TENDER # 18T193

TENDER FOR

Renovation Project

AT

Westmount Collegiate Institute
1000 New Westminster Dr,
Thornhill, ON L4J 8G3

Contractors shall carefully examine and study all of the Contract Documents and shall visit the site(s) of proposed work in order to satisfy themselves by examination as to all conditions and dimensions.

APRIL 2018

PROJECT York Region District School Board
Westmount Collegiate Institute
1000 New Westminster Dr, Thornhill, ON L4J 8G3
Renovation Project

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

DIVISION 9 – FINISHES

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SCOPE OF WORK

Work shall be completed in accordance with the attached specifications and/or drawings:

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A002	OVERALL SECOND FLOOR PLAN
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EXTERIOR MASONRY DRAWINGS

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B007 ELEVATIONS (WEST)
B008 ELEVATIONS (GYM)
B009 DETAILS
B010 SEALANT REPLACEMENT (WINDOW AND DOOR SCHEDULE)

1. Tender Documents
   1.1. Tender documents are available at www.bidsandtenders.ca
   1.2. Bidder shall check the Specifications and Drawings on receipt to ensure that they are complete in accordance with the Table of Contents. Bidder shall notify the Owner if documents are incomplete.

2. Intent
   The intent of this tender is to obtain offers to complete works for Westmount Collegiate Institute including; Reparation of exterior masonry walls. Replacement of roof section R15 and repair of other roof sections and replace existing carpet flooring with new VCT flooring in rooms 202 (218) and 219.
   The Bidder acknowledges that all Work may commence June 01, 2018.
   2.1. The Bidder, in submitting an offer, agrees to complete all Work for occupancy by August 17, 2018 and invoice for all Work by August 24, 2018.

3. Site Visit / Assessment
   3.1. A site tour will be held April 25, 2018 at 11:00 am at 1000 New Westminster Dr, Thornhill, ON L4J 8G3 at front entrance
   Failure to attend this MANDATORY site meeting will result in immediate disqualification from the bid process. Attendance will be taken and noted by the Board upon commencement of the site meeting and prior to providing Bidders any information with respect to the site. Once attendance has been taken, any Bidders who are subsequently late will not be permitted to attend or to make a Bid Submission. Attendance will be taken by the Board at the time noted above, unless, in the sole and unfettered discretion of the Board, there are circumstances warranting a delay in commencing the site meeting, such as adverse weather conditions, or adverse traffic conditions in the surrounding area of the site.
   Bidder shall review all conditions that will affect the performance of the work. Bidder shall verify drawings, dimensions, and details.
   3.2. Prior to tender closing, Bidder shall notify the Owner if discrepancies, errors or omissions in the tender documents and any Addenda or other documents issued are found.
   3.3. No allowances will be made or compensation approved for errors or difficulties that arise from the Bidder's failure to visit the site, and review the conditions.
   3.4. No allowances will be made or compensation approved for errors or difficulties that arise from the Bidder's failure to clarify anything related to item 3.2 above.

4. Tender Documents
   Bidders shall view the General Requirements and Supplementary Conditions that apply to all tenders by going to the Board website. The link to the General Requirements is http://www.yrdsb.ca/AboutUs/Departments/Purchasing/Documents/GeneralRequirements.pdf ; the Link to the Supplementary Conditions is http://www.yrdsb.ca/AboutUs/Departments/Purchasing/Documents/SupplementaryConditions.pdf.

5. Inquiries During Tendering Period

5.1. Bidders shall direct all inquiries regarding the Documents, in writing online to Moe Elsayed, NGA Architects via the "Submit Question" feature through the Bidding System. Bidders can only access the question feature once they are registered as well as be a plan taker for this bid on the YRDSB Bids and tenders homepage at https://yrdsb.bidsandtenders.ca

Deadline for inquiries must be received 72 hours prior to tender closing.

5.2. Technical Support
If you require technical support for the Bidding System, please contact Bids & Tenders Canada at support@bidsandtenders.ca or 1-800-594-4798.

5.3. The Bidder agrees not to rely upon any written or verbal statements of any other Board Representative(s) other than the above named persons who have the sole responsibility for all inquiries.

6. As-Built Drawings

6.1 The Contractor shall be required to provide to the Board or the Consultant marked-up as-built drawings at the conclusion of the project. The Consultant shall be responsible for creating/updating the CAD drawings to be provided to the Board. The cost of such Work shall not be charged to the Contractor; these costs are to be considered as an allowable disbursement by the Consultant and shall thereby be charged to the Board, unless such work arises as a result of Alternative Products as specified in Section 8.4 hereof.

7. Revisions to Tender Documents

7.1. During the Tender period, Bidders may be advised by Addenda of additions, deletions, or alterations to the Specifications and Drawings and/or any other changes. The information contained in the Addenda is to supersede and amend the Specifications, Drawings, and Schedules. These revisions to the Work are to be allowed for in the Bid and the Addenda are to become part of the Contract Documents. All Addenda will be issued not later than 48 hours prior to closing on the Bidding System. If an Addendum is required within 48 hours, the closing date will be extended.

7.2. Interpretations, corrections or changes in the documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, or changes.

7.3. If any addenda are issued, they will be posted on Bidding System.
Navigate to the Step identified as "Addenda, Terms and Conditions". An email notification will be sent to all invited bidders advising them of the addenda with a link to this page.

7.4. The Board reserves the right to negotiate changes to the terms of the Contract throughout the duration of the project. Final changes must be mutually agreed upon by Board and Contractor.

8. Product/System Options

8.1. Where the Tender documents specify a particular product or products, these products shall be carried in the base price.

8.2. Requests to accept alternative products as equal to the base product will not be considered during the Tender period.

8.3. Alternative products will only be considered if requested by the Board.

8.4. If applicable, information on alternative products shall be submitted as an attachment to the Tender Form. In submission of alternative products to specified products, Bidders shall clearly indicate adjustment to the Tender amount if the alternative product is accepted. The adjustment to the tender amount shall include any changes required in the Work to accommodate such alternatives. A later claim by the Bidder for an addition to the Contract price because of changes in Work necessitated by the use of alternatives shall not be considered. In addition, the Bidder shall accept full responsibility that a proposed alternative product will not exceed space requirements as indicated on the drawings and that co-ordination of the Bidder's own and related work and cost of installation is included in the Bidder's Work. Approved alternative products or assemblies shall comply with all technical and design requirements specified in the base price (e.g. materials, gauge, finish, colour, size, fit, mounting, strength, durability, operation and warranty). If any design fee, either architectural or engineering, is required due to a change or substitution requested by the Bidder, the cost of such fee must be paid by the Bidder.

8.5. The Bid Submission shall provide sufficient information to enable the Board to determine acceptability of such products.

8.6. The Board will decide whether a product is considered equal or equivalent to the product specified. The Board will notify the Bidder, in writing, if an alternative product is accepted.

8.7. Unless an alternative product is accepted by the Board, the Contractor shall provide the specified product.

8.8. If an alternative product has the potential to make a Bidder lowest bidder in a competition, the Board will review documentation on the alternative product. The Board reserves the right to make this decision at the Board's sole discretion.

9. No Bids

If a Bidder is unable or unwilling to bid, the Board representative must be advised no later than forty-eight (48) hours prior to a mandatory site visit (if applicable) or if a mandatory site visit is not a requirement, the Board representative must be advised no later than five (5) days prior to bid closing. Doing so, will provide the Board with the option to extend the bid invitation to another Bidder and will NOT negatively impact the non-participating Bidder's bidding record and pre-qualification status. If the non-participating Bidder fails to provide the Board with such notice of non-participation, leaving the Board with no option for soliciting another bid invitation, then the inaction is viewed as a negative occurrence and may negatively impact the non-participating Bidder's status in the Board's annual pre-qualified Bidders' performance review. Please note: providing the Board with a Bid Submission through the Bid System with an enclosed notice indicating "no bid" is not considered adequate notification

10. Tender Closing

10.1. Tender closes at 4:00:00 p.m. local time on May 08, 2018.

ELECTRONIC BID SUBMISSIONS ONLY, shall be received by the Bidding System, no later than 4:00:00 p.m. (16:00:00 hours) Eastern Standard Time, on May 08,2018

All Bidders shall have a Bidding System Vendor account and be registered as a Plan Taker for this Bid opportunity, which will enable the Bidder to download the Bid Call Document, to receive Addenda/Addendum email notifications, download Addendums and to submit their bid electronically through the Bidding System.

A Bid Submission is based on when the Bid is RECEIVED by the Bidding System, not when a Bid is submitted by a Proponent.

Bidders must allow sufficient time to upload the Bid Submission and attachment(s) (if applicable) and to resolve any issues that may arise. The closing time and date shall be determined by the Bidding System web clock.

Late Bids shall not be accepted by the Bidding System.
To ensure receipt of the latest information and updates via email regarding this bid, the onus is on the Bidder to create a Bidding System Vendor account and register as a Plan Taker for the bid opportunity at https://yrdsb.bidsandtenders.ca

10.2. A Bidder may withdraw their submission through the Bidding System on the “My Bids” page under the “My Active Bids” section.

10.3. Adjustments by telephone, facsimile, or letter to a Tender already submitted will not be considered.

10.4. Bid Submissions cannot be submitted after closing.

10.5. Submissions not completed as requested may not receive consideration. Proposals will only be accepted via the online bidding system. Any proposals transmitted by facsimile or any other means will not be accepted. No electronic reproduction or alterations of the original documents will be permitted

10.6. The following bid infractions will result in immediate disqualification:

10.6.1. Bid Submissions that are received late.

10.6.2. Bid Submissions that lack the required bonding if requested (examples: is supplied in lesser amount than that specified or is not from a certified bonding agency in the Province of Ontario). If bonding is required, it must be uploaded online in the Bidding System. Navigate to Documents Section. There is a file upload area labelled “Bonding Letter”.

10.6.3. Bid Submissions from Bidders who are not pre-qualified in the fields that have a pre-qualified vendor base.

10.6.4. In projects where a mandatory site visit is required and the Bidder does not attend the mandatory site visit. Bidders who attend the site meeting late and/or leave early may also be subject to disqualification. The final decision will be made by the Consultant and/or Board.

10.6.5. Bid Submissions transmitted by facsimile or email will not be accepted.

11. Bid Submissions

11.1. It is the Bidder's responsibility to ensure that all fields are completed and documents uploaded accordingly and included in the Bid Submission. The Board shall not be responsible for the lack of inclusion of any documents requested.

11.2. Bid Submissions shall be completed through the Bidding System. Bid Submissions not completed as requested may not receive consideration. No electronic reproduction or alterations of the original documents shall be permitted under any circumstances.

11.3. Bid Submissions that are incomplete, unsigned, improperly signed, improperly uploaded, conditional, illegible, obscure, contain mathematical errors, erasures, alterations, or irregularities of any kind, may, at the discretion of the Board, be declared informal and therefore disqualified.

11.4. The following procedures will govern interpretation of prices:

11.4.1. When a unit price is requested, the unit price will govern.

11.4.2. When a lump sum price is requested, the lump sum will govern.

11.4.3. When both the unit price and the lump sum are requested, the lump sum will govern.

11.5. The unit price quoted in the Tender Form and/or Provisional Items shall be a reasonable unit price for each item. The Board shall be the sole judge of such matters. Any Bid Submission considered by the Board to be unbalanced may be rejected by the Board.

11.6. Any Bid Submission lacking clarity, or where there is obvious misinterpretation of the specification, will be disqualified.

12. Subcontractors

12.1. Where there is Work that involves a pre-qualified sub-contractor base, Bidders MUST select a Board Prequalified sub-trade from the list on the Electronic Bidding system where prompted. Bidders who fail to do so cannot submit in the Bidding System. Please click on the following link for the most current list of pre-qualified Contractors.
http://www.yrdsb.ca/AboutUs/Departments/Purchasing/Pages/Prequalified-**Contractors**.aspx
Any Prequalified Contractors and Subcontractors specifically listed in Appendix A of the Tender Form shall supersede any Prequalified Contractor lists in the General Requirements available by the link noted above.

See also Section 20 of General Requirements.

13. Bonds

If requested, Contractor shall provide a 50% Performance Bond and a 50% Labour and Material Bond for the work. Cost of the Bonds shall be treated as an extra to the Contract. On completion of the Work, the performance bond shall remain in force as a maintenance bond for a period of one (1) year from the date of acceptance of the building by the Board. It shall form a guarantee of workmanship and material for the one (1) year period.

If required, Bond must be uploaded online in the Bidding System. Navigate to "Step 3 – Documents". There is a file upload area labeled "Bonding Letter".

14. The Contractor shall comply with the terms and conditions of the latest revision of the "Construction Lien Act" (Ontario) as amended from time to time.

15. Tender Opening
    15.1. Unofficial bid results will be posted immediately after the time of closing on Bids and Tenders. The following information will be posted:
        - Bidder Name
        - Lump Sum Price
        - Separate Pricing, if applicable
        - Alternate Pricing, if applicable
    15.2. Information such as receipt of bid bond (if applicable) and other areas of possible non-compliance will NOT be announced publicly.,
    15.3. Award of Tender will not be made until the Board and/or the Consultant conducts a thorough review of all documentation after Tender opening in order to determine full compliance of each submission. Once this process has been completed, official award will be made by the Board.

16. Tie Bid Submissions
    In the event of tie Bid Submissions, the following guidelines shall govern the Board's award process:
    16.1. Board Representative will confirm that the tie Bid Submissions are compliant. Non-compliant Bid Submissions will be disqualified.
    16.2. In the event of tie Bid Submissions which are deemed compliant, the Board will flip a coin to determine the winning Bid Submission.

17. Disputes Resulting from This Bid
    17.1. The Bidder will address any issues starting at the Board's Buyer level to Purchasing Manager and continuing up the level of Administration to the final decision by the Associate Director which will be the final stage. The Bidder cannot take any legal intervention until this process has taken its course. All disputes or conflicts shall be resolved in a timely manner.
    17.2. If the Board is involved in a legal dispute executed by a Bidder in any matter pertaining to the award of this bid document, the Board reserves the right to deny future bid opportunities to the Bidder in question until the legal dispute has been resolved, and for a period of three (3) years thereafter.
    In the event that a legal dispute currently exists between the Board and the Bidder, the Board reserves the right to deny the Bidder's participation in this bid opportunity and all future bid opportunities until the legal dispute has been resolved and for a period of three (3) years thereafter.

18. Reserved Rights
    18.1. Notwithstanding anything elsewhere herein set out, the lowest or any Bid Submission will not necessarily be accepted by the Board and the Board reserves the right to cancel this Tender without any obligation or any reimbursement to proposed Bidders or to accept any Bid Submission which is considered advantageous to the Board.
    18.2. The Board reserves the right to invalidate all Bid Submissions and to issue a second Tender for the same or similar work, products, and/or services.

18.3. The Board reserves the right to reject all Bid Submissions if less than three Bid Submissions are received.

18.4. The Board reserves the right to cancel this Tender if the low Bid Submission price exceeds the projected budget of the project.

18.5. The Board reserves the right to invalidate any Bid Submission from a Bidder:

(i) who has threatened or is currently involved in any legal disputes with the Board with respect to any previously awarded Tenders, whether or not such legal disputes arise prior to or subsequent to the issuance of this Tender; or

(ii) whose past performance has been unsatisfactory with respect to any previously awarded Tender, in the sole and unfettered discretion of the Board, whether or not such unsatisfactory performance occurs prior to or subsequent to the issuance of this Tender.

19. Awards

19.1. In Tenders where Lump Sum Pricing only is requested, the Board will award the contract to the lowest compliant Lump Sum Price Bidder.

19.2. In tenders where Separate Pricing and/or Alternate Pricing is requested in addition to Lump Sum Pricing and in the event that the Board agrees to exercise the Separate Pricing option and/or the Alternate Pricing option, the Board will award the Contract to the lowest compliant Lump Sum Price plus Separate Price(s) and/or Lump Sum Price plus Alternate Pricing option chosen. This would result in the lowest price overall incorporating the total of the Lump Sum plus Separate Price and/or Alternate Pricing chosen. If the Board does not choose to exercise the Separate Price and/or the Alternate Price option, the Board will award the contract to the lowest compliant Lump Sum Price Bidder.

19.3. If an alternative product has the potential to make a bidder lowest bidder in a competition, the Board will review documentation on the alternative product and will decide if the alternative product will be accepted. The Board reserves the right to make this decision at the Board's sole discretion.

19.4. The lowest or any Bid Submission will not necessarily be accepted by the Board and the Board reserves the right in its sole discretion to reject any and all Bid Submissions at any time or to accept any Bid Submission which is considered advantageous by the Board. Bid Submissions which are non-compliant with the requirements of this Tender or which contain qualifying conditions may be disqualified or the Board may waive any non-compliance with this Tender and in its sole discretion retain for consideration Bid Submissions which are non-conforming or non-compliant.

19.5. The Board intends to award the Contract to a SINGLE compliant Bidder. The Board reserves the right to award to more than one compliant Bidder, if it is in the best interests of the Board.

19.6. The Board will have no liability or obligation to any Bid Submission except only the Bidder, if any, awarded the Contract by the Board in its sole discretion, and agrees that if not awarded the Contract, the Board shall be fully and forever released and discharged of all liability and obligations in connection with this Tender and all its submission procedures.

19.7. The right to reject any or all Bid Submissions, to waive informalities, or to accept any Bid Submission as most satisfactory in the opinion of the Board, is expressly reserved by the Board. Further, it is expressly acknowledged and agreed that the award to the lowest compliant Bidder contemplated in section 19.1, 19.2 and 19.3 hereof are subject to the Board's discretion not to award to the lowest compliant Bidder on account of previous outstanding performance or litigation issues regarding pre-existing projects with such Bidder.

19.8. It shall be understood by all Bidders that the Bid Submissions shall be valid and subject to acceptance by the Board, and that no adjustment shall be made to the tendered amount, for a period up to and including ninety (90) days from the date of tender closing.

19.9. On notification of acceptance of this offer, the Board will issue a Letter of Intent and a Purchase Order to the successful Bidder.

19.10. For projects $500,000.00 and over, the Board and the Successful Bidder may enter into a Contract - CCDC2 2008, as amended by the Board's Supplementary Conditions.

20. Obtaining Tender Results
Unofficial bid results will be posted after tender closing in the Bid System.

21. Unless otherwise indicated, all invoices for payment are to be submitted to:

Plant Services
Gorham Building
1260 Gorham St
Newmarket, Ontario
L3Y 8W4

Electronic copies of the invoices are to be sent to:

NGA Architects.
Email: melsayed@ngaa.ca

Consultant will review all Invoices, and provide a Certificate of Payment to the Board.

22. Requirements At Time of Execution for **Prequalified Bidders**
Subject to an award of the Contract by the Owner, the Bidder is required to submit the following documentation in a form satisfactory to Purchasing Services for execution within seven (7) working days after being notified to do so in writing by the Owner:

22.1. Proof of Insurance if requested by Purchasing Services.

22.2. WSIB Clearance if requested by Purchasing Services.
The Contractor is obligated to maintain in good standing with WSIB. The Board reserves the right to request a current Clearance Certificate and Workplace Injury Summary Report.

22.3. Bond(s) if required.

22.4. If the Bidder, for any reason, defaults or fails in any matter or thing referred to under "Requirements at time of Execution", the Owner shall be at liberty to accept any other Bid Submission or advertise for a new Tender or carry out the Work in any way the Owner in its sole discretion, deems best.

1. Tender

Tender #: 18T193

Tender for: **Westmount Collegiate Institute**

2. Lump Sum Price

Having visited the site and examined the Tender Documents and any Addenda, the undersigned, if notified in writing of the acceptance of this Tender within ninety (90) days of the time of the Tender opening, offer to furnish all labour, material, and equipment, and perform all duties and services for the proper completion of the scope of work, including all applicable Taxes, Custom Duties, Licenses and Insurances, and Freight and Exchange Charges, but excluding the Harmonized Sales Tax (HST).

Cash Allowance: $27,500
(Overhead and Profit are not allowed on this item)

Contingency: $20,000
(For use at sole discretion of Owner)

All pricing shall be entered on the Bidding System. Navigate to the step labeled "Schedule of Pricing".

3. Cash Allowance

We understand that the amount of any cash allowance is exclusive of HST and as such, payment made from a cash allowance shall not include HST. Any unspent balance from any cash allowance will be credited from the Contract. We understand that dollar amounts specified as cash allowance are no guarantee of payment by the Board of the full specified amount.

We also agree to provide any supporting documentation requested by the Board Representative in accordance with the terms and conditions of this Tender. We understand that all documentation that we have submitted to the Board will be scrutinized fully and if said documentation is not considered satisfactory support

for the claim, then the amount claimed may not be honoured at all, or may be honoured in part only. The Board's decision will be final.

4. Addenda

This tender includes the cost of all Work covered in any Addenda issued. Any addenda issued will be posted on Bidding System, it is the responsibility of the Contractor to review all Addenda.

Contractor bid submissions will not be accepted in the Bidding System without the required acknowledgement of the Addenda.

Navigate to the step labeled "Addenda, Terms and Conditions".

5. Undertaking –

5.1 The undersigned Bidder solemnly undertakes, as an integral part of our Bid Submission to:

5.1.1. have the Building(s) 'fit for occupancy' by: 17 August 2018

5.1.2. have the Building(s) and site work completed by: 24 August 2018

5.1.3. have the Contract completed in its entirety by: 24 August 2018

6. Percentages for Changes in the Work

Where changes in the Work are made after award of Contract, we agree to provide quotations of the proposed changes using the following parameters:

a) Mark-up on Contractor's own Work will be fifteen percent (15%) combined overhead and profit;
b) Contractor's mark-up on Subcontractor Work will be ten percent (10%) combined overhead and profit;
c) Mark-up charged by Subcontractors on their own Work will be ten percent (10%) combined overhead and profit;
d) Main Subcontractor's mark-up on minor Subcontractor's Work will be ten percent (10%) combined overhead and profit; and
e) Changes involving a decrease in the Contract sum will be calculated in the same way except that no overhead or profit shall be charged.

7. Construction Lien Act

By submitting our bid package in the Bidding System, we acknowledge and will comply with the provisions of the "Construction Lien Act (Ontario)", as may be amended from time to time.

8. Declaration of No Conflict

The undersigned Bidder hereby declares that this Bid Submission is made in good faith and without any connection, knowledge, comparison of figures, or arrangements with any other company, firm, or person making a Bid Submission for the same Work and is, in all respects, fair and without collusion with any other bidder for this Contract, and without fraud. The undersigned also represents and warrants that, to the best of the undersigned's knowledge and belief, no actual or potential conflict of interest exists with respect to the Bid Submission or performance of the Contract other than those disclosed hereunder. The undersigned confirms that, where the Board discovers that the undersigned has failed to disclose all actual or potential conflicts of interest, the Board may disqualify the undersigned or terminate any Contract awarded to the undersigned pursuant to this Tender process. The undersigned understands that, for the purposes hereof, "conflict of interest" also includes:

(a) in relation to the Tender process, the undersigned has an unfair advantage or engages in conduct, directly or indirectly, that may give the undersigned an unfair advantage, including:

(i) having or having access to information in the preparation of the undersigned's proposal that is confidential to the Board and not available to other bidders;
(ii) communicating with any person with a view to influencing preferred treatment in the Tender process; or,
(iii) engaging in conduct that compromises or could be seen to compromise the integrity of the open and competitive process and render that process non-competitive and unfair; or,

(b) in relation to the performance of its contractual obligations in a Board contract, the undersigned's other commitments, relationships or financial interests:

(i) could or could be perceived to exercise an improper influence over the objective, unbiased and impartial exercise of the Board's independent judgment; or,
(ii) could or could be perceived to compromise, impair or be incompatible with the effective performance of the undersigned's contractual obligations.

9. Municipal Freedom of Information and Protection of Privacy Act
   This Bid Submission and supporting documentation shall become the property of the Board. Information in a Bid Submission is subject to potential disclosure to third parties after the award, in accordance with the provisions of the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990 ("MFOIPOP"). The Bidder acknowledges that any personal or confidential information which Bidders provide is being collected and will be used exclusively for the purposes of analyzing, evaluating and assessing Bid Submission submitted. Any information a Bidder wishes to identify as proprietary and have maintained as confidential, excluding unit pricing information as well as the total dollar value of the Bid Submission, must be clearly identified as such, and any proposed restrictions on disclosure specified. For the purposes of a report to the Trustees of the Board, pricing information as well as the total dollar value of the Bid Submission may be reported in a public report and will not be considered confidential. In addition, the Board may be ordered by the Information & Privacy Commissioner under the provisions of MFOIPOP to disclose additional information identified by a Bidder as proprietary and confidential.

10. Limitation of Liability
    By submitting a Bid Submission, the undersigned Bidder acknowledges and agrees that the Board will have no liability or obligation to any Bid Submission except only that of the successful Bidder, if any, awarded the contract by the Board, in its sole discretion. The Bidder also agrees that if the undersigned is not awarded the Contract, the Board shall be fully and forever released and discharged of all liability and obligations relating to this Tender and all its submission procedures. All Bidders responding to this request for tender shall accept the decision of the Board as final and binding.

11. Supplementary Tender Forms (Appendices)

    All applicable appendices that form part of this Tender Form are to be completed in the bidding system.

APPENDIX A - All applicable appendices that form part of this Tender Form are to be completed in the bidding system

A.1 LIST OF WORK TO BE SUBCONTRACTED FOR THIS PROJECT

A.1.1. Following is a list of Sub-trades for this project.

A.1.2. Bidders are required to identify one Subcontractor per sub-trade below from the drop down list.

A.1.3. No change to this list is permissible without written approval of the Owner.

A.1.4. The undersigned confirms that each Subcontractor has been consulted and has been advised of the proposed construction schedule and is fully aware of the extent and nature of the work, and that each Subcontractor will execute the Work in accordance with the contract documents.

A.1.5. As referred to in “Instructions to Bidders” Section 00100 and in General Requirements Section 01000, In instances where the Board has a pre-qualified list of bidders for a particular sub-trade, the Bidder must select one of the pre-qualified contractors from the list on the Bidding System or select ‘Own Forces’ if using their own staff.

LIST OF WORK TO BE SUBCONTRACTED:

Section	Subcontractor / Supplier
Exterior Masonry Wall	. _____ .
Roofing	. _____ .

APPENDIX C - All applicable appendices that form part of this Tender Form are to be completed in the bidding system

C.1 ALTERNATE PRICES –

C.1.1. The following Alternate Prices shall be submitted as an adjustment to the Lump Sum Price. The incorporation of these Alternate Prices to the Contract shall be at the sole discretion of the Owner.

Alternate Price #1: Add / (Delete) $_____.

HST extra

APPENDIX D - All applicable appendices that form part of this Tender Form are to be completed in the bidding system

D.1 SEPARATE PRICES –

D.1.1. The following Separate Price(s) shall be submitted as an EXTRA to the Lump Sum Price. It is for Work not included in the Base Scope of Work and therefore is NOT to be included as part of the Lump Sum price. The incorporation of these Separate Prices to the Contract shall be at the sole discretion of the Owner.

Separate Price #1: $ _____ .

HST extra

APPENDIX E

The successful bidder only shall provide this information upon request to the Board as required by the Ministry of Education.

E.1 Lump Sum Price Breakdown

E.1.1. The individual pricing below shall be INCLUDED in the Lump Sum Price and incorporated as part of the Scope of Work.

It is intended that the sum of each of these prices does not equal the Lump Sum Price.

i) Work Location/Nature of work___Exterior Masonry Wall Reparations__

Bid Price: $_____

HST extra

ii) Work Location/Nature of Work_____Roofing_____

Bid Price: $_____

HST extra

iii) Work Location/Nature of Work_____General Condition_____

Bid Price: $_____

HST extra

1 GENERAL

1.1 Comply with Division 1 requirements and documents referred to therein.

1.2 In addition to the General Conditions of the contract, the Contractors shall familiarize themselves with all Section of the Specifications.

1.3 Contractor shall include in contract Price all Contingency Allowances specified therein.

2 CASH ALLOWANCES

2.1 Include in the Contract Price, a stipulated sum Cash Allowance in the amount of **$27,500.00 (Twenty Seven Thousand, Five Hundred Dollars)**.

2.2 Cash Allowances, unless otherwise specified, cover the net cost to the General Contractor of services, products, construction, machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing the Work.

2.3 The Contract Price, *and not the Cash Allowance*, includes the General Contractor's profit in connection with such cash allowance.

2.4 The Contract Price will be adjusted by written order by the Consultant to provide for an excess or deficit to each Cash Allowance. Any unused portions of these allowances shall be returned to the Board on the conclusion of the Contract.

2.5 Expend Cash Allowances as directed by the Consultant in writing. Allowances will be adjusted to actual cost with no adjustment to Contractor's charges. Cash expenditure must identify the H.S.T. separately.

2.6 The following is a summary of the cash allowances to be included in the contract.

- Testing and Inspection
- School Signage and Lettering

Total: $ 27,500.00

3 CONTINGENCY ALLOWANCE

3.1 Refer also to General Conditions of the Contract.

3.2 Expend Contingency Allowance as directed by the Consultant, in writing, in accordance with the Board's *Stipulated Price Contract, CCDC-2008, changes in Work and Contingency Allowance.*

3.3 Contractor's charges for expenses and profit on Contingency Allowance expenditure shall not be included in Contract Price. Refer to *Stipulated Price, CCDC-2008* for percentages of mark-ups.

3.4 Such charges shall be added to the net trade cost of each expenditure from the Contingency Allowance at the percentage rates noted in the *Stipulated Price, CCDC-2008.*

3.5 Changes to the Work shall be added to, or deducted from, the Contingency Allowance, not from the Board approved Contract. The Contract shall be adjusted by Board approval, only once – at the end of the Project. Credit the Contract with any unused portion of the Contingency Allowance only in the final payment statement.

3.6 In submitting final adjustments of Contingency Allowances, include duplicate, summary statements and copies of receipted invoices substantiating purchases under Contingency Allowances.

3.7 Items of work described hereunder, will be tendered separately by Contractor.

3.8 Such suppliers and Sub-Contractors shall have same status as other suppliers and Sub-Contractors on Work.

Description	**Contingency Allowance**
Existing Condition	$ 20,000.00
Total:	**$ 20,000.00**

END OF SECTION

PART 1 – GENERAL

1.1 SETTING OUT THE WORK

1.1.1 The Contractor shall be responsible for the construction layout.

1.1.2 Verify all elevations, lines, levels, and dimensions and report any errors, discrepancies or conflicts to the Consultant.

1.1.3 Establish and maintain benchmarks, location stakes and batter boards as required.

1.1.4 Verify and record proposed location and finished elevations relative to existing grades.

1.1.5 Determine actual location and elevation of existing underground utilities where connections are required.

1.1.6 Call in relevant utility companies where required to locate utilities.

1.1.7 Undertake test digging where required.

1.1.8 Verify and coordinate finished elevations and dimensions of the work of one Section with respect to a related Section of the Work.

1.1.9 Prepare interference drawings of system and equipment components to ensure that all elements can be accommodated within the spaces provided.

1.1.10 Ensure that all clearances required by authorities having jurisdiction are maintained in the installed work.

1.2 SURVEYOR'S CERTIFICATE

1.2.1 Provide an Ontario Land Surveyor's Certificate with a Surveyor's Plan to verify the location of the building in relation to the existing property lines.

1.2.2 Submit to the Consultant four (4) copies of the Surveyor's Certificate and the Surveyor's Plan within seven days of completion of the exterior foundations.

1.2.3 On completion of the work submit to the Consultant the same Survey to show the outline of paved areas, final finished grades throughout the site and the location of buried services. Note any deviations from the approved working drawings.

END OF SECTION

PART 1 - GENERAL

1.1 PERMITS, LICENSES AND FEES

1.1.1 The Owner shall obtain and pay for, in a timely manner in order to avoid delays to the construction, the Building Permit and Occupancy Permit.

1.2 BUILDING CODE BY-LAWS AND REGULATIONS

1.2.1 Carry out all work in accordance with the regulations of the Ontario Building Code, latest issue, including all amendments and revisions.

1.2.2 Comply with all requirements, regulations and ordinances of all jurisdictional authorities.

1.2.3 Comply with and pay for requirements of local authorities regarding any necessary work outside the property lines such as curbs and sidewalks.

1.2.4 Inform the Consultant of any known variance of the Contract Documents from the requirements of the Building Code and authorities having jurisdiction and assume responsibility for work known to be contrary to such requirements and performed without notifying the Consultant.

1.3 FIRE PROTECTION

1.3.1 Materials and components required to construct fire rated assemblies and materials requiring fire hazard classification shall be listed and labelled.

1.3.2 Fire rated assemblies shall be constructed in accordance with applicable fire test report information issued by the fire rating authority. Deviation from fire test report will not be allowed.

1.3.3 Construct fire rated assemblies as continuous, uninterrupted elements except for permitted openings. Extend fire rated walls and partitions from top of floor assembly to underside of the fire rated assembly above.

1.4 HAZARDOUS MATERIALS

1.4.1 Comply with requirements of the Occupational Health and Safety Act, as amended to include WHMIS (Workplace Hazardous Materials Information System).

1.4.2 Ensure that a current Material Safety Data Sheets (MSDS) arrives before or with the first delivery of every controlled product.

1.4.3 Check the date to ensure that the MSDS is up-to-date (MSDS are valid for three years from date of production).

1.4.4 Ensure that worksite copies of the MSDS are available to workers wishing to consult them and to the health and safety representative and/or joint health and safety committee.

1.4.5 Ensure that workers are instructed in the purpose and content of MSDS.

END OF SECTION

PART 1 GENERAL

.1 Bids shall be based on the materials and methods as outlined in the bid documents. If the contractor cannot meet the requirements, no bid shall be entered.

.2 Refer to the technical specifications and drawings sections for products, and technical requirements.

.3 Address all questions regarding the Contract Documents to the Consultants Representative.

