

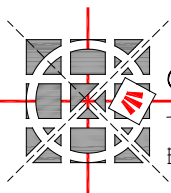
BID DOCUMENTS & SPECIFICATIONS

Issued for Permit and Construction

Renovations to former Yarker School for new Daycare 4315 County Rd 1E, Yarker

for
**Prince Edward Lennox & Addington Social
Services**

Date: February 12, 2020
Project N° 19038



COLBOURNE & KEMBEL , ARCHITECTS INC.

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General

1.1 CONTRACT FORM

- .1 The form of contract between the Owner and the Contractor will be CCDC2-2008, as amended by the Supplementary Conditions described in Section 00 30 00.

1.2 IMPORTANT DATES

- .1 Issue Date: Monday, February 12, 2020
Mandatory Site Meeting: Wednesday, February 19, 2020, 3:00:00pm
Final Date for Questions: Friday, February 28, 2020
Final date for Addenda: Tuesday, March 3, 2020
Closing Date: March 5, 2020, 2:00:00 PM local time for Envelope 1
Base Bid
March 5, 2020, 3:00:00 PM local time for Envelope 2
Supplementary Bid Information

1.3 REQUEST FOR TENDER COORDINATOR

- .1 The Coordinator of this request for tenders is:
Name: Will Heijmans
Title: Project Manager
Colbourne & Kembel, Architects Inc.
739D Arlington Park Place
Kingston, ON K7M 8M8
Email: will@ckai.ca
Cc: info@ckai.ca

1.4 DEFINITIONS

- .1 "Closing Time", means the Tender submission date and time as herein.
.2 "Days", means calendar days.
.3 "Bidder", means an entity that submits a tender in response to this RFT and, in respect of the period prior to the RFT closing time, as the context may suggest, refers to a potential Bidder.
.4 "Contractor", means any person, firm or organization, as the case may be, that has been awarded the contact to perform the work as outlined within this RFT.

1.5 BID FORM

- .1 The form of bid between the Owner and the Contractor will be as follows in Section 00 20 00.
.2 Submit Stipulated Price Bid, as requested in Section 00 20 00. Bids shall be addressed to:

Prince Edward – Lennox & Addington Social Services
Attn: Lynn Chenier
c/o Colbourne & Kembel, Architects Inc.
739 D Arlington Park Place
Kingston ON K7M 8M8

and endorsed

**Yarker Daycare Renovations 4315 County Rd 1,
Yarker, ON for Prince Edward – Lennox & Addington Social
Services**

Bids will be received up to:

**2:00:00 p.m., local time, March 5, 2020 for Envelope 1 Base Bid
3:00:00 p.m., local time, March 5, 2020 for envelope 2 Supplementary Bid
information.**

Local time shall be governed by the clock on the computer in the reception area of
Colbourne & Kembel, Architects Inc.

Bid Forms shall be submitted as one original with 3 (three) copies. Bids of Contractors
shall be valid for sixty (60) days.

1.6 LATE SUBMISSIONS

- .1 Any tender received after the closing time specified in this RFT, shall not be accepted for consideration and will be sent back to the Bidder unopened.

1.7 MANDATORY SITE MEETING

- .1 A pre-bid mandatory site meeting for **Contractors** will be held at the site at

**Yarker Library & Future Daycare, 4315 County Rd 1., Yarker, ON
Wednesday, February 19, 2020, 3:00:00pm**

- .2 The Consultant will oversee the signing of the “Contractor Sign in Sheet” and once all in attendance have signed the sheet and the Consultant has called the meeting to order, bidders who arrive after that shall be considered late and will not be permitted to sign the “Contractor Sign in Sheet”.
- .3 Bids received from Contractors not on the list of attendees at the site meeting will be rejected and returned unopened. Sub-trade bidders are also encouraged to attend this meeting.

1.8 ELIGIBILITY

- .1 Only Bids received from Bidders who attended the pre-bid meeting and signed the “Contractor Sign in Sheet” and time stamped prior to the time stipulated in this document will be opened and considered for evaluation. All other bids shall be deemed non-compliant and will not receive further consideration.

1.9 TENDER OPENING

- .1 A public opening of submissions for this RFT will be held at 3:00:00 p.m. on the date of the closing, as stated herein, at the Colbourne & Kembel, Architects Inc., 739D Arlington Park Place, Kingston, ON. Only the names and total bid amount will be read out. Tender submissions including mandatory and rated criteria will be reviewed after the tender opening by the Project Team. Bidders should not conclude any particular results from the reading.

1.10 ACCEPTANCE OF TERMS

- .1 Each Bidder, by submitting a tender, represents that the Bidder has read and completely understands, and accepts all provisions contained in this RFT.

1.11 DRAWINGS AND SPECIFICATIONS

- .1 Tender documents must be obtained through the website of the County of Lennox and Addington <https://lennox-addington.on.ca/rfps-and-tenders> .
- .2 If any clarification of the Drawings and Specifications is required, bidders shall immediately contact the Tender Coordinator in accordance with "Bidder Request for Clarification".
- .3 All bidders shall make themselves familiar and be responsible for the requirements set out in Division 00, Project Bidding and Contract Information; and Division 01, General Requirements.
- .4 Drawings and Specifications will be on display at:
 - .1 Colbourne & Kembel, Architects Inc.
739D Arlington Park Place
Kingston, Ontario
 - .2 The Bidder is to review the Bid Set upon receipt and verify that all drawings, specifications, and schedules are included. Inform Tender Coordinator immediately of any missing information.

1.12 COPYRIGHT

- .1 Notwithstanding GC 1.1.11 of the contract, for the purposes of the bidding stage only, the related sections of the specifications and drawings may be copied for issue to sub-trades for this project. Each such subdivision shall be accompanied by Divisions 00 and 01 in their entirety.

1.13 ADDENDA

- .1 Prior to the closing date, Addenda or clarifications may be posted on the website of the County of Lennox and Addington. These may include required additions to, deletions from, or alterations to requirements of the RFT documents. Please note that bidders will not receive notification of addenda, and it is their sole responsibility to retrieve any addenda from the website.
- .2 All addenda shall become part of the RFT documents and shall be allowed for in arriving at a contract award.
- .3 Each Bidder shall be responsible for verifying before depositing its bid that it has retrieved all addenda that may have been issued and acknowledge such addenda as required on the bid form.

1.14 MULTIPLE TENDERS

- .1 A contractor may amend their submitted bid at any time up to closing time by submitting a further bid form, subject to the same requirements for submission as the original bid. The last bid received shall govern. Amendments by facsimile transmission, electronic mail, or telephone will not be accepted.

1.15 BIDDER EXPENSES

- .1 Bidders are solely responsible for their own expenses in preparing a response to this RFT and for subsequent meetings with the Owner. If the Owner elects to reject all tenders, the Owner will not be liable to any Bidder for any claims, whether for costs or damages incurred by the Bidder in preparing the tender, loss of anticipated profit, or any other matter.

1.16 PROJECT SCHEDULE

- .1 The Bid is to be accompanied by a Project Schedule in Envelope 2. The Project Schedule must be in Gantt chart format and clearly identify key milestones dates such as construction start date, required inspections dates, Substantial Performance and final completion dates. The anticipated construction period is from April 1, 2020 through October 1, 2020.
- .2 Commence administrative functions immediately upon award of contract.
- .3 On-site work to commence upon issuance of Building Permit.
- .4 Contractor to attain Substantial Performance by October 1, 2020.
- .5 If the Contract time allowed by the above-noted date is not sufficient to permit completion of the work by the Contractor working on a normal number of hours each day or week on a single daylight shift basis, it is expected that additional and/or augmented daylight shifts will be required throughout the life of the Contract to the extent deemed necessary by the Contractor to insure that the work will be completed within the Contract time specified. Any additional costs associated by compliance with these provisions will be considered to be included in the prices bid for the various items of work and no additional compensation will be allowed therefore.

1.17 LIQUIDATED DAMAGES

- .1 It is agreed by the parties to the Contract that in the case all the Work called for under the Contract is not completed by the Contractor and by the date specified, or as extended in accordance with Section GC 6.5 of the General Conditions, a loss or damage may be sustained by the Owner. Since it is and will be impracticable and extremely difficult to ascertain and determine the actual loss or damage which the Owner will suffer in the event of and by reason of such delay, the parties hereto agree that the Contractor will pay to the Owner the sum of \$2,000.00 as liquidated damages for each and every calendar days' delay in achieving Substantial Performance, as defined under the Construction Act, of the work beyond the dates prescribed. It is agreed that this amount is an estimate of the actual loss or damage to the Owner, which will accrue during the period in excess of the prescribed dates for completion. The Owner will deduct any amount under this paragraph from any monies that are due or payable to the Contractor on any account whatsoever. The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Owner.

- .2 Further to the above, any amount of funding that is recoverable by the Ministry due to delay of substantial Performance may be withheld from progress payments under the Contract.

1.18 TENDER REJECTION

- .1 The lowest cost or any tender may not necessarily be accepted. The Owner, its sole discretion, reserves the right to accept any or all tenders or to cancel the RFT in whole or in part at any time without award.
- .2 Where the Owner receives only one compliant tender, the Owner reserves the right to either cancel the RFT, award to the Bidder or enter into negotiations with the Bidder.
- .3 Where the Owner exercises its right to cancel the RFT, the Owner may issue a new request for tender, sole source, or do nothing.
- .4 Bids will be declared informal and rejected if:
 - .1 The bid is qualified in any way.
 - .2 The bid deposit or consent to surety are not provided.
 - .3 The bid form is not completed properly or entirely.
 - .4 An improper bid form is used.
 - .5 Late receipt.
 - .6 The bid has been withdrawn prior to closing.
 - .7 Other factors that would cause the bid to be rejected as noted herein, or as are considered reasonable.
- .5 Refer also to **BASIS OF SELECTION & EVALUATION OF BIDS**

1.19 RIGHT TO WAIVE MINOR NON-COMPLIANCE

- .1 The Owner reserves the right, in its sole and unfettered discretion, to reject or waive minor errors and non-compliance contained in a tender without having to disqualify the Bidder. The Owner defines minor errors and matters of non-compliance as those which do not have the effect of creating an advantage of one submission over another but may be merely a matter of form.

1.20 ADDITIONAL RIGHTS OF THE OWNER

- .1 In addition to any other express rights or any other rights which may be implied in the circumstances, the Owner reserves the right to:
 - a) Make public the names of any or all Bidders and the total cost submitted by any Bidder;
 - b) Request written clarification or the submission of supplementary written information from any Bidder and incorporate such clarification or supplementary written information into the Bidder's tender, at the Owner's discretion, provided that any clarification or submission of supplementary written information shall not be an opportunity for the Bidder to correct errors in its tender or to change or enhance the tender in any material manner;
 - c) Disqualify any Bidder whose tender contains misrepresentations or any other inaccurate or misleading information, or any Bidder whose reasonable failure to cooperate with the Owner impedes the evaluation process, or whose tender is determined to be non-compliant with the requirement of the RFT;
 - d) Disqualify a tender where the Bidder reveals a conflict of interest or any unfair advantage is brought to the attention of the Owner;

- e) Disqualify any tender of any Bidder who has breached any applicable laws or who has engaged in conduct prohibited by this RFT, including where there is any evidence that the Bidder or any of its employees or agents colluded with any other Bidder, its employees or agents in the preparation of the tender; and
- f) Make changes, including substantial changes, to this RFT provided that those changes are issued by way of addenda in the manner set out in this RFT.

1.21 MUNICIPAL FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT

- .1 The tender and any accompanying documentation submitted by the Bidder prior to the closing date specified in this document shall become the property of the Owner and shall not be returned. The tender shall be subject to the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, M-56. The Bidder must identify any information contained in the tender that is submitted in confidence.

1.22 CONFLICT OF INTEREST

- .1 Each Bidder shall declare to the Owner as part of their tender any situation that may be either a conflict of interest or a potential or perceived conflict of interest with the contractual obligations of their tender.
- .2 No officer or staff member of the Owner are, will be, or shall become interested, directly or indirectly, as a contracting party, partner, stockholder, surely or otherwise in the performance of any contract resulting from this solicitation or in the supplies, work or business in connection with any such contract resulting from this solicitation or in the supplies, work or business in connection with any such contract or in any portion thereof, or in any monies to be derived there from.

