



Bid Documents for:

HOPA-2025-11

204 Hillyard Street - Building 218 Upgrades

(ATK Project No. 25-38)

October 2025

Consultant

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Project Manager

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1.1 BID CALL

- .1 Offers signed under seal, executed, and dated will be received from General Contract Bidders by the Hamilton - Oshawa Port Authority, before **Tuesday, November 18, 2025 @ 2:00:00 pm** local time.
- .2 Bids submitted after the above time shall not be considered and the bid will be rejected.
- .3 The official bid closing time will be determined by the system time clock of the Owner's servers, which is synchronized with the National Research Council of Canada clock through Network Time Protocol (NTP).
- .4 The Owner reserves the right to extend the bid closing time or cancel the bid call by addendum.
- .5 Bids will be opened privately by the owner following the tender closing.
- .6 Bid results will not be disclosed to any entity. Following an award, the Owner shall publish the name of the awarded contractor to Bids & Tenders.

1.2 BID DOCUMENT AVAILABILITY

- .1 Bid Documents are made available in electronic form only for the purpose of obtaining bids for this project.
- .2 Bid Documents are available through HOPA's Bids & Tender portal. To obtain documents online please visit [<https://hopa.bidsandtenders.ca>]. Documents are not provided in any other manner.
- .3 It is the responsibility of the Bidder to create a Bidding System Vendor Account on www.bidsandtenders.com and to register as a Plan Taker for the bid opportunity. The Bidder shall be solely responsible for ensuring that they have the latest addenda for the bid opportunity.

1.3 EXAMINATION OF BID DOCUMENTS

- .1 Examine the Bid Documents and promptly notify the Project Manager of any perceived errors, omissions, conflicts or discrepancies in the Bid Documents.

1.4 SITE EXAMINATION

- .1 Bidders are solely responsible for visiting the site and familiarizing themselves with conditions affecting the Work before submitting a bid.
- .2 By inference of the "Concealed or Unknown Conditions" GC in the General Conditions of the Contract, Bidders shall include in their bid price for non-concealed and known conditions that are either visible or can be reasonably inferred from a site examination at the Place of the Work before bid submission.

1.5 PRE-BID MEETING AND SITE VISIT

- .1 A pre-bid meeting at the Place of the Work has been scheduled for 10:00 a.m. local time on Wednesday, November 12, 2025. Attendees shall meet at 204 Hillyard Street; Contractors can access the site via Hillyard Street. Enter through the chain-link gate from the road.

- .2 All prime contract and major subcontract Bidders are invited to attend but attendance is not mandatory.
- .3 Questions and clarifications arising from the pre-bid meeting and site visit will be addressed as required in an addendum to the Bid Documents. No meeting minutes will be issued. Bidders shall not rely upon any information given verbally or otherwise at the pre-bid meeting and site visit that is not confirmed by addendum.

1.6 BID FORM SUPPLEMENTS

- .1 Submit the following Bid Form Supplements together with the Bid Form:
 1. Section 00 43 36 – Bid Form Supplement - List of Subcontractors.
 2. Section 00 43 37 – Bid Form Supplement - Hourly Rates.
 3. Bid security as specified.
 4. The Owner may, after the bid closing time and before the contract award, require any Bidder to submit additional supplementary information about any aspect of the Bidder's bid to verify compliance with the Bid Documents.

1.7 BID SECURITY

- .1 Submit with the bid a CCDC 220 form of bid bond in an amount of not less than 10% of the bid price.
- .2 Bid Bonds shall be in the form of an e-Bond which bears electronic signatures and seals. Scanned paper copies of bonds shall not be accepted.
- .3 The bid bond shall name HOPA Ports as the obligee and shall be signed, sealed, and dated by both Bidder and surety.
- .4 Upon request, bid bonds of unsuccessful Bidders will be returned after the successful Bidder has entered into a contract with the Owner or earlier at the Owner's discretion.
- .5 In lieu of a bid bond, Bidders may submit a certified cheque or bank draft in favour of HOPA Ports and in an amount of not less than 10% of the bid price.
- .6 Certified cheques and bank drafts will be returned to Bidders after the successful Bidder has entered into a contract with the Owner, or earlier at the Owner's discretion.
- .7 Certified Cheques shall be submitted in a sealed, opaque envelope addressed to the Owner at the Owner's offices and must be received prior to Bid Closing.

1.8 BIDDER DEFAULT AND FORFEITURE OF BID SECURITY

- .1 If a Bidder whose bid is accepted by the Owner in writing, without conditions, and within the acceptance period specified in the Bid Documents, refuses or fails within 15 calendar days after the date of issuance of the written acceptance of the bid, to sign a formal agreement with the Owner for the performance of the Work the Bidder will be liable to the Owner for the difference in money between the Bidder's bid price and the amount for which the Owner legally

contracts with another party to perform the Work, if the latter amount is in excess of the former, up to the maximum amount of the bid security provided.

1.9 CONTRACT DOCUMENTS

- .1 The following Contract Documents shall form the basis of the Contract and should be consulted by the Bidders:
 - a) CCDC – 2 2020 Stipulated Price Contract.
 - b) Amendments to Agreement & Definitions.
 - c) Supplementary Conditions.
 - d) Form of Agreement.
 - e) Bid Form and Bid Form Supplements.
 - f) All Addenda to the Specifications, Schedules and Drawings.
 - g) Instructions to Bidders, and all other parts of Division 00.
 - h) General Requirements, and all other parts of Division 01.
 - i) Contract Drawings and Sketches.

1.10 CONTRACT SECURITY

- .1 The successful bidder shall, after award of the Contract, provide the Owner with a performance bond in the amount of 50% of the base-bid price, excluding any contingency, supplementary pricing, and value added tax covering performance of the Contract.
- .2 No Labour and Material Payment Bond is required for this project.

1.11 TAXES

- .1 Include in bid price all taxes and customs duties in effect at the time of the bid closing, except for Value Added Taxes as defined in the CCDC 2 (2020) (English version) standard form of contract.

1.12 CONTRACT TIME

- .1 The Bidder, in submitting a bid, agrees to attain Substantial Performance of the Work by the date specified in the Bid Form, which will become the Contract Time under the Contract.

1.13 SUBSTITUTIONS

- .1 Where the Bid Documents specify particular products by proprietary name, the Owner will consider Bidder requests for approval of substitutions during the bid period, provided such requests are received, in writing, at least 5 working days before the bid closing time. If the Owner approves a substitution, the substitute Product will be named in an addendum. Otherwise, Bidders shall consider the request for approval of the substitution to be rejected.

1.14 ALTERNATIVES

- .1 Do not submit unsolicited alternatives.
- .2 Alternative prices will not be considered in determining the lowest compliant Bidder. Bids will be evaluated on the base bid only. The successful Bidder will be notified of the Owner's acceptance or non-acceptance of each alternative at the time of contract award.

1.15 LIST OF SUBCONTRACTORS

- .1 Complete and submit Section 00 43 36 – Bid Form Supplement – List of Subcontractors, indicating those Subcontractors or Suppliers whose bids have been received by the Bidder, which names the Bidder would be prepared to accept for the performance of the work indicated.
- .2 The purpose of this requirement is to protect the interests of subcontract bidders and the integrity of the bidding process. Provided the List of Subcontractors has been properly completed and submitted, the information will not be used in evaluating the Bids to determine the lowest compliant bidder.

1.16 BID FORM SIGNING

- .1 Complete the Bid Form as follows:
 1. Incorporated Company: Provide company name and name and signature of the duly authorized signing representative(s). Insert under each signature the representative's capacity to act on behalf of the company.
 2. Joint Venture: Each entity within the joint venture shall execute the Bid Form as specified.
 3. Partnership: Provide name of partnership and name and signature of duly authorized representatives of the partnership.
 4. Sole Proprietorship: Provide name of sole proprietorship and name and signature of sole proprietor in the presence of a witness who shall also sign.

1.17 BID SUBMISSION

- .1 Complete Bid Form, in its entirety, on the form provided and submit together with the required Bid Form Supplements, completed in their entirety via email to:

[**BIDS@HOPAPORTS.CA**](mailto:BIDS@HOPAPORTS.CA)
- .2 Do not email bids to the Project Manager. Bids submitted other than to the email address specified above shall not be considered.
- .3 All Bidders shall have a Bidding System Vendor account and be registered as a Plan Taker through bids & tenders™ to be eligible for this Bid opportunity. All others will be ineligible to bid, and their bid submission will not be accepted. Verbal, telephoned, fax, e-mail, or text message bids will not be accepted nor acknowledged.

1.18 BID MODIFICATION AND WITHDRAWAL

- .1 A bid, including the Bid Form, Bid Form supplements, and Bid Security submitted in accordance with these bidding requirements may be modified or withdrawn, provided the modification or withdrawal request:
 1. is submitted and received by the Procurement Lead, before the bid closing time,

2. states the project title, name of the Bidder, the nature of the modification or withdrawal request,
 3. and is signed by a duly authorized person.
- .2 If a bid is withdrawn, a new bid may be submitted in accordance with the specified requirements, provided it is received before the bid closing time.
 - .3 When submitting a modification directing a change in a bid price, do not reveal the original amount nor the revised amount:
 1. On stipulated price bids, state only the amount to be added to or deducted from the original bid price.
 - .4 On unit price bids, state only the amount to be added to or deducted from each original unit price or lump sum in the Schedule of Prices. The Owner will adjust extended amounts and the total bid price as required by the modification.
 - .5 When submitting a second or more modifications related to a particular bid price, ensure that there is no ambiguity as to the intended bid price. The written modification shall clearly indicate whether:
 1. The bid price first submitted is being modified and any previous modifications are to be disregarded, or
 2. A revised bid price derived from a previous modification is being modified.
 3. State all addendum numbers received, if different from what was indicated on originally submitted Bid Form.
 - .6 The Owner will assume no responsibility or liability for modifications or withdrawals that are, for any reason, delayed, illegible, unclear as to intent, ambiguous, contrary to these instructions, or otherwise improperly received. The Owner may disregard improperly received modifications or withdrawals.

1.19 BIDDING IRREGULARITIES

- .1 Bids with Bid Forms or required Bid Form Supplements that are improperly prepared, signed or submitted contrary to these Instructions to Bidders, or that contain added conditions or other irregularities of any kind, may, at the Owner's discretion, be rejected as non-compliant.
- .2 The Owner may accept or waive a minor and inconsequential irregularity. The determination of what is, or is not, a minor and inconsequential irregularity, the determination of whether or not to accept or waive such an irregularity, and the final determination of whether the bid is compliant, will be at the Owner's sole discretion.
- .3 The following irregularities relate to what are considered mandatory bidding requirements. These will not be considered minor and inconsequential and shall cause the bid to be rejected as non-compliant:
 1. Bid or Bid Form Supplement is received after the specified bid closing time.

2. Required Bid Form or Bid Form Supplement is missing.
3. Bid Form or Bid Form Supplement is not in the form provided or required.
4. Bid bond is improperly completed or executed, if such improper completion or execution may render the bid bond unenforceable.
5. A bid price is illegible, ambiguous or unclear.
6. One or more conditions are added to or submitted with the bid, the effect of which is a material modification of the Bid Documents.
7. Failure to indicate in the Bid Form the addendum number(s) of all addenda received.
8. Failure to comply with any other bidding requirement expressly characterized as mandatory in elsewhere in the Bid Documents.

1.20 BID ACCEPTANCE PERIOD

- .1 Bids shall remain open to acceptance by the Owner and shall be irrevocable until another Bidder enters into a contract with the Owner for performance of the Work or until expiry of the bid acceptance period stated in the Bid Form, whichever occurs first.
- .2 After bid closing and before expiry of the bid acceptance period stated in the Bid Form, the Owner may request all Bidders to agree to an extension of the originally specified bid acceptance period. In such case the bid acceptance period will be extended subject to the Bidder, whose bid the Owner wishes to accept, having agreed in writing to the extension.

1.21 BID ACCEPTANCE

- .1 The lowest or any bid will not necessarily be accepted, and the Owner may reject any and all bids.
- .2 The Contract will be established if and when the successful Bidder receives from the Owner a written notification accepting the bid without any conditions. If the Owner's written notification accepting the bid contains, or is subject to, any conditions, the Contract will be established if and when the Bidder accepts all such conditions in writing or when the parties execute the agreement.
- .3 If the lowest compliant bid exceeds the Owner's budget, and the Owner is unwilling or unable to award a contract at the bid price, the Owner may at its sole discretion:
 1. negotiate, with the lowest compliant Bidder only, changes to the Bid Documents and a reduced bid price acceptable to the Owner, or
 2. invite the three lowest compliant Bidders (only) to re-bid on modified Bid Documents under a new bid call.

1.22 INTERPRETATION AND MODIFICATION OF BID DOCUMENTS

- .1 If an inquiry requires an interpretation or modification of the Bid Documents, the response to that inquiry will be issued in the form of a written Addendum only, to ensure that all Bidders base their bids on the same information.
 - .2 Replies to inquiries or interpretations or modifications of the Bid Documents made by e-mail, verbally, or in any manner other than a written Addendum, will not form part of the Bid Documents and will not be binding.
- 1.23 ADDENDA
- .1 Addenda may be issued to modify the Bid Documents in response to Bidder inquiries or as may be considered necessary.
 - .2 All addenda issued during the bid period will become part of the Bid Documents.
 - .3 If a bidder finds discrepancies in or omissions from the bid documents, or if a bidder is in doubt as to their meaning, questions must be submitted through the Bidding System portal by clicking on the “Submit Question” button on the bid details page for the applicable opportunity not less than three (3) working days prior to closing date and time. Questions received after the deadline, or any other method are not guaranteed a response.
 - .4 The submission of questions or other inquiries, and the failure of the Procurement Lead to answer by the expiration of the period as set out in these documents, shall not cause the time for the submission of Bids to be extended.
 - .5 All addenda shall be issued through the Bids & Tenders™ website, not less than twenty-four (24) hours prior to the closing date and time.
 - .6 Each Bidder shall ascertain before bid submission that it has received all addenda issued during the bid period and shall indicate in the Bid Form the addendum number(s) of all addenda received.

END OF SECTION

Name of Bidder: _____
 (business name)

(street address or postal box number)

(city/town, province, and postal code)

We, the undersigned, having examined the Bid Documents for the above-named project, including Addendum Number(s) _____ to _____, and having visited the Place of the Work, hereby offer to perform the Work in accordance with the Bid Documents, for the stipulated price of:

\$ _____ in Canadian dollars, excluding Value Added Taxes.
 (amount in figures)

We, the undersigned, declare that:

1. We are qualified to perform the Work in accordance with the Bid Documents and our bid price covers all of our obligations and things necessary for the performance of the Work.
2. We agree to attain [Substantial Performance] within _____ weeks after receiving notice of contract award.
3. We have arrived at this bid without any collusion with any competitor.
4. We have attended the site and have familiarized ourselves with the site conditions affecting the Bid.
5. All bid form supplements called for by the Bid Documents form an integral part of this bid.
6. This bid is open to acceptance by the Owner for a period of [30 calendar days] from the bid closing time.

Signed and submitted by:

 (business name)

SEAL

 (name and title of authorized signing representative)

 (name and title of authorized signing representative)

 (signature of authorized signing representative)

 (signature of authorized signing representative)

Dated this _____ day of _____, 20_____.

Note: Affix corporate seal as required by Bid Documents.

END OF SECTION

Name of Bidder: _____
 (Business name)

I\We, the above-named Bidder, have received bids from the Subcontractors or Suppliers named below for the items of work requested, and are prepared to accept these names for the performance of these items of work.

We confirm that all have been investigated to ensure their reliability and competence to carry out their work in accordance with the Contract Documents and we agree that no changes from this list may be made without the express written approval of the Owner.

Extra costs to the Contract will not be considered for the Subcontractor/Supplier substitution, regardless of the reason, except where a substitution is requested by the Owner.

Section of Work	Name of Subcontractor or Supplier
Demolition	
Earth Work	
Granular Supply	
Concrete Supply	
Concrete Installation	
Paving Stone Floor Supply	
Paving Stone Floor Installation	
Structural Steel	
Cladding/Sheet Metal	
Steel Stud & Gypsum	
Doors and Hardware	
Insulation/Intumescent	
HVAC	
Plumbing	
Painting	
Electrical	
Sprinkler	

END OF SECTION

Name of Bidder: _____
 (Business name)

I/We, the undersigned agree that the Owner may use the following hourly rates for additional work, and that all unit prices, unless specifically indicated, are total rates including salaries, benefits, overhead and profit mark-up. I/We agree that credits for deleted work shall be no less than 80% of the prices listed hereunder. I/We the undersigned agree that the Owner shall have the right to negotiate the cost for changes to the work instead of using the unit prices listed hereunder. Prices listed hereunder are excluding H.S.T.

<u>Classification</u>	<u>Hourly rate</u>
Superintendent	\$
Foreman	\$
Skilled Labourer	\$
Operator Rate	\$
Triaxle Dump Truck (Operated)	\$
HVAC Journeyman	\$
HVAC Apprentice	\$
Plumbing Journeyman	\$
Plumbing Apprentice	\$
Electrical Journeyman	\$
Electrical Apprentice	\$
	\$
	\$

Add additional page if other labour rates apply.

END OF SECTION

Name of Bidder: _____
 (Business name)

I/We, the undersigned agree that the Owner may use the following unit prices for additional work, and that all unit prices, unless specifically indicated, are for complete work, in place, supplied and installed. I/We agree that credits for deleted work shall be no less than 80% of the prices listed hereunder. I/We agree that the Owner shall have the right to negotiate the cost for changes to the work instead of using the unit prices listed hereunder. Prices listed hereunder are excluding H.S.T.

Item of Work	Extra \ Credit	Unit of Measure
Excavation including stockpiling on site	\$	/Tonne (Metric)
Disposal of non-hazardous contaminated excavated soil at a licensed landfill including loading, transportation and tipping fees	\$	/Tonne (Metric)
Granular A Fill including compaction	\$	/Tonne (Metric)
Structural Steel (finished and installed)	\$	/lb.
Formwork	\$	/Square Foot
Rebar	\$	/lb.
Concrete	\$	/Cubic Yard
Spray Foam Insulation	\$	/inch/Square Foot
Intumescent Coating	\$	/Square Foot
West Wall Built up Insulation/Z-Bars/Gypsum	\$	/Square Foot

Signed and submitted by:

 (name and title of authorized signing representative)

 (signature of authorized signing representative)

Dated this _____ day of _____, 20_____.

END OF SECTION

These amendments amend the Agreement forming part of CCDC-2 2020 Stipulated Price Contract, English version as indicated below. Provisions not amended remain in full force and effect.

AMENDMENTS TO AGREEMENT

ARTICLE A-4 CONTRACT PRICE

ADD new paragraph 4.6:

“4.6 There shall be no price escalation to the Contract Price stipulated in 4.1 for any reason whatsoever, for the entire duration of the Project. In the event of inflation, whether from known or unknown conditions as at the date of the Bid Close, the Contractor bears all time and cost risks associated with the same and shall not receive any time extensions or additional compensation from the Owner, except as permitted according to Part 6 and General Condition 10.1 Taxes and Duties, as amended by these Supplementary Conditions.”

ARTICLE A-5 PAYMENT

REVISE paragraph 5.2.1 as follows:

ADD to appropriate blank space: “Scotiabank”.

ARTICLE A-9

The following is hereby inserted as Article A-9:

“ARTICLE A-9 TIME OF THE ESSENCE

9.1 Time is of the essence for every part of this Contract and the Contractor agrees that all time limits provided in the Contract, for performance or otherwise, are reasonable.”.

END OF SECTION

These amendments amend the Agreement and Definitions forming part of CCDC-2 2020 for Stipulated Price Contract, English version as indicated below. Provisions not amended remain in full force and effect.

AMENDMENTS TO DEFINITIONS

Add Definition “Constructor” to read as follows:

Constructor - Has the same meaning as ascribed to it in OHSA.

Revise Definition “Consultant” to read as follows:

Consultant - Add at the end of the first sentence the words “or such other person or entity as may be designated as the Consultant for the purposes of the Contract Documents by written notice given by the Owner to the Contractor from time to time. Within the Contract”.

Add Definition “OHSA” to read as follows:

OHSA - Means the Occupational Health and Safety Act, R.S.O. 1990, c. O.1 including its regulations, as may be amended from time to time.

Add Definition “Proper Invoice” to read as follows:

Proper Invoice - *Proper Invoice* is one that complies with the requirements of the Construction Act and the requirements in the Contract Documents.

END OF SECTION

The Canadian Standard Construction Document CCDC 2 - 2020 for Stipulated Price Contract, English version hereby forms the basis of this Contract.

These Supplementary Conditions amend the General Conditions of CCDC-2 2020 for Stipulated Price Contract, English version as indicated below. Provisions not amended remain in full force and effect.

AMENDMENTS TO GENERAL CONDITIONS

PART 1 – GENERAL PROVISIONS

GC 1.1 Contract Documents

DELETE GC 1.1.4 and REPLACE with:

- “1.1.4 The *Contractor* shall review the *Contract Documents* as well as all *Drawings, Specifications, Shop Drawings*, material and finish schedules, *Product* details, and other construction documents to ensure that there are no errors, inconsistencies, omissions, interferences, or constructability issues:
- a) If the Contractor discovers any such issues, the Contractor shall immediately notify the Consultant and Owner by Notice in writing and not proceed with the work affected until the Contractor receives corrected or missing information from the Consultant.
 - b) If the Contractor fails to identify any such errors, inconsistencies, omissions, interferences, or constructability issues pursuant to GC 1.1.4.1 but such issues arise during the course of the Project, the Contractor shall be solely liable for all resulting additional costs, delays, and damages, except to the extent that the Contractor could not have identified such issues by the exercise of reasonable care and diligence in conducting its review.”

PART 2 – ADMINISTRATION OF THE CONTRACT

GC 2.1 Authority of the Consultant

REVISE GC 2.1, paragraph 2.1.2 as follows:

REMOVE the words “and the Contractor”.

GC 2.2 Role of the Consultant

DELETE paragraph 2.2.18 and REPLACE with:

- “2.2.18 If the *Consultant’s* engagement is terminated, the *Owner* shall make reasonable efforts to engage a *Consultant* whose duties and responsibilities under the *Contract Documents* will be that of the former *Consultant*.”

GC 2.3 Review and Inspection of the Work

ADD new paragraph 2.3.8:

- “2.3.8 The *Consultant and/or Owner* will conduct periodic reviews of the *Work* in progress, to determine general conformance with the requirements of the *Contract Documents*. Such reviews, or lack

thereof, shall not give rise to any claims by the Contractor in connection with construction means, methods, techniques, sequences and procedures, responsibility for which belongs exclusively to the *Contractor*.”

GC 2.4 Defective Work

ADD new paragraph 2.4.4:

“2.4.4 Where the Contractor fails to correct any defect or deficiency in the Work within the timeframes in the Contract or required by the Owner, the Owner may retain from payments to the Contractor, an amount equal to the estimated value to correct the defect or deficiency and the Owner may take steps to correct the defect or deficiency at the expense of the Contractor. The estimated value retained shall not represent the maximum value assigned to the correction of the defect or deficiency. If the correction of the defect or deficiency is more than the estimated value retained, then the Contractor shall reimburse the owner for the actual cost of the correction. Any portion of the retained amount that remains unused will be paid to the Contractor.”