2.0 SCOPE OF WORK

The work outlined herein is a general description. The specific requirements for the execution of the Work shall be as described in the bid documents.

Item 1: Mobilization, demobilization, site safety, administration, site clean-up, warranties, general instructions, barriers, temporary works, protection, signage, traffic control, coordination, etc.

Provide all the required labour, equipment, and materials necessary to mobilize, demobilize, provide site safety and administration for the Work on site, and to conform to all requirements in the Contract Documents. All coordination to be performed and notices to be provided prior to the work by the Contractor. Provide all the necessary labour, plant, equipment, and materials necessary to conform to all requirements as specified in the Contract Documents. This includes, but is not limited to temporary lighting, access, shoring, etc. Install all necessary fencing, hoarding, barriers and signage to protect staff, building elements, vehicular and pedestrian traffic in accordance with the *Occupational Health and Safety Act*. Include all necessary construction signage and coordination. Signage is to be properly lettered and visible. In addition to preventing injury, all work areas must be protected from damage due to equipment. Such equipment includes, but is not limited to, scaffolding, hoists, and temporary access. Rubbish debris and other materials shall not be permitted to fall freely from one level to another but shall be lowered by a covered chute, in a covered container or by a crane or hoist during cleanup. All areas affected by the work must be free from any debris and cleaned daily and more thoroughly at the week's end. Areas outside the work areas are to be kept clean to the satisfaction of the Owner.

All construction protection barriers must not be mechanically fastened to the structure to avoid penetrating the waterproofing system and elastomeric coating. Any damages as a result of inadequate protection shall be rectified at no additional cost to the Owner. Provide temporary support to existing structural loads, where required, to ensure the building is maintained in a safe condition and damage is not caused to building elements. Any damage as a

result of lack of support or protection shall be rectified at no additional cost to the Owner.

Include for installation of all necessary material and performance site mock-ups that will be required to the satisfaction of the Owner and Consultant. Make allowances during construction for down time made necessary for access to and review of the Work by Consultant.

Demobilization to include the removal of all plant, tools, and equipment necessary to conform to all requirements as specified in the Contract Documents. The demobilization also includes the thorough cleaning of the work area prior to the Consultant and the Owner's final review for Final Acceptance of the Work. This includes the removal of all temporary protection, equipment, waste and surplus materials from site and leave in neat, tidy condition to the satisfaction of the Owner. Upon completion of Work, and immediately before the Consultant's final review for Total Performance of the Work, all areas of the building affected by this Contract shall be thoroughly cleaned. Remove all temporary protection, equipment, waste and surplus materials from site and leave in neat, tidy condition to the satisfaction of the Owner.

Payment for this item will be based on release of 25% of this item on the first progress draw, 50% will be released based on a pro-rata basis per month through the duration of the contract and the Contract Lump Sum Price and the remaining 25% will be released on the final progress draw.

Item 2: Exterior masonry wall rehabilitation

Field of the exterior wall

The scope of Exterior Masonry Wall Rehabilitation is scattered throughout all four elevations. Refer to the drawings for the location of exterior brick wall repairs.

Provide all labour, material and equipment required for replacement of brick masonry cladding, ties, and pre-formed weep holes to match existing. If more than three courses of bricks are removed, provide adequate shoring to support the brick masonry wall. Damage to brick wall components shall be repaired by the Contractor at no additional cost to the Owner. New brick masonry to match the existing in size, colour, and texture. Include for tinting, as required. Provide one sample and one mock-up for Consultant's and Owner's review and approval. Remove the deteriorated mortar joint and install new mortar and tool to match existing. The Price for brick replacement includes all mortar joints for the replaced bricks as specified. Include for mortar tinting, as required.

Supply and install a new membrane and metal drip edge directly below the precast concrete decorative band.

Install new helical ties where specified on the drawings. Secure the brick on either sides of the joint with helical ties, 8mm Spira-Lok as manufactured by Blok-Lok or approved equivalent, on every second horizontal mortar joint. Follow all manufacturer's instructions for installation and required embedment depth. Supply and install new closed cell backer-rod and sealant at the joints affected by the brick replacement to match the existing joints. Provide a mock-up for Consultant's and Owner's review and approval. Do NOT proceed with the Work without Consultant's approval of the mock-up.

The cost should include the removal and re-instatement of all exterior features, such as light fixtures, camera, CCTV, speaker, etc., and to provide access to the area of work.

The repair area is approximately 190 square meters. Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Exterior wall repairs above window heads

Provide all labour, material, and equipment required for replacement of brick masonry cladding, brick ties, pre-formed weepers, and insulation, and installation of new through wall flashing at Locations specified on the drawings.

Remove and dispose offsite one (1) course of architectural block band, fake header course band and existing brick cladding located above the window head as marked on the drawings. If more than three stacked bricks are removed, provide adequate shoring to support the brick masonry wall. Damage to brick wall components shall be repaired by the Contractor at no additional cost to the Owner.

Remove and dispose existing exposed 3-inch semi-rigid Rockwool insulation and replace with new insulation to match existing.

Install new Blueskin TWF through-wall flashing manufactured by Henry, or approved equivalent, and pre-formed weepers above the architectural block band as illustrated on drawings. Overlaps must be a minimum of 150mm (6") with no fish mouths. Install Henry Polybitume 570-05 sealant (polymer modified rubber asphalt sealing compound) at all joints, laps and seams. Seal the joint between the new through wall flashing and existing membrane with Polybitume 570-05 sealant manufactured by Henry.

Supply and install new architectural block band, new bricks and brick ties. New architectural block band and bricks are to match the existing in size, colour, and texture. Provide masonry samples and install one mock-up for Consultant and Owner review and approval.

The Price for brick replacement includes all mortar joints for the replaced bricks as specified. Include for tinting, if required. Remove the deteriorated

mortar joint and install new mortar and tool to match existing. Install false header course brick right above the architectural block band. Do NOT saw cut the face of the bricks to imitate false header bricks. The false header course is to be flush with the exterior brick wall.

Supply and install new closed cell backer-rod and sealant at the joints affected by the brick replacement to match the existing joints. Provide a mock-up for Consultant's and Owner's review and approval. Do NOT proceed with the Work without Consultant's approval of the mock-up.

The repair area is approximately 25 square meters. Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Exterior wall repairs below window sills / concrete band

Provide all labour, material, and equipment required for replacement of brick masonry cladding, brick ties, pre-formed weepers, and insulation, and installation of new through wall flashing at Locations specified on the drawings.

Remove and dispose offsite the existing brick cladding along the entire length of the wall, below the window sills. Provide adequate shoring to support the brick masonry wall, as required. Damage to brick wall components shall be repaired by the Contractor at no additional cost to the Owner.

Remove and dispose offsite the existing exposed 3-inch semi-rigid Rockwool insulation and replace with new insulation to match existing.

Perform localized concrete repairs at the concrete window sill, as required. Supply and install a new membrane and metal drip edge directly below the concrete sill as marked on drawings. Supply and install new bricks, brick ties, and pre-formed weepers to match existing. New brick masonry to match the existing in size, colour, and texture. Provide masonry samples and install one mock-up for Consultant and Owner's review and approval. The Price for brick replacement includes all mortar joints for the replaced bricks as specified. Include for tinting, if required. Remove the deteriorated mortar joint and install new mortar and tool to match existing. Install false header course brick right below the concrete sill. Do NOT saw cut the face of the bricks to imitate false header bricks.

Install a prefinished metal drip edge flashing below precast concrete sill at the curtain wall on the west elevation.

Supply and install new closed cell backer-rod and sealant at the joints affected by the brick replacement to match the existing joints. Provide a mock-up for Consultant's and Owner's review and approval. Do NOT proceed with the Work without Consultant's approval of the mock-up.

The repair area is approximately 35 square meters. Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Item 3: Exterior sealant replacement

Provide all labour, material and equipment required for removal and replacement of existing exterior sealant and backer rod at all masonry control joints, all window and door perimeters and all other locations where joint sealant is applied on the exterior brick walls on all four elevations (only the school building).

The scope of sealant replacement includes all control/expansion joins, window and door perimeters, and all other locations where joint sealant is applied on the exterior brick wall at Westmount Collegiate Institute.

Clean the area and prepare the substrate for sealant application as per the manufacturer's instructions. Supply and install closed-cell polyurethane backer-rod in all joints. Provide bond breaker tape in areas that backer-rod cannot be installed to prevent three side adhesion. The outside diameter of the backer-rod should be 25% greater than the control joint width. Install the backer rod in the joint and install a continuous vertical and horizontal sealant in the joint. Tool the sealant to ensure proper adhesion to substrates is achieved on both sides. Sealant colour and profile are to match existing.

Floor plans, elevations, and windows and doors schedule has been provided with the drawing package for contractor to quantify the quantities for sealant replacement work. Contractor is responsible to site verify all quantities.

Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Item 4: Metal cap flashing replacement

Provide all labour, material and equipment required for removal and replacement of existing metal cap flashing around the roof perimeter on the third floor roof. Supply and install new metal cap flashing around the roof perimeter so that the top of the exterior wall is properly covered as per the detail drawings. The new cap flashing is to have sufficient drip edge (min 25mm) to shed water away from the exterior brick wall. Thickness and colour of the new metal cap flashing is to match existing.

Include for metal cap flashing replacement at approximately 300 meters. Contractor is responsible to site verify all quantities.

Payment for this item will be based on the percentage of work completed and the Contract Lump Sum Price.

Item 5: Contingency allowance

The amount indicated is the upset limit of the contingency allowance to cover the cost of work or revisions not specified in the Contract Documents that are made necessary by the Work, due to conditions that were not visible upon, or reasonably inferable from an examination of the site at the time of tender as determined by the Consultant. The Contractor is to provide a cost to perform the work as recommended by the Consultant.

Contractor cost must include a detailed breakdown of extension or reduction in contract time, extras for labour, materials, equipment, services, overhead and profit, and be submitted prior to the start of the work. Unexpended portions of this allowance will be deducted from the Contract Price. Any increase in this allowance beyond the stipulated amount shall be authorized by a Change Order.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

1.1.1 This Section outlines the mandatory minimum Health and Safety protocol for all renovation, addition and new construction Project where all or a portion of the existing building remains occupied and in use.

1.1.2 These Health and Safety protocols are mandatory minimum requirements, procedures and standards that the Owner insists are fully complied with by all parties involved with the Projects.

1.2 RELATED SECTIONS

1.2.1 These specifications apply to all Divisions of this Project specification. It is the responsibility of the Contractor to apply these provisions wherever practical within specification limits to all products and services used on this Project.

1.2.2 The requirements of this Section supersede those of all other specification Sections and Drawings. Where conflicts exist in procedures, methods or materials, they shall immediately be brought to the attention of the Consultant and Owner Project Manager. Where clarification is not immediately available, the Contractor shall assume the specifications contained in this Section are a minimum standard and the more stringent specification shall apply.

1.2.3 The Contractor must receive approval from Owner Project Manager for any deviations from this specification Section.

1.2.4 The General Contractor shall recognize that it is they who are the Constructor of the Project. The General Contractor shall also recognize that they are solely responsible for site safety at the Place of the Work and compliance with the requirements of this Section does not limit or remove his total responsibility for site safety as Contractor of the Project.

1.3 REFERENCES

1.3.1 Applicable related regulations, standards and laws related to safety include but are not limited to:

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Ontario
  - .1 Latest Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O.

1.4 COMPLIANCE SPECIFICATION

1.4.1 Notwithstanding the requirements of this Section, the Contractor must comply with all applicable health, safety and environmental regulations and statues.

1.5 BEYOND COMPLIANCE SPECIFICATION

1.5.1 These specifications apply in addition to all applicable health, safety and environmental compliance regulations. They are incorporated here to reflect the Owner's intention to develop a specification which provides the safest practical procedures and policies for construction project sites that are occupied and in use by staff, students, and visitors during the execution of the Construction Contract.

1.5.2 Beyond compliance specifications recognize that performance well beyond the minimum regulatory standard is often desirable, possible and affordable, often with no cost or low cost options. It also recognizes that application methods or protocols may be as important as the material specified. Therefore, these specifications cover both material and methods.

1.5.3 These provisions apply to both indoor and outdoor applications equally.

PART 2 - EXECUTION AND COMPLIANCE REQUIREMENTS

2.1 APPLICATION OF COMPLIANCE REQUIREMENTS

2.1.1 The articles setout herein are to be applied together as a set of related policies and procedures to achive a comprehensive Health and Safety working protocol.

2.1.2 The Contractor shall execute all of the procedures and meet all of the requirements set out herein and apply these protocols from the outset of the Construction Phase.

2.1.3 These procedures or requirements are to be maintained for the duration of the Construction Phase. The Contractor shall not discontinue any of the individual procedures or requirements without the prior approval of the Owner Project Manager.

2.2 SITE SUPERVISOR (SITE SUPERINTENDENT)

2.2.1 A full-time Site Supervisor (Site Superintendent) is required for each site at any site, regardless of the number of active workers on site.

2.2.2 Site Superintendent shall have as a minimum:

.1 Recent, previous experience with renovation or addition projects involving occupied buildings including (but not limited to) school construction, sites with students, tenants, employees, retail customers, pedestrian and vehicular traffic.
.2 Successful completion of a multi-session Supervisor's training course conducted by a recognized Construction Association in Ontario.

2.2.3 Site Superintendent must carry a cell phone at all times during construction with the ability to be reached directly during all work hours and the ability to have voicemail recorded during all non-work hours including weekends and holidays.

2.2.4 Site Superintendent must have means of live phone or walkie-talkie communication with the site Flagman during all work hours.

2.2.5 Site Superintendent shall not be charged throughout projects unless confirmed and approved by the Owner Project Manager.

2.3 ONTARIO OCCUPATION HEALTH & SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS

2.3.1 General Contractor to comply with the Ontario Occupational Health & Safety Act and Regulations for Construction Projects, latest edition – including all amendments.

2.3.2 Beyond compliance in item .1 above, regardless of the number of labourers active on the Project, the General Contractor shall form a contractor's Health and Safety Committee at the outset of construction. This Committee shall then follow the standard requirements for such a Committee as set out in the *Occupational Health & Safety Act and Regulations for Construction Projects.*

2.4 ON-SITE COMMUNICATIONS

2.4.1 At the outset of the project the General Contractors shall provide to the Owner Project Manager all relevant contract information for the Site Superintendent, General Contactor Project Manager and key sub-contractors including names and cell phone numbers.

2.4.2 The General Contractor shall provide at least one 'emergency contract" telephone number at which the Contractor' representative can be reached directly during all work hours and have the ability to have voicemail recorded during all non-work hours including weekends and holidays. As outlined below, this may be designated to the Site Superintendent's cell phone number.

2.4.3 Regardless of compliance method for the emergency contact telephone number stated above, Site Superintendent must carry a cell phone at all times during construction with the ability to be reached directly during all work hours and the ability to have voicemail recorded during all non-work hours including weekends and holidays.

2.4.4 Site Superintendent must have means of live phone or walkie-talkie communication with the site Flagman during all work hours.

2.4.5 The Contractor is to ensure that the Owner Project Manager is immediately apprised of any safety issues as each arise and related request and/or resolution. The Owner Project Manager is responsible for any decisions that have an effect on the contract execution.

2.4.6 Notwithstanding the reporting to the Owner Project Manager noted above the Site Superintendent shall liaise with Facility Manager or designated on all safety related matters as required on a daily basis.

2.4.7 In the event of a safety issue requiring contractual clarification or action (i.e. Change Notice, etc.), the contractor shall ensure that, where applicable, the action is followed up with appropriate documentation.

2.5 FULL-TIME ON-SITE FLAGMAN

2.5.1 A full-time, designated Flagman is required at all vehicular construction entrances.

2.5.2 In the event there is more than one entrance to the hoarded/fenced construction area, there must be a separate Flagman for each entrance.

2.5.3 Flagman shall not be same person as Site Superintendent or other construction worker.

2.5.4 Flagman shall not be changed throughout the Project unless confirmed and approved by the Owner Project Manager.

2.5.5 Flagman must have means of phone communications with Site Superintendent (phone or walkie-talkie).

2.5.6 The Flagman shall not be designated for any other duties than to act as a Flagman for safety purposes as described herein.

2.5.7 The Flagman shall meet and escort any construction traffic from the site entrance into and out of the hoarded/fenced construction area (including through open site areas until entrances to hoarding).

2.5.8 The Flagman shall only open hoarded areas when construction traffic moves through and immediately re-close gates.

2.5.9 The Flagman shall control construction parking at the site (including vehicles parking or traveling in unauthorized areas).

2.5.10 The location of the Flagman shall be set to ensure the safe guarding of staff, student, and pedestrian traffic.

2.5.11 If not designated on the Contract Documents, the location of the Flagman shall be confirmed with the Owner Project Manager and Consultant at the outset of the project and before the replacement of hoarding and fencing.

2.5.12 Where the Contractor deems it necessary, in order for the Flagman to carry out the required full-time duties, the cost of a temporary shelter shall be included in the Tender Price.

2.5.13 The Flagman shall be properly attired to carry out his duties, including the use of safety equipment(e.g. wear reflective vest, have appropriate traffic hand-held “Stop” sign and have a visible identification tag).

2.6 SITE SAFETY SIGNAGE

2.6.1 Standardized Safety Signage is required at all construction entrances. Refer to detail drawings for types and requirements.

2.6.2 If not designated on the Contract Documents, the location of the Safety Signage shall be confirmed with the Owner Project Manager and Consultant at the outset of the Project and before the placement of hoarding and fencing.

2.6.3 Safety Signage is to be posted at all street entrances to site and at each entrance to hoarded/ fenced construction area.

2.6.4 Total surface area of signage is to avoid exceeding municipal standards that would require a separate signage permit.

2.6.5 Access signage texts shall include cell phone contact number for Site Superintendent.

2.6.6 Signage posted at gates shall state restrictions on hours of entry and egress as described in the Contract Document and under no circumstances shall construction traffic be allowed within 30 minutes prior to school start, during recess, lunch break, 30 minutes after dismissal periods.

2.7 ACCESS / EGRESS CONTROLS

2.7.1 At the outset of the Contract, the General Contractor shall advise all suppliers and subcontractors of the protocols listed herein and of the requirement to contact the Site Superintendent by Cell phone prior to entering the site.

2.7.2 The drivers of all construction vehicles entering the site, including delivery vehicle drivers, are to contact Site Superintendent by cell phone prior to entering site; the Site Superintendent shall, in turn, give notice to the Flagman to be aware of the traffic and authorize the Flagman to allow entry of that vehicle.

2.7.3 Vehicular Gates are only for entry and exit of for construction purposes such as construction personnel, Authorities performing inspections, the Owner representative, delivery personnel, and disposal pick up and ONLY under escort by the Flagman. As such vehicular gates much remain closed and locked at all times and only opened for access/egress under escort by the Flagman then closed and locked again.

2.7.4 Gates are to be lockable swing gates for vehicles and man gates at all access points to be hoarded/fenced construction area.

2.8 CONTRACTOR PARKING

2.8.1 Contractor parking shall be restricted to hoarded areas or designated parking areas only where pre-approved by the Owner.

2.8.2 Contractor parking is restricted from all off-site street areas that interfere with the site specific parent drop-off and parking areas.

2.9 REQUIRED PRECONSTRUCTION MEETINGS

2.9.1 Meeting 1: Contractor shall receive approval from the Architect and the Owner Project Manager for parking, vehicular movements, access/egress strategies at a Pre-construction meeting taking place in advance of mobilizing on site.

2.9.2 Meeting 2: Once hoarding and fencing is erected BEFORE site construction is fully active and vehicles or equipment is mobilized on site, an initial site meeting shall take place at which time the layout of trailers and staging, deliveries, storage of materials, parking areas and vehicular movement to be reviewed and approved by the Owner Project Manager.

2.9.3 See article 2.12- '*Site Meetings*' following.

2.10 CONSTRUCTION FENCING AND HOARDING

2.10.1 construction hoarding requirements shall be a site based decision to be determent by the Architect and Owner Project Manager at the design stage and shown on the Contract Documents.

2.10.2 No fencing or hoarding shall be less than a continuous 1800mm high.

2.10.3 In portions of the site where chain link is approved, it shall be continuous 1800mm high chain link fencing, wire-tied staked iron 'tees' at 1800mm on centre – OR – leased, modular 'quick fencing' if staked down and wire tied together.

2.10.4 All fenced and hoarded areas to be gated with lockable vehicular and man gates- minimum construction to be steel rail and chain link construction.

2.10.5 Plastic snow fencing is NOT permitted.

2.10.6 All hoarding and fencing shall be maintained in a stable condition, for the duration of construction period as part of the base contract price and to include Superintendent's inspection at the beginning and end of each work day.

2.10.7 All Fire Routes to be outside all fenced and hoarded areas and maintained clear at all times.

2.10.8 'Covered Way' protection shall be provided when accesses or pathway are proximity to construction, in accordance with Ministry of Labour *Occupational Health & Safety Act* Regulations.

2.11 OWNER'S HEALTH, WELLNESS & SAFETY DEPARTMENT REPRESENTATIVE

2.11.1 A representative of the Owner's Health, Wellness & Safety Dept, ('Environment, Health and Safety Officer') may visit site at any time throughout the duration of the Contract to review the site, as it relates to the safety of the occupied areas of the site. Such sites review shall neither constitute an inspection or approval for the Contractor.

2.11.2 Concerns or issues identified by the representative from the Owner's Health, Wellness & Safety Dept. shall be communicated through the Owner or Owner's Project Manager for corrective action.

2.11.3 Contractor shall ensure full access to all site areas, at all times, for the Owner's Health, Wellness & Safety Department Representative.

2.12 SITE MEETINGS

2.12.1 Initial site meeting to take place after erecting fencing and hoarding but prior to the mobilization of any vehicles, equipment or start of Work.

2.12.2 Contractor shall ensure that the Owner, Owner's Project Manager and a representative of the Owner's Health, Wellness & Safety Department attend the initial site meeting.

2.12.3 The initial meeting shall review and approve a standardized agenda for all site meetings and thorough review of the Site Safety Protocol.

2.12.4 The standardized agenda shall include a Checklist and Report of Health and Safety items at the beginning of the agenda. This Checklist shall be included and each item reviewed at all site meetings for the duration of the project.

2.12.5 The Checklist of Site Safety items shall include but not limited to:

.1 Contractor's report of site safety record and report of recent site activities, precautions or actions.
.2 Review any visits to the site and actions required by Ministry of Labour or Owner's Health, Wellness & Safety representatives or other Authorities Having Jurisdiction.
.3 Contractor's Health & Safety policy manual posted in site trailer.
.4 Copy of Ministry of Labour *Occupational Health & Safety Act and Regulations for Construction Projects* in site trailer.
.5 Name of General Contractor H&S representative.
.6 Continuing compliance with Safety Signage.
.7 Hoarding and fencing layout and condition.
.8 Access and egress measures and any breaches of requirements.
.9 Confirmation of communications link between Site Superintendent & Flagman.
.11 Work that may produce any noxious odours and the containment measures, (i.e.: schedule, type, approvals required therefore).
.12 Copies of Material Safety Data sheets in site trailer.
.13 Complete meeting minutes including details of Safety Checklist shall be copied to Architect, the Owner and Owner's Project Manager.

2.12.6 Contractor to produce record of written Memorandum to all sub trades and suppliers detailing but not limited to: hours of delivery; site access procedures and restrictions; use of existing facilities.

2.12.7 Contractor to prepare detailed and accurate written record of all meetings to be kept and issued to all parties.

2.13 CONTRACTOR'S HEALTH AND SAFETY COMMITTEE MEETINGS

2.13.1 As required in item 2.1.2, the Contractor shall form a Health and Safety Committee, hold meetings and record minutes of meetings for the duration of the Contract.

2.13.2 Contractor to maintain a copy of Health and Safety Committee minutes on site for review by Ministry of Labour or Owner representative(s).

END OF SECTION

PART 1 - GENERAL

1.1 PRE-CONSTRUCTION MEETING

1.1.1 Immediately prior to construction, upon notification attend at location of Owner's choice, a pre construction meeting, along with authoritative representatives of key subcontractors, project superintendent, inspection and testing company representatives, and the consultants.

1.1.2 Purpose of meeting is as follows:

.1 Review project communications procedures.

.2 Review Contract administration requirements including submittals, payment and change order procedures.

.3 Identify all critical points on Construction Schedule for positive action.

.4 Review Consultant's inspection requirements.

.5 Review any points which require clarification.

1.2 SITE MEETINGS

1.2.1 Hold regular site meetings every two weeks. Ensure that persons, whose presence is required, Are present and that relative information is available to allow meetings to be conducted efficiently. The Consultant will attend these meetings. The Owner may also choose to attend these meetings, at his discretion.

1.2.2 Schedule additional meetings, if required.

1.2.3 Prepare an agenda for each meeting and distribute a copy to all required participants prior to the meeting.

1.3 SUPERVISION

1.3.1 Employ an experienced and qualified superintendent for the project who shall devote his time exclusively to the work of this Contract and who shall be in complete charge of the work from commencement to completion. A working foreman will not be acceptable. The superintendent shall not be changed after commencement of work without the Consultant's approval. The Superintendent shall possess a C.C.S. and/or Gold Seal Certificate designation and be acceptable to the Owner.

1.3.2 Supervise, direct, manage and control the work of all forces carrying out the work, including subcontractors and suppliers. Carry out daily inspections to ensure compliance with the working drawings and detailed specifications and the maintenance of quality standards. Ensure that the inspection staff includes personnel competent in supervising the mechanical and electrical trades.

1.4 PROGRESS RECORD

1.4.1 The Contractor shall maintain on site, permanent written record of progress of work. Record shall be open to inspection by Owner at all times and copy shall be furnished to Consultants upon the Consultant's request.

1.4.2 This record shall show weather conditions, dates of commencement, progress and completion of various trades and items of work. Particulars pertaining to erection and removal of forms, pouring

of concrete, installation of roofing and other critical or major components as well as number of employees of various trades and type and quantity of equipment employed daily, shall be noted.

1.4.3 Display a copy of the construction schedule in the site office from start of construction to completion. Superimpose actual progress of work on schedule at least once each week.

1.5 AS-BUILT DRAWINGS

1.5.1 Maintain an accurate set of As-Built Drawings showing progress of the work and all changes, revisions and additions to the work and deviations from the Contract Documents in red ink.

1.5.2 Include accurate location, depth, position, size and type of concealed and underground services, both inside and outside shall be as part of these As-Built Drawings.

1.5.3 As-Built Drawings shall be available for review at each site meeting by the Consultant.

1.6 DOCUMENTS ON SITE

1.6.1 The Contractor's field office shall at all times contain a complete set of Contract Documents (Schematic Drawings and Performance Specifications) with all addenda, site instructions, change orders, reviewed shop drawings and samples, colour schedule, paint materials schedules, hardware list, progress reports and meeting minutes.

1.6.2 The Contractor's field office shall at all times contain a complete set of all construction documents, as issued for building permit and bearing the stamp of the appropriate municipal authority.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

1.1.1 No work requiring a sample or shop drawing submission shall be commenced until the submission has received the Consultant's final review. All such work shall be in accordance with reviewed samples and shop drawings.

1.1.2 Provide submittals as requested by the Contract Documents, as specified herein, and in accordance with the conditions of the Contract.

1.1.3 In addition to submittals specifically requested by the Contract Documents, provide other submittals as may be reasonably requested by the Consultant, or as are required to coordinate the Work and to provide the Owner with choices available, within the scope of Contract Documents.

1.1.4 Contractor’s review of submittals:

.1 Review submittals for conformity to Contract Documents before submitting to Consultant. Submittals shall bear stamp of Contractor and signature of a responsible official in Contractor’s organization indicating in writing that such submittals have been checked and coordinated by Contractor. Contractor’s review shall be performed by qualified personnel who have detailed understanding of those elements being reviewed and of the conditions at the Place of the Work proposed for installation.

.2 Check and sign each submittal and make notations considered necessary before submitting to Consultant for review. Where submittal is substantially and obviously in conflict with requirements of Contract Documents, reject submittal without submitting to Consultant and request resubmission. Note limited number of reviews of each submittal covered under Consultant’s services as specified below.

.3 Contractor shall assume sole responsibility for any conflicts occurring in the Work that result from lack of comparison and coordination of submittals required for the Work.

.4 Submittals that have not been reviewed, checked, and coordinated by Contractor prior to submission to Consultant, will be rejected.

.5 Notify Consultant in writing of changes made on submittals from Contract Documents. Consultant’s review of submittals shall not relieve Contractor of responsibility for changes made from Contract Documents not covered by written notification to Consultant.

1.1.5 Consultant’s review of submittals:

.1 Review of submittals by Consultant is for the sole purpose of ascertaining conformance with the general design concepts and the general intent of the Contract Documents. This review shall not mean that Consultant approves the detail design inherent in the submittals, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of responsibility for errors or omissions in the submittals, or responsibility for meeting requirements of Contract Documents.

.2 Contractor shall be responsible for dimensions to be confirmed and correlated at the Place of the Work for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of the Work.

.3 As part of their scope of work, Consultant shall review shop drawings no more than twice. Should three or more reviews be required due to reasons of Contractor omissions causing resubmission requests, then Contractor shall reimburse the Consultant for time expended in these extra reviews. Time shall be invoiced to the Owner (to be deducted from monies due to the Contractor and paid to Consultant by Owner) at rates recommended by Consultant’s professional association and disbursements shall be

invoiced at Consultant's cost. The Contractor shall cover directly costs and administration associated with courier services and the like for these extra shop drawing reviews.

4. Consultant's review and markings on submittals do not authorize changes in the Work or the Contract Time.

.5 Submittals received but not required by the Contract Documents or requested by the Consultant will not be reviewed by the Consultant and will be marked 'NOT REVIEWED' by the Consultant and returned to the Contractor.

1.1.6 Make submittals with reasonable promptness and in an orderly sequence so as to cause no delay in the Work. Be responsible for delays, make up time lost and pay added costs, at no additional cost to the Owner, incurred because of not making submittals in due time to permit proper review by Consultant.

1.1.7 Do not proceed with work affected by a submittal, including ordering of Products, until relevant submittal has been reviewed by Consultant.

1.1.8 Contractor's responsibility for errors and omissions in submittals is not relieved by Consultant's review of submittals.

1.1.9 Contractor's responsibility for deviations in submittal from requirements of Contract Documents is not relieved by Consultant's review of submittal, unless Consultant gives written acceptance of specific deviations.

1.1.10 Engineered submittals:

.1 Submittals for items required to be sealed by professional engineer (or as otherwise indicated as engineered), shall be prepared under the direct control and supervision of a qualified professional engineer registered in the Place of the Work, and having minimum professional liability insurance required in accordance with the General Conditions, as amended.

.2 Design includes life safety, sizing of supports, anchors, framing, connections, spans, and as additionally required to meet or exceed requirements of applicable codes, standards, regulations, and authorities having jurisdiction.

.3 Engineered submittals shall include design calculations, complete with references to codes and standards used in such calculations, supporting the proposed design represented by the submittal. Prepare calculations in a clear and comprehensive manner so that they can be easily reviewed. Incomplete or haphazard calculations will be rejected.

.4 The professional engineer responsible for the preparation of engineered submittals shall undertake periodic field review, including review of associated mock-ups, at locations wherever the work as described by the engineered submittal is in progress, during fabrication and installation of such work, and shall submit a field review report after each visit. Field review reports shall be submitted to the Consultant, to authorities having jurisdiction as required, and in accordance with the building code.

.5 Field reviews shall be at intervals as necessary and appropriate to the progress of the work described by the submittal to allow the engineer to be familiar with the progress and quality of such work and to determine if the work is proceeding in general conformity with the Contract Documents, including reviewed shop drawings and design calculations.

.6 Upon completion of the parts of the Work covered by the engineered submittal, the professional engineer responsible for the preparation of the engineered submittal and for undertaking the periodic field reviews described above, shall prepare and submit to the Consultant and authorities having jurisdiction, as required, a letter of general conformity for those parts of the Work, certifying that they have been Provided in accordance with the requirements both of the Contract Documents and of the authorities having jurisdiction over the Place of the Work.

.7 Costs for such field reviews and field review reports and letters of general conformity are included in the Contract Price.

1.1.11 Keep copies of reviewed submittals at the Place of the Work in a neat, orderly condition. Only submittals that have been reviewed by the Consultant's and are marked with Consultant's review stamp, as applicable, are permitted at the Place of the Work.

1.1.12 The Work shall conform to reviewed submittals subject to the requirements of this section. Remove and replace materials or assemblies not matching reviewed submittals at no increase in the Contract Time and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 MATERIAL LIST

2.1.1 Within 15 days of award of Contract, submit a complete list of manufactured materials to Consultant.

2.1.2 List is required to enable Consultant to verify that materials meet Specifications prior to submission of shop drawings or installation, and to select colours and/or patterns.

2.1.3 Should materials not meeting requirements be included, the Consultant will require re-submission.

2.1.4 Only the listed materials shall be used, unless otherwise approved by the Consultant.

PART 3 - EXECUTION

3.1 PROJECT MEETING

3.1.1 Prior to commencement of the work, the Contractor together with the Owner shall mutually agree to a sequence for holding regular "on-site meetings".

3.1.2 Organize all necessary site meetings. Ensure that persons, whose presence are required, are in attendance and that relevant information is available, to allow meetings to be conducted efficiently.

3.1.3 Record minutes of each meeting and distribute copies to all participants, and all others requiring information of recorded minutes, within one week of date meeting.

3.2 SHOP DRAWINGS

3.2.1 The term shop drawings means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data which are to be provided by the Contractor to illustrate details of a portion of the work.

3.2.2 Contractor shall arrange for the preparation of clearly identified shop drawings called for by the Contract Documents or as the Consultant may reasonably request.

3.2.3 Submitted shop drawings must indicate the name of the project and specific information as to location within the project including reference to the drawing or specification section to which it relates.

3.2.4 The shop drawings shall show, but not necessarily be limited to the following:

.1 Clear and obvious notes of any proposed changes from Drawings and Specifications.