1.23 PROPRIETARY CONTENT

- .1 Information which the Bidder considers to be of a propriety or confidential nature must be clearly marked "proprietary".

1.24 BRIBERY COLLUSION

- .1 Should a Bidder or any of their agents offer any gratuity to or attempt to bribe any member of the Board, or attempt to commit fraud, the Board shall be at liberty to reject the Bidder's submission or cancel the contract.
- .2 The Bidder further acknowledges that its tender is made without any connection, knowledge, comparison of figures or arrangements with any other company, firm or person making a tender for the same work and is in all respects fair and without collusion or fraud.

1.25 NO LIABILITY

- .1 The Bidder agrees that:
 - a) Any action of proceeding relating to this RFT process shall be brought in any court of competent jurisdiction in the Province of Ontario and for that purpose the Bidder irrevocably and unconditionally attorns and submits to the jurisdiction of that Ontario court;
 - b) It irrevocably waives any right to and shall not oppose any Ontario action or proceeding relating to this RFT process on any jurisdictional basis; and

- c) It shall not oppose the enforcement against it, in any other jurisdiction, of any judgement or order duly obtained from an Ontario court as contemplated by this RFT.
- .2 The Bidder further agrees that if the Owner commits a material breach of the RFT (that is a material breach of Contract A), the Owner's liability to the Bidder, and the aggregate amount of damages recoverable against the Owner for any matter relating to or arising from that material breach, whether based upon an action or claim in contract, warranty, equity, negligence, intended conduct or otherwise, including any action or claim arising from the acts or omissions, negligent or otherwise, of the Owner, shall be no greater than the tender preparation costs that the Bidder seeking damages from the Owner can demonstrate.

1.26 ADDITIONAL INFORMATION FOR BID ANALYSIS

- .1 Within 3 working days of notification by the Consultant, and prior to award of contract, the low bidder or bidders shall submit a trade by trade breakdown of the bid price for analysis by Consultant.
- .2 Submit additional information promptly if requested by Consultant.
- .3 Requests for information shall not be construed as acceptance of a bid.
- .4 The Owner reserves the right to seek clarification from any Bidder without being obligated to all Bidders if it finds certain aspects of a tender unclear.

1.27 GOVERNING LAW

- .1 The RFT, the Bidder's tender, and any resulting agreement will be governed by the laws of Ontario and the federal laws of Canada applicable therein.

1.28 SUBSTITUTIONS

- .1 Bidders shall note that this is a base bid Specification. Products specified or shown on Drawings by Brand name or catalogue number and/or by name of the manufacturer or supplier shall form the basis of the bid.

1.29 COMMUNICATION DURING THE REQUEST FOR TENDER PROCESS

- .1 Communication to Bidders for significant inquiries will be in the way of an electronic amendment. An amendment will take one of two forms:
- Questions and Clarifications; or
 - Addenda
- .2 Clarifications will be responses to Bidder questions that do not change the RFT documents.
- .3 Addenda are changes to the RFT documents that may impact a Bidder's submission. All addenda must be acknowledged on the Agreement to Contract as indicated.
- .4 To ensure consistency and quality of information provided to Bidders, any information with respect to significant inquiries received and the replies to such inquiries or changes to RFT documents will be provided simultaneously to all Bidders electronically by way of

amendment to which this RFT has been sent without revealing the sources of the inquiries.

- .5 Where the RFT Coordinator deems a question to be either insignificant to others or the answer is readily apparent to all Bidders within the document, the RFT Coordinator may choose to respond only to that Bidder.
- .6 Under no circumstances will meetings related to this RFT be held with individual Bidders prior to the closing date and time of this RFT. Non-compliance with this condition will (for that reason alone) result in disqualification of the Bidder's submission.

1.30 BIDDER REQUEST FOR CLARIFICATION

- .1 It is the responsibility of the Bidder to seek clarification on any matter that they consider unclear before submitting a tender. The Owner is not responsible for any misunderstanding of the RFT on the part of a Bidder.
- .2 Bidders must obtain their own information on all matters that may in any way influence them in developing their tender. Bidders must satisfy themselves in all respects as to the risks and obligations to be undertaken by them.
- .3 Written queries only should be directed to the RFTCoordinator.
- .4 The RFTCoordinator is the only person responsible for any and all information, instructions and interpretations of all information pertaining to this RFT.
- .5 The RFTCoordinator will acknowledge receipt of the request for clarification by reply. It will be the responsibility of the Bidder to ensure that it has received a response to the request for clarification before submitting a tender.
- .6 The following apply regarding any request for clarification of any aspect of the RFT
 - a) Questions, inquiries and requests for clarification should be made by the date and time as stated herein;
 - b) Bidders must submit requests for clarifications by email to the RFTCoordinator;
 - c) In submitting a request for clarification, a Bidder should include its address, telephone number, email address and fax number; and
 - d) Where a question relates to a specific section of this RFT, reference should be made to the specific paragraph number.Inquiries not meeting these conditions may not be responded to.
- .7 In answering a Bidder's questions, the RFTCoordinator will set out the question(s), but without identifying the Bidder that submitted the question(s) the RFTCoordinator may, in its sole discretion,
 - a) Edit the question(s) for clarity;
 - b) Exclude questions that are either unclear or inappropriate; and
 - c) Answer similar questions from various Bidders only once.

1.31 TAXES

- .1 Refer to the General Conditions of the Contract.

1.32 BONDING AND CONSENT OF SURETY

- .1 The successful General Contractor shall be required to furnish a Surety Bond as approved by the C.C.A. from a licensed Canadian Surety Company as follows:
 - Performance Bond - 50% of the Contract Sum
 - Material and Labour Bond – 50% of the Contract SumEach Contractor shall include the cost of such Bond in their Bid.
- .2 Bids from General Contractors must be accompanied by a Consent of Surety from an approved Surety Company stating that they will bond the Contractor should they be the successful Bidder. Failure to include such consent form will cause the bid to be declared informal.

1.33 BID BOND

- .1 The Bid shall be accompanied by a Bid Bond, as approved by the C.C.A. from a licensed Canadian Surety Company or a certified cheque made out in favour of the Owner in the amount of 10% of the bid price. The Bid Bond shall be valid for a period of ninety (90) days from the date of receipt of Bids.

1.34 INSURANCE

- .1 Provide a signed “Undertaking of Insurance”: including “Builder’s Risk” on a standard form provided by the insurance company stating their intention to provide insurance to the bidder in accordance with the insurance requirements of the Contract Documents.
- .2 Refer to Supplementary General conditions 00 30 00 for Insurance requirements.

1.35 SITE FAMILIARITY

- .1 By submitting this bid, Bidders warrant that they have visited the site and made themselves aware of any visible features which could affect their Bid price, and have made any necessary allowances and adjustments in the Bid Price accordingly.

1.36 CCDC11-2018

- .1 Contractor to submit as part of the rated criteria in Envelope 2, one original and three copies of the CCDC11-2018, with a minimum of three (3) projects listed in Appendices A, B, and C.

1.37 PROJECT PERSONNEL

- .1 Provide resumes of assigned project personnel, demonstrating that the Project Manager and the Site Supervisor have a minimum of ten (10) years of Project Management and Site Supervisory experience.
- .2 Note that failure to demonstrate the necessary experience is grounds for disqualification.

1.38 DEBRIEFING

- .1 Proponents may request a debriefing after receipt of a notification of award. All requests must be in writing to the Tender Coordinator and must be made within sixty (60) days of notification of award. Debriefing meetings will be held in person at the Tender Coordinator or Owner’s Office, or may be conducted by phone at the discretion of the Owner.
- .2 The purpose of the debriefing meeting is to provide a Proponent with a general overview of the evaluation process set out in the RFT, discuss the strengths and weaknesses of

the Proponent's submission in relation to the specific evaluation criteria and provide suggestions on how the Proponent may improve future submissions.

- .3 During the debriefing meetings, the Owner will address a Proponent's specific questions in relation to their submission. Questions unrelated to the RFT will not be responded to during the debriefing and will be noted as out of scope.

1.39 BID PROTEST PROCEDURES

- .1 Subsequent to a debriefing meeting where a Bidder believes that the competitive process has not been conducted in accordance with the process requirements contained herein, the Bidder may file a bid protest. Bid protests must be submitted in writing citing the clause of the RFT that has not been adhered to in the opinion of the Bidder and the resultant effect on the Bidder's tender.
- .2 Bid protests must be received in writing by the tender Coordinator, allowing the tender coordinator 5 days to investigate and respond to the protest. If the bid protest is not resolved by the tender coordinator, it will be forwarded on to the Owner by the tender coordinator, allowing the Owner 10 days to investigate and respond to the bid protest.
- .3 The Owner's findings and any resolution shall be final and will be communicated to the Bidders and kept on file.

1.40 BASIS OF SELECTION & EVALUATION OF BIDS

- .1 Stages of Evaluation
The evaluation of bids will be conducted in the following stages:

Stage I will consist of a review to determine which submissions satisfy all of the mandatory requirements. Those submissions that satisfy the mandatory requirements will proceed to Stage II.

Stage II will consist of a scoring on the basis of the Rated Criteria. Subject to the Terms of Reference and Governing Law, the top ranked proponent, as established under the evaluation, will be selected to enter into a contract for the provision of the Deliverables. The selected proponent is expected to enter into a contract within the timeframe specified in the selection notice. The failure to do so may, among other things; result in the disqualification of the proponent and the selection of another proponent or the cancellation of the Request for Tender.

- .2 Mandatory Requirements
Each quotation must include the following:
 - Bid Form completed and signed by the proponent,
 - Bid Bond
 - Consent of Surety
- .3 Rated Criteria
Each quotation to include in a separate sealed envelope the following:
 - Bid Form Appendix "A"
 - Undertaking of Insurance
 - Completed CCDC11-2018
 - Resumes of Project Personnel
 - Project Understanding / Methodology Proposal
 - Construction Work Plan Schedule

- .4 The following shall be considered in selection:
- The County of Lennox and Addington will not necessarily accept the lowest price or any Bid. Any implication that the lowest or any Bid will be accepted is hereby expressly negated.
 - Any features or advantages, which are unique to the Bidder's submission, which the County has not listed in the requirements.
 - The Bidder's financial proposal.
 - The Bidder's relevant experience, qualifications and success in providing work of the type described in the requirements, adequacy of resources and equipment.
 - The quality of the Bidder's understanding of the project which shall be submitted under separate cover and shall provide a described plan of their work schedule and project methodology statement. This shall be prepared in a straight forward manner, and shall describe the Bidder's offering(s) and capabilities in a format that is reasonably consistent, comprehensible, and appropriate for the purpose. The Bidder shall outline their approach to construction identifying their understanding of the project, outlining the key components and the manner in which these components shall be constructed. This shall be inclusive of any time saving strategies, along with any and all other relevant and key items of construction.
 - The Bidder's references from institutions and Municipalities which are comparable to the scope of work defined under this Tender.
- .5 Evaluation of Bids:
- The evaluation of the Bids will be conducted by the Project Team and shall involve an evaluation of all of the submissions by the bidders. These shall include the relative experience, resources, qualifications and success in providing similar work completed by the bidders, the quality of the Bid submission, both from a technical and financial aspect, any unique offerings to the scope of work, the references of the bid package and the bidder's understanding of the process and the proposed Project implementation, Contract time frame and work plan, technical expertise and the financial costing.
 - The Bid shall be evaluated and scored by reference to the assessment criteria and the weight set out below.
 - The County reserves the right to review any and all requirements of the bid and all information contained in the submitted bid package as part of its selection criteria in addition to or as part of the weighting set out below.
 - In evaluating any of the categories, the score to be ascribed to the category or weighting to be ascribed to the category shall be determined by the Project Team in its sole discretion. The weighting and scoring shall be based upon the formulae and criteria as described below.
 - Following the evaluation, the County and the Town reserves the right to accept or reject any and all bids or accept the bid which it deems the most advantageous to it notwithstanding the scoring of each of the bids. Furthermore the Project Team has the right to reject any or all bids, including specifically any bid whose weighting in any one particular category may be unacceptable even though it's weighting in other categories is superior. This could include a bid whose financial or cost component is significantly in excess of budgets and scope of work as established by the County of Lennox and Addington. The County and Town reserves the right to disqualify any bid which scores poorly in any category, as determined by the Project Team in its sole discretion.