PART 3 – EXECUTION OF THE WORK

GC 3.8 Shop Drawings

ADD new paragraphs:

“3.8.8 The *Owner’s and Consultant’s* review will not include review of dimensions, quantities, calculations, weights, fabrication processes, construction means or methods, the coordination of *Subcontractor*, or safety factors relating to the construction for which the *Contractor* has the sole responsibility in connection therewith. Should any errors in dimensions, or interferences with other work be noticed by the *Owner and Consultant* in their review of the *Shop Drawings*, the attention of the *Contractor* will be called to them, but review of *Shop Drawings* by the *Owner and Consultant* shall not, in any way whatsoever, relieve the *Contractor* from the responsibilities indicated in Paragraph 3.11.3. A change to the *Contract Price* or *Contract Time* cannot be authorized by the *Owner and Consultant* during a *Shop Drawings* review. Such changes shall only be determined in accordance with GC6.1 CHANGES.

3.8.10 All Shop Drawings shall define divisions of responsibility between *Subcontractors*.

3.8.11 All items shown on Shop Drawings shall be supplied as part of the Contract unless the item has received prior written approval that such items do not form part of the *Contract*.

3.8.11 All Shop Drawings shall be laid out with the same orientation as contract Drawings.

3.8.12 All Shop Drawings shall be submitted to the Consultant in the form of a PDF document. On each PDF document page provide a 75 x 180 mm blank space for the Consultant’s use. Upon receipt of PDF document, the Consultant will review, mark corrections or changes and return PDF document. Original tracings or other transparency shall be corrected and resubmitted for the Consultant’s further review and further revisions if necessary. The PDF document will be returned to Contractor for reproduction. All fixture cuts, equipment brochures and printed descriptive literature shall be submitted on letter size paper. Provide one (1) copy of all such material.

3.8.13 Upon completion of review by Consultant, Shop Drawings will be returned to the Contractor for

reproduction and issuance to all concerned. The Contractor shall retain one complete set of all reviewed Shop Drawings for the Owner, which shall, on completion of the work, be issued to the Owner in an approved form.

- 3.8.14 Any fabrication work done before receiving final reviewed Shop Drawings from the *Consultant* shall be at the risk of the Contractor and their Subcontractor(s) and/or supplier(s).”

PART 4 – ALLOWANCES

GC 4.2 Contingency Allowance

DELETE GC 4.2 in its entirety.

PART 5 – PAYMENT

GC 5.1 Financing Information Required of the Owner

DELETE GC 5.1 in its entirety.

GC 5.2 Application for Payment

DELETE paragraph 5.2.4 and REPLACE with:

- “5.2.4 The *Contractor* shall submit to the *Owner* a schedule of values no later than fifteen (15) calendar days from the date of receiving the confirmation of the *Contract award*.”

DELETE paragraph 5.2.5 and REPLACE with:

- “5.2.5 The schedule of values shall be delivered to the *Owner via* e-mail in the form of a Microsoft Excel spreadsheet and PDF document and shall meet any other requirements the *Owner* may provide and include any supporting evidence the *Owner* may request.”

DELETE paragraph 5.2.8 and REPLACE with:

- “5.2.8 Claims for Products delivered to the Place of the Work but not yet incorporated into the work, provided such Products are Project specific and cannot readily be used elsewhere, may be considered for payment on an individual basis and shall be supported by such evidence as the Consultant and Owner may reasonably require, to establish the value and delivery of the Products.”

ADD new paragraphs:

- “5.2.9 Products that are in the possession of the Contractor or its Subcontractor, but that are not delivered to the Place of Work or other mutually agreed location is in the care and custody of the Owner shall not be considered for payment, regardless of their value, delivery date, or any other circumstance.”

- 5.2.10 Applications for payment shall comply with the *Payment Legislation*. The *Contractor* shall submit a *Proper Invoice*, including an application for payment, to the *Consultant and Owner via* e-mail, within five (5) calendar days after the end of the month to which the work relates. The amount in

each *Proper Invoice* shall be the value, proportionate to the amount of the *Contract*, of *Work* performed and *Products* delivered to the *Place of Work* as of the last day of the month for which payment is submitted.

- 5.2.11 A *Proper Invoice* shall not include any amount submitted under PART 6 – CHANGES IN THE WORK, until the *Owner* has issued a *Change Order* or *Change Directive* for the work or claim. However, nothing herein restricts the *Owner's* ability to dispute the *Contractor's* entitlement to payment of such amounts nor to issue a notice of non-payment in accordance with the *Payment Legislation*.
- 5.2.12 The *Contractor's* first *Proper Invoice* shall include certificates of insurance with respect to any insurance policy required to be maintained by the *Contractor*, evidencing that the insurance policies are in full force and effect (this requirement shall not apply after the certificates of insurance are provided, until they expire, or are changed, at which point new certificates of insurance must be provided).
- 5.2.13 Payment's may be adjusted from a monthly timetable to any other arrangement as mutually agreed upon between the *Owner* and the *Contractor* in writing.”

GC 5.3 Payment

ADD new paragraph:

- “5.3.2 If the *Contractor* fails to submit an invoice that complies with the specifications in the *Contract* for a *Proper Invoice*, the *Owner* shall not be required to make payment within the 28-day period set out in the *Contract*. The 28-day period shall not commence until the *Owner* receives a compliant *Proper Invoice*.”

GC 5.4 Substantial Performance of the Work

ADD new paragraph:

- “5.4.7 The application for review and verification of *Substantial Performance of the Work* shall include a comprehensive list of items to be completed or corrected. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*. The *Owner* may also prepare a supplementary list of items to be completed or deficiencies to be corrected by the *Contractor*. The application shall also include the following:
- c) All outstanding manufacturers and other warranties required pursuant to the Specifications or other parts of the Contract;
 - d) All required record drawings and related data including as-built drawings;
 - e) All permits, licenses, approvals, certificates and authorizations by any authority having jurisdiction over the Work or the Place of the Work; and
 - f) Any other documents required in the Specifications or reasonably required by the Owner.”

PART 6 – CHANGES IN THE WORK

GC 6.2 Change Order

ADD new paragraphs:

- “6.2.3 All claims resulting from a *Change Order* or *Change Directive* which would extend the *Contract Time* shall be presented by the Contractor concurrently with their change in Contract Price.
- 6.2.4 If the *Contractor* fails to identify any adjustment to the *Contract Time* in its response to a *Change Order*, it shall be deemed to have requested no extension to the *Contract Time* and waives all entitlement to any claims for extension.
- 6.2.5 The change in the *Contract Price* stated in each *Change Order*, or the payment agreement accepted by the *Contractor* for the change in the *Work* performed under each *Change Directive*, is the total, all-inclusive cost of everything required by and consequent upon the *Change Order* or *Change Directive*, including without limitation all impact costs, costs for the cumulative impact of changes, schedule extensions if any indicated, loss of productivity costs, overhead costs, and profit. No other claim for additional costs will be considered or paid by the *Owner* unless indicated in the particular *Change Order* or *Change Directive* signed by the *Owner*.
- 6.2.6 The value of the changes shall be determined by cost and fixed percentage fees as follows:
- a) Contractor’s changes shall be –
Net price of materials and Place of Work direct labour including statutory charges and burdens, plus 10% for overhead and profit of value of work.
 - b) Subcontractors charges shall be –
Net price of materials and Place of Work direct labour including statutory charges and burdens, plus 10% for overhead and profit of value of work.
 - c) Contractors’ charges on all Subcontractors’ charges shall be no more than 5% of value of work.
 - d) Pending final determination of value, payments on account of changes shall be made on the Consultant’s payment certificate.
- 6.2.7 Overhead and profit may not be charged on credits to the Contract. Where a change involves both extras and credits, overhead and profit shall apply only to the next extra of the change.
- 6.2.8 The cost for the following items shall be considered to be included in the allowance for overhead and profit:
- a) Contractor’s head office expenses.
 - b) Wages of project managers, assistants, watchpersons and administrative personnel.
 - c) Temporary site office expenses.
 - d) Small tools.
 - e) Insurance .
 - f) Shop and record drawings.
 - g) Clean up and disposal of waste materials.”
- [6.2.9 It will be the Contractor’s responsibility to notify the Bonding Company of all changes in the work so that the Performance Bond will not be invalidated.]”

GC 6.4 Concealed or Unknown Conditions

ADD new paragraphs:

- “6.4.5 The *Contractor* shall have no entitlement to an increase in *Contract Price* or *Contract Time* under this GC 6.4, if it fails to provide notice as set out in GC 6.4.1. Notice under GC 6.4.1 requires strict

compliance and is a condition precedent to a claim and any compensation or extension of time due to concealed or unknown conditions alleged.

6.4.6 Where the *Contractor* delivers a *Notice in Writing* in accordance with GC 6.4.1, the *Contractor* shall provide to the *Owner* a further notice detailing the below, no later than 10 *Working Days* following the delivery date of the GC 6.4.1 notice:

- a) Amounts claimed.
- b) The grounds upon which the Contractor considers itself entitled to such additional compensation.
- c) Details of any mitigation strategies that the Contractor will apply.
- d) All other information and documents that the Owner may request.”

GC 6.5 Delays

REVISE paragraph 6.5.1 - DELETE the last sentence of the paragraph and REPLACE with:

“Provided that the *Contractor* has taken all commercially reasonable steps to mitigate the delay and the costs of the delay, the *Contractor* shall be entitled to payment in respect of any reasonable increase in the cost incurred by the *Contractor*. The *Contractor* must demonstrate that any additional cost being requested is a direct consequence of the delay and that the delay had an adverse impact on the *Contractor’s* ability to complete any critical path activity in accordance with the construction schedule, prior to being entitled to a *Change Order* and any additional compensation. In all cases of delay, the *Contractor* shall not be entitled to recover, on its own behalf or in respect of any *Subcontractors* or *Suppliers* any consequential, indirect, or special damages, claims for loss of profit, loss of production or productivity, losses arising from the cumulative effect of changes, loss of opportunity and any head office overhead costs. If and to the extent any *Subcontractors* or *Suppliers* make claims for such amounts, the *Contractor* shall defend, indemnify, and hold the *Owner* harmless.”

REVISE paragraph 6.5.2 - DELETE the last sentence of the paragraph and REPLACE with:

“Provided that the *Contractor* has taken all commercially reasonable steps to mitigate the delay and the costs of the delay, the *Contractor* shall be entitled to payment in respect of any reasonable increase in the cost incurred by the *Contractor*. The *Contractor* must demonstrate that any additional cost being requested is a direct consequence of the delay and that the delay had an adverse impact on the *Contractor’s* ability to complete any critical path activity in accordance with the construction schedule, prior to being entitled to a *Change Order* and any additional compensation. In all cases of delay, the *Contractor* shall not be entitled to recover, on its own behalf or in respect of any *Subcontractors* or *Suppliers* any consequential, indirect, or special damages, claims for loss of profit, loss of production or productivity, losses arising from the cumulative effect of changes, loss of opportunity and any head office overhead costs. If and to the extent any *Subcontractors* or *Suppliers* make claims for such amounts, the *Contractor* shall defend, indemnify, and hold the *Owner* harmless.”

ADD new paragraphs:

“6.5.6 If the *Contractor* is delayed in the performance of the Work due to timely unavailability of *Products* which are ordered by the *Owner*, and which are to be installed or set in place by the *Contractor*, or work which is performed by the *Owner* outside the contract, then the Contract Time shall be extended for such reasonable time the *Consultant*, in consultation with the *Owner* and

Contractor, may decide, but in no case shall the extension of time be less than the time lost as result of the event causing the delay.”

“6.5.7 Strict compliance with the obligations in GC 6.5 is a condition precedent to the *Contractor’s* entitlement to any increase in the *Contract Time*, *Contract Price*, compensation for delay, or any other compensation. Failure to comply shall disentitle the *Contractor* to any compensation or extension of time.”

GC 6.6 Claims for a Change in Contract Price

REVISE paragraph 6.6.1:

REMOVE the words “shall give timely *Notice in Writing*” and REPLACE with the following:

“shall give *Notice in Writing* of its intent to make a claim as soon as reasonably possible but in any event no later than ten (10) *Working Days* from the date the party giving the notice knew or ought to have known of the potential increase in *Contract Price*.”

DELETE paragraph 6.6.3 and REPLACE with:

“6.6.3 When the *Contractor* intends to make the claim shall submit to the *Owner* within fifteen (15) *Working Days* a further *Notice in Writing* providing the following:

- a) the grounds upon which the Contractor considers itself entitled to such additional compensation;
- b) amounts claimed;
- c) specific details of all measures taken to mitigate the increase;
- d) the Contractor’s daily work records that support the claim; and
- e) all other information and documents that the Owner may request.”

REVISE paragraph 6.6.5:

REMOVE “, or within such other time period as may be agreed by the parties.” and REPLACE with “.”

ADD new paragraph:

“6.6.7 Strict compliance with the obligations in GC 6.6 is a condition precedent to the *Contractor’s* entitlement to any increase in the *Contract Price*, compensation for delay, or any other compensation. Failure to comply shall disentitle the *Contractor* to any compensation.”

PART 7 – DEFAULT NOTICE

GC 7.1 Owner’s Right to Perform the Work, Terminate the Contractor’s Right to Continue with the Work or Terminate the Contract

REVISE paragraph 7.1.2:

DELETE the words “to a substantial degree and if the Consultant has given a written statement to the Owner and Contractor which provides the detail of such neglect to perform the Work properly or such failure to comply with the requirements of the Contract to a substantial degree”.

REVISE paragraph 7.1.4.1:

DELETE the words “provided the Consultant has certified such cost to the Owner and the Contractor”

GC 7.2 Contractor’s Right to Suspend the Work or Terminate the Contract

DELETE paragraph 7.2.3.1 in its entirety.

DELETE paragraph 7.2.3.2 in its entirety.

DELETE paragraph 7.2.3.4 and REPLACE with:

“7.2.3.4 The *Owner* fails to comply with the requirements of the *Contract* to a substantial degree and the *Contractor* provide the *Owner Notice in Writing* that provides specific details of such failure to comply with the *Contract* to a substantial degree.”

REVISE paragraph 7.2.5 - after the last sentence, ADD:

“Notwithstanding the foregoing, the Owner shall not be liable to the Contractor for any loss of profits or opportunity, or any indirect, special, aggravated, consequential or other damages whatsoever. The Contractor shall defend, indemnify, and hold harmless the Owner for any such claims by any Subcontractors or Suppliers.

PART 8 – DISPUTE RESOLUTION

GC 8.3 Negotiation, Mediation and Arbitration

DELETE paragraph 8.3.2 and REPLACE with:

“8.3.2 A party shall be conclusively deemed to have accepted a finding of the *Consultant* under GC 2.2 – ROLE OF THE CONSULTANT and to have expressly waived and released the other party to the mediation (the “*responding party*”) from any claims in respect of the particular matter dealt with in that finding, unless within fifteen (15) *Working Days* after receipt of the *Consultant’s* finding, the party sends a *Notice in Writing* of dispute to the *Responding Party*. The *Notice in Writing* shall contain complete and detailed particulars of the matter in dispute, including all relevant provisions of the *Contract Documents*. The notice must contain the amount claimed, the grounds upon which the party claims, details of mitigation strategies, and other pertinent supporting documentation. The *responding party* shall send a *Notice in Writing* in reply within fifteen (15) *Working Days* after the receipt of such *Notice in Writing* of dispute, setting out detailed particulars of the response and any relevant provisions of the *Contract Documents*.

DELETE paragraph 8.3.6 and REPLACE with:

“8.3.6 If mediation fails to resolve the dispute, the parties may by mutual written agreement submit the dispute to arbitration. Such arbitration shall occur immediately, unless the parties mutually agree on another timeline for arbitration.”

DELETE paragraph 8.3.7 and 8.3.8 and REPLACE with:

“8.3.7 Arbitration shall be heard by a single arbitrator and proceed in accordance with the Arbitration Act (Ontario). The arbitration shall be conducted in the jurisdiction of the Place of Work and shall

consolidate all disputes referred to arbitration into a single arbitration.”

GC 8.4 Retention of Rights

DELETE paragraph 8.4.1 and REPLACE with:

“8.4.1 No action or failure to act by the Owner is a waiver of any right or duty afforded under the Contract or at law, or act as a waiver of any breach, unless a waiver was specifically agreed to in writing.”

PART 9 – PROTECTION OF PERSONS AND PROPERTY

GC 9.4 Construction Safety

ADD new paragraph:

“9.4.6 The *Contractor* shall assume the role of the Constructor and undertake all Constructor obligations and perform all Constructor duties throughout the duration of the *Work* in accordance with the *OHSA*, including the filing of the notice in writing of the project, pursuant to section 23(2) of the *OHSA*. The Contractor shall provide the *Owner and Consultant* with a copy of the filed notice, along with the confirmation of filing, as soon as practically possible.”

PART 10 GOVERNING REGULATIONS

GC 10.1 Taxes and Duties

DELETE paragraph 10.1.3 and REPLACE with:

“10.1.2 Any increase or decrease in the *Contractor’s* costs of materials due to changes in taxes, tariffs and/or duties after the time of the bid closing may adjust the *Contract Price*. To amend the *Contract Price* to reflect any such change, the *Contractor* must provide to the *Owner*:

- a) sales quotes from the time of tender;
- b) bills of lading; and
- c) any other documentation the Owner deems necessary to determine whether the change in Contract Price is a result of a change in imposed taxes or duties.”

ADD new paragraph:

“10.1.3 Any change to the *Contractor’s* costs relating to overhead, profit, or anything other than materials, as a result of any changes in taxes, tariffs and/or and duties after the time of the bid closing, shall not be eligible for a change in the *Contract Price*.”

PART 12 – OWNER TAKEOVER

GC 12.1 Ready-For-Takeover

REVISE paragraph 12.1.5:

ADD the words “and the *Owner*” after the words “in consultation with the *Consultant*”.

GC 12.3 Warranty

REVISE paragraph 12.3.2:

DELETE the words “to the extent that the design and Contract Documents permit such performance” and REPLACE with “.”

DELETE paragraph 12.3.4 and REPLACE with:

“12.3.4 The Contractor shall promptly, and at the Contractor’s sole expense, the Contractor shall correct defects or deficiencies in the Work which appear prior to and during the warranty period, including all labour, material, equipment, services, and the repair or replacement of adjacent materials, work, or other property which are damaged or disturbed by the correction work.”

ADD new paragraph 12.3.7:

“12.3.7 The Contractor shall correct any defective work to a standard acceptable to the Owner, acting reasonably.”

ADD new paragraph 12.3.8:

“12.3.8 The warranty on corrective work to repair defective work will recommence with the completion of the remedial work.”

PART 13 – INDEMNIFICATION AND WAIVER**GC 13.1 Indemnification**

REVISE Paragraph 13.1.2.2:

CHANGE “\$2,000,000” to “\$5,000,000”.

END OF SECTION

PART 1 - GENERAL

1.1. Section Includes

1. Methods and procedures for demolition of structures, parts of structures, basements and foundation walls.

1.2. Related Sections

1. Section 01000 – General Instructions.
2. Section 01300 - Submittals.
3. Section 01500 – Temporary Facilities.
4. Section 01135 - Environmental Procedures.

1.3. References

1. Canadian Standards Association (CSA International).
 1. CSA S350-M1980 R1998, Code of Practice for Safety in Demolition of Structures.
2. Department of Justice Canada (Jus).
 1. Canadian Environmental Assessment Act (CEAA), 1992, c. 37.
 2. Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 1. SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.
 3. Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
3. Underwriters' Laboratories of Canada (ULC).
 1. ULC/ORD-C107.19- [1992], Secondary Containment of Underground Piping.
 2. ULC/ORD-C58.15- [1992], Overfill Protection Devices for Underground Tanks.
 3. ULC/ORD-C58.19- [1992], Spill Containment Devices for Underground Tanks.

1.4. Definitions

1. Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly.
2. Waste Management Co-coordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
3. Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill.
4. Waste Reduction Work plan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.6. Quality Assurance

1. Regulatory Requirements: Ensure work is performed in compliance with CEPA, CEAA, TDGA and applicable Provincial and Municipal regulations.
2. Meetings:
 1. Prior to start of Work arrange for site visit with HOPA and General Contractor to examine existing site conditions adjacent to demolition work.
 2. Hold project meetings every two weeks.
 3. WMC must provide report on status of waste diversion activity at each meeting.

1.7. Waste Management and Disposal

1. Implement a source separation program for the waste in accordance with Section 8 of Ontario Regulation 103/94 Industrial, Commercial and Institutional Source Separation Programs.
2. Separate waste materials for reuse and recycling.

1.8. Environmental Protection

1. Ensure Work is done in accordance with Section 01135 – Environmental Procedures.
2. Ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution, or cause vibrations which disturb neighbours.
3. Fires and burning of waste or materials is not permitted on site.
4. Do not bury rubbish waste materials.
5. Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
6. Ensure proper disposal procedures are maintained throughout project.
7. Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.
8. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.
9. Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.
10. Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.9. Hazardous Building Materials

1. Ensure all removals have been completed before starting demolition.
2. If any materials are encountered during demolition which are suspected of being hazardous, do not disturb further, take preventative measures and contact HOPA immediately.

1.10. Existing Services

1. Have locates done for all existing buried services. Report to HOPA and Consultant any existing services not shown on the Drawings. Protect and do not damage all services which are to remain.

**PART 2 - PRODUCTS
NOT USED**

PART 3 - EXECUTION

3.1. Protection

1. Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, and landscaping, adjacent grades parts of existing building to remain.
 1. Provide bracing, shoring and underpinning as required.
 2. Repair damage caused by demolition.
2. Support affected structures and, if safety of structure being demolished or adjacent structures for services appears to be endangered, take preventative measures, stop work and immediately notify general Contractor, HOPA and Consultant.
3. Prevent debris from blocking surface drainage system, mechanical and electrical systems which must remain in operation.
4. Demolition procedures and sequence to be selected to ensure that there is no damage to the buildings which are to remain.
5. Provide temporary weatherproof walls to protect all remaining spaces before proceeding with demolition. Temporary walls to be constructed of steel studs and 6 mil poly. These are to be designed by a professional engineer licensed in Ontario and be designed for wind loads as per the National Building Code. Submit shop drawings of these walls stamped by a professional engineer licensed in Ontario. These walls to be located as to not interfere with the permanent cladding system. Remove the temporary walls once the permanent cladding is complete.

3.2. Preparation

1. Underground storage tanks and piping: Remove and dispose in accordance with Section ULC/ORD-C107.19, ULC/ORD-C58.15 and ULC/ORD-C58.19.
2. Do not disrupt active or energized utilities.
3. Remove rodent and vermin.

3.3. Safety

1. Conform to Occupation Health and Safety Act and regulations for Construction Projects, Ontario Building Code, and Ontario Fire Code.
2. Fence around demolition zone to keep people out and post danger signs conspicuously around the perimeter.
3. Provide fire extinguishers of suitable type and adequate locations to enable workers to deal with fires starting during the work.

4. Where necessary, do exploratory removals to access conditions to confirm removal methodology and cut locations.
5. Blasting operations are not permitted during demolition.
6. Protect adjacent areas and occupants from all dangers during the work.

3.4. Demolition

1. Demolish all concrete and asphalt floor and other components as indicated on drawings.
2. Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.
3. At end of each day's work, leave Work in safe and stable condition.
 1. Protect interiors of parts not to be demolished from exterior elements at all times.
4. Demolish to minimize dusting. Keep materials wetted.
5. Contain fibrous materials (e.g. Insulation) to minimize release of airborne fibres while being transported within facility.
6. Remove and dispose of demolished materials in accordance with authorities having jurisdiction.

3.5. Stockpiling

1. Label stockpiles, indicating material type and quantity.
2. Designate appropriate security resources/measures to prevent vandalism, damage and theft.
3. Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.
4. Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

5. Supply separate, clearly marked disposal bins for categories of waste material.

3.6. Removal from Site

1. Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.
2. Transport material designated for alternate disposal using approved facilities receiving organizations listed in Waste Reduction Workplan and in accordance with applicable regulations.
3. Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

END OF SECTION 02060

PART 1 - GENERAL

1.1. General Instructions

1. General requirements governing work of this Section are specified in Division 1 General Requirements.
2. Provide all labour, materials, equipment, and services to complete all earthwork including, but not limited to, the following:
 1. Excavate and backfill for paving brick system and concrete slab.
 2. Provide granular fill under new floor systems.
 3. Re-use excavated material for backfill where suitable.
 4. Provide new imported Granular 'A' and fill as specified on drawings.
 5. Dewater excavations where required on site.