.2 Fabrication and erection dimensions.
.3 Provisions for allowable construction tolerances and deflections provided for live loading.
.4 Details to indicate construction arrangements of the parts and their connections, and interconnections with other work.
.5 Location and type of anchors, and exposed fastenings.
.6 Materials and finishes.
.7 Descriptive names of equipment.
.8 Mechanical and electrical characteristics when applicable.
.9 Information to verify that superimposed loads will not affect function, appearance, and safety of the work detailed as well as of interconnected work.
.10 Assumed design loadings, and dimensions and material specifications for load bearing members.
.11 Dimensions and dimensioned locations of proposed chases, sleeves, cuts and holes in structural members.

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

3.2.6 Contractor shall submit drawings to the Consultant for his review with reasonable promptness and in orderly sequence so as to cause no delay in the work or the work of other Contractors. If either the Contractor or the Consultant so requests they shall jointly prepare a schedule fixing the dates for the submission and return of shop drawings. Shop drawings shall be submitted in the form of one reproducible transparency and one white print. Where the subject of the shop drawings involves the structural, mechanical, or electrical Engineers, in addition to the one reproducible transparency, submit two white prints. At time of submission the Contractor shall notify the Consultant in writing of any deviation in the shop drawings from the requirements of the Contract Drawings.

3.2.7 Contractor shall make any changes in the shop drawings which the Consultant may require consistent with the Contract Documents and resubmit unless otherwise directed by the Consultant. When resubmitting, Contractor shall notify the Consultant in writing of any revision other than those requested by the Consultant.

3.2.8 Shop drawings shall define the division of responsibility between the trades and items shown on shop drawings. Shop drawings shall show materials, methods of construction, and attachment or anchorage, erection, connections and other details necessary to complete the work. Shop drawings shall show cross references to Drawings and specifications.

3.2.9 Review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. Review shall not mean that the Consultant approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same and such review does not relieve Contractor of his responsibility for errors or omissions in the shop drawings, or his responsibility for meeting all requirements of the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or technique of construction and installation, and for coordination of the work of all its subtrades and work of other Contractors.

3.2.10 Any adjustments made on the shop drawings by the Consultant are not intended to change the Contract Sum. If the Contractor deems that such adjustments affect the value of the work, he shall so state in writing before proceeding with the fabrication and installation of the work.

3.2.11 Submit two copies of each final reviewed shop drawing to the Consultant.

3.2.12 After final review, the Consultant will return reviewed copies to the Contractor, who shall reproduce, at his expense the number of prints required.

3.2.13 Submit 6 copies of standard preprinted shop drawings. Assemble submittals of more than 2 pages in individual booklet form, after final review. Consultant will return at least 3 copies of shop drawings to the Contractor.

3.2.14 After final review, the Consultant will return one copy to the Contractor.

3.2.15 Shop drawings which require the approval of a legally constituted authority having jurisdiction shall be submitted by the Contractor to such authority for approval. Such shop drawings shall receive final approval of authority having jurisdiction before being submitted to the Consultant.

3.2.16 No work requiring a sample or shop drawing submission shall be commenced until the submission has received the Consultant's final review. All such work shall be in accordance with reviewed samples and shop drawings.

3.3 SAMPLES

3.3.1 For the purpose of this Article samples means: Samples, models and templates.

3.3.2 Samples shall be submitted to the Consultant in a number as specified in the respective Section in sufficient time to permit review process before the item is needed to be installed or as directed otherwise.

3.3.3 If either the Contractor or the Consultant so requests, they shall jointly prepare a schedule fixing the dates for submission and return of samples, including time allowances for re-submissions.

3.3.4 Samples shall be submitted by the Contractor only.

3.3.5 Samples which are "rejected" shall be removed by the Contractor.

3.3.6 Samples will receive consideration only when hand delivered or mailed accompanied with a covering letter signed by the Contractor. Letter shall be sent via First Class mail and shall contain a list of samples being submitted, name of project, Contractor, Subcontractor, manufacturer, brand, also the project number, specification article and paragraph numbers to which the samples refer, and such additional information as may be required by the specification for the particular item being furnished. A copy of the letter shall be enclosed with the samples and any sample received without identification letter will be considered "unclaimed goods" and will be held for a limited time only.

3.3.7 Each sample shall be labelled to indicate name of project, Contractor, Subcontractor, manufacturer, brand, job number, as required.

3.3.8 Where samples are rejected by the Consultant, new samples shall be submitted as soon as possible after notification of the rejection and shall be marked "Second submissions" or subsequent submissions in addition to the other information required on the label.

3.3.9 Review by the Consultant is for the sole purpose of ascertaining conformance with general design concept. This review shall not mean that the Consultant approves the detail design inherent in the samples, responsibility for which shall remain with the Contractor submitting same and such review shall not relieve the Contractor of his responsibility for errors or omissions or of his responsibility for meeting all requirements of the Contract Documents.

3.3.10 Cost of all samples shall be paid by the Contractor including all carrying charges, which shall be prepaid.

3.3.11 Where colour, pattern, or texture is a criterion, submit the full range of samples.

3.3.12 Field samples and mock-ups may form part of the Work if so agreed to by the Consultant.

3.3.13 Construct each sample or mock-up complete, including the work of all trades.

3.3.14 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work shall be checked.

3.4 ACCESS PANELS AND ACCESS DOORS

3.4.1 Before commencing the installation of mechanical and electrical work, the Contractor with his mechanical and electrical Subcontractors shall prepare on a set of Drawings provided for that purpose, a complete lay out of all access panels and access doors which will be required. These lay outs shall be submitted for review as specified for shop drawings, and shall show exact sizes and locations of access panels and doors. Revisions may be required to the lay out before final review.

3.4.2 Items requiring access panels shall be located behind removable materials wherever possible. Location of access panels may be relocated by the Consultant to more unobtrusive locations.

3.4.3 Access panels and doors shall be finished to match adjacent wall and/or ceiling finish unless otherwise specified or indicated.

3.5 PROGRESS SCHEDULE

3.5.1 Contractor shall prepare and deliver to the Consultant for submitting to the Owner, within fourteen (14) days after the award of the contract, a progress schedule, indicating the dates for:

.1 Submission of shop drawings for the various Sections of the Work; shop drawings schedule for mechanical and electrical work shall contain a list identifying the contents of each shop drawing by subject matter, item, manufacturer's name and supplier's name.
.2 Commencement and completion of each major division of work, including the work to be done by the Subcontractors.
.3 Final completion date.

3.5.2 Furnish monthly progress reviews as related to the work schedule. Reviews shall include comments on both, the parts of the Work and general progress of the project. Correlate reviews to progress payment applications.

3.5.3 Update and re-issue the progress schedule as required to conform to monthly progress reviews.

3.5.4 Maintain progress schedule, as the work progresses.

3.5.5 Progress review shall show weather conditions, dates of commencement, progress and completion of various trades and items of work. Particulars pertaining to erection and removal of forms, pouring of concrete and type and quantity of equipment employed daily, shall be noted.

3.5.6 Completely update schedule and cash flow chart whenever changes occur to scheduling, in a manner and at times satisfactory to the Owner.

3.5.7 Provide competent and experienced staff familiar with scheduling work of this type to prepare,

maintain, revise, direct and check implementation of schedule.

3.6 IMPERIAL

3.6.1 Contractor's submittals containing measurements of any kind shall be in the Imperial system of measurement.

3.7 PROGRESS PHOTOGRAPHS

3.7.1 Before starting work, photograph interiors, to record existing conditions. File two prints of each with the Consultant for examination and safekeeping.

.1 The number of photographs, close or otherwise must be sufficient to ensure that existing conditions are adequately recorded to minimize the possibility of unjustified claims against the Contractor and Owner.
.2 Where parts of existing buildings are concealed pending demolition work of this Contract, photograph immediately on exposure.

3.7.2 Upon commencement of the Work, and thereafter at monthly intervals until Completion of the Contract, the Contractor shall supply the Consultant with three copies of photographs with sufficient views, 4 locations, of the progress on all parts of the Work.

3.7.3 Contractor shall include for the total number of photographs stated herein, but the Consultant shall have the right to request that fewer photographs be taken at certain intervals, so that more photographs may be taken at other times, providing the total number of photographs taken remains the same.

3.7.4 Photographs shall be taken from exterior locations as determined by the Consultant.

3.7.5 Monthly Digital photograph by email is acceptable.

3.8 AS-BUILT DRAWINGS

3.8.1 Upon completion of Work, provide three sets of as-built drawings, prints of photograph and where possible, provide as-built drawings on CADD diskettes.

3.9 MOCK-UPS

3.9.1 Where required by the Contract Documents or as may reasonably be requested by the Consultant during the course of the Work, Provide field or shop erected example of work complete with specified materials and workmanship.

3.9.2 Erect mock-ups at locations as specified and as acceptable to Consultant. Do not proceed with work for which mock-ups are required prior to Consultant’s review of mock-ups.

3.9.3 Modify or remove and replace mock-ups as many times as required to secure acceptance of the Consultant. Such removal and replacement shall be done at no increase in either the Contract Price or the Contract Time.

3.9.4 Protect and maintain mock-ups until directed to be removed. Commence work demonstrated in mock-up only after review and acceptance of workmanship. If possible, mock-up may become part of finished work, at sole discretion, and with prior written acceptance, of Consultant.

3.9.5 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be compared.

3.9.6 Remove and replace materials or assemblies not matching reviewed mock-ups.

3.9.7 Resubmit mock-ups until written acceptance is obtained from Consultant.

3.10 EXTRA MATERIALS

3.10.1 Supply extra materials at completion of Project as specified in Trade Sections of this Specification.

3.10.2 Deliver extra materials to location designated by the Owners representative.

3.11 WASTE MANAGEMENT

3.11.1 Contractor shall prepare and submit waste audit and reduction plan in compliance with the requirements of Ontario Regulations 102/94, Waste Audits and Waste Reduction Workplans and 103/94, Industrial, Commercial and Institutional Source Separation Programs under the Environmental Protection Act of Ontario. For definitions refer to Ontario Regulation 105/94, Definitions.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

1.1.1 Comply with all Sections of Division 1, General Requirements and all documents referred to therein.

1.1.2 Provide all labour, materials, products, equipment and services required to complete the work of alterations and make good to existing building according to the Specifications and/or Drawings.

1.1.3 Execute each part of the Work related to existing building by tradesmen specializing in such work.

1.1.4 Schedule Work to avoid interference with progress of new construction Work.

1.2 PERMITS AND REGULATIONS

1.2.1 Arrange and pay for all permits, notices and inspections necessary for the proper execution and completion of the alteration work.

1.2.2 Follow Ontario Office of the Fire Marshall "Guidelines for Maintaining Fire Safety During Construction in Existing Buildings".

1.3 EXISTING BUILDING

1.3.1 Visit the site and become fully knowledgeable of existing building drawings and specifications and of conditions affecting the Work.

1.3.2 Ensure the operations of the existing building, the existing tenants' premises and access to the existing building areas, are not restricted or disrupted.

.1 Maintain existing exits and ensure that proper and safe means of egress from all parts of existing building to open spaces are provided at all times to the approval of authorities having jurisdiction. Locate and install exit lights, and illuminate temporary means of egress.

1.3.3 Before any work is commenced in any portion of the existing building, the Owner will remove all furnishing and movable furniture that do not require disconnecting from services, storing same in some other portion of the building or off the premises. All other items not removed from any section of the building being renovated, shall be removed from the premises by the Contractor.

1.3.4 Obtain Owner's approval to commence alterations in existing building. Execute Work as quietly as possible in and around existing building at all times Owner and their tenants are occupying it. Schedule noisy operations with Owner, to achieve least disturbance to the Owner, tenants and the public.

1.3.5 The removal of hazardous and asbestos-containing materials will be under separate contract and shall have been completed before any other work of this Contract is commenced.

PART 2 - PRODUCTS

2.1 SALVAGE MATERIALS

2.1.1 Salvage materials, products, and equipment indicated. Carefully remove items to be salvaged, protect during alteration and reinstall in locations indicated.

2.1.2 Refer to sprinkler, mechanical and electrical Drawings and specifications for sprinkler, mechanical and electrical work to be reused.

2.1.3 Salvage the items as indicated on the Drawings for reuse and return to the Owner in an adequately preserved and usable condition on date of Substantial Performance or other mutually agreed date.

2.1.4 All materials and products from the alteration not required for reuse shall become the property of the Contractor. Remove all material and debris from the site as quickly as possible and dispose of legally. Burning of debris on the site will not be permitted.

2.2 SERVICES IN EXISTING BUILDING

2.2.1 Ensure that existing services are not damaged during demolition and construction. Arrange with mechanical and electrical Subcontractors to immediately cut off and cap concealed services uncovered during work.

2.2.2 Do not interrupt mechanical or electrical services of the existing building except for temporary close-downs to make connections to new work, and as approved by prior arrangements. Give Owner two (2) working days' notice of intention to interrupt mechanical or electrical services in existing building in any area.

2.2.3 In no case shall service interruptions affect the total existing building.

2.2.4 Should existing services be accidentally uncovered and disrupted, make complete restoration immediately, and ensure adequate protection to avoid further disruption until alternative means of providing permanent continuation of the services are made.

2.2.5 Make payment for work specified in the foregoing at no additional cost to the Owner if, in the opinion of the Consultant, such work could have been reasonably foreseen by examination at time of bidding and which has been caused by lack of proper care and protection.

2.2.6 Unless otherwise specified, restore services on which work is performed to original condition.

PART 3 - EXECUTION

3.1 SCREENS

3.1.1 Provide temporary fire rated partitions, screens, enclosures, tarpaulins etc., as may be required to enclose work areas from other areas of the building, to maintain security and to confine dust, noise and workmen to the work area. Locate screens as directed by the Consultant.

3.1.2 It is essential that the existing building be maintained weather-tight at all times. Provide temporary protection, enclosures, tarpaulins, etc., as may be required to weatherproof any openings made in the Work.

3.1.3 Construct fire rated, dust proof and wind-proof screens as required to completely enclose the work areas and the access passages to the work areas from the other areas of the existing building. Locate partitions as directed by the Consultant.

3.1.4 Build screens of 3-5/8" metal studs at 16" centres sheathed with sheets of 5/8" sheetrock firecode 'c' panels on both sides with close joints smoke and fire sealed at junctions typical. Where exposed to the weather, fully cover screens with a heavy waterproof and dustproof paper with lapped and sealed joints. Fill spaces between studs with 4" fibrous glass or mineral wool insulation batts to deaden sound.

3.1.5 Thoroughly pack framing and sealed at junctions of screens with floors, walls and ceilings with batt insulation in a manner to prevent infiltration of smoke, dust, dirt, etc. Over all junctions of screens with floors, walls and ceilings, apply continuous 1-1/2" wide strips of masking tape both sides of screen to ensure that rooms within closed off areas which are not being altered are kept dust free.

3.2 SEQUENCE OF ALTERATIONS

3.2.1 Schedule phasing of alterations and demolition as indicated on Drawings.

3.3 DEMOLITION

3.3.1 Demolition of, or alteration to, any portion of the existing buildings shall proceed only after approval of the Owner, and after weather-tight and dustproof partitions have been erected to provide thorough protection to the adjoining areas and rooms.

3.3.2 When permission has been granted to proceed with alterations in the existing buildings, work shall be carried out expeditiously and continuously to completion.

3.3.3 If suspected hazardous or contaminated materials are encountered, advise Consultant and await instructions regarding removal and disposal of such contaminants which may be considered hazardous to health, prior to demolition.

3.4 RECONSTRUCTION, ALTERATIONS AND MAKING GOOD

3.4.1 The work shown on the Drawings, Schedules and Specifications may or may not be all the work required, do all demolition, make good all finishes and execute all necessary work including incidentals to make a complete job of the alterations.

3.4.2 Do not undermine, damage, or endanger existing pipe lines, electrical conduit and wiring by digging, cutting or any other operation in the performance of the Work of the Contract. Immediately repair and make good to any existing work so affected to the Consultant's satisfaction at the Contractor's expense.

3.4.3 Cut off, cap, divert, or remove existing water, gas, electric and other services in areas being altered which are affected by the changes as required or as directed by the municipal authorities and the utility company concerned, and the Consultant. Protect and maintain active services to the existing building.

3.4.4 Perform the Work in such a manner so as to cause a minimum of noise or interference to the use of the existing building.

3.4.5 Whenever it becomes necessary to cut or interfere in any manner with existing apparatus for short periods of time, Do work at such times as agreed upon between the Owner, Consultant, and the Contractor.

3.4.6 Where new work connects with existing and where existing work is altered, all necessary cutting and fitting required to make satisfactory connections with the existing work shall be performed under this Contract, so as to leave the entire work in a finished and workmanlike condition.

3.4.7 Make good materials and finishes which are damaged or disturbed during the process of additions and reconstruction under the Contract.

3.4.8 Where existing work is to be made good, the new work shall match exactly the old work in material, form, construction and finish unless otherwise noted or specified.

3.4.9 Perform drilling of existing work carefully, leaving a clean hole no larger than required.

3.4.10 Provide, throughout the entire construction period, proper and safe means of fire exit from all zones of the existing building at all times to the approval of the authorities having jurisdiction.

3.4.11 Protect work in the existing buildings, such as floors, finishes, trim, etc., as completely as possible to hold the replacing of damaged work by each Section to a minimum.

3.4.12 Provide openings through existing roof as required by new mechanical equipment. Maintain watertight at all times. Provide new blocking, curbs and cants and make good roof and provide flashing as may be required.

3.4.13 Protect existing roofs, roof flashings, parapets and all items on roofs from damages of any cause, and make good damages at no cost to the Owner.

3.4.14 Ensure the public is protected against falling debris, chemicals and water.

3.4.15 Properly co-ordinate the various Sections taking into account also the existing installations to assure the best arrangement of pipes, conduits, ducts and mechanical, electrical and other equipment, in the available space. Under no circumstances will any extra cost be allowed due to the failure by the Contractor to co-ordinate the work. If required, in critical locations, interference and/or installation drawings shall be prepared showing the work of the various Sections as well as the existing installation, and these drawings shall be submitted to the Consultant for review before the commencement of work.

3.4.16 Removal and relocation of mechanical and electrical items indicated as relocated and reused are specified under respective Mechanical and Electrical Drawings. Co-ordinate the removal and relocation of these items.

3.4.17 Remove existing finishes as indicated on the Drawings to neat, straight lines and leave substrate clean and even, suitable for new finishes indicated.

3.4.18 Without limiting the generality of the foregoing, do the following repairs:

.1 Replace existing windows as located on the Drawings. Solidly anchor and make weather tight.

3.4.19 Remove temporary partitions and screens when no longer required, and make good damaged or blemished adjoining work as directed by Consultant.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

1.1.1 For the purposes of this Section, independent inspection and testing agencies are referred to as "Inspector(s)".

1.1.2 The Owner, or the Consultant on his behalf, may obtain the services of Inspectors for the purpose of maintaining quality assurance and compliance with the Contract Documents. Reports by Inspectors shall in no way relieve the Contractor of his obligation to perform the work in accordance with the Contract Documents, or to maintain his own quality control.

1.1.3 The cost of supplying materials, products, and labour for testing purposes, and erection of entire mock ups, prototypes, and sample installations where specified, shall be borne by the Contractor and constitutes a part of the Work

1.2 REFERENCES

1.2.1 ASTM E329-14a Standard Specification for Agencies Engaged in Construction Inspection, Testing or Special Inspection.

1.3 QUALIFICATION OF INSPECTORS

1.3.1 Inspectors shall be authorized to operate in the Province in which the Project is located.

1.3.2 Inspectors required to provide laboratory services shall meet "Recommended Requirements for Independent Laboratory Qualification", published by the American Council of Independent Laboratories.

1.3.3 Where applicable, Inspector shall meet basic requirements of ASTM E329.

1.4 APPOINTMENT AND PAYMENT

1.4.1 Cost of inspection and testing shall be paid out of cash allowances listed in Section 01 21 00 Allowances, where so specified. Additional inspection and testing required for Owner's quality control will be paid by the Owner, except as otherwise stipulated in the Contract Documents.

1.4.2 The Consultant will appoint Inspectors to perform services specified in respective Specification Sections, except for the following:

.1 Inspection and testing required by laws, ordinances, rules, regulations, or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience or their own quality control.
.3 Testing, adjustment, and balancing of conveying systems, mechanical and electrical equipment and systems.
.4 Mill tests and certificates of compliance.
.5 Tests specified to be carried out by Contractor under the supervision of the Consultant.

1.5 INSPECTOR'S RESPONSIBILITIES

1.5.1 Co-operate with the Consultant and the Contractor; provide qualified personnel after due notice.

1.5.2 Perform specified inspections, sampling, and testing of materials and methods of construction:

.1 Comply with specified standards, requirements of authorities having jurisdiction and as specified.
.2 Ascertain compliance of materials with requirements of Contract Documents.

1.5.3 Promptly notify Consultant, Owner, and Contractor of observed irregularities or deficiencies of work and products.

1.5.4 Submit within 4 days of inspection and testing 5 copies of reports of such inspection and tests to:

.1	Owner:	1 copy
.2	Consultant:	1 copy
.3	Contractor:	3 copies

1.5.5 Submit additional copies as directed or as specified under respective Sections.

1.5.6 Include in each report:

.1 Date issued.
.2 Project title and number.
.3 Testing and inspection agency name, address and telephone number.
.4 Name and signature of individual responsible for test or inspection.
.5 Date and time of sampling or inspection.
.6 Record of temperature and weather conditions.
.7 Date of Test.
.8 Identification of produce and reference to Specification Section.
.9 Location of sample or test in Project.
.10 Type of inspection or test.
.11 Results of tests and compliance with Contract Documents.
.12 Interpretation of test results, when requested by the Consultant.

1.5.7 Perform additional services as required by Owner.

1.5.8 Inspector is not authorized to:

.1 Revoke, alter, enlarge on, or release requirements of Contract Documents.
.2 Approve or accept any portion of the Work.
.3 Perform any duties of the Contractor's.

PART 2 - EXECUTION

2.1 CONTRACTOR'S RESPONSIBILITIES

2.1.1 Contractor shall maintain his own quality control to ensure that the requirements of the Contract Documents are attained.

2.1.2 Co-operate with Inspector's personnel. Provide access to work, and to manufacturer's operations to facilitate execution of required services.

2.1.3 Secure and deliver to Inspector adequate quantities of representative samples of materials proposed to be used which require testing.

2.1.4 Furnish mix designs proposed to be used for concrete, mortar, grout, and other material mixes with certification by an independent inspection and testing company that such mix designs meet the requirements of the Contract Documents.

2.1.5 Furnish copies of product tests, or mill test reports of steel products, as required.

2.1.6 Furnish labour and facilities to:

.1 Provide access to work to be inspected.
.2 Facilitate inspections and tests, including obtaining and handling samples at Project site or at source of product to be tested.
.3 Make good any work disturbed by inspection and test.

2.1.7 Provide storage on site for Inspector's exclusive use to store equipment and cure test samples.

2.1.8 Notify Inspector and Consultant sufficiently in advance of operations to allow assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for Inspector's personnel and travel expenses incurred due to Contractor's negligence.

2.1.9 Pay costs for uncovering and make good work that has been covered before the required inspection or testing is completed and approved by the Consultant.

2.2 RESPONSIBILITIES OF THE CONSULTANT

2.2.1 The Contractor will submit a list of Inspection and Testing companies to the Consultant for his review.

2.2.2 The Consultant and Contractor will direct inspection and testing companies in the type and extent of inspection and testing to be undertaken.

2.2.3 The Consultant will receive submitted reports of inspections and tests for evaluation and will decide upon any actions that may be required.

2.2.4 The Consultant will provide Drawings and Specifications required by inspection and testing companies.

2.3 FAULTY WORK

2.3.1 Where tests or inspections reveal work not in accordance with Contract requirements, the Contractor shall bear costs for such additional tests or inspections as the Consultant deems necessary to verify the acceptability of corrected work.

2.3.2 All testing shall be conducted in accordance with the requirements of the Consultant.

2.3.3 Defective work discovered before expiration of the warranty period specified in the General Conditions of the Contract, as may be extended in this Specification, will be rejected, whether or not is has been previously inspected. If rejected, defective materials or work incorporating defective materials or workmanship shall be promptly removed and replaced or repaired to the satisfaction of the Consultant, at no expense to the Owner.

2.4 TOLERANCES FOR INSTALLATION OF WORK

2.4.1 Unless acceptable tolerances are otherwise specified in a Section or a reference standard or are otherwise required for proper functioning of equipment, site services, and mechanical and electrical systems:

.1 "plumb and level" shall mean plumb or level within 3mm in 3048mm (1/8" in 10').
.2 "square" shall mean not in excess of 10 seconds lesser or greater than 90 degrees.
.3 "straight" shall mean within 3mm (1/8") under a 3048mm (10') long straight edge.

END OF SECTION

PART 1 - GENERAL

1.1 TEMPORARY OFFICES AND SHEDS

1.1.1 Provide an adequate site office for own use with space for the use of the Consultant. The office space for the Consultant shall have a separate bench or table for drawings and a drawer beneath the bench.

.1 Temporary field offices shall be designated on site until such time where an area located inside the constructed building, can be designated by the Owner. No other location shall be used for temporary field office. Temporary site office shall not exceed 3048mm (10') x 15240mm (50').
.2 Facilities shall consist of: an office desk and chair, a two drawer filing cabinet, two chairs, use of a telephone, use of facsimile machine, and a layout table for drawings located so that when drawings are spread out their orientation is same as that of building under construction.
.3 Heat, cool and light offices to minimum code requirements for office buildings.
.4 Keep temporary field office clean and remove all rubbish at the end of each work day.
.5 Include construction and operating hardware, with security locks, as required by the Owner.

1.1.2 Site Storage:

.1 Until such time where an area can be located inside the constructed building, designated by the Owner as a temporary site storage, provide storage trailers or construct weather-tight storage sheds for storage of materials that may be damaged or defaced by weather, in locations indicated by the Owner.
.2 Include security locks, as required.
.3 Install lighting in storage areas and heat in those storage areas containing materials damaged by low temperature.
.4 Provide separate shed located where directed in writing by Consultant for storage of volatile materials.
.5 Owner is not responsible for securing Products or materials at the Place of the Work.
.6 Handle and store materials so as to prevent damage or defacement to the Work and surrounding property.

1.2 TEMPORARY SERVICES

1.2.1 Power, light, water and heat are available on the site. Make arrangements with the Owner for use of these services.

1.2.2 Be responsible for the distribution of temporary power during construction. Exposed extension cords are not permitted outside the work areas.

1.2.3 Provide an adequate pure fresh water supply for the use of all Sections. Run supply pipe or pipes from the nearest available sources and maintain in good condition until the permanent system is installed and ready for use.

1.2.4 Provide temporary lighting to requirements of authorities having jurisdiction and at a level for the proper execution of the Work.

1.2.5 Provide and maintain sanitary temporary toilets of a chemical type for the use of the workmen engaged in the work in compliance with local by laws.

1.2.6 Provide a temporary telephone and fax machine on the site for own use and that of the Consultant. All long distance charges shall be paid for by the party making the call.

1.3 REMOVALS

1.3.1 Provide temporary and/or permanent supports and bracing as indicated, before demolition of walls, floors, roofs or other structural members that would endanger portion of building to remain.

1.3.2 Provide temporary and/or permanent mechanical and electrical service as indicated, to maintain Owner's operation without interruption, before cutting, relocating or removal of existing services.

1.4 HANDLING AND STORAGE

1.4.1 Handle and store materials and products on the job in such a manner that no damage shall be done to the material and products, the structure, the site and surrounding property. Construct and maintain such service roads as may be necessary to provide at all times safe, convenient and adequate access for materials, products and other supplies.

1.4.2 Confine operations of the work of this Contract to limits indicated on Drawings.

1.4.3 Allocate an area of the site for the storage of materials and products brought to the job by all Sections. Keep the storage area tidy at all times. Do not use other areas of the site for storage.

1.4.4 Lobbies, corridors, and washrooms shall be kept clean of construction materials at all times.

1.4.5 The building shall be properly closed and locked at nights, Sundays, holidays and other occasions when the work is not in progress.

1.4.6 Protect materials and products from damage during handling, storage and installation.

1.4.7 Store materials in dry weather-tight, lockable enclosures.

1.4.8 Store cementitious and clay products clear of the earth or concrete floors and away from walls.

1.4.9 Keep sand dry and clean and store on tight, wooden platforms, and covered with tarpaulins during inclement weather, if exposed to same.

1.4.10 Protect metals against damage, dirt or dampness.

1.4.11 Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact.

1.4.12 Provide flat, solid support for all sheet products during storage.

1.4.13 Store and mix paints in a room assigned for this purpose. Keep room under lock and key. Remove oily rags and any other combustible materials every night. Take every precaution to prevent spontaneous combustion.

1.4.14 Make good or replace damaged materials to the satisfaction of the Consultant.

1.5 SIGNS ON PROPERTY

1.5.1 Signs on the Project will be restricted to one sign showing the name of the Project, the names of Owner, Architect and Consultants designed by the Consultant to be supplied and erected by the

Contractor, one sign showing the Contractor's name and site safety signage specified in Section 01 00 00 General Requirements.

1.5.2 Do not exhibit other signs or advertisements other than warning signs on the site.

1.5.3 No construction signs will be permitted on the building or site.

1.5.4 Maintain signage until Certificate of Substantial Performance of the Work, unless otherwise directed by the Consultant.

1.5.5 Destroy and dispose of signage off site.

1.6 LIMITS OF THE SITE

1.6.1 Confine materials, products, equipment and temporary structures within the limits of the site as shown on the Drawings.

1.7 PLANT AND MACHINERY

1.7.1 Provide formwork, scaffolding, ladders, cranes, derricks, tackle, gangways, planks, fans, screens, gantries, tarpaulins, tools and machinery for the proper execution of the Work.

1.8 ACCESS/DELIVERIES AND TRAFFIC CONTROL

1.8.1 Arrange for delivery of materials, products and equipment to arrive when needed and at times to prevent interfering with vehicular traffic on the streets and pedestrian traffic on sidewalks.

1.8.2 Provide Access roads as may be necessary to provide safe and adequate access for materials, products and other supplies. Provide and maintain access sidewalks, roadways, and similar facilities as may be required for access to the Work. Do not block public roads, or impede traffic or danger safety of the students during work of this Project and to temporary block traffic then provide flag person to direct traffic acceptable to Ministry of Labour Standard. Remove accumulations of ice and snow from areas providing access to Site. Ensure that access is available for emergency vehicles. Comply with fire plan for vehicular traffic. Bridge excavations with construction and steel cover plate to safely support any load that could be imposed and provide personnel to assist in deliveries to building(s) as required.

1.8.3 Access to the site shall be as established by the Owner at the commencement of the Work.

1.8.4 Delivery of materials, removal of refuse, and disruption to vehicular traffic shall be restricted to occur before 7:00 am or after 4:00 pm. No such delivery or disruptions shall occur between 7:00 am and 4:00 pm.

1.9 HOURS OF WORK

1.9.1 Normal working hours shall be 8:00 am to 5:00 pm Monday through Friday, except holidays. Special permission shall be obtained from the Owner.

1.9.2 All core drilling required for electrical, telephone or mechanical installations is restricted to off normal hours; prior to 8:00 am and after 5:00 pm, and to be approved by Owner.

1.10 TEMPORARY FIRE PROTECTION

1.10.1 Operable fire extinguishers shall be provided by the Contractor, and shall be kept within the work areas throughout the construction period. Extinguishers shall be sufficient in number and of suitable types to combat potential fires in the work area.

1.11 SYSTEM SHUT DOWNS

1.11.1 Requests for any system shutdowns will be processed a week in advance.

1.12 GARBAGE REMOVAL

1.12.1 The Contractor shall ensure that all his subcontractors, including telephone company, remove all garbage and debris from the Work on a daily basis. Should it be necessary for the Owner to remove Contractor's garbage or debris due to inaction by the Contractor, the Contractor shall be invoiced for the cost thereof. Temporary storage of garbage or debris outside the Work areas is not permitted.

1.12.2 Corridors, lobbies, and other common areas are to be kept clear of any residual debris.

1.12.3 Garbage of a flammable nature (eg paper) shall not be allowed to accumulate, but shall be removed from the site as quickly as possible.

1.13 TRANSPORTING MATERIALS ON STREETS

1.13.1 The Contractor shall, if so directed by the Consultant or the City Engineer, provide "tight trucks", approved by the Engineer, to haul soft or wet material over streets, in order to prevent litter on the streets. In all cases where any materials are dropped from the trucks of the Contractor, he shall clean up same as often as directed and also keep all sidewalks clean and free from dirt and mud.

1.13.2 If the Contractor refuses or neglects to clean up said litter when order to do so by the Consultant or Engineer, the Owner will have the necessary cleaning and the cost of same will be deducted from monies due to the Contractor.

1.13.3 All construction and demolition materials shall be transported in accordance with the City requirements and by-laws, including all amendments.

1.14 PARKING

1.14.1 All parking by the Contractor is his responsibility. The Owner makes no representation that parking will be available. Under no circumstances shall vehicles impede or block access to the existing building.

1.15 HOISTS AND LIFTING FACILITIES

1.15.1 Install and operate an adequate number of elevators or hoists which shall be available for use by all trades and subcontractors. Hoists or elevators shall be properly positioned so as not to interfere with the construction, and if located outside the building, the exterior walls shall be protected against damage.

1.16 DUST NUISANCE

1.16.1 Prevent nuisance to adjacent properties near the work from dust, by taking appropriate anti-dust measures at such times as found necessary, and in response to complaints of dust received from the public.

1.17 SNOW AND ICE

1.17.1 Remove all accumulations of ice and snow from the property and sidewalks and access to the property. Ensure that access is provided at all times for all emergency vehicles.