.6 Assessment Criteria Weighting

Rated Criteria Category	Weighting (Points)
Cost	60%
Project References/ Company Experience	15%
Key Project Staff/ Company Resources	10%
Project Methodology/ Work Plan/ Schedule	15%
Total Points	100%

- The bids shall be evaluated by the Project Team using the above rating scheme and shall be ranked, with the best scoring proposal being ranked 1st, the second-best scoring proposal being ranked 2nd, and so on. The County will only disclose the overall rankings and project costs, individual scores will not be released.
- Tenders shall be evaluated with 60 points based upon tender price, and 40 points split amongst the remainder of items of evaluation. The highest aggregate score will determine the recommended bid.
- The lowest bid price will score 60 points and the other prices will receive points prorated based upon the percentage difference between their tender price compared to the lowest tender price.
- The formulae to calculate it is as follows;

$$\frac{\text{Lowest Formal Price} \times 60}{\text{Bidder Price}}$$

1.41 BID ENCLOSURES:

The following items shall be submitted and returned with the Proponent's Bid submission, of which shall be considered a complete Bid package. Failure to return all items will negatively affect the ability to score the Proponent's submission, and may result in bid disqualification.

.1 ENVELOPE 1:

Bid Form (1) original complete bid package, and three (3) complete copies
Bid Bond
Consent of Surety

.2 ENVELOPE 2:

Bid Form Appendix "A"
Undertaking of Insurance
Completed CCDC11-2018, with copyright seal
Resumes of Project Personnel
Project Understanding / Methodology Proposal
Construction Work Plan Schedule

END OF SECTION

Prince Edward Lennox & Addington Social Services (PELASS) invites all prospective bidders to submit an intent to bid form via email at least 2 weeks prior to the bid closing date.

This information is sought for several purposes including:

- It enables PELASS to monitor receipt of prospective bids as the due date arrives.
- Permits PELASS to ascertain the level of interest in this project.
- It provides a list of Potential Bidders which may be shared with interested sub-trades.

NOTE: Submission of this form is not a mandatory requirement. Bids will be accepted even if this information is not provided. Additionally, if the information is provided, the prospective bidder is not subsequently obligated to submit a bid. Inclusion on the List of Potential Bidders is not an endorsement or implied approval of the qualifications of responding Contractors.

TO:

Prince Edward Lennox & Addington Social Services
c/o Colbourne & Kembel, Architects Inc.
739D Arlington Park Place
Kingston, ON K7M 8M8

will@ckai.ca

cc: info@ckai.ca

I intend to bid on the project indicated below:

Project Title: Yarker Daycare

Name: _____

Title: _____

Company: _____

Address: _____

Tel: _____

Fax: _____

Email: _____

End of Section

BID FORM

Submitted to: Lynn Chenier

Prince Edward – Lennox & Addington
Social Services

c/o Colbourne & Kembel, Architects Inc.
739D Arlington Park Place
Kingston, ON K7M 8M8

PROJECT: Yarker Daycare Renovations
4315 County Rd 1E, Yarker

PROJ. NO.: 19038

DATE: _____

1. Bidder

Name: _____

Address: _____

Email: _____

Fax: _____

2. Bid Price

Having examined the Place of Work and bid documents for the Yarker Daycare Renovation, 4315 County Rd 1, Yarker, ON, to perform the Work required by the documents as prepared by Colbourne & Kembel, Architects Inc.

including addenda listed herein, inclusive, we hereby offer to enter into a Contract to perform the Work required by the documents for the Stipulated price of:

_____ dollars. (\$ _____)

in Canadian Funds, which price excludes HST and excludes the below listed Separate Prices.

Prices are free of escalation clauses.

This offer is valid for a period of sixty (60) days from close of bidding.

Should either party fail to make payments as they become due under the terms of the Contract, interest on such unpaid amounts shall also become due and payable until payment as outlined in the CCDC2 2008 Stipulated Price Contract. Such interest shall be compounded on a monthly basis. The Bank Rate means the bank rate established by the Bank of Canada as the minimum rate at which the Bank of Canada makes short term advances to the Chartered Banks.

3. Addenda

The following Addenda have been received. The modifications to the Contract Documents noted therein have been considered and all costs thereto are included in the Bid Price.

Addendum #Dated

Addendum #Dated

Addendum #Dated

Addendum #Dated

Addendum #Dated

4. Schedule:

The Contractor hereby declares that they will commence work immediately upon award of Contract and attain Substantial Performance of the Work by **October 1, 2020**

The Contractor acknowledges that the Owner has the right to assess Liquidated Damages should the Work exceed the Contract Time.

5. Cash Allowances:

The following Cash Allowances as outlined in Section 01 21 00 are included as part of the Base Bid Price:

.1	Inspection & Testing Allowance:	\$2,000.00
.2	Signage	\$15,000.00
.3	Security System by Alarm Systems, Belleville	\$15,000.00
.4	Supply of Hardware:	\$16,000.00

6. Bid Enclosures:

- .1 ENVELOPE 1:
 - Bid Form (1) original complete bid package, and three (3) complete copies
 - Bid Bond
 - Consent of Surety

- .2 ENVELOPE 2:
 - Bid Form Appendix "A"
 - Undertaking of Insurance
 - Completed CCDC11-2018
 - Resumes of Project Personnel
 - Project Understanding / Methodology Proposal
 - Construction Work Plan Schedule

7. Declarations:

We hereby declare that no person, firm, or corporation other than the undersigned has any interest in this Bid or in the proposed Contract for which this Bid is made.

8. Signatures:

Signed and Submitted for and on behalf of:

name of bidder

Seal:

signature

print name and title of person signing

Witness:

signature

signature

print name and title of person signing

print name and title of person signing

Date: _____

Note: this Bid form must be signed in one of the following ways:
For a corporation: minimum of one signing officer. Corporate seal to be affixed.
For a Partnership: two Partners must sign.
For a Sole Proprietorship: The Owner plus one witness must sign.

END

1.0 CONTRACT FORM

The Standard Construction Document for Stipulated Price Contract, 2008 English version, consisting of the Agreement Between *Owner* and *Contractor*, Definitions, and General Conditions of the Stipulated Price Contract, Parts 1 to 12 inclusive, governing same is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications. Where these amendments, additions, and modifications specifically reference a change to the Agreement, Definitions, or General Conditions, these amendments, additions and modifications shall govern.

2.0 ARTICLE A-6

RECEIPT AND ADDRESSES FOR NOTICES IN WRITING

Delete Article A-6.1 and substitute new article 6.1:

6.1 Notices in Writing between the parties or between them and the Consultant shall be considered to have been received by the addressee on the date of receipt if delivered by hand or by commercial courier or if sent during normal business hours by fax and addressed as set out below. Such Notices in Writing will be deemed to be received by the addressee on the next business day if sent by fax after normal business hours or if sent by overnight commercial courier. Such Notices in Writing will be deemed to be received by the addressee on the fifth Working Day following the date of mailing, if sent by pre-paid registered post, when addressed as set out below. An address for a party may be changed by Notice in Writing to the other party setting out the new address in accordance with this Article.

3.0 DEFINITIONS

.1 Definition 4, Consultant:

Delete in its entirety and replace with the following:

"The Consultant: is the person or entity identified as such in the Agreement. The Consultant is the duly authorized representative, designated from time to time by the Owner, to exercise such power,

authority or discretion as is required under the Contract."

.2 Definition 16, Provide:

Add the words "or supply, install and connect as applicable, complete and in place including accessories, finishes, tests, and services required to render item so specified complete and ready for use." to the end of the first line.

.3 Add the following new definition:

19a. Submittals

Submittals are documents or items required by the *Contract Documents* to be provided by the *Contractor*, including but not limited to:

- *Shop Drawings*, samples, models, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*; and
- As built drawings and manuals to provide instructions to the operation and maintenance of the *Work*.

.4 Add the following new definition:

"Definition 27, Contract Completion:
Shall mean when the entire *Work*, except those items arising from the provisions of GC 12.3 Warranty has been performed to the requirements of the *Contract Documents* and is so certified by the Consultant."

.5 Add the following new definition:

"Definition 28, Authorities Having Jurisdiction:

The phrase "authorities having jurisdiction" or the term "authorities" shall mean those having jurisdiction under law over the *Work* or parts thereof."

.6 Add the following new definition:

"Definition 29, Supply or Furnish:

Shall mean fabrication or procurement of materials, equipment, or components, or performance of services to the extent specified and shown. Where used with respect to materials, equipment, or components, the

term includes crating and delivery to the Place of Work but is not intended to include installation of item, either temporary or final."

.7 Add the following new definition:

"Definition 30, Install: Shall mean placement of materials, equipment, or components, including receiving, unloading, transporting, storage, uncrating and installing, and performance of such testing and finish work as is compatible with degree of installation specified."

.8 Add the following new definition:

"Definition 31, Commission: Shall mean the procedure which includes checking, testing, adjusting and measuring performed by the Contractor to demonstrate and verify the installation, operation and performance of all components and the entire system"

.9 Add the following new definition:

"Definition 32, Other Contractor: Shall mean the individual, firm, partnership or corporation having a separate contract with the Owner for work other than that required by the Contract Documents."

4.0 GENERAL

Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

5.0 GC 1.1 CONTRACT DOCUMENTS

.1 Add to the end of subparagraph 1.1.2.2

Except where the *Consultant* shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3.

.2 Add new subparagraph 1.1.7.5:

1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the *Contract Documents*.

- .3 Delete paragraph 1.1.8 and substitute the following:
- 1.1.8 The Owner shall provide the Contractor, without charge, 1 pdf copy of the *Contract Documents* to perform the *Work*.
- 6.0 GC 1.4 ASSIGNMENT .1 Clause 1.4. 1: Delete in its entirety and replace with the following "The Contractor shall not assign or transfer their interest in the Contract or any portion thereof directly or indirectly, without the prior written consent of the Owner".
- 7.0 GC 2.2 ROLE OF THE CONSULTANT .1 Add at the end of paragraph 2.2.9. "The *Owner* and the *Contractor* shall waive any claims against the *Consultant* arising out of the making of such interpretations and findings made in accordance with paragraphs 2.2.7., 2.2.8. and 2.2.9".
- .2 Delete the comma after the word "submittals" and add the words "which are provided" before the words "in accordance" in paragraph 2.2.14.
- 8.0 GC 2.4 DEFECTIVE WORK .1 Clause 2.4.1: Add the words "at his own expense," after "The Contractor Shall" in the first line.
- .2 Add new subparagraphs 2.4.1.1 and 2.4.1.2:
- 2.4.1.1 The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*.
- 2.4.1.2 The *Contractor* shall prioritize the correction of any defective work which, in the sole discretion of the *Owner*, adversely affects the day to day operation of the *Owner*.
- 9.0 GC 3.1 CONTROL OF THE WORK .1 Add new paragraph 3.1.3:
- 3.1.3 Prior to commencing individual procurement, fabrication and construction

activities, the *Contractor* shall verify, at the *Place of the Work*, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included, or contradictions exist, or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceeding with any part of the affected work.

10.0 GC 3.2
CONSTRUCTION BY OWNER
OR OTHER
CONTRACTORS:

- .1 Clause 3.2:2:
.1 Paragraph 3.2.2.2: Delete in its entirety.

11.0 GC 3.4 DOCUMENT
REVIEW

- .1 Delete paragraph 3.4.1 in its entirety and
substitute new paragraph 3.4.1:

3.4.1 The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency or omission the *Contractor* may discover. Such review by the *Contractor* shall comply with the standard of care described in paragraph 3.14.1 of the *Contract*. Except for its obligation to make such review and report the result, the *Contractor* does not assume any responsibility to the *Owner* or to the *Consultant* for the accuracy of the *Contract Documents*. The *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered. If the *Contractor* does discover any error, inconsistency or omission in the *Contract Documents*, the *Contractor* shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Consultant*.