1.2. Geotechnical Information

1. Refer to Borehole logs by Chung & Vanderdoelen., dated August 2025, attached as Appendix 2 to this Specification.
2. Refer to Soil Characterisation Report: The new Assessment of Past Uses (APU), Sampling and Analysis Plan (SAP), and Soil Characterization Report (SCR) will be provided to the successful bidder prior to the disposal of excess soil at the licensed landfill site.

PART 2 - PRODUCTS

2.1. Materials

1. Granular 'A' Base: crushed stone to OPSS Granular Type 'A' aggregate.
2. Screenings under new floor system.

PART 3 - EXECUTION

3.1. Excavation

1. Have service locates done before any excavation.
2. Conform to Construction Safety Act and Trench Excavators Act.
3. Erect barriers as required to protect Owner's staff, workmen, and public.
4. Protect existing catch basins from silt runoff.
5. Remove and dispose of excavated excess materials and miscellaneous items as required in accordance with environmental regulations.
6. Excavate for new floor system and to underside of new granular bases under slabs.

3.2. Backfilling

1. Do not backfill until work has been inspected and approved by Geotechnical Consultant.
2. Backfill with maximum 8" deep layers and compact each layer to 100% Standard Proctor Maximum Dry Density.

END OF SECTION 02220

PART 1 - GENERAL

1.1. General Instructions

1. General requirements governing work of this Section are specified in Division 1 General Requirements.

1.2. Work Included

Provide all labour, materials, equipment, and services to complete all concrete including, but not limited to, the following:

1. All concrete work shown on the drawings - floor slab.
2. All miscellaneous concrete work.

1.3. Submittals

1. Submit placing drawings and bar lists for all reinforcing steel to RSIO Manual sufficiently detailed and dimensioned to permit placing of all reinforcing without reference to Design Drawings.
2. Submit concrete mix design to Engineer prior to production.

1.4. Quality Assurance

1. Conform to CAN3-A23.1 and CAN3-A23.2 except as otherwise specified or indicated on the Drawings.
2. Concrete supplier shall be responsible for concrete mix design to produce specified concrete.
3. The Owner will employ a Testing Company to conduct strength, slump, material, and air entrained tests once for every day concrete is poured. Strength test shall include three standard cylinders; one tested at 7 days and two tested at 28 days in accordance with CAN3-A23.2. Slump and air content tests shall consist of one sample each in accordance with CAN3-A23.1 and CAN3-A23.2. Coordinate with Testing Company to ensure inspection is present to take tests.

PART 2 - PRODUCTS

2.1. Materials

1. Use only materials specified in CAN3-A23.1.
2. Reinforcing Bars: Grade 400 deformed bars to CAN/CSA-G30.18.
3. Chairs: Concrete with 1.3 mm diameter annealed tie wire.
4. Tie Wire: 1.3 mm diameter annealed wire.
5. Cement: Portland blast furnace slag cement to CAN3-A362 consisting of 75% normal Type 10 Portland Cement to CAN3-A5 and 25% cementitious hydraulic slag to CSA-A363.
6. Water: Potable to CAN3-A23.1 from municipal supply.
7. Fine Aggregate: Crushed stone to CAN3-A23.1.
8. Coarse Aggregate: Crushed stone to CAN3-A23.1.
9. Air Entraining Admixture: to CAN3-A266.1.

10. Formwork Lumber: Plywood and wood formwork materials to CAN3-A23.1.
11. Form Release Agent: Non-staining, non-grain raising and containing no non-drying ingredients such as mineral oil.
12. Grout: 'Meadows V1' by W.R. Meadows, or approved equal.
13. Epoxy Grout for Dowels and Anchors: Hilti Hit RE500 V3.
14. Slab Control Joint Filler: VersaFlex SL/75.
15. Wall Control Joint Sealant: Sika Flex 2CNS with Sika Flex Primer 202.
16. Anchor Bolts: Quantity, diameter and spacing as per drawings.

2.2. Reinforcing Fabrication

1. Fabricate reinforcing to CAN3-A23.1.
2. Fabrication tolerances to RSIO Manual.
3. All reinforcement to be bent in Fabricator's shop unless otherwise approved by Consultant.

2.3. Concrete Mixes

1. Proportion concrete to CAN3-A23.1 to the following:
2. Cement: Portland Blast Furnace Slag
3. Density: Normal
4. Minimum 28 day Compressive Strength: All concrete including foundations, pile caps, grade walls, slabs, and curbs: 35 MPa exposure C1.
5. Maximum Size Aggregate: 20
6. Slump: 75 + or – 12
7. Air Content: 5% to 7% - not required for interior floor slab.
8. No water shall be added to the concrete at the site.
9. No calcium chloride or other chloride salts or admixtures containing these shall be used.
10. Obtain Consultant's approval before using admixtures other than those specified.

PART 3 - EXECUTION

3.1. Layout

1. Employ qualified instrument man to accurately lay out column gridlines. Check all dimensions between gridlines especially tie-ins to existing, and report discrepancies to Consultant.
2. Accurately lay out all elevations with respect to existing floor elevation. Check other existing elevations shown on drawing and report any discrepancies to Consultant.
3. Ensure anchor bolts are accurately positioned in plan location and elevation before pour.

3.2. Formwork

1. Form smooth straight edges to all work.
2. All formwork construction to be under the direction of a competent foreman at all times.
3. Align form tight joints and make watertight.

4. Coat formwork with form release agent before placing bar.
5. Use $\frac{3}{4}$ " chamfer strips on vertical corners.

3.3. Placing Reinforcement

1. Place reinforcement to CAN3-A23.1 and placing drawings.
2. Lap all reinforcing as per RSIO Manual, Class 'B' tension lap.
3. Cover to rebar to be 3" when concrete cast against soil; 1½" minimum elsewhere unless indicated otherwise on drawings.
4. Where specified, drill and epoxy dowels into concrete to specified embedment and at proper location. Blow holes clean and apply epoxy grout to manufacturer's instructions.

3.4. Placing Concrete

1. Place concrete to CAN3-A23.1 under the supervision of a competent foreman.
2. Ensure that all concrete is dense, free of honeycombing, and that no segregation occurs.
3. Vibrate all concrete.
4. Ensure that all rebar is clean and securely held in correct location during placing.
5. Inform Consultant at least 24 hours before each concrete pour and obtain his approval before pouring.
6. Provide hot weather or cold weather protection when required as specified in CAN3-A23.1.

3.5. Finishing

1. Slabs to receive a steel trowel finish.

3.6. Curing

1. All concrete to be kept continuously wet for first seven days by covering with polyethylene securely taped in place.
2. Keep all traffic off slabs for 7 days.

3.7. Construction Joints

1. Construction joints to CAN3-A23.1.
2. Follow Drawings generally. Obtain approval for additional construction joints.
3. Provide formed key at joints.
4. Run reinforcing through joints in walls and slabs.

3.8. Control Joints

1. Provide sawcut control joints in slabs. Fill with slab control joint filler.
2. Provide 'V' groove joints both sides of grade walls and caulk outside with wall control joint sealant.

3.9. Grouting

1. Ensure grout fills all area under plates.
2. Provide approximately 45 degree slope at edges.

3. After grout has set, remove shims and grout shim pockets.

3.10. Epoxy Grouting of Dowels and Bolts

1. Work to be done in strict accordance with Hilti instructions. Use impact hammer drill for rough edge. Wire brush holes clean. Blow hole clean with compressed air. Fill from back/bottom of hole.

END OF SECTION 03001

PART 1 - GENERAL

1.1. General Instructions

1. General requirements governing work of this Section are specified in Division 1 General Requirements.

1.2. Work Included

1. Provide all labour, materials, equipment, and services to complete the detailing, fabrication and erection of all steel work as indicated on the drawings and as specified herein. Supply only of loose lintels for masonry trades.
2. Provide new steel framing and modify existing steel framing exterior walls and roof of the existing building to accommodate new mechanical HVAC equipment.

1.3. References

1. CSA-S16-0124 –Design of Steel Structures.
2. CAN/CSA-G40.20/G40.21-13 (R2023) – General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
3. CSA-W47.1-19 (R2024) – Certification of Companies for Fusion Welding of Steel Structures.
4. CSA-W59-24 – Welded Steel Construction (Metal-Arc Welding).
5. CSA-W48-23 – Filler Metals and Allied Materials for Metal Arc Welding.
6. CAN/CSA-G164-18 (R2023) – Hot Dip Galvanizing of Irregularly Shaped Articles.
7. ASTM-F3125-25 – Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi, 144 ksi, and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

1.4. Submittals

1. Submit erection drawings and shop details for all work.
2. Submit mill test reports for all steel.

1.5. Quality Assurance

1. Conform to CSA-S16.
2. All welding shall be done by a Contractor certified by the Canadian Welding Bureau to the requirements of CSA-W47.1, Division 1 or 2.

PART 2 - PRODUCTS

2.1. Materials

1. Steel Shapes and Plates: to CAN/CSA-G40.20/G40.21, Grade 300W. W Shapes to be 350W. HSS to be Class C, 350W.
2. High Strength Bolts: to ASTM-A325. Hot dip galvanized if outside.

3. Welding Electrodes: to CSA-W48 Series, Classification E480XX.
4. Galvanizing: Hot dip galvanized after cutting with a minimum zinc coating of 600 g/m sq. to CAN/CSA-G164.

PART 3 - EXECUTION

3.1. Connections

1. Design connections for beams to develop the bending capacity of the member.
2. Design connections for bracing to develop the axial capacity of the member unless otherwise noted on the Drawings.
3. All bolts to be A325, tightened by the 'turn-of-nut' method. Threads must be excluded from shear planes.
4. All welding to be metal-arc welding to CSA W59.

3.2. Fabrication

1. Fabricate to approved Shop Drawings only.
2. Grind all exposed steel smooth especially guardrails.

3.3. Installation

1. Install all work plumb and true.
2. Grind all field welding smooth, especially guardrails.
3. Clean and remove all debris and materials, and leave site clean and tidy.

3.4. Painting

1. Clean and prime all new steelwork which is not hot dip galvanized as per the following procedure:
 1. Shop clean all steel according to Steel Structures Painting Council Surface Preparation No. 6, "Commercial Blast Cleaning".
 2. Same day as cleaned, apply one shop coat of Glidden #5206 Grey Oxide Rust Inhibitive Primer, or approved equal, to a dry film thickness of 1.5 to 2 mils.
 3. After erection, complete priming of unpainted areas and touch-up any damaged areas as above.
2. All materials shall be of first line quality in accordance with latest CGSB Specifications with a flame spread rating not in excess of 150.
3. For site work, protect and adequately cover all work from damage by this Section. Remove spilled or splattered finish materials from all surfaces without marring surface. Post 'Wet Paint' signs and erect barriers to prevent damage to new primer.
4. All surfaces receiving painting to be cleaned of all dust, dirt, oil, grease, and other contaminants by vacuuming, water washing, etc.
5. All surfaces to be prepared to applicable CGSB Specifications and to manufacturer's instructions.
6. Prior to commencement of any painting, examine all conditions and ensure that all surfaces are properly prepared and cleaned.

7. Ensure that the surfaces are free of moisture and the temperature of the surfaces and air are above 40°F prior to application.
8. All work shall be performed in strict accordance with manufacturer's instructions by skilled and experienced tradesmen.
9. Exterior painting shall not be done during cold, windy, damp weather.

END OF SECTION 05000

PART 1 - GENERAL

1.1. General Instructions

1. General requirements governing work of this Section are specified in Division 1 General Requirements.
2. Products supplied under work of other Sections and installed under work of this:
 1. Section 08110: Hollow Metal Doors and Frames

1.2. References

1. Reference Standards:
 1. Conform to CSA Standard 0141 for dressed dimensions of wood members.
 2. Reference standards quoted in Contract Documents refer to:
 1. CSA Standard 0115-M1982, Hardwood and Decorative Plywood.
 2. CSA Standard 0121-M1978, Douglas Fir Plywood.
 3. CSA Standard 0141-1970, Softwood Lumber
 3. Fabricate millwork as specified in Finish Carpentry Schedule to meet specified requirements of Custom Quality Standard of either:
 1. AWI Specification, Architectural Woodwork Quality Standards and Guide Specifications, Latest Edition, by Architectural Woodwork Institute, or
 2. AWMAC Specification, Quality Standards for Architectural Woodwork of the Architectural Woodwork Manufacturers Association of Canada, Latest Edition.
 4. FSC Certified Wood:
 1. FSC Certified Grade mark softwood and hardwood lumber by the appropriate association under authority of the National Lumber Grades Authority.

1.3. Deliveries, Storage and Handling

1. Protect materials from damage during handling, delivery and storage.
2. Receive finish hardware and store, secure against theft.
3. Do not deliver wood materials to site until storage areas are completed, and conditions are such that no damage will occur to them while in storage and during installation.

1.4. Submittals

1. Submit Shop Drawings per Section 01300 - Submittals:

1.5. Warranty

1. Submit a warranty of finish carpentry products and installation specified in this section covering the period for one year beyond the expiration of the warranty period specified in the general conditions of the Contract.

1.6. Site Conditions

1. Environmental Requirements:

1. Ensure that relative humidity in areas where materials are stored and installed does not exceed 55%.

PART 2 - PRODUCTS

2.1. Materials

1. General:

1. Provide rough hardware required for finish carpentry specified in this Section. Use non-corrosive hardware at exterior locations.
2. Moisture content of wood at time of installation shall be for interior locations at an average of 7%, with a permitted range of individual pieces of 5% to 9%; and for exterior locations at an average of 12%, with a permitted range in individual pieces of 10% to 15%.
3. Use only adhesives and fastenings that develop sufficient strength for intended use, are non-staining, and are unaffected by the environment to which exposed.

2. Wood:

1. FSC Certified Grade mark softwood and hardwood lumber by the appropriate association under authority of the National Lumber Grades Authority.
2. Where not exposed to view, use wood of grades suitable for fabrication, utility and structural needs.
3. Where exposed to view, use Appearance Grade wood for structural lumber, Yellow Birch or as otherwise specified. Meet requirements of specified AWI or AWMAC Quality Grade Standard, where applicable.

3. Plywood and Particle Board:

1. Douglas Fir: FSC Certified to meet specified requirements of CSA Standard 0121, Sanded Grade, Good Two Sides where both sides are exposed to view, and Good One Side where only one side is exposed to view.
2. Softwood: FSC Certified to meet specified requirements of CSA Standard 0151, Sanded Grade, Solid Two Sides where both sides are exposed to view, and Good One Side where only one side is exposed to view.
3. Veneer Core Plywood: FSC Certified 3/4" water resistant poplar veneer core plywood.
4. Particle Board: FSC Certified Industrial Grade. To meet CAN3-0188.0-M78 and CAN3-0188.3-M82 with no added urea-formaldehyde

4. Decorative Laminate:

1. To CAN3-A172-M79 and ENMA LD3-1980, Arborite. Colours to be selected by Hamilton-Oshawa Port Authority from Arborite Standard Collection:
 1. Allow for 2 millwork finishes – (kitchen & office).
 2. Allow for 2 countertop finishes – (kitchen & office).
 3. All finished textures to be Cashmere or Glossy; to be selected by Hamilton-Oshawa Port Authority.

5. Hardwood Adhesives:
 1. To meet VOC content limits of SCAQMD Rule 1168.
 2. One part trowel applied, elastomeric waterproof setting adhesive containing no chlorinated solvents, except for millwork.
6. Contact Adhesives:
 1. To meet VOC content limits of SCAQMD Rule 1168.
 2. To CGSB 71-GP19 or CGSB 71-GP-20.

2.2. Fabrications

1. General:
 1. Assemble fabricated millwork units in mill in units as large as possible. Design units to fit together if site assembly is required.
 2. Edge plywood where exposed to view or where specified or indicated with solid wood to match face veneer, with profiled pressure glued edge joint and finished level with plywood surfaces, min. thickness 1/8" x plywood thickness.
2. Trim:
 1. Rout or groove backs of flat trim members.
 2. Kerf backs of wide flat members.
 3. Curved work to be laminated around a form to suit radius.
3. Fastening:
 1. Fasten assemblies with nails generally, but use screws or special fasteners at critical joints where strain, and excessive usage and shrinkage are anticipated, and where required by specified quality grade standards.
 2. Glue built-up assemblies as well as nailing and screwing.
 3. Blind nail unless impossible.
 4. Set finish nails below finished surfaces.
4. Finishing:
 1. Finish each surface of millwork to specified quality grade standard where exposed or semi-exposed. Consider that all visible surfaces are exposed, including underside surfaces above 1200 mm from floor and interiors of fitments behind glass doors. Consider that underside surfaces within 1200 mm of the floor, top surfaces more than 1800 mm above the floor, interiors of fitments behind opaque doors and the backs of fitment doors are semi-exposed.
 2. Fine sand surfaces level and smooth after fabrication.

PART 3 - EXECUTION

3.2. Examination

1. Before commencing installation, ensure that grounds, strapping, and other constructions and surfaces to which finish carpentry is installed are satisfactory for fitting and adequate for its securement.
2. Take site measurements of construction to which finish carpentry installations must conform, and through which access must be made, before fabricated units are delivered to site, to ensure that adaptation is not required which would result in construction delay.

3.3. Preparation

1. Protection:
 1. Ensure that finish carpentry materials are protected from damage and deterioration during installation and otherwise until Project completion.

3.4. Finish Carpentry Schedule

1. General:
 1. This schedule does not necessarily incorporate listing of all finished carpentry items to be included by this Specification, but only those items, which required specific description. Ensure that all Drawings and Specifications Sections, including those for architectural, mechanical and electrical work, are consulted to establish the limits of finish carpentry included in this Section.
2. Installation of Doors, Frames and Screens:
 1. All frames and screens which occur in concrete or masonry walls will be set up and installed as part of the work of this Section. Verify that frames are set plumb true.
 2. Install steel doors supplied under work of Section 08110, after finishing of walls. Ensure that top and bottom edges are primed under work of Section 09900 after they are cut to fit.
 3. Install all hollow metal doors, supplied under work of Section 08110.
 4. Provide clearance for intended finish flooring.
3. Installation of Finishing Hardware:
 1. Install finishing hardware supplied under work of Section 08710:
 1. Accurately locate and adjust hardware to meet manufacturer's instructions.
 2. Locate doorstops to strike door 76.2 mm (3") from latch edge.
 3. Safeguard keys to keep them out of unauthorized hands, take them with opening number, and deliver to person designated by Architect at building completion.

4. Window Sills: 1/2" Solid Surfacing, edge details as indicated on drawings. Typical all windows.
 1. Manufacturer: Formica Solid Surfacing
Series: Classics
Colour: to be determined by HOPA
5. Back Panels for Mechanical, Electrical and Telephone Equipment: 3/4" Douglas Fir G1S Plywood.

3.5. Adjustments And Cleaning

1. Adjust hinged doors to swing freely and easily, to remain stationary at any point of swing, to close evenly, and tightly against stops without binding, and to latch positively when doors are closed with moderate force. Ensure that when doors are installed with hinges, stiles adjacent, and both doors can open simultaneously without binding.
2. Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by suppliers' instructions.
3. Ensure that doors equipped with closers operate to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location and traffic.
4. Clean hardware after installation in accordance with suppliers' instructions.
5. Sand and clean woodwork to leave free from finish defects in any exposed part.

END OF SECTION 06200

PART 1 - GENERAL

1.1. Description

1. Closed-cell sprayed polyurethane foam insulation, primarily intended for use as thermal insulation.
2. Additional requirements for closed-cell sprayed polyurethane foam insulation, intended for use as an air barrier material, part of an air barrier assembly. This section does not include any requirements for an air barrier system.
3. Sprayed insulation: Closed-cell polyurethane foam.

1.2. Related Work

1. Division 07217 – Foamed-In-Place Insulation Thermal Barrier
2. Division 09250 – Gypsum Board and Steel Stud.

1.3. References

1. CAN/ULC S705.1: Standard for Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density, Material specification.
2. CAN/ULC S705.2: Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Installation.
3. CAN/ULC S718: Standard for Site Quality Assurance Program for Spray Polyurethane Foam.
4. CAN/ULC S770: Standard Test Method for Determination of Long-Term Thermal Resistance of Closed Cell Thermal Insulating Foams.
5. CAN/ULC S102: Standard Method of tests for surface burning characteristics of building materials and assemblies.
6. CAN/ULC S127: Standard corner wall method of tests for flammability characteristics of non-melting foam plastic building materials.
7. CAN/ULC S742: Standard for air barrier assemblies- specification.

1.4. Submittals

1. Provide CCMC Evaluation Report and the manufacturer's documentation confirming material has been evaluated and conforms to the requirements of CAN/ULC S705.1 Material Standard.
2. When closed-cell spray polyurethane foam is the material in an air barrier assembly, submit documentation to confirm that the material meets the requirements of the CCMC's Technical Guide for Air Barrier Materials Masterformat Section 07 27 36. Air barrier system requirements are not covered in this specification.
3. When closed-cell spray polyurethane foam is the material designated at the vapour barrier in the building component submit documentation to confirm the material meets the requirements of the local building code.
4. Submit manufacturers' current product data sheets for the components of specified spray-applied polyurethane foam.

1.5. Contractor Qualifications

1. Only qualified and certified workers are allowed to carry out the insulation works, in compliance with the ISO 17024 standard and the CAN/ULC S705.2 application standard, and they must be employed by a company that owns the equipment recommended by the manufacturer and the standards.
2. Submit proof of License of the Contractor by prior to commencing the work. Licensing is required by CAN/ULC S705.2 Installation Standard and ULC S718.

1.6. Manufacturer's Representative

1. The insulation materials manufacturer may delegate a technical representative to visit the work site at commencement of work.
2. At all times, the contractor shall permit and facilitate access to the site by the manufacturer's representative cited above.

1.7. Materials Storage

1. Materials are to be delivered in the original package.
2. Handle materials with proper equipment.
3. Store materials in the original package and protect in accordance with manufacturer's instructions, as required by CAN/ULC S705.2-05 Installation Standard and in compliance with Section 01 66 00.
4. Decontaminate and remove empty isocyanate containers from the site on a daily basis.

1.8. Quality Assurance and Environmental Management

1. Apply spray polyurethane foam when chemical, atmospheric and cavity/ surface temperatures are within limitations required by CAN/ ULC S705.2 Installation Standard and as recommended by the manufacturer.
2. Contractor performing work under this section must be accredited under the SPF Quality Assurance Training Program (QATP) by SOPREMA. The contractor shall, under the QATP Licensing Agreement and as required by CAN/ULC S705.2, only purchase and install, for this project, material that conforms to the requirements of CAN/ULC S705.1 Material standard.
3. Installers (Applicators) performing work under this section must be Licensed under the SPF Quality Assurance Training Program (QATP). The installer shall be trained by SOPREMA in accordance with the requirements outlined in CAN/ULC S705.2 Installation Standard. Installers shall have their photo-identification certification cards in their possession and available on the project site, for inspection upon request at all times.
4. The Licensed Installer shall conduct on-site daily testing as required by CAN/ULC S705.2 Installation Standard. The Licensed Installer shall complete the Daily Work Report as required by CAN/ULC S705.2 Installation Standard. The Licensed Contractor shall forward to the owner copies of Daily Work Record upon request. The Accredited Contractor shall submit copies of Daily Work Records or a monthly summary sheet to SOPREMA office, monthly, as required by SOPREMA/SPF Quality Assurance Program.