1.18 REMOVAL OF TEMPORARY FACILITIES

1.18.1 Remove temporary facilities from the site when directed by the Consultant.

1.19 TRAFFIC CONTROL

1.19.1 Do not block roads or impede traffic. Keep construction traffic to designated roads only. Provide flag-person to direct traffic as required.

1.19.2 Provide a hard surface area at the Place of the Work for cleaning down trucks prior to entry onto municipal roads or private roads outside of the Place of the Work.

1.19.3 Keep public and private roads free of dust, mud and debris resulting from truck, machinery and vehicular traffic related specifically to this Project, for the duration of Work.

1.19.4 Clean roads regularly, public or private. Wash down and scrape flush roads at least daily when earth moving operations take place. Maintain public property in accordance with requirements of authorities having jurisdiction.

1.20 ENVIRONMENTAL/POLLUTION CONTROL/SITE CLEANING

1.20.1 Prevent the escape of untreated effluent, be it liquid or gaseous substance or any liquid or solid wastes, being objectionable or detrimental to adjoining areas of the construction site.

1.20.2 Burning or burying of rubbish, waste, and the like is not permitted on construction site.

1.20.3 Only fires for heating bitumen and temporary heaters as specified are permitted on site.

1.20.4 Take care to prevent staining or smoke damage to structure or materials. Replace stained or damaged work.

1.20.5 Make every effort to provide environmental protection, take precautionary measures to prevent excessive noise, sounds, vibrations, dust, air pollution, smoke, etc., which may become objectionable to people occupying adjacent areas.

1.20.6 Keep building site clean and free or unsightly collection of waste materials and debris. Provide for temporary storage and collection of waste materials, and dispose to local authorities having jurisdiction recommendations at intervals to maintain a clean site condition.

1.20.7 Confine apparatus, the storage of materials and the operations of workers to the site. Do not unreasonably encumber the premises with construction materials.

END OF SECTION

PART 1 - GENERAL

1.1 PRODUCT QUALITY

1.1.1 Products supplied for work shall be new and as far as possible and unless otherwise specified, of Canadian manufacture.

1.2 STANDARDS

1.2.1 The work of each trade shall be carried out by skilled, experienced personnel who have been certified to carry out the work by various trade associations and in accordance with the Apprenticeship and Trades Qualifications Act and applicable regulations.

1.2.2 Where reference is made to specification standards produced by various organizations, conform to the latest edition of the standards specified as amended and revised to the date of the Contract.

1.2.3 Each subcontractor must possess and be familiar with the specified standards which affect their work.

1.2.4 Generally, materials and workmanship shall meet or exceed the requirements of CAN/CSA, ASTM, CGSB, CAN/UL and manufacturer's printed instructions.

1.2.5 Where required, conform to the requirements of LEED® Certification.

1.3 SUBSTITUTIONS

1.3.1 The Contractor shall base his Tender Price upon the Tender Documents.

1.3.2 Prior to the Close of Tenders, the Owner and the Consultant may consider requests for substitutions from that specified in the Tender Documents, providing the requests are submitted in writing describing such substitutions in full detail, the type of material, equipment or method and reasons for deviating from the Tender Documents. In addition, submit any increase or decrease in price of any substitution.

1.3.3 In making a request for a substitution, confirm in writing that:

.1 The Contractor has investigated the proposed product and method and determined it to be equal or superior in all respects to that specified.

.2 The same guarantee is given for the proposed substitution as for the product and method originally specified.

.3 The installation of the proposed substitution will be coordinated into the Work, and such changes in the Work will be made as required to accept the substitution and to ensure the Work is complete in all respects. The cost of changes in the Work necessary to incorporate a proposed substitution is to be included in any proposed increase or decrease to the Contract Price associated with the proposed substitution.

.4 Do not substitute materials, equipment or methods unless such substitutions have been specifically approved in writing prior to the close of tenders by the Consultant.

.5 The Owner reserves the right to accept or reject, at its sole discretion, any proposed substitution.

1.4 WORKMANSHIP

1.4.1 All work shall be carried out in accordance with the best trade practice, by mechanics skilled in the type of work concerned.

1.4.2 Products, materials, systems and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the applicable manufacturer's printed directions.

1.4.3 Where specified requirements are in conflict with manufacturer's written directions, follow manufacturer's directions, but inform the Consultant in writing prior to proceeding with affected work. Where specified requirements are more stringent than manufacturer's directions, comply with specified requirements.

END OF SECTION

PART 1 - GENERAL

1.1 SUBSTITUTIONS - MATERIALS AND PRODUCTS

1.1.1 Work of the Project shall be based upon using new materials and products specified or indicated by reference to standards, codes, specifications, to a manufacturer's name, by trade name or by catalogue reference, except where a material or product is indicated as being reused. Where two or more trade names are specified the choice shall be optional with the Contractor.

1.1.2 Contract Price shall be based on the materials and products specified, whether available or not at the time of bidding.

1.1.3 Requests for substitutions prior to Bid Date may not be accepted.

1.1.4 Materials and products specified without the "or other approved manufacture" clause following the name of the material or product shall be supplied without substitution.

1.1.5 Where the Specifications include the "or other approved manufacture" clause substitutions will be considered by the Consultant if:

.1 products specified are not available, or
.2 substitute products to those specified, which are brought to the attention of, and considered by the Consultant as equivalent to those specified will result in a credit to the Contract Price, or
.3 substitute products to those specified, which are brought to the attention of, and considered by the Consultant as superior to those specified will not result in a change to the Contract Price and Contract Time.

1.1.6 Substitutions may be proposed by the Contractor under the following conditions:

.1 Submission of proposed substitutions shall show the material and product names and complete specifications and shall state what difference, if any, will be made in the Contract Price and Contract Time for each substitution, should it be accepted.
.2 Indicate name and manufacturer of product specified, for which substitute is requested and where in Specification product is specified.
.3 Respective costs of items originally specified and the proposed substitution.
.4 Confirmation of proposed substitution delivery, in writing by Product manufacturer.
.5 Compliance with the building codes and requirements of authorities having jurisdiction.
.6 Affect concerning compatibility and interface with adjacent building materials and components.
.7 Compliance with the intent of the Contract Documents.
.8 Reasons for the request.

1.1.7 Should proposed substitution be accepted either in part or in whole the Contractor shall assume full responsibility when the substitution affects any other work. Any Contract Document changes required as a result of the substitution shall be executed by the Consultant at the Contractor's expense.

1.1.8 Proposed substitutions shall satisfy all design conditions and other specified requirements. Properties included but not limited to the following, as applicable, will be considered:

.1 Physical dimension requirements to satisfy the space limitations, static and dynamic weight limitations, structural properties, audible noise levels, vibration generation, interchangeability of parts or components, accessibility for maintenance, possible removal or replacement, colours, textures and compatibility with other materials,

products, assemblies and components.

1.1.9 Cost of all changes in work of other Sections necessitated by use of proposed material and product substitutions shall be borne by the Contractor.

1.1.10 Bring to the attention of Owner and Consultant, in writing, the effect of all changes in the work of other Sections necessitated by use of proposed material and product substitutions. Should the contractor fail to bring to the attention of the Owner and the Consultant, the effect of any and all changes, due to the use of proposed materials or product substitutions, then cost of changes in the work of other Sections shall be borne by the Contractor.

1.1.11 Substitutions submitted on shop drawings without following requirements of this section prior to submission of the affected shop drawings will cause the shop drawings to be rejected.

1.2 SUBSTITUTIONS - METHODS OR PROCESSES

1.2.1 Contractor may suggest for consideration of the Consultant, substitutions to methods or processes described in the Specifications and/or shown on the Drawings and other Contract Documents. Any application for such substitutions shall indicate how such substitutions are advantageous to the Owner or to the better fulfilment of the Contract. There shall be no obligation on the parties concerned to accept any such suggestions.

1.2.2 Contractor shall be responsible for substitutions to methods or processes concerning such work, and the warranty covering all parts of the work shall not be affected.

1.2.3 Cost of all changes in work of other Sections, necessitated by the use of substituted methods or processes, shall be borne by the Contractor. Contract Document changes required as a result of the substitution shall be executed by the Consultant, at Contractor's expense.

1.2.4 Substituted methods or processes shall be accommodated by space allotted for the specified methods or processes.

1.3 CREDITS ARISING FROM SUBSTITUTIONS

1.3.1 Any and all credits arising from accepted substitutions shall be credited to the Contract in such sums as may be assessed by the Consultant and Contract Price will be adjusted accordingly. No substitutions will be permitted without prior written approval of the Consultant.

1.4 CODE REQUIREMENTS SUBSTITUTIONS

1.4.1 All proposed substitutions for materials, products, methods and processes shall meet the requirements of the National Building Code, Ontario Building Code, and the requirements of authorities having jurisdiction.

1.4.2 Proposed substitute materials, products, methods and processes shall not negate the compliance of adjacent materials, products and constructions with the requirements of the National Building Code, Ontario Building Code, and the requirements of authorities having jurisdiction, to which the proposed substitutions may be applied or attached.

1.4.3 Contractor shall obtain written approval of proposed substitutions from authority having jurisdiction and shall submit approval with the proposed substitution for the Consultant's consideration.

END OF SECTION

PART 1 - GENERAL

1.1 CLEAN UP DURING CONSTRUCTION

1.1.1 During construction, maintain the work in a tidy condition and free from accumulation of waste products, debris, snow and ice other than that caused by the Owner, Other Contractors or their employees.

1.1.2 At reasonable intervals during progress of the Work, clean-up site, building and access, and dispose of waste materials, rubbish and debris. Provide containers and locate on site for collection of waste materials, rubbish and debris. Do not allow waste materials, rubbish and debris to accumulate and become unsightly or hazardous.

1.1.3 Move waste materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights. Fog spray dusty debris with water.

1.1.4 Conduct clean up and disposal operations to comply with local ordinances and anti-pollution laws. Burning or burying of rubbish and waste materials on the Project site is not permitted. Do not dispose of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or sanitary sewer systems or into streams or waterways. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.

1.1.5 Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for acceptance or occupancy.

1.1.6 Wash down exterior exposed aluminum surfaces using a solution of mild domestic detergent in warm water, applied with soft clean wiping cloths. Take special care to remove all dirt from corners. Wipe interior surfaces clean when curtain wall work is completed.

1.1.7 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable by the sealant manufacturer and the metal fabricator.

1.1.8 Where the accumulation of dirt does not respond to the washing or cleaning, refer the condition to the Consultant, with recommendations as to the remedial action required; but, do not undertake any cleaning procedure of a more severe nature without the written approval of the Consultant.

1.1.9 Remove concrete and alkali wash-offs on surfaces to prevent etching of glass and/or metal.

1.1.10 Remove temporary protective materials and coatings.

1.1.11 Clean exterior glass during construction, every 3 months or more frequently, to prevent the glass from being etched by alkaline bearing water.

1.2 CLEANING AT SUBSTANTIAL PERFORMANCE

1.2.1 Upon attaining Substantial Performance of the Work, remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining work. Also remove waste products and debris and leave the work clean and suitable for occupancy by the Owner unless otherwise specified.

1.2.2 All final cleaning shall be carried out under this Section and the building shall be left in condition to meet the approval of the Consultant. The final cleaning shall not commence until authorized by the Consultant. This work shall include, without being limited to, the cleaning of floors, walls,

windows, ceilings, fixtures and equipment, the removal of debris and all work required on the interior and exterior to complete the building and site cleaning.

1.2.3 All floors shall be cleaned in a manner acceptable to the Consultant.

1.2.4 Stains, paint, grease, oil, temporary protection and covers, plaster, mortar droppings, labels, caulking and sealant compounds, and dirt shall be removed. Damaged painted areas shall be touched up. All surfaces and items, including without being limited to, walls, ceilings, doors, windows, glass, partitions, fixtures, hardware, mechanical and electrical equipment shall be dusted and/or polished.

1.2.5 Replace broken and scratched glass.

1.2.6 Remove debris off roofs. Sweep and wash clean paved areas outside the building. Rake clean landscaped areas.

1.2.7 Replace heating, ventilating and air conditioning filters if units were used during construction. Vacuum clean ducts, fans, blowers and coils if units were used without filters during construction.

1.2.8 Ensure that the inside of all air handling systems are clean and free from dust, and debris when building is turned over to Owner.

1.2.9 Vacuum out and wipe clean all electrical and signal panels, switchboards, transformers and other electrical equipment.

1.2.10 Use experienced workmen or professional cleaners for final cleaning. Use only cleaning materials recommended by manufacturer of surface to be cleaned. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.2.11 Completion of the Contract shall not be attained until the Contractor has removed surplus products, tools, construction machinery and equipment. Removed waste products and debris, other than that caused by the Owner, other Contractors or their employees.

1.3 HAZARD CONTROL

1.3.1 Conduct cleaning and disposal operations in strict accordance with all applicable codes, ordinances and anti-pollution laws.

1.3.2 Store volatile matters in covered metal containers and remove from site at end of each working day. Do not dispose of volatile and toxic wastes in storm or sanitary drains, streams or waterways.

END OF SECTION

1 GENERAL

1.1 Definition

1.1.1 Warranty = guarantee dated from date of Substantial completion.

1.2 Submission Requirements

1.2.1 Submit warranties as part of "Operating and Maintenance Manuals" in accord with requirements of Section 01 77 00.

1.2.2 Arrange warranties in systematic order matching Specification format. Include a table of contents listing warranties in same order.

1.2.3 Each warranty must show:

.1 Name and address of project.
.2 Name of Owner
.3 Section Number and Title

1.2.4 All warranties issued by the manufacturer must be presented under the Contractor's letterhead, seal and signature and must bear the wording specified in Contract Documents.

1.3 List of Warranties

1.3.1 The following list of extended warranties is shown here for convenience only.

Item	Period
Entire Building, General Contract	1 year
Building Insulation	2 years
Sealant	5 years
Caulking	5 years
Hollow Metal Door and Screen	1 year
Aluminum Doors and Screens	5 years
Aluminum Windows	5 years
Glass and Glazing	10 years
Finish Hardware	3 years
Panic Devices and Door Closers	5 years
Acoustic Ceilings	2 years
Paint and Finishing	2 years
Mechanical	As specified under respective section
Electrical	As specified under respective section

1.3.2 Refer to Divisions 15 and 16 for Mechanical and Electrical warranty requirements.

END OF SECTION

PART 1 - GENERAL

1.1 CONTRACT COMMISSIONING

1.1.1 Expedite and complete deficiencies and defects identified by the Consultant.

1.1.2 Submit required administrative and technical documentation, such as Statutory Declarations, Worker's Compensation Certificate, warranties, certificates of approval or acceptance from regulating bodies.

1.1.3 Review inspection and testing reports to verify conformation to the intent of the Documents and that changes, repairs or replacements have been completed.

1.2 AS BUILT-DRAWINGS

1.2.1 Prior to application for Substantial Performance, allowing sufficient time for review, clearly, neatly, and accurately transfer information from marked up white prints to CADD diskettes. Print lettering and numbers in size to match original. Lines may be drawn freehand but shall be neat and accurate. Add "AS-BUILT" at each drawing title block. Should extensive changes and deviations to a drawing make the information illegible, re draft the drawing. Submit one copy of printout from diskette for review. When printout is accepted by Consultant, submit CADD diskettes, and three sets of "as-built" printouts from CADD diskettes.

1.3 MAINTENANCE INSTRUCTIONS AND DATA BOOK

1.3.1 Provide three sets of maintenance instructions and data books, together with the record drawings as specified in the preceding Article, to the Owner prior to the date of Substantial Performance.

1.3.2 Submit one copy of the book for the Consultant's review prior to submitting the books to the Owner.

1.3.3 The books shall contain the name of the Contractor and the date of Substantial Performance for the Project. Supply the following data:

.1 Complete listing of materials, products, and equipment including serial numbers, manufacturer's names, and sources of supply.
.2 Description of each system, with the description of each major component of the systems.
.3 Operation and installation instructions for each assembly, component and system.
.4 Complete maintenance instructions for each assembly, component and system. Include warnings of harmful practices.
.5 Lists of spare parts for each assembly, component and system complete with names and addresses of suppliers.
.6 Cleaning, maintaining and preserving instructions for all materials, products and surfaces. Include warnings of harmful cleaning, maintaining and preserving practices.
.7 A lubrication schedule of all equipment.
.8 Final reviewed shop drawings.
.9 Copies of all warranties.
.10 Operating curves of mechanical and electrical equipment.
.11 Page-size Valve Tag Schedule and Flow diagrams.
.12 Water treatment procedures and tests.
.13 Final balancing reports for the mechanical systems.
.14 "As-built" drawing white prints and "as-built" CADD diskette.
.15 Copies of all warranties.

1.3.4 Books shall be three-ring hard cover loose-leaf binders, indexed as to contents and identified on the binding edges as "Maintenance Instructions and Data Book", with name of project. The binders shall contain the name of the Contractor and the date of Substantial Performance for the Project.

1.3.5 Terminology used in the various indexed sections of the books shall be consistent.

1.4 MAINTENANCE MATERIALS

1.4.1 Deliver to the site, unload and store where directed, maintenance materials specified in the various Sections of the Specifications. Obtain receipt from the Owner for delivered materials.

1.4.2 Package materials so that they are protected from mechanical damage and loss of essential properties.

1.4.3 Label packaged materials for proper identification of contents. If applicable give colour and finish, room number or area where material is used.

1.5 DISTRIBUTION SYSTEM DIAGRAMS

1.5.1 Prior to application for Substantial Performance, submit framed single line diagrams of the electrical distribution systems.

1.6 TRIAL USAGE AND INSTRUCTIONS – MECHANICAL

1.6.1 Thoroughly instruct the Owner's authorized representative in the safe operation of the systems and equipment.

1.6.2 Arrange and pay for the services of qualified manufacturer's representatives to instruct Owner on specialized portions of the installation; such as, refrigeration machines, boilers, automatic controls, and water treatment.

1.6.3 Submit a complete record of instructions as part of the maintenance instructions and data book given to the Owner. For each instruction period, supply the following data:

.1 Date.
.2 System or equipment involved.
.3 Names of persons giving instructions.
.4 Names of persons being instructed.
.5 Other persons present.

1.6.4 Instructional period shall be carried out during a continuous period of 30 days.

1.6.5 The Owner shall be permitted trial usage of systems or parts of system for the purpose of testing and learning operational procedures. Trial usage shall not affect the warranties, not be construed as acceptance thereof; and no claim for damage shall be made against the Owner for any injury or breakage to any part or parts of such systems due to the aforementioned tests, where such injuries and/or breakage are caused, directly or indirectly, by a weakness or inadequacy of parts, or by defective materials or workmanship of any kind whatsoever.

1.7 TRIAL USAGE AND INSTRUCTIONS – ELECTRICAL

1.7.1 Provide services of manufacturer's specialized representatives to instruct Owner in operation of systems and equipment.

1.7.2 Permit the Owner's representatives, in order to familiarize themselves with the equipment, to operate systems for a reasonable period of time, as may be arranged.

1.7.3 Trial usage of any equipment by the Owner shall not affect the warranties, nor be construed as acceptance of the equipment or system, and no claim for damage shall be made against the Owner for injury or breakage to any part or parts of the aforementioned system or systems due to any such test, where such injuries or breakage are caused, in whole or in part, directly or indirectly, by a weakness or inadequacy of parts, or by defective materials or workmanship of any kind whatsoever.

1.7.4 Review information provided in maintenance instructions and data book with the Owner's representatives to ensure the Owner has a complete understanding of the electrical equipment and systems and their operation.

1.8 WARRANTIES

1.8.1 Extended warranties (warranties of more than two years duration) where specified in the Contract Documents, shall be provided by the Contractor and shall be in a form acceptable to the Consultant.

1.8.2 Where manufacturers offer, as a general policy, extended warranties on their products or other greater benefits than those called for in the specifications, the Contractor shall obtain the benefit of such extended warranties for the Owner and shall certify that he has done so before making the final claim for payment.

1.8.3 Upon completion of the Contract by the Contractor, or upon other termination of this Contract, the Contractor hereby agrees and covenants to assign to the Owner all warranties and guarantees which the Contractor has received from the sub trades employed by him on the Project.

1.8.4 Specified warranty periods shall not be construed as limiting the provisions of the General Conditions.

1.8.5 The carrying out of replacement work and making good of defects shall be executed at times convenient to the Owner and this may require work outside of normal working hours at the Contractor's expense.

1.9 SUBSTANTIAL PERFORMANCE OF THE WORK

1.9.1 Deficiency review:

.1 Neither Owner nor Consultant will be responsible for preparation or issuance of extensive lists of deficiencies. Contractor assumes prime responsibility for ensuring that items shown and described in the Contract Documents are complete. Any reviews to approve the certificate of Substantial Performance of the Work will be immediately cancelled if it becomes obvious to the Consultant that extensive deficiencies are outstanding.

.2 The Contractor shall conduct an inspection of the Work to identify deficiencies and defects, which shall be repaired. When the Contractor considers that the Work is substantially performed, the Contractor shall prepare and submit to the Consultant a comprehensive list of items to be completed or corrected and apply for a review of the Work by the Consultant to determine if Substantial Performance of the Work has been achieved.

.3 The Contractor’s request described above shall include a statement by Contractor that the Work to be reviewed by Consultant for deficiencies is, to the best of the Contractor’s knowledge, in compliance with Contract Documents, reviewed shop drawings, and samples, and that deficiencies and defects previously noted by Consultant have been

repaired.

.4 No later than fifteen (15) working days after the receipt of the Contractor's request described above, but contingent upon the prior receipt, by the Consultant, of the closeout submittals in the manner and form specified in this section, the Consultant and the Contractor will review the Work to identify any defects or deficiencies. If necessary, the Contractor shall tabulate a list of deficiencies to be corrected prior to Substantial Performance of the Work being certified by the Consultant.

.5 During review, the Consultant and the Contractor will decide which deficiencies or defects must be rectified before Substantial Performance of the Work can be certified, and which defects are to be treated as warranty items.

.6 Provide a schedule of planned deficiency review having regard to the foregoing.

1.9.2 Certification of Substantial Performance of the Work:

.1 When the Consultant considers that the deficiencies and defects have been completed and that it appears that the requirements of the Contract Documents have been substantially performed, the Consultant shall issue a certificate of Substantial Performance of the Work to the Contractor, stating the date of Substantial Performance of the Work.

.2 The certificate of Substantial Performance of the Work shall be prepared in form required by Construction Lien Act.

1.9.3 Final Inspection for completion of the Contract:

.1 Deficiencies and defects shall be made good before the Contractor submits a written request for final review of the Work and before the Contract is considered complete.

.2 When Contractor is satisfied that the Work is complete, and after the Contractor has reviewed the Work to verify its completion in accordance with the requirements of the Contract Documents, the Contractor shall submit a written request for a final review by the Consultant, who in turn will notify the Owner.

.3 If there are any deficiencies identified as a result of this review, they shall be listed by the Consultant and submitted to the Contractor. This list shall be recognized as the final deficiency list for purposes of acceptance of the Work under the Contract.

.4 Such deficiencies shall be corrected by a date mutually agreed upon between Consultant and the Contractor, unless a specific date is required by Contract, and a further review by the Consultant shall be called for by the Contractor following his own review to take place within seven (7) days from date of request.

.5 Contractor shall thereafter submit invoice for final payment.

.6 Money shall be withheld for deficiency work and will be released only when all deficiencies have been completed. No partial payment to be recognized until all work is completed.

1.9.4 If the Contractor needs to return to the Place of the Work to complete deficiencies after the Owner has taken possession, the Contractor shall provide the Owner with a minimum of one (1) week's prior notice of such requirement.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

1. All sections.

1.2 STANDARDS, CODES AND BY-LAWS

1. Conform with the requirements of the 2012 Ontario Building Code, including all amendments to date, and any applicable acts of any authority having jurisdiction and the following:
    1. Ontario Occupational Health and Safety Act, and Regulations for Construction Projects.
    2. Comply with all fire safety regulations and procedures required by Construction Safety Act of Ontario, Ontario Building Code and Municipal Authorities having jurisdiction.

1.3 SUBMITTALS

1. Submit for approval, drawings, diagrams and details clearly showing the sequence of disassembly and demolition, if required by authorities having jurisdiction.

1.4 PERMITS, INSPECTIONS AND APPROVAL CERTIFICATES

1. Obtain any permits necessary for demolition and/or removal of waste materials to an authorized disposal or recycling site.
2. Include in the prices the cost of obtaining and paying for all required permits.
3. File and post the “Notice of Project” as required by the Occupational Health and Safety Act and Regulations for Construction Projects.

1.5 PROTECTION OF PREMISES AND OPERATIONS

1. Be solely responsible for the safety and security of the project areas.
2. Protect workmen and occupants from contact with toxic substances contained in/or fumes from materials being demolished.
3. Provide barricades, guard rails, overhead protection, and other protection required, to give full protection to occupants, general public, and workers employed on the demolition, and to adjacent properties and landscaping.
4. Provide temporary protection against weather where work leaves unprotected openings in exterior surfaces of the building.
5. Maintain free and safe passage to and from the building exits. Do not compromise building exiting.

6. Prior to beginning work, submit to Owner for approval proposed pedestrian and vehicular control measures, signing, site security, dust control measures and temporary lighting plans. Do not proceed unit approval is given in writing. Modify procedures when required by the Owner and at no added cost to Owner.
7. Keep noise to a minimum.
8. Do not permit public access to areas of work or directly below work areas.
9. Cease operations and notify the Consultant and Owner immediately if the safety of structure appears to be endangered. Take all precautions to properly support the existing structure. Do not resume operations until permission is granted by the Owner.

PART 2 - Products

None Specified.

PART 3 - EXECUTION

3.1 DEMOLITION

1. Demolish in a manner to minimize dusting. Keep dusty materials wetted.
2. Remove existing equipment, service doors and obstacles, where required for refinishing or making good of existing surfaces, and replace with same as work progresses.
3. Repair all demolition performed in excess of that indicated or required, to the approval of the Consultant and Owner at no additional cost.
4. Remove only areas of the existing exterior walls, windows, and sky lights which can be repaired on the same day.
5. Inform Consultant of any unusual or deteriorated construction revealed during the masonry removal. Allow Consultant to review conditions prior replacement.
6. Leave site in a condition acceptable to the Consultant and Owner.
7. Leave work in safe condition so that no part is in danger of toppling or falling at the end of each day’s work.
8. Do not use hoists or other equipment in a manner which would overload the structure.

3.2 TEMPORARY PROTECTION

1. The contractor is solely responsible for the design, adequacy and safety of all temporary shoring and support structures required during the course of repair.
2. The contractor shall retain a qualified Professional Engineering who is licensed to practice in the Province of Ontario to design shoring and scaffolding, if required in the laydown area, as required to hoist the materials to and from the roof. The design

engineer will be responsible for performing inspections and promptly reporting on the site installation and compliance with their design.

3.3 DISPOSAL

1. Dispose of debris on a continuous basis. Do not leave any waste materials on site where they may be accessible to the public. Do not stockpile debris in a manner, which would overload the structure. Dispose of demolished materials except where noted otherwise.
2. Remove materials to an authorized disposal or recycling site.
3. Segregate from debris all materials that presently can be recycled or reused. Transport these materials to a reuse or recycling facility.
4. Materials not acceptable for reuse or recycling shall be disposed of at an appropriate and authorized landfill site. Cost of transporting to dump site and for dumping of materials, etc., are to be included in the Base Bid Price.
5. Burning of debris or selling of materials on site will not be permitted. Take measures to control dust during disposal operations.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

1.1.1 Comply with Division 1, General Requirements and all documents referred to therein.

1.1.2 Provide labour, materials, products, equipment and services required to complete the selective demolition work required and/or indicated on the Drawings and specified herein.

1.1.3 Visit site to establish extent of demolition to be carried out.

1.1.4 If suspected hazardous or contaminated materials are encountered, advise Consultant and await instructions regarding removal and disposal of such contaminants which may be considered hazardous to health, prior to demolition.

1.2 RELATED WORK

1.2.1 Removal of contaminated materials, friable asbestos containing materials, and PCB's, shall be by others prior to commencement of this Contract.

1.2.2 Removal and relocation of mechanical and electrical items indicated as relocated and reused are specified under respective Mechanical and Electrical Drawings. Co-ordinate the removal and relocation of these items.

1.3 REFERENCE STANDARDS

1.3.1 American National Standards Institute (ANSI):

.1 ANSI A10.8-2011, Scaffolding Safety Requirements

1.3.2 National Fire Protection Association (NFPA):

.1 NFPA 241-09, Standard for Safeguarding Construction, Alteration, and Demolition Operations

1.3.3 Provincial Legislation:

.1 Legislation specific to Authority Having Jurisdiction for work governed by this Section

1.4 DEFINITIONS

1.4.1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.

1.4.2 Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.

1.4.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

1.4.4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.

1.5 EXAMINATION

1.5.1 Visit and examine the site and note all characteristics and irregularities affecting Work of this Section. Submit a pre-demolition inspection report. Ensure the Owner of premises being inspected is represented at inspection.

1.5.2 Where appropriate prepare a photographic or video record of existing conditions, particularly of existing work scheduled to remain.

1.5.3 Where applicable, examine adjacent tenancies not part of the scope of work. Determine extent of protection required to areas and related components not subject to demolition.

1.6 PROTECTION

1.6.1 Do not commence demolition until all personnel and Owner's equipment are removed from the area being demolished.

PART 2 - PRODUCTS

2.1 SALVAGE MATERIALS

2.1.1 Salvage materials, products, and equipment indicated. Carefully remove items to be salvaged, protect during alteration and reinstall in locations indicated.

2.1.2 Refer to sprinkler, mechanical and electrical Drawings and specifications for sprinkler, mechanical and electrical work to be reused.

2.1.3 Salvage the following items for reuse and return to the Owner in an adequately preserved and usable condition on date of Substantial Performance or other mutually agreed date:

.1 Millwork, fire extinguishers, lockers, lights, clocks, bells and plumbing fixtures.

.2 Remove existing ceiling and light fixtures, as indicated for reuse or return to the Board.

2.1.4 All materials and products from the demolition except noted otherwise shall become the property of the Contractor. Remove all material and debris from the site as quickly as possible and dispose of legally. Burning of debris on the site will not be permitted.

2.1.5 Salvage materials, products, and/or equipment as directed by the Consultant. Remove carefully items to be salvaged to the locations designated. Protect during demolition and store above items. Materials and/or equipment directed to be salvaged shall remain the property of the Owner.

2.2 REPAIR MATERIALS

2.2.1 Use repair materials identical to existing materials:

.1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

.2 Use a material whose installed performance equals or surpasses that of existing material.

.3 Comply with material and installation requirements specified in individual Specification Sections.

2.2.2 Floor Patching and Levelling Compounds: Cement based, trowelable, self-levelling compounds compatible with specified floor finishes; gypsum based products are not acceptable for work of this Section.

2.2.3 Concrete Unit Masonry: Lightweight concrete masonry units, and mortar, cut and trimmed to fit existing opening to be filled. Provide standard hollow core units, square end units and bond beam units as indicated on drawings.

2.2.4 Brick: Install brick and and mortar, cut and trimmed to fit existing opening to be filled, once demolition of hollow metal door and frame is completed. Match brick and mortar to existing adjacent materials as approved by the Consultant. Provide ties and accessories as required to complete the installation.

2.2.5 Gypsum Board Patching Compounds: Joint compound to ASTM C475, bedding and finishing types thinned to provide skim coat consistency to patch and prepare existing gypsum board walls ready for new finishes in accordance with Section 09 21 16 – Gypsum Board Systems.

2.2.6 Fireproofing: Patch and repair all fireproofing damaged during demolition of adjacent surfaces with compatible fireproofing materials. Provide test reports from fireproofing manufacture warranting installation, adhesion and compatibility between existing and new fireproofing materials.

2.2.7 Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to Division 7 for new roofing requirements.

PART 3 - EXECUTION

3.1 SEQUENCE OF ALTERATIONS

3.1.1 Schedule sequence of alterations and demolition as indicated on Drawings.

3.2 SCREENS

3.2.1 Provide temporary barriers, guard rails, protective covers, screens, enclosures, tarpaulins etc., as may be required to enclose work areas from other areas of the building, to maintain security, to confine dust, noise and workmen to the work area, and to give full protection to the public, building occupants, workmen employed for demolition and to adjoining property, in compliance with authorities having jurisdiction. Locate screens as directed by the Consultant.

3.2.2 It is essential that the existing building be maintained weathertight at all times. Provide temporary protection, enclosures, tarpaulins, etc., as may be required to weatherproof any openings made in the Work.

3.2.3 Construct dustproof and windproof screens as required to completely enclose the work areas and the access passages to the work areas from the other areas of the existing building. Locate partitions as directed by the Consultant.

3.2.4 Build screens of 90 mm (3-5/8") metal studs at 400 mm (16") centres sheathed with sheets of 16 mm (5/8") gypsum board on both sides with close joints. Where exposed to the weather, fully cover screens with a heavy waterproof and dustproof paper with lapped and sealed joints. Fill spaces between studs with 100 mm (4") fibrous glass or mineral wool insulation batts to deaden sound.

3.2.5 Thoroughly pack framing at junctions of screens with floors, walls and ceilings with batt insulation in a manner to prevent infiltration of dust, dirt, etc. Over all junctions of screens with floors, walls and ceilings, apply continuous 40 mm (1-1/2") wide strips of masking tape both sides of screen to ensure that rooms within closed off areas which are not being altered are kept dust free.

3.2.6 Remove screens and make good damaged or blemished adjoining work when directed.

3.3 EXISTING SERVICES

3.3.1 Arrange and pay for the disconnection, capping and for plugging of all gas, water, hydro, telephone and other services to the structures.

3.3.2 Notify in advance each utility company involved and obtain approvals before commencing work.

3.4 DEMOLITION WORK

3.4.1 Refer to Drawings for extent of selective demolition work. Do all demolition work not specified to be done under other Sections.