- .2 Add the following new clause 3.4.2:
"Notwithstanding the foregoing,

inconsistencies and omissions shall not include lack of reference on the drawings or in the specifications to labour and/or Products that are required or normally recognized within respective trade practices as being necessary for the complete execution of the Work."

12.0 GC 3.5
CONSTRUCTION
SCHEDULE

.1 Revise 3.5.1.1: to read as follows:

3.5.1.1 prepare and submit to the *Owner* and the *Consultant* within ten (10) calendar days of award of Contract and prior to the first application for payment, a construction schedule that indicates the timing of the major activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time*; Such schedule is subject to approval by the *Owner*.

13.0 GC 3.8 LABOUR AND .1
PRODUCTS

Add new paragraph 3.8.4:

3.8.4 The *Contractor* is responsible for the safe on-site storage of *Products* and their protection (including *Products* supplied by the *Owner* and other contractors to be installed under the *Contract*) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* to the satisfaction of the *Owner* and the *Consultant*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner*.

.2 Add the following new clause 3.8.5:

"All products and materials brought onto the place of Work by the Contractor shall be deemed to be the property of the Owner, but the Owner shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. The said Products and materials shall be at the sole risk of the Contractor."

.3 Add new paragraph 3.8.6:

3.8.6 All materials, work services and equipment used and delivered to the Place of Work and intended to be used in the carrying out of this Contract shall be free and clear and kept free and clear of all items, charges and encumbrances. In the event of there being a lien, charge or encumbrance or a claim for an item, charge or encumbrance the Owner may retain from the amount otherwise payable to the Contractor, an amount sufficient to satisfy and discharge the same. If the Owner gives to the Contractor written notice of their intention to satisfy and discharge any such lien, charge or encumbrance or a claim for an item, charge or encumbrance and, within three days of receipt of such notice, the Contractor does not show cause, satisfactory to the Consultant, why such item, charge or encumbrance should not be satisfied and discharged, the Owner shall be at liberty and authorized to satisfy and discharge the same and charge the costs thereof to the Contractor. The Contractor agrees to indemnify and keep indemnified and save harmless, the Owner from any and all claims, charges and encumbrances.

14.0 GC 3.10 SHOP
DRAWINGS

.1 Add the words "AND OTHER SUBMITTALS" to the Title after SHOP DRAWINGS.

.2 Add "and *Submittals*" after the words "*Shop Drawings*" in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11, and 3.10.12.

.3 Delete 3.10.3 in its entirety and substitute new paragraph 3.10.3:

3.10.3 Prior to the first application for payment, the *Contractor* and the *Consultant* shall jointly prepare a schedule of the dates for submission and return of *Shop Drawings* and any *Submittals*.

.4 Delete the words "*so as to cause no delay in the performance of the Work*" in paragraph 3.10.12.

15.0 GC 3.13 CLEANUP

.1 Add the following new clause 3.13.4:

"In the event of any dispute regarding the removal of waste products and debris the Owner may remove the rubbish and debris and charge the cost to the Contractor to the extent that the Consultant shall determine to be just."

16.0 GC 3.14
PERFORMANCE BY
CONTRACTOR

.1 Add new General Condition 3.14.1:

3.14.1 In performing its services and obligations under the *Contract*, the *Contractor* shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The *Contractor* acknowledges and agrees that throughout the *Contract*, the *Contractor's* obligations, duties and responsibilities shall be interpreted in accordance with this standard. The *Contractor* shall exercise the same standard of due care and diligence in respect of any *Products*, personnel, or procedures which it may recommend to the *Owner*.

.2 Add new General Condition 3.14.2:

3.14.2 The *Contractor* further represents, covenants and warrants to the *Owner* that:

.1 The personnel it assigns to the *Project* are appropriately experienced;

.2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the *Owner's* approval, in the event of death, incapacity, removal or resignation.

17.0 GC 4.1 CASH
ALLOWANCES

.1 Delete paragraph 4.1.4 in its entirety and substitute new paragraph 4.1.4:

4.1.4 Where costs under a cash allowance exceed the amount of the allowance, unexpended amounts from other cash allowances shall be reallocated at the *Consultant's* direction to cover the shortfall, and, in that case, there shall be no additional amount added to the Contract Price for overhead and profit. Only

where the actual cost of the Work under all cash allowances exceeds the total amount of all cash allowances shall the Contractor be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the Contract Documents.

- .2 Delete paragraph 4.1.5 in its entirety and substitute new paragraph 4.1.5:

4.1.5. The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price by Change Order without any adjustment for the Contractor's overhead and profit on such amount.

- .3 Delete paragraph 4.1.7 in its entirety and substitute new paragraph 4.1.7:

4.1.7 At the commencement of the work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant, a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items called for under cash allowances must be authorized for ordering by the Owner, and items that are specified to be Owner purchased and Contractor installed or hooked up are required at the site to avoid delaying the progress of the Work.

- .4 Add new paragraph 4.1.8:

4.1.8 The Owner reserves the right to call, or to have the Contractor call, for competitive bids for portions of the Work, to be paid for from cash allowances.

- .5 Add the following new clause 4.1.9:

"Purchases from cash allowances must be authorized by written instructions issued by the Consultant and the form and methods of accounting for costs shall be agreed to by the Consultant and Contractor before proceeding with the purchase."

- 18.0 GC 5.1 FINANCING .1 Clause 5.1.1: Delete in its entirety
INFORMATION REQUIRED OF
THE OWNER .2 Clause 5.1.2: Delete in its entirety.

- 19.0 GC 5.2 APPLICATION .1 Delete paragraph 5.2.2 in its entirety and
FOR PROGRESS PAYMENT substitute the following"

5.2.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties. The amount claimed shall be for the value, proportionate to the amount of the *Contract*, or work performed and *Products* delivered and incorporated into the *Work* at that date. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties.

Seven days prior to the last day of the payment period, the Contractor shall submit a draft schedule of values indicating the anticipated percentage complete for each trade, including separate mechanical and electrical division breakdowns for review by the Consultant.

In order to be considered a "proper invoice" in accordance with the Construction Act, each application for payment, shall include the following:

.1 A statutory declaration, in the CCDC 9A - 2001 form, up to the date of the application for payment, in a form approved by the Consultant (not required for the first application).

.2 A certificate, issued by an agency or firm providing workers' compensation insurance to the *Contractor*, verifying that coverage is in force at the time of making the application for payment, and that coverage will remain in force for at least sixty (60) days thereafter.

.3 A declaration by the Contractor, in a form approved by the *Consultant*, verifying that the performance of the *Work* is in compliance with all applicable regulatory requirements respecting environmental protection, first safety, public safety and occupational health and safety.

.4 A pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 48 of the Work, aggregating the total amount of the *Contract Price*.

.5 A separate pre-approved schedule of values, supplied by each *Subcontractor*, for Mechanical and Electrical Divisions of the Work, aggregating the total amount of the *Contract Price*.

.6 Invoices to support all claims against the cash allowance.

.7 An acceptable construction schedule pursuant to GC 3.5.

20.0 GC 5.3 PROGRESS
PAYMENT

.1 Clause 5.3.1.2: Replace "10" with "14" in the first line.

.2 Clause 5.3.1.3: Revise to read: "the Owner shall make a payment to the Contractor on account as provided in Article A-5 of the agreement - PAYMENT on or before 28 calendar days after the receipt of a proper invoice from the Contractor."

21.0 GC 5.7 FINAL
PAYMENT

.1 Clause 5.7.2: Replace "10" with "14" in the second line.

.2 Clause 5.7.4: Replace "5" with "14" in the second line.

22.0 GC 5.10 DEFICIENCY
HOLDBACK

.1 Add a new General Condition 5.10 as follows:
5.10.0 Notwithstanding any provisions contained in the Contract Documents concerning certification and release of monies to the Contractor, the Owner reserves the right to establish a deficiency holdback, at the time of the review for Substantial Performance, based on a 200% dollar value of the deficiencies listed by the Consultant. The value of work outstanding for the calculation of Substantial Performance of the Work under the Construction Act (Ontario) shall utilize this 200% dollar value. No individual deficiency will be valued at less than two hundred dollars (\$200.00). The Owner shall retain the entire deficiency holdback amount until completion of all of the deficiencies listed by the Consultant to the

satisfaction of the Consultant.

23.0 GC 6.2 CHANGE
ORDER

- .1 Add the following sub-paragraphs .1 to .13 to GC6.2.1:
- .1 Where a change in the Work involves additions, deletions, or other revisions to the Work, the Contract Price shall be increased only by the net actual value of the change in the Work, including taxes, but excluding Value Added Taxes, plus allowances for overhead and profit as follows:
- .1 Where a change is made in work to be carried out by the *Contractor's* own forces, and for which no Contract Unit Prices are scheduled, the value of the additional work shall be determined by adding to the reasonable cost of materials and labour (as assessed by the Consultant), an allowance for the *Contractor's* overhead of not more than ten percent (10%), plus a further allowance for the *Contractor's* profit of not more than five percent (5%) of the total.
- .2 Where a change is made in work to be carried out by a Sub-contractor, the value of the additional work shall be determined in a similar manner, the allowances for the Sub-contractor's overhead of not more than ten percent (10%), plus a further allowance for the Sub-contractor's profit of not more than five percent (5%) of the total. In such cases, the *Contractor* shall be permitted to add thereto an allowance in respect of combined overhead and profit of not more than ten percent (10%) on the total of the Sub-contractor's quotation.
- .3 If a Subcontractor retains another subcontractor (sub-subcontractor), no additional mark-up shall be charged to the Owner for the sub-subcontract work.
- .2 The above percentages for overhead and profit shall include all costs for job supervisors, job superintendents, project management, administrative personnel, site overhead,

office overhead, site measuring, estimating, bonding, insurance, financing, building permit, as-built drawings, site facilities, safety, clean-up, equipment, tools, travel costs to the *Place of Work*, and other job administration charges related to the change and not directly relating to site labour or materials.

- .3 The above percentages for Contractor and sub-contractor overhead and profit shall apply for net changes in the *Work* of \$15,000.00 or less. Changes in the *Work* in excess of \$15,000.00 shall carry an allowance for overhead and profit, at a percentage rate of one half of those called for above.
- .4 If a change in the *Work* results in a net decrease in the *Contract Price*, the amount of the credit shall be the net cost, without deduction for overhead or profit. When both additions and deletions covering related work or substitutions are involved in a change in the *Work*, the allowance of overhead and profit shall be calculated on the basis of the net increase, if any, with respect to that change in the *Work*.
- .5 Labour costs shall be the actual rates paid to the workers plus a documented mark-up (not exceeding 60% of actual wage rates) to cover contributions, assessments, or taxes incurred for such items as unemployment and other insurance, provincial health insurance, Workers' Compensation, Canada or Quebec Pension Plan, Holiday & Vacation Pay, Traveling Time, Travel and Parking, Welfare, Union, Industry Training and Pension Funds, rest periods, down time, personal hygiene, personal protection, small tools and the like. Travel time to and from site shall be at no charge to the Owner.
- .6 Quotations for changes in the *Work* shall be accompanied by itemized breakdowns together with detailed, substantiating quotations or cost vouchers from *Subcontractors* and *Suppliers*, submitted in a format acceptable to the *Consultant*.
- .7 Breakdown shall show areas and quantities on which costs are based, unit costs for

labour and material, wage burdens and other direct costs, and all information necessary for a complete understanding of the costs submitted. In the case of changes involving Subcontractors' quotations shall be provided in support of each claim for extra or credit offered. Subcontractors' quotations shall be broken down as specified above.