1.9. Warranties

1. The manufacturer of the products will provide a written and signed document, issued in the name of the owner, certifying that the products will respect the physical characteristics published by the manufacturer for a period of 5 years from the date of completion of the installation of the membranes.

PART 2 - PRODUCTS

2.1. Closed-Cell Sprayed Foam Insulation

1. Two-part, closed-cell spray-applied polyurethane foam insulation designed for commercial, industrial and residential insulation applications.
2. Components (NO SUBSTITUTIONS):
 1. Part A: SOPRA-SPF ISO
 2. Part B: SOPRA-SPF 200 RESIN, SOPRA-SPF 200 LT RESIN if application temperature is less than 10°C.
 3. Specified product: SOPRA-SPF 200, SOPRA-SPF 200 LT only if application temperature is less than 10°C by SOPREMA.

PART 3 - EXECUTION

3.1. Examination and Preparation of Surfaces

1. Complete examination and preparation by ensuring that the following conditions are met: surfaces to be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants. Fill damaged areas in substrate to provide an even plane.
2. Verify the adhesion on the substrate, regarding standard CAN/ULC S705.2 section 6.3.3. and to be recorded on the Daily Work Record.
3. Prior to commencement of work report in writing to the consultant any defects in surfaces or conditions that may adversely affect the performance of products installed under this section.
4. Concrete to be cured a minimum of fourteen (14) days. Concrete and concrete block substrates to be free of voids.
5. Sheathing boards substrate gaps larger than 6 mm (¼ inch) need solid backing.
6. Ensure that all work by other trades that may penetrate through the thermal insulation is in place and complete.

3.2. Method of Execution

1. Ensure any required foam stop or back up material are in place to prevent over spray and achieve complete seal.
2. Erect barriers, isolate area and post warning signs to advise non-protected personnel to avoid the spray area.

3.3. Equipment

1. The equipment used to spray the polyurethane foam material shall be in accordance with ULC S705.2 and the equipment manufacturer's recommendations for specific type of application.
2. Maintain all equipment and tools in good working order.
3. Equipment settings are to be recorded on the Daily Work Record as required by the CAN/ULC S705.2 Installation standard.

3.4. Closed-Cell Spray-Applied Foam Insulation- Application

1. Application is performed under correct environmental conditions are within limits prescribed by material manufacturer and the CAN/ULC S705.2 Installation standard.
2. Prior to applying the insulation, make sure the product adheres to the substrate. If not, apply a coat of primer in compliance with the CAN/ULC S705.2 standard test method for primer adhesion and application.
3. Mix the two components, 1 : 1 ratio by volume.
4. Apply coats of a maximum thickness of 2 in (50 mm) for each stroke in compliance with the CAN/ULC S705.2 installation standard.
5. Allow surface temperature to cool to 37 °C (97 °F), or ambient temperature if higher than 37 °C (97 °F), between passes.
6. Finish surface of foam insulation free of voids and embedded foreign objects.
7. Remove masking materials and over spray from adjacent areas immediately after foam surface has hardened. Ensure cleaning methods do not damage work performed by other sections.
8. Trim, as required, any excess thickness that would interfere with the application of cladding/covering system by other trades.
9. Protect spray polyurethane foam from ultraviolet as per manufacturer's requirements.

3.5. Field Quality Control

Conduct daily visual inspection, adhesion/cohesion testing and density measurements as outlined by the CAN/ULC S705.2 Installation standard and recorded on the Daily Work Record.

3.6. Tolerances

1. Maximum variation from indicated thickness: minus (-) 6 mm; plus (+) 10 mm.

END OF SECTION 07216

PART 1 - GENERAL

1.1. Summary

1. Surface preparation and application of fire-protective intumescent thermal barrier coating to spray-applied polyurethane foams.

1.2. Informational Submittals

1. Evaluation reports: Submit Evaluation reports in accordance with [ICC-ESR 3702] showing compliance with - codes.
 1. Submit Evaluation report from accredited independent evaluation agency, indicating compliance of intumescent thermal barrier with specifications for specified performance characteristics and physical properties.
2. Submit Thermal Barrier Installers documented experience with manufacturers approval.

1.3. Quality Assurance

1. Qualifications:
 1. **Thermal Barrier Installer: company specializing in intumescent thermal barrier installations with 3 years documented experience and approved by manufacturer.**

1.4. Delivery, Storage, and Handling

1. Thermal Barriers:
 1. Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data. Handle and store in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1. Manufacturers

1. Thermal Barrier Coating Manufacturer:
 1. International Fireproof Technology Inc; 6208, 17528 Von Karman Ave, Irvine, CA 92614, United States Tel: (949) 975-8588 Web: www.painttoprotect.com; as listed in this Specification.
2. Substitution Limitations: **NO SUBSTITUTIONS.**

2.2. Intumescent Thermal Barrier Coating System

1. Regulatory Requirements:
 1. Products shall meet requirements of municipal, state, or federal authorities having jurisdiction.
 2. Fire protective coating systems shall comply with the following requirements:
 1. Provide rated systems complying with the following requirements based on tests performed by a qualified testing agency acceptable to authorities having jurisdiction:

2. All systems and products shall bear the classification rating and listing of a qualified testing agency based on designations listed by one of the following:
 1. ASTM E84 FSR 0 SDC 10
 2. ASTM E119
 3. ISO 9705
 4. ASTM E2768
 5. NFPA 286
 6. NFPA 285
 7. IAPMO ER499
 8. ESR-3702
 9. UL R40016
2. Design and Performance Requirements
 1. Material Compatibility:
 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated.
 2. Apply all products according to spreading rates recommended in writing by intumescent thermal barrier coating manufacturer.
 3. Comply with requirements for fire-protective coating classification and surface-burning characteristics indicated.
 2. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.
3. Bonding Primer (where required): Interior unconditioned spaces subject to freeze thaw cycling, temperature and humidity variations or as required per tested and listed system. Waterborne, acrylic emulsion, adhesion- promoting bonding primer recommended in writing by manufacturer, if required, compatible with substrate and other materials indicated.
 1. Application thickness (DFT):
 1. Prime Coat: 2 – 5 mils dft.
 2. Acceptable product:
 1. Sherwin Williams DTM Bonding Primer
 2. Sherwin Williams Extreme Bond Primer
 3. PPG Gripper Universal Primer
 4. Zinsser Bondz Primer
 5. General Coatings Mfg. Corp. Ultra Bond 16
 6. Approved equivalent recommended in writing by intumescent thermal barrier manufacturer.
4. Fire-protective Intumescent Thermal Barrier Coating:
 1. Protective coating with following characteristics, specifically formulated for application over polyurethane foam plastics and compatible with insulation:
 1. Finish: Flat
 2. Color: [Ice Grey] [White] [Dark Grey] [Charcoal Black]
 3. VOC Content: 19 g/L less water as per EPA 24

4. Shore D Hardness (before topcoat and finish coat are applied): 40.
 5. Solids by Volume: 67%
 6. Specific Gravity: 1.30 +/- 0.05 g/cc
 7. Drying Time @ 25 deg C (77 deg F) and 50% R.H:
 1. To touch: 1-2 hours
 2. To recoat (if required): 2-4 hours
 8. Flashpoint: None
 9. Reducing or Cleaning: Water
2. Application Thickness: Refer to ICC-ESR 3702 for application rates required for the specific brand and type of spray foam being used and the desired rating. Application thickness shall not exceed 24 mils WFT in one coat. IF the application requires a thickness great than 24 mils then users shall apply in two coats with a minimum of 4 hrs dry time in between.
 3. Acceptable Product: "DC315" by International Fireproof Technology Inc.
5. Accessories
 1. Provide accessories to comply with manufacturer's recommendations and to meet fire resistance design and code requirements. Such accessories include, but are not limited to, any required or optional items such as bonding agents, mechanical attachments; and application aids.

PART 3 - EXECUTION

3.1. Installation of Thermal Barrier Coatings

1. Comply with manufacturer's written instructions applicable to substrates and coating systems indicated. Refer to test report for applicable brand and type of sprayed polyurethane foam to verify compatibility, and if a primer is required. Provide compatible primer approved by intumescent thermal barrier manufacturer to required surfaces where required by applicable test reports.
2. Do not paint unless substrates are acceptable and/or until all environmental conditions (heating, ventilation, lighting and completion of other subtrade work) are acceptable for applications of products.
3. Prime or "fog" glossy foam surfaces prior to applying intumescent thermal barriers.
4. Apply intumescent thermal barrier coatings according to manufacturer's written instructions and to comply with requirements for fire-protective coating classification and applicable test reports for spray urethane foam insulation.
5. Upon completion of installation, clean excess material, overspray, and debris. Remove and clear such materials from Project site.
6. Ensure patching of, and repair to, intumescent thermal barriers due to damage by other trades, is performed under this section, and paid for by trade responsible for damage.
7. Ensure patching is performed by an applicator with expertise in the installation of intumescent thermal barrier coatings.
8. Continuously monitor WFT by performing checks to ensure correct thicknesses are applied.

9. When applying as a component of an exterior wall system do not paint unless substrates are acceptable and/or until all environmental conditions are acceptable for applications of products. Thermal barrier must be protected from weather until the protective topcoats is applied.
10. Do not apply topcoats on surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.

3.2. Identification

1. Upon completion, provide job site label or similar method of identifying product used. Affix job site label in a prominent location, clearly indicating applicator's name, contact information, company information, products used, and measured thickness.

END OF SECTION 07217

PART 1 - GENERAL

1.1. Description

1. General Requirements:
 1. Division 1, General requirements, is a part of this Section and shall apply here.
2. Work performed by other Sections and which is related to this Section is in:
 1. Section 07920: Sealants and caulking, other than sheet metal joints.
 2. Division 15: Flashings specified for mechanical installations.
 3. Division 16: Flashings specified for electrical installations.
3. This Section shall include performance of work which is specified in:
 1. Section 07920: Sealants and Caulking.

1.2. Work Included

1. Provide all labour, materials, equipment, and services to complete all fabrication and erection of all flashing and sheet metal work indicated on the drawings and specified here:
 1. Provide all accessories such as flashing and neoprene enclosures around new mechanical wall openings and new roof openings of the existing building.
 2. Flash weathertight to adjacent surfaces, finished, and around all brackets, service penetrations, and other openings.

1.3. Quality Assurance

1. Subcontractor Qualifications:
 1. Provide sheet metal specified in this Section only by a Subcontractor who has adequate plant, equipment and skilled tradesmen, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years.

1.4. References

1. Reference Standards:
 1. Reference standards quoted in Contract Documents refer to:
 2. ASTM A52M-86, Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 3. CGSB Specification 1-GP-108M, Paint, Acid and Alkali Resistant, Black.

1.5. Submittals

1. Samples:
 1. Submit samples of pre-coated finish. Submit samples of sheet metal joints if requested.

1.6. Delivery, Storage and Handling

1. Protect sheet metal during handling and storage to prevent rusting, staining, abrasion of finish coatings, bending and denting.
2. Protect surfaces of pre-coated metal to prevent scratching.

1.7. Warranty

1. Extended Warranty:
 1. Submit a warranty of the sheet metal installed by this Section which is contiguous with membrane roofing, to include materials and installation, and to cover the period for one year beyond the expiration of the warranty period specified in the General Conditions of the Contract.

PART 2 - PRODUCTS

2.1. Materials

1. Galvanized Steel Sheet for Pre-coated Finish:
 1. ASTM A525M, zinc coating designation Z275; flashings, 0.46 mm thick (26 gauge); cleats and edge strips, 1.6 mm thick; other Work in thickness indicated on Drawings or specified.
2. Pre-coated Finish:
 1. Use sheet metal with pre-coated finish at all locations.
 2. Organic coating applied to galvanized sheet steel in shop by continuous coating line.
 3. Apply Barrier Series or Metallic Series coating to dry film thickness of 0.025 mm on surface exposed to view.
 4. Colour: See Drawings for locations.
 1. Top flashing including screen metal cladding: match existing.
3. Supply of pre-coated metal to be installed in conjunction with preformed metal siding and/or roofing systems is included in specification for these systems. Form and install this sheet metal work under Work
4. Fasteners:
 1. Use only nails, bolts, screws and other fasteners of the same finish as the metal being fastened. Use fasteners of a size suitable for the particular fastening conditions and service. Use only approved nails, bolts, screws and other fasteners.
5. Caulking:
 1. One or two part polysulphide as specified in Section 07920.
6. Felt:
 1. No. 15 asphalt saturated roof felt, to meet specified requirements of CSA Standard A123.3.
7. Building Paper:
 1. Smooth, unsaturated quality, rosin-sized paper weighing not less than 0.25 kg./sq. m.
8. Bituminous Paint:
 1. To meet specified requirements of CGSB Specification 1-GP-108M.

2.2. Fabrication

1. Fabricate all possible sheet metal in shop by brake forming, and bench cutting, drilling and shaping.
2. Form bends with straight sharp lines, angles and arises; and sheets into true planes free from twists, buckles, dents and other visual distortions. Follow stone coping profile closely.
3. Supply accessories required for installation of sheet metal specified in this Section. Fabricate accessories of same material as sheet metal with which they will be incorporated.
4. Double back exposed metal edges at least 12.7 mm.

PART 3 - EXECUTION

3.1. Installation

1. General:
 1. Install sheet metal exposed to view in straight lines, with junctions aligned and on same plane.
 2. Install sheet metal wherever possible on runs of equal 2400 mm lengths except where conditions for securing dictate that shorter and equal 1200 mm lengths are preferable.
 3. Install precoated sheet metal wherever possible in minimum lengths of 3600 mm on typical runs, except where conditions for securing dictate that shorter and equal 1200 mm lengths are preferable.
 4. Install sheet metal to prevent entry of water under service and weather conditions.
 5. Black paint, with two coats of bituminous paint at rate of 1L/sq. m., sheet metal that is not given precoated finish and that comes into contact with another kind of metal, or masonry or concrete.
 6. Install sheet metal with concealed fastenings. Exposed fastenings will be permitted only as approved when concealed fastenings are impossible. Fasten sheet metal, clips and other components in an approved manner, with fasteners weathertight and evenly and neatly located. Do not use pop rivets.
 7. Join sheet metal by slip lock seams to permit thermal movement. Space joints evenly where exposed. Lock seam and solder internal corners. Form mitres with standing seams in precoated metal.
 8. At exposed sheet metal, install expansion joints with 200 mm wide hooked covers, bedded in caulking compound, fastened at one side only, at intervals of approximately 7200 mm; or as otherwise shown on Drawings or approved.
 9. Install 50 mm x 75 mm cleats where required to fasten sheet metal. Secure each cleat to backing with 2 nails, space cleats at 300 mm o.c. generally. Turn cleats for fastening of sheets back to cover nail heads, and lock them into folded edge of metal being fastened.
 10. Install edge strips in lengths of approximately 2400 mm, continuously, and with 6 mm between each length. Fasten at 300 mm o.c.
 11. Do not form open joints or pockets that fail to drain water.
 12. Caulk all reglets and open sheet metal joints that do not mechanically provide weathertight construction, in accordance with Section 07920.

13. Apply No. 15 roofing felt under sheet metal installed directly over masonry, concrete or wood. Secure felt in place, and lap joints 100 mm as sheet metal is installed. Turn up edges 150 mm where used on horizontal surfaces. Lay rosin-sized building paper over felts.
 14. Secure sheet metal by nailing at 150 mm o.c. where concealed, unless otherwise specified or indicated on Drawings.
 2. Flashings:
 1. Install metal flashings as indicated on Drawings or as otherwise required where building components penetrate exterior construction, and for which flashing is not specified by other Sections. Fasten by cleats in doubled back edges of drips.
 3. Roof Edge Trim:
 1. Install 0.46 mm thick galvanized steel trim secured by nailing and edge strip. (26 gauge).
- 3.2. Cleaning
1. Remove flux residue completely from surfaces and crevices, remove other deposits, stains or protections and wash metals left unpainted and exposed to view as recommended by the manufacturer of the metal.

END OF SECTION 07600

PART 1 - GENERAL

1.1. Description

1. General Requirements:
 1. Division 1, General Requirements, is a part of this Section and shall apply here.
2. This Section specifies work which shall be performed by:
 1. Section 07600: Flashing and Sheet Metal
 2. Section 09900: Painting and Finishing
 3. Division 15: Mechanical
 4. Division 16: Electrical

1.2. Quality Assurance

1. All adhesives and sealants that are applied onsite and fall inside the building weatherproofing system must have a VOC content less than the limits of the State of California's South Coast Air Quality Management District (SCAQMD) Rule 1168.
 1. Subcontractor qualifications:
 1. Seal joints specified in this Section by a Subcontractor approved by manufacturers of sealants incorporated; who has equipment, adequate for Project, and skilled tradesmen to perform it expeditiously; and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past 5 years.
 2. Mock-Up:
 1. Test sealant in contact with samples of materials to be caulked to ensure that proper adhesion will be obtained and no staining of the material will result. Prepare sample joints at the site of each type of sealant for each joint condition to provide mock-up as required.

1.3. References

1. Reference Standards:
 1. Reference standards quoted in Contract Documents refer to:
 1. CGSB Specification 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing. CAN2-19.13-M82, Sealing Compound, One Component, Elastomeric, Chemical Curing.
 2. CAN2-19.24-M80, Sealing Compound, Multi-Component, Chemical Curing.

1.4. Submittals

1. Product List:
 1. Submit supporting documentation for all adhesives and sealants that are applied onsite and fall within the building weather barrier.
 2. Submit data sheets for all products showing that the VOC limits of adhesives, sealants and primers is within the VOC content limits of the State of California's South Coast Air Quality Management District (SCAQMD) Rule # 1168.

1.5. Site Conditions

1. Environmental Conditions:
 1. Apply sealants only to completely dry surfaces, and at air temperatures above minimum established by manufacturer's specifications.

1.6. Warranty

1. Extended Warranty:
 1. Submit a warranty of the joint sealant installation specified in this Section covering the period for one year beyond the expiration of the warranty period specified in the General Conditions of the Contract, including materials and application. Replacement of joint sealants shall include removal of defective materials preparation for and application of new material, and the repair and making good of damaged adjacent materials.
 2. Defective joint sealant installation shall include, but not be restricted to, joint leakage, hardening, cracking, crumbling, melting, bubbling, shrinkage, running, sagging, change of colour, loss of adhesion, loss of cohesion, and staining of adjoining or adjacent materials or surfaces.

PART 2 - PRODUCTS

2.1. Materials

1. All materials utilized in a sealant system shall be compatible.
2. Specified proprietary products are minimum acceptable quality. Products of other manufacturers of equal or superior quality will be acceptable where specifically approved by Architect.
3. Sealants:
 1. Provide sealant formulation recommended by manufacturer for type of joint, substrate and service conditions applicable.
 2. Refer to Caulking Schedule for utilization of the following sealants.
 3. Colours of sealants will be selected from manufacturer's standard range.

4. Sealants:

Type A:	Multi-component, chemical cured to meet specified requirements of CAN2 192-M80, such as Dymeric, as manufactured by Tremco (Canada) Ltd. Use at all exterior building joints, floor, wall and masonry joint locations, except where another type is specified.
Type B:	Acrylic solvent release, one part sealant. To meet specified requirements of CGSB 19-GP-5M, such as Mono, by Tremco (Canada) Ltd. Use at interior joints between windows, door-frames, and screen frames.
Type C:	Silicone sealant. One part sealant; to meet specified requirements of CGSB 19-GP-9Ma, such as Proglaze, by Tremco (Canada) Ltd. Sealant for fixtures, vanity tops, and where mildew resistant is required.
Type D:	As specified in Section 07950.

4. Primer:
 1. Specifically designed for use with sealant compounds on surfaces encountered, as specified by the compound manufacturer to assure adhesion of compound and to prevent staining of substrate materials.
5. Sealant Backing (Bedding Material)
 1. Extruded, foamed, closed cell, round, polyethylene, urethane, neoprene or vinyl rod, 30% greater diameter than joint width, with Shore "A" hardness of 20, and 830-900 kPa tensile strength, and manufactured especially for the purpose.
6. Void Filler:
 1. Loose glass fibre.
7. Bond Breaker:(for installation where minimum specified depth of joints is unobtainable):
 1. Pressure sensitive plastic tape, 3M #266 or #481.

PART 3 - EXECUTION

3.1. Examination

1. Before commencing joint sealing, verify at the site that joint configuration and surfaces have been provided as specified in other Sections to meet intent of sealant specification, that joint conditions will not adversely affect execution, performance or quality of completed sealed joints; and that they be put into acceptable condition by means of preparation specified in this Section. If in doubt, verify site conditions together with manufacturer's representative of the sealant to be applied.
2. Ascertain that sealers and coatings applied to sealant substrates are compatible with the sealant used and that full bond between sealant and substrate is attained. Request samples of the sealed or coated substrate from their fabricators for testing of compatibility and bond if necessary.
3. Verify that specified environmental conditions are ensured before commencing joint sealing.
4. Defective sealed joints resulting from application to unsatisfactory joint conditions will be considered the responsibility of this Section.

3.2. Preparation

1. Remove loose mortar, dust, oil, grease, oxidation, mill scale, coatings and all other materials affecting compounds from surfaces to which sealant compounds must adhere, except for painted surfaces, by brushing, scrubbing, scraping or grinding.
2. Clean down caulked metal surfaces with clean cellulose sponges or rags soaked in solvent recommended by sealant manufacturer, and wipe dry with clean cloths. Ensure that solvent is not injurious to painted surfaces.
3. Use methods of preparation suitable for substrate as recommended by sealant manufacturer, and that does not damage adjacent surfaces.
4. Ensure that releasing agents, coatings or other treatments have either not been applied to joint surfaces, or that they are entirely removed.

3.3. Application

1. Except where specified in other Sections, seal open joints in surfaces exposed to view, and to make the building weathertight and airtight as applicable, as indicated typically on Drawings, and as otherwise specified. Refer to Caulking Schedule. Include, but do not restrict it to sealing the following joints:
 1. Perimeter joints of exterior door and window, frames.
 2. Perimeter joints of exterior and interior pressed steel opening frames, where installed in masonry and where a weathertight joint is otherwise required.
 3. Perimeter joints of exterior and interior aluminum opening frames.
 4. Perimeter joints of exterior louvre and vent frames.
 5. Joints between underside of window sills and walls.
 6. Exposed control joints in masonry walls.
 7. Exposed expansion joints in masonry walls.
 8. Exposed control joints in concrete except for floors.
 9. Exposed expansion joints in concrete.
 10. Raked joints at masonry wall junctions and masonry to concrete junctions.
 11. Interior and exterior exposed joints, between dissimilar materials, and not concealed from view.
 12. Joints at wall floor junctions and at floors only where indicated on Drawings.
 13. Full length of exterior door thresholds.
 14. Close-fitted space between mechanical and electrical ducts, conduits and pipes, and walls and also at floors where fire separations must be maintained.
 15. Joints between base angle and structure at preformed metal siding.
 16. In all unfinished areas on the interior of the building where no base is called for, seal the junction between concrete floor and block or concrete walls.
2. Prime surfaces to receive sealants as required by substrate and manufacturer's specifications to ensure positive and permanent adhesion and to prevent staining.
3. Pack joints tightly with sealant backing set at depth specified for sealant. Fill all other voids with filler.
4. Install bond breaker tape in bottom of joints in lieu of sealant backing where proper depth cannot be obtained when backing is installed.
5. Maintain depth of sealant as follows for joint widths of:
 1. 6 mm (minimum joint width): joint depth 6 mm.
 2. 6 to 13 mm: depth equal to joint width.
 3. 13 to 25 mm: depth equal to one half joint width.
 4. 25 to 50 mm: maximum depth of 13 mm.
6. Install sealant in joints over 50 mm wide only after consultation with and approval of sealant manufacturer.

