean Chall.Eng. Corporation, Consulting Engineers (CEC).

**CONTRACTOR (OR TENDERER)**

- .1 Contractor (or Tenderer) shall mean the Corporation as noted on the Form of Tender.

**PROJECT DESCRIPTION**

- .1 The Work is identified as Storage Building Cladding, located at 360 Fairview Ave W., Essex, Ontario, also known as Project Number 224007, as prepared by Chall.Eng. Corporation, Consulting Engineers.
- .2 In general, the scope of work includes, but is not limited to, installation of metal siding cladding and replacement of hollow metal and overhead garage doors.
- .3 See Technical Specification Section 01 11 00 for detailed summary of work.

**TENDER DOCUMENTS**

- .1 The Tender Documents for this project shall include all Technical Specifications and Drawings as listed in Section 00 00 00 Table of Contents.
- .2 In the event of any inconsistency or conflict in the provisions of the Technical Specifications and the Drawings, the Technical Specifications, then the Drawings shall take precedence.
- .3 The Owner does not assume any responsibility for the correctness, accuracy or completeness of the Drawings with respect to the location of existing concealed conditions or other objects (man-made or natural), and should the Drawings be found to be incorrect or incomplete, the Contractor shall not have any claim on this account prior to commencing with the work. Prior to commencing with the work, the Contractor shall confirm the information and dimensions as shown on the Drawings and as noted in the Scope of Work. Notify the Engineer immediately of any discrepancies or errors.

**GENERAL REQUIREMENTS**

- .1 The Contractor shall furnish all access, labour, equipment and materials necessary to complete all work as specified herein.
- .2 All labour shall be performed by competent workers and to reasonable standards of workmanship.

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- .3 All materials furnished under this Contract shall be new and undamaged, and must satisfy all Codes or Regulations.
- .4 Substitute materials shall only be used if approved by the Owner and Engineer, and Tenderers shall not base their Tenders on substitute materials unless noted in an Addendum. The submission process for substitutions is noted in Section 3.2.
- .5 This Tender is for a Stipulated Price Contract CCDC No. 2 (Latest Edition), and Technical Specification Section 01 34 00.

**Part 2 Tender Submission**

**REQUIREMENTS**

- .1 Tenders shall be submitted in accordance with Table 1 – Summary of Submission Requirements.

*Table 1 – Summary of Submission Requirements*

<b>Item</b>	<b>Requirements</b>
Submission items:	Upload one (1) digital copy in Adobe PDF readable format of the following: 1. Item 2.3 Mandatory Requirements; 2. Section 00 02 00 Form of Tender
Submission deadline:	<b>May 29, 2024, at 2:00 pm</b>
Submission location:	Email responses to: 1. Engineer: Ms. Jennifer Di Domenico, P.Eng, of Chall.Eng. Corporation, at <a href="mailto:jdidomenico@cec14.com">jdidomenico@cec14.com</a> ; and 2. Owner’s Representative: Mr. Kevin Money, of ERCA at <a href="mailto:kmoney@erca.org">kmoney@erca.org</a>

- .2 Failure to comply with the above noted submission requirements may result, at the sole discretion of the Owner, in disqualification of the Tender Submission.
- .3 Late Tenders, or Tenders submitted to the location other than that specified, will not be accepted.
- .4 By submitting a Tender, the Tenderer agrees to every term, provision and condition set out in these Instructions to Bidders.

**AMENDMENTS/WITHDRAWAL OF TENDER SUBMISSIONS**

- .1 At any time prior to the Submission Deadline, a Contractor may withdraw and amend its Tender Submission. A Contractor wishing to amend its Tender Submission shall withdraw its initial Tender Submission and replace it with a complete, revised Tender Submission prior to the Submission Deadline. Should a Contractor submit more than one amendment for the same purpose, the one bearing the later date/time confirmation will be evaluated unless it is received after the Submission Deadline.
- .2 A Tenderer may withdraw its Tender at any time prior to the official closing time by submitting a letter rejecting its bid and bearing its signature, to the place of closing specified.

**MANDATORY REQUIREMENTS**

- .1 The Owner reserves the right to determine if each Contractor meets the mandatory requirements.
- .2 Each Tender shall include a completed Form of Tender, an Agreement to Bond, WSIB Clearance and Insurances.
  - .1 Form of Tender
    - .1 The prices as tendered shall include the supply of all access, labour, materials and equipment, including all incidentals such as insurances, to complete the works in this Tender to the satisfaction of the Owner.
    - .2 If a Tenderer has omitted to enter a price for an item of work set out in the Form of Tender, the Tenderer shall, unless specifically stated otherwise in the Tender, be deemed to have allowed elsewhere in the Form of Tender for the cost of said item of work and, unless otherwise agreed to by the Owner, no increase shall be made in the Form of Tender on account of such omission.
    - .3 All Provincial sales taxes and import duties shall be included in the Total Tender Price.
    - .4 The cost of any works, equipment and/or labour not specifically noted in the Summary of Work that are required to complete the works properly, and the cost of all incidentals, such as insurances, overhead, profit, coordination, etc. that are noted in these Technical Specifications and on the Drawings, shall be included in the Total Tender Price. There will be no additional payment for incidentals.
  - .2 Agreement to Bond
    - .1 The Contractor shall submit an Agreement to Bond issued by a bonding company licensed in the Province of Ontario, in a form acceptable to the Owner, obliging the bonding company to issue Performance and Labour and Material Payment Bonds.
    - .2 The cost of the bonds shall be included in the Form of Tender.
  - .3 WSIB Clearance
    - .1 The Contractor shall submit written evidence to the Owner that they are covered under the Worker's Compensation Act.
  - .4 Insurances
    - .1 The Contractor shall submit written evidence to the Owner that they carry liability and property damages of Five Million Dollars (\$5,000,000) insurance.
    - .2 The Owner, the Engineer, and all parties listed in Section 5.2.2 are to be named as additionally insured.
    - .3 The insurance policy shall include a Cross Liability clause.
    - .4 Standard Non-Owned and Owner's Form Automobile Liability Insurance shall have a minimum of \$2,000,000 PLPD.
    - .5 All Risks Builder's Insurance, Liability and Fire Insurance coverage shall be for the full value of the Total Tender Price.
    - .6 The policy shall not exclude any peril that can reasonably be expected in completing the proposed work.

**BONDS**

- .1 Performance Bond
  - .1 A Performance Bond in the amount of Fifty Percent (50%) of the Total Tender Price shall be provided by the successful Contractor.
  - .2 The Performance Bond issued by the Surety of the Tenderer's choice shall become part of the Agreement or Contract before the Contract is awarded.
- .2 Labour and Material Payment Bond
  - .1 A Labour and Material Payment Bond in the amount of Fifty Percent (50%) of the Total Tender Price shall be provided by the successful Contractor.
  - .2 A Labour and Material Payment Bond issued by the Surety of the Tenderer's choice shall become part of the Agreement or Contract before the Contract is awarded.

**Part 3 Access and Inquiries**

**PRE TENDER MEETING**

- .1 A Mandatory Pre Tender Site Meeting will be held on May 17, 2024 at 11:30 am. Contractors are requested to park in the North Parking Lot.
- .2 Before submitting its Tender, each Tenderer shall be held responsible to have examined the premises and satisfied themselves as to the existing conditions under which they will be obliged to operating in performing the work. No extras will be allowed for the failure to make the examination.

**SUBSTITUTIONS**

- .1 The Tender Price shall be based upon materials and equipment specified or approved equivalents.
- .2 Contractors and suppliers wishing to obtain approval for equipment and/or material items as equivalent to those specified shall submit a minimum of five (5) days prior to the Tender Closing Date, complete with the following:
  - .1 Product name and manufacturer's name, address, telephone numbers, and web site.
  - .2 Reason(s) for proposing the substitution.
  - .3 A statement verifying that the substitution will not affect the Contract Price and Contract Time.
  - .4 A statement verifying that the substitution will not affect the performance or warranty of other parts of the Work.
  - .5 Manufacturer's product literature for the substitution, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.
  - .6 A summarized comparison of the physical properties and performance characteristics of the specified product and the substitution, with any significant variations clearly highlighted.
- .3 Contractors will be notified of acceptable substitutions via email, a minimum of two (2) days prior to the Tender Closing Date.

- .4 Deviations from Specifications must be stated in writing at the time of submission.

**QUESTIONS**

- .1 It is the responsibility of the Tenderer to clarify any details in question and not mentioned in this Tender or shown on the accompanying drawings before submitting their Tender. No allowance will be made for the Tenderer not being familiar with this Tender.
- .2 Any inquiries or questions concerning this project should be directed, by email, to Ms. Jennifer Di Domenico, of Chall.Eng. Corporation, Consulting Engineers, by email at [jdidomenico@cec14.com](mailto:jdidomenico@cec14.com). Telephone inquiries will not be accepted.
- .3 If the Engineer considers a question to be relevant to all Contractors, the Engineer will provide both the question and the answer in the form of an addendum.
- .4 Any oral or written response provided by anyone other than the Engineer in connection with this Tender will neither be binding on the Owner, nor will it change, modify, amend or waive the requirements of this Tender in any way.
- .5 The last day for questions is May 22, 2024 at 12:00 pm. Any questions submitted after this time will not be answered.

**ADDENDA**

- .1 All addenda will be issued by email only and circulated to all Tenderers.
- .2 If any addenda are issued, the Tenderer shall indicate the number of addenda that the Tenderer received in the appropriate blank space on the Form of Tender. If no addenda are received, the Tenderer shall indicate zero.
- .3 The Owner reserves the right to reject any Tender Submission that fails to identify addenda issued against the Tender Documents.
- .4 Addenda items shall govern and supersede any items in the Technical Specifications and the Drawings.
- .5 The last addendum will be issued no later than May 23, 2024 at 5:00 pm.

**Part 4 Tender Award****ACCEPTANCE/REJECTION OF TENDERS**

- .1 Tenders shall remain open for acceptance for a period of sixty (60) calendar days commencing on and including the day on which the Tenders are received.
- .2 The Owner reserves the right to accept or reject any or all Tenders and to waive or not waive any informalities as it may deem advantageous.
- .3 The lowest or any Tender may not be accepted.
- .4 The Form of Tender and any Mandatory Requirements shall be legible in ink or typewritten.

- .5 Tender Submissions which are unsigned, improperly signed or sealed, incomplete, unbalanced, conditional or obscure, or which contain erasures or alterations not properly initialed, or irregularities of any kind, may be rejected.
- .6 The Owner may, as permitted by the Tender Documents, or with the agreement of any party with whom it has entered into, or proposes to enter into, a Contract, delete, add or change items in the Technical Specifications and Drawings at any time before or after Tender acceptance.
- .7 A Tender is considered as accepted by the Owner upon receipt of a Letter of Authorization, with a CCDC No. 2 Stipulated Sum Contract to follow to the Tenderer.

**Part 5 Pre-Construction****BUILDING PERMITS AND INSPECTIONS**

- .1 A Building Permit is not required to be obtained for these works.

**COMMENCEMENT AND COMPLETION**

- .1 The Contractor shall commence the Work by June 10, 2024 and be substantially complete by August 5, 2024.
- .2 Prior to commencing the Works, the Contractor shall submit and obtain approval from the Owner for the following documents:
  - .1 Notice of Project – Ministry of Labour;
  - .2 Insurances, which name the Essex Region Conservation Authority as insured, and Chall.Eng. Corporation, Consulting Engineers, as additionally insured;
  - .3 Bonds – Performance, Labour and Material Payment Bonds;
  - .4 Project Schedule;
  - .5 WSIB Certificate of Clearance;
  - .6 CCDC No. 2 Contract signed and sealed;
  - .7 Schedule of Values; and
  - .8 Manufacturer's Technical Information as noted in the Technical Specifications or on the Drawings.
- .3 Should the Contractor not complete the Works within the time frame as specified, the Owner may proceed with the work using its own forces or hire or employ such labour, firms, materials, and/or equipment as is necessary to complete the work and charge all costs so incurred in excess of the Contract Price, against the Contractor or recover in a court of competent jurisdiction as a debt due to the Owner.

**Part 6 Contract Modification****CHANGE ORDER PROCEDURES**

- .1 Upon issuance by the Engineer to the Contractor of a proposed change in the Work, and unless otherwise requested in the proposed change or unless otherwise agreed:



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- .1 Submit to the Engineer a fixed price quotation for the proposed change in the Work within 5 days after receipt of the proposed change in the Work.
- .2 Include in the quotation the increase or decrease to the Contract Time, if any, for the proposed change, stated in number of days.
- .3 Include in the quotation the number of days for which the quotation is valid.
- .2 The quotation will be evaluated by the Engineer and the Owner and, if accepted by the Owner, be documented in the form of a signed Change Order.
- .3 Where there is to be a valuation of changes in the work and lump sum or units prices cannot be agreed upon, the cost and percentages fee will be determined as the total of the following:
  - .1 Actual cost of labour, including such items as Work Place and Insurance Board Clearance Certificate and Unemployment Insurance or labour cost based on agreed upon schedule of rates;
  - .2 Actual cost of materials to be incorporated into the Work, including such items as freight and taxes;
  - .3 For Work done by the Contractor, an amount equal to 10% of the totals from subsections (.1) and (.2) above, which shall constitute overhead (5%) and profit (5%) of the Contractor, unless subsection (.1) is based on the schedule of rates in which case no surcharge will apply on the latter;
  - .4 For Work done by Sub-Contractors, an amount equal to 15% of the totals from subsections (.1) and (.2) above, which shall constitute overhead (5%) and profit (5% Contractor / 5% Subcontractor) of the Contractor and Sub-Contractors, unless subsection (.1) is based on the schedule of rates or Lump Sum changed by Sub-Contractor in which case only 15% will apply to the latter;
  - .5 Rental of equipment and plant having a new value of greater than \$300; and
  - .6 Reports shall be submitted daily in writing indicating the total chargeable quantities of labour, material and equipment for certification by the Engineer.

### CHANGE DIRECTIVE PROCEDURES

- .1 When proceeding with a change in the Work under a Change Directive, keep accurate records of daily time sheets for labour and construction equipment, and invoices for product and construction equipment costs. Submit such records to the Engineer weekly, until the Change Order superseding the Change Directive is issued.

### SUPPLEMENTAL INSTRUCTIONS

- .1 The Engineer may issue Supplemental Instructions to provide clarifications to the Contract Documents, provide additional information, or make minor variations in the Work not involving adjustment in the Contract Price or Contract Time.
- .2 If the Contractor considers a Supplemental Instruction to require an adjustment in Contract Price or Contract Time, the Contractor shall promptly notify the Engineer and the Owner in writing and shall not proceed with any work related to the Supplemental Instruction pending receipt of a Change

Order, a Change Directive, or, in accordance with the dispute resolution provisions of the General Conditions of Contract, a Notice in Writing of a dispute and instructions to proceed.

**Part 7 Construction Period****GENERAL**

- .1 The Contractor shall note that the Owner will not be responsible for any loss or damage to the site between the time of the calling of the Tenders and the date work is completed. Should there be any substantial or significant changes, the Contractor shall submit a request in writing for any changes to the Contract's work and/or price.
- .2 A competent Foreman, Supervisor or Company Representative shall be on site at all times during the course of the work.

**MAINTAIN LIFE SAFETY SYSTEMS IN OCCUPIED FACILITIES**

- .1 In an emergency affecting the safety of life or property, the Contractor, without special instruction or authority from the Owner, shall be required to act with speed and remove all of the Contractor's equipment and materials from the path of the emergency.
- .2 Maintain operational life safety systems and public access to exits in occupied areas during all stages of the Work.
- .3 Be responsible for costs incurred by Owner on account of false fire alarms activated as a result of the execution of the Work without adequate precautions.

**CONSTRUCTION SAFETY**

- .1 The Contractor's attention is directed to the Occupational Health and Safety Act (OHSA) for Construction Projects. All Work shall be carried out in conformance with these Regulations.
- .2 The Contractor shall obtain a Notice of Project from the Ministry of Labour and submit a copy to the Owner, prior to commencing the Work on this site. The Contractor shall be the "Constructor" as defined by the OHSA.

**WORK RESTRICTIONS**

- .1 The Contractor shall complete work in an orderly manner so as not to interfere with the Owner's and other Contractor's and Owner's Client's use and occupancy of the premises, except for the work area specified.
- .2 The Contractor is advised to co-ordinate their work with the Owner's Representative.
- .3 Comply with smoking / vaping restrictions. Smoking or vaping is not permitted within the work area.
- .4 Ensure building envelope affected by the work is made water-tight prior to adverse weather, and at the end of each day, to prevent interior leakage and damage. Be responsible for damages should they occur in a timely manner.

**PROTECTION OF WORK AND ACCESS TO THE PROPERTY**

- .1 The Contractor shall continuously maintain adequate protection and security, such as temporary and permanent fencing and barricades in accordance with Technical Specification Section 01 56 00 Temporary Works, around all work to prevent access to the work area and shall protect the Owner's property from damage or loss arising in connection with the Contractor's work.
- .2 The Contractor shall coordinate with the Owner's Representative to maintain building access for the following:
  - .1 Regular garbage and recycling pick up.
  - .2 Emergency vehicles, including police, fire department and ambulance.
- .3 Facilitate maintenance of the grass and landscaping through-out the course of the work, with the Owner's forces.

**CLEANING AND WASTE MANAGEMENT**

- .1 Comply with applicable regulatory requirements when disposing of waste materials.
- .2 Obtain permits from authorities having jurisdiction and pay disposal fees where required for disposal of waste materials and recyclables. Cost of disposal fees to be included in the Total Tender Price.
- .3 Maintain the work area in an organized manner, clean site of debris daily and dispose to a suitable location off site on a weekly basis.

**HOURS OF WORK**

- .1 Work may be performed during Monday to Friday between the hours of 8:00 a.m. to 6:00 p.m., with some quiet work being permitted before 8:00 am and until 6:00 p.m., and with some exceptions for additional quiet work.
- .2 Schedule noisy work to avoid disturbance to building occupants between the hours of 8:00 am and 5:00 pm.
- .3 Use power actuated devices only with the Engineer's written permission.
- .4 Provide seventy-two (72) hours written notice to the Engineer and the Owner for work to be performed outside of the designated times, for Owner approval.
- .5 Saturday work may be permitted by the Owner upon request and will be reviewed on an as needed basis, however permission may not necessarily be granted.
- .6 Work will not be permitted on statutory or government / bank holidays.
- .7 Allow for hours of work restrictions in the construction schedule.

**WORK SEQUENCE**

- .1 Schedule and construct the Work in stages to accommodate the Owner's continued use of the premises during construction.

**EXAMINATION AND PREPARATION**

- .1 Before commencing excavation, drilling or other earthwork, establish or confirm location and extent of all existing underground / embedded utilities and structures in work area and promptly notify Engineer if underground / embedded utilities, structures, or their locations differ from those indicated in the original building drawings.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off / protect in a manner approved by the authority having jurisdiction. Mark and record locations of capped off / protected services.
- .3 Where work specified in any Technical Specification Section is dependent on the work of another Technical Specification Section or Technical Specification Sections having been properly completed, verify that work is complete and in a condition suitable to receive the subsequent work. Commencement of work of a Technical Specification Section that is dependent on the work of another Technical Specification Section or Technical Specification Sections having been properly completed, means acceptance of the existing conditions.
- .4 Verify that ambient conditions are suitable before commencing the work of any Technical Specification Section and will remain suitable for as long as required for proper setting, curing, or drying of Products used.
- .5 Ensure that substrate surfaces are clean, dimensionally stable, cured and free of contaminants.
- .6 Notify Engineer in writing of unacceptable conditions.

**MOCK-UPS**

- .1 Prepare mock-ups of Work as specified in the technical Specifications. If a mock-up location is not indicated in the Technical Specifications or Drawings, locate where directed by Engineer.
- .2 Modify mock-up as required until Engineer approval is obtained.
- .3 Approved mock-ups establish an acceptable standard for the Work.
- .4 Protect mock-ups from damage until the Work they represent is complete.
- .5 Unless otherwise specified in the Technical Specifications, approved mock-ups forming part of the Work may remain as part of the Work.
- .6 Remove mock-ups only when the Work they represent is complete or when otherwise directed by Engineer.

**EXECUTION**

- .1 Install, erect, or apply Products in strict accordance with manufacturer's instructions.
- .2 Notify Engineer, in writing, of conflicts between Contract Documents and manufacturer's instructions where, in Contractor's opinion, conformance with Contract Documents instead of the manufacturer's instructions may be detrimental to the Work or may jeopardize the manufacturer's warranty.
- .3 Provide manufacturer's representatives with access to the Work at all times. Render assistance and facilities for such access so that manufacturer's representatives may properly perform their responsibilities.

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- .4 Consider location of fixtures, outlets, and devices indicated on Drawings as approximate.
  - .5 Promptly notify Engineer in writing of conflicting installation requirements for fixtures, outlets, and devices. If requested, indicate proposed locations and obtain approval for actual locations.
  - .6 Adequately protect parts of the Work completed and in progress from any kind of damage.

**REMOVAL OF PARTS/MATERIALS**

- .1 The Contractor shall not remove or relocate any parts/materials on site without the permission of the Owner.
- .2 The Contractor shall be given space for the storage of their materials and equipment on site, but the Owner is not responsible for any loss, damage, and/or theft to the Contractor's equipment and materials.
- .3 Items identified for removal/demolition become the property of the Contractor. The Contractor shall be responsible to clean-up, remove and properly dispose of any excess materials and/or debris related to the Contractor's works to a suitable and proper location off site.

**DEFICIENCIES**

- .1 At the completion of the Works, conduct an inspection with the Engineer to identify defective, deficient, or incomplete work.
- .2 Prepare a comprehensive and detailed list of deficiencies to be completed or corrected, with an anticipated schedule for completion or correction.
- .3 Identify the dollar amount associated with each deficiency, with this dollar amount being held back until the deficiency has been completed or corrected to the satisfaction of the Engineer. If the completion or correction of the deficiencies is prolonged, the itemized dollar amount will be subtracted from the Total Tender Price and the Owner will take over in completing the unfinished works.

**CLOSE OUT PROCEDURES**

- .1 Prior to final payment, undertake the following:
  - .1 Complete or correct all deficiencies.
  - .2 Remove all remaining surplus products, construction equipment, and temporary work.
  - .3 Return all elements and materials of the site that were part of the work area to their pre-construction state and cleanliness following the work. Ensure all walls, roof areas and landscaping are adequately cleaned and/or returned to their pre-construction state or better.
  - .4 Submit all manuals, warranty documentation, and extra materials as required.

**Part 8 Payment and Holdback**

- .1 The Contractor shall submit an invoice monthly, based on the value of the materials supplied and the works completed during that month (HST included) inclusive of the value of any extra works

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- completed and approved in writing, and less the value of any incomplete or deficient works, works deleted and Statutory Holdback of 10%.
- .2 Each proper invoice for payment submitted by the Contractor must be accompanied by the following documents:
- .1 Schedule of Values, indicating the values, to the date of application for payment, of work performed and products delivered to place of the work;
  - .2 Updated Project Schedule;
  - .3 Current Workplace Safety and Insurance Board Clearance Certificate; and
  - .4 Statutory Declaration for the second and subsequent applications and as prescribed for the holdback release.
- .3 The Owner and Engineer will review the Work to determine a payment amount.
- .4 Payments will be made by the Owner after certification by the Engineer directly to the Contractor within 30 days of the Contractor's submission.
- .5 The payment of the 10% Holdback of the Contract value shall be made in accordance with the Construction Lien Act.
- .6 A payment for the incomplete or deficient works shall be made upon the successful completion of these works to the Owner's satisfaction.

### Part 9 Warranty

- .1 Unless noted otherwise in the Technical Specifications, the Contractor agrees to warranty the work for a period of two (2) years from the date of acceptance (Substantial Completion) thereof from deficiencies that, in the opinion of the Owner, were caused by faulty workmanship or materials. The Contractor, at his own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Owner. Should the Contractor for any cause fail to do so, the Owner may employ such other person or persons as it may be deemed to make such repairs or do such work, as the whole costs, charges and expenses so incurred may be deducted from any amount due to the Contractor or may be collected otherwise by the Owner from the Contractor.
- .2 The decision of the Owner shall be final as to the necessity of repairs of any work required to be done under the provisions of this clause or clauses, in the amounts expended therefore.

**END OF SECTION**

**Part 1            Procedures**

**1.1                ADMINISTRATIVE**

- .1     Submit specified submittals to Engineer for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time or for product substitutions or other deviations from the Drawings and Specifications.
- .2     Where required by authorities having jurisdiction, provide submittals to such authorities for review and approval.
- .3     Do not proceed with Work affected by a submittal until review is complete.
- .4     Present shop drawings, product data, and samples in SI metric units. Where items or information is not produced in SI metric units, converted values are acceptable.
- .5     Review submittals, provide verified field measurements where applicable, and affix Contractor's review stamp prior to submission to Engineer. Contractor's review stamp represents that necessary requirements have been determined and verified, and that the submittal has been checked and coordinated with requirements of the Work and Contract Documents.
- .6     Verify field measurements and that affected adjacent work is coordinated.
- .7     Submittals not meeting specified requirements will be returned with comments.
- .8     Reproduction of construction drawings to serve as background for shop drawings is not permitted.
- .9     Do not propose substitutions or deviations from Contract Documents via shop drawing, product data or sample submittals.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1     Indicate products, methods of construction, attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work.
- .2     Where products attach or connect to other products, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to drawings, specifications and other already reviewed shop drawings.
- .3     Shop drawing submittals shall include:
  - .1     Date and revision dates.
  - .2     Project title and number.
  - .3     Name and address of:
    - .1     Subcontractor.
    - .2     Supplier.
    - .3     Manufacturer.
- .4     Product data submittals shall include material safety data sheets for all controlled products.

- .5 Submit an electronic copy of shop drawings where specified in the Technical Specifications.
- .6 Submit electronic copy of product data sheets or brochures where specified in the technical specifications.
- .7 Where a submittal includes information not applicable to the work, clearly identify applicable information and strike out non-applicable information.
- .8 Supplement standard information to include details for the project.
- .9 If upon Engineer's review, no errors or omissions are discovered, or if only minor corrections are required as indicated, submittal will be returned and fabrication or installation of the Work may proceed.
- .10 If upon Engineer's review significant errors or omissions are discovered, a so noted copy will be returned for correction and resubmission. Do not commence with fabrication or installation.
- .11 Engineer's notations on submittals are intended to ensure compliance with the Contract Documents and are not intended to constitute a change in the Work required change to the Contract Price or Contract Time. If the Contractor considers any Engineer's notation to be a change in the Work, promptly notify the Engineer in writing before proceeding with the Work.
- .12 Resubmit corrected submittals through the same procedure indicated above, before fabrication or installation of the Work proceeds. When resubmitting, notify Engineer in writing of any revisions other than those requested by the Engineer.

**1.3****SAMPLES**

- .1 Submit samples for Engineer's review in duplicate where specified in the Technical Specifications. Label samples as to origin, Project name, and intended use.
- .2 Deliver samples prepaid to the site office.
- .3 Notify Engineer in writing of any deviations in samples from requirements of Contract Documents.
- .4 Where a required colour, pattern or texture has not been specified, submit full range of available products meeting other specified requirements.
- .5 Engineer selection from samples is not intended to change the Contract Price or Contract Time. If a selection would affect the Contract Price or Contract Time, notify Engineer in writing prior to proceeding with the Work.
- .6 Resubmit samples as required by Engineer to comply with Contract Documents.
- .7 Reviewed and accepted samples will establish the standard against which installed Work will be reviewed.

**END OF SECTION**



**Part 1           Barriers and Enclosures**

**1.1               GENERAL**

- .1 Provide temporary barriers and enclosures as necessary to protect the public and building occupants and to secure the place of the Work during performance of the Work.
- .2 Comply with applicable regulatory requirements.
- .3 Maintain temporary barriers and enclosures in good condition for the duration of the Work.
- .4 Remove temporary barriers and enclosures from the place of the Work when no longer required.

**1.2               FENCING**

- .1 Erect temporary security and safety site fencing, a minimum 1.8 m (6 ft) high, using chain link fencing or self-supporting wire fence sections enclosing the entire site.
- .2 Maintain site fencing in good repair until removed.
- .3 Provide lockable access gates as required to facilitate construction access.

**1.3               WEATHER ENCLOSURES**

- .1 Provide weather tight enclosures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Provide weather enclosures to protect floor areas where walls are not finished and to enclose Work areas that require temporary heating.
- .3 Design weather enclosures to withstand wind pressure and snow loading requirements.

**1.4               DUST TIGHT PARTITIONS**

- .1 Provide dust tight polyethylene screens framed with wood studs framing to prevent dust from travelling outside of the area of Work.
- .2 Erect, maintain, and relocate partitions as required to facilitate construction operations and Owner’s operational requirements.

**1.5               PROTECTION OF BUILDING/SITE FINISHES**

- .1 Provide necessary temporary barriers and enclosures to protect existing and completed or partially completed finished surfaces from damage during performance of the Work.

**Part 2           Controls**

**2.1               GENERAL**

- .1 Provide temporary controls as necessary for performance of the Work and in compliance with applicable regulatory requirements.
- .2 Maintain temporary controls in good condition for the duration of the Work.

- .3 Remove temporary controls and construction equipment used to provide temporary controls from the place of the Work when no longer required.

**2.2 PLANT PROTECTION**

- .1 Protect trees and other plant material.

**2.3 DUST AND PARTICULATE CONTROL**

- .1 Implement and maintain dust and particulate control measures in accordance with applicable regulatory requirements.
- .2 Execute Work by methods that minimize production of dust from construction operations and spreading of dust on site or to adjacent properties.
- .3 Provide temporary enclosures to prevent extraneous materials resulting from sandblasting or similar operations from contaminating air beyond the immediate Work area.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

**END OF SECTION**

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Provide all access, labour, materials, and equipment necessary to supply and install all sheet metal flashing and trim as per the Contract Drawings and as specified.

**1.2 RELATED SECTIONS**

- .2 Section 07 42 43 – Sheet Metal Siding
- .3 Section 07 90 00 - Sealants

**1.3 REFERENCES**

- .4 All references to be latest edition.
- .5 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 A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
  - .3 ASTM D523, Standard Test Method for Specular Gloss
- .6 Canadian General Standards Board (CGSB)
  - .1 CGSB –GP-71: Methods of Testing Paints and Pigments
- .7 Canadian Roofing Contractors Association (CRCA)
  - .1 Roofing Specifications Manual
- .8 Canadian Standards Association (CSA International)
  - .1 CSA A123.3, Asphalt Saturated Organic Roofing Felt
  - .2 CSA B111, Wire Nails, Spikes and Staples
  - .3 Canadian Sheet Steel Building Institute (CSSBI)
  - .4 CSSBI S8, Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products
  - .5 CSSBI B17, Barrier Series Prefinished Steel Sheet: Product Performance & Applications

- .6 CSSBI Sheet Steel Facts #12, Fastener Guide for Sheet Steel Building Products
- .9 Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
- .1 Architectural Sheet Metal Manual

#### **1.4 SUBMITTALS**

- .1 Submittals to be in accordance with Technical Specification Section 01 33 00.
- .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 (2" x 2") samples of each type of sheet metal material, finish and colour.

#### **1.5 MOCK-UPS**

- .1 Construct mock-up to show all typical and unique flashings and trim, complete with back-up material, caulking and sealant. Mock-up may be part of finished Work.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store, and protect materials in accordance with Manufacturer's printed instructions.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.

#### **1.7 WARRANTY**

- .1 Defects or deficiencies which are to be corrected by the Contractor at no cost to the Owner during the period of warranty shall include debonding of paint or other defects in material or workmanship as determined by the Engineer.

- .2 Warranty period is 2 years.

## **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, 0.70 mm (24 ga) base metal thickness. Pre-painted to CGSB –GP-71.

### **2.2 PREFINISHED SHEET METAL FLASHINGS**

- .1 Prefinished sheet with factory applied coating.
- .2 Form flashings, copings and fascias to profiles indicated of 0.70 mm (24 ga) thick prefinished steel, unless noted otherwise.

### **2.3 ACCESSORIES**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Underlay for metal flashing: TWF by Bakor or approved equivalent.
- .3 Sealants: Section 07 90 00 – Joint Sealants.
- .4 Cleats: of same material, and temper as sheet metal, minimum 50 mm (2") wide. Thickness same as sheet metal being secured.
- .5 Fasteners to Wood: 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 Fasteners to Masonry: 6 mm (1/4") diameter with 38 mm (1 1/2") embedment. Tappers by Rawl.
- .7 Washers: of same material as sheet metal, 1 mm (1/16") thick with rubber packings.
- .8 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 and SMACNA details as indicated.

- .2 Form pieces in 2400 mm (8'-0") maximum lengths. Make allowance for expansion at joints.
- .3 Form cross block pieces in 1200 mm (4'-0") maximum lengths. Make allowance for expansion at joints.
- .4 Hem exposed edges on underside 12 mm (1/2"). 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.

**Part 3 Execution****3.1 INSTALLATION**

- .7 Install sheet metal work in accordance with CRCA and SMACNA details and as detailed.
- .8 Use concealed fastenings except where approved before installation.
- .9 Provide underlay under sheet metal. Secure in place and lap joints 100 mm (4").
- .10 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.
- .11 Flash joints using S-lock and double S-lock cleats forming tight fit over hook strips, as detailed.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1    Provide all access, labour, materials, and equipment necessary to supply and install sheet metal siding as per the Contract Drawings and as specified.

**1.2                RELATED SECTIONS**

- .1    Section 07 62 00 – Sheet Metal Flashing and Trim
- .2    Section 07 90 00 – Sealants

**1.3                REFERENCES**

- .1    All references to be latest edition.
- .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 A792/A792M: Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
  - .3    ASTM D523: Standard Test Method for Specular Gloss
- .3    Canadian General Standards Board (CGSB)
  - .1    CGSB –GP-71 Methods of Testing of Paint and Pigments
- .4    Canadian Standards Association (CSA International)
- .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
- .6    Canadian Roofing Contractor’s Association (CRCA)
  - .1    Roofing Specifications Manual
- .7    Sheet Metal and Air Conditioning Contractor’s National Association (SMACNA)
  - .1    Architectural Sheet Metal Manual

**1.4 SUBMITTALS**

- .1 Submittals to be in accordance with Technical Specification Section 01 33 00.
- .2 Product Data:
  - .1 Submit Manufacturer's printed product literature including product specifications and technical data sheets for cladding fasteners and accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit shop drawings for all cladding fabrications.
  - .2 Shop and erection drawings shall indicate materials and products, dimensions, profiles of components, thicknesses, reinforcing, wall openings, head, jamb, sill details, trim and closure details, finishes, anchorage methods and details, joints, and show and describe fasteners, spacing, connections, attachments, supplementary framing and structural supports, flashing details, sealants and gaskets, relationship with adjacent components and construction, means and locations of corrosion isolation separations and location and finish of exposed fastening. Submit necessary instructions where anchorage and fastenings have to be built in under other Sections. Indicate compliance with design criteria and requirements of related work.
- .4 Maintenance Data:
  - .1 Submit maintenance data for metal cladding panels and finishes for incorporation into Operating and Maintenance Instructions Manual.
- .5 Samples:
  - .1 Submit 50 x 50 mm (2"x2") samples of each type of cladding material finish and colour.

**1.5 QUALITY ASSURANCE**

- .1 Manufacturer shall have minimum five (5) years experience in successful manufacturing of preformed, prefinished metal cladding. Submit proof of experience upon Engineer's request.
- .2 Erection shall be performed by trained and experienced workers with a minimum five (5) years experience in successful installation.
- .3 Maintain the following installation tolerances:
  - .1 Maximum variation from plane or location shown on reviewed shop drawings: 9.5 mm (3/8") per 10 m (32'.9") of length and up to 19 mm (3/4") per 100 m (328'0").

**1.6 MOCK-UPS**

- .1 Construct mock-up to show all typical and unique flashings and trim, complete with back-up material, caulking and sealant. Mock-up may be part of finished Work.



**1.7 DELIVERY, STORAGE AND HANDLING**

- .2 Deliver, handle, store, and protect materials in accordance with Manufacturer’s printed instructions.
- .3 Handle and store cladding materials to prevent creasing, buckling, scratching, or other damage.

**1.8 WARRANTY**

- .1 Defects or deficiencies are to be corrected by the Contractor at no cost to the Owner during the period of warranty. Defects shall include, but not be limited to, leaking, failure of components to stay in position, deformation of members, loosening of components, splitting, excessive fading or non-uniformity of colour, chalking, cracking or peeling of finishes, oil-canning, warping, bending and buckling or other defects in material or workmanship as determined by the Engineer.
- .2 Warranty period is 2 years.

**Part 2 Products**

**2.1 SHEET METAL CLADDING MATERIALS**

- .1 Provide sheet metal cladding in base metal thickness specified. Where no thickness is 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, 0.028 in (24 ga) base metal thickness. Pre-painted to CGSB –GP-71.
- .3 Prefinished sheet with factory applied coating.
- .4 Form flashings, copings and fascias to profiles indicated of 0.028 in (24 ga) thick prefinished steel.
- .5 Acceptable Products:
  - .1 CL439 by VicWest
    - .1 Colour A to be 56068
    - .2 Colour B to be 56082
  - .2 Diamond Rib by Agway
    - .1 Colour A to be QC 28262
    - .2 Colour B to be QC 28730
  - .3 Engineer Approved Equal
    - .1 Colour A to be determined
    - .2 Colour B to be determined

**2.2 PREFINISHED ALUMINUM SOFFIT**

- .1 Prefinished aluminum with factory applied coating.
  - .1 Formed from 3105 aluminum sheet.
  - .2 Colour as selected by Owner's Representative from Manufacturer's standard range.
  - .3 Preformed vented soffit (SP-600 16" Vented Soffit by Kaycan or Engineer approved equal)
    - .1 Size: 9 mm (3/8" x 400 mm (16") wide, with 150 mm (6") profile.

**2.3 PREFINISHED ALUMINUM EAVESTROUGH**

- .1 Prefinished aluminum with factory applied coating.
  - .1 Colour as selected by Owner's Representative from Manufacturer's standard range.
- .2 Acceptable Products: One Piece Eavestrough with Mounting Bracket Installation
  - .1 1590 by Agway or Engineer Approved Equal.

**2.4 PREFINISHED ALUMINUM DOWNSPOUTS**

- .1 Prefinished aluminum with factory applied coating.
  - .1 Colour as selected by Owner's Representative from Manufacturer's standard range.
- .2 Acceptable Products: One Piece Eavestrough with Mounting Bracket Installation
  - .1 1582 by Agway or Engineer Approved Equal.

**2.5 ACCESSORIES**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Underlay: VP 160 by Bakor or approved equivalent.
- .3 Insulation: 125 mm Cavityrock by Rockwool or approved equivalent.
- .4 Sealants: Section 07 90 00 – Joint Sealants.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm (2") wide. Thickness same as sheet metal being secured.
- .6 Anchors and fastening devices: Stainless steel with chromium content of not less than 12% compatible with base steel. Anchors and fastening devices to secure the work together and to work of other Sections shall be adequate for the purpose and be non-corrosive:
  - .1 'Colourmate' by Atlas Bolt and Screw Company of Canada or other approved manufacturer; colour to match colour of prefinished steel outer sheet. Head of exposed fasteners, where exposed fastenings have been permitted, shall be moulded coloured nylon resin 'rigid type' collar head with controlled drive washers, self-drilling, self-tapping, of suitable length.

- .2 Fasteners to Masonry: 6 mm (1/4") diameter with 38 mm (1 1/2") embedment. Tappers by Powers with Hex head.
- .3 Washers: of same material as sheet metal, 1 mm (1/16") thick with rubber packings. Self-drilling fasteners shall be corrosion resistant plated steel with neoprene washer, as recommended by Manufacturer.
- .7 Touch-up paint: as recommended by prefinished material Manufacturer.
- .8 Z Girts members, angles, clips and brackets: 0.34 in (22 ga) steel or formed sheet steel of required thickness and size to meet design requirements, hot dipped galvanized.
- .9 Stiffeners: 0.28 (24 ga) steel or formed sheet steel of required thickness and size to meet design requirements, hot dipped galvanized.
- .10 Flashings, copings, trims and closures: Shall be same gauge, material and coating color as exterior face of insulated metal wall panel.

**2.6 FABRICATION**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA Roofing Specification Manual and SMACNA Architectural Sheet Metal Manual details as indicated.
- .2 Form pieces in 3048 mm (10'-0") maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm (1/2"). Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar. Coordinate and verify site dimensions and conditions affecting the work. Ensure the suitability of adjacent building components in relationship to the work of this Section.
- .6 Fabricate units to profiles and sizes required complete with rabbets, interlocks, flashings, copings, trim, closures, filler sections as required to interface with work of other Sections.
- .7 Anchorage brackets and devices shall be designed and fabricated to compensate for unevenness and dimensional difference in structure and permit unrestrained expansion and contraction of substrate and framing.
- .8 File or grind exposed welds smooth and flush. Do not leave grinding marks.
- .9 Accurately cut and form flashing, true and straight without waves or buckles. Make adequate provision for thermal movement and make joints watertight.
- .10 Reinforce cladding to meet the specified design requirements. Provide continuous formed prefinished sheet steel cleats for fastening at edges.
- .11 Form panels as required by the various Project conditions. Use methods of forming in accordance with the Manufacturer's directions for the product without damage or distortion to the faces.

- .12 Fabricate the panels and support members in a manner which will provide an installation free of exposed fastenings, except where permitted otherwise, with sufficient support and movement capabilities to prevent face panel distortion.
- .13 Fabricate securement members and devices required for the anchorage and attachment of the panels to the structure for the support of the system, including brackets, clip angles, straps, "U" and "Z" clips, shims, nuts, washers, and other fastenings required. Design attachments to provide for accurate adjustment and to compensate for structural tolerances. Fabricate devices required to be built into or attach to substrate and framing members.

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Install sheet metal siding in accordance with CRCA Roofing Specification Manual and SMACNA Architectural Sheet Metal Manual details and as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay over wall under sheet metal Z girts.
- .4 Flash joints using S-lock and double S-lock cleats forming tight fit over hook strips, as detailed.

**3.2 WORKMANSHIP**

- .1 Preparation
  - .1 Examine structural supports and substrate surfaces and report defects before work is commenced.
  - .2 Report defects in work prepared under other Sections. Commencement of installation of metal cladding system shall be considered an acceptance of conditions to be covered.
  - .3 Coordinate with roofing work, air and vapour barrier work and insulation work of other trades to ensure continuous air, vapour and thermal barrier application and flashing installation. Provide openings for work of other trades as required.
- .2 Installation
  - .1 Install work in accordance with Manufacturer's instructions and reviewed shop drawings.
  - .2 Fasteners to concrete or masonry shall be corrosion resistant screws and to provide sufficient mechanical fastening for securing structure, trim and siding. Perform drilling of concrete and masonry as required to install fastenings. Do not chip concrete or masonry by drilling or fixing operations. Fixings to structural steel shall be welded.
  - .3 Provide devices for anchoring the framing assemblies to the building structure with sufficient adjustment to permit correct and accurate alignment. After alignment, positively lock all anchorage devices to prevent movement other than those designed for expansion and contraction.

- .4 Allow for dimensional tolerances and deviation from true plane in structural frame and erect cladding systems plumb, straight, square, level and true, in correct relationship to work of other Sections and established lines and levels indicated. Erection tolerances for frame assemblies are as related to the structural grid of the building and shall apply to each individual assembly.
  - .1 Vertical position: Plus/minus 3 mm (1/8").
  - .2 Horizontal position: Plus/minus 3 mm (1/8").
  - .3 Deviation from plumb: 3 mm (1/8") maximum each plane.
  - .4 Racking of face: 6 mm (1/4") maximum.
  - .5 Racking in elevation: Nil.
- .5 Provide sub-girts, anchor bolts, angle framing and other connections required for the attachment of the work to the structure.
- .6 Supply and install steel shims, shapes and other structural supports required between structural framing and members. Provide additional steel framing members at perimeter of openings as required.
- .7 Apply continuous sealant at interfaces with adjacent finishes. Seal between flashing and panels, flashing and adjacent surfaces and where indicated.
- .8 Fasten Z members and girts to structural supports at maximum 300 mm (12") centres and to suit loading requirements.
- .9 Provide a continuous air barrier at the interior side of the cladding assembly. Coordinate the continuity of the air/vapour barrier with adjacent air/vapour barrier systems provided under other Sections. Seal membrane to adjacent air/vapour barrier systems using flexible membrane and sealant tape.
- .10 Fasten Z members and girts to structural supports to suit design requirements.
- .11 Erect cladding to Z members and girts with fasteners at spacings to suit design and loading requirements, unless noted otherwise on the drawings.
- .12 Provide notched and formed top closures, sealed to arrest direct weather penetration at vertical profiles. Ensure continuity of "pressure equalization" of rain screen principle.
- .13 Install closures at bottom of exterior sheets. Make provisions for venting and weep holes at centres required. Closures shall be concealed.
- .14 Do sealing work in accordance with Section 07 90 00.
- .15 Touch up damaged galvanized coatings with zinc rich paint.
- .16 Touch up precoated finish, where permitted, in accordance with finish manufacturer's instructions.
- .17 Fit joints and intersections accurately in true planes, free of distortion, waves, twists, buckles or other defects detrimental to appearance or performance. Prevent damage to metal finish. Accurately position and securely anchor components. Ensure proper and adequate expansion function of the panels and that sealant and seals provide complete unbroken weather, air and vapour barrier.
- .18 Component fastening devices shall be of adequate strength.

## DIVISION 7 – THERMAL AND MOISTURE PROTECTION

- .19 Ensure that flutes and pattern features are properly aligned and in plane in continuous runs and at intersections of different planes.
- .20 Where bottom of preformed panels terminate above roof levels, provide formed prefinished sheet flashing to extend below exterior sheet to roof level.
- .21 Allow for installation of other building components supplied and installed under other Sections and located at metal cladding installation. Flash and seal between air/vapour barrier and such installations.
- .3 Control/Expansion Joints
  - .1 Construct control/expansion joints as required. Where system expansion joints are required, they shall be located at support member on each side of joint.
  - .2 Use cover sheets, of brake formed profile, of same material and finish as adjacent material.
  - .3 Use mechanical fasteners to secure sheet materials.
  - .4 Assemble and secure wall system to structure so stresses on sealants are within Manufacturer's recommended limits.
- .4 Cleaning
  - .1 Clean and make good surfaces soiled or otherwise damaged in connection with the work of this Section.
  - .2 Replace finishes or components that cannot be satisfactorily cleaned.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        Provide all access, labour, materials, and equipment necessary to install sealants as per the Contract Drawings and as specified.

**1.2                RELATED SECTIONS**

- .1        Section 07 42 43 – Sheet Metal Siding
- .2        Section 07 62 00 – Metal Flashings and Trim

**1.3                REFERENCES**

- .1        All references to be latest edition.
- .2        CAN/CGSB-19.13-M87 Single component polyurethane sealant

**1.4                SAMPLES**

- .1        Sample procedures a minimum of two (2) weeks prior to the start of the work of this Section.
- .2        Submit duplicate samples of each type of material and colour.

**1.5                MOCK-UPS**

- .1        Construct mock-up to show location, size, shape and depth of joint(s) complete with back-up material, primer, caulking and sealant. Mock-up may be part of finished Work.
- .2        Allow 24 hours for inspection of mock-up by the Engineer before proceeding with sealant Work.
- .3        Arrange for the material Manufacturer’s technical representative to visit the site during the application of the mock-up to comment in writing on the surface preparation, and application.

**1.6                DELIVERY, STORAGE AND HANDLING**

- .1        Deliver, handle, store and protect materials in accordance with Manufacturer’s printed instructions.
- .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 the ground or floor.

**1.7                WARRANTY**

- .1        Defects or deficiencies which are to be corrected by the Contractor at no cost to the Owner during the period of warranty shall include debonding of paint or other defects in material or workmanship as determined by the Engineer.

- .2 Warranty period is 2 years.

**1.8 ENVIRONMENTAL AND SAFETY REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to Manufacturer's recommended temperature, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

**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
  - .2 Be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising there-from, will meet the requirements of all applicable governmental acts.
- 2. 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.

**2.2 SEALANT MATERIAL DESIGNATIONS**

- .1 One Part Urethanes, conforming to:
  - .1 CAN/CGSB-19.13, Type 2, colour as selected by the Owner, standard colour charts to be provided by the Contract.
- .2 Acceptable One Part Sealants:
  - .1 Dymonic 100, by Tremco
  - .2 Sikaflex 15LM, by Sika Canada
  - .3 NP1, by Master Builders Solutions Canada Inc.
- .3 Preformed Compressible and Non-Compressible Back-Up Materials:
  - .1 Polyethylene, urethane, neoprene, or vinyl foam
    - i. Extruded closed cell foam backer rod
    - ii. Size: oversize 30 to 50%.



- .2 Bond breaker tape
  - i. Polyethylene bond breaker tape which will not bond to sealant.

**2.3 JOINT TYPES**

- .1 Perimeters of exterior openings where frames meet exterior façade of the building (ie. brick/masonry and concrete). Transitions between materials as directed by Contract Drawings or Engineer.

**2.4 JOINT CLEANERS AND PRIMERS**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant Manufacturer.
- .2 Primer: as recommended by Manufacturer.

**Part 3 Execution****3.1 PROTECTION**

- .1 Protect installed Work of other trades from staining or contamination.
- .2 Ensure drainage holes for window and/or wall systems are not blocked.

**3.2 PREPARATION OF JOINT SURFACES**

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of back-up 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.

**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 printed instructions immediately prior to caulking.

**3.4 BACK UP MATERIAL**

- .1 Apply bond breaker tape where required.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30 to 50% compression.

**3.5 APPLICATION**

- .1 Sealant:
  - .1 Apply sealant in accordance with Manufacturer's printed instructions and project details.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads. Apply sealant using gun with properly sized nozzle.
  - .4 Use sufficient pressure to fill voids and joints solid.
  - .5 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .6 Tool exposed surfaces before skinning begins to give slightly concave shape. Remove excess compound promptly as Work progresses and upon completion. Apply bond breaker tape where required.
- .2 Fillet and Butt Joints:
  - .1 Sealant depth at middle of joint width as follows:
 

Joint Width (mm)	Sealant Depth (mm)
5	8 to 10
18	9 to 12
25	10 to 15
  - .2 At tight fillet joints, provide minimum 20 mm (3/4") adhesion surface.
  - .3 A minimum adhesion surface to each component being sealed shall be 1.5 times depth, with minimum thickness of joint being 6 mm (1/4").
  - .4 Tool surfaces to a slightly concave profile.
- .3 Curing:
  - .1 Cure sealants in accordance with sealant Manufacturer's printed instructions.
  - .2 Do not cover up sealant until proper curing has taken place.
- .4 Clean-up:
  - .1 Clean adjacent surfaces immediately and leave work neat and clean.
  - .2 Remove excess sealant and droppings, using Manufacturer's recommended cleaners as Work progresses.
  - .3 Remove masking tape after initial set of sealant.
  - .4 Should sealant stain adjacent finishes, bring method of cleaning to Engineer for review prior to conducting clean-up.

**END OF SECTION**

**Part 1            General****1.1                SECTION INCLUDES**

- .1        Requirements for the fabrication and supply of steel doors and frames.

**1.2                RELATED SECTIONS**

- .2        Section 08 71 00 – Door Hardware

**1.3                REFERENCES**

- .1        All references to be latest edition.
- .2        American National Standards Institute (ANSI)
  - .1        ANSI/NFPA 80 - Standard for Fire Doors and Windows.
  - .2        ANSI A115.IG - Installation Guide for Doors and Hardware
  - .3        ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames
  - .4        ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
  - .5        ANSI A250.11, Recommended Erection Instructions for Steel Frames
- .3        American Standards of Testing and Materials (ASTM)
  - .1        ASTM E 152 - Standard Methods of Fire Tests of Door Assemblies
  - .2        ASTM A 366/A 366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled
  - .3        ASTM 527 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Lock-Forming Quality
  - .4        ASTM 568 – Standard Specification for Steel, Sheet, Carbon, Structural, and High Strength, Low Alloy, Hot Rolled and Cold Rolled, General Requirements
  - .5        ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process
  - .6        ASTM A 924 - Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process
  - .7        ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- .4        Canadian Standards Association (CSA)
  - .1        CSA W59 –

- .2 CSA W47.1 –
- .3 CSA 101 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- .4 HMMA-820 TN03 - Guidelines for Glazing of Hollow Metal Transoms, Sidelights and Windows
- .5 NFPA 252 - Standard Methods of Fire Tests for Door Assemblies
- .6 UL 10B - Standard for Fire Tests of Door Assemblies
- .7 UL 10C - Positive Pressure Fire Tests of Door Assemblies
- .8 UL 63 - Outline of Investigation for Fire Door Frames

**1.4 SUBMITTALS**

- .1 Submittals to be in accordance with Technical Specification Section 01 33 00.
- .2 Shop Drawings:
  - .1 Submit as part of the shop drawings, a steel door and frame schedule for work of this Section. Identify each door and frame with a symbol listed in the schedule and place legibly on the unit at the time of manufacture.
- .3 Samples:
  - .1 Submit one (1) 300 mm x 300 mm (12" x 12") corner sample of each type of door upon request. Sample to include door construction, core, glazing detail and faces.
- .4 Product Data:
  - .1 Submit Manufacturer's printed product literature including product specifications and technical data sheets for accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations. Show all components of the assemblies in as large a scale as practical, showing the construction, methods of joining, welds, fastening and sleeving, type of metal, thicknesses, finishes, door hand, location of hardware and other pertinent data. Clearly locate visible fixings on shop drawings.

**1.5 MOCK-UPS**

- .1 Construct an in-situ mock up of each type of exterior door installation. Identify any installation obstacles and evaluate for the specified performance.
- .2 Construct mock-up in accordance with Technical Specification Section 00 21 13.
- .3 Contact Engineer to schedule mandatory mock-up review two (2) weeks prior to proposed mock-up review to confirm proposed date.
- .4 Convene mock-up review with Engineer, and await acceptance of mock-up prior to commencing Work of this section.

- .5 Do not order doors or commence any of the bulk door installations until written approval of the mock-up is received, and final shop drawings are approved. All required submittals must be received and approved prior to mock-up.
- .6 The mock-up and procedures developed during / following the mock-up will become the accepted standard for the project.

**1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with Manufacturer's printed instructions.
- .2 Deliver units to the site in an undamaged condition.
- .3 Store doors vertically in a dry area, under a proper vented cover. Place on 100 mm (4 inch) high wood sills to prevent rust or damage. Provide 6 mm (1/4 inch) space between doors to promote air circulation. Touch up damaged galvanizing promptly with zinc rich primer.
- .4 Do not use non-vented plastic or canvas shelters to prevent rust or damage.
- .5 Should wrappers become wet, remove immediately.

**1.7 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications: Minimum five years documented experience manufacturing products specified this Section.
- .2 Installer Qualifications: Minimum five years documented experience installing products specified this Section.
- .3 All products shall conform to the requirements of ANSI A250.8.
- .4 Fire Rated Doors and Frames:
  - .1 Doors and frames shall be tested in accordance with UL 10B and UL 10C.
  - .2 Doors and frames must have an approved marking or physical label, applied by an authorized facility, in accordance with the procedure set forth by an independent certification agency.
  - .3 Fire door assemblies in exit enclosures and exit passageways; maximum transmitted temperature end point rating of not more than 121 degrees C (250 degrees F) above ambient at the end of 30 minutes of the standard fire test exposure.
  - .4 Conform to applicable codes for fire ratings. It is the intent of this specification that hardware and its application comply or exceed the standards for labeled openings. In case of conflict between types required for fire protection, furnish type required by NFPA and ULC.

**DIVISION 8 – OPENINGS**

- .2 Stairwell Doors shall have a 121 degrees C (250 degree F) temperature rise rating (30 minute fire test duration.) The fire label on the door shall indicate the specific hourly rating.
- .3 Verify field dimensions for factory assembled frames prior to fabrication.

**1.8 WARRANTY**

- .1 Defects or deficiencies which are to be corrected by the Contractor at no cost to the Owner during the period of warranty shall include debonding of paint or other defects in material or workmanship as determined by the Engineer.
- .2 Warranty period is 2 years.

**1.9 ENVIRONMENTAL AND SAFETY REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to Manufacturer’s recommended temperature, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

**Part 2 Products**

**2.1 DOORS**

- .1 Provide steel doors and frames from a single manufacturer.
- .2 Steel sheet: ASTM A568 cold rolled commercial quality, ASTM A527 Class 1 hot dip galvanized steel with coating designation ZF75 (A25) for zinc coating of 75 g/sq. metre of sheet per ASTM A525:
- .3 Minimum Thicknesses: Gauge Equivalent Gauge Thickness

	No.	Inches	Millimetres
Frames	16	0.060	1.52
Jamb floor anchors	16	0.060	1.52
Jamb spreaders	20	0.036	0.91
Mortar guard boxes	22	0.030	0.76
Glazing and grille stops	20	0.036	0.91
Wall Anchors			
Masonry strap type	18	0.048	1.21
Masonry wire type	---	0.156 dia	4 dia
Masonry stirrup-strap type	16	0.060	1.52
Steel stud type	20	0.036	0.91
Existing masonry and concrete type	20	0.036	0.91

**DIVISION 8 – OPENINGS**

Doors-Hollow steel construction

Door faces	18	0.048	1.21
Top and bottom end channels	18	0.048	1.21
Vertical stiffeners	20	0.036	0.91

Reinforcements

Lock and strike reinforcements	16	0.060	1.52
Hinge reinforcements	12	0.105	2.66
Flush bolt Reinforcements	16	0.060	1.52
Reinforcements for surface applied hardware	18	0.048	1.21
Door closer or holder reinforcements	12	0.105	2.66

- .4 Hinges: Three (3) standard weight full mortise 100mm (4") butt hinges are required for doors that are 2134 mm (7'-0") in height or shorter, and four (4) hinges are required for doors greater than 2134 mm (7'-0") in height.
- .5 Weather Seal: Door frame shall be fabricated with a vinyl wrapped, foam filled compression design that is kerf installed. Corner seals shall be installed to the rabbet section of the door frame at the bottom of the hinge and lock jamb. Door bottom sweep shall be sealed and securely attached to the operable door panel(s).
- .6 Threshold: Inswing or bumper outswing threshold shall be high-dam design of aluminum construction. Low profile threshold shall be required for handicap accessible openings with a prefinished steel sheet ramp on the interior and exterior in accordance with Ontario Building Code requirements.
- .7 Zinc rich primer: 'Sealtight Galvafruid Zinc Rich Coating' by W.R. Meadows Ltd., 'Zinc Clad No. 7 Organic Zinc Rich Primer' by Sherwin Williams Co. of Canada Ltd., or other approved manufacturer.
- .8 Resilient bumpers: Round, black rubber, stud mount.
- .9 Fasteners for stops: Cadmium plated steel, recessed, flat or oval head Phillips screws.
- .10 Insulation core material:
  - .1 For exterior doors and interior security doors CSA A101, Type 1, minimum density 24 kg/m<sup>3</sup> (1,865 lb/ft<sup>3</sup>) consisting of durable fibrous batt material processed from rock, slag or glass, bound with deterioration resistant binders. Interior security doors are noted on the door schedule as "HD".
  - .2 For interior doors that are not fire-rated, not sound rated and not noted as security: Structural small cell 24.5 mm (1 inch) maximum, kraft paper 'honeycomb'; weight: 36.3 kg (80 lb) per ream (min), density: 16.5 kg/m (119 lb/ft) min sanded to required thickness.
- .11 Door vent grilles: Prime painted steel and one of the following:

- .3 E.H. Price Limited Model 'STG1', 'BF' frame;
- .4 Airvector Inc. (Hart & Cooley Limited) Model 'T20F';
- .5 K. N. Crowder Mfg. Inc. Model 'SDL-V90' 0.91 mm (3.5 inches);
- .6 or other approved manufacture

.12 Materials for fire rated doors and frames: to ULC or WHI requirements and labelled.

## **2.2 FABRICATIONS**

### **.1 Fabrication, general**

- .1 Assemble units by welding in accordance with CSA W59 to produce a finished unit square, true and free of distortion. Welding shall be continuous unless specified otherwise. Welding shall be undertaken only by a fabricator fully approved by the Canadian Welding Bureau to the requirements of CSA W47.1.
- .2 Make provisions in doors and frames to suit requirements of trade or Section providing electrically operated hardware and/or security devices. Provide removable plates or knock-outs for electrical contacts. Provide junction boxes on security door frames as required for door strikes, mag locks and door contacts. Ensure frames arrive on site prepared for wiring.
- .3 Fabricate galvanized steel channels to reinforce frames and screens as required for size, and for fire protection rating requirements. Extend reinforcements from floor to structure above. Design top connection to accommodate structural deflection. Conceal reinforcements in frames and screens.

### **.2 Frames and Screens**

- .1 Provide mitred and welded frame construction. Knocked down frames will not be permitted unless it can be shown that preassembled welded frames are impossible to install.
- .2 Accurately form frames to profiles indicated. Construct frames straight and free from twist or warp.
- .3 Blank, drill, reinforce and tap frames to receive templated hardware, security and electrical devices.
- .4 Reinforce frames for installation of closers. Install stiffener plates or two angle spreaders where required to prevent bending of frame and to maintain alignment when setting. Weld reinforcement in place.
- .5 Cut frame mitres accurately and weld on inside of frame profile. Fill frame corners, exposed surface depressions and butted joints with air-drying paste filler. Sand to a smooth uniform finish. Touch up damaged galvanized finish with zinc-rich primer.
- .6 Provide three resilient bumpers per single door at the strike jamb. Provide two resilient bumpers per door leaf at the head of double doors.
- .7 Provide appropriate anchorage to floor and wall construction.



## DIVISION 8 – OPENINGS

- .8 Where frames terminate at finished floor, supply floor plates for anchorage to slab. Check depth of extension of finished floor to structural slab and provide jamb extension anchorage as required.
- .9 Provide 50 mm (2 inches) minimum adjustment.
- .10 Locate wall anchors immediately above or below each hinge reinforcement on the hinge jamb, and directly opposite on the strike jamb. Provide three anchors per jamb for frames up to 2300 mm (90 inches). Add one anchor per jamb for each additional 760 mm (30 inches) or fraction thereof in frame height.
- .11 For frames to be installed in previously placed concrete or masonry, provide anchors located not more than 150 mm (6 inches) from the top and bottom of each jamb, and intermediate anchors at maximum 660 mm (26 inches) on centre.
- .12 Provide removable portion of stop and frame where required for overhead concealed door closers, properly connected to frame, and prepare for attachment of closer prior to shipment.
- .13 Reinforce door frame head if opening is wider than 1200 mm (47 inches). Reinforce jambs and mullions at junction of heads.
- .14 Partition Screens:
  - .1 Fabricate metal screens to profiles indicated.
  - .2 Supply jamb and mullion extensions and anchors required to secure screens to the structure or framing provided under other Sections. Fabricate anchorage to prevent transfer of load from support framing to the screens when deflection of structure occurs.
  - .3 Provide concealed reinforcement for screens to receive handrails.
  - .4 Provide closely fitted clear glass stops and clear glazing beads. Mitre corners. Drill and countersink fasteners symmetrically at 150 mm o/c (6 inches). Screw stops in place.
- .15 Thermally Broken Frames:
  - .1 Fabricate thermally broken frames in two sections, joined rigidly with thermal break material. Fabricate anchors for thermally broken frames to suit wall conditions; avoid cold transfer from exterior frame section to interior frame section.
- .16 Fire Rated Frames:
  - .1 Construct frame members in fire rated separations to ULC approval and bearing ULC, or WHI label, as acceptable to authorities having jurisdiction and as specified for doors.
- .17 Locate the label on the inside of the hinge jamb midway between the top hinge and the head of the door frame, so that it is concealed when door is closed

### 2.3 DOORS

- .1 General

## DIVISION 8 – OPENINGS

- .1 Fabricate doors 45 mm (3 3/4 inches) thick and to conform to details and Schedules. Doors shall be flush face, seamless type.
  - .2 Mortise, reinforce, drill and tap doors to receive templated hardware, security and electrical devices, and reinforce for surface mounted hardware. Check the hardware list for details.
  - .3 Fabricate doors with a clearance of 3 mm (1/8 inch) to the frame and 6 mm (1/4 inch) to completed floor finish or threshold except at openings in non fire-rated separations where undercuts are indicated.
  - .4 Fill voids in stile and rail type doors, including stiles, transom head and rails in glazed doors, with core material.
  - .5 Provide fixed transoms, side panels and base panels where indicated or scheduled, of same materials, gauge, thickness, construction and finish as door. Reinforce transoms and panels to prevent oil-canning. Install transoms and panels with concealed fastenings, and reinforce to accommodate hardware as required. Seal joint between transom or panel airtight. Provide accurately formed ship-lap joint between door and transom panel where no transom rail occurs.
  - .6 Where openings are required, provide integrally formed cut-outs with steel framing, and closely fitted steel glass and grille stops, as required. Mitre corners of stops. Drill and countersink fasteners symmetrically at 150 mm oc (6 inch). Screw stops in place. Aluminum stops will not be permitted.
  - .7 Supply and install steel vent grilles in doors where indicated.
  - .8 Provide flush top edge on exterior doors and doors to stair shafts.
- .2 Hollow Steel Construction
- .1 Provide hollow steel construction for exterior doors with insulation core material.
  - .2 Reinforce hollow steel constructed exterior and security doors with vertical stiffeners spaced 150 mm (6 inch) oc. maximum. Rigidly connect stiffeners to internal face of doors. Fill voids in doors with insulation.
  - .3 Laminate honeycomb core to door skins with structural adhesive and bond under pressure.
  - .4 Ensure honeycomb core is fully and uniformly spread throughout door interior.
  - .5 Provide longitudinal edges continuously welded. Seams shall be continuously welded, filled, and sanded smooth.
- .3 Fire Rated Doors:
- .1 Manufacture fire rated doors, shown on the Door Schedule, to fire resistance classification labels scheduled.
  - .2 Construct fire rated doors to ULC requirements and bearing the ULC, or WHI label, as acceptable to authorities having jurisdiction. Provide fire protection rating and time/temperature rise label to requirements of authorities having jurisdiction.
  - .3 Locate the label on the hinged edge of the door midway between the top hinge and the head of the door

**Part 3 Execution****3.1 EXAMINATION**

- .1 Do not begin installation until substrates have been properly prepared.
- .2 Verify that substrate conditions are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions and technical bulletins.
- .3 Verify door frame openings are installed plumb, true, and level.
- .4 Select fasteners of adequate type, number, and quality to perform intended functions.
- .5 If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

**3.2 PREPARATION**

- .1 Clean surfaces thoroughly prior to installation.
- .2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.3 INSTALLATION**

- .1 Install in accordance with manufacturer's instructions.
- .2 Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.1G, "Installation Guide for Doors and Hardware."
- .3 All frames other than slip-on types shall be fastened to the adjacent structure to retain their position and stability. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.

**3.4 BACK UP MATERIAL**

- .1 Apply bond breaker tape where required.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30 to 50% compression.
- .3 Where grouting is required in masonry installations, frames shall be braced or fastened to prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 100 mm (4 inch) maximum slump and hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.
- .4 Install fire-rated doors and frames in accordance with NFPA 80 and local code authority

requirements.

- .5 Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.
- .6 Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.
- .7 Install hardware as specified in Technical Specification Section 08 71 - Door Hardware in accordance with the hardware manufacturer's recommendations and templates. ANSI A115.IG, "Installation Guide for Doors and Hardware" shall be consulted for other pertinent information.

### **3.5 CLEARANCES**

- .1 Clearance between the door and frame head and jambs for both single swing and pairs of doors shall be 3 mm (1/8 inch).
- .2 Clearance between the meeting edges of pairs of doors shall be 5 mm plus or minus 1.6 mm (3/16 inch plus or minus 1/16 inch). For fire rated applications, the clearance between the meeting edges of pairs of doors shall be 3 mm plus or minus 1.6 mm (1/8 inch plus or minus 1/16 inch).
- .3 Bottom clearance shall be 19 mm (3/4 inch) (Standard).
- .4 The clearance between the face of the door and door stop shall be 1.6 mm plus or minus 3.2 mm (1/16 inch to 1/8 inch).
- .5 All clearances shall be, unless otherwise specified, subject to a tolerance of plus or minus 0.4 mm (1/32 inch).

### **3.6 ADJUSTING AND CLEANING**

- .1 Adjust doors for free swing without binding.
- .2 Adjust hinge sets, locksets, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.
- .3 Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.
- .4 Remove from project site and legally dispose of construction debris associated with this work.

**3.7 PROTECTION**

- .1 Protect installed products until completion of project.
- .2 Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**

**Part 1        General****1.1    SECTION INCLUDES**

- .1        Supply and installation of entrance door hardware.

**1.2    RELATED SECTIONS**

- .1        Section 08 11 0 – Steel Doors and Frames

**1.3    HARDWARE & MISCELLANEOUS SPECIALITIES**

- .1        At the direction of the Engineer, the Hardware Supplier will submit copies of a hardware schedule for the Project, in accordance with Technical Specification Section 01 33 00.
- .2        Hardware list and schedule will include the following items, as required:
  - .1        Masterkeyed locksets
  - .2        Mortise locks
  - .3        Deadbolts
  - .4        Hinges
  - .5        Door stops and overhead stops
- .3        Hardware schedule shall be written in proper format as outlined in Door and Hardware Institute's sequence and format for the hardware schedule vertical schedule format. Indicate all hardware, including make, model number, material, function, finish and other pertinent information. Provide samples upon request.
- .4        Provide lever type handles throughout, unless noted otherwise.

**1.4    MAINTENANCE DATA**

- .1        Provide maintenance data, parts list and manufacturer's maintenance instructions.

**1.5    MAINTENANCE MATERIALS**

- .1        Supply two (2) sets of wrenches for door closers, locksets.

**1.6    TEMPLATES**

- .1        Furnish promptly to all applicable trades any patterns, templates, template information and manufacturer's literature required for the proper preparation for and application of hardware in ample time to facilitate the progress of the work.

**1.7    DELIVERY AND STORAGE**

- .1        Store finishing hardware in locked, clean and dry area.

- .2 Package each item of hardware and related fastenings separately, or in like groups of hardware. Include all necessary screws, keys, instructions and templates required for proper installation. Label each package as to item definition and door number corresponding to schedule. Maintain inventory list with hardware schedule.

## **1.8 REGULATORY REQUIREMENTS**

- .1 Closers for doors shall meet the requirements for opening forces and closing speeds as outlined in the Ontario Building Code, Article 3.8.3.3.

## **1.9 WARRANTY**

- .1 Warrant all door closers for a period of five (5) years.
- .2 Warrant all locksets and exit devices for a period of five (5) years.
- .3 All warranty periods to begin from date work is certified as substantially performed.
- .4 Promptly correct defects and deficiencies within the warranty period, including making good any work damaged by failure of the hardware to function.

## **1.10 HARDWARE CONSULTANT**

- .1 Hardware supplier shall have in their employ an Architectural Hardware Consultant as accredited by the Door and Hardware Institute with at least five (5) years experience scheduling hardware for similar type buildings.

## **1.11 EXAMINATION**

- .1 Before furnishing any hardware, carefully check all drawings of the work requiring hardware, verify door swings, door and frame types and materials for proper application and function required, and ensure that hardware will fit the work to which it is to be attached.
- .2 Check shop drawings and frame and door lists affecting hardware type and installation, and certify to the correctness thereof or advise the Engineer in writing of required revisions.

## **Part 2 Products**

### **2.1 HARDWARE ITEMS**

- .1 Use one manufacturer's products only for similar items.

### **2.2 DOOR HARDWARE**

- .1 Hinges: to CGSB 69-GP-1M, Hager #ECBB1100, 646 satin nickel finish, or approved equal. Use non-removable pins for out-swinging doors.
- .2 Lever (Handle): Schlage, Accent Door Lever, 619 satin nickel finish, or Engineer approved equal.

- .3 Accessible Lever (Handle): Schlage Level handle keyed with push button interior lock, or Engineer approved equal. Key into keying system individual to each suite, and on master key.
- .3 Deadbolt: Schlage, #B60N619 satin nickel finish, complete with AODA compliant interior thumbturn, or Engineer approved equal. Key into keying system individual to each suite, and on master key.
- .4 Spring Stops: Ives, #63, 646 satin nickel finish, or Engineer approved equal, for use with all doors.

**2.3 FASTENINGS**

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Exposed fastening devices to match finish of hardware.
- .3 Use fasteners compatible with material through which they pass.

**2.5 KEYING**

- .1 All doors to be keyed same.
- .2 Stamp keying code numbers on keys and cylinder.
- .3 Provide two (2) sets of keys to the Owner.

**Part 3 Execution****3.1 EXAMINATION**

- .1 Do not begin installation until substrates have been properly prepared.
- .2 If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.
- .3 Coordinate work with Technical Specification Section 08 11 00.

**3.2 PREPARATION**

- .1 Clean surfaces thoroughly prior to installation.
- .2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.3 INSTALLATION**

- .1 Install in accordance with manufacturer's instructions using up-to-date templates obtained from manufacturer.



- .2 Adjust hardware and doors for proper operation and free swing without binding or racking.

**3.4 PROTECTION**

- .1 Protect installed products until installation.
- .2 Touch-up, repair or replace damaged products before Substantial Completion.
- .3 Install doors and hardware such that doors are secure and lockable at the end of each working day.

**END OF SECTION**

# STORAGE BUILDING ESSEX REGION CONSERVATION AUTHORITY

360 FAIRVIEW AVE W., ESSEX, ON N8M 1Y6

ISSUED FOR TENDER: MAY 10, 2024

CHALL.ENG. PROJECT NO. 224007

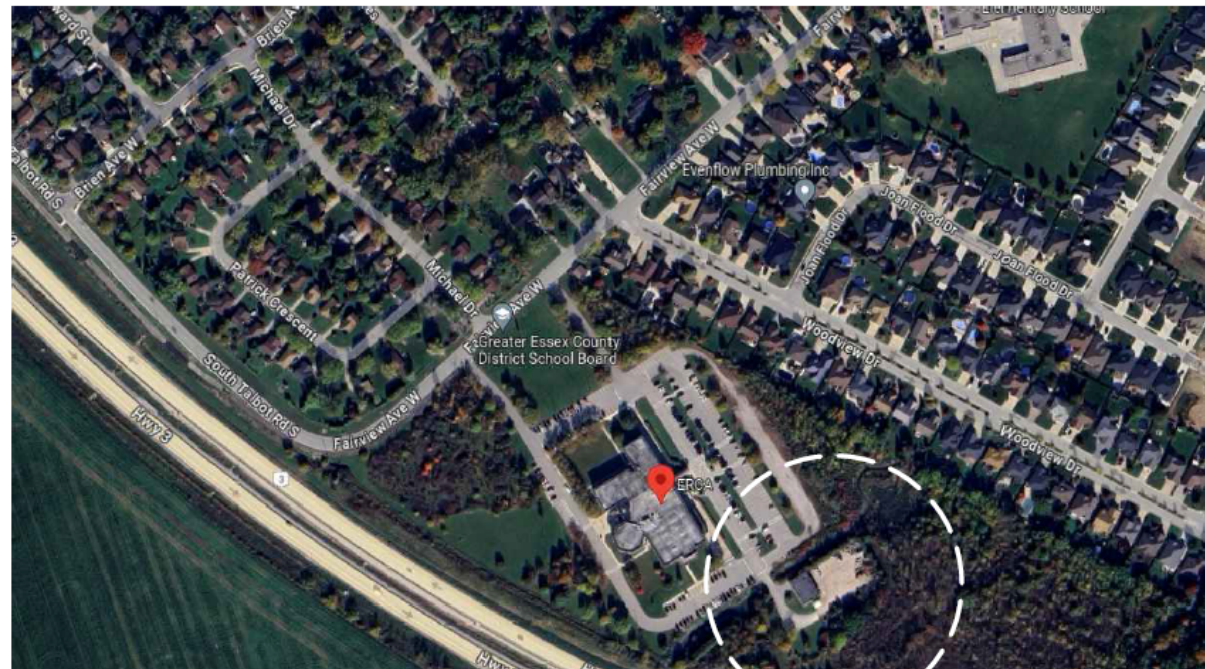


12222 Tecumseh Road East, Second Floor  
Tecumseh, Ontario, Canada N8N 1L9  
Phone: 519-879-7333  
CEC@CEC14.COM  
WWW.CEC14.COM

## DRAWING LIST:

### COVER SHEET / AERIAL PLAN

- E0 NOTES
- E1 ELEVATIONS
- E2 ELEVATIONS
- D1 DETAILS
- D2 DETAILS
- D3 DETAILS



LOCATION OF WORK



GENERAL

1. ALL CONSTRUCTION TO COMPLY WITH THE SPECIFICATIONS AND/OR THE CURRENT ONTARIO BUILDING CODE, PLUMBING CODE, ELECTRICAL CODE AND/OR LOCAL BY-LAWS. IN THE EVENT OF A CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
2. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH ONTARIO HEALTH AND SAFETY ACT <OHS> REGULATIONS FOR CONSTRUCTION PROJECTS, LATEST EDITION.
3. GRADING SHALL SLOPE A MINIMUM OF 2% AWAY FROM THE BUILDING AT EVERY POINT WHERE THE BUILDING MEETS FINISHED GRADE.
4. DO NOT SCALE DRAWINGS.
- B. THE ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ERRORS MADE DURING CONSTRUCTION INCURRING COSTS.
- b. G.C. MUST CHECK ALL DIMENSIONS ON PLANS AND FIELD VERIFY THEIR ACCURACY.
1. ALL DIMENSIONS ON PLANS ARE SHOWN IN NOMINAL DIMENSIONS FOR EASE OF CONSTRUCTION AND ADDING OF FRACTIONS.

FIELD VERIFY ALL  
DIMENSIONS

NOTES  
CONS MO: ON ON  
125  
1

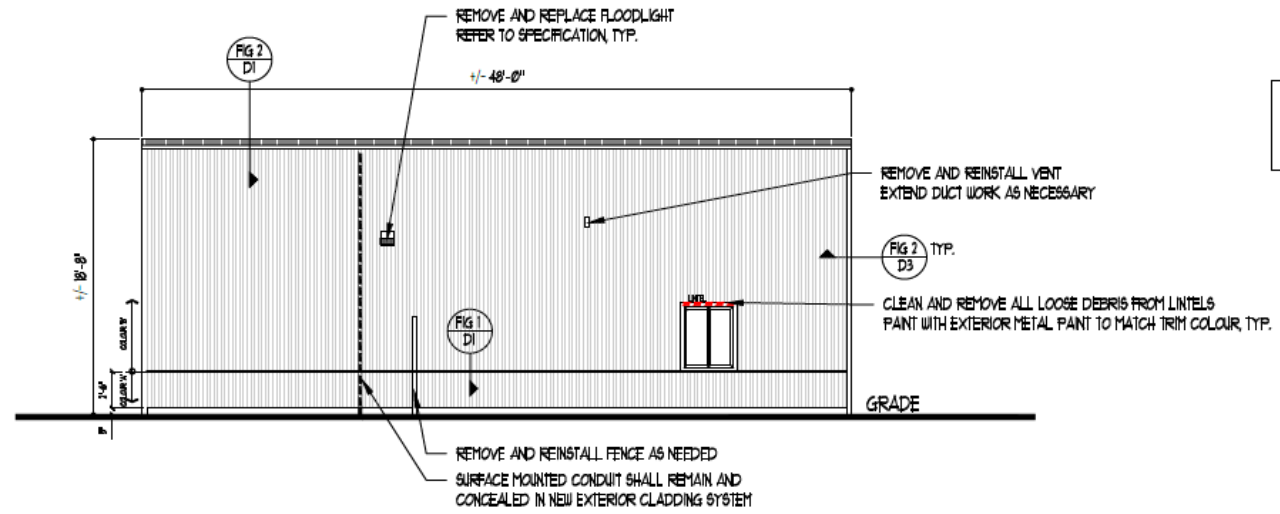
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360 FAIRVIEW AVE. W., ESSEX ON.  
DATE: MAY 10, 2024  
PROJ. NO: 224007  
SCALE: AS SHOWN

~~NOT~~

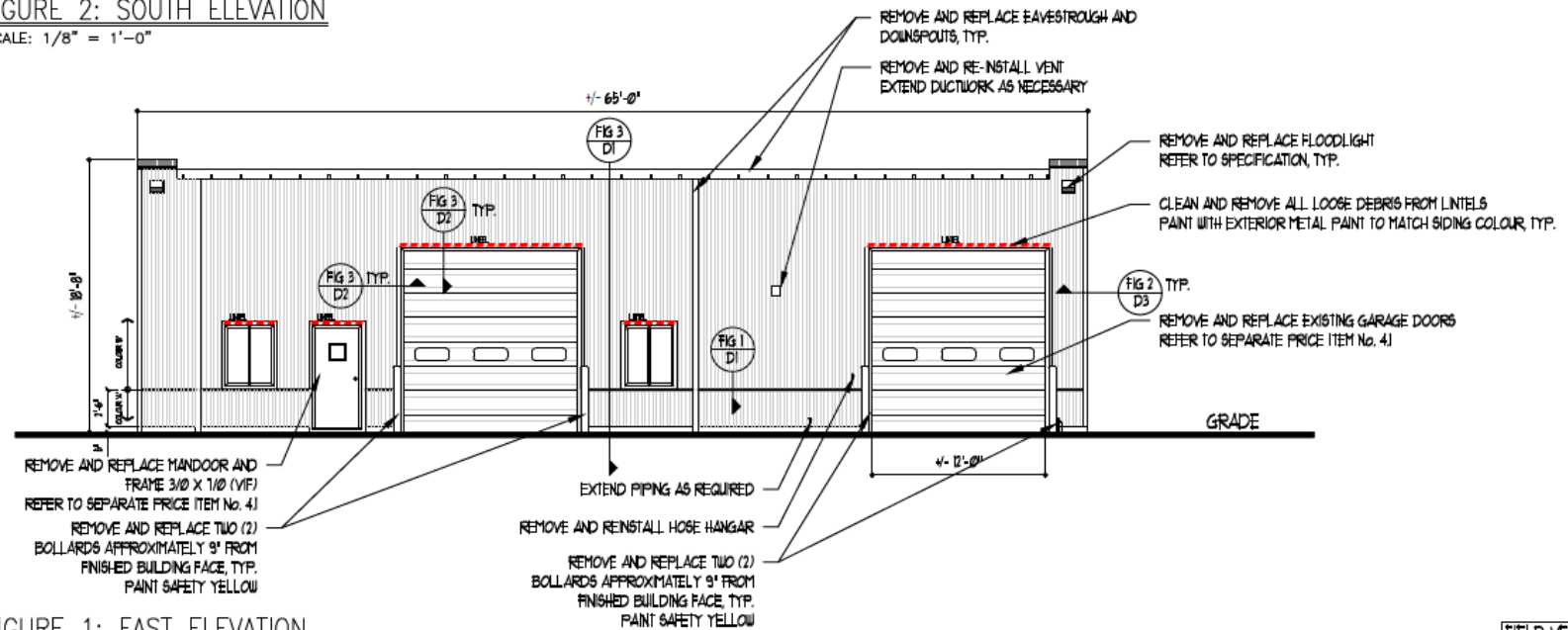
D. H. O.  
S.D.  
V. H. O.

**Challenge**  
Engineering  
INCORPORATED  
1000 SHEPPARD AV. E. UNIT 101  
SCARBOROUGH, ONTARIO M1B 4Y1  
PHONE: 416-291-7331  
WWW.CHALLENGE-ENG.COM

SIDING COLOURS  
COLOUR 'A' - AGWAY QC 28262 BLACK  
COLOUR 'B' - AGWAY QC 28T30 REGENT GREY



**FIGURE 2: SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**FIGURE 1: EAST ELEVATION**  
SCALE: 1/8" = 1'-0"

FIELD VERIFY ALL DIMENSIONS

NOT FOR CONSTRUCTION	DATE: 05/23/24
ISSUED FOR:	DATE:
DESIGN:	DATE:

12222 TENINGER ROAD EAST,  
 RESEARCH, ONTARIO, M9W1U9  
 PHONE: 914-797-7333  
 WWW.CHAALLENGR.COM



DWG. NO. E2  
 REV. NO.

BUILDING ELEVATIONS

PROJECT: ERCA MAINTENANCE BLDG. RE-CLADDING  
 360 FAIRVIEW AVE. W., ESSEX ON.  
 DATE: 2024/05/10  
 SCALE: 1/8" = 1'-0"  
 122-4007 1/8" SHOWN

NOT FOR CONSTRUCTION  
 ISSUED FOR: DATE: 05/28/24  
 DESIGNED BY: DATE: 05/28/24

FIELD VERIFY ALL DIMENSIONS

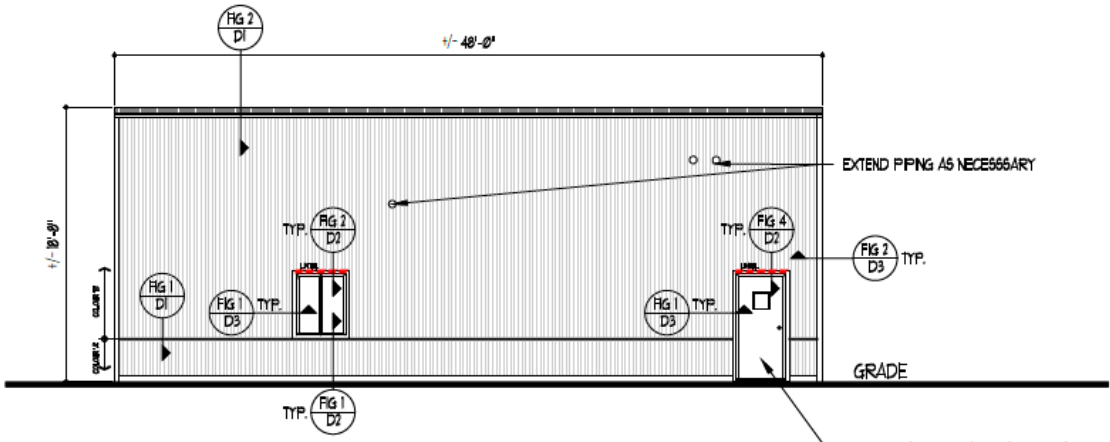


FIGURE 4: NORTH ELEVATION  
 SCALE: 1/8" = 1'-0"

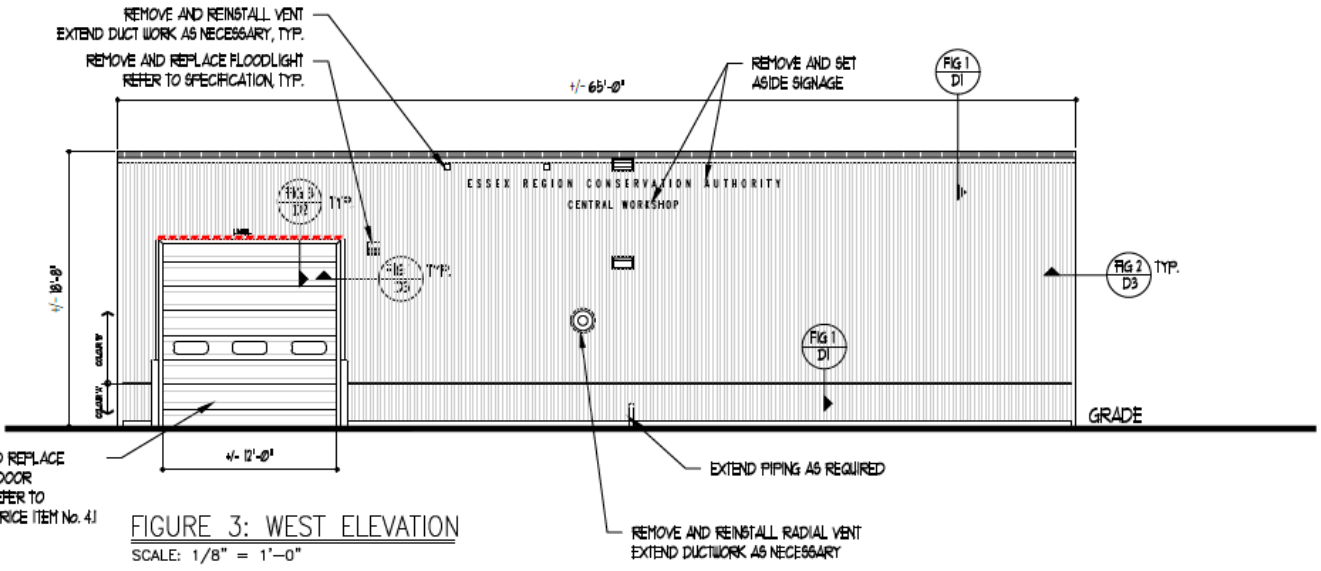
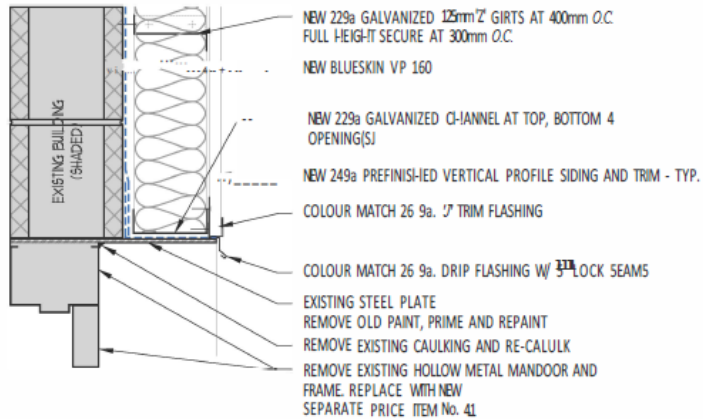


FIGURE 3: WEST ELEVATION  
 SCALE: 1/8" = 1'-0"

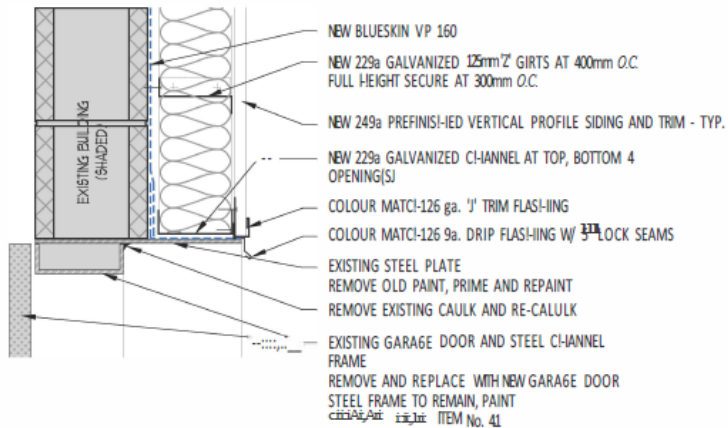






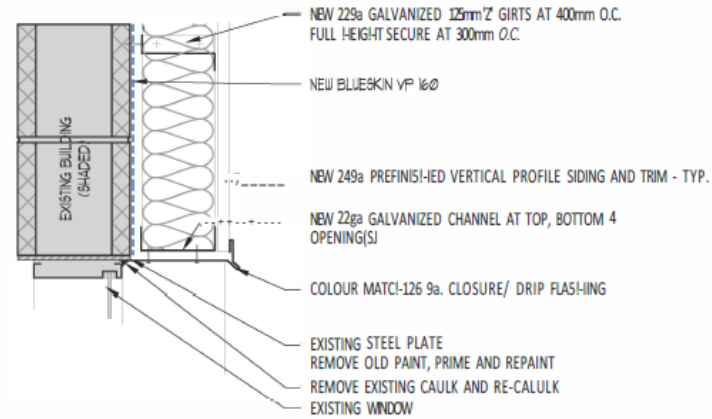
**FIGURE 4: MANDOR HEAD DETAIL**

SCALE: 1-1/2" = 1'-0"



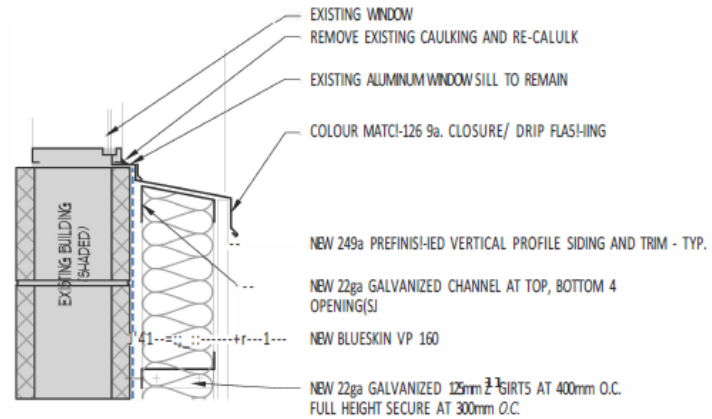
**FIGURE 3: GARAGE DOOR HEAD DETAIL**

SCALE: 1-1/2" = 1'-0"



**FIGURE 2: WINDOW HEAD DETAIL**

SCALE: 1-1/2" = 1'-0"



**FIGURE 1: WINDOW SILL DETAIL**

SCALE: 1-1/2" = 1'-0"

FIELD VERIFY ALL  
DIMENSIONS

NOV CONSTRU 00  
W 02/7/17

PROJECT:  
ERCA MAINTENANCE BLDG. RE-CLADDING  
360 FAIRVIEW AVE., W. ESSEX ON.  
DATE: MAY 10, 2024  
SCALE: 1/4"=1'-0"  
PROJ. NO: 224-1007  
TAS SHOWN

DETAILS

DWG. NO.  
D2  
REV. NO.

12222 TECUMSEH ROAD EAST,  
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**Challenge**  
CONSTRUCTION