- .8 The *Contractor* is obliged to review and consider the value and validity of *Subcontractors* and *suppliers* quotations to be used as backup for proposed *Change Order* pricing before submission to the *Consultant*. The *Contractor* shall ensure that only valid, and fair and reasonable costs are submitted to the *Consultant*. The *Consultant* will not directly negotiate with *Subcontractors* and *Suppliers* on behalf of the *Contractor*. The *Contractor* shall maintain financial oversight of the *Subcontractors* and *Suppliers* and filter out unreasonable claims.
- .9 Unit and alternative prices included in the *Contract* include supply, installation, *Products, Construction Equipment, services, materials, labour, overhead and profit, but exclude Value Added Taxes and Provincial Sales Tax.*
- .10 The *Owner* through the *Consultant*, reserves the right to authorize payment for changes in the *Work* by means of cash allowance disbursement authorizations.
- .11 If any change or deviation in, or omission from the *Work* is made by which the amount of *Work* to be performed is decreased, or if the whole or a portion of the *Work* is dispensed with, no compensation is claimable by the *Contractor* for any loss of anticipated profit in respect thereof.
- .12 Should the *Contractor* proceed with any change in the method of construction, volume or location of the *Work* which has not been both ordered and valued as set out above, or as a *Change Directive*, it shall be conclusively presumed that the parties were in agreement that such change should be made at no additional cost to the *Owner*.

- .13 A change order signed by the Contractor indicates his complete agreement therewith, including the adjustment if any, in the Contract Price and the Contract Time. Contractor agrees that in no event shall he make any subsequent claim relating to the items covered by such change order, either regarding the Contract Price, or the Contract Time. Except as permitted in GC 6.3.5, the Contractor shall not bill for changes in the Work until after a Change Order has been executed by the Contractor, Consultant, and Owner.

24.0 GC 6.3 CHANGE
DIRECTIVE

- .1 Delete Paragraph 6.3.6 and replace with the following:

6.3.6 The adjustment in the *Contract Price* for a change carried out by way of a *Change Directive* shall be determined in one of the following methods.

- .1 Estimate and acceptance in a lump sum;
- .2 Unit prices set out in the Contract or subsequently agreed upon;
- .3 Actual cost of expenditures and credits to perform the work attributable to the change valued in accordance with GC 6.2 CHANGE ORDER.

- .2 Delete Paragraph 6.3.7 and replace with the following.

6.3.7 The Contractor shall present in a form acceptable to the *Consultant* an amount of adjustment for the *Contract Price*, if any, and an adjustment in the *Contract Time*, if any, for the changes covered by a *Change Directive*. The Procedures of evaluation including applicable overhead and profit mark-up provisions shall be as described under GC 6.2 CHANGE ORDER.

- .1 In the case of a change in the *Work* to be valued in accordance with paragraph 6.3.6.1, the *Contractor* shall present to the *Consultant* for approval a detailed estimate of the costs of the *Contractor* and the involved *Subcontractors* including products, labour itemized by man hours, labour burden and the overhead and profit of each of the involved *Subcontractors* shown separately.

.2 In the case of a change to be valued under methods prescribed in Paragraph 6.3.6.2, the form of the presentation of costs and methods of measurement shall be agreed to by the *Owner*, through the *Consultant*, and the *Contractor* before proceeding with the change.

.3 When method prescribed in Paragraph 6.3.6.3 is used to determine the value of a change in the *Work*, the *Contractor* shall keep and present, in such form as the *Consultant* may require, an itemized accounting of the actual cost of expenditures and savings together with supporting data.

25.0 GC 6.4 CONCEALED
OR UNKNOWN CONDITIONS

.1 Clause 6.4.1:

.1 Paragraph 6.4.1.1: Replace "materially" with "substantially" in the second line.

.2 Paragraph 6.4.1.2: Replace "materially" with: "substantially" in the first line.

.2 Clause 6.4.2: Replace "materially" with "substantially" in the second line.

.3 Clause 6.4.3: Replace "materially" with "substantially" in the first line.

.4 Add new subparagraph 6.4.5:

6.4.5 The *Contractor* confirms that, prior to bidding the *Project*, it carefully investigated the *Place of the Work* and applied to that investigation the degree of care and skill described in paragraph 3.14.1. The *Contractor* is not entitled to compensation or to an extension of the *Contract Time* for conditions which could reasonably have been ascertained by the *Contractor* by such careful investigation undertaken prior to the submission of the bid.

26.0 GC 6.5 DELAYS

.1 Delete the period at the end of paragraph 6.5.1, and substitute the following words:

", but excluding any consequential, indirect or special damages."

- .2 Delete the period at the end of paragraph 6.5.2, and substitute the following words:

", but excluding any consequential, indirect or special damages."

- .3 Clause 6.5.3: Add the following sentence to the end of the clause: "If such delays, in the Owner's opinion, may materially affect the Contract Price or the Contract Time the Owner may terminate the Contract by giving written notice to the Contractor."

- .4 Add new subparagraph 6.5.6.

6.5.6 If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Contractor* or anyone employed or engaged by the *Contractor* directly or indirectly, or by any cause within the *Contractor's* control, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may decide in consultation with the *Contractor*. The *Owner* shall be reimbursed by the *Contractor* for all reasonable costs incurred by the *Owner* as the result of such delay, including all services required by the *Owner* from the *Consultant* as a result of such delay by the *Contractor* and, in particular, the cost of the *Consultant's* services during the period between the date of *Substantial Performance of the Work* stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of *Substantial Performance of the Work* achieved by the *Contractor*.

- .5 Add new subparagraph 6.5.7.

6.5.7 In addition to the amount set out in paragraph 6.5.6, the *Contractor* recognizes and agrees that the *Owner* will suffer a financial loss if the *Work* is not completed within the time prescribed by the *Contract*. The *Contractor* also recognizes the delays, expenses and difficulties involved in proving the actual loss suffered by the *Owner* if the *Work* is not completed on time. Accordingly, instead of requiring any such proof, the

Contractor agrees that as liquidated damages for delay (but not as penalty) the Contractor shall pay the Owner, as liquidated damages, an amount per day, as designated in the Specific Provisions of Contract for each and every day's delay from the specified time for completion of the Work until actual completion of the Work, and it is further expressly acknowledged and agreed by the Contractor that:

(a) this amount is a reasonable estimate of the actual damages that will be incurred by the Owner due to any failure to complete the Work within the time required by this Contract;

(b) the Owner may deduct the amount due under this section from any monies that may be due or payable to the Contractor, whether under the Contract or any other agreement; and,

(c) the liquidated damages provided for in this section shall be without prejudice to any other remedy to which the Owner is entitled at law or in equity.

27.0 GC 6.6 CLAIMS FOR .1
A CHANGE IN
CONTRACT PRICE

Delete paragraph 6.6.5. in its entirety and substitute new paragraph 6.6.5.

6.6.5. The *Consultant's* findings, with respect to a claim made by either party will be given by *Notice in Writing* by the *Consultant* to both parties within reasonable time after receipt of the claim information noted in paragraph 6.6.3.

.2 Add new paragraph 6.6.7

6.6.7 The Owner shall be reimbursed for all costs incurred for additional services provided by the *Consultant* resulting from the *Contractor's* failure to reasonably perform the Work in accordance with the terms and conditions of the Contract, including the *Contractor's* issuance of unnecessary Requests for Information. The *Consultant* will notify the *Owner* and *Contractor* where it has been determined by the *Consultant* that additional services will be required or have been provided in order not to cause a delay. The *Owner* shall make claims based on the

Consultant's invoices.

- 28.0 GC 7.1 OWNER'S
RIGHT TO PERFORM THE
WORK, STOP THE WORK, OR
TERMINATE THE CONTRACT
- .1 Clause 7.1.1: Add the words "or if they should fail to comply substantially with the construction schedule" after the second "insolvency" at the end of the second line.
- .2 Clause 7.1.2: Add the words "but without affecting in any respect the liability of the Contractor in respect of earlier defaults." at the end of the clause.
- .3 Clause 7.1.3:

Paragraph 7.1.3.1: Add the words "and is diligently proceeding with" after the "commences" in the first line.
- 29.0 GC 7.2 CONTRACT-
OR'S RIGHT TO STOP THE
WORK, OR TERMINATE THE
CONTRACT
- .1 Clause 7.2.4: Add the sentence "The foregoing defaults in contractual obligations shall not apply to the withholding of certificates of payments, or both, in accordance with the General Conditions, because of the registration of liens against the Owner's Property, unfit such claims and liens are discharged as a result of payment by the Contractor." to the end of the clause
- 30.0 GC 8.2
NEGOTIATION, MEDIATION
AND ARBITRATION
- .1 Add the following new paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12., 8.2.13., and 8.2.14:
- 8.2.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the *Owner* and the *Contractor* shall give the *Consultant* a written notice containing:
- a) a copy of the notice of arbitration
b) a copy of supplementary conditions 8.2.9 to 8.2.14 of this *Contract*, and;
c) any claims or issues which the *Contractor* or the *Owner*, as the case may be, wishes to raise in relation to the *Consultant* arising out of the issues in dispute in the arbitration
- 8.2.10 The *Owner* and the *Contractor* agree that the *Consultant* may elect, within ten days of

receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the *Consultant*:

- a) has a vested or contingent financial interest in the outcome of the arbitration;
- b) gives the notice of election to the *Owner* and the *Contractor* before the arbitrator is appointed;
- c) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and,
- d) agrees to be bound by the arbitral award made in the arbitration.

8.2.11 If an election is made under paragraph 8.2.10, the *Consultant* may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration.

8.2.12 The arbitrator in the arbitration in which the *Consultant* has elected under paragraph 8.2.10 to become a full party may:

- a) on application of the *Owner* or the *Contractor*, determine whether the *Consultant* has satisfied the requirements of paragraph 8.2.10, and;
- b) make any procedural order considered necessary to facilitate the addition of the *Consultant* as a party to the arbitration.

8.2.13 The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the *Consultant* to any sub-consultant;

8.2.14 In the event of notice of arbitration given by the *Consultant* to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.

31.0 GC 9.1 PROTECTION .1
OF WORK AND PROPERTY

Delete subparagraph 9.1.1.1 in its entirety and substitute new subparagraph 9.1.1.1:

9.1.1.1 errors in the *Contract Documents* which

the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;

- .2 Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

9.1.2 Before commencing any *Work*, the *Contractor* shall determine the locations of all underground utilities and structures indicated in the *Contract Documents*, or that are discoverable by applying to an Inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1.

32.0 GC 9.2 TOXIC AND
HAZARDOUS SUBSTANCES

- .1 Add to paragraph 9.2.6 after the word "responsible", the following new words:

or whether any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the *Owner* or others,

- .2 Add "and the *Consultant*" after the word "*Contractor*" in subparagraph 9.2.7.4.

- .3 Add to paragraph 9.2.8 after the word "responsible", the following new words:

or that any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the *Owner* or others,

- 33.0 GC 9.5 MOULD .1 Add "and the *Consultant*" after "*Contractor*" in subparagraph 9.5.3.4.
- 34.0 GC 10.1 TAXES AND DUTIES .1 Clause 10.1.1: Replace "Value Added Taxes" with "Harmonized Sales Tax (HST)" in the line.
- .2 Clause 10.1.1: Add these sentences The Contractor shall bill the Owner upon each payment certificate, to the appropriate amount of HST the Owner is legally obliged to pay. This amount for HST will be paid in addition to the amount certified for payment under the Contract and will therefore not affect the Contract Price." at the end of the clause.
- .3 Clause 10.1.2: Delete in its entirety and replace with the following clauses:
- "10.1.2 When an exception or recovery of government sales taxes, customs duties or excise taxes is applicable to the contract, the Contractor shall at the request of the Owner (or his agent) assist, join in, or make application for an exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the Owner. The Contractor agrees to endorse over to the Owner any cheques received from the Federal or Provincial Governments as may be required to implement the foregoing.
- 10.1.3 Where the Owner is entitled to any available exemptions for rebates of sales tax or customs duty or both or them, the Contractor shall supply to the Owner full particulars of all sales tax or customs duty paid, in order to facilitate the application by the Owner for such refund. The Owner will retain such funds for its own use.
- 10.1.4 The Contractor is not entitled to any mark-up on account of profit,

overhead, or otherwise due to any increase in taxes or duties. Should the cost be retroactively reduced by a change in taxes and/or duties, the Owner will be entitled to withhold payment to the Contractor of a sum equal to the amount of the tax and/or duty reduction. Should the cost of Work be increased by a change of the work, the Subcontractor shall be entitled to claim for the increase in cost equal to the amount of the tax and/or duty increase. No mark-up shall be permitted on the increase.