7. Fill joints with sealant compound to specified or indicated depths as indicated. Perform joint sealing in accordance with compound manufacturer's specifications, under his supervision, and using pressure guns and other equipment as approved by him. Finish joints with a full bead so that they are smooth and free from ridges, wrinkles, air pockets and embedded foreign materials.
8. Tool surface of joints to a slight concave profile.
9. Make compounds workable only as manufacturer specifies.
10. Caulk joints in site painted materials after adjacent surfaces have been painted. Match compound to paint colour.
11. Do not allow sealants to cover or spot surfaces outside of joints. Use masking tape protection to prevent coating of adjacent surfaces if necessary.

3.4. Cleaning

1. Remove sealant smears and droppings, and masking tape immediately on completion of joint sealing.
2. Do not use chemicals, scrapers, or other tools which would damage surfaces from which excess compounds or droppings are removed. Make good materials damaged by cleaning by the installer of the damaged material and at the expense of this Section.
3. Instruct Contractor on proper final cleaning methods.

3.5. Caulking Schedule

1. Sealant Type A: Joints between exterior metal door frames and masonry; joints between window frames and masonry; masonry control and expansion joints; caulking of joints between underside of concrete floor slabs and masonry; and all other locations where caulking is required except in locations designated. Ensure that sealant chosen (from the several specified under "MATERIALS") for each location is recommended by manufacturer for use on surface encountered.
2. Sealant Type B: Joints between interior metal door frames and masonry, millwork and where painted, exposed to view.
3. Sealant Type C: Joints between urinals, lavatories, walls, vanities and where moisture, mildew, etc. can occur.
4. Sealant Type D: All joints, junctions and penetrations of components and adjacent surfaces, through existing and/or new fire separations.
5. Perform caulking in accordance with this Section by:
 1. Section 0740, Steel Cladding.
 2. Section 09250 for gypsum drywall fire separations.

END OF SECTION 07920

PART 1 - GENERAL

1.1. Description

1. General Requirements:
 1. Division 1, General requirements, is a part of this Section and shall apply as if repeated here.
 2. Work performed by other Sections and which is related to this Section is specified in:
 1. Section 07920: Sealants and Caulking
 2. Section 09900: Painting and Finishing
 3. Installation of work which shall be supplied by this Section is specified in:
 1. Section 06200: To install hollow metal doors.

1.2. Quality Assurance

1. Subcontractor Qualifications:
 1. Provide fabrications specified in this Section only by a Subcontractor who has adequate plant, equipment and skilled tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least the immediate past five years.
2. Requirements of Regulatory Agencies:
 1. Construct fire rated doors and frames of ratings indicated, in accordance with validating label requirements, and as otherwise required by jurisdictional authorities.
 2. Ensure that hardware and installation meet requirements of CAN4-S104, Standard Method for Fire Tests of Door Assemblies, as adopted by Insurance Advisory Organization, when applicable.
 3. Doors and frames indicated as labelled, shall meet all conditions of NFPA No. 80, for installation, and shall have attached ULC labels.

1.3. References

1. Reference Standards:
 1. Reference standards quoted in Contract Documents refer to:
 1. ASTM A366-85, Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
 2. ASTM A525M-86, Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 3. ASTM A526/A526M-85, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
 4. ASTM A780-80, Practice for Repair of Damaged Hot-Dip Galvanized Coatings.
 5. CGSB Specification 1-GP-132M, Primers, Zinc Chromate, Low Moisture Sensitivity.

6. CGSB Specification 1-GP-140M, Primer, Red Lead, Iron Oxide, Oil-Alkyd Type.
7. CGSB Specification 31-GP-105M, Coating Conversion, Zinc Phosphate, for Paint Base.
8. CGSB Specification 1-GP-181M, Coating, Zinc-Rich, Organic, Ready Mixed.
9. CSA Standard G164-M1981, Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4. Submittals

1. Shop Drawings:
 1. Submit shop drawings of all doors and hardware.

1.5. Delivery, Storage And Handling

1. Brace frame units to prevent distortion in shipment, and protect finished surfaces by sturdy protective wrappings.
2. Store doors in a secure dry location to ensure that they are not damaged until hung. Remove wrappings when finally stored in location secure from damage. Store doors vertically, resting on planks, with blocking between to allow air to circulate.
3. Repair damage to finishes immediately as it occurs with matching specified finish materials.

PART 2 - PRODUCTS

2.1. Materials

1. Sheet Steel:
2. Cold-rolled, stretcher levelled, to meet specified requirements of ASTM Standard A366 or SAE Specification 1010: galvanized sheet, commercial quality, to meet specified requirements of ASTM/A526M.
3. Prime Paint:
 1. General: Ensure that primers are compatible with specified finish paint.
 2. Primer: To meet requirements of CGSB Specification 1-GP-132M, 1-GP-81M or 1-GP-140M.
4. Galvanization:
 1. Full galvanized sheet steel: Coating to meet specified requirements of ASTM A52M, zinc coating designation Z275.
 2. Wiped coated sheet steel; zinc wiped coating to meet specified requirements of ASTM A525M, zinc coating ZF75.
 3. Galvanized accessories; zinc coating to meet specified requirements of CSA Standard G164, including Appendix A.
5. Zinc Rich Paint:
 1. To meet specified requirements of CGSB Specification 1-GP-181M.

6. Door Insulation:
 1. Semi-rigid board, glass fibre, bound by resins, incombustible, with density of 48 kg. /cu. m.
7. Door Bumpers:
 1. Single stud rubber at interior openings.

2.2. Fabrication

1. General:
 1. Fit and assemble fabrications in shop where possible: make trial assembly in shop when not possible.
 2. Fabricate, reinforce and anchor component parts and assemblies to support loads that usage will impose without deflection detrimental to function, appearance or safety.
 3. Reinforce components to resist stresses imposed by hardware in use.
 4. Prepare frames and doors for specified hardware with mortises, and reinforcement. Drill and tap to template information: Incorporate steel reinforcement of:
 1. 1.5 mm thick for flush bolts, locks and strikes. (16 ga.)
 2. 6 mm for hinges. (10 ga.)
 3. 5 mm thick for panic devices, and push/pulls.
 4. 3 mm thick for surface mounted hardware, and door closer brackets and arms. (12 ga.)
 5. Install metal mortar guards of minimum 0.76 mm thick steel at (22 ga.) cutouts for hardware in frames installed in masonry walls.
 6. Reinforce all frames for closers.
 7. Provide for anticipated expansion and contraction of frames and supports.
 8. Fit elements at intersections and joints accurately together, in true planes, and plumb and level.
 9. Weld frame and door assemblies together. Weld continuously at joints exposed to view or at joints through which air or water could penetrate from the exterior of building to the interior.
 10. Where welding is impossible, connections may be bolted. Ream drilled holes and leave exposed edges clean and smooth.
 11. Isolate from each other dissimilar metals, and metal from concrete or masonry to prevent electrolysis.
 12. Ensure that exterior doors and frames are tightly fitted, and drips are installed on frames of out-swing doors, to prevent entry of water where exposed to weather.
2. Pressed Steel Door and Screen Frames:
 1. Supply single and double rebate frames to suit construction conditions and dimensions as indicated on Drawings.
 2. Fabricate interior frames of wipe coat galvanized steel and exterior frames of full galvanized sheet steel.
 3. Fabricate steel frames in minimum thickness of 1.6 mm thick sheet steel (16 ga.) unless otherwise specified or indicated.
 4. Use 2.0 mm thick sheet steel (14 ga.) for exterior frames.

5. Minimum frame material thickness applies only to doors not otherwise requiring heavier gauges to meet specified fire rated construction as required by validating underwriter's test.
 6. Fabricate removable stops of minimum 0.91 mm thick steel (20 ga.). Do not weld stop corners.
 7. Finish frames with one coat of galvanized primer on zinc coated surfaces exposed to view.
 8. Where members join at corners, cut mitres and weld continuously along inside of sections.
 9. Attach two 1.2 mm thick steel (18 ga.) channel spreaders at bottom of door frames to maintain square alignment, secured to facilitate removal after frames that extend only to finish floor are built in.
 10. Incorporate structural stiffeners for frame members as shown on Drawings. Securely anchor them at bottom and top. Where they extend above ceiling anchor them to concrete or structural framing to suit site conditions.
 11. Install three bumpers in interior frames at single opening latch jambs, and two at double door frame heads.
 12. Fasten removable stops by countersunk Phillips head screws at approximately 225 mm o.c. symmetrically spaced on stop length.
 13. Anchor frames to floor by 1.5 mm thick angle clips, welded to frame and provided with two holes for floor anchorage.
 14. For frames in masonry walls, attach adjustable Tee-anchors fabricated of galvanized steel in same gauge as frame. Install anchors on each jamb. Install three anchors for openings up to 2285 mm high.
 15. For frames in stud walls, weld or securely wedge 1.2 mm thick (18 ga.) steel anchors to inside of frame jambs. Install anchors on each jamb. Install four anchors for openings up to 2285 mm high.
 16. Secure frames set into previously constructed concrete or masonry openings by countersunk expansion bolts at same centres as for adjustable Tee-anchors. Reinforce frame at fastening location to prevent indentation of frame by fastening device.
3. Doors:
1. Openings in Interior of Building: Fabricate of composite metal face construction with each face formed from one sheet of flush 1.2 mm thick (18 ga.) steel sheet. Weld, dress and fill longitudinal joints. Construct doors with semi-rigid board, mineral fibre, bound by resins, non-combustible, with density of 24 kg. /cu.m. to fill core space completely. Close tops and bottoms of doors with 1.2 mm thick flush steel channels spot welded to face sheets.
 2. Minimum panel thickness and type of construction applies only to doors not otherwise requiring heavier gauges or different construction to meet specified fire rated construction.

3. Fabricate interior doors of wipe coat galvanized steel and exterior doors of full galvanized sheet steel.
 4. Finish doors with one coat of galvanized primer on zinc coated surfaces exposed to view.
 5. Provide doors with 1.6 mm clearance at heads and jambs, and no more than 9.5 mm at floor. Provide clearance at floor with allowance made for intended finish flooring.
 6. Bevel edges of stiles to suit door swing.
 7. Locate hardware to manufacturer's standard unless shown otherwise on Drawings or Door Schedule.
 8. Fabricate removable stops of minimum 0.91 mm thick steel. (20 ga.)
 9. Prepare doors to receive glass, grilles and stops. Install grilles. Secure removable stops with counter-sunk Phillips head screws at approximately 450 mm o.c., 50 mm from each end, and symmetrically spaced on stop length.
 10. Close top and bottom edges of exterior and interior doors with sheet steel caps so that they are flush with face edges.
 11. Fabricate closing stiles of paired doors as indicated on Drawings or Door Schedule.
4. Finishing:
1. File and grind exposed welds smooth so that assemblies have appearance of one piece construction. Fill depressions with metal filler and finish smooth.
 2. For primed surfaces, clean, scrape and remove rust, mill scale, grade and other surface deposits from steel following fabrication. Apply full smooth coat of primer in shop. Force paint into corners and open spaces.
 3. For surfaces with zinc coating, clean and smooth ground surfaces at welds, fill if necessary, and coat all areas from which galvanizing has been removed with zinc rich paint coating of 0.1 mm minimum.

PART 3 - EXECUTION

3.1. Examination

1. Take field dimensions of construction into which fabrications of this Section are incorporated before they are fabricated. Field adaptation of Work fabricated in error or without field check will not be allowed without approval.

3.2. Installation

1. Pressed Steel Frames:
 1. Setting up of pressed steel frames in masonry walls is included in Section 06200.
 2. Secure frame to floor construction with two fasteners at each jamb, and set and brace them securely to maintain true alignment until built in.
2. Doors:
 1. Install doors only when construction has progressed to a stage when no damage will occur to them in place.

2. Hang doors to swing easily and freely on their hinges, to remain stationary in any position, and to close tightly and evenly on frames without binding.
3. Installation of hollow metal doors supplied by this Section is included in Section 06200.

3.3. Adjustment And Cleaning

1. Refinish damaged and defective fabrication before completion of Project. Refinish exposed surfaces to ensure that no variation in appearance is discernible.
2. Clean surfaces in preparation for specified finishing at completion of installation.

END OF SECTION 08110

PART 1 - GENERAL

1.1. Description

1. General Requirements
 1. Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.
 2. Work performed by other Sections and which is related to this Section is specified in
 1. Section 02052: Removals and Miscellaneous Work.
 2. Section 09900: Painting and Finishing.
 3. Division 15: Diffusers, Grills, Access Panels, Ductwork, Piping.
 4. Division 16: Lighting, Fire Alarm Devices, Speakers, Modems
 3. Items within this Section marked with a single line strikethrough do not apply to this project.

1.2. Work Included

1. Provide for all labour, materials, equipment and services to complete all gypsum board and steel stud work indicated on drawings and as specified herein including but not limited to the following:
 1. Patching of interior walls as noted on the GA drawings.
 2. New steel stud and gypsum board where shown on GA drawings.

1.3. System Description

1. Tolerances:
 1. Install board within 1/8" of dimensioned location unless approved otherwise, and flat to a tolerance of 1/8" maximum in 10'-0" and 1/16" maximum in any running 12".
 2. Install framing members to ensure that deflection of each member does not exceed 1/360 of its span under loads imposed by mechanical and electrical equipment and fixtures supported by the ceiling.
 3. Install interior partition wall stud framing for deflection limit of L/180 of its span under mechanical pressurization load of 7.5 psf (unfactored) and seismic loading in accordance with Section 4.1.8.18 OBC 2012.
 4. Drywall contractor to provide **engineer stamped shop drawings** of interior framing and bulkheads complete with corresponding end connections per CSA S136-07.
 5. **Shop drawing engineer to provide site review and sign-off report to Consultant.**

1.4. Quality Assurance

1. Requirements of Regulatory Agencies:
 1. Install fire separations and fire protection exactly as specified in Underwriters' Laboratories test design specification that validates the specified rating. Verify that installations specified in other Sections, as a part of the entire assembly, meets applicable validating test design specifications.

1.5. References

1. Reference Standards:
 1. Reference standards quoted in Contract Documents refer to:
 1. ASTM A116-81, Specification for Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
 2. ASTM A153-82, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 3. ASTM A525-83, Specification for General Requirements for Steel Sheet, Zinc-coated (Galvanized) by the Hot-Dip Process.
 4. ASTM C475-81, Specification for Joint Treatment materials for Gypsum Wallboard Construction.
 5. ASTM C1002-83, Specification for Steel Drill Scores for the Application of Gypsum Board.
 6. CSA Standard A82.27-M1977, Gypsum Board Products.
 7. CSA Standard A82.31-M1980, Gypsum Board Application.
 8. ASTM C 1177, Glass Mat Substrate for Use as Sheathing.
 9. CAN/CSA S136-07 (R2012), Design of Cold Formed Steel Structural Members.

1.6. Delivery, Storage and Handling

1. Deliver finish materials in unopened packaging provided by manufacturer.
2. Store materials in protected dry areas. Store board flat in piles with edges protected.
3. Ensure that finish metal members are not bent, dented, or otherwise deformed.
4. Deliver products supplied only by this Section to those who are responsible for installation, to the place they direct, and to meet installation schedules.
5. Package fire rated materials with Underwriters' Laboratories labels attached.

1.7. Site Conditions

1. Environmental Requirements:
 1. Install interior gypsum board systems only in areas closed and protected against weather, and maintained between 10 deg. C. and 21 deg. C. In cold weather ensure that heat is introduced in sufficient time, before installation commences, to bring surrounding materials up to these temperatures and that it is maintained until materials installed by this Section have been cured.
 2. Do not install gypsum board systems in any area unless satisfied that construction in place has dried out, and that no further installation of damp materials is contemplated.

PART 2 - PRODUCTS

2.1. Materials

1. Gypsum Board:
 1. To meet specified requirements of CAN/ULC-S102 and ULC W444.
 2. Abuse Resistant Gypsum Board: To be applied on all gypsum board finished walls unless noted otherwise. 5/8" CGC Sheetrock Abuse-Resistant Gypsum Panels with tapered edges or equal. Type "X" where required.
 1. Typical for all new partition walls from finished floor to 9'-0" height.
 3. Gypsum Board: 5/8" CGC Sheetrock Gypsum Panels with tapered edges or equal. Type "X" where required.
 4. Moisture Resistant Gypsum Board: 5/8" Georgia Pacific Dens Armor Plus panels with tapered edges.
 1. Interior washroom walls only.
2. Joint Materials:
 1. To meet specified requirements of ASTM Standard C475 for gypsum board applications.
 2. Gypsum Board Joint Reinforcing Tape: As recommended by manufacturer.
 3. Gypsum Board Joint Compounds: CGC Dust Control Drywall Compound.
3. Galvanizing:
 1. Zinc Coating: To meet specified requirements of ASTM A525, zinc coating designation G90 for sheet steel; A153, Class B.3 Coating for hardware and bolts; A116, Class 3 Coating for wire and rods.
 2. Wiped Coating: ASTM A525, zinc coating designation 0.25 oz./sq. ft.
4. Accessories:
 1. Incorporate accessories with flanges suitable for board thickness and joint finishing.
 2. Control Joints: Crimped roll-formed zinc, as CGC #093, with flanges for tape reinforcement, or two casing beads, set with gap for movement, and backed with flexible air seal membrane.
5. Fastenings and Ties:
 1. Screws: For securing gypsum board to metal furring: Self-drilling, self-tapping, case hardened, Phillips head, drywall screws, with corrosion resistant finish; to meet requirements of ASTM Standard C1002.
 1. #6 x 1" for single thickness board fastening and
 2. #7 for 1-5/8" for double thickness board fastening.
 2. Tie Wire: 16 ga. galvanized soft annealed steel wire.

6. Furring System:
 1. Carrying Channels: 16 ga. cold rolled steel, hot dipped galvanized;
 1. : 1-1/2" x 1/2" where supported at centers of 3'-0" maximum.
 2. : 1-1/2" x 3/4" where supported at centers of 4'-0" maximum.
 2. Furring Channels: 20 ga. cold rolled steel, wiped coated, nominal size of 3/4" deep x 1-1/2" face, hat type with knurled face. Spacing @ 16" o/c max.
7. Corner bead:
 1. Galvanized Metal 32mm (1 1/4") Flange.
8. Edge Trim:
 1. "J" or "L" profile Galvanized Metal, minimum 22mm (7/8") flange.
9. Partition System:
 1. Steel Studs: 25 ga. steel minimum (dependent on engineered design), wiped coated, having knurled flanges 1-1/4" wide, with bridging at 5" o/c max as required, and with service access holes.
 2. Partition Tracks: As specified for studs, with flanges a minimum of 1-1/4" high, and to suit width of studs.
10. Bridging Channels:
 1. 18 ga. 1-1/2" x 3/4" cold rolled steel, wiped coated minimum.
11. Ceiling Hanger System:
 1. Hanger Anchoring Devices:
 1. Phillips Red Head by Phillips Drill Company of Canada Limited, Thornhill, Ontario
 2. WS-3822 wedge anchor with tie wire insert for use in composite concrete and steel deck.
 2. Hangers:
 1. Zinc coated annealed steel wire:
 2. 12 ga. to support a maximum weight of 150 pounds per hanger.
 3. 9 ga. to support a maximum weight of 310 pounds per hanger.
 4. and zinc coated annealed steel rod.
 5. 3/16" dia. to support a maximum weight of 500 pounds per hanger.
12. Sealant:
 1. Fire Separation Sealant:
 1. Sealant Type D as specified in Caulking Schedule of Section 07920 where exposed to view, and acoustical caulking at concealed locations.
 2. Board Masonry Adhesive:
 1. Durabond 90 Compound as manufactured by Canadian Gypsum Company Limited or Foamastik Adhesive as manufactured by Standard Chemical Limited.
 3. Acoustical /Thermal Insulation:
 1. For Walls: Roxul Plus 6" for 6" steel studs
 3.5" for 3 5/8 steel studs

PART 3 - EXECUTION

3.1. Examination

1. Before application of board systems commences, ensure that services have been installed, tested and approved; that conduits, pipes, cables and outlets are plugged, capped, or covered; and that fastenings and supports installed by other Sections are in place.
2. Ensure that environmental conditions and construction completed before installation of gypsum board systems commences are satisfactory, and will permit compliance with the quality and dimensions required for gypsum board installation specified in this Section. Do not permit installations of others to touch the back of gypsum board.
3. Verify that installations performed by other Sections which are a part of an underwriter specification for a fire rated assembly have been done in accordance with that specification.
4. Verify that channels installed for rigid insulation are located properly and are well covered.

3.2. Installation

1. General:
 1. Coordinate installation of systems specified in this Section with installations of other Sections for:
 1. Attachment of hangers, fasteners, stiffeners, and reinforcing.
 2. Support and incorporation of flush-mounted and recessed components.
 3. Installation of metal access panels and grilles.
 4. Installation of recessed lighting.
 5. Ensure adequacy of supports by consultation and verification of methods and layouts specified in Divisions 15 and 16.
 2. Install systems in accordance with approved manufacturers' specifications and printed directions, as applicable for materials incorporated.
 3. Do not install metal framing, trim, casings, or accessories which have been bent, dented or otherwise deformed.
 4. Securely attach trim, casings, framing and accessories.
 5. Framing and furring shown on Drawings is indicative but do not regard it as exact or complete. Construct systems to provide adequate strength to withstand stresses imposed by use without distortion, and to maintain dimensions indicated on Drawings.
 6. Provide continuous backing for all edges of board.
 7. Erect supporting and finish materials to dimensions indicated on Drawings; plumb, level, straight and square to adjoining elements.
 8. Provide for movement at intersections with structural members to avoid transference of loads to systems.
 9. Make allowances for thermal movements in systems.
 10. Do not support systems from, nor make attachment to ducts, pipes, conduit, or the support framing installed by other Section.
 11. Install materials with the minimum of joints.

12. Splice, framing members only where continuous lengths are not available from manufacturer.
 13. Frame openings on every side with suitable sections. Provide clearances required at mechanical and electrical services, such as grilles, diffusers, access panels, and lighting fixtures only after verification of requirements in each case.
 14. Cooperate with other Sections. Where the installations of other Section penetrate board construction, fit openings snugly and to ensure cover by escutcheons and plates utilized.
 15. Coordinate installation of board systems with Section 06100.
 16. Attach to framing adequate steel reinforcing members to support the load of, and to withstand the withdrawal and shear forces imposed by items installed by other Sections upon systems. Such items are, but are not restricted to, coat hooks, washroom accessories, handrail anchors, guards, wall-hung cabinets and fitments, shelving, curtain equipment and fixtures. Heavy mechanical and electrical equipment shall be self-supporting as specified in Divisions 15 and 16.
 17. Provide fire stopping; bulkheads over doors, frames, screens, and changes in ceiling levels; stair soffits; furred beams; pipe spaces; all as indicated on Drawings.
2. Suspended Ceiling Framing and Furring:
1. Anchor hangers to structural frame or to hanger anchoring devices installed by this Section.
 2. Install hanger anchoring devices in appropriately drilled holes in composite concrete, as applicable.
 3. Do not use hangers or hanger inserts that penetrate through roof deck.
 4. Space hangers for carrying channels to suit structure, to support ceiling load, at a maximum distance of 4'-0" o/c., and at not greater distance than 6" from ends of carrying channels.
 5. Install carrying channels at 3'-0" o/c. generally, and at no greater distance than 6" from terminations of supported cross furring members. Bend rod hangers sharply under bottom flange of carrying channel and wire securely in place with saddle ties.
 6. Splice carrying channels by lapping at least 12", with interlocking flanges, and wired at each end with two loops. Do not bunch or line up splices.
 7. Install cross furring at 16" o/c. generally, and at no greater distance than 6" from walls, openings, breaks in continuity of ceiling, and changes of direction. Space furring in all cases to suit incorporated services, and so as to avoid contact with perimeter walls. Span hat-type furring no greater than 4'-0". Use metal studs for greater spans: 1-5/8" deep spanning to 5'-0", 2-1/2" deep to 6'-0", and 3-5/8" depth to 8'-0".
 8. Secure cross furring to supports with double wire ties or approved equivalent attachment. Splice by nesting and tying together with an 8" overlap.
 9. Erect entire hanger and suspension system to adequately support the ceiling assembly, including services incorporated, with a maximum specified deflection for each component member, and free from horizontal movement.
 10. Enclose ducts, pipes, beams or other components that occur outside the general finishing lines of ceilings, soffits and bulkheads with metal furring and gypsum board, in rooms where acoustic treatments for ceilings is specified.