3.4.2 Carry out selective demolition in strict accordance with provincial and municipal authorities having jurisdiction.

3.4.3 Take precautions to guard against movement of existing building and structures and displacement of elements of the building to remain. If at any time the safety of such elements appear to be in danger, suspend operations and notify the Consultant promptly. Take measures to support such elements. Do not resume demolition until the Consultant issues instructions.

3.4.4 The work shown on the Drawings, Schedules and Specifications may or may not be all the work required, do all demolition, make good all finishes and execute all necessary work including incidentals to make a complete job of the alterations.

3.4.5 Cut off, cap, divert, or remove existing water, gas, electric and other services in areas being altered which are affected by the changes as required or as directed by the municipal authorities and the utility company concerned, and the Consultant. Protect and maintain active services to the existing building.

3.4.6 Perform the Work in such a manner so as to cause a minimum of noise or interference to the use of the existing building.

3.4.7 Whenever it becomes necessary to cut or interfere in any manner with existing apparatus for short periods of time, Do work at such times as agreed upon between the Owner, Consultant, and the Contractor.

3.4.8 Where new work connects with existing and where existing work is altered, all necessary cutting and fitting required to make satisfactory connections with the existing work shall be performed under this Contract, so as to leave the entire work in a finished and workmanlike condition.

3.4.9 Make good materials and finishes which are damaged or disturbed during the process of additions and reconstruction under the Contract.

3.4.10 Where existing work is to be made good, the new work shall match exactly the old work in material, form, construction and finish unless otherwise noted or specified.

3.4.11 Perform drilling of existing work carefully, leaving a clean hole no larger than required.

3.4.12 Provide, throughout the entire construction period, proper and safe means of fire exit from all zones of the existing building at all times to the approval of the authorities having jurisdiction.

3.4.13 Protect work in the existing buildings, such as floors, finishes, trim, etc., as completely as possible to hold the replacing of damaged work by each Section to a minimum.

3.4.14 Properly co-ordinate the various Sections taking into account also the existing installations to assure the best arrangement of pipes, conduits, ducts and mechanical, electrical and other equipment, in the available space. Under no circumstances will any extra cost be allowed due to the failure by the Contractor to co-ordinate the work. If required, in critical locations, interference and/or installation drawings shall be prepared showing the work of the various Sections as well as the existing installation, and these drawings shall be submitted to the Consultant for review before the commencement of work.

3.4.15 Remove existing finishes as indicated on the Drawings to neat, straight lines and leave substrate clean and even, suitable for new finishes indicated.

3.4.16 At the end of each work shift leave work in a safe condition so that no part of the building or its finishes are in danger of toppling, collapsing or falling.

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION

.1 Provide all material, labour and equipment as necessary to replace brick masonry cladding and mortar joint as described in the Summary of Work.

1.2 CODES AND STANDARDS

.1 Conform to the requirements of the 2012 Ontario Building Code, including all amendments to date, and any applicable acts of any authority having jurisdiction and the following:

.1 CAN/CSA-A23.1: Concrete Materials and Methods of Concrete Construction

.2 CAN/CSA-A23.2: Methods of Testing for Concrete

.3 CAN/CSA-A23.3: Design of Concrete Structures

.4 CAN/CSA-A82.1-M87(R2003): Burned Clay Brick

.5 CSA A179-04: Mortar and Grout for Unit Masonry

.6 CAN3-A165 Series-04: Concrete Masonry Units

.7 CAN3-S304.1-04: Masonry Design for Buildings

.8 CSA A371-04: Masonry Construction for Buildings

.9 CSA A370-04: Connectors for Masonry

1.3 QUALIFICATIONS

.1 All work shall be done by a Contractor who has at least five (5) years of proven satisfactory experience.

.2 Work of this section is to be performed only by qualifies personnel specially trained for this type of work.

.3 Use single masonry Contractor for all masonry work.

1.4 SUBMITTALS

.1 One (1) weeks prior to the commencement of work, data sheets of the proposed mortar to illustrate the finish colour and the texture for approval by the Consultant.

1.5 MOCK-UP

.1 If requested by the Consultant, construct a typical sample prior to commencing with the general work at a location agreed with the Consultant to show the mortar colour and tooling and brick size, texture, and colour.

.1 Upon receipt of written confirmation from the Consultant, the sample installation may remain as part of the finished work.

1.6 DELIVERY, STORAGE AND PROTECTION

.1 Store cementitious materials and aggregates in accordance with CSA Standard A23.1

.2 Store mortar in a cool dry place so as not to be in contact with earth and to be protected from elements.

.3 Keep the materials dry and protected from the weather, freezing and contamination.

.4 Ensure that the labels and seals on all materials are intact upon delivery.

.5 Remove rejected or contaminated materials from the site.

1.7 WARRANTY

.1 The Contractor shall submit a warranty of the work of this section covering a period of not less than two (2) years from the date of Substantial Performance of the Contract. Substantial completion shall be determined by the Consultant and the Owner.

.2 Defective work shall include, but is not limited to, cracking, crumbling, loss of adhesion, loss of cohesion, discolouration, premature deterioration and out of plane movement.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 All work shall be performed in strict accordance with manufacturer's written requirements for all products specified in the specification.

.2 Should a conflict arise between the requirements of this section and the manufacturer's requirements, the more stringent requirements shall govern.

.3 Do not repoint mortar joints or repair masonry unless air temperatures are between 4 and 27 degrees Celsius and will remain so for at least 48 hours after completion of work.

.4 Prevent mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately mortar in contact with exposed masonry and other surfaces.

.5 Protect sills, ledges and projections from mortar droppings.

1.9 EXISTING CONDITIONS

.1 The decision to replace and repoint the existing masonry is based on cracked mortar joints, loose and spalled faces. Should any other masonry deterioration

be detected during the execution of the work that is unrelated to the noted visual defects, immediately inform the Consultant.

.2 Report, in writing to the Consultant, any areas of deteriorated masonry revealed that are not a part of this work. Obtain the Consultant's approval and instruction for the repair and replacement of the masonry units before proceeding with the repair work.

.3 Report, in writing to the Consultant, any areas of deteriorated masonry revealed that are not a part of this work. Obtain the Consultant's approval and instruction for the repair and replacement of the masonry units before proceeding with the repair work.

.4 Assist in the investigation of possible structural problems and report prior to commencing with the masonry work.

1.10 INSPECTION AND TESTING

.1 Mortar testing shall be performed as required by the Consultant.

.2 Testing shall be performed by a certified testing agency in accordance with CSA A283, retained and paid for by the Owner and approved by the Consultant.

.3 Provide casual labour to the testing firm's field personnel for the purpose of obtaining and handling sample materials. Provide free access to all portions of the work, and cooperate with the testing firm.

.4 Advise testing firm 24 hours in advance of concrete placement.

.5 Testing firm is to conduct all tests in accordance with CSA A23.2.

.6 Samples of the concrete are to be taken from the mortar batches.

.7 Testing firm to take a minimum of three (3) test cylinders for a strength test and not less than one strength test for each 20 m^3 of concrete, or portion thereof, for each type of concrete placed and not less than one (1) test for each type of concrete placed in any one day.

.8 Testing firm is to report results of tests immediately to the Contractor. The Contractor is responsible for ensuring that the concrete meets the requirements of the specifications. Report adverse test results to the Consultant immediately.

.9 Testing firm is to submit to the Consultant Contractor and concrete supplier certified copies of test results within 5 days of test.

.10 In accordance with requirements of A23.1, provide storage facilities for site storage of all cylinders.

PART 2 PRODUCTS

2.1 CLAY BRICK MASONRY

.1 New brick masonry to match the existing texture, size, colour and physical properties.

.2 Acceptable manufacturer:

.1 Forterra Brick;

.2 Brampton Brick; or

.3 Approved alternate.

.3 New brick masonry to conform to CAN/CSA-A82.1-M87 (R2003).

2.2 BRICK STAINING

.1 Stain the face of the replacement brick to match the colour and sheen of the existing. Stain material to be UV resistant, penetrating, mold, fungus, mildew and weather resistant.

.2 Acceptable Manufacturers:

.1 PermaTint Limited

.2 Nawkaw Corporation

2.3 MASONRY MORTAR

.1 Mortar joints shall be pre-bagged mortar, mixed in strict accordance with the manufacturer’s instructions.

.2 Acceptable manufacturers include:

.1 King Type N; or

.2 Approved alternate.

.3 Type N for non-load bearing walls.

.4 The colour of the mortar shall match the existing.

.5 Colouring pigments shall be used in accordance with the manufacturer’s written recommendations.

.6 Acceptable product:

.1 Inorganic mineral oxide colouring pigments as supplied by Elementis Pigments Inc. Toronto, ON.

.7 A sample of the mortar shall be provided to the Consultant prior to commencement of the work

.8 Liquid pigments are not acceptable.

.9 Admixtures shall not be added to the mortar.

.10 Use same brand of materials for the entire project.

2.4 MASONRY TIE

.1 All masonry veneer is to be stabilized to the back-up wall in a dry set manner by means of an 8mm helical anchor.

.2 Acceptable manufacturers include:

.1 Dryfix by Helifix;

.2 Spira-Lok by Blok-Lok; or

.3 Approved alternate.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that surfaces and conditions are ready to accept the work of this section.

.2 Commencing with the installation means acceptance of the existing substrates by the Contractor.

.3 The Contractor shall sound and identify all masonry wall areas covered under contract for deteriorated mortar.

3.2 PREPARATION

.1 Protect adjacent finished materials from marking or damage due to the work.

.2 Supply, install, and maintain all necessary signage and protection in compliance with authorities having jurisdiction and to the approval of the owner. Remove protection at the completion of the work as and when directed by the Owner.

.3 Protect building and adjacent mechanical and electrical equipment from damage which might occur due to masonry work. Do not interfere with Owner's usage of adjacent areas and maintain safe access to these areas.

.4 Seal and protect all openings, doors, windows and adjacent areas to minimize the potential for damage and the spread of dust, water or other materials into the building or adjacent sidewalks and properties.

.5 Brace all openings to remain plumb.

.6 All projections should be covered with rigid protection, secured into the joints for the duration of the work.

.7 Locate anchors in the area to be anchored per project drawings and details.

.8 Any part of the scaffolding or lifting equipment shall not directly bear against the masonry. The Contractor to provide any isolating materials required to prevent damage to the existing masonry and flooring.

.9 Provide and install the safety devices and signs near the work area.

3.3 REPLACEMENT OF DETERIORATED BRICK

.1 The Contractor shall mark the locations of masonry to be removed for verification by the Consultant prior to commencing with the removal process.

.2 In any area, should the amount of deteriorated brick rise above 5% of the quantity approved by the Consultant, the Contractor must stop all work and notify the Consultant immediately. The Contractor must obtain written approval from the Consultant prior to replacing amounts of brick totaling above 5% of the approved quantity. If the Contractor proceeds above 5% without written approval from the Consultant, payment will not be received for all brick quantities above 5% of the approved quantity.

.3 The brick is damaged or deteriorated when it is cracked, chipped, spalled or the outer face is hollow, detached or missing.

.4 The Contractor shall maintain the stability of the structure/masonry wall at all times.

.5 The Contractor shall cut out all damaged backup brick and prepare for the replacement of the new brick. Clean and remove all dust and brick fragments from the masonry. All loose material shall be removed from the adjacent substrates.

.6 Bond, coursing and jointing to match the existing.

.7 Immediately prior to placing the masonry, thoroughly wet the adjacent substrates in order to control absorption.

.8 Allow water to soak into the masonry, leaving no standing water but remaining wet. Should the surfaces dry prior to pointing, the substrates should be wet again.

.9 Set the brick in a full bed of mortar, true to line, and level with the adjacent units.

.10 Ensure that the cavity to the rear of the brick is kept free of mortar and debris to maintain the existing air space.

.11 Tool the mortar joints flush to match the existing.

3.4 MORTAR REPOINTING

.1 Mortar is defective when it is cracked, spalled, chalked or otherwise crumbling.

.2 The Contractor shall provide access, permit inspection correct any defects and obtain written approval of all raked joints prior to commencing with the pointing.

.3 Where mortar is found to be defective beyond the specified raking depth, the Contractor shall continue raking until solid mortar is encountered. Remove all loose mortar, dirt and other undesirable material.

.4 Be aware that additional raking beyond specified depths will be necessary and that voiding can be expected. Back pointing will be required at these locations prior to repointing.

.5 If masonry unseats or the bond is broken, remove the unit and reset in accordance with applicable Codes and Standards.

.6 Tools and Techniques:

.1 Tools used for cutting out of the mortar joints shall be narrower than the joint.

.2 Cutting out of the joint shall be performed using hand and held rotary saws or any type of grinder or wheel is permitted.

.3 The joints shall be cleaned back for the full depth. All mortar should be removed on the masonry surfaces to a square surface of existing mortar at the back of the joint.

.4 All loose particles in the mortar joints shall be removed with compressed air and left open for review by the Consultant.

.7 Damage:

.1 The Contractor shall take all reasonable precautions in order to prevent damage to the masonry units resulting from the removal process.

.2 Such damage to the masonry includes but is not limited to the widening of the joints, nicks, gouges, and chipped or scratched surfaces from the cutting out tools due to improper workmanship.

.3 The Contractor shall replace or repair all damaged units to the satisfaction of the Consultant with no change in the contract price or schedule.

.8 Depth of Raking:

.1 The depth of the raking shall be carried out 2 to 2 ½ times the joint width, to a minimum depth of one inch (1”) measured from the face of the masonry unit and beyond the existing depth of repointing.

.2 Mortar removal profile to be rectangular.

3.5 MASONRY REPAIR, RESTORATION AND RE-ANCHORING EXISTING MASONRY BRICKS

.1 At all masonry brick replacement areas, install masonry ties to bond the facing with the backup wall.

.2 The ties shall not be installed in advance of the masonry coursing.

.3 The ties should be randomly installed in rebuilt areas, except where areas are sufficiently large for the tie to be set every twelve (12) inches horizontally and every twelve (12) inches vertically with staggered centres.

.4 Select proper tie length by field verification.

.5 Install new helical ties at all locations of masonry brick replacement and as directed by the consultant.

.6 A 5mm (3/16 inch) entry hole shall be drilled through the mortar joint and into the block back-up. Drill minimum of 75mm (3 inches) into the block back-up (CMU) through all voids or solid sections. This drill procedure shall be carried out by means of a high speed rotary percussion drill (3-jaw chuck type).

.7 The entry holes shall be drilled in the mortar joints at the approximate center point of the brick (not the ‘ T ‘ joints or ends)

.8 An 8mm (5/16 inch) helical stainless steel wall tie shall be driven into position by means of a dry set installation tool mounted on an electric hammer drill (S.D.S. type) The helical tie will be inset into the masonry veneer approximately 10mm (⅜ inch).

.9 Patch entry hole with mortar to match existing.

.10 All relevant drill bits and setting tools shall be supplied by the helical anchor manufacturer.

3.6 POINTING OF JOINTS

.1 Obtain the Consultant’s written acceptance of raked out and back pointed work prior to commencing with the pointing operation.

.2 Prevent the mortar from being placed or smeared on to the face of the masonry to minimize the potential for staining on the faces during the pointing.

.3 Immediately prior to pointing, thoroughly wet the joints in order to control absorption.

.4 Allow water to soak into masonry and mortar, leaving no standing water but remaining wet. Prior to pointing, the joints should be wet.

.5 Fill all bed and head joints full with pointing mortar, compact joints firmly to ensure positive adhesion to all inner surfaces.

.6 Thoroughly compact the mortar into the joints.

.7 At initial set, finish neatly the joints to have a concave profile.

.8 Keep the work area clean; remove all droppings as the work proceeds, and again at the end of each day.

3.7 FIELD QUALITY CONTROL

.1 All shop and field materials and workmanship shall be subject to review by the Consultant at all times. These reviews shall not relieve the Contractor from the obligations to provide materials conforming to all requirements of the contract documents.

.2 Promptly remove any defective, damaged, or otherwise rejected material from the site. Installed materials which are damaged, or which in the opinion of the Consultant do not conform to the contract documents, shall be removed and replaced with acceptable material at no additional cost to the Owner.

3.8 CLEANING

.1 Clean masonry as work progresses using soft, clean cloths within few minutes after being placed. Upon completion, when mortar has set, so that it will not be damaged by cleaning, clean with soft sponge or brush and clean water. Polish with soft, clean cloths.

.2 Clean masonry as work progresses. Allow mortar droppings on masonry to partially dry then remove by means of a trowel, followed by rubbing lightly with a masonry unit and brushing.

.3 All holes in the mortar joints shall be filled with mortar and tooled.

.4 Dry brush the masonry surfaces at the end of each days work and after the final pointing.

.5 Remove mortar smears and droppings from the surfaces after they have dried.

.6 Clean the finished brickwork. Remove all mortar stains on any exposed brickwork and clean the masonry with low pressure clean water and a soft bristle brush.

.7 Remove all equipment and materials from the site upon completion of the work. Surfaces damaged during the course of the work shall be replaced by the Contractor at no cost to the Owner.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL INSTRUCTIONS

.1 Supply all labour, materials and equipment as required to remove existing metal flashing and trim and install new. Scope of work shall include, but not be limited to the following:

.1 Miscellaneous sheet metal flashing, edge metal, skirt metal, parapet, counterflashing, and termination bars for the modified bitumen roof system.

.2 Miscellaneous mechanical and plumbing components such as weatherhead, goosenecks, power vents, pipe support and other metal fabrication at various roof membrane penetrations.

.2 Use compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movements and exposure to weather without failure.

.3 The Contractor shall take all reasonable measures and provide protection against damage to the building façade, structure, and interior finishes. All damage to the building resulting from this work will be repaired and/or rectified by the Contractor.

1.2 Related Sections

.1 All Sections.

1.3 Reference Standards

.1 Conform to the requirements of the 2012 Ontario Building Code (as amended by Ont. Reg. 350/06), including all amendments to date, and any applicable acts of any authority having jurisdiction and the following:

.2 American Society for Testing and Materials (ASTM International)

.1 ASTM A653/A653M-04a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dipped Process, General Requirements.

.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.

.4 ASTM D822, Standard Practice for Filtered Open Flame Carbon Arc Exposures of Paint and Related Coatings

.3 Canadian General Standards Board (CGBS)

.1 CAN/CGSB – 37.5, Cutback Asphalt Plastic Cement.

.4 Canadian Roofing Contractors Association (CRCA)

.1 Roofing Specifications Manual.

.5 Canadian Standard Association (CSA International)

.1 CSA A123.3, Asphalt Saturated Organic Roofing Felt.

.2 CSA B111, Wire Nails, Spikes, and Staples.

1.4 Site Safety and Site Conditions

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

.2 Arrange all work to minimize the inconvenience to building occupants and to the public.

.3 The Contractor shall provide all required support to safely support all the loads during the Work. Do not overload any area of the roof or building structure.

.4 Report in writing to the Consultant any areas of deficiencies or changes in condition revealed that are not a part of this Work. Obtain the Consultant's approval and instruction prior to proceeding with the repair work in this area.

.5 Do not install materials during weather that might adversely affect the performance of the system.

.6 Do not install materials over surfaces that are wet, icy, dirty or otherwise unacceptable to the system being installed.

.7 Protect all public entrances to building.

1.5 Submittals, Samples and Mock-Ups

.1 Shop Drawings: Submit shop drawings for any condition not shown on the plans or details.

.2 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish. Colour to be selected by owner from standard colour chart.

.3 Fabricate and install mock-up of metal flashing at location identified by Consultant (max 4 locations). Mock-ups to include all typical components, and specified colours.

.4 Should mock-ups not be accepted by the Consultant, the contractor shall remove and replace mock-up. No additional costs will be considered for this work.

.5 Mock-ups approved by Consultant may remain to form part of final work.

1.6 Qualifications

.1 All work shall be done by a contractor, who has at least five (5) years of proven satisfactory experience. At the request of the Owner, provide evidence to the effect, including list of installations, descriptions, names, and method of contact shall be provided.

.2 The Contractor shall provide the proper equipment, workers, and supervision on the job site to install the system in compliance with the project specifications.

.3 Roofing contractors and sub-contractors must, when tendering or performing work, possess a roofing contractor operating license.

1.7 Quality Assurance

.1 Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

.2 Maintain one copy of each document on site.

1.8 Warranty

.1 Provide a two (2) year Contractor's material, labour and workmanship warranty for work of this section from the date of Substantial Performance (as designated by Consultant), during which time any imperfections, which may develop in the work, are to be made good without cost to the owner. Any other work affected, in making good such imperfections, shall also be made good.

.2 Correct all deficiencies immediately.

1.9 Storage, Handling and Delivery

.1 Convey and store Products according to Manufacturer's Instructions and CSSBI guidelines.

.2 Flashing will be stored to avoid creasing, buckling, scratches or any other possible damage.

.3 Avoid material overloads which may affect the structural integrity of specific roof areas.

.4 Place plywood runways over work to enable movement of material and other traffic.

.5 Replace any materials damaged during manufacture, shipping, storage or installation.

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

PART 2 PRODUCTS

2.1 Materials

.1 Aluminum coping ALCAN shape No. L-63150, Colour Analok 515 to match existing.

.2 Aluminum flashing 3 ½" x 2 ½" x ¼" L welded to plate to match existing.

.3 Starter Strips: Fabricated from pre-finished steel, 0.87 mm (22 gauge) core nominal thickness, Z275 zinc coating to ASTM A653. Starter strips to be continuous.

.4 Downspout: Prefinished aluminum, minimum thickness 28ga. Colour as selected by Owner from Manufacturer's standard range.

.5 Termination Bar: Aluminum ASTM B-209, Alloy 6061, Temper T-6, mill finish; sizes 1/8" thick by 1-1/2" with rounded edges.

.6 Primer: Asphaltic based primer for flanges set in adhesive.

.7 Roofing nails: to CSA B111, hot dipped galvanized steel flat head roofing nails of length and thickness to suit application.

.8 Fasteners for masonry and concrete: Tapcon fasteners, or an approved equivalent, of sufficient length to provide a minimum 38 mm (1-1/2 in.) penetration into substrate.

.9 Plastic cement: to CAN/CGSB 37.5.

.10 Sealants: Dymonic by Tremco, colour to match metal flashing.

.11 Isolation coating: alkali resistant bituminous paint.

.12 Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3.

.13 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.14 Touchup paint: as recommended by prefinished sheet metal manufacturer.

.15 Scuppers: Prefinished aluminium, size 6-inch by 8-inch minimum, thickness 28 guage.

2.2 Fabrication

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable details and CRCA details.

.2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.

.3 Hem exposed edges on underside 12 mm. 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 Fabricate vertical faces with bottom edge formed outward 1 inch and hemmed to form drip.

.6 Mitre and form standing seams at all corners.

.7 Apply isolation coating to metal surfaces to be embedded in concrete or mortar joints.

2.3 Membrane Underlayment (where roof flashings not present)

.1 Membrane underlayment: Composite self adhering membrane comprised of rubberized or modified asphalt and polyethylene as follows:

.1 Elastocol PG as manufactured by Soprema Inc.

.2 Blue Skin WP 200 as manufactured by Bakor Inc.

.2 Membrane underlayment primer: as supplied or recommended by the membrane underlayment manufacturer.

.3 Membrane Underlayment sealant: as supplied or recommended by the membrane underlayment manufacturer.

PART 3 EXECUTION

3.1 Examination

.1 Examine substrate and immediately inform Consultant in writing of defects. Proceeding with work of this section will signify acceptance by the Contractor of site conditions.

.2 Prior to commencement of work ensure substrates are firm, straight, smooth, dry, free of snow, ice or frost and swept clean of dust and debris.

.3 Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets in place, and nailing strips located.

.4 Verify roofing termination and base flashing are in place, sealed and secure.

.5 Where existing wood parapets, curbs, backer plates, cants, etc. and damaged, wet, broken, split, rotten, etc. replace with new pressure treated materials to suit site conditions.

.6 Hold a pre-installation meeting prior to start of the work, with the roofing contractor's representative, the manufacturer, the Consultant and the owner. The purpose of this meeting is to review particular installation conditions to each project. Establish a report for this meeting.

3.2 Preparation

.1 Install starter and edge strips, and cleats before starting installation.

.2 Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.3 Installation

.1 Install sheet metal work in accordance with CRCA details and as detailed.

.2 Where roof flashing is not present, provide underlay under sheet metal. Secure in place and lap joints 100 mm.

.3 Secure flashing in place using concealed fasteners. Use exposed fasteners only where permitted by Consultant.

.4 Ensure parapet cap flashings are installed with a minimum positive slope of 5% toward the roof area. Slope to be provided by wood blockings as detailed.

.5 Flash joints using S-lock forming tight fit over hook strips.

.6 At all sleepers, new metal flashings are to provide full coverage of the sleeper down to the base of cant strips.

.7 At curbs, flashings are to extend to the top of the curb down a minimum of 100 mm (4 in.).

.8 Fit flashing tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

.9 Form exposed sheet metal work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

.10 All straight joints in metal shall be formed with a minimum of cutting, and assembled in a manner to allow overlap of materials and the underlying cleat for sealant contact.

.11 Seal metal joints watertight. Lock end joints and caulk with sealant.

.12 Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from changes in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and night-time-sky heat loss.

3.4 Cleaning

.1 Remove temporary coverings and protection of adjacent work areas.

.2 Touch-up, repair or replace damaged products.

.3 Clean in accordance with manufacturer's instructions prior to Substantial Completion.

.4 Remove construction debris from project site and legally dispose of debris.

.5 Do work in accordance with applicable, standard in Canadian Roofing Contractors Association (CRCA) Roofing Specification Manual.

END OF SECTION 07 60 00

PART 1 GENERAL

1.1 WORK INCLUDED

.1 Provide all labour, material and equipment necessary to replace the sealant joints as described in the Summary of Work.

1.2 REFERENCE STANDARDS, CODES AND ACTS

.1 Conform to the requirements of the 2012 Ontario Building Code, including all amendments to date and any applicable acts of any authority having jurisdiction and the following:

.1 CSA A23.1-14: Concrete Materials and Methods of Concrete Constructions

.2 CAN/CGSB-19.13 – M87 - Sealing Compound, One-component, Elastomeric, Chemical Curing

.3 CAN/CGSB-19.17 – M90 - One-Component Acrylic Emulsion Base Sealing Compound

.4 CAN/CGSB-19.24 – M90 Multi-component, Chemical Curing Sealing Compound

.5 ASTM C920-14a - Standard Specification for Elastomeric Joint Sealants

.6 ASTM C1193-13 - Standard Guide for Use of Joint Sealants

.7 ASTM C1472-10 - Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width

.8 ASTM D2240 - Standard Test Method for Rubber Property—Durometer Hardness

1.3 SUBMITTALS

.1 One (1) week prior to starting the work, the contractor shall submit the following:

.2 List of the materials to be provided under this section.

.3 Manufacturer’s product data and specifications for each material.

.4 Sealant manufacturer’s written project recommendations.

.5 At the Consultant’s request, submit samples, including available colours, of the materials to be used on the project.

1.4 QUALITY ASSURANCE

.1 Perform the work in accordance with the manufacturer’s written project recommendations.

.2 Obtain each type of joint sealant through one source from a single manufacturer.

1.5 QUALIFICATIONS

.1 The installation of the sealant work shall be performed by a recognized specialized applicator, having at least five (5) years of experience, with skilled mechanics, thoroughly trained and competent in all phases of the work.

1.6 MOCK-UP

.1 Construct mock-ups two (2) weeks prior to commencement of the work to demonstrate all of the joints encountered in this project.

.2 The mock-ups shall be 1 m in length for each type of sealant and substrate.

.3 The mock-ups shall demonstrate the surface preparation prior to the sealant installation and the location, size, shape, colour, depth of joints, and adhesion and cohesion, complete with back-up material, primer, and new sealant.

.4 Upon receipt of written confirmation from the Consultant, the mock-up may remain as part of the finished work.

.5 The approved mock-up shall be the standard to which all work shall be performed.

.6 The mock-up shall be performed prior to the pre-installation conference.

1.7 DELIVERY, STORAGE AND PROTECTION

.1 Deliver all materials to the job-site in their original unopened containers with labels indicating manufacturer, product name and designation, colour, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

.2 Store all materials in strict accordance with the manufacturer’s recommendations.

.3 Keep the materials dry and protected from the weather, freezing and contamination.

.4 Ensure that the labels and seals on all materials are intact upon delivery.

.5 Remove rejected or contaminated materials from the site.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials. Labelling and provision of MSDS sheets shall be acceptable to Labour Canada.

.2 Ensure that all materials, containers, rags, etc. are disposed of in accordance with the local Waste Management Plan and hazardous material disposal regulations and requirements.

1.9 WARRANTY

.1 Contractor shall provide a warranty by the sealant manufacturer covering a period of two (2) years for all labour and materials from the date of Substantial Performance of the contract agreeing to furnish sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within the specified warranty period.

.2 Defective work shall include, but is not limited to, joint leakage, cracking, crumbling, melting, running, loss of adhesion or loss of cohesion, and substrate staining.

1.10 Field Testing Program

.1 Material and adhesion tests shall be conducted at the discretion of the Consultant on a random basis to show that properties are appropriate to the particular sealant and proper bond is achieved.

.2 The Contractor shall repair all test areas as part of the work in accordance with this section.

.3 All sealant installation failing material and adhesion tests shall be rectified in accordance with manufacturer and Consultant approved methods. Rectified areas will be retested until results confirm compliance with the manufacturer's written requirements.

PART 2 PRODUCTS

2.1 MATERIALS

.1 One-component, polyurethane joint sealant:

.1 Tremco Ltd: Dymonic;

.2 BASF: Masterseal NP1;

.3 Sika Canada: Sikaflex; or

.4 Approved alternate.

.2 Vertical expansion/control joints: one-component, polyurethane joint sealant:

.1 Tremco Ltd: Dymonic 100; or

.2 Approved alternate.

.3 For joints between pre-cast concrete or brick masonry: one-component, low or medium modulus, neutral-cure silicone rubber sealant:

.1 Tremco Ltd: Spectrem 3;

.2 Tremco Ltd: Spectrem 2;

.3 Dow Corning : 790 Silicon Sealant; or

.4 Approved alternate.

.4 For joints between metal panels or at metal flashing: one-component, medium modulus, neutral-cure silicone rubber sealant.

.1 Dow Corning: 795 Silicone Building Sealant;

.2 Tremco Ltd: Spectrem 2; or

.3 Approved alternate.

.5 The colour of the sealant to match existing as approved by the Owner. Custom colour may be required if the manufacturer's range of standard colours is not suitable.

.6 The Contractor shall obtain written confirmation of the sealant suitability for this project. A copy of this confirmation shall be forwarded to the Consultant prior to commencing with the work of this section.

2.2 PRIMERS

.1 Primer shall be as specified by the sealant manufacturer.

2.3 JOINT BACKING (FOR SILICONE AND POLYURETHANE SEALANTS)

.1 Cylindrical Sealant Backing of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Material shall be of type that will not adhere to the specified sealant:

.1 Polyethylene extruded closed cell foam backer rod oversized 30 to 50%.

.2 Where the joint size cannot accommodate foam rod, polyethylene tape or other joint backing material recommended by sealant manufacturer shall be used.

.2 Fillet Joint Applications

.1 Bond breaker tape, polyethylene tape or other plastic tape recommended by the sealant manufacturer shall be used to prevent adhesion to the specified sealant or to the back of joint.

2.4 CLEANING

.1 The cleaning material for the surfaces to receive the sealant shall be as recommended by the manufacturer of the sealant.

.2 Clean the joint by removing all residues using a vacuum cleaner or pressure washing. Substrate must be dry prior to application.

2.5 MASKING TAPE (FOR SILICONE AND POLYURETHANE SEALANTS)

.1 Non-staining, non-absorbent material compatible with joint sealant and surface adjacent to joints.

PART 3 EXECUTION

3.1 EXAMINATION

.1 For slabs-on-grade: Ensure concrete substrate, ensure concrete has sufficient cured, in accordance with CSA A23.1-14, section 7.2.5 “Joint Filling”.

.2 Verify that surfaces and conditions are ready to accept the work of this section.

.3 Commencing with the installation means acceptance of the existing substrates by the Contractor.

.4 Examine the areas and conditions under which the work will be performed. Review the planned operating procedures with the Consultant. Do not proceed with work until any unsatisfactory conditions are corrected in a manner acceptable to both the Owner and the Consultant.

.5 Verify that the specified environmental conditions exist before commencing with the work.

.6 The Contractor shall arrange for the sealant Manufacturer’s representative to visit the site and review the surface preparation and installation procedures at the start of the work.

3.2 PROTECTION

.1 The Contractor is responsible for maintaining the work weather tight during the course of the project. At the end of each work day or when stoppage occurs, provide necessary protection to prevent water penetration through the exterior walls.

.2 Seal and protect all openings, doors, windows and adjacent areas to minimize the potential for damage and the spread of dust, water or other materials into the building or adjacent sidewalks and properties.

.3 Protect adjacent finished materials from marking or damage during the work.

.4 Protect completed sealant installation during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes such that sealant is without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, such sealant shall be rectified immediately.

3.3 SURFACE PREPARATION

.1 Consult and follow the sealant manufacturer’s project recommendations.

.2 Remove the existing sealant without causing damage to the substrates.

.3 Remove dust, paint, loose mortar and other foreign matter, and dry joint surfaces.

.4 Where necessary to protect the adjacent surfaces, mask by suitable means prior to priming and sealant installation.

.5 Report in writing to the Consultant, any conditions which may be detrimental to the proper performance of the work. Proceeding with the work shall be taken as acceptance of the existing surfaces and conditions.

.6 The joints shall be clean, dry and free of frost and foreign matter prior to surface application.

.7 Clean concrete where necessary by grinding, sandblasting or wire brushing. Expose a sound surface free of contamination and laitance.

.8 Butt and bridge joint applications:

.1 Examine the joint sizes and correct as required to allow for the anticipated movement and to achieve proper width/depth ratio in accordance with the manufacturer's recommendations for the specified sealant unless indicated differently on the drawings, or by the Consultant.