10.1.5 The Contractor shall maintain accurate records tabulating equipment and component costs showing respective taxes and customs duties or excise taxes."

35.0 GC 10.2 LAWS,
NOTICES, PERMITS,
AND FEES

.1 Delete from the first line of paragraph 10.2.5 the word, "The" and substitute the words:

"Subject to paragraph 3.14.1, the".

.2 Clause 10.2.5: Add the words "and no further work on such phase of the Contract shall be proceeded with until instructions rectifying such discrepancy have been obtained by the Contractor from the Consultant."

36.0 GC 11.1 INSURANCE

.1 Clause 11.1.1:

.1 Paragraph 11.1.1.1: Delete the last sentence in its entirety and replace it with the following:

"Such insurance shall be issued by companies approved in writing by the Owner and shall be primary and noncontributing with, and not in excess of, any other insurance available to the Owner and other covered parties, and endorsed to provide the Owner and other covered parties with not less than fifteen (15) days written notice in

advance of any cancellation, change or amendment restricting coverage."

.2 Add the following new Paragraph 11.1.1.8:

"Other Insurance: Subject to the provisions above, each Contractor and Subcontractor shall provide, at its own cost, any additional insurance which it is required by law to provide or which it considers necessary for the performance and protection of the Work."

.2 Clause 11.1.5: Add the sentences "The Contractor shall provide the Owner with proof of insurance prior to commencement of Work and shall promptly provide the Owner with a certified true copy of each insurance policy exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of Insurance."

.3 Add the following new Clause 11.1.9:

"Unless specified otherwise the duration of each insurance policy shall be from the date of commencement of the Work until the date of the final certificate of payment. The Contractor shall be responsible for deductible amounts under all policies. It shall be the responsibility of the Contractor not to violate, nor knowingly permit to be violated, any conditions of the policies maintained according to the provisions of the conditions of the Contract and shall be the Contractor's duty and responsibility to impose upon each Subcontractor the same responsibilities and obligations imposed upon the Contractor under such provisions."

- 37.0 GC 12.1
INDEMNIFICATION .1 Add new clause 12.1.3:
- 12.1.3. The *Contractor* shall indemnify and hold harmless the *Consultant*, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, the *Contractor's* performance of the *Contract*, provided such claims are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, and caused by negligent acts or omissions of the *Contractor* or anyone for whose acts the *Contractor* may be liable, and made in writing within a period of 6 years from the date of *Substantial Performance of the Work* as set out in the certificate of *Substantial Performance of the Work*, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the *Place of Work*.
- 38.0 GC 12.3 WARRANTY .1 Delete from the first line of paragraph 12.3.2 the word, "The" and substitute the words:
- "Subject to paragraph 3.14.1, the...".
- 39.0 GC 13
CONFIDENTIALITY .1 Add the following new General Condition GC 13, Confidentiality:
- .1 "13.1 Contractor shall treat as confidential all data, drawings, specifications, and documents related to the Project and shall not lend out to others such information or documents."
- .2 "13.2 Data or design provided by or developed under this Contract shall be for the strict use and benefit of the Owner and not to be used for any other purpose."

END OF SECTION

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Title and description of Work.
 - .2 Contract Method.
 - .3 Owner occupancy.
- 1.2 Work Covered by Contract Documents
- .1 Work of this Contract is comprised of renovation to former Yarker School for a new daycare at 4315 County Rd 1E, Yarker.
- 1.3 Contract Method
- .1 Construct Work under single fixed price contract.
- 1.4 Owner Occupancy
- .1 The existing library will remain in operation during the construction period. Hours of operation are Mondays and Wednesdays 4:00-8:00pm, Tuesdays, Thursdays and Saturdays 10:00am-2:00pm.

PART 1 - GENERAL

- 1.1 Section .1 Cash allowances.
Includes
- 1.2 Cash Allowances .1 Include in Contract Price, cash allowances stated herein.
- .2 Cash allowances, unless otherwise specified, cover net cost to Contractor/ Subcontractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, coordination and supervision and other authorized expenses incurred in performing Work.
- .3 The Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.
- .4 The Contract Price will be adjusted by written order to provide for an excess or deficit to each cash allowance.
- .5 Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in Contract Documents.
- .6 Progress payments on accounts of work authorized under cash allowances shall be included in Consultant's monthly certificate for payment.
- .7 The amount of each allowance is as follows:
.1 Inspection and testing: \$2,000
.2 Signage allowance: \$15,000
.3 Security System by Alarm Systems, Belleville: \$15,000
.4 Supply of hardware: \$16,000

PART 1 - GENERAL

- 1.1 Related Requirements Specified Elsewhere .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Consultant are specified under various sections.
- 1.2 Appointment and Payment .1 Receive competitive bids for services of testing laboratory to be paid by allowance, except for the following items that are part of the contractor's work:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
.4 Mill tests and certificates of compliance.
.5 Tests specified to be carried out by Contractor under the supervision of Engineer.
.6 Additional tests specified in the following paragraph 1.2.2.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Consultant to verify acceptability of corrected work.
- 1.3 Contractor's Responsibilities .1 Provide labour, equipment and facilities to:
.1 Provide access to Work to be inspected and tested.
.2 Facilitate inspections and tests.
.3 Make good Work disturbed by inspection and test.
.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
-

- 1.3 Contractor's Responsibilities (Cont'd)
- .2 Notify Consultant sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
 - .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
 - .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Consultant.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Consultant.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting 5 days in advance of meeting date to Consultant.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within 5 days after meetings and transmit to meeting participants and, affected parties not in attendance.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
 - .2 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
 - .3 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
 - .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work:
-

- 1.2 PRECONSTRUCTION MEETING (Cont'd)
- .3 Schedule of submission of shop drawings, samples, colour chips.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities.
 - .5 Delivery schedule of specified equipment.
 - .6 Site security.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Owner provided products.
 - .9 Record drawings.
 - .10 Maintenance manuals.
 - .11 Take-over procedures, acceptance, warranties.
 - .12 Monthly progress claims, administrative procedures, hold backs.
 - .13 Insurances, transcript of policies.

- 1.3 PROGRESS MEETINGS
- .1 During course of Work, schedule progress meetings bi-weekly.
 - .2 Contractor and major Subcontractors involved in Work are to be in attendance.
 - .3 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after meeting.
 - .4 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Revision to construction schedule.
 - .6 Other business.

PART 2 - PRODUCTS

- 2.1 NOT USED
- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Schedule, form, content.
 - .2 Critical path scheduling.
- 1.2 Schedules Required
- .1 Contractor shall submit their Construction Schedule for review within fifteen days after award of contract utilizing the critical path method. This schedule shall be updated monthly with both hard copy and electronic copy forwarded to the Consultant. Monthly updates must include actual percentages complete. The Construction Schedule will be shown as a line item on the Contractor's Cost Breakdown. Failure to provide monthly updates may result in the contractor's request for payment being returned.
 - .2 The CPM Schedule shall include complete sequence of construction activities.
 - .3 Include dates for commencement and completion of each major element of construction as follows.
 - .1 Site work.
 - .2 Foundation work.
 - .3 Framing
 - .4 Exterior Finishes
 - .5 Interior Finishes
 - .6 Mechanical Work.
 - .7 Electrical Work.
 - .8 Interior Finishes.
 - .4 Show projected percentage of completion of each item as of first day of month.
 - .5 Indicate progress of each activity to date of submission schedule.
 - .6 Show changes occurring since previous submission of schedule:
 - .1 Major changes in scope.
 - .2 Activities modified since previous submission.
 - .3 Revised project icons of progress and completion.
-

- 1.2 Schedules .6 (Cont'd)
Required .4 Other identifiable changes.
(Cont'd)
- .7 Provide a narrative report to define:
.1 Problem areas, anticipated delays, and
impact on schedule.
.2 Corrective action recommended and its
effect.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 Section
Includes

- .1 Shop drawings and product data.
- .2 Samples.
- .3 Certificates and transcripts.

1.2 Administrative

- .1 Submit to Consultant within 14 days from award submittals listed for review. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .2 Work affected by submittal shall not proceed until review is complete.
 - .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
 - .4 Where items or information is not produced in SI Metric units converted values are acceptable.
 - .5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
 - .6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
 - .7 Verify field measurements and affected adjacent Work are coordinated.
 - .8 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
-

1.2 Administrative
(Cont'd)

- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant.
- .10 Keep one reviewed copy of each submission on site.

1.3 Shop Drawings
and Product Data

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow 10 days for Consultant's review of each submission.
- .4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work, and do not proceed without written authority.
- .5 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Engineer in writing of any revisions other than those requested.
- .6 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.

1.3 Shop Drawings
and Product Data
(Cont'd)

- .7 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .8 After Consultant's review, distribute copies.
- .9 Submit all shop drawings electronically in pdf format, without security protection.
- .10 Maximum sheet size: 610 x 915 mm.
- .11 Delete information not applicable to project.
- .12 Supplement standard information to provide details applicable to project.
- .13 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Inspection and testing, administrative and enforcement requirements.
 - .2 Tests and mix designs.
 - .3 Mill tests.
 - .4 Equipment and system adjust and balance.
- 1.2 Inspection
- .1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
 - .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.
 - .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
 - .4 Consultant may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.
- 1.3 Independent Inspection Agencies
- .1 Independent Inspection/Testing Agencies will be selected by Consultant and engaged by the contractor for the purpose of inspecting and/or testing portions of Work. Cost of such services will be paid through the inspection & testing allowance.
-

- 1.3 Independent Inspection Agencies (Cont'd)
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
 - .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
 - .4 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain the full degree of defect. The contractor shall correct defects and irregularities as advised by Consultant and complete re testing and re inspection. The contractor shall bear all cost for correction, retesting and re inspection.
- 1.4 Access to Work
- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
 - .2 Co-operate to provide reasonable facilities for such access.
- 1.5 Procedures
- .1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.
 - .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
 - .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.
-

- 1.6 Rejected Work
- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
 - .3 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Consultant.
- 1.7 Reports
- .1 Submit 4 copies of inspection and test reports.
 - .2 Provide copies to Subcontractor of work being inspected or tested or manufacturer or fabricator of material being inspected or tested.
- 1.8 Tests and Mix Designs
- .1 Furnish test results and mix designs as may be requested.
 - .2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Consultant and may be authorized as recoverable.
- 1.9 Mill Tests
- .1 Submit mill test certificates as requested or required of Specification Sections.
- 1.10 Equipment and Systems
- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
-

1.10 Equipment and Systems .2 Refer to Section 01 78 00 for definitive requirements.
(Cont'd)

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used

PART 3 - EXECUTION

3.1 Not Used .1 Not Used

PART 1 - GENERAL

- 1.1 Section Includes .1 Temporary utilities.
- 1.2 Installation and Removal .1 Provide temporary utilities controls in order to execute work expeditiously.
.2 Remove from site all such work after use.
- 1.3 Dewatering .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.
- 1.4 Water Supply .1 Owner will provide continuous supply of potable water for construction use.
.2 Arrange for connection with appropriate authority and pay all costs for installation, maintenance and removal.
- 1.5 Temporary Heating and Ventilation .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
.2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders are not permitted.
.3 Provide temporary heat and ventilation in enclosed areas as required to:
.1 Facilitate progress of Work.
.2 Protect Work and products against dampness and cold.
.3 Prevent moisture condensation on surfaces.
.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
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- 1.5 Temporary Heating and Ventilation (Cont'd)
- .3 (Cont'd)
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
 - .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
 - .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
 - .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.
- 1.6 Temporary Power and Light
- .1 Owner will pay for temporary power during construction for temporary lighting and operating of power tools.
 - .2 Arrange for connection and pay all costs for installation, maintenance and removal of temporary power on site.
 - .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- 1.7 Temporary Communication Facilities
- .1 Provide and pay for temporary telephone, fax and data lines necessary for own use.
-

- 1.8 Fire Protection .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Construction aids.
 - .2 Office and sheds.
 - .3 Parking.
 - .4 Project identification.
- 1.2 Installation and Removal
- .1 Provide construction facilities in order to execute work expeditiously.
 - .2 Remove from site all such work after use.
- 1.3 Scaffolding
- .1 Provide and maintain scaffolding, ramps and ladders.
- 1.4 Hoisting
- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
 - .2 Hoists and cranes shall be operated by qualified operator.
- 1.5 Site Storage/Loading
- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
 - .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.
- 1.6 Construction Parking
- .1 Parking will be permitted on site.
 - .2 Provide and maintain adequate access to project site.
-

- 1.6 Construction Parking (Cont'd) .3 Use existing streets for access to project site. Make good damage resulting from Contractors' use of roads and site.
- 1.7 Offices .1 Provide office heated to 22 ° C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide a clearly marked and fully stocked first-aid case in a readily available location.
- 1.8 Equipment, Tool and Materials Storage .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.
- 1.9 Sanitary Facilities .1 An existing washroom will be made available during construction.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Barriers.
 - .2 Environmental Controls.
 - .3 Fire Routes.
- 1.2 Installation and Removal
- .1 Provide temporary controls in order to execute Work expeditiously.
 - .2 Remove from site all such work after use.
- 1.3 HOARDING
- .1 Erect temporary site enclosures using new 1.8m high temporary portable fencing. Panels to have 42mm welded galvanized frames with non-climbable mesh.
- 1.4 Guard Rails and Barricades
- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors.
 - .2 Provide as required by governing authorities.
- 1.5 Weather Enclosures
- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
 - .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
 - .3 Design enclosures to withstand wind pressure and snow loading.
-

- 1.6 Dust Tight Screens .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.
- 1.7 Fire Routes .1 Maintain access to property including overhead clearances for use by emergency response vehicles.
- 1.8 Protection for Off-Site and Public Property .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.
- 1.9 Protection of Building Finishes .1 Provide necessary screens, covers, and hoardings.
- .2 Be responsible for damage incurred due to lack of or improper protection.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Product quality, availability, storage, handling, protection, and transportation.
 - .2 Manufacturer's instructions.
 - .3 Quality of Work, coordination and fastenings.
 - .4 Existing facilities.
- 1.2 Quality
- .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
 - .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
 - .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
 - .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
 - .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
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- 1.2 Quality
(Cont'd)
- .6 In specification sections where a specific manufacturer and/or product is specified as "an acceptable product is:" other manufacturers products meeting this standard, as determined by the Consultant, will be accepted as an alternative unless specified otherwise.
- 1.3 Availability
- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.
- 1.4 Storage, Handling and Protection
- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
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- 1.4 Storage, Handling and Protection
(Cont'd)
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
 - .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
 - .8 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- 1.5 Transportation
- .1 Pay costs of transportation of products required in performance of Work.
- 1.6 Manufacturer's Instructions
- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
 - .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.
 - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.
- 1.7 Quality of Work
- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
 - .2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless.
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- 1.7 Quality of Work
(Cont'd)
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.
- 1.8 Co-Ordination
- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.
- 1.9 Concealment
- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform Consultant if there is interference. Install as directed by Consultant.
- 1.10 Remedial Work
- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- 1.11 Location of Fixtures
- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Consultant of conflicting installation. Install as directed.
- 1.12 Fastenings
- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
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- 1.12 Fastenings
(Cont'd)
- .2 Prevent electrolytic action between dissimilar metals and materials.
 - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
 - .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
 - .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
 - .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
- 1.13 Fastenings -
Equipment
- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
 - .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
 - .3 Bolts may not project more than one diameter beyond nuts.
 - .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.
- 1.14 Protection of
Work in Progress
- .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of. Consultant.
-

- 1.15 Existing Utilities .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 REFERENCES

- .1 Submit to Consultant copies of the following documents, including updates issued:
 - .1 Health and Safety Program as indicated in paragraph 1.9, prior to commencement of work on the work site.
 - .2 Reports or directions issued by authorities having jurisdiction, immediately upon issuance from that authority.
 - .3 Accident or Incident Reports, within 24 hrs of occurrence.
- .2 Submit other data, information and documentation upon request by the Consultant as stipulated elsewhere in this section.

1.2 COMPLIANCE REQUIREMENTS

- .1 Comply with the latest edition of the Ontario Occupational Health and Safety Act, and the Regulations made pursuant to the Act.
 - .2 Observe and enforce construction safety measures required by:
 - .1 National Building Code of Canada (latest edition).
 - .2 Provincial Worker's Compensation Board.
 - .3 Municipal statutes and ordinances.
 - .3 In event of conflict between any provisions of above authorities the most stringent provision shall apply.
 - .4 Provide and maintain Worker's Compensation Board coverage for all employees for the duration of the contract. Prior to commencement of the work, at the time of Interim Completion and prior to final payment, provide to the Consultant a letter of Clearance from the Workers' Compensation Board indicating that the Contractor's account is in good standing.
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1.2 COMPLIANCE
REQUIREMENTS
(Cont'd)

- .4 (Cont'd)
.1 Should the Contractor be a sole proprietor, provide documented proof in a form acceptable to the Consultant, of an alternative means of personal coverage that meets or exceeds the requirements set out above for Worker's Compensation Board coverage.

1.3 RESPONSIBILITY

- .1 The Contractor is responsible for safety of persons and property on the work site and the general public circulating adjacent to work site operations to extent that they may be affected by conduct of work.
- .2 The Contractor is to enforce compliance by workers and other persons granted access to work site with safety requirements of Contract Documents, applicable federal, provincial, and local statues, regulations, and ordinances, and with the Contractor's Health and Safety Program.
- .3 Should an unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise the Consultant verbally and in writing of the hazard or condition.

1.4 SITE CONTROL
AND ACCESS

- .1 Control all work site access points and work site activities. Delineate and isolate the work site from adjacent and surrounding areas by use of appropriate means to maintain control of all work site access points.
- .2 Make provisions for granting permission to access onto work site to all persons who require access. Procedures for granting permission to access are to be in accordance with the Ontario Occupational Health and Safety Act, and the Regulations made pursuant to the Act and the Contractor's Health and Safety Program.
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1.4 SITE CONTROL
AND ACCESS
(Cont'd)

- .3 Ensure persons granted access to the work site are in possession of and wear the minimum personal protective equipment (PPE) designated by the Contractor's Health and Safety Program. Ensure persons granted access to the work site are provided with, trained in the use of, and wear, appropriate PPE that are required above and beyond the designated minimums previously noted and as specifically related to the work site activity that they are involved in. Be responsible for the efficacy of the PPE that is provided above and beyond the designated minimums.
- .4 Erect signage at access points and at other strategic locations around the work site clearly identifying the work site area(s) as being "off-limits" to non-authorized persons. Signage must be professionally made with well understood graphic symbols and is not to be used as advertising but for the specific use as related to site safety and key contact information.
 - .1 Information to be provided on the signage is as follows: Project Name/Description:
Contractor Company Name: Project
Superintendent's Name/Phone No.:
- .5 Secure the work site at all times to protect against un-authorized access.

1.5 FILING OF
NOTICE

- .1 File Notice of Project and any other required Notices with the Provincial/Territorial Authorities prior to commencement of the work. Provide the Consultant with a copy of the filed Notice(s) prior to commencement of the work.

1.6 PERMITS

- .1 Obtain permits, licenses and compliance certificates at appropriate times and frequencies as required by the authorities having jurisdiction.
- .2 Post all permits, licenses and compliance certificates on work site.

1.7 MEETINGS

- .1 Conduct site specific occupational health and safety meetings as required by the Ontario Occupational Health and Safety Act, and the Regulations made pursuant to the Act.
- .2 Record and post minutes of all meetings in plain view on the work site. Make copies available to Consultant upon request.

1.8 HEALTH AND SAFETY PROGRAM

- .1 Contractors are required under Ontario Occupational Health and Safety Act, and the Regulations made pursuant to the Act to have in place a Health and Safety Program. Compliance requirements for the content, detail and implementation of the program resides with the provincial/territorial authority. For the purpose of this contract the Health and Safety Program shall include a site-specific Health and Safety Plan that acknowledges, assesses and addresses the hazardous substances and/or hazardous conditions known and identified in paragraph 1.7 above, and on-going hazard assessments performed during the progress of work identifying and documenting new or potential health risks and safety hazards not previously known and identified.
 - .2 Provide one copy of the Health and Safety Program to the Consultant prior to commencement of work on the work site. The copy provided to the Consultant is for the purpose of review against the contract requirements related to the known hazardous substances and/or hazardous conditions. The review is not to be construed to imply approval by the Consultant that the program is complete, accurate and legislatively compliant with the Ontario Occupational Health and Safety Act, and the Regulations made pursuant to the Act, and shall not relieve the Contractor of their legal obligations under such legislation.
-

1.9 ACCIDENT
REPORTING

- .1 Investigate and report incidents and accidents as required Ontario Occupational Safety and Health Act, and the Regulations made pursuant to the Act.
- .2 For the purpose of this contract immediately investigate and provide a report on incidents and accidents that involve:
 - .1 A resulting injury that may or may not require medical aid but involves lost time at work by the injured person(s).
 - .2 Exposure to toxic chemicals or substances.
 - .3 Property damage.
 - .4 Interruption to adjacent and/or integral infrastructure operations with potential loss implications.
- .3 In the investigation and reporting of incidents and accidents, the Contractor is required to respond in a timely fashion to correct the action that was deemed to have caused the incident and/or accident and advise in writing on the action taken to prevent a re-occurrence of the incident and/or accident.

1.10 RECORDS ON
SITE

- .1 Maintain on site a copy of the safety documentation as specified in this section and any other safety related reports and documents issued to or received from the authorities having jurisdiction.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Requirements and limitations for cutting and patching the Work.
- 1.2 RELATED SECTIONS .1 Individual product Sections: cutting and patching incidental to work of section. Advance notification to other sections required.
- 1.3 SUBMITTALS .1 Submit written request in advance of cutting or alteration which affects:
.1 Structural integrity of any element of Project.
.2 Integrity of weather-exposed or moisture-resistant elements.
.3 Efficiency, maintenance, or safety of any operational element.
.4 Visual qualities of sight-exposed elements.
.5 Work of Owner or separate contractor.
- .2 Include in request:
.1 Identification of Project.
.2 Location and description of affected Work.
.3 Statement on necessity for cutting or alteration.
.4 Description of proposed Work, and products to be used.
.5 Alternatives to cutting and patching.
.6 Effect on Work of Owner or separate contractor.
.7 Written permission of affected separate contractor.
.8 Date and time work will be executed.
- 1.4 MATERIALS .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00.
-

1.5 CO-ORDINATION
AND CO-OPERATION

- .1 The General Contractor shall provide full time supervision and direct the work of all sub-trades and be solely responsible for all construction means, methods, techniques, sequences and procedures.
- .2 The responsibility as to which trade provides or builds in the required materials or article rests with the General Contractor.
- .3 Each trade shall carry out his work with care and co-operation with all concerned so that their work will marry with works of other trades to provide a clean finished product.
- .4 Each trade shall report to the Contractor any defects in surfaces or work prepared by other trades, which affects his own. Commencement of work shall deem acceptance of condition of other trade's work.

1.6 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

1.7 EXECUTION

- .1 All necessary cutting and patching of work for the Mechanical and Electrical or associated trades shall be done by the General Contractor. General Contractor is to coordinate and schedule related subtrades prior to pouring concrete, installing finishes to ensure that sub-trades routing, installation of services, finishes, etc. are in place prior to installing.
- .2 Execute cutting, fitting, and patching. required to make work fit properly together and as necessary for the installation of new materials.
- .3 Make good any damage resulting from work of this contract.
- .4 Tradesmen qualified in the work being cut and patched shall be employed to ensure that works are correctly done.
- .5 Core drill holes in areas after being located by the Trade concerned.
- .6 Whenever it becomes necessary to cut or interfere in any manner with existing services or apparatus, do so at such times as approved by the Consultant.
- .7 Coordinate work of all sections, taking into account existing installations to ensure best arrangement of components in available space. For critical locations, consult with Consultant prior to commencing work.
- .8 Core drill holes in concrete floors for piping where not previously sleeved, Do not use mechanical hammers or drills without prior approval in writing.
- .9 Any cutting/patching required after completion of new works shall be done by the General Contractor at the Sub-Trade concerned's expense.
- .10 Maintain all fire separations. Provide fire stopping at all penetrations in accordance with CAN4-5115.
- .11 Uncover Work to install ill-timed Work.