3. Metal Stud Partition Framing:
 1. Secure tracks at floor and tops of partitions for their full length, at 24" o.c. (maximum) with concrete nails, square cut nails, toggle bolts, or sheet metal screws as suitable for base material. Install tracks also at heads and sills of openings. Secure tracks at openings by cutting flanges, turning up webs, and screwing to studs.
 2. Provide slotted tracks with flanges to suit gap and connection at top of partitions where deflection and/or creep of structure will occur.
 3. Butt, not miter, tracks at wall intersections and corners. Lap tracks and screw together.
 4. Space studs at 16" o.c., generally; and at no greater distance than 2" from abutting walls, partitions, and corners.
 5. Secure studs to tracks by screws, crimping, or welding, as required by stud type, and in accordance with manufacturer's design specification. Include provisions for deflection of building structure to ensure that structural loads are not transferred to studs.
 6. Install studs of depth indicated on Drawings: but in no case span studs; 2-1/2" deep, 12'-0"; and 3-5/8" deep, 14'-9".
 7. Double studs at door jambs. At each jamb of doors exceeding either 3'-0" in width or 2-1/4" in thickness, or both, install a 4" hot rolled structural channel, to structure above, and adequately anchored at each end.
 8. Erect three studs at corner and intermediate intersections of partitions.
 9. Install partition tracks at heads and sills of openings in partitions. Form 6" bends in tracks and secure bent portion to studs.
 10. Splice studs by nesting, with an 8" minimum lap, and fastened with one screw in each flange.
 11. Ensure that electrical boxes are not installed back to back in same stud space.
 12. Install blocking for bases, frames and supports before board is applied.
 13. Coordinate installation of board systems with other Sections installing horizontal runs of service lines so that all installations are done simultaneously. Where standard holes are too small for installed services, notch studs, and splice notched flanges with splice pieces 12" longer than notches, each fastened with two screws.
 14. Screw, or weld, frame anchor clips, of frames, supplied by Section 08110, to jamb studs, and head and sill tracks. Ensure adequate fastening to prevent movement of the frame within the partition. Remove spreaders at floor after frames are anchored.
 15. Unless shown otherwise on Drawings, partitions, together with gypsum board facings, shall extend above ceilings to underside of structure above.
 16. Install metal cornice caps at dwarf partitions.
4. ~~Furring at Masonry Walls:~~
 1. ~~Install furring horizontally at 16" o/c. Space furring no greater than 2" from butting walls, floors, ceilings and openings.~~
 2. ~~Secure furring to walls with fasteners, such as hardened nails, spaced at 24" o/c maximum alternating on opposite channel flanges. Shim to plumb and level with metal spacers, or use adjustable wall furring brackets.~~

5. Application of Gypsum Board to Framing:
 1. Extend board into door, window and together opening reveals; behind mirrors, fitments, and other applied items of a fixed nature; and on metal stud partitions to structure above, unless noted otherwise on Drawings.
 2. Apply board with long dimension perpendicular to supports except at stud partitions where they shall parallel studs.
 3. Back all joints with a framing member. Locate joints on opposite sides of partitions on different studs, and at least 12' from opening jambs.
 4. Install board in maximum lengths and widths to minimize joints, and in lengths of 6'-0" minimum, and stagger end joints where they are unavoidable. Locate joints in ceilings where least prominently discerned, and never line up with opening edges.
 5. Tightly butt gypsum board joints, without force, and align them neatly.
 6. Form neat joints at mill ends and at edges of board panels cut in field. Cut paper on face with a knife. Smooth by sanding and rubbing edges together.
 7. Do not install gypsum board in close proximity to hot pipes or heating ducts.
 8. Fasten gypsum board to metal support members by metal drywall screws.
 9. Locate fasteners at 3/8" minimum to, and 1/2" maximum from centre of joints. Space fasteners at walls and ceilings at 12" o/c. at edges and in field, unless otherwise specified. At ceilings of fire rated board, space fasteners at 8" o/c. at edges and in field. At walls of fire rated board space fasteners at 8" o/c. at edges and 12" o/c. in field. Locate fasteners opposite one another in adjacent panels.
 10. Start application on walls at corners of rooms, and on ceilings from centre line of spaces. Do not force adjacent boards into place; allow moderate contact. Install extension slips where required. Drive screws to form a slight depression, but not so paper cover is broken.
 11. Install board with casing bead at termination of gypsum board edge abutting adjoining surfaces to provide for differential movement at internal corners.
 12. Install water resistant board where ceramic tile is installed on gypsum board. Seal cut edges watertight as recommended by manufacturer.
6. Form reveals where indicated on drawings.
7. Accessories:
 1. At External Corners: Install corner beads secured to framing at 6" o/c. on alternate flanges.
 2. At Board Edges: Secure casing beads at 12" o/c. at edges exposed to view, where board butts against other materials with no trim to conceal junction, at control joints, at perimeter of ceiling surfaces, at tops of partitions where they stop against continuous ceiling surfaces, and where otherwise indicated on Drawings.
 3. Incorporate expansion joints to coincide with building expansion joints, and where otherwise indicated.
 4. Install control joints in interior gypsum board systems at no greater spacing than 30'-0" for walls and 50'-0" for ceilings in each direction, at perimeters of ceilings where they abut walls and other vertical surfaces, or as otherwise indicated. Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements.

5. Install casings and thermal breaks at junctions of gypsum board with exterior door, window, or screen frames.
8. Finishing of Joints and Depressions at Gypsum Board:
 1. Fill joints, casing beads, corner beads, holes at board fasteners and depressions on board surfaces exposed to view to ensure smooth seamless surfaces and square neat corners. Use jointing compounds and reinforcing tapes in conformance with manufacturer's specifications. Ensure that board is tight against framing members, fasteners are properly depressed, and adhesives have sufficiently cured.
 2. Fill joints by three coat method:
 1. Embed reinforcing tape in a cover coat of joint filler.
 2. Apply level coat of joint filler when cover coat has dried.
 3. Apply skim coat of topping cement when level coat has dried.
 4. Feather edges of topping cement when level coat has dried.
 5. Feather edges of compounds into surfaces of boards. After skim coat has dried for at least 24 hours sand to leave smooth for decoration. Do not sand papers face of board.
 3. At beveled joints, apply cover coat 7" wide, level coat 10" wide, and skim coat 12" wide.
 4. At end joints and butt joints formed at cut edges of board, apply cover coat 14" wide, level coat 20" wide, and skim coat 24" wide. Camber treatment over end joints to 1/32" thick at most.
 5. At internal corners: First fill gaps between boards with joint filler. Embed creased reinforcing tape in a thin coat of joint filler applied 2" wide at each side of corner. Apply cover coat as specified for beveled joints. Apply skim coat (as specified for bevelled joints) to just one side of joint, and when dry, apply skim coat to other side.
 6. At external corners: Fill to nose of corner bead with joint filler and topping cement as specified for bevelled joints.
 7. At casing beads: As specified for bevelled joints.

8. At board fasteners: Fill holes and depressions with a two coat application of joint filler.
9. Apply skim coat of Durabond 90 or Sto Flexyl Ground Coat to remainder of gypsum board to completely cover surface and prepare for final coating.
9. Caulking:
 1. Caulk between casing beads and other construction where junctions are exposed to view.
 2. Caulk junctions between gypsum board fire separations and protections, and other construction to ensure that integrity of fire rating is maintained. Ensure that caulked joints provide a continuous seal and that they are caulked before other installations enclose them.
 3. Clean joints, and prime and install sealants in accordance with the requirements of Joint Sealants, Section 07920.
10. Fire Separations:
 1. Construct gypsum board fire separation assemblies, where located at fire separations, of metal framing covered on both sides by fire-rated gypsum board.
 2. Fit assemblies tightly to enclosing construction to maintain integrity of the separations. Install casing beads at all perimeter edges.
 3. Provide 1/2" minimum clearance for tops of studs in fire rated partitions.
 4. Frame separations of 1 hour fire resistance classification with 1-5/8" minimum depth studs at 16" o/c. and set into top and bottom tracks. Attach 5/8" gypsum board, with long edges on studs, by screws at 8" o.c., at an intermediate studs and tracks by screws, at 12" o/c. Tape joints, and fill screw holes.

3.3. Adjustment and Cleaning

1. Remove droppings and excess of joint compound from property, material and surfaces of others, and from board and accessories installed by this Section, before it sets.
2. Make good to cut-outs for services and other installations, fill in defective joints, holes and other depressions with joint compound.
3. Make good defective board installations, and ensure that surfaces are smooth, evenly textured and within specified tolerances to receive finish treatments.
4. Clean off bead, casings and other metal trim, and leave all surfaces ready for specified finishes.

END OF SECTION 09250

PART 1 - GENERAL

1.1. Description

1. General Requirements:
 1. Division 1, General Requirements, is a part of this Section, and shall apply as if repeated here.
 2. Work performed by other Sections and which is related to this Section is specified in:
 1. Division 15: Mechanical
 2. Division 16: Electrical
 3. Painting to include all new gypsum board wall board walls, hollow metal doors and frames.
 4. Structural steel not included – to be by structural steel trade.

1.2. Quality Assurance

1. Subcontractor Qualifications:
 1. Perform painting and finishing specified in this Section only by a Subcontractor who has adequate equipment and skilled tradesmen to perform Work expeditiously, and is known to have been responsible for satisfactory applications similar to that specified during a period of at least the immediate past five years.
2. Inspection Services:
 1. Source quality control may be performed by an inspection and testing company.
 2. The inspection and testing company will verify that materials supplied for this Project conform to the Specifications.
 3. Obtain samples of materials for testing from sealed containers stored at site, selected at random, and as directed by inspector. Provide each sample of material in closed one quart containers, labelled to indicate contents.
 4. Do not remove or add to stored materials at site, after samples have been taken, without approval.
 5. Material that replaces tested material failing to meet specification requirements shall be tested again at no expense to the Owner.

1.3. References

1. Reference Standards:
 1. The best practices specified in CAN2-85.100-M81, Painting, shall govern for painting materials, methods and procedures, unless specified otherwise in this Section.
 2. Reference standards quoted in Contract Documents refer to:
 1. ASTM D523-85, Test Method for Specular Gloss
 2. CGSB Specifications:
 3. 1-GP-2M, Oil, Linseed, Boiled.

4. 1-GP-4M, Thinner, Petroleum Spirits.
5. 1-GP-16M, Shellac Varnish.
6. 1-GP-38M, Undercoater, Enamel, Interior.
7. 1-GP-48M, Primer, Marine, for Steel.
8. 1-GP-57M, Enamel, Interior, Semigloss, Alkyd Type.
9. 1-GP-59M, Enamel, Exterior, Gloss, Alkyd Type.
10. 1-GP-60M, Enamel, Interior, Gloss, Alkyd Type.
11. 1-GP-76M, Enamel, Heat Resistant, Interior and Exterior.
12. 1-GP-88M, Enamel, Alkyd, Air Drying and Baking, Gloss.
13. 1-GP-100M, Paint, Interior, Latex Type, Flat.
14. 1-GP-118M, Finish, Interior, Alkyd, Flat.
15. 1-GP-119M, Primer-Sealer, Wall, Interior, Latex Type.
16. 1-GP-121M, Coating, Vinyl, Pretreatment, for Metals (Vinyl Wash Primer)
17. 1-GP-132M, Primer, Zinc Chromate, Low Moisture Sensitivity.
18. 1-GP-138M, Paint, Exterior, Latex Type, Flat.
19. 1-GP-188, Filler, Block, Emulsion Type.
20. 1-GP-202M, Enamel, Interior, Low Gloss, Alkyd.
21. 31-GP-116A, Pre-treatment Solution for Galvanized Steel.

1.4. Submittals

1. Samples:
 1. Submit 216 mm x 280 mm samples at least 30 days before materials are required; labelled to indicate finish, formula, colour name, number, sheen and gloss units of each specified colour in each specified finish coat material.
2. Inspection Company Reports:
 1. Submit inspection laboratory reports of material sampling specified under Source Quality Control.
3. Quality Control Reports:
 1. Manufacturer's representative shall submit reports of site visits as specified under Field Quality Control.
4. Documentation:
 1. Submit documentation from manufacturer to certify that materials supplied for Project meet specifications requirements, and that he approves of their use for each proposed application.
5. List of Materials:
 1. Before ordering materials, submit a list of those materials proposed for use on Project for approval. For each material, give manufacturer a descriptive nomenclature that will appear on labels. Do not order disapproved materials for Project.

1.5. Delivery, Storage And Handling

1. Deliver to site each container sealed, and labelled with manufacturer's name, catalogue number of brand name, colour, formulation type, reducing instructions, and reference standard specification number if applicable.
2. Store only acceptable Project materials at site, and in an area specifically set aside for purpose that is locked, ventilated, maintained at a temperature of over 4 deg. C., and protected from direct rays of sun.
3. Ensure that health and fire regulations are complied with in storage area. Provide carbon dioxide fire extinguishers of 9 kg. minimum capacity in each storage area while materials are contained within.

1.6. Site Conditions

1. Environmental Requirements:
 1. Apply finishing materials only when air and surface temperatures exceed 10°C or as recommended by paint manufacturer for best results.
 2. Do not apply exterior finishes in direct sunlight that raises surface temperatures above that for proper application and drying, nor in rainy, foggy or windy weather.
 3. Do not apply finishes when relative humidity is over 85%, when condensation has formed or is likely to form, nor immediately following rain, frost or formation of dew.
 4. Do not apply finishes when dust is being raised.
 5. Do not apply finishes on porous surfaces such as gypsum board, pipe insulation, masonry, that contain over 12" moisture.
 6. Do not finish wood surfaces that contain over 15% moisture.
 7. Ensure that all areas in which paint is applied are well-ventilated and broom clean.

1.7. Scope of Work

1. Paint the inside and outside surfaces of all new manddoors and frames.
2. Paint interior and exterior walls of new washroom and office room.
3. If required, include for all surface preparation and cleaning of existing surfaces to be painted including removal of all loose paint.

PART 2 - PRODUCTS

2.1. Materials

1. Products of the following manufacturers are acceptable provided that in each case they are approved on basis of samples submitted:
 1. Benjamin Moore & Co. Ltd.
 2. Canadian Pittsburgh Industries Ltd.
 3. ICI/Glidden
 4. Pratt & Lambert Inc.
 5. Crown Diamond Flo-Glaze

2. CGSB Specification numbers are listed in the Finish Formula Schedule to establish generic finish material types. Use only products of manufacturers whose best quality lines meet or exceed CGSB Specifications, except where otherwise specified by reference to another material or by a specific manufacturer. Materials, such as oils, shellacs, putties, thinners, and other materials required for specified finishes shall be of the best quality produced or recommended by the manufacturer approved for supply of finish materials in which they are incorporated.
3. Use only exterior grade materials for exterior surfaces.

2.2. Mixing

1. Paints shall be supplied ready-mixed unless otherwise specified. Do not incorporate adulterants.
2. Mix specified paste or powder coatings, or those that are field-catalyzed at job, to meet specified requirements of manufacturer.
3. Pigment shall be well ground to form a soft paste in the vehicle during its storage life. Paddle mixing at job shall evenly disperse paste throughout mixture to ensure painting of smooth-flowing, easy brushing, and consistency.
4. Mix paints only in mixing pails placed on suitably sized, non-ferrous or oxide resistant metal pans.

PART 3 - EXECUTION

3.1. Examination

1. Verify that specified environmental conditions are ensured before commencing painting and finishing preparation and applications.
2. Ensure that surfaces to receive finishing materials are satisfactory for specified materials; have been provided by other Sections as specified; will not adversely affect execution, permanence, or quality of applications; and can be put into an acceptable condition by means of preparation specified in this Section.
3. Test all surfaces for moisture content with an electronic moisture meter. Test surfaces of materials containing lime for acid-alkali balance.
4. Maintain at site at all times until applications are completed a moisture meter, hygrometer and thermometer to verify surface and environmental conditions.
5. Defective painting and finishing applications resulting from failure to properly test surfaces and/or from application to unsatisfactory surfaces will be considered the responsibility of this Section.

3.2. Preparation

1. General:
 1. Vacuum clean interior areas immediately before finishing Work commences.
 2. Remove from surfaces grease, oil, dirt, dust, ridges, and other soil and materials that would adversely affect the adhesion or appearance of finish coatings.
 3. Remove rust from damaged surfaces primed by other sections and reprime.

4. Touch up damaged prime coats on shop primed metals with same priming material. Feather out edges of shop coat and smooth repair coat into shop coat surfaces.
 5. Finish, patch and smooth surfaces to remove cracks, holes, ridges and similar blemishes.
 6. Neutralize highly alkaline surfaces with a neutralizing wash of 4% solution of zinc sulphate. Brush off residue before painting.
 7. Scrub mildewed surfaces with a solution of tri-sodium phosphate, bleach with a solution of one part sodium hypochlorite (Javex) to three parts water, and rinse with clear water.
2. Metal Surfaces:
 1. Unprimed Steel: remove weld flux and scale with scrapers, wire brushes, wire power wheels, sandblasting, chipping, or grinding as may be required. Finish surface smooth, and remove alkali contamination from weld flux with phosphoric acid solution. Wash with solvent.
 2. Primed Steel: Before touch-up of prime paint, smooth out surface irregularities; clean weld joints, bolts, nuts and damaged areas with phosphoric acid solution; and wash with solvent.
 3. Galvanized Steel: Wash thoroughly with mineral spirits, and wipe dry with completely clean cloths. Apply galvanized steel primer: Alternatively, phosphatize surfaces in accordance with CGSB Specification 31-GP-116a, or apply one coat of etch type primer except where either of these treatments are specified in another Section.
 3. Cementitious Substrates:
 1. Fill minor holes and cracks with Portland cement mix. Match patches to texture of adjacent surfaces.
 2. Remove dirt, scale, loose mortar, and similar foreign matter by brushing.
 3. Remove oil and grease with a washing with tri-sodium phosphate solution followed by a thorough rinsing with water.
 4. Remove efflorescence by dry brushing, or, if required, by washing with dilute muriatic solution of one part commercial muriatic acid to 20 quarts water, followed by a complete rinse with a drenching by clear water.
 4. Wood:
 1. Sand finish surfaces smooth with No. 00 sandpaper.
 2. Clean soiled surfaces with an alcohol wash.
 3. Wipe off dust and other loose dirt, or vacuum clean before application of coatings.
 4. Seal knots, pitch, and sapwood with two coats of orange shellac where painted, or an application of special sealer.
 5. After prime coat is dry and sanded, fill nail and screw holes, and cracks with wood filler, or with putty.
 5. Gypsum Board:
 1. Fill minor holes and depressions, caused by accidental damage, with drywall joint compound, and sand smooth when it is set, taking care not to raise nap of paper cover.

6. Existing Painted Surfaces:
 1. Remove finish that is incompletely bonded to substrate.
 2. Smooth uneven and rough surfaces.
 3. Roughen highly finished surfaces to ensure adhesion of new coatings.
 4. Reprime areas bared to substrate by preparation.
7. Protection:
 1. Cover or mask surfaces adjacent to those receiving treatment and finishing to protect materials and surfaces installed by other Sections from damage and soil. Mask instruction and specification plates attached to equipment being painted.
 2. Take particular care in storage and mixing areas that floors are protected by tarpaulins and metal pans.
 3. Place cloths and other disposable finishing materials, that are a fire hazard, in closed metal containers containing water, and remove from building every night.
 4. Ensure that the appropriate trades remove from finished surfaces, store and reinstall after finishing is completed finish hardware, switch and receptacle plates, escutcheons, luminaire frames and similar items.
 5. Porous materials from which soil from finish materials cannot be completely removed shall be replaced by this Section.
 6. Post "No Smoking" signs and ensure that spark-proof electrical equipment is used in areas where inflammable painting materials are being applied.
 7. Post "Wet Paint" signs throughout freshly finished areas and remove when finishes are dry.

3.3. Application

1. General:
 1. Perform painting and finishing specified in this Section under supervision of experienced foremen, with clean equipment designed for purpose used, and under directions and specific recommendations of manufacturers whose materials are used.
 2. Before commencing applications, arrange for a site meeting, in accordance with Section 01200, at which conditions of surfaces and possible adaptations to suit and use of materials and application procedures shall be discussed between Contractor, Painting Subcontractor, Architect, and representatives of materials manufacturers.
 3. Consult with Architect before proceeding with application of finishes to surfaces for which a formula is not given in Specifications.
 4. Finish glazing rebates before glazing commences.
 5. Do not paint caulked joints.
 6. Remove spatters of finish materials from adjacent surfaces, including glass, before they set up, and by methods not harmful to the surfaces.
2. Finishing Methods:
 1. Apply paint coats in sequence as follows:
 1. 1st Coat: White
 2. 2nd Coat: A slightly lighter colour than selected finish coat.
 3. 3rd Coat: To match colour of finish coat selection.

2. Apply finishing materials at proper consistency, free from brush marks, sags, crawls, streaks, runs, laps, skips, voids, pinholes, missed areas, and other perceptible defects, and with even colour, sheen and texture.
 3. Apply finishing materials to ensure full coverage, and at a rate not to exceed that recommended by the manufacturer for the applicable surface.
 4. Make clean true junctions with no overlap between adjoining applications of finish coatings.
 5. Leave all parts of mouldings and ornaments clean and true to details with no undue amount of coating in corners and depressions.
 6. Use materials of a single manufacturer in each coating system.
 7. If evidence is inclusive that a specified coat has been applied, apply a full coat to the areas concerned.
 8. Obtain approval of each coat of finishing material before proceeding with next coat. Coats not approved shall be redone, as no credit will be given for those not approved.
 9. Apply each coat only after preceding coat is dry and hard, or as otherwise directed by material manufacturer.
 10. Sand surfaces lightly with No. 00 sandpaper between coats on wood and metal.
3. Priming and Backpriming:
 1. Verify, by review of other Sections of the Specifications, the extent of surfaces primed by other Sections. Priming of unprimed surfaces shall be provided by this Section.
 2. Backprime exterior and interior woodwork, fitments and similar wood installations as soon as it is delivered and before it is installed. Use exterior primer compatible to finish coat for exterior surfaces, and enamel undercoater for interior surfaces to receive paint or enamel undercoated for interior surfaces Prevent primer from running over faces.
 3. Prime tops and bottoms of painted wood doors with enamel undercoater.
 4. Remove doors to prime and finish.
 5. Prime alkaline surfaces with alkali resistant primer.
 6. Brush out force primers into crevices, cracks and joints in all materials.
4. Painting:
 1. Apply paint by brush or rollers. Spray paint only when requested or approved, and in approved areas. Discontinue spraying if directed because of inadequate coverage, overspray, paint fog drift, or disturbance to construction operations.
 2. Use only brushes for enamels and varnishes, and for painting wood.
 3. Specified formulas are intended to completely cover surfaces. If it is considered that coverage is inadequate, do not commence application without direction. Otherwise, apply as many coats as necessary to ensure completely satisfactory cover.
 4. Use only unadulterated paint. Thin paint as specified by manufacturer.
 5. Touch up visible suction spots on dried primer, and ensure that they are sealed before application of second coat. Repeat on second coat if still visible.