.2 Should joint width correction be required, ensure that the correction is distributed appropriately to each side of joint.

.9 Fillet joint applications:

.1 Remove oil, grease and other coatings from non-ferrous metals with an approved cleaning solvent or abrasive technique. Obtain approval from the Consultant prior to commencing.

3.4 PRIMING

.1 Prime all substrates as directed by the sealant manufacturer's recommendations.

.2 Prime sides of the joint using the two cloth method in accordance with the manufacturer's directions, immediately prior to sealant installation.

.3 Primers that require application by the wipe of a clean soft cloth, shall be poured onto the cloth. Do not dip the cloth into the primer container.

.4 Prime only as much area as can be sealed in the same working day.

3.5 INSTALLATION OF THE BACK-UP MATERIAL (FOR SILICONE AND POLYURETHANE SEALANTS)

.1 Cylindrical Sealant Backing:

.1 Install the backer rod without stretching, twisting, braiding or puncturing the outer skin. Do not leave gaps between ends of sealant backings.

.2 Use an approved installation tool that is blunt surfaced and is designed accurately to place the backer rod.

.3 Using the approved tool, smoothly and uniformly place the backer rod to the recommended joint depth and rod compression.

.4 The minimum compression of the foam backer rod is twenty-five (25) percent. Vary backer rod size as required to achieve specified compression.

.2 Bond Breaker Tape:

.1 Install bond breaker tape without stretching, twisting or puncturing the tape.

.2 Use an approved installation tool that is blunt surfaced and is designed accurately to place tape within the joint.

.3 Width of bond breaker tape shall fit exactly the width of the joint.

.4 Install tape at the back of the joint.

.5 Do not leave gaps between ends of bond breaker tape.

.6 Three-sided adhesion is not permitted.

.7 Foam backer rod shall only be installed in areas that can be sealed in the same working day.

3.6 APPLICATION

.1 The Contractor shall have a trained representative on site at all times who is responsible for all sealant applications.

.2 Perform all work in strict accordance with the manufacturer's printed instructions. The Contractor shall provide the Consultant a copy of these instructions prior to commencing with the injection and sealing operations.

.3 Mix multi-component sealant such that air pocket formation is minimized in accordance with the manufacturer's recommendation.

.4 The sealant must be applied continuously to ensure that all voids and joints are completely filled.

.5 For silicone or polyurethane applications:

.1 Tool the sealant with light pressure immediately after application to ensure positive and complete contact of the sealant to the interface. Only tooling agents that are approved in writing by the sealant manufacturer and that do not discolour sealants or adjacent surfaces shall be used.

.2 Neatly tool the surface to form a slight concave profile. The surface of the sealant shall be smooth, free from ridges, wrinkles, air pockets and embedded impurities.

.6 Epoxy joint applications:

.1 Do not install over backer rod in saw-cut control joints.

.2 If acceptable to the sealant manufacturer, compressible rod may be used at depths greater than 1 ½ inches in formed construction joints. Otherwise, sealant should be placed the full saw-cut depth.

.3 Apply product by a professional bulk-loading caulking gun.

.4 Joints shall be overfilled during placement. Cut flush with a razor knife or grind flush with the floor within 24 hours after placement.

.5 Protect from traffic until cured.

.6 Mechanically roughen before painting.

3.7 CLEAN UP

.1 Clean the adjacent surfaces immediately and leave the work area neat and clean. All excess (sealant and primer) and droppings shall be removed using the recommended cleaners as the work progresses.

.2 All masking shall be removed immediately after tooling the joints. Sealant affected by the masking removal shall be retooled to achieve proper joint configuration.

END OF SECTION

SCOPE OF WORK
Roof Replacement

1.0.0 EXISTING ROOF ASSEMBLIES:

1.1.1 It is the Contractor's choice to cut and confirm the roof assembly. No additional costs will be accepted or approved for/or by the Owner. The existing roofing assembly has not been confirmed and is based on other roofs located at the site:

.1 Roof R15

(a) Pea gravel and asphalt top pour

(b) 4-ply felt and asphalt

(c) 50.8mm(2") fiberboard (not confirmed)

(d) 50.8mm(2") polyisocyanurate (not confirmed)

(e) Kraft paper vapour retarder (not confirmed)

(f) Metal deck (not confirmed)

2.0.0 NEW ROOF ASSEMBLY & REPAIRS:

.1 Supply all required materials and labour to complete the following repairs on Roofs R1, R5, R6, R7, R10, R11, R12, R13 & R17:

Roof R1

(a) Seal two open roof cones.
(b) Repour wind swept corner (southwest corner) with asphalt top pour and new pea gravel.

Roof R5

(a) Remove all debris from roof and drains.

Roof R6

(a) Install polystyrene pad at unit support.

Roof R7

(a) Repour wind swept corners (southwest & northwest corners) with asphalt top pour and new pea gravel.

Roof R10

(a) Repour wind swept corners (southwest & northwest corners) with asphalt top pour and new pea gravel.

Roof R11

(a) Repair area of scraped gravel.
(b) Remove all debris from roof and drains.
(c) Seal 15 open roof cones.

Roof R12

(a) Remove all debris from roof and drains.

Roof R13

(a) Remove all debris from roof and drains.

Roof R17

(a) Remove all debris from roof and drains.

.2 Supply and install the new roofing system comprised of the following (from the top down):

Roof R15

(a) 1-ply of modified bituminous granulated white cap sheet torched in place

(b) 1-ply of modified bituminous base sheet membrane factory laminated to asphalt protection board adhered in place

(c) 1% slope, tapered polyisocyanurate insulation adhered in place

(d) 50.8mm (2") polyisocyanurate insulation adhered in place

(e) 1-ply of self-adhering vapour retarder

(f) 12.7mm(1/2") gypsum board mechanically fastened in place over the existing metal deck.

(g) All membrane flashings are to be 2-ply modified bituminous membranes, 1-ply modified bituminous membrane (base sheet) adhered in place and 1-ply granulated modified bituminous membrane (cap sheet) torched in place.

.3 Conform to Section 07 52 16 – Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

3.0.0 ADDITIONAL REQUIREMENTS

.1 Remove and dispose of the existing roofing components, that are not required to remain as part of the new roofing system.

.2 Supply and install the new roofing components in accordance with the Contract Documents.

.3 Utilize a single source supplier of membrane and related primary materials.

.4 Provide the membrane manufacturer's warranty as specified.

.5 Dispose of all debris/waste in approved containers and transfer to an approved municipal and/or provincial disposal site(s).

06 10 00 - Rough Carpentry

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of the Contract and Divisions 00 and 01 apply to this section and to the requirements of the Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect the work, including all amendments up to the project date.

1.1.3 All standards, regulations and specifications listed herein are the latest edition.

1.2 CO-ORDINATION

1.2.1 Co-ordinate work of this Section with work of:

.1 The General Requirements

.2 The Instructions to Bidders

.3 The Scope of Work

.4 Section 07 51 13 Built-Up Asphalt Roofing.

.5 Section 07 62 00 Sheet Metal Flashing and Trim.

.6 Section 07 92 00 Joint Sealants.

1.3 STANDARDS

1.3.1 ASTM INTERNATIONAL

.1 ASTM A123/A123M-[09], Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 ASTM A307, Carbon Steel Bolts & Studs.

.3 ASTM A653/A653M-[09a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by Hot-Dip Process.

.4 ASTM D1761-[06], Standard Test Methods for Mechanical Fasteners in Wood.

.5 ASTM D5456-[10], Standard Specification for Evaluation of Structural Composite Lumber Products.

1.3.2 CANADIAN GENERAL STANDARDS BOARD (CGSB)

.1 CAN/CGSB-11.3-[M87], Hardboard.

.2 CAN/CGSB-51.32-[M77], Sheathing, Membrane, Breather Type.

.3 CAN/CGSB-51.34-[M86], Vapour Barrier, Polyethylene Sheet for Use in Building Construction and amendment.

.4 CAN/CGSB-71.26-[M88], Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.

1.3.3 CSA INTERNATIONAL

.1 CAN/CSA-A123.2-[03(R2008)], Asphalt Coated Roofing Sheets.

.2 CAN/CSA-A247-[M86(R1996)], Insulating Fiberboard.

.3 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.

.4 CSA O112 Series-[M1977(R2006)], CSA Standards for Wood Adhesives.

.5 CSA O121-[08], Douglas Fir Plywood.

.6 CAN/CSA O122-[06], Structural Glued-Laminated Timber.

.7 CSA O141-[05(R2009)], Softwood Lumber.

.8 CSA O151-[09], Canadian Softwood Plywood.

.9 CSA O153-[M1980(R2008)], Poplar Plywood.

.10 CSA O325-[07], Construction Sheathing.

.11 CSA O437 Series-[93(R2006)], Standards on OSB and Waferboard.

1.3.4 FOREST STEWARDSHIP COUNCIL (FSC)

.1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship.

.2 FSC-STD-20-002-[2004], Structure and Content of Forest Stewardship Standards V2-1.

.3 FSC Accredited Certified Bodies.

1.3.5 NATIONAL LUMBER GRADES AUTHORITY (NLGA)

.1 Standard Grading Rules for Canadian Lumber [2007].

1.3.6 UNDERWRITERS' LABORATORIES OF CANADA (ULC)

.1 CAN/ULC-S706-[09], Standard for Wood Fibre Insulating Boards for Buildings.

1.4 QUALITY ASSURANCE

1.4.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.4.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 Compatibility between materials is an essential requirement of the Contract.

2.2 WOOD

2.2.1 BLOCKING AND ROUGH FRAMING

.1 Grade No. 2, Northern Softwood in accordance with “Standard Grading Rules for Canadian Lumber” as issued by National Lumber Grades Authority (N.L.G.A.).

.2 Spruce, #1Softwood, conforming to CSA 0151.

.3 Wood Cants: 89mm x 89mm (3.5” x 3.5”, 2x4 nominal).

.4 Wood Blocking: 38mm x 38mm (1.5” x 1.5”, 2x2 nominal), 38mm x 89mm (1.5” x 3.5”, 2x4 nominal), 38mm x 140mm (1.5” x 5.5”, 2x6 nominal) 38 x 184mm (1.5” x 7.25”, 2x8 nominal), 38mm x 254mm (1.5” x 9.25”, 2x10 nominal)), 38mm x 286mm (1.5” x 11.25” (2x12 nominal).

2.2.2 PLYWOOD SHEATHING

.1 Exterior, Spruce #1, conforming to CSA 0151 or O121, exterior grade, G1S. Thickness of 13mm (1/2”) and/or 19mm (3/4”) as noted on the drawings.

2.3 FASTENERS

2.3.1 NAILS

.1 Ardox spiral, to CSA Standard B111, length to give 25mm (1") minimum penetration into the materials being fastened.

2.3.2 SCREWS

.1 Fasteners for wood: Galvanized steel wood screws with countersunk heads of size and length to provide a minimum 38mm (1.5") penetration into the underlying member.

.2 Fasteners for steel substrates: Flat head, self-tapping steel screw with galvanized finish as supplied by Fastening House, or Approved Alternate. Length: to suit. Penetrate through the member a minimum of 19mm (3/4").

.3 Fasteners for masonry and concrete substrates: Tapcon fasteners with "Climaseal" corrosion resistant finish, as manufactured by Buildex/Red Head, or Approved Alternate. Screw to be of sufficient length to penetrate into the substrate a minimum of 38mm (1.5").

.4 Bolts, Washers and Nuts: to ASTM A307. Size as indicated on the Drawings. Hot dipped galvanized or an approved equivalent corrosion resistant finish.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 All carpentry work is to comply with the best practices of trade and by skilled carpenters.

3.1.2 Provide carpentry alterations and comply with best trade practices. Anchor all wood blocking securely to the existing surfaces and to each other.

3.1.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Owner's approval.

3.1.4 Maintain all equipment in good working order to ensure the control of roofing operations and the protection of the Work. Equipment and laying techniques are to meet the approval of the Consultant.

3.2 EXAMINATION

3.2.1 Ensure that existing wood blocking to be incorporated with the work is in good condition and is permanently and properly secured to the existing surfaces.

3.2.2 Inform the Consultant of any unacceptable conditions immediately upon discovery.

3.2.3 Proceed with installation only after the unacceptable conditions have been remedied.

3.2.4 Replace all damaged material and reseal masonry anchors as required to conform to the design intent herein described.

3.2.5 Remove all sharp edges that would otherwise damage materials that come in contact.

3.3 INSTALLATION

3.3.1 Cut, align, plumb, and secure the wood to conform to the full intent of the details. Shim the new wood assembly where required in order to obtain true to line levels.

3.3.2 Construct continuous members from pieces of the longest practical length. Treat all saw cuts with wood preservative.

3.3.3 Countersink bolts where necessary to provide clearance for other work.

3.3.4 Install spanning members with "crown-edge" up.

3.3.5 Install cant strips and blocking as indicated on the drawings, secured permanently to the structure trimmed and levelled to accommodate chamfers and slopes. Install to accommodate insulation, roofing and flashing materials.

3.3.6 Install continuous plywood sheathing, wood blockings, cants, studs, nailers and continuous shims where required and detailed on the Drawings and Details. Shims are to be of sufficient height to ensure a minimum two (2%) percent positive slope on all parapet, perimeter and dividing walls.

3.3.7 Install the roof sheathing in accordance with the requirements of the NBC (National Building Code).

3.3.8 Install furring and blocking as required to space-out and support facings, fascia, soffit, siding, and other work as required.

3.3.9 Install furring to support siding applied vertically where sheathing is not suitable for direct nailing.

3.3.10 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.3.11 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

3.3.12 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.3.13 Fabricate sleepers, expansion joints, perimeters and walls as detailed. Maintain a minimum height of 305mm (12") above the finished roof surface for sleepers and curbs and where permitted at walls.

3.3.14 Securely the anchor wood blocking, cant strips, nailers and shims in place at 305mm (12") on centre in a staggered pattern. Fasten studs to the top and bottom plates with two screw fasteners. Fasten wood blocking, wood cant strips, nailers and shims to existing substrate with appropriate screw fasteners.

3.3.15 Fasten the plywood along the supported edges at a minimum of 152mm (6") on centre. Fasten to the framing members within the field of the plywood panel at a maximum of 406mm (16") on centre. Fasten the plywood to the framing and the existing substrate with the appropriate fasteners.

3.3.16 Re-fasten any loose existing wood blocking, cants, shims and plywood with screw fasteners where permitted to remain as part of the finished work and to the satisfaction of the Consultant.

3.3.17 Coordinate work to keep cutting and remedial work to a minimum. Fasteners are to be of size and spacing required to assure secure anchorage. Fastener spacing of the wood blocking to the substrate and to each other is not to exceed 305mm (12") o.c. unless otherwise accepted in writing by the Consultant.

3.3.18 Construct wood blocking as per details. Build-up all perimeter details to accommodate the height of the new roof assembly where required. Install wood blocking so that the new wood blocking extends a minimum of 76.2mm(3") above the finished roof surface. Install sloped wood blocking along the top of the perimeter sloping inward towards the roof. Build-up all unit curbs a minimum of 304.8mm(12") above the finished roof level to accommodate the height of the new roof assembly.

3.3.19 Offset blocking layers 304.8mm(12") and weave corners.

3.3.20 Assemble blocking using two staggered rows of nailing. Space nails in any row a maximum of 609.6mm(24") on centre. Within 2440mm(8') of outside corners, reduce maximum spacing to 304.8mm(12") on centre.

3.3.21 Install asphalt protection board along the perimeters/curbs/walls, from the top of the existing deck to the top edge of the wood blocking along the perimeters/curbs/walls. The asphalt protection board is to be secured 152.4mm(6") on centre horizontally with fasteners spaced no more than 304.8mm(12") on centre vertically.

3.4 PROTECTION

3.4.1 Protect the installed products and components from damage during construction.

3.4.2 Repair damage to adjacent materials caused by rough carpentry installation.

3.5 CLEANING

3.5.1 Clean in accordance with 01 10 00 General Requirements.

3.5.2 Remove all surplus materials and debris resulting from the foregoing work daily as the Work proceeds and upon completion.

END OF SECTION 06 10 00

07 52 16 – Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of Contract and Divisions 0 and 1 apply to this section and to requirements of Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect work including all amendments up to project date.

1.2 SECTION INCLUDES

1.2.1 Roof Repairs – Roofs R1, R5, R6, R7, R10, R11, R12, R13 & R17

Performing various roofing repairs to the 4-ply conventional built-up roofs in the field/flashings of the roofs.

1.2.2 Roof R15

Modified bituminous membrane roofing, 1-ply granulated white modified bituminous cap sheet membrane torched in place over 1-ply modified bituminous base sheet factory laminated to asphalt protection board adhered in place, cant strips, tapered insulation adhered in place, polyisocyanurate insulation adhered in place and self-adhering vapour retarder fully adhered in place over the existing deck.

1.3 CO-ORDINATION

1.3.1 Co-ordinate work of this Section with work of:

.1 The General Requirements.

.2 The Instructions to Bidders

.3 The Scope of Work

.4 Section 06 10 00 Rough Carpentry.

.5 Section 07 62 00 Sheet Metal Flashing and Trim.

.6 Section 07 92 00 Joint Sealants.

1.4 STANDARDS

1.4.1 CAN/ULC S702: Standard for Thermal Insulation Mineral Fibre for Buildings.

1.4.2 CAN/CSA – A123.4 (R2008): Asphalt for Constructing Built-up Roof Coverings and Waterproofing Systems.

1.4.3 CAN/CSA O80 SERIES-08 – Wood Preservation.

1.4.4 CAN/CGSB 19.13-M87: Single Compound, One-Component, Elastomeric, Chemical Curing.

1.4.5 CGSB 37-GP-56M Amend: Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

1.4.6 CGSB 37-GP-64M: Mat Reinforcing, Fibrous Glass, for Membrane Waterproofing Systems and Built-up Roofing.

1.4.7 CGSB 37-GP-9MA: Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.

1.4.8 ASTM C165-12: Standard Test Method for Measuring Compressive Properties of Thermal Insulations.

1.4.9 ASTM D6164/D6164M-11: Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

1.4.10 ASTM A653/A653-10: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

1.4.11 ASTM E84-12: Standard Test Method for Surface Burning Characteristics of Building Material

1.4.12 UL 790: Standard Test Methods for Fire Tests of Roof Coverings.

1.4.13 UL 1256: Fire Test of Roof Deck Constructions.

1.5 SYSTEM DESCRIPTION

1.5.1 Roof Repairs – Roofs R1, R5, R6, R7, R10, R11, R12, R13 & R17

Performing various roofing repairs to the 4-ply conventional built-up roofs in the field/flashings of the roofs.

1.5.2 Roof R15

Modified Bituminous Membrane Roofing System: self-adhered vapour retarder bonded in place over the existing deck, polyisocyanurate insulation adhered in place, tapered polyisocyanurate insulation boned in place, modified bituminous base sheet with factory laminated asphalt protection board adhered in place and granulated white modified bituminous cap sheet torched in place. Membrane flashings to be 2-plie modified bituminous membranes, 1-ply modified bituminous base sheet adhered in place and 1-ply granulated white modified bituminous cap sheet torched in place.

1.6 WARRANTIES

1.6.1 The Contractor will furnish the Owner and the Consultant with a standard 2 year Canadian Roofing Contractor's Association labour warranty and the material manufacturer's 10 year standard warranty.

1.6.2 The Contractor will inspect the roofing project with the Consultant immediately after its completion and will correct any workmanship defects within a reasonable time period (30 days) at the Contractor's expense. Failure to correct the deficiencies and/or provide the required written warranty may cause final payments to be withheld until the situation is rectified.

1.6.3 Failure to provide full documentation will prevent issuance of the certificate of substantial completion, and delay the release of the final payment and holdback.

1.6.4 The Owner must notify the Contractor and the Consultant in writing a minimum of thirty days before installation of any equipment or procedures that may damage or alter the roofing system. Failure to notify may void the warranty.

1.6.5 It is the responsibility of the Contractor to notify the membrane manufacturer before the Work begins to arrange on-site inspections by the manufacturer's printed procedures in order to obtain the manufacturer's warranty.

1.7 QUALIFICATIONS

1.7.1 The Contracting company must be an operating roofing company in business for a minimum of 5 years. The Contracting company must be a member in good standing of the CRCA (Canadian Roofing Contractors Association) and local provincial association.

1.7.2 All workers shall be thoroughly experienced in the particular class of Work in which they are employed. The Consultant reserves the right to reject any worker who, in his/her opinion, does not have the skills necessary to properly complete any job they are so assigned.

1.7.3 The Contractor must be acceptable to the materials manufacturer in order to provide the required warranties.

1.7.4 These requirements are required for any and all Sub Contractors.

1.7.5 Provided a competent supervisor to supervise all work.

1.7.6 Ensure that the quality of the work conforms to the best standard trade practices.

1.7.7 Ensure that torching operators continually carry identity verification together with verification of the membrane manufacturer's torching training certification.

1.8 QUALITY CONTROL

1.8.1 Forman

.1 Once the project has started, the roofing foreman cannot be replaced without the written permission of the Consultant.

1.8.2 Housekeeping

.1 The Contractor shall be responsible for maintaining all work areas in a neat and orderly manner. All ground areas shall be clean, neat and orderly at the end of each day's work. All materials and equipment (including kettle) stored on the ground must be placed on plywood to prevent damage to paved areas. If ballast materials must be placed on a grass surface, it must be placed on a protective covering sufficiently large enough to ensure that no ballast remains on the grass. Any and all landscaping damaged or destroyed shall be restored to its original condition by a landscape Contractor paid for by the Contractor.

.2 All roof top areas shall be clean and materials properly stored at the end of each day's Work.

.3 If the Contractor does not comply with the requirements to keep the premises clean or does not take steps to correct any damage that may have occurred, a written notice will be issued to the Contractor. If immediate, satisfactory steps are not taken to correct the situation, it shall be the prerogative of the Owner to rectify the situation and charge the Contractor accordingly

1.8.3 Protection

.1 Existing roof areas and roof top equipment shall be completely protected throughout the course of this project. Protect roofing system in hoisting area by means of plywood sheets extending a minimum of ten feet beyond the Working area.

.2 Do not transport any materials across new roofing without first installing adequate plywood protection. Failure to adequately protect the roof may result in the rejection of that roof area.

1.8.4 Surface Condition

.1 The Contractor will ensure that all substrates are clean, dry, sound, smooth and free of dirt, debris, moisture, and other contamination before any materials are applied.

1.8.5 Replacement

.1 Any isolated areas that must be torn off and replaced will be built up to the height of the existing roof prior to the installation of the new roofing membrane system.

1.8.6 Damaged Materials

.1 If in the opinion of the Inspector, any materials, either in place or not yet applied, are deemed to have been damaged by moisture, traffic, or any other cause, the Contractor will repair and/or replace the damaged materials to the approval of the Inspector, and at no cost to the Owner.

1.8.7 Weather Conditions

.1 No materials are to be applied when the outside temperature is below 5 degrees Celsius unless written approval is obtained from the manufacturer's representative. No materials are to be applied when precipitation is imminent. No materials will be applied to damp, wet, of contaminated surfaces. No roofing is to be carried out during periods of high winds.

1.8.8 Phased Roofing

.1 All installed insulation must be covered with the specified membranes and membrane flashings the same day. **Phased roofing will not be accepted.**

1.8.9 Night Seals

.1 At the end of each working day, the incomplete installation shall be sealed along all edges to prevent water from entering the roofing system and structure. This temporary night seal must be removed before proceeding with the adjoining area.

1.8.10 Inspection

.1 Before leaving the roof at the end of a working day, inspect the project to ensure that all materials and equipment are covered and secured, no fire hazards are present, no drains are plugged, all openings are properly protected, and all night-seals are completed. Remove the ladder from the building. Secure the kettle area and ensure that the kettle temperature has been reduced to a safe temperature.

1.8.11 Materials & Equipment

.1 All surplus materials and equipment shall be removed from the site when they are no longer required to complete the remaining Work.

1.8.12 Good Roofing Practices

.1 Responsibility – The Contractor shall be responsible for all supervision and execution of the Work as defined in the Construction Documents. The Contractor shall be solely responsible for construction safety and compliance with all legislation, practices, rules and regulations.

.2 Standards – Unless otherwise noted in the specifications, Contractors will adhere to the principles, practices, and guidelines of the Canadian Roofing Contractors Association, and the Ontario Industrial Roofing Contractors Association.

.3 Manufacturers – When possible and practical, use materials supplied from a single manufacturer. All materials, equipment, accessories, etc. are to be applied and/or installed strictly in accordance with the manufacturer's written instructions. No deviations will be permitted without written approval from the manufacturer of that material, equipment, accessory, etc.

.4 Acceptance – The Contractor must verify that all materials can be installed to accommodate the building design, pertinent codes and regulations, and the manufacturer's current recommendations.

1.8.13 Review & Quality Assurance of the Work

.1 Conform to the Owner/Contractor Agreement.

(a) Co-operate with the Owner and their representative(s) to afford all facilities necessary to permit full inspection of the work and testing of materials prior to, during their use and during the warranty period. Act immediately on instructions given by the Consultant.

(b) If the Contractor covers or permits to be covered the Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

(c) The Consultant will order part of the Work to be examined if the Work is suspected to be not in accordance with the Contract Documents. If, upon examination such work is found in accordance with the Contract Documents, correct such Work and pay the cost of the examination and correction.

.2 Undertaking and periodic inspections by the Owner, their agent, Consultant or Inspector is not to be construed as supervision of actual construction, nor make him responsible for providing a safe place for performance of work by contractors of contractor's employees or those of suppliers or sub-contractors or for access, visits, use, work, travel or occupancy by any person.

.3 Per-Start Meeting – This meeting is deemed to be a site visit and shall be held before the start of the project. The Contractor, the foreman for this project, and the Consultant will review the specifications, drawings and details. The site will be examined and the condition of the grounds and the building will be noted. The Contractor will be responsible for any damage to the facilities resulting from the execution of this project.

.4 Notification – The Contractor shall provide the Consultant with forty-eight (48) hours written notice before commencing Work on this project. At the completion of any patching, flashing repair, or cleaning, and prior to any resurfacing and restoration work, the Contractor shall provide the Consultant with forty-eight (48) hours written notice to inspect the area before work proceeds. After the start date of this project, it shall be the responsibility of the Contractor to notify the Consultant before 8:00 a.m. each and every day, if no roofing personnel will be on site that day; for any reason, weather, labour, materials, strikes, etc., or any other delays. Failure to notify the Consultant will result in an invoice issued to the Contractor in the amount of three hundred and fifty dollars per occurrence. Payment of this invoice must be received by the Inspection Company before the holdback for this project will be released. Further, the Contractor shall send a written notification to the Consultant before 12:00 noon the same day, confirming that their employees will not be on site that day, and that the Consultant was notified before 8:00 a.m. This will serve as a permanent record and proof of notification.

.5 Core Samples – When directed by the Consultant, the Contractor shall cut not more than four(4) cores of approximately 200 square inches each from every newly constructed built-up roof system, and shall restore all such areas to sound and watertight condition. These procedures will be done at the Contractor's cost.

.6 Inspection – The Owner authorizes Pinnacle Group Inc. to periodically visit the site in order to assist in ascertaining the extent to which the materials and procedures conform to the requirements of these specifications and to the published instructions of the material manufacturer.

.7 Leaks – If a roof leak occurs during the project and the inspector visits the site, the Contractor is required to reimburse the inspection company three hundred and fifty dollar per visit.

.8 Acceptance – The acceptability of the completed roofing Work will be based on its conformance to the written specifications and addenda. The Owner and/or his representative are not obligated to accept non-conforming work and such non-conforming work may be rejected. The rejected Work shall be promptly replaced or corrected in a manner and by methods approved by the Owner's representative. The Consultant will instruct the Contractor's foreman and Work crew on the proper methods of installation of the roofing system, and will follow up on a regular basis to inspect the Work being done. Any deficiencies or deviations from the specified Work will be noted and reported to the Owner along with recommended corrective actions necessary. Acceptance of any Work in no way relieves the Contractor of his/her warranty obligations.

.9 Noncompliance – Non-compliance with the terms of this specification and ensuing contract can result in either the cancellation of the contractor or complete replacement of the defective areas at the Contractor's expense. In the event of cancellation, the Owner will not be obligated to compensate the Contractor for any work undertaken. Furthermore, all damages caused by water infiltration resulting from the failure of the Contractor to secure each day's Work in a watertight manner, will be corrected at the Contractor's expense. Included as damages will be all labour costs incurred by the Owner as a result of such water infiltration.

.10 Final Inspections – Final inspections are noted as site visits. Additional visits to re-inspect the project because of defective or incomplete work, or for any other reason may result in additional visits charged to the Contractor.

.11 Responsibility – The presence and activities of the Consultant shall in no way relieve the Contractor and/or Sub Contractor(s) of his/her contractual responsibilities. The Consultant <u>will not</u> act as a supervisor of any work force present on the site.

.12 Safety – Safety is the absolute responsibility of the Contractor. The Consultant is not responsible for, nor has control of safety procedures required for the Work as set forth by legislation, the facility, or accepted construction practices. However, if in the opinion of the Consultant, unsafe conditions, practices and procedures are present, the project may be shut down by order of the Consultant or the Owner until such conditions are corrected.

.13 Engineering Responsibility – Pinnacle Group Inc. does not, nor do its representatives, practice engineering or architecture. We make no judgments on, and hereby disclaim any responsibility for the soundness of any roof deck or structural component of buildings upon which Work is carried out and recommend that the Owner obtain written certification from a structural engineer that the structure will support the proposed weight of any Work undertaken, including, but not limited to Replacement, Repair, Retrofit, Restoration, or Ballasted Roofing Systems or Equipment installations.

1.8.14 Procedures

.1 Notify the Consultant in advance of the requirements for tests, in order that attendance arrangements can be made.

.2 Submit sampled and/or materials required for testing, as specifically requested in the specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in the Work.

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

1.8.15 Defective Work

.1 Conform to the Owner/Contractor Agreement

(a) Remove defective Work, whether the result of poor workmanship, use defective products or damage and whether incorporated in the Work or not, which has been rejected by the Consultant as failing to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.

(b) Make good other Contractor's work damaged by such removals or replacements promptly.

(c) If in the opinion of the Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner will deduct from the Contract Price the difference in value between Work performed and that called for by the Contract Documents, amount of which will be determined by the Consultant.

1.8.16 Quality of Work

.1 Execute the Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.2 Ensure that the Quality of the Work is of the highest standard, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Consultant if the required Work is such as to make it impractical to produce the required results.

.3 Do not employ anyone unskilled in their required duties. The Consultant reserves the right to require dismissal from the site, workers deemed incompetent or careless.

.4 Decisions as to the standard or fitness of Quality of Work in cases of dispute rest solely with the Consultant, whose decision is final.

1.8.17 Coordination

.1 Ensure the co-operation of workers in laying out the Work. Maintain efficient and continuous supervision.

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

1.8.18 Concealment

.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation, inform the Consultant if there is interference. Install as directed by the Consultant.

1.8.19 Remedial Work

.1 Perform remedial work required to repair or replace parts or portions of the Work identified as defective or unacceptable. Co-ordinate the adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with the materials affected. Perform in a manner to neither damage nor put at risk any portion of the Work.

1.9 PRE-START MEETING

1.9.1 A pre-start meeting is to be scheduled one week prior to any work commencing. The roofing contractor, the consultant, the on-site contact and/or owner's representative should bepresent.

1.9.2 The following items will be discussed at the pre-start meeting:

.1 methods and procedures relating to the roof assembly installation

.2 on-site procedures

.3 on-site material storage

.4 the construction schedule

1.10 DELIVERY, STORAGE & HANDLING

GENERAL

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

1.10.2 Store products subject to damage from weather and/or theft in lockable weatherproof enclosures.

1.10.3 All roofing membranes must be stored on end. Granular surfaces membranes will be stored selvage side up. Protect edges of roll goods.

1.10.4 Store cementitious products clear of earth or concrete floors, and away from walls.

1.10.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

1.10.6 Store sheet materials and lumber on flat, solid supports and keep clear of ground and/or roof surface. Slope to shed moisture.

1.10.7 Store and mix paints in a heated and ventilated room. Remove oily rags and other combustible debris from the site daily. Take every precaution necessary to prevent spontaneous combustion.

1.10.8 Remove and replace wet and otherwise damaged products at your own expense and to the satisfaction of the Consultant.

1.10.9 Touch-up damaged factory finished surfaces to the Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.10.10 Locate all materials not required to be stored in weatherproof sheds on site in a manner to cause the least interference with work activities.

1.10.11 Confine work and operations of employees to those defined by the Contract Documents. Do not unreasonably encumber the premises with products.

1.10.12 Do not load or permit to load any part of the Work with weight or force that will endanger the Work. The contractor is fully responsible to ensure the structural loading of the roof is not excessive. Should doubt exist as to the structural capacity of the existing roofing structure, the Contractor will be held responsible for acquiring the opinion and direction from a Professional Structural Engineer, licensed to practice within the province of work at no additional cost to the Owner.

1.10.13 All materials shall be safely stored and protected against weather, vandalism, and theft. All materials will be adequately tarped with waterproof breathable coverings and secured with rope. Provide additional tarps to protect all materials from weather, and be responsible at all times for the protection of the materials and the securement of the tarps.

1.10.14 No roofing materials are to be used as ballast to secure protection coverings. Any materials used in this manner will be marked with paint and rejected by the Consultant. These materials must be immediately removed from the job site. Any of these materials found incorporated into the applied roofing system will result in that portion of the Work being rejected.

1.10.15 Store all solvent based materials in well ventilated areas away from excessive heat or open flames.

PRODUCT STORAGE AND HANDLING REQUIREMNTS FOR HAZARDOUS MATERIALS

1.10.16 PROPANE CYLINDERS/GAS CYLINDERS

.1 Follow the supplier's instructions and comply with the Provincial and/or National Health and Safety Guidelines for Low-Slope Roofing when handling and storing gas cylinders.

.2 Transport gas cylinders in an upright position, properly secured. Store gas cylinders with valve closed and safety cap in place inside a locked storage area, at least 7.6m(25') from the kettle or tanker.

.3 Check the pressure regulator before using any gas cylinder and adjust it as required.

.4 Check hoses and couplings for cracks and cuts and replace them as required before using the cylinder.

PRODUCT STORAGE AND HANDLING REQUIREMENTS FOR TOXIC MATERIALS

1.10.17 Store volatile waste in covered metal containers, and remove from the premises at the end of each working day.

PART 2 PRODUCTS

2.1 MATERIALS – ROOF REPLACEMENT, R15

2.1.1 Roof Membrane (White Modified Bituminous – Cap Sheet): Modified bituminous membranes, white granulated top and thermo-fusible bottom surface, 250gm/sq.m. non-woven polyester reinforcement conforming to CAN/CGSB-37.56-M and ASTM D-6162

Acceptable Product: SopraStar Flam HD GR by Soprema Inc. or approved alternate

2.1.2 Roof Membrane (Modified Bituminous – Base Sheet with Asphalt Protection Board): Modified bituminous membranes, polyester reinforced, thermo-fusible top and asphalt protection board laminated on the bottom side, 180gm/sq.m., conforming to CAN/CGSB-37.56

Acceptable Product: Soprasmart Board 180 3/16" by Soprema Inc. or approved alternate.

2.1.3 Flashing Membrane (White Modified Bituminous – Cap Sheet): Modified bituminous membranes, white granulated top and thermo-fusible bottom surface, 250gm/sq.m. non-woven polyester reinforcement conforming to CAN/CGSB-27.56-M and ASTM D-6162

Acceptable Product: SopraStar Flam HD GR by Soprema Inc. or approved alternate

2.1.4 Flashing Membrane (Modified Bituminous – Base Sheet): Modified bituminous membranes, thermo-fusible top and self-adhering bottom, glass mat reinforcement conforming to CAN/CGSB-37.56-M. and ASTM D-6163

Acceptable Product: Sopraflash Flam Stick (Winter) by Soprema Inc. or approved alternate

Primer – Self-Adhering Membranes (Base Sheet Flashings): fast drying primer composed of SBS synthetic rubber and adhesive enhancing resins.

2.1.5 Protection Membrane: self-adhesive flame stop membrane composed of glass fleece reinforcing and SBS modified bitumen with a sanded top surface and self-adhering bottom surface, conforming to CGSB-37.56-M

Acceptable Product: Sopraguard Tape by Soprema Inc. or approved alternate

2.1.6 Membrane Sealant: solvent-based mastic containing SBS modified bitumen, fibres and mineral fillers.

Acceptable Product: Sopramastic by Soprema Inc. or approved alternate

2.1.7 Insulation (Tapered): 1% slope, fully tapered high strength, inorganic coated glass faced, polyisocyanurate insulation, with a compressive strength of 25 psi. The tapered insulation layout is to be four way slope to drains with no crickets linking the drains. Crickets are to be used at all openings and/or mechanical curbs. Flat areas around drains are not to exceed 50 ft2.

Acceptable Product: 1% slope by Posi-Slope Enterprises Inc.

2.1.8 Insulation: 50.8mm(2") polyisocyanurate insulation (4'x4' boards). Type: closed cell polyisocyanurate foam roof board insulation with inorganic coated glass facer, meeting the requirements of CAN/ULC S704, Type 2 Class 3 materials and ASTM C1289, Type II, Class 2, Grade 2.

Acceptable Product: ACFoam-III by Atlas Roofing Corporation or approved alternate

2.1.9 Insulation Sump: Polyisocyanurate, pre-manufactured, one piece drain sump, 8'x8'. Meeting the requirements of CAN/ULC S770.

Acceptable Product: Gemini Drain Sets by Atlas Roofing Corporation or Drain Sumps by Posi-Slope Enterprises Inc.

2.1.10 Asphalt Protection Board: 6.35mm(1/4") thick (4'x4') boards, torch safe, semi-rigid protection board.

Acceptable Product: IKO Protectoboard by IKO Canada, Sopraboard by Soprema Inc.

2.1.11 Base Sheet with Asphalt Protection Board Composite & Insulation Adhesive: Low-rise, two-part polyurethane adhesive.

Acceptable Product: Duotack 365 by Soprema Inc. or approved alternate

2.1.12 Vapour Retarder: Self-adhesive bottom side, sanded top surface.

Acceptable Product: *modified***PLUS** G100 Tack – **Sanded Surface** by Henry Company Canada

2.1.13 Vapour Retarder Adhesive: 930-38 Tack Sheet Rubberized Adhesive by Henry Company Canada

2.1.14 Stripping Adhesive: One-part rubberized elastomer, Polyroof SF by Tremco Canada

2.2 ACCESSORIES – ROOF REPLACEMENT, R15

2.2.1 Wood Blocking, Plywood Sheathing: Construction grade; free from warping and visible decay; pressure-treated spruce, to CAN/CSA O80 SERIES-08.

2.2.2 Wood Fasteners: hot-dipped galvanized steel fasteners conforming to ASTM A153

2.2.3 Cant Strip: fire resistant, mineral wool fibre cant, CantRSS by ModulRTS

2.2.4 Cant Strip Adhesive: solvent free, fastener free, insulation attachment; Fas-n-Free Adhesive by Tremco

2.2.5 Metal Flashing: 24 gauge pre-painted galvanized; Series 8000 baked enamel finish; colour to match existing, to ASTM A653/A653M-10. 22 gauge metal for all cleats and hook strips. Colour to be confirmed by the Owner.

2.2.6 Pitch Pan: Pre-manufactured type; 16 oz. copper, fully soldered, minimum 152.4 mm (6") high above finished roof level, complete with copper caps and sealant.

2.2.7 Pitch Pan Sealant: M-1 Structural sealant (pitch pan sealant) and 1-part pourable sealer (pitch pan pourable sealer) by ChemLink or Joint & Termination Sealant #9600 (pitch pan sealant) and Semi-Selfleveling Sealer #4500 (pitch pan pourable sealer) by Lucas

2.2.8 Self-Adhering Membrane (Perimeter Parapet): Self-adhering, self-sealing, composite membrane consisting of a high softening point with SBS rubberized asphalt compound.

Acceptable Product: Blueskin PE200HT by Henry Company Canada

2.2.9 Self-Adhering Membrane Adhesive (Perimeter Parapet): Rubber based adhesive for self-adhering membranes.

Acceptable Product: Blueskin Adhesive by Henry Company Canada

2.2.10 Sealant: single component; moisture cure; polyurethane sealant conforming to CAN/CGSB19.13M87.

2.2.11 Fasteners: 25mm square or round head, ring shanked galvanized or non-ferrous type, length as required to suit application.

2.2.12 Drains: boxed copper retro drain with flange, with dome, with seal

Acceptable Product: by Platinum Technologies Inc.

2.2.13 Control Flow Mechanism: by Platinum Technologies Inc.

2.2.14 Tall Cones: all sizes (1.5" to 12"): by Platinum Technologies Inc.

2.2.15 Vent Stack: insulated aluminum vent stack with factory applied polyurethane foam insulation and vent stack cap.

Acceptable Product: by Platinum Technologies Inc.

2.2.16 Termination Bar: 10' Alum Term Bar – Item NO. – Term-10 (#90354)

Acceptable Product: by Platinum Technologies Inc.

2.2.17 Gas Line Supports: SmartBlox as supplied by Platinum Technologies Inc.

2.2.18 Foam Gasket: EMSEAL MST Multi-Use Sealant Tape or EMSEAL UST Sealant Tape

2.3 MATERIALS – ROOF REPAIRS, R1, R5, R6, R7, R10, R11, R12, R13 & R17

2.3.1 Roof Membrane (Fiberglass Felts): inorganic, non-woven fiberglass mat, asphalt saturated, Type IV glass felts, meeting or exceeding the requirements of CSA A123.17 and ASTM D2178

Acceptable Products: by IKO Canada, Johns Mansville, Firestone or approved alternate.

2.3.2 Roof Membrane (Organic Felts): high-strength organic felt, asphalt saturated, perforated felt, meeting or exceeding the requirements of CSA A123.3 Type 1 and ASTM D226 Type I

Acceptable Products: by IKO Canada, Johns Mansville or approved alternate.

2.3.3 Flashing Membrane (Modified Bituminous – Cap Sheet): Modified bituminous membranes, granulated top and sanded bottom surfaces, 180gm/sq.m., non-woven polyester reinforced, meeting or exceeding the requirements of CGSB 37.56-M and ASTM D6164 Type II

Acceptable Products: by IKO Canada, Soprema Inc., Siplast or approved alternate.

2.3.4 Flashing Membrane (Modified Bituminous – Base Sheet): Modified bituminous membranes, sanded top and bottom surface, 180gm/sq.m., polyester reinforced, meeting or exceeding the requirements of CGSB-37.56-M and ASTM 6164 for Type I

Acceptable Products: by IKO Canada, Soprema Inc., Siplast or approved alternate.

2.3.5 Asphalt Primer: Conforming to CGSB 37-GP-9Ma

2.3.6 Asphalt: Type II conforming to CSA Std. A123.4M

Type III conforming to CSA Std. A123.4M

2.3.7 Pea Gravel: Clean, water washed, free from organic matter and fines.

2.3.8 Mastic (roof cones): single-component elastomer formulated with polymers and plasticizers.

Acceptable Product: Polyroof LV by Tremco Canada

2.3.9 fff

Note: The Contractor must supply all primers, mastics, and membranes from a single source Manufacturer. No alternates will be accepted without written approval from the Consultant

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Supply and install perimeter safety warning as prescribed by the Provincial Occupational Health and Safety Code and all local codes before starting any other work.

3.1.2 It is the contractor's responsibility to obtain all required permits for this project and must carry this cost in his bid price.

3.1.3 The ground areas around the building are to be protected as much as possible. All disposal boxes must be placed on planks. The interior areas of the building, where the roofing contractor has access, are to be protected. It is the contractor's responsibility to protect areas adjacent to the roof repair areas (if the roofs are going to be walked on, materials stored, and debris lowered down to them), prior to starting the roof repairs and during the roof repairs. Once all roofing work has been completed the protection can be removed.

3.1.4 It is the responsibility of the roofing contractor to contact the Owner to mark the exact location of buried utilities.

3.1.5 Roof R15 – Remove the existing roofing down to the deck, the existing metal flashings and membrane flashing down to the existing substrates. Dispose of all debris at an appropriate licensed dump site. No debris is to be left in the flutes of the metal deck. No garbage is to be stored on the roof.

3.1.6 Should the metal deck be found to be deteriorated, corroded and requiring rust inhibiting coating or replacement, the roofing contractor is responsible to document all areas with photographs and measurements indicated on a roof plan, on a daily basis and provide them to both the consultant and property manager/owner. Steel deck coating/replacement quantities proposed for replacement are to be approved in writing by the owner/property manager prior to any area being replaced. Should the roofing contractor proceed to install any rust inhibiting coating/structural deck without photos, measurements and written approval, no additional funds will be paid for these areas. All pricing for the rust inhibiting coating and deck replacement will be taken from the unit price provided in the tender form. Should approval not be obtained the same day, the roofing contractor will be responsible for temporarily waterproofing the area.

3.1.7 Should the existing metal deck require replacement, the roofing contractor is responsible to have an engineer review the installation of the metal deck and provide a written and stamped report indication that the metal deck has been installed according to code requirements and is structurally adequate. All reports are to be submitted to the property manager and the consultant.

3.1.8 Inspect the deck and report any deficiencies to the Owner's Representative. Do not apply any new roofing over deficiencies, other than temporary waterproofing, until all deficiencies have been corrected.

3.1.9 Do not remove more of the existing roofing than can be completely waterproofed in one day.

3.1.10 The roofing contractor shall be responsible for all roof leaks (both on the existing roofing assembly and the new roofing assembly) at the building once they begin to set-up and load materials onto the roof at the beginning of the project.

3.1.11 Contractor is responsible to disconnect and reconnect any mechanical, electrical conduit, downpipes, cabling, and/or gas lines which are affecting the roof installation. Satellites which are in use, are to be repositioned to ensure correct signal.

3.1.12 Should wall anchors or roof anchors or davit arms require re-certification it will be the roofing contractor's responsibility to do so.

3.1.13 Phasing of the roof assembly is not acceptable. Therefore, the entire roof assembly from the gypsum board to the flood coat and aggregate are to be installed on a daily basis.

3.1.14 All adjacent roof areas being used for storage/setup and travelled on, are to be fully protected with polystyrene and plywood. Roofing contractor is responsible for all costs relating to overhead protection, scaffolding, protection of adjacent roofs and any required permits.

3.2 REPAIRS – ROOFS R1, R5, R6, R7, R10, R11, R12, R13 & R17

Open Roof Cones

3.2.1 Clean and prepare the existing roof cones to be sealed.

3.2.2 Apply mastic over the roof cones, coved to shed water. Install new pre-painted metal collars and sealant over top of the roof cones.

Debris

3.2.3 Remove all debris (organic and man-made) from drains and roofs. Dispose of all debris at an appropriate licensed dump site.

Wind Swept Areas

3.2.4 Sweep back all loose pea gravel, a minimum of 609.6mm(2') beyond the wind swept areas.

3.2.5 Apply one coat if quick dry primer on all surfaces to receive asphalt at a rate of 150 sq.ft. per gallon. Ensure that all surfaces are clean and dry before primer application.

3.2.6 Apply a 60 lbs. per 100 square foot flood coat of Type II asphalt. While the asphalt is still hot embed new gravel at a rate of 500 lbs. per 100 square feet. Rake level with the existing adjacent pea gravel. DO NOT REUSE THE EXISTING GRAVEL.

Areas of Scraped Gravel

3.2.7 Spud the existing gravel 609.6mm(2') beyond the scraped gravel areas. Sweep back all loose gravel. The existing membranes are to be clean, dry and free from any contaminates which could affect adhesion.

3.2.8 Apply one coat if quick dry primer on all surfaces to receive asphalt/membranes at a rate of 150 sq.ft. per gallon. Ensure that all surfaces are clean and dry before primer application.

3.2.9 Apply 1-ply fiberglass felt fully hot mopped in place using Type II asphalt fully covering the scraped gravel areas and extending 152.4mm(6") beyond it. Apply a 2nd ply of fiberglass felt extending 152.4mm(6") beyond the 1st ply in all directions. Apply a 3rd ply of fiberglass felt extending 152.4mm(6") beyond the 2nd ply in all directions. The mini mop asphalt spreader is not to be used when installing fiberglass felts. A hand mop is to be used.

3.2.10 Apply a 60 lbs. per 100 square foot flood coat on Type II asphalt. While the asphalt is hot embed new gravel at a rate of 500 lbs. per 100 square feet. Rake level with the existing adjacent pea gravel. DO NOT REUSE THE EXISTING GRAVEL.

3.2.11 Do not stand on the newly embedded felt to unroll the membrane. Do not walk on the membrane until the asphalt has set up. **Gang rolling of felts is not allowed.**

3.2.12 Ensure the felts lie flat, with no wrinkles, fishmouths, or blisters, and are well bonded. All surfaces of the membrane must be completely coated with asphalt. No areas of dry felt in contact with dry felt will be accepted.

3.2.13 No felt are to be left uncoated at days end for any reason.

Polystyrene Support Pad

3.2.14 Install polystyrene pad at unit support. Thickness to suit space between support and roof. Cut the polystyrene pad 50.8mm(2") smaller (all the way around) than the unit support.

REPLACEMENT – ROOF R15

3.3 REDUNDANT EQUIPMENT/OPENINGS

3.3.1 Remove all designated redundant equipment, pipes, cones, pitch pans, etc. Install new metal decking matching the existing thickness. Metal will be installed on a continuous bead of elastomeric sealant and screwed down with stainless steel self-tapping screws a minimum of 152.4mm(6") on center around the perimeter. All redundant equipment will be marked with yellow paint by building operator.

3.4 VAPOUR RETARDER

3.4.1 Verify all substrates to receive vapour retarder primer are clean, dry and free from any contaminants that could affect adhesion of the primer and/or vapour retarder. No debris or membranes are to be left on the deck.

3.4.2 All substrates to receive vapour retarder are to be primed. The primer is to be applied by brush or roller at a rate of 0.50-0.75 liters per sq.metre (100-150 ft2/gal). Allow an open time of 30 minutes prior to applying the vapour retarder.

3.4.3 Over the clean, dry and primed substrates (wood blocking, gypsum board, etc.) apply 1-ply of the self-adhered vapour retarder membrane fully bonded in place.

3.4.4 Roll out the vapour retarder and allow it to relax prior to application. Cut lengths to fit application. Set in place and pull back the release film 152.4mm to 304.8mm (6" to 12") and place it on the prepared surface. Remove the release film from the remainder of the sheet and apply pressure to ensure proper contact with prepared substrate.

3.4.5 Overlaps: side laps to be 76.2mm(3") and end laps to be 152.4mm(6").

3.4.6 Commence the vapour retarder application at the lowest edge or drain. Proceed up the slope from the lowest point on the roof.

3.4.7 At terminations and penetrations the vapour retarder is to be extended up the vertical surface, above the insulation a minimum of 50.8mm(2"). Where cant strips are to be installed the vapour retarder is to be extended 50.8mm(2") above the top of the cant strip.

3.5 INSULATION

3.5.1 Ensure the vapour retarder is clean, dry, continuous and ready for insulation application.

3.5.2 Apply one layer of polyisocyanurate insulation, adhered in place. Insulation is to be placed with all joints staggered a minimum of 609.6mm(2') per row.

3.5.3 Ensure that all insulation boards are fully supported, joints staggered and all edges are butted tight with no gaps between boards.

3.5.4 Apply adhesive directly to the vapour retarder in a ribbon pattern. The ribbons are to be between 6.35mm to 12.7mm (1/4" to 1/2") wide ribbons. The ribbons are to be continuous and the full length of each insulation board. The insulation is to be immediately places into the adhesive. Do not allow the adhesive to skin over.

3.5.5 Each 1200mm x 1200mm (4'x4') insulation board shall have seven continuous ribbons applied, spaced 152.4mm(6") equally across the boards

3.5.6 No damaged or wet insulation will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed.

3.5.7 Install sloped prefabricated insulation sumps 2438.4mm x 2438.4mm (8'x8') around all roof drains. Adjust the insulation (base layer) to accommodate the sumps.

3.5.8 Do not apply more insulation than can be covered with membranes the same work day.

3.6 TAPERED INSULATION

3.6.1 Verify all substrates to receive tapered insulation layer are clean, dry and free from contaminants that could affect the adhesion of the foamable adhesive and installation of the tapered insulation.

3.6.2 Apply foamable adhesive directly to the polyisocyanurate insulation in a ribbon pattern. The ribbons are to be between 6.35mm to 12.7mm (1/4" to 1/2") wide ribbons. Each tapered insulation board should have eleven continuous ribbons applied equally spaced across the board.

3.6.3 As foamable adhesive is applied, embed the tapered insulation board immediately. Do not allow adhesive to skin over.

3.6.4 No damaged or wet insulation will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed.

3.6.5 Do not apply more tapered than can be covered with membranes the same work day.

3.7 MEMBRANE APPLICATION – ASPHALT PROTECTION BOARD WITH FACTORY LAMINATED BASE SHEET

3.7.1 Verify all substrates to receive asphalt protection board with factory laminated base sheet are clean, dry and free from contaminants that could affect the adhesion of the foamable adhesive and installation of the board.

3.7.2 Apply foamable adhesive directly to the polyisocyanurate insulation in a ribbon pattern. The ribbons are to be between 6.35mm to 12.7mm (1/4" to 1/2") wide ribbons. The ribbons are to be spaced 101.6mm(4") continuously across each board.

Asphalt protection board with factory laminated bituminous base sheet is to be butted tight to the next board, outside perimeters, curbs and walls.

3.7.3 As foamable adhesive is applied, embed the asphalt protection board with factory laminated base sheet immediately. Do not allow the adhesive to skin over.

3.7.4 The first part of the side laps are to be fully adhered and pressed in place using a membrane roller, then hot-air weld the remaining part of the side laps.

3.7.5 Over the clean and dry asphalt protection board with factory laminated base sheet end laps apply protection membrane. Apply 240mm(9.45") wide strip of protection membrane, centered over the joint. Ensure the protection membrane lies flat, with no wrinkles, fishmouths or blisters and are fully bonded in place.

3.7.6 Ensure that all boards are fully supported, joints staggered, and all edges are butted tight with no gaps between boards.

3.7.7 No damaged or wet boards will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed.

3.8 CANT STRIPS

3.8.1 Apply fire-resistant cant strips, in adhesive, at all horizontal to vertical transitions in the roof.

3.8.2 No damaged or wet cant strip will be accepted. All rejected materials will be marked and must be stored on site. They are not to be removed until the project is completed.

3.9 PROTECTION MEMBRANE

3.9.1 Over the clean and dry asphalt protection board and wood blocking, prior to installing the modified bituminous base sheet, apply protection membrane over all the joints and vertical to horizontal transitions in the roof. Apply 152.4mm(6") strip of protection membrane, centered over the joints and vertical to horizontal transitions. Ensure the protection membrane lie flat, with no wrinkles, fishmouths, or blisters and are fully bonded.

3.10 MEMBRANE APPLICATION – CAP SHEET

3.10.1 Unroll the granulated modified bituminous cap sheet membranes and allow them to relax, as per manufacturer's written instructions. Ensure the modified bituminous base membranes are clean and dry.

3.10.2 The cap sheet membranes are to be offset 457.2mm(18") from the base sheet membranes.

3.10.3 Beginning at the drains, perpendicular to the slope and shingled to shed water, install the cap sheet membranes fully torched in place to the base sheet. Cap sheet membranes are to be terminated at the top of the cant strip.

3.10.4 Install the cap sheet membrane in parallel courses with the end laps staggered a minimum of 914.4mm(36") from each other and a minimum of 914.4mm(36") from the base sheet membranes. Cap sheet membrane overlaps: side laps to be 76.2mm(3") and end laps to be 152.4mm(6"). All corners, at the end laps are to be cut as per manufacturer's written requirements.

3.10.5 Ensure that approximately 6.35mm(1/4") bleed out is achieved at all laps.

3.10.6 Ensure that the cap sheet membranes lie flat, with no wrinkles, fishmouths, or blisters and are fully bonded.

Note: It is absolutely required that in all areas where a thermofusible membrane was applied, the work area be carefully inspected for fire one hour after the work has stopped for the day using an infrared gun and before the crew leaves the roof.

3.11 NIGHT SEAL

3.11.1 Extend the new modified bituminous base sheet a minimum of 304.8mm(12") beyond the current days work area. Overlap the existing membranes a minimum of 152.4mm(6"). Apply mastic in a 152.4mm(6") wide band onto the lap and embed mesh over top, a minimum of 76.2mm(3") on each side of the lap, followed by a second application of mastic. The mastic is to be compatible with the existing membrane and the new modified bituminous base sheet membrane.

3.11.2 At the start of the next work day cut back the modified bituminous base sheet membrane at the lap, leaving a minimum of 76.2mm(3") to allow for a proper tie-in of the modified bituminous base sheet.

3.11.3 The procedure must be performed each work day weather precipitation is forecast or not.

3.11.4 It is the Foreman's responsibility to thoroughly check this detail at the end of each day before leaving the roof.

3.12 MEMBRANE FLASHINGS

3.12.1 Provide membrane flashings in accordance with membrane manufacturer's written installation guidelines. All flashing membranes are to be installed in 1 meter widths.

3.12.2 Install flashings to ensure the roof is watertight at the end of each working day. Membrane flashings will be comprised of 1-ply modified bituminous base sheet membrane flashing fully adhered in place and 1-ply granulated modified bituminous cap sheet membrane flashing torched in place.

3.12.3 Contractor is responsible to disconnect and reconnect any electrical conduit, cabling, and/or gas lines which are affecting the roof installation.

3.12.4 Flashing membranes are to be terminated 304.8mm (12") above the top of the cant strips at all locations.

Note: It is absolutely required that in all areas where a thermofusible membrane was applied, the work area be carefully inspected for fire one hour after the work has stopped for the day using an infrared gun and before the crew leaves the roof.

3.12.5 Perimeter (Outside Perimeter):

.1 Raise the existing perimeter to accommodate the height of the new roof assembly and slope inward towards the roof, as per details

.2 After the application of the modified bituminous base sheet laminated to the asphalt protection board and cant strips, apply base sheet membrane flashing primer onto the perimeter and field of the roof a minimum of 101.6mm(4") beyond the toe of the cant strip. Base sheet membrane flashing is to fully cover the wood blocking and extend a minimum of 50.8mm(2") on to the outside wall.

.3 Unroll the self-adhering modified bituminous base sheet membrane flashings and allow them to relax, as per manufacturer's written instructions. Side laps are to be 76.2mm(3") and end laps are to be 152.4mm(6").

.4 Once base sheet membrane flashings have been applied, use a roller to apply even pressure to the membrane, ensuring the membrane is smooth, free from wrinkles, blisters, fishmouths and fully bonded in place.

.5 Unroll the granulated modified bituminous cap sheet membrane flashings and allow them to relax, as per manufacturer's written instructions. Ensure the modified bituminous base sheet membranes are clean and dry.

.6 Apply granulated modified bituminous cap sheet membrane flashing torched in place extending a minimum of 101.6mm(4") beyond the modified bituminous membrane flashings onto the roof surface and extending up the perimeter. The granulated modified bituminous cap sheet membrane flashings are to be terminated along the top outside edge of the perimeter. Ensure the laps of the granulated modified bituminous cap sheet membrane flashings do not coincide with the laps of the modified bituminous base sheet membrane flashings.

.7 Continuously seal the top edge of the granulated modified bituminous cap sheet membrane flashings with elastomeric sealant.

.8 Fully cover the membrane flashings with new pre-painted metal flashings.

3.12.6 Roof Drains:

.1 Plug the drains temporarily while working around them.

.2 Prime the new drain flange prior to installation.

.3 Over the new modified bituminous base sheet field membranes, install new drain inserts complete with seals in a full bed of elastomeric sealant. Check the drain pipes on the underside of the deck to ensure the installation of the proper length insert down-pipe. Ensure the pipe does not impede the flow of water.

.4 Install 1-ply modified bituminous base sheet membrane flashing, fully adhered in place, extending a minimum of 457.2mm(18") from the center of the drain.

.5 Carry the modified bituminous granulated cap sheet field membrane tight to the drain opening. Apply elastomeric sealant around the drain pipe, sealing the edge of the cap sheet membranes.

.6 If the plumbing connection, on the underside of the deck has been made **REMOVE THE PLUG.** Do not leave plugged overnight.

.7 The new metal strainer and control flow mechanism are to be installed immediately following the installation of the flashing membranes. Therefore, if the roof has 10 drain and only two drains have been flashed (that particular day), those two drains are to have the metal strainer, control flow mechanism installed at the end of that work day.

3.12.7 Perimeter Flashings (Masonry Walls):

1. Flashing membranes at inside walls are to be terminated 304.8mm(12") above the top of the cant strip. If weep holes are present in masonry, flashing membranes are to be kept one brick course below the weep holes. At locations where through wall flashings existing, the membrane flashings are to be terminated below the through wall flashings.

2. Install 6.35mm(1/4") asphalt protection board over exposed substrate from the top of the deck to the top of the detail.

3. After the application of the modified bituminous base sheet laminated to asphalt protection board and cant strips, apply base sheet membrane flashing primer extending to the top of the asphalt protection board and the field of the roof a minimum of 101.6mm(4") beyond the toe of the cant strip.
4. Unroll the self-adhering modified bituminous base sheet membrane flashings and allow them to relax, as per manufacturer's written instructions. Side laps are to be 76.2mm(3") and end laps are to be 152.4mm(6").
5. Once base sheet membrane flashings have been applied, use a roller to apply even pressure to the membrane, ensuring the membrane is smooth, free from wrinkles, blisters, fishmouths and fully bonded in place.
6. Unroll the granulated modified bituminous cap sheet membrane flashings and allow them to relax, as per manufacturer's written instructions. Ensure modified bituminous base sheet membranes are clean and dry.
7. After the application of the cap sheet field membranes, apply 1-ply modified bituminous cap sheet membrane flashings torched in place extending up the wall and down onto the field of the roof, beyond the modified bituminous base sheet membrane flashings. Ensure the laps of the 2nd ply do not coincide with the laps of the 1st ply.
8. A termination bar is to be installed through the membrane flashings, approximately 12.7mm(1/2") below the top of the membrane. It is to be secured 152.4mm(6") on center.
9. Continuously seal the top edge of the membrane flashings with elastomeric sealant.
10. Fully cover the membrane flashings with pre-painted metal flashings. Apply a continuous bead of sealant between the masonry and new metal flashings.

3.11 GAS LINES

3.11.1 Wire brush all gas lines to remove surface rust.

3.11.2 Apply 2 coats of yellow rust inhibiting paint.

3.12 GAS LINE & CONDUIT SUPPORTS

3.12.1 Install new adjustable supports at each pipe elbow, threaded joint, and where the pipe changes in direction, as well as approximately every 6' as per the current TSSA guidelines for the distance of the gas line/conduit tray.

3.13 SCUPPERS/CONDENSATE PIPES/ROOF ACCESS/MECHANICAL UNIT/EXISTING DECK

3.13.1 Install new concrete patio pavers on 25.4mm(1") extruded polystyrene insulation. The extruded polystyrene insulation is to be cut 50.8mm(2") smaller (all the way around) than the concrete patio pavers. Therefore, if the concrete paver is 609.6mm x 609.6mm(24"x24") the extruded polystyrene insulation should be 508mm x 508mm(20"x20").

3.13.2 Install four concrete patio pavers on 25.4mm(1") extruded polystyrene insulation, in a square pattern at roof access points.

3.14 FINISH

3.14.1 Perform a daily clean up to collect all wrappings, empty containers, and any other debris from the project site.

3.14.2 Upon completion, all debris is to be disposed of in a legally acceptable manner.

3.14.3 Prior to the final inspection, the Contractor is to perform a pre-inspection to review all work and to verify that all flashings have been completed as well as the application of all caulking.

END OF SECTION 07 51 13

07 62 00 - Sheet Metal Flashing & Trim

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of the Contract and Divisions 0 and 1 apply to this section and to the requirements of the Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect the work including all amendments up to the project date.

1.2 CO-ORDINATION

1.2.1 Co-ordinate the work of this Section with the work of:

.1 The General Requirements

.2 The Instruction to Bidders

.3 The Scope of Work

.4 Section 06 10 00 Rough Carpentry

.5 Section 07 51 13 Built-Up Asphalt Roofing

.6 Section 07 92 00 Joint Sealants

1.3 STANDARDS

1.3.1 THE ALUMINUM ASSOCIATION INC. (AAI)

.1 AAI-Aluminum Sheet Metal Work in Building Construction-[2002].

.2 AAI DAF45-[03], Designation System for Aluminum Finishes.

1.3.2 AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL (ASTM)

.1 ASTM A167-[99(2004)], Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A240/A240M-[07e1], Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.3 ASTM A606-[04], Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.

.4 ASTM A653/A653M-[07], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

.5 ASTM A792/A792M-[06a], Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by Hot-Dip Process.

.6 ASTM B32-[04], Standard Specification for Solder Metal.

.7 ASTM B370-[03], Standard Specification for Copper Sheet and Strip for Building Construction.

.8 ASTM D523-[89(1999)], Standard Test Method for Specular Gloss.

.9 ASTM D822-[01(2006)], Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

1.3.3 CANADIAN ROOFING CONTRACTORS ASSOCIATION (CRCA)

.1 Roofing Specifications Manual, latest edition.

1.3.4 CANADIAN GENERAL STANDARDS BOARD (CGSB)

.1 CAN/CGSB-37-GP-9M, Asphalt Primer.

.2 CAN/CGSB-51.32-[M77], Sheathing, Membrane, Breather Type.

.3 CAN/CGSB-93.1-[M85], Sheet Aluminum Alloy, Prefinished, Residential.

.4 CAN/CGSB 93.3-M, Sheet, Steel, Galvanized Pre-finished Residential.

1.3.5 CANADIAN STANDARDS ASSOCIATION (CSA INTERNATIONAL)

.1 CSA A123.3-[05], Asphalt Saturated Organic Roofing Felt.

.2 AAMA/WDMA/CSA 101/I.S.2/A440-[2008], Standard/Specification for Windows, Doors, and Unit Skylights.

.3 CSA A123.22, Self-Adhering Polymer Modified Eave Protection

.4 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.

1.3.6 GREEN SEAL ENVIRONMENTAL STANDARDS

.1 Standard GS-03-[93], Anti-Corrosive Paints.

.2 Standard GS-11-[97], Architectural Paints.

.3 Standard GS-36-[00], Commercial Adhesives.

1.3.7 HEALTH CANADA/WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.4 APPROVAL

1.4.1 Do not install any metal work until the membrane flashings have been inspected and accepted by the Owner's Representative. The colour is to be determined by the Owner.

1.4.2 In all cases and prior to the fabrication of the finished product, supply and install a sample for approval by the Owner's representative.

1.5 SCHEDULE

1.5.1 Schedule the work so that the membrane flashings are not left exposed for more than 30 days.

1.6 GUARANTEE

1.6.1 Guarantee the metal flashing in conjunction with the membrane roofing for ONE (1) year. Submit on the same form as for the membrane roofing guarantee.

1.7 QUALITY CONTROL

1.7.1 Quality control for work of this Section is to be performed by the Consultant under the work of and as specified in Section 01 10 10 General Requirements.

1.7.2 Work of this Section is to be carried out by a specialist having a minimum of five years of related experience.

1.7.3 Work is to be performed in accordance with the practices and details of SMACNA Architectural Manual – 6th Edition (Sheet Metal and Air Conditioning Contractors National Association Inc.), unless otherwise required in the Contract Documents.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 Compatibility between roofing materials is an essential requirement of the Contract.

2.2 METAL COUNTERFLASHINGS

2.2.1 PREFINISHED STEEL METAL:

.1 Pre-painted galvanized steel, 24 gauge core nominal thickness, Series 8000 with a baked enamel finish.

.2 The finish is to be Dofasco Perspectra Series, Valspar WeatherX factory baked finish, or an approved alternate.

.3 The colour is to be approved by the Owner from CSSBI Bulletin B17-02.

2.2.2 GALVANIZED STEEL:

.1 Galvanized sheet steel, Z275 zinc coating. Thickness as specified or shown on the drawings.

2.2.3 HOOK STRIP/DRIP EDGE:

.1 Fabricated from pre-finished steel, 22 guage core nominal thickness, Z275 zinc coating. Starter strips are to be continuous.

2.2.4 COPPER:

.1 Copper to be 0.8mm (16 oz.) cold rolled.

2.2.5 SOLDER & FLUX:

.1 Solder to be lead-free.

.2 Flux is a commercial preparation suitable for materials to be soldered.

2.2.6 ISOLATION COATING:

.1 Asphalt based back paint for application to sheet metal in contact with masonry.

2.2.7 TOUCH-UP PAINT:

.1 As recommended by the prefinished sheet metal manufacturer.

2.2.8 FASTENERS:

.1 Nails: Hot dipped galvanized steel flat head roofing nails of length and thickness to suit the application.

.2 Where exposed, use Hex Head screws with 13mm (1/2") dome and neoprene washers as supplied by Weather Guard, or equal.

.3 Fasteners for masonry and concrete: Tapcon fasteners with “Climaseal” corrosion resistant finish, or an approved equivalent, of sufficient length to provide a minimum 38mm (1.5”) penetration into the substrate.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Apply in accordance with the drawings, specifications and the requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association’s Roofing Manual.

3.1.2 Regard the manufacturer's printed recommendations and specifications as a minimum requirement for materials, methods and quality of work not otherwise specified herein.

3.1.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Owner's approval.

3.1.4 Maintain all the equipment in good working order to ensure control of roofing operations and protection of the work. Equipment and laying techniques are to meet the approval of the Consultant.

3.2 FABRICATION

3.2.1 Shop fabricate the flashings and trims in accordance with the applicable requirements of SMACNA Architectural Manual and in accordance with the Contract Documents. Form sheet metal on a bending brake. Shaping, trimming and seaming on a bench.

3.2.2 Form section square, true, and accurate to size, free from distortion, oil canning and other defects detrimental to the appearance and performance, and to the dimensions as indicated/required.

3.2.3 Fabricate the cap flashings, starter strips, and base counter flashings less than 305mm (12") in height in 2438mm (96") maximum lengths. Form the counter flashings between 305mm and 610mm (12" and 24") in height in 1219mm (48") maximum lengths.

3.2.4 Provide a counter flashing and an intermediate vertical flashing where the cap flashing is greater than 610 m (24") above the top of the roofing membrane. Form the vertical flashings in 1219mm (4") maximum lengths.

3.2.5 Provide an "S-Lock" joint at all end joints and at all horizontal joints between the cap flashing and the vertical flashing and between the vertical flashing and the base counter flashing.

3.2.6 Hem all exposed edges at least 13mm (1/2") for appearance and stiffness.

3.2.7 Provide a horizontal stiffening "V" on all face metal exceeding 229mm (9") in girth. Centre the V-break in mid-span of the panel. Cross break the metal face flashing on all parapet flashings exceeding 457mm (18") in girth.

3.2.8 Mitre and form the standing seams at all corners. Make allowances for movement at the joints.

3.2.9 Apply an isolation coating to the metal surfaces to be embedded in concrete or mortar joints.

3.3 INSTALLATION

3.3.1 Install the cap flashings, counter flashings, starter strips, and other miscellaneous sheet metal work in accordance with the Contract Documents.

3.3.2 Provide a continuous starter (hook) strip where detailed or required to present a true, non-waving, leading edge. Fasten the starter strip to the substrate at a minimum of 305mm (12") on centre. Starter strip is to be turned up onto the top of the perimeter detail a minimum of 76.2mm (3").

3.3.3 Ensure the parapet cap flashings are installed with a minimum positive slope of 2% toward the roof area. The slope is to be provided by the installation of continuous wood shims, plywood or wood blockings as detailed in accordance with Section 00 61 00 – Rough Carpentry.

3.3.4 Caulk all horizontal joints less than 1:100 slope (1%).

3.3.5 Join all sheet metal with evenly spaced flat lock seams 25mm (1") wide to allow for thermal movement.

3.3.6 End joints where adjacent lengths of metal flashing meet to be made using an "S-lock" joint. This is to be executed by inserting the end of one length in a 25mm (1") deep "S" lock formed in the end of the adjacent length. The concealed portion of the "S" lock is to extend 25mm (1") outwards and is to be nailed to the substrate. Face nailing of joints will not be permitted.

3.3.7 Insert the top edge of the sheet metal flashing under the cap flashings to form weather tight junctions.

3.3.8 Turn the top edge of the flashings into recessed reglets or mortar joints a minimum of 25mm (1"). Fasten the sheet metal flashing into the reglet joint at a maximum spacing of 457mm (18") or more often if required.

3.3.9 Ensure all fasteners are located a minimum of 305mm (12") above the surface of the roofing membrane, unless otherwise detailed.

3.3.10 Where detailed or required, saw cut existing/new reglets into the masonry surfaces to receive metal flashings. The reglet is to be a minimum 19mm wide x 13 mm deep (3/4" x 1/2").

3.3.11 Lock seam corners. Do not use pop rivets.

3.3.12 Install the sheet metal with concealed fasteners. Exposed fastening is permitted only upon the Consultant's approval.

3.3.13 Use lead plugs or an approved expansion shield and screw in place with rubber washers where metal is installed over concrete or masonry.

3.3.14 Do not secure metal work to cant strips.

3.3.15 Install sheet metal in a uniform manner, level, true to line, free of warp or distortions.

3.3.16 Properly cover the area to be protected with the metal flashings lightly touching the gravel pour and firmly secured to prevent movement or stripping by the wind.

3.3.17 No irregular or badly fitted metal work will be accepted. Provide metal strips, cleats, asrequired.

3.3.18 Install self-adhering modified bituminous membrane over all exposed masonry, concrete or wood to be flashed with metal. Secure in place.

3.3.19 At walls or junctions, re-cut the reglet joint, wedge the flashings with lead at 305mm (12") o.c.

3.4 SEALANTS

3.4.1 Apply sealant at the junction between the sheet metal counterflashing and the reglet joint in accordance with Section 07 92 00 – Joint Sealants.

3.5 CLEANING

3.5.1 Remove completely from surfaces and crevices the flux residue, other deposits, stains and protections and wash the visible metal left unpainted.

END OF SECTION 07 62 00

07 92 00 - Joint Sealants

PART 1 GENERAL

1.1 GENERAL CONDITIONS

1.1.1 All conditions of the Contract and Divisions 0 and 1 apply to this section and to the requirements of the Canadian Roofing Contractors Association Roofing Manual Specifications as referred to herein.

1.1.2 Abide by all Federal, Provincial, Municipal and Local Laws or Codes, rules and regulations that in any way affect the work including all amendments up to the project date.

1.2 CO-ORDINATION

1.2.1 Co-ordinate work of this Section with work of:

.1 The General Requirements

.2 The Instructions to Bidders

.3 The Scope of Work

.4 Section 06 10 00 Rough Carpentry.

.5 Section 07 51 13 Built-Up Asphalt Roofing.

.6 Section 07 62 00 Sheet Metal Flashing and Trim.

1.3 STANDARDS

1.3.1 AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL, (ASTM)

.1 ASTM C919-[02], Standard Practice for Use of Sealants in Acoustical Applications.

1.3.2 CANADIAN GENERAL STANDARDS BOARD (CGSB)

.1 CGSB 19-GP-5M-[1984], Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).

.2 CAN/CGSB-19.13-[M87], Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 CGSB 19-GP-14M-[1984], Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).

.4 CAN/CGSB-19.17-[M90], One-Component Acrylic Emulsion Base Sealing Compound.

.5 CAN/CGSB-19.24-[M90], Multi-component, Chemical Curing Sealing Compound.

1.3.3 DEPARTMENT OF JUSTICE CANADA (JUS)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

1.3.4 GENERAL SERVICES ADMINISTRATION (GSA) - FEDERAL SPECIFICATIONS (FS)

.1 FS-SS-S-200-[E(2)1993], Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

1.3.5 HEALTH CANADA/WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.3.6 TRANSPORT CANADA (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 CLIMATE CONDITIONS

1.4.1 ENVIRONMENTAL LIMITATIONS

.1 Do not proceed with the installation of joint sealants under the following conditions:

(a) When ambient and substrate temperature conditions are outside the limits permitted by the joint sealant manufacturer.

(b) When joint substrates are wet.

.2 Joint-Width Conditions:

(a) Do not proceed with the installation of joint sealants where the joint widths are less than those allowed by the joint sealant manufacturer for the applications indicated.

.3 Joint-Substrate Conditions:

(a) Do not proceed with the installation of joint sealants until contaminants capable of interfering with adhesion are removed from the joint substrates.

1.5 ENVIRONMENTAL REQUIREMENTS

1.5.1 Comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.

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

1.6 GUARANTEE

1.6.1 Provide all applicable material and labour warranties offered by the material manufacturer for a minimum of two (2) years.

1.6.2 Defective joint sealant installation covered under warranty is to include but not be limited to: joint leakage, hardening, craze cracking, crumbling, melting, bubbling, shrinkage, runs, sags, change of colour, loss of adhesion, loss of cohesion and staining of adjoining or adjacent material surfaces.

1.6.3 Carry out all replacement and repair work during the warranty period as directed by the Consultant and at no additional cost to the Owner.

1.7 QUALITY CONTROL

1.7.1 Quality control for work of this Section is to be performed by the Consultant under the Work of and as specified in Section 01 10 10 General Requirements.

PART 2 PRODUCTS

2.1 COMPATIBILITY

2.1.1 All materials in a sealant system are to be compatible with each other and with the substrate.

2.1.2 Colour or colours of the sealants are to be selected are to match existing substrate and are to be approved by the Consultant.

2.2 SEALANT MATERIALS

2.2.1 Exterior Metal To Wood, Masonry, Stone Or Porous Surfaces:

.1 One-part elastomeric, non-sag urethane based sealant. Accepted products:

(a) “Dymonic” as manufactured by Tremco

(b) “Sikaflex 1-A” as manufactured by Sika Canada

(c) "Vulkem 931" by Mameco as manufactured by Tremco

(d) "SK-1 Structural Sealant" as supplied by Chemlink.

2.2.2 Exterior And Interior Metal To Metal And Metal To Glass Joints:

.1 One-part Silicone based sealant. Accepted Products:

(a) "Spectrum 2" as manufactured by Tremco

(b) "Contractors SCS 1000 Sealant" as manufactured by GE Silicones Canada

(c) "DC 999-A Silicone Building & Glazing Sealant" as manufactured by Dow Corning Canada.

2.3 JOINT BACKING

2.3.1 Extruded polyethylene, urethane, neoprene or vinyl foam recommended by sealant manufacturer.

2.3.2 Circular shape with a diameter 25% greater than the joint width before installation.

2.4 PRIMER

2.4.1 As recommended by the sealant manufacturer to assure adhesion of the compound and to prevent staining of the substrate.

2.5 CLEANING AGENTS

2.5.1 Joint cleaning compounds as recommended by the sealant manufacturer.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Apply in accordance with the drawings, specifications and requirements of the jurisdictional authorities and the Canadian Roofing Contractors Association's Roofing Manual.

3.1.2 Regard the manufacturer's printed recommendations and specifications as a minimum requirement for materials, methods and quality of work not otherwise specified herein.

3.1.3 Make adjustments to the specified procedures caused by weather and site conditions only with the Consultants approval.

3.1.4 Conform to the details.

3.1.5 Examine joints before caulking to ensure that the configuration, surface and widths are suitable for the sealant and service, and that the execution of caulking and performance of sealants will not be adversely affected.

3.1.6 Verify, before commencing the work, that the joint size, depth and substrate will not adversely affect the execution, performance or quality of the completed work; and that joints can be sealed in an acceptable condition by means of the preparation specified in this section. Verify the site conditions together with the sealant manufacturer's representative.

3.1.7 Defective work resulting from the application to unsatisfactory joint conditions will be rejected.

3.2 PREPARATION

3.2.1 Remove the existing sealant and backing material and all deleterious material from the joint. Use the method of surface preparation suitable for substrate that does not damage adjacent surfaces, as recommended by the sealant manufacturer.

3.2.2 Brush, scrub, scrape or grind the inner face surfaces to remove loose mortar, dust, oil, grease, oxidation, mill scale, and other materials which will affect the adhesion and integrity of the sealant.

3.2.3 Wipe down metal surfaces with clean cellulose sponges or rags soaked in solvent compatible with the sealant, and dry with clean cloths.

3.2.4 Ensure that surfaces have not been coated with release agents, coating or other treatments, or that, if present, they are entirely removed.

3.3 JOINT DEPTH

3.3.1 Provide the following Depth To Width Ratios:

.1 Masonry:

(a) 6mm (1/4") deep, up to 13mm (1/2") wide

(b) 10mm (3/8") deep, up to 19mm (3/4") wide

(c) 13mm (1/2") deep, up to 25mm (1") wide

(d) 19mm (3/4") deep, up to 51mm (2") wide.

.2 Non Porous Materials:

(a) Joint depth and width to be not be less than 6mm (1/4").

.3 Maintain a minimum of a 2:1 width to depth ratio or what is listed above in 3.3.1.1 and 3.3.1.2, whichever is more stringent.

3.4 PRIMING

3.4.1 Prime the inner face surfaces of joints as necessary for the substrate, in accordance with the sealant manufacturer's specification, to provide full adhesion and to prevent staining of the face surface at the joint.

3.4.2 Prime surfaces prior to installing the joint backing rod.

3.5 JOINT FILLING AND BACKING

3.5.1 Install joint backing where required to maintain the joint depth.

3.5.2 Pack joints tightly with sealant in accordance with the manufacturer's specifications using pressure guns. Fill joints completely to the required depths with sealant compound. Use sufficient pressure to fill all voids and joints. Sealant is to bond to both sides of the joint.

3.5.3 Finish joints smooth, free of wrinkles, ridges, air pockets and imbedded foreign materials. Tool joints to a slight concave surface using a soap/water mixture.

3.5.4 Cure sealants in accordance with the sealant manufacturer's instructions.

3.5.5 Do not cover up sealants until proper curing has taken place.

3.5.6 Do not allow sealants to cover or spot surfaces outside of joints. Use masking tape on all surfaces adjacent to joints which may become coated with sealant during the caulking process.

3.6 CLEAN UP

3.6.1 Remove from surfaces of other work sealant smears, droppings and masking tape immediately after caulking. Use recommended cleaners as required.

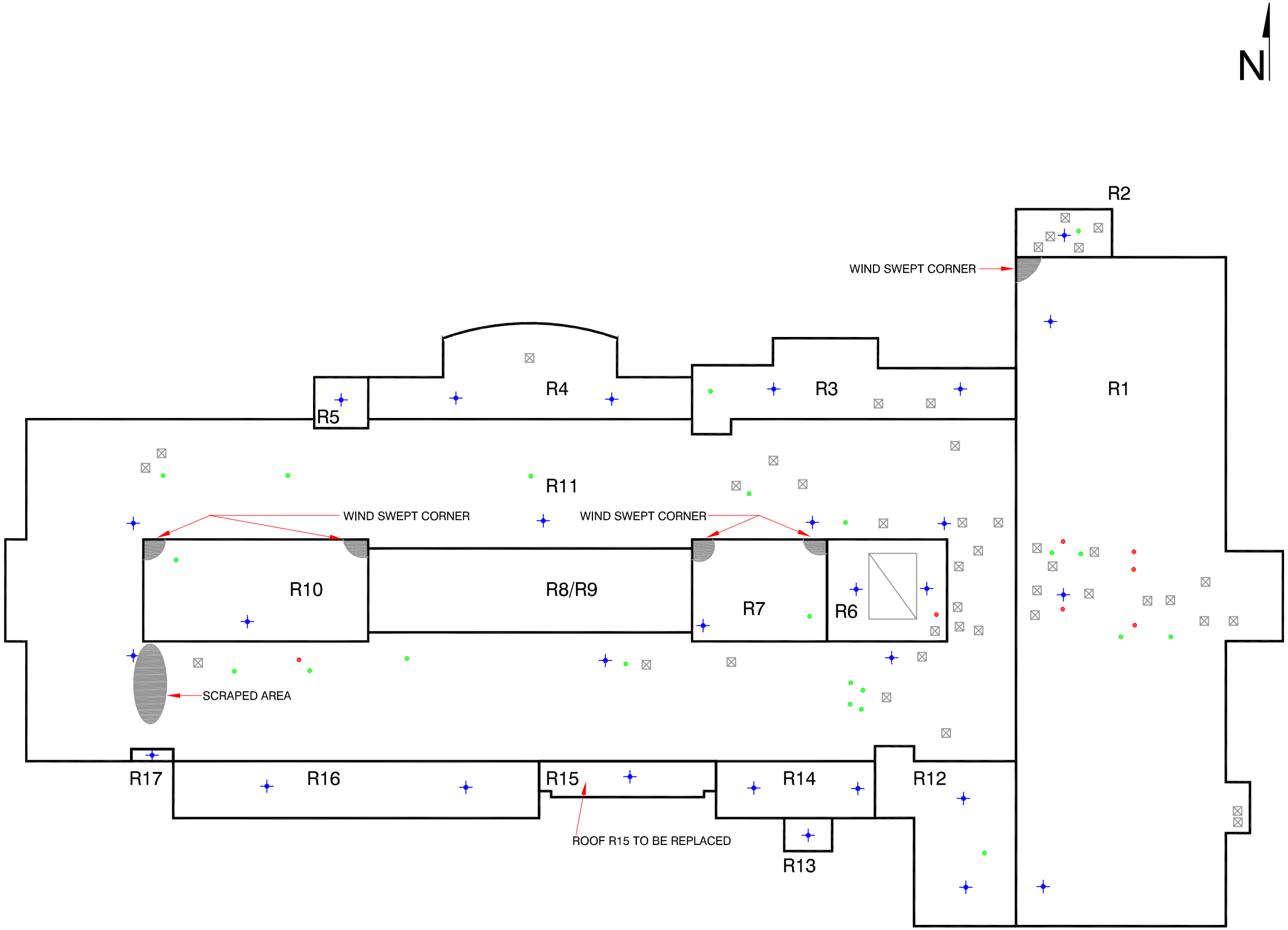
3.6.2 Clean surfaces soiled by work of this Section. Do not use chemicals, scrapers, or other tools in cleaning which will damage surfaces. Make good other work.

END OF SECTION 07 92 00

SCHEDULE A – LIST OF PLANS & DETAILS

Dwg #	Drawing Title	Issued/Revised	Date
1	Roof Plan	For BID	March 2018
2	Perimeter Detail	For BID	March 2018
3	Masonry Wall Detail	For BID	March 2018
4	Drain Detail	For BID	March 2018

END OF LIST OF PLANS AND DETAILS



LEGEND

CONTROL JOINT — EXPANSION JOINT

ROOF TOP UNITS

- HVAC ON CURB
- FAN ON CURB
- SKYLIGHT
- HVAC ON SLEEPERS
- ROOF HATCH
- UNIT ON SLEEPERS

PROJECTIONS

- FURNACE STACK
- PITCH PAN
- SOIL STACK
- VENT STACK

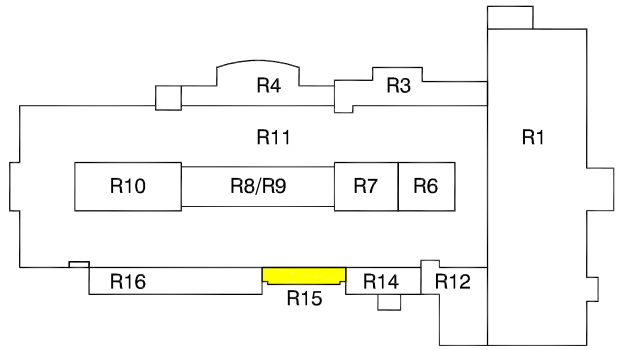
DRAINAGE

- DRAIN (EXISTING)
- DRAIN (NEW)
- SCUPPER

MISCELLANEOUS

- GAS LINE
- SATELLITE DISH
- PAVER WALKWAY
- ROOF ANCHOR
- WALKWAY
- CORE TEST

ROOF PLAN



PINNACLE
ROOF & BUILDING ENVELOPE CONSULTANTS

73 INDUSTRIAL PARKWAY NORTH - UNIT #3
AURORA - ONTARIO - L4G 4C4
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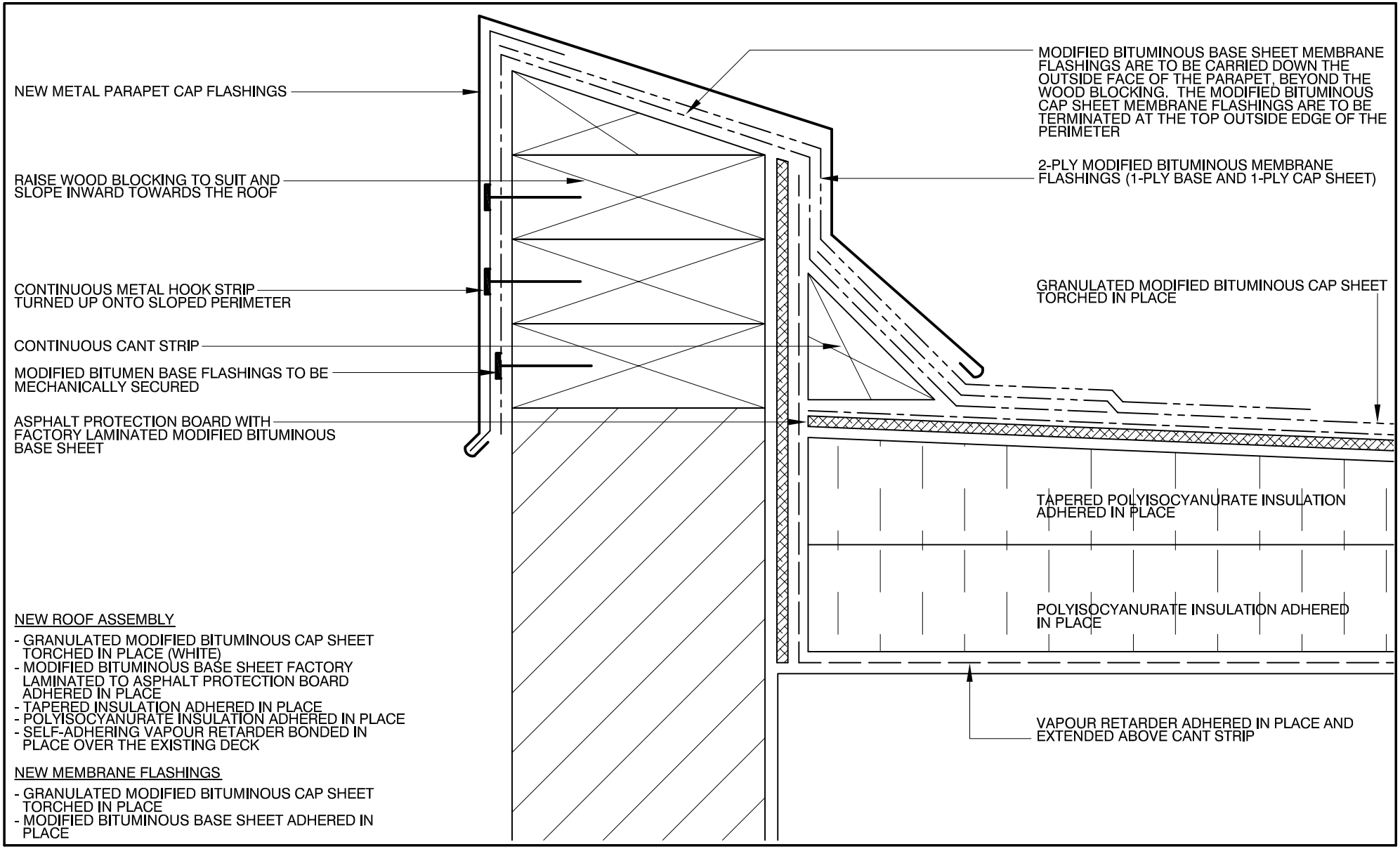
CLIENT
YORK REGION DISTRICT SCHOOL BOARD

PROJECT ADDRESS/NAME
1000 NEW WESTMINSTER DR., THORNHILL
WESTMOUNT COLLEGIATE

DRAWING TITLE
ROOF PLAN

FILE NO.	SCALE	DRAWING NUMBER
28-121	N.T.S.	1

DATE
MARCH 2018



NEW ROOF ASSEMBLY

- GRANULATED MODIFIED BITUMINOUS CAP SHEET TORCHED IN PLACE (WHITE)
- MODIFIED BITUMINOUS BASE SHEET FACTORY LAMINATED TO ASPHALT PROTECTION BOARD ADHERED IN PLACE
- TAPERED INSULATION ADHERED IN PLACE
- POLYISOCYANURATE INSULATION ADHERED IN PLACE
- SELF-ADHERING VAPOUR RETARDER BONDED IN PLACE OVER THE EXISTING DECK

NEW MEMBRANE FLASHINGS

- GRANULATED MODIFIED BITUMINOUS CAP SHEET TORCHED IN PLACE
- MODIFIED BITUMINOUS BASE SHEET ADHERED IN PLACE

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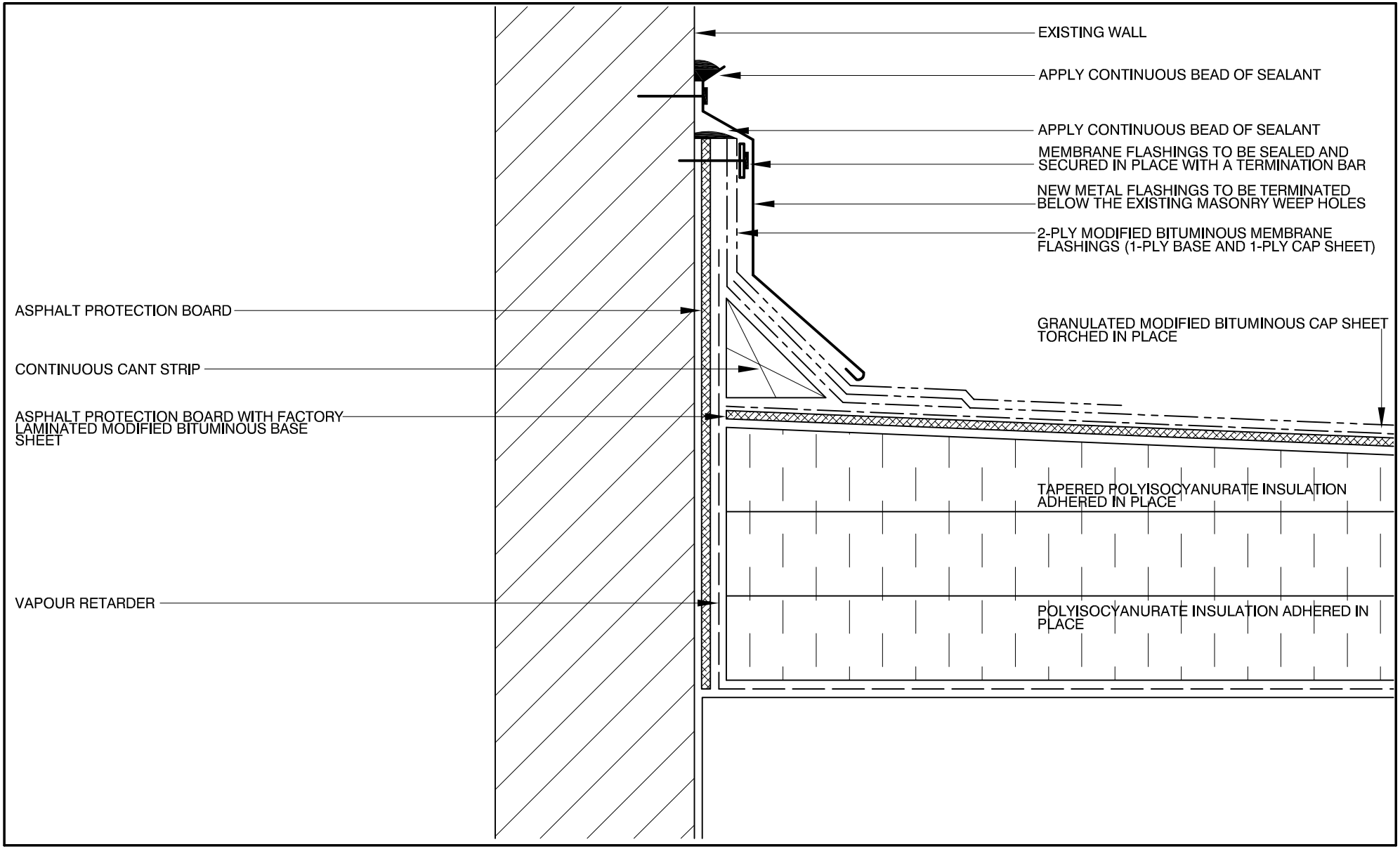
PROJECT ADDRESS: 1000 NEW WESTMINSTER DR., THORNHILL WESTMOUNT COLLEGIATE	DATE: MARCH 2018		
DRAWING TITLE: PERIMETER DETAIL			



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28-121

SCALE
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DRAWING NUMBER
3

PROJECT ADDRESS
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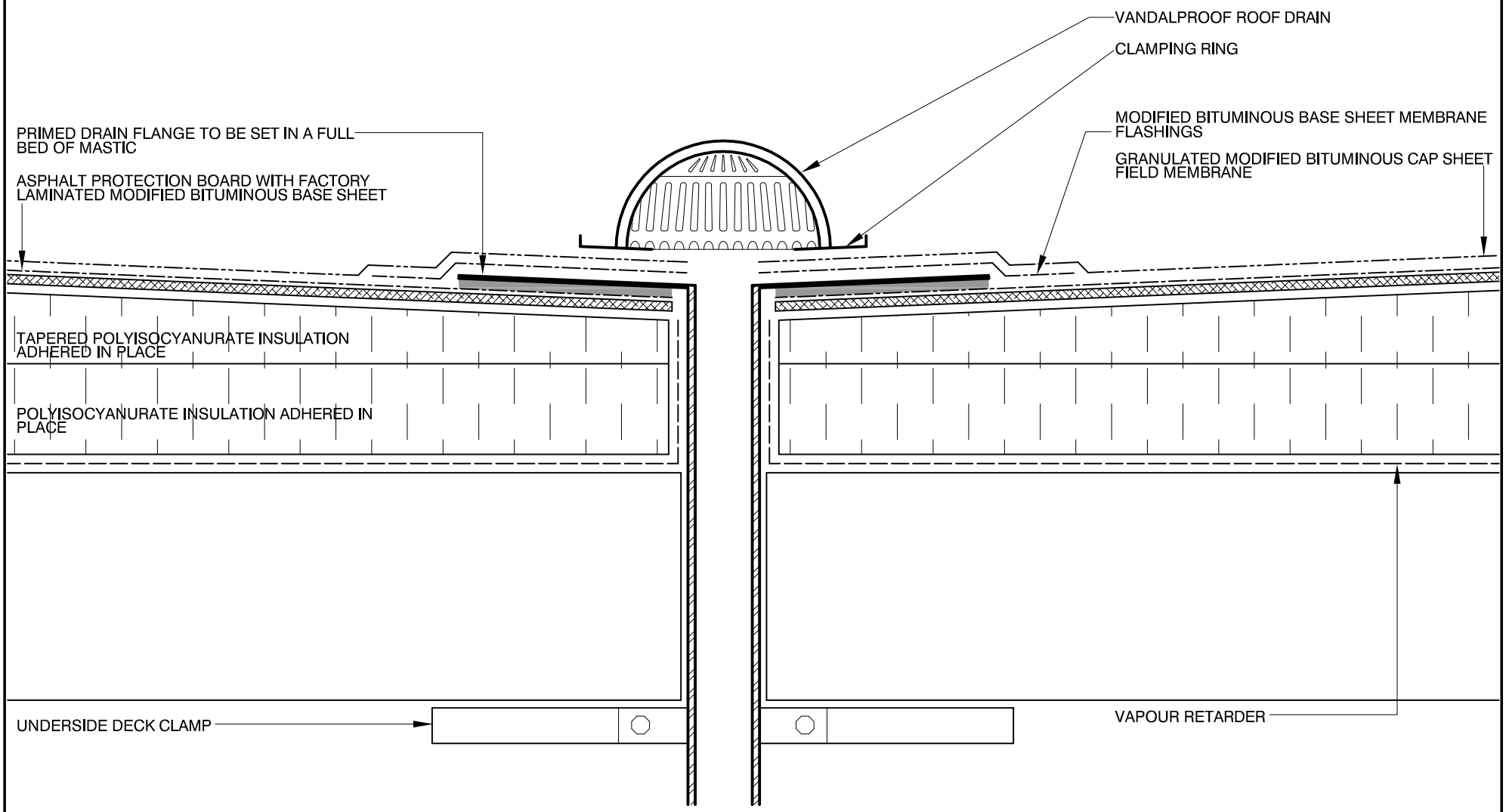
WESTMOUNT COLLEGIATE

DATE
MARCH 2018

DRAWING TITLE
WALL DETAIL



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FILE NO.
28-121

SCALE
N.T.S.

DRAWING NUMBER
4

PROJECT ADDRESS
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WESTMOUNT COLLEGIATE

DATE
MARCH 2018

DRAWING TITLE
DRAIN DETAIL