1.7 EXECUTION
(Cont'd)

- .12 Remove and replace defective and non-conforming Work.
- .13 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .14 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .15 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .16 Restore work with new products in accordance with requirements of Contract Documents.
- .17 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .18 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .19 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .20 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.
- .21 Masonry shall be saw cut and patching shall be toothed in to match existing adjacent finish.
- .22 Cutting and patching of existing roof penetrations shall be in accordance to CRCA (Canadian Roofing Contractor Association Guidelines).
- .23 Cutting and removal of terrazzo shall extend back to nearest divider strip and patching shall include entire panels. Terrazzo repairs shall be in accordance with Terrazzo, Tile and Marble Association of Canada.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

- | | | |
|------------------------------------|----|---|
| <u>1.1 Section
Includes</u> | .1 | Progressive cleaning. |
| | .2 | Final cleaning. |
| <u>1.2 Project
Cleanliness</u> | .1 | Maintain Work in tidy condition, free from accumulation of waste products and debris, including other than that caused by Owner or other Contractors. |
| | .2 | Remove waste materials from site at regularly scheduled times or dispose of as directed by Section 01 74 21. Do not burn waste materials on site. |
| | .3 | Clear snow and ice from access to building, bank/pile snow in designated areas only remove from site. |
| | .4 | Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. |
| | .5 | Provide on-site containers for collection of waste materials and debris. |
| | .6 | Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management And Disposal. |
| | .7 | Remove waste material and debris from site and deposit in waste container at end of each working day. |
| | .8 | Dispose of waste materials and debris at designated dumping areas on Crown property off site. |
| | .9 | Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations. |
-

1.2 Project
Cleanliness
(Cont'd)

- .10 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 Final Cleaning

- .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
 - .2 Remove waste products and debris and leave Work clean and suitable for occupancy.
 - .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
 - .4 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.
 - .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
 - .6 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
 - .7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors and ceilings.
-

- 1.3 Final Cleaning .8 Clean lighting reflectors, lenses, and other
 (Cont'd)
- .9 Vacuum clean and dust building interiors,
 behind grilles, louvres and screens.
- .10 Inspect finishes, fitments and equipment and
 ensure specified workmanship and operation.
- .11 Broom clean and wash exterior walks, steps and
 surfaces; rake clean other surfaces of
 grounds.
- .12 Clean roofs, and drainage systems.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 REGULATORY AGENCIES

- .1 The Ontario Ministry of Environment (OME) in accordance with Section 7 of Ontario Regulation 103/94 requires a source separation program for the waste that will be generated in the construction or demolition of a structure.
- .2 The source separation program required shall:
 - .1 Deal separately with each of the categories of waste set out in Part III of the Schedule that have been source separated from other kinds of waste and also from each other category of waste in Part III; or
 - .2 Provide for removal from the building site of any commingled categories of waste set out in Part III of the Schedule and for the immediate separation of such waste from all other kinds of waste and also from each category of waste in Part III, at
 - .1 permanent premises of the person undertaking the construction project
 - .2 permanent premises of the person on whose behalf the construction project is undertaken or
 - .3 a waste disposal site operating under the authority of a certificate of approval
- .3 The source separation program shall be implemented before construction work begins on site.

1.2 SUBMITTAL

- .1 Prepare and submit a waste reduction work plan. Describe management of construction wastes. Identify materials which can be recycled, reused and indicate methods proposed for reducing, reusing and recycling wastes.

1.3 WASTE COLLECTION AND DISPOSAL

- .1 Separate and salvage materials suitable for reuse and/or recycling from general waste stream.
-

1.3 WASTE
COLLECTION AND
DISPOSAL

(Cont'd)

- .2 Provide on site facilities for collection, handling and storage of anticipated quantities of reusable and/or recyclable materials.
- .3 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .4 Collect, handle, store on site and transport off site, salvaged materials, salvaged for reuse and/or recycling in separate condition. Transport to authorized reuse/recycling location.
- .5 Separate non salvageable materials from salvaged items. Transport and deliver non salvageable items to licensed disposal facility.
- .6 Burying, burning, selling waste materials on site is prohibited.
- .7 Disposals of liquid wastes into waterways, sewers is prohibited.
- .8 Unless specified otherwise, materials for removal become Contractor's property.
- .9 Clean up work, storage and waste collection areas as work progresses.

PART 1 - GENERAL

- 1.1 Section Includes .1 Administrative procedures preceding preliminary and final inspections of Work.
- 1.2 Inspection and Declaration .1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
.1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
.2 Request Consultant's Inspection.
- .2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
.1 Work has been completed and inspected for compliance with Contract Documents.
.2 Defects have been corrected and deficiencies have been completed.
.3 Work is complete and ready for Final Inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Consultant. If Work is deemed incomplete by Consultant, complete outstanding items and request reinspection.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.
-

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 Section
Includes

- .1 As-built, samples, and specifications.
- .2 Equipment and systems.
- .3 Product data, materials and finishes, and related information.
- .4 Operation and maintenance data.
- .5 Spare parts, special tools and maintenance materials.
- .6 Warranties

1.2 Submission

- .1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .2 Copy will be returned after final inspection, with Consultant's comments.
- .3 Revise content of documents as required prior to final submittal.
- .4 Submit to the Consultant two (2) copies and one thumb drive, pdf format of operating and maintenance manuals in English.

1.3 Format

- .1 Organize data in the form of an instructional manual.
 - .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
 - .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
 - .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
-

-
- 1.3 Format
(Cont'd)
- .5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.
 - .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
 - .7 Text: Manufacturer's printed data, or typewritten data.
 - .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- 1.4 Contents - Each Volume
- .1 Table of Contents: provide title of project;
 - .1 date of submission; names,
 - .2 addresses, and telephone numbers of Contractor with name of responsible parties;
 - .3 schedule of products and systems, indexed to content of volume.
 - .2 For each product or system:
 - .1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
 - .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
 - .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
 - .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
-

1.5 As-builts and
Samples

- .1 In addition to requirements in General Conditions, maintain at the site one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Consultant.

1.6 Recording
Actual Site
Conditions

- .1 Contractor shall maintain two sets of drawings & specifications, for record drawing purposes. Record changes and at completion of project submit one marked, per house, to the Consultant.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:

-
- 1.6 Recording Actual Site Conditions (Cont'd)
- .4 (Cont'd)
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
 - .5 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
 - .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- 1.7 Equipment and Systems
- .1 Each item of equipment and each system: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed colour coded wiring diagrams.
-

1.7 Equipment and
Systems
(Cont'd)

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Provide servicing and lubrication schedule, and list of lubricants required.
 - .7 Include manufacturer's printed operation and maintenance instructions.
 - .8 Include sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports as specified.
 - .15 Additional requirements: As specified in individual specification sections.
-

1.8 Materials and
Finishes

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.9 Storage,
Handling and
Protection

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.10 Warranties

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
-

- 1.10 Warranties
(Cont'd)
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
 - .5 Verify that documents are in proper form, contain full information, and are notarized.
 - .6 Co-execute submittals when required.
 - .7 Retain warranties until time specified for submittal.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes .1 Includes general requirements for commissioning facilities and facility systems.
- 1.2 Quality Assurance .1 Co-operate with testing organization services under provisions specified in Section 01 45 00 - Quality Control.
- .2 Testing organization: certified to perform specified services.
- .3 Comply with applicable procedures and standards of the certification sponsoring association.
- .4 Perform services under direction of supervisor qualified under certification requirements of sponsoring association.
- 1.3 Submittals .1 Prior to start of Work, submit name of organization proposed to perform services. Designate who has managerial responsibilities for coordination of entire testing, adjusting and balancing.
- .2 Submit documentation to confirm organization compliance with quality assurance provision.
- .3 Submit preliminary specimen copies of each of report forms proposed for use.
- .4 Fifteen days prior to Substantial Performance, submit 3 copies of final reports on applicable forms.
- .5 Submit reports of testing, adjusting, and balancing postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor's control, promptly after execution of those services.
-

1.4 Procedures - General .1 Comply with procedural standards of certifying association under whose standard services will be performed.

.2 Notify Consultant 3 days prior to beginning of operations.

.3 Accurately record data for each step.

.4 Report any deficiencies or defects noted during performance of services.

1.5 Final Reports .1 Organization having managerial responsibility shall make reports.

.2 Ensure each form bears signature of recorder, and that of supervisor of reporting organization.

.3 Identify each instrument used, and latest date of calibration of each.

1.6 Contractor Responsibilities .1 Prepare each system for testing and balancing.

.2 Cooperate with testing organization and provide access to equipment and systems.

.3 Provide personnel and operate systems at designated times, and under conditions required for proper testing, adjusting, and balancing.

.4 Notify testing organization 7 days prior to time project will be ready for testing, adjusting, and balancing.

1.7 Preparation .1 Provide instruments required for testing, adjusting, and balancing operations.

.2 Make instruments available to Engineer to facilitate spot checks during testing.

.3 Retain possession of instruments and remove at completion of services.

- 1.7 Preparation (Cont'd)
- .4 Verify systems installation is complete and in continuous operation.
 - .5 Verify lighting is turned on when lighting is included in cooling load.
 - .6 Verify equipment such as computers, laboratory and electronic equipment are in full operation.
- 1.8 Execution
- .1 Test equipment, balance distribution systems, and adjust devices for HVAC systems.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 REFERENCES .1 Canadian Standards Association (CSA International)
.1 CSA S350-M1980 (R1998), Code of Practice for Safety in Demolition of Structures.
- 1.2 SUBMITTALS .1 Submit shop drawings in accordance with Sections 01 33 00 - Submittal Procedures.
- .2 Before proceeding with demolition of load bearing walls and where required by authority having jurisdiction submit for review by Consultant shoring drawings prepared by qualified professional engineer registered or licensed in the Province of Ontario, showing proposed method.
- .3 Prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Sections 01 74 21 - Construction/Demolition Waste Management and Disposal and indicate:
.1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.
.2 Schedule of selective demolition.
.3 Number and location of dumpsters.
.4 Anticipated frequency of tippage.
.5 Name and address of haulers waste facilities waste receiving organizations.
- 1.3 WASTE MANAGEMENT AND DISPOSAL .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/Demolition Waste Management and Disposal.
- 1.4 SITE CONDITIONS .1 Review "Designated Substance Report" and take precautions to protect environment.
-

- 1.4 SITE CONDITIONS (Cont'd)
- .2 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.
 - .1 Do not proceed until written instructions have been received from Consultant.
 - .3 Notify Consultant before disrupting building access or services.

PART 2 - PRODUCTS

- 2.1 NOT USED
- .1 Not used.

PART 3 - EXECUTION

- 3.1 PROTECTION
- .1 Prevent movement, settlement, or damage to parts of building to remain in place. Provide bracing and shoring required.
 - .2 Keep noise, dust, and inconvenience to occupants to minimum.
 - .3 Protect building systems, services and equipment.
 - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
 - .5 Do Work in accordance with Section 01 70 12 - Safety Requirements.

- 3.2 SALVAGE
- .1 Refer to demolition drawings and specifications for items to be salvaged for reuse.
 - .2 Remove items to be reused, store as directed by owner, and re-install.

3.3 DEMOLITION .1 Remove parts of existing building to permit new construction. Sort materials into appropriate piles for reuse and recycling

3.4 DISPOSAL .1 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Canadian Standards Association (CSA International)
 - .1 CSA A165 SERIES-04 (R2009), CSA Standards on Concrete Masonry Units.
 - .2 CSA A179-04 (R2009), Mortar and Grout for Unit Masonry.
 - .3 CSA-A370-04 (R2009), Connectors