6. Do not paint metal access and electrical panels when they are closed. Paint only when open and leave open until dry.
 7. Where exposed to view, fill holes and open grain of exposed plywood edges with wood filler following prime coats. Smooth and sand before applying next coat.
5. Existing Surfaces:
1. Apply two final coats as specified in Finish Formula Schedule on existing painted surfaces.
 2. Primer is required only on surfaces bared by preparation.

3.4. Field Quality Control

1. Arrange for periodic visits to site by paint manufacturer's representative while painting and finishing applications are in progress. On each visit he shall verify that specified materials and methods are used, and that procedures agreed upon at the initial site meeting are followed.
2. Manufacturer's representatives shall submit reports of each site visit to the Architect as specified in Article 1.03.

3.5. Adjustment And Cleaning

1. Touch up and refinish minor defective applications. Refinish entire wall, ceiling or similar surfaces where finish is damaged or not acceptable.
2. Remove spilled or splattered finish materials from surfaces of installations provided by other Sections. Do not mar surfaces while removing.
3. Leave storage and mixing areas clean and in same condition as equivalent spaces in Project.

3.6. Extra Stock

1. Deliver to Owner on completion of painting and finishing, and as he directs, sealed containers of each finish painting material applied, and in each colour. Label each container as for original, including mixing formula. Provide 1 L of extra stock when less than 50 to 200 L are used, and a L of extra stock when over 200 L are used.

3.7. Painting And Finishing Schedule

1. General:
 1. This Section shall include painting and/or finishing of all surfaces exposed to view that have been installed with no final finish provided by the installer, unless otherwise specified.
 2. Finish interior surfaces, including objects within each area unless otherwise excluded, as indicated on Finish Schedule.
 3. Wall surfaces partially finished with other finish materials shall have remainder of surfaces finished as for surrounding surfaces.
 4. Finish equipment, panels, fitments, services, structure, attachments, and accessories, prime coated hardware, or similar appurtenances on or near finished surfaces to match finish of the surface.

5. Finish edges and tops of trim, projecting ledges, fitments, cupboards and similar spaces to match adjacent surfaces, whether or not they are above or beyond sight lines.
 6. Finish interiors of alcoves, recesses, closets, cupboards, fitments, and similar spaces to match adjacent surfaces unless otherwise indicated.
 7. Finish surfaces visible through grilles, grille cloth, perforated metals, screening, convector covers, louvres, linear metal ceilings, and other openings, including inside of ductwork, with two coats of matte black paint. If it is the intention that finished surfaces be seen behind the elements listed above, finish the surfaces to match adjoining surfaces.
 8. Finish exposed wood and exposed ferrous metals, whether primed or galvanized or not, on surfaces that are indicated as unfinished.
 9. Paint exposed metal housings of weatherstripping and door seals and door closers to match surface to which they are attached and which are painted or finished by this Section.
2. Doors:
 1. Finish wood edges of doors and edges of metal doors exposed to view with the same number of coats of material and colour as adjoining surface finishes. Where not exposed to view, finish with two coats of varnish.
 2. Paint exposed plywood edges of doors to match stained/painted finish.
 3. Finish all birch veneer doors with natural satin finish.
3. Painting of Piping and Conduit and Ductwork:
 1. Paint piping, ductwork, and conduit exposed to view in finished areas including Mechanical Rooms in colours to match adjacent surfaces.
 2. Paint piping and conduit in mechanical and service areas in basic colour.
 3. Identification of piping and conduit is specified in Divisions 15 and 16.
 4. Ensure that no colour coding or other identification of services that are applied by others are painted over by this Section.
4. Include finishing of the following surfaces by this Section:
 1. Interior ferrous metal hardware, fasteners and accessories.
 2. Interior galvanized hardware, fasteners and accessories.
 3. Exterior ferrous metal hardware, fasteners and accessories.
 4. Exterior galvanized hardware, fasteners and accessories.
 5. Sheet metal ducts in interior spaces where exposed to view.
 6. Sprinkler system except for heads where exposed to view.
 7. Access doors.
 8. Convector doors.
 9. Baseboard units.
 10. Prime painted fire hose and extinguisher cabinets.
 11. Prime painted electrical panel doors and frames.

5. Surfaces that Require No Finishing:
 1. Painting or finishing of the following surfaces is not included in this Section:
 1. Plastics.
 2. Metals with porcelain enamel, baked enamel or plated finishes.
 3. Sound absorbent surfaces.
 4. Vitreous, glazed ceramic or plastic facings.
 5. Special coatings.
 6. Factory finished surfaces as specified in other Sections.
 7. Control panels, circuit breakers, switches, receptacles or similar electrical components.
 8. Name and specification plates on equipment.
 9. Ducts, pipes, and conduit concealed from view.
 6. Gloss:
 1. Gloss value shall be determined in accordance with ASTM D523 Tentative Method of Test for 60 deg. specular gloss.
 2. Gloss values for terminology specified shall be: less than 10 for flat, 10 to 35 for eggshell, 35 to 60 for semi-gloss, 60 to 80 for gloss, 80 to 90 for high gloss.
 3. Gloss for various areas will be submitted by Architect following award of Contract.
 7. Colours:
 1. Colours of paints, including shades of stains, shall be applied to match approved samples.
 2. Colours will be submitted by Architect following award of Contract.

3.8. Schedule Of Applied Finishes

1. Exterior Ferrous Metal, Shop Primed
 1. Touch up coat of primer, alkyd type, 1-GP-40.
 2. 2 coats enamel, gloss, alkyd type, 1-GP-59.
2. Exterior Ferrous Metal, Galvanized
 1. Touch up damaged galvanized with "Galvafruid". Wash prime galvanized surfaces with vinyl pre-treatment coating, 1-GP-121.
 2. 1 coat primer, zinc chromate, 1-GP-132.
 3. 2 coats enamel, gloss, type 1, 1-GP-88.
3. Interior Concrete Block
 1. 1 coat masonry blockfiller of approved manufacturer.
 2. 2 coats interior paint, 100% acrylic ICI Dulux Lifemaster, Semi-gloss 59211 finish.
4. Interior Concrete
 1. 1 coat primer-sealer, solvent type, 1-GP-68.
 2. 2 coats interior paint, alkyd type, semi-gloss texture, 1-GP-118.

5. Interior Plaster, Drywall walls and ceilings.
 1. 1 coat primer-sealer, solvent type, 1-GP-68.
 2. 2 coats 100% acrylic ICI Dulux Lifemaster, Eggshell 59311.
6. Interior Woodwork, Painted
 1. 1 coat undercoater, 1-GP-38
 2. 2 coats enamel, semi-gloss, alkyd type, 1-GP-57.
7. Interior Ferrous Metal, Shop Primed
 1. 1 coat, ICI 9531 Cementitious Primer
 2. 2 coats interior enamel, semi-gloss, alkyd type, 1-GP-57.
8. Interior Ferrous Metal, Galvanized
 1. 1 coat primer, zinc chromate, 1-GP-132.
 2. 2 coats interior enamel, semi-gloss, alkyd type, 1-GP-57.
9. Interior Ferrous Metal, Unprimed
 1. 1 coat primer, alkyd type, 1-GP-40.
 2. 2 coats, interior enamel semi-gloss, alkyd type, 1-GP-57.
10. Heat Resistant Metal Surfaces
 1. 2 coats heat resistant enamel, interior and exterior, 1-GP-76.
11. Pipe and Unfinished Duct Insulation, Exposed to View
 1. 1 coat approved primer sealer to suit substrate (Stainless Steel).
 2. 2 coats interior enamel, semi-gloss alkyd type, 1-GP-57.
12. Roof Mounted Equipment
 1. 1 coat approved primer, if unprimed.
 2. 2 coats alkyd exterior enamel.
 3. If prefinished, repaint in approved colour.
13. Metal doors, frames, and grilles in walls, etc., with factory applied shop coats shall be touched up with Metal Primer where raw material has become exposed, finished with 2 coats of Semi-Gloss Enamel or Gloss Enamel, colour to match adjacent wall surfaces. Review with Architect before proceeding.

END OF SECTION 09900

APPENDIX

1

HOPA

CONTRACTOR

SAFETY

ACKNOWLEDGEMENT

CONTRACTOR SAFETY ACKNOWLEDGEMENT

This Contractor Safety Acknowledgement is provided to all contractors who have been hired by the Hamilton-Oshawa Port Authority (“HOPA”). Upon receipt of the documentation required for your specific role, a HOPA staff member will contact you to schedule a meeting to review such documents and to discuss work site conditions and any other matters required to be addressed before the commencement of your work. If you were hired for project specific work, please refer to Section A. If you were hired for routine maintenance, please refer to Section B.

A. Project Specific

Before commencing any work with the HOPA, you must provide to the HOPA:

1. A completed copy of this Contractor Safety Acknowledgment;
2. A copy of your Site-Specific Health and Safety Plan (**SSHASP**);
 - a. The SSHASP must include an analysis of the hazards associated with the work, mitigation measures to be implemented to minimize those hazards, and emergency procedures.
3. Proof of insurance in accordance with the requirements stipulated in the tender documents, and where the tender documents are silent on insurance, at a minimum, General Liability Insurance of at least one million dollars (\$1,000,000.00) per occurrence with a maximum deductible of five thousand dollars (\$5,000.00), with the HOPA as a named additional insured;
4. A current WSIB Clearance Certificate;
5. A Notice of Project, if requested from the HOPA; and
6. Any other documents as may be requested from the HOPA.

Any documents provided to the HOPA are project specific and are not transferable to another project.

B. Routine Maintenance

You must provide to the HOPA:

A completed copy of this Contractor Safety Acknowledgment	Prior to the commencement of any work and on an annual basis thereafter
A copy of your Health and Safety Policy	Prior to your first job and each time a change is made to your Health and Safety Plan
A copy of the Job Hazard Identification form and SSHASP completed for each job completed as routine maintenance	Upon request from the HOPA
Proof of insurance in accordance with the requirements stipulated in the tender documents, and where the tender documents are silent on insurance, at a minimum, General Liability Insurance of at least one million dollars (\$1,000,000.00) per occurrence with a maximum deductible of five thousand dollars (\$5,000.00), with the HOPA as a named additional insured;	Prior to the commencement of any work and on an annual basis thereafter
A current WSIB Clearance Certificate	Prior to the commencement of any work and upon submitting any invoices for toe work

and any other documents as may be requested from the HOPA.

CONTRACTOR SAFETY ACKNOWLEDGEMENT

Project Name OR Routine Maintenance Work Description: _____
(the “**Work**”)

Work Type (Check which applies): Project Routine Maintenance

Work Site location: _____
(the “**Worksite**”)

Contractor Company Name: _____ (the “**Contractor**”)

Contractor Representative Name: _____

HOPA Project Manager: _____

Acknowledgements:

I, the undersigned, have visited the Work Site and I am familiar with the scope of work for the Work described above. I acknowledge and agree that the Contractor:

1. Accepts accountability for the health and safety of the Work Site, as well as the health and safety of its staff, HOPA Staff, visitors to the Work Site, and the general public;
2. Will complete the Work in a manner that is compliant with:
 - a. Ontario Occupational Health and Safety Act and its Regulations;
 - b. Canada Labour Code Part II;
 - c. Canadian Occupational Health and Safety Regulations; and
 - d. Any applicable health and safety regulations that may apply to the Work;

and will ensure all staff and visitors, including subcontractors and any person who accesses the Work Site adheres to same;

3. Will ensure that all workers and subcontractors entering the Work Site comply with the SSHSP and Health and Safety Policy that the Contractor submitted to the HOPA, and all applicable legislation;
4. Will ensure that all tools and equipment including personal protective equipment to be used at the Work Site are in good working condition, are properly maintained, and are certified if required by regulations;
5. Will monitor the use of all tools and equipment and ensure that such are operated only by those workers who have been trained and are skilled in their proper operation;

6. Will ensure that access to the Work Site is controlled by using the proper signage, hoarding, barricades, fencing or other means so required to properly maintain the Work Site, where necessary;
7. Will ensure that procedures are in place at the Work Site for the following:

Item	Yes	No	N/A	Comments
a. Emergency Response & Emergency Contacts				
b. Site Access, signage & protection				
c. Electrical Safety including Lock-out/tag-out				
d. Hot work (cutting, burning, welding)				
e. Fire protection & prevention				
f. Excavations, shoring and pinning				
g. Tools & Equipment				
h. Personal protective equipment (PPE)				
i. Confined spaces entry				
j. Environmental protection, spills response				
k. Waste management and disposal				
l. Material handling				
m. Hoisting, lifting and cranes				
n. Tools and equipment				
o. Motor vehicles and traffic control				
p. Ladders, scaffolding, man-lifts and working from heights				
q. Working on, in or near water				
r. Designated Substances				
s. ensuring that all permanent and temporary buildings and structures meet the prescribed standards				
t. recording and reporting of all accidents, occurrences of harassment and violence, occupational illnesses and other hazardous occurrences known				
u. to ensure that the levels of ventilation, lighting, temperature, humidity, sound and vibration are				

in accordance with prescribed standards				
v. Other (Specify as Required)				

8. Will ensure all individuals that enter the Work Site:
 - a. have access to first-aid facilities and health services, sanitary and personal facilities, potable water, safe entry to and exit from the Work Site;
 - b. are familiar with and uses in the prescribed circumstances and manner all prescribed safety materials, equipment, devices and clothing; and
 - c. are informed of every known or foreseeable health or safety hazard to which they are likely to be exposed in the Work Site;

9. Will advise HOPA immediately if the Contractor or any individual on the Work Site becomes non-compliant with any of the above;

10. Will, prior to commencing any work at the Work Site, complete a hazard assessment at the Work Site, address any and all hazard concerns prior to starting any work and advise HOPA of any hazard concerns discovered during the hazard assessment;

11. Will, prior to commencing any work at the Work Site, complete a health and safety inspection at the Work Site, will address any and all concerns prior to starting any work and advise HOPA of any concerns discovered during the inspection;

12. Will ensure the Work Site, is always left in a safe manner such as removing hazardous materials, properly storing all equipment, restricting access where applicable and any other safety measures as the Work Site may require from time to time;

13. Will advise the HOPA of any accidents, occurrences of harassment and violence, occupational illnesses and other hazardous occurrences on the Work Site, immediately;

14. Will advise the HOPA of any inspections performed by the Ministry of Labour or any government representative, immediately; and

15. Where the Contractor is hired for routine maintenance, the Contractor is required to complete a Job Hazard Identification form and SSHASP before each job. The Contractor will keep a copy of all Job Hazard Identification and SSHASP forms on file and readily available to the HOPA, upon request. I understand the HOPA may request a copy of any Job Hazard Identification and SSHASP form at any time and the Contractor will provide such requested copies to the HOPA within three (3) days of receiving notice.

Signature page to follow

Date: _____

Print contractor company name above

Signature

Name:

Title:

I have authority to bind the corporation.

APPENDIX

2

**GEOTECHNICAL
BOREHOLE LOGS**

ENCLOSURES



Soil Abbreviations and Terms Used on Record of Borehole Sheets

TERMINOLOGY DESCRIBING COMMON SOIL TYPES:

Topsoil	-	mixture of soil and humus capable of supporting vegetation
Peat	-	mixture of visible and invisible fragments of decayed organic matter
Till	-	unstratified glacial deposit which may range from clay to boulders
Fill	-	soil materials identified as being placed anthropologically

CLASSIFICATION (UNIFIED SYSTEM)

Clay	<0.002mm	
Silt	0.002 to .075mm	
Sand	0.075 to 4.75mm	
	Fine	0.075 to 0.425 mm
	Medium	0.425 to 2.0 mm
	Coarse	2.0 to 4.75 mm
Gravel	4.75 to 75mm	
	Fine	4.75 to 19 mm
	Coarse	19 to 75 mm
Cobbles	75 to 300mm	
Boulders	>300mm	

TERMINOLOGY

Soil Composition	% by Weight
"traces"	<10%
"some"(eg. some silt)	10-20%
Adjective (eg. sandy)	20-35%
"and"(eg. sand and gravel)	35-50%

Standard Penetration Resistance (SPT): Standard Penetration Resistance ('N' Values) refers to the number of blows required to advance a standard (ASTM D1586) 51 mm Ø (2 inch) split-spoon sampler by the use of a free falling, 63.5 Kg (140lbs) hammer. The number of blows from the drop weight is recorded for every 15 cm (6 inches). The hammer is dropped from a distance of 0.76m (30 inches) providing 474.5 Joules per blow. When the sampler is driven a total of 45 cm (18 inches) into the soil, the standard penetration index ('N' Value) is the total number of blows for the last 30 cm (12 inches).

Dynamic Cone Penetration Resistance (DCPT): Dynamic Cone Penetration Resistance is similar to a SPT with the 474.5 Joule/blow impulse provided by the free falling hammer where the split-spoon sampler is replaced by a 51 mm Ø, 60° conical point and the number of blows is recorded continuously for every 30 cm (12 inches).

COHESIVE SOILS CONSISTENCY

	(kPa)	(P.S.F.)	Nominal 'N' Value
Very Soft	<12	<250	0-2
Soft	12-25	250-500	2-4
Firm	25-50	500-1000	4-8
Stiff	50-100	1000-2000	8-15
Very Stiff	100-200	2000-4000	15-30
Hard	>200	>4000	>30

RELATIVE DENSITY OF COHESIONLESS SOIL

	'N' Value
Very Loose	0-4
Loose	4-10
Compact	10-30
Dense	30-50
Very Dense	>50

MOISTURE CONDITIONS:

Cohesive Soil
DTPL- Drier than plastic limit
APL- About plastic limit
WTPL- Wetter than plastic limit
MWTPL- Much wetter than plastic limit

Cohesionless Soil
Damp
Moist
Wet
Saturated

SAMPLE TYPES AND ADDITIONAL FIELD TESTS

SS Split Spoon Sample (obtained from SPT)	GS Grab Sample	PP Pocket Penetrometer
AS Auger Sample	BS Bulk Sample	VANE Peak & Remolded shear
	TW Thin Wall Sample or Shelby Tube	DMT Flat Plate Dilatometer

LABORATORY TESTS

SG Specific Gravity	S Sieve Analysis	W Water Content
H Hydrometer	P Field Permeability	K Lab Permeability
W_p Plastic Limit	W_l Liquid Limit	I_p Plasticity Index
GSA Grain Size Analysis	C Consolidation	UNC Unconfined compression

FILE No: 2196

BOREHOLE No. 1



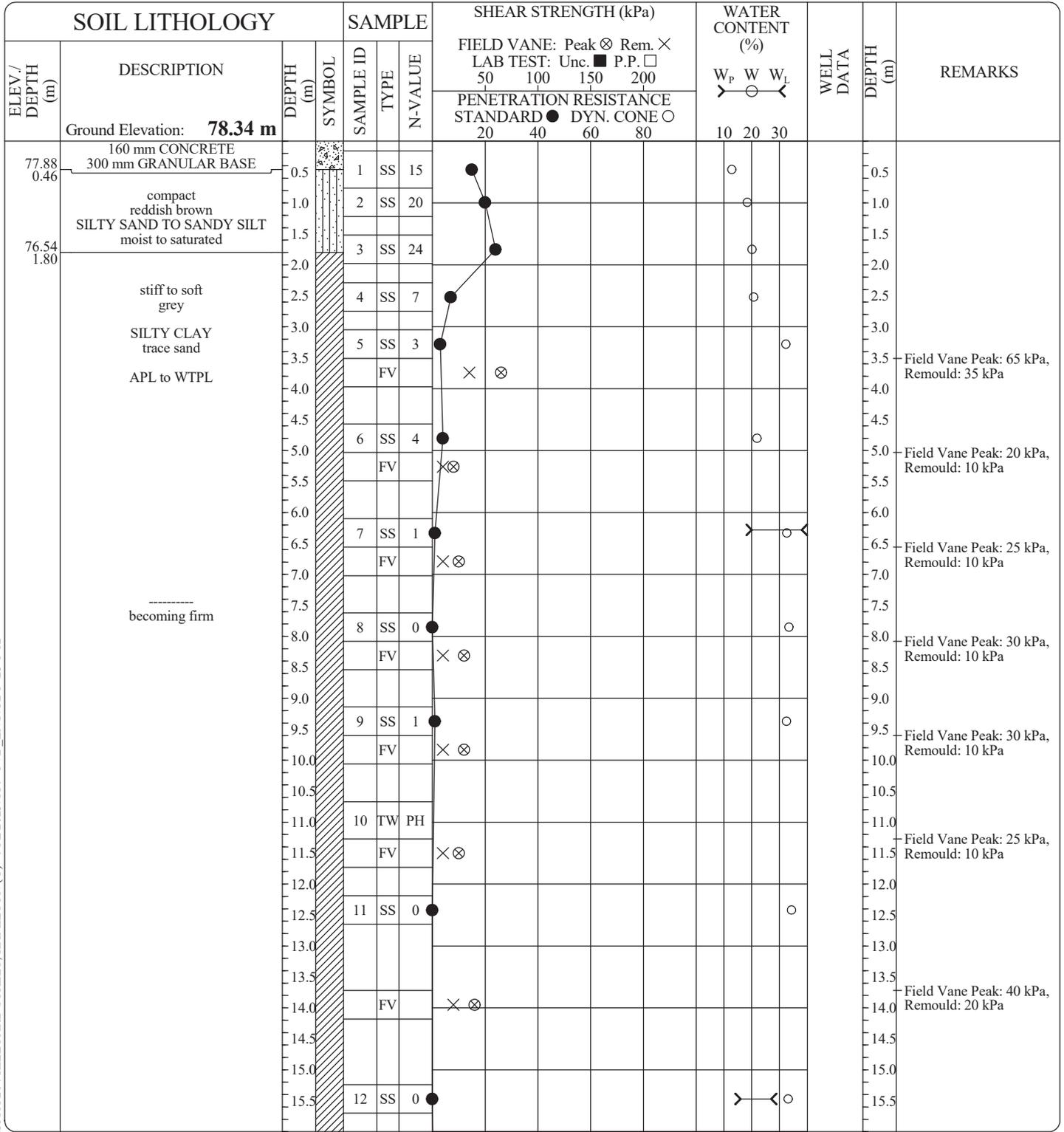
Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **HSA & Mud Rotary**
Size: **83 mm I.D.**
Date: **Jul 15 - 25 TO Jul 15 - 25**



CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

311 Victoria Street North
Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739

PROJECT MANAGER: **AD**

FILE No: 2196

BOREHOLE No. 1



Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **HSA & Mud Rotary**
Size: **83 mm I.D.**
Date: **Jul 15 - 25 TO Jul 15 - 25**

SOIL LITHOLOGY			SAMPLE		SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS		
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80				W _p	W
59.04 19.30	(continued)															
	firm grey SILTY CLAY trace sand WTPL	16.5 17.0 17.5 18.0														
		18.5		13	SS	1										
	stiff to hard grey SILTY CLAY TILL trace gravel, trace sand APL to WTPL occ. shale and limestone fragments	19.5 20.0 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0														
		20.0														
		21.5		14	SS	13										
		24.5														
		24.5		15	SS	17										
		27.5														
		27.5		16	SS	34										
49.34 29.00	inferred WEATHERED SHALE BEDROCK Queenston Formation	29.0 29.5 30.0														
47.84 30.50	End of Borehole	30.5		17	SS	65/ 0 mm										SS 17 - No Recovery

CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

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PROJECT MANAGER: **AD**

FILE No: 2196

BOREHOLE No. 2



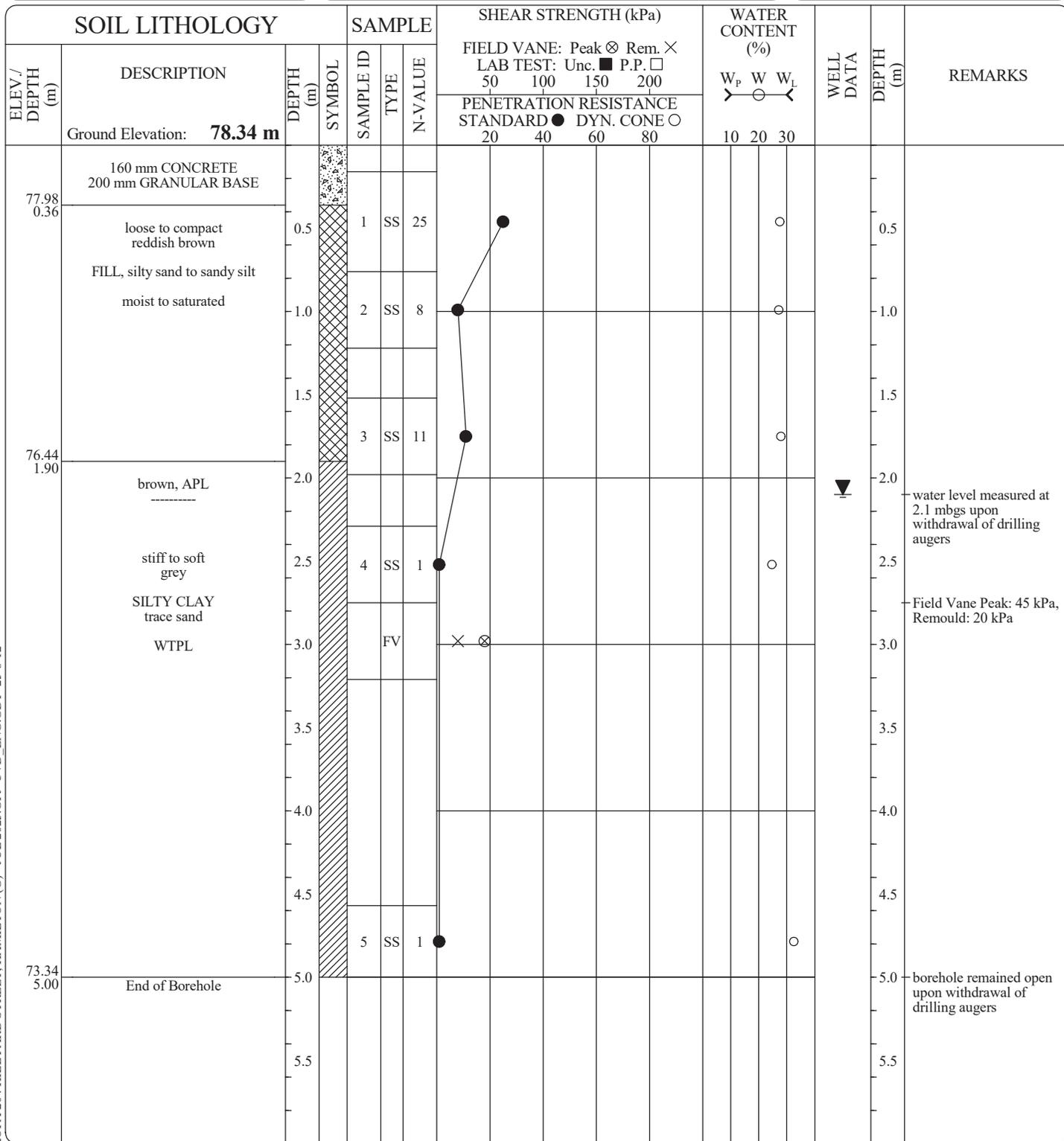
Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **Solid Stem Auger**
Size: **100 mm O.D.**
Date: **Jul 16 - 25 TO Jul 16 - 25**



CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

PROJECT MANAGER: **AD**

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FILE No: 2196

BOREHOLE No. 3



Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **Solid Stem Auger**
Size: **100 mm O.D.**
Date: **Jul 16 - 25 TO Jul 16 - 25**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 78.34 m																
77.85 0.49	140 mm CONCRETE 350 mm GRANULAR BASE	0.5	[Symbol]	1	SS	34										
	black staining occ. coal fragments															
	compact reddish brown	1.0		2	SS	16										
	SILTY SAND TO SANDY SILT moist to saturated	1.5														
		2.0		3	SS	14										
76.24 2.10	firm to soft grey	2.5		4	SS	4										
	SILTY CLAY trace sand	3.0														
	APL to WTPL	3.5		5	SS	6										
		4.0														
		4.5														
73.34 5.00	End of Borehole	5.0		6	SS	2										
		5.5														

water level measured at 2.1 mbgs upon withdrawal of drilling augers

borehole remained open upon withdrawal of drilling augers

CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

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ph. (519) 742-8979, fx. (519) 742-7739

PROJECT MANAGER: **AD**

FILE No: 2196

BOREHOLE No. 4



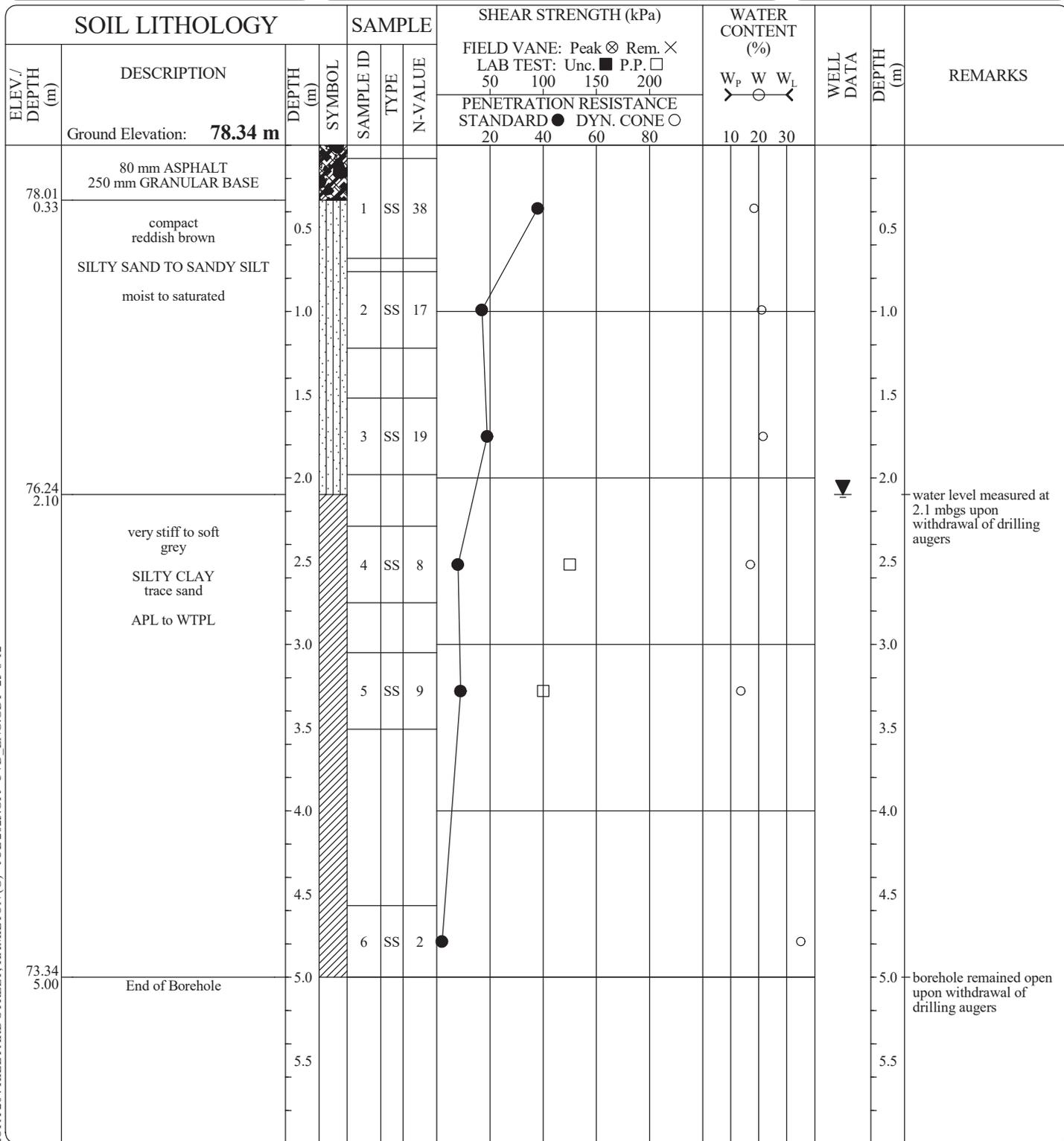
Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **Solid Stem Auger**
Size: **100 mm O.D.**
Date: **Jul 16 - 25 TO Jul 16 - 25**



CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

PROJECT MANAGER: **AD**

CHUNG & VANDER DOELEN ENGINEERING LTD.

311 Victoria Street North
Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739

FILE No: 2196

BOREHOLE No. 5



Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **Solid Stem Auger**
Size: **100 mm O.D.**
Date: **Jul 16 - 25 TO Jul 16 - 25**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 78.34 m																
78.06 0.28	230 mm CONCRETE 50 mm GRANULAR BASE															
	compact to loose dark brown to reddish brown FILL, sandy silt to silty sand trace to some clay moist to saturated occ. metallic flakes	0.5 1.0		1 2	SS SS	13 4										
		1.5		3	SS	5										
76.24 2.10	compact reddish brown SILTY SAND TO SANDY SILT saturated	2.0 2.5		4	SS	20										
75.44 2.90	stiff to soft grey SILTY CLAY trace sand APL to WTPL	3.0 3.5		5	SS	7										
		4.0														
		4.5														
73.34 5.00	End of Borehole	5.0		6	SS	2										
		5.5														

▼ water level measured at 2.1 mbs upon withdrawal of drilling augers

borehole remained open upon withdrawal of drilling augers

CVD BOREHOLE 2196 - HOPA 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

311 Victoria Street North
Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739

PROJECT MANAGER: **AD**

FILE No: 2196

BOREHOLE No. 6



Client: **Hamilton-Oshawa Port Authority**

Project: **Shed 11 Building 218 Upgrades**

Location: **204 Hillyard Street, Hamilton, Ontario**

EQUIPMENT DATA

Machine: **CME 55 Track**
Method: **Solid Stem Auger**
Size: **100 mm O.D.**
Date: **Jul 16 - 25 TO Jul 16 - 25**

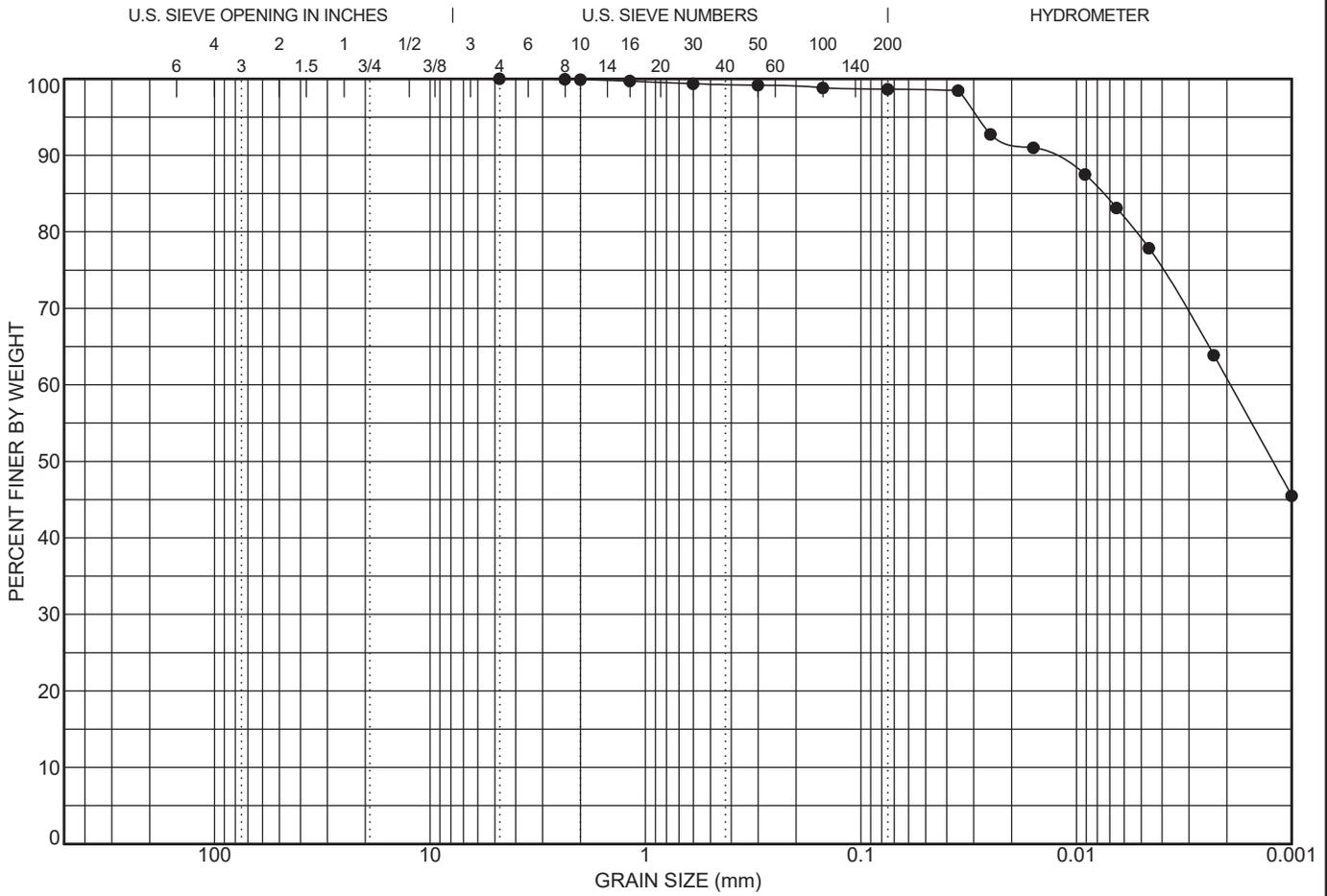
SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 78.34 m																
77.90 0.44	140 mm ASPHALT 300 mm GRANULAR BASE	0.5	[Symbol]	1	SS	33										
	loose to compact reddish brown FILL, silty sand to sandy silt moist to saturated	1.0	[Symbol]	2	SS	6										
76.54 1.80	very stiff to soft grey SILTY CLAY trace sand APL	2.0	[Symbol]	3	SS	13										
		2.5	[Symbol]	4	SS	1										
		3.0	[Symbol]	5	SS	1										
		3.5	[Symbol]		FV		×	⊗								
		4.0	[Symbol]													
		4.5	[Symbol]													
73.34 5.00	End of Borehole	5.0	[Symbol]	6	SS	2										
		5.5	[Symbol]													

CVD BOREHOLE 2196 - HOPA, 204 HILLYARD STREET, HAMILTON (G) - JUL 2025.GPJ CVD_ENG.GDT 25-8-12

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PROJECT MANAGER: **AD**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
38	20				4.75	0.002			0.0	1.4	98.6	

Date: Aug. 01 - 2025
Client: Hamilton-Oshawa Port Authority
Contractor:
Source:
Sampled From: BH1 SS7; 6.10 to 6.66 m depth
Sample No.: 1-7
Date Sampled: Jul. 15 - 2025
Sampled By: DS
Lab No.: 776
Date Tested: Jul. 25 - 2025
Type of Material: Silty Clay, trace Sand

Sieve Size (mm)	Percent Passing	No Specifications

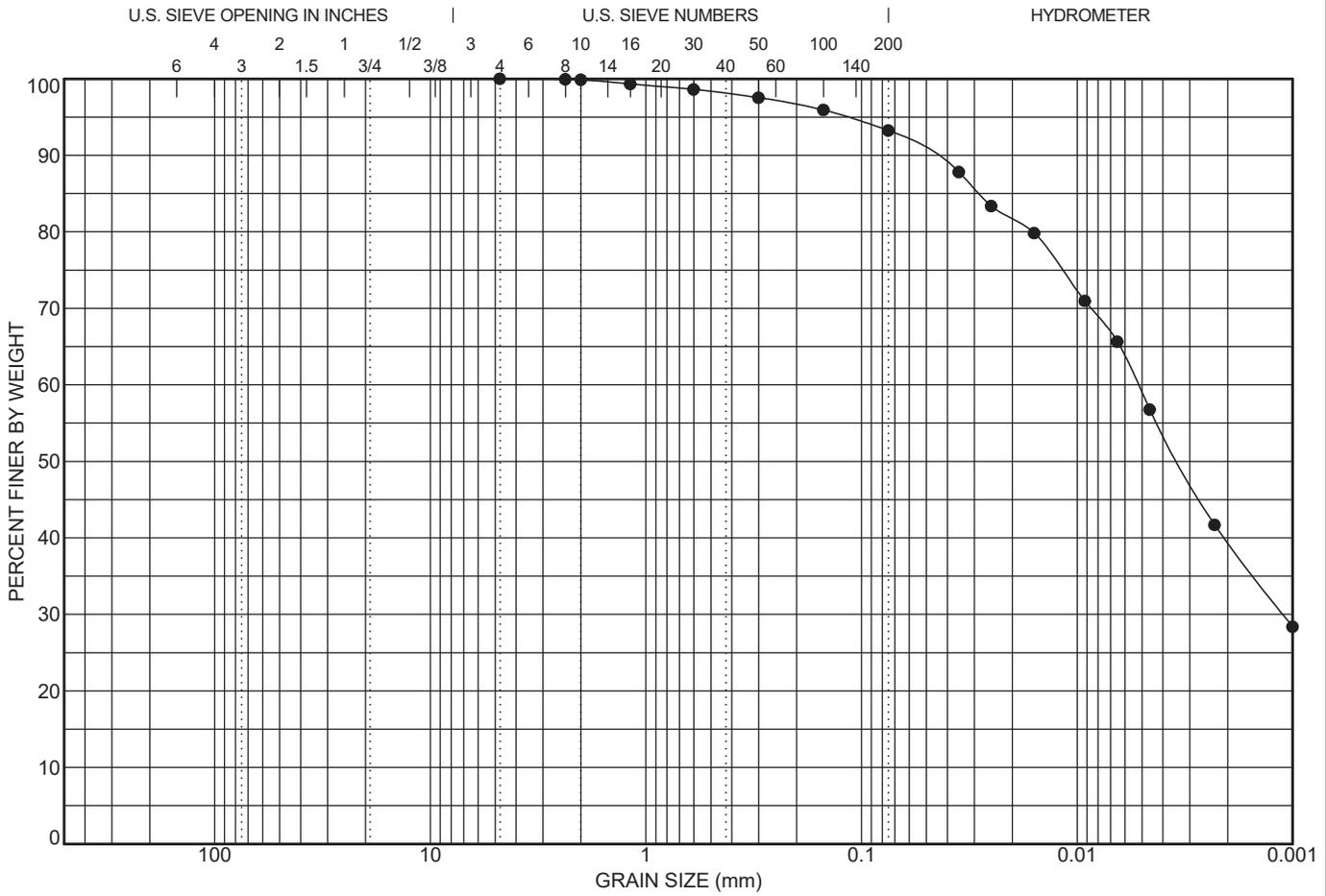


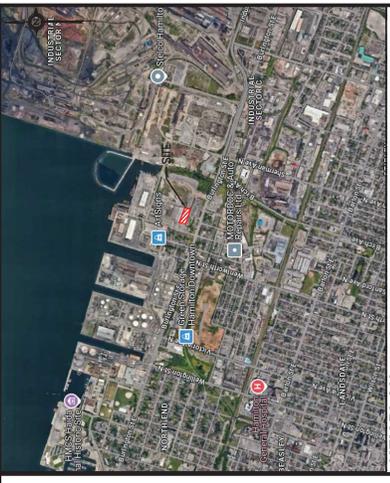
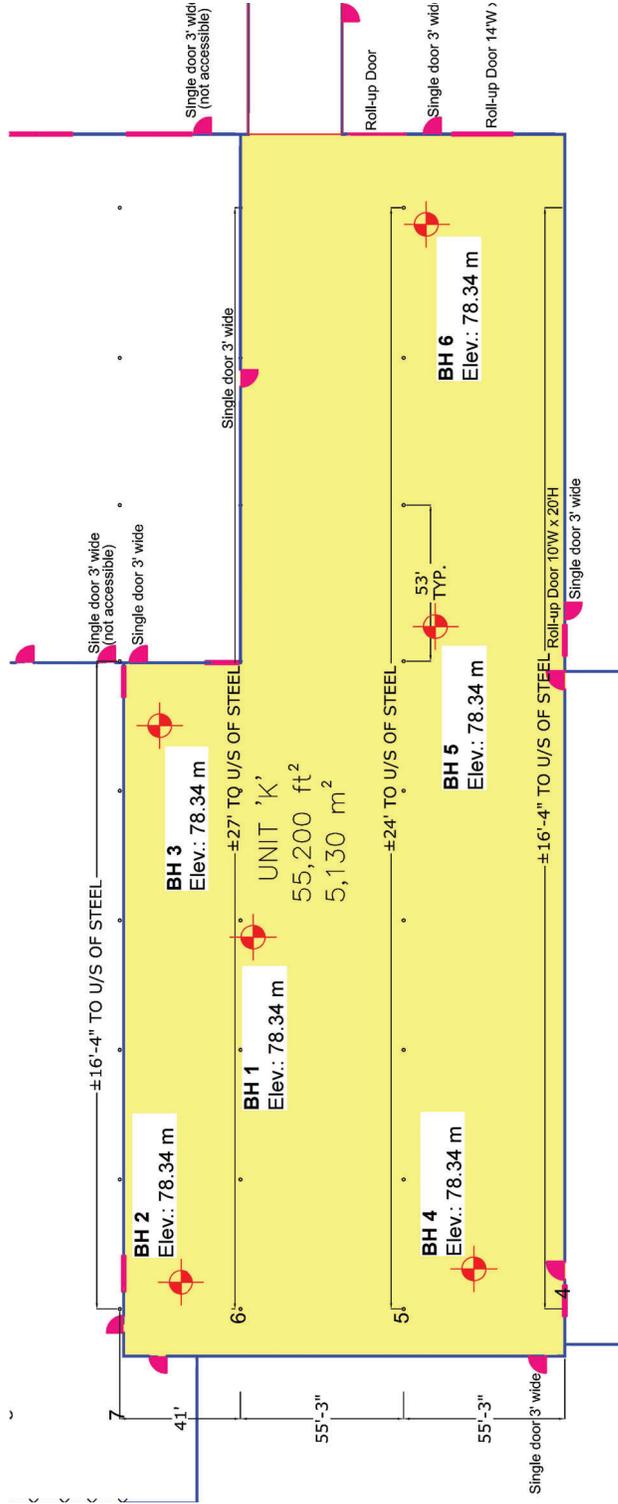
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GRAIN SIZE DISTRIBUTION

Project: Shed 11 Building 218 Upgrades
Location: 204 Hillyard Street, Hamilton, Ontario
File No.: 2196
Enclosure No.: 7

DM - NO SPECIFICATIONS 2196 - HOPA 204 HILLYARD STREET, HAMILTON (O) - JUL 2025.GPJ LAW LNDN.GDT 25-8-1





KEY PLAN SOURCE: Google Earth

LEGEND

Approximate Borehole Location

Drawn By: DS
Date: July 2025
Checked By: AD
Scale: N.T.S.

BOREHOLE LOCATION PLAN

Shed 11 Building 218 Upgrades

204 Hillyard Street
Hamilton, Ontario

CHUNG & VANDER DOELEN
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311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1 / 519-742-8979

Drawn By: DS	Date: July 2025	File No.: 2196
Checked By: AD	Scale: N.T.S.	Drawing No.: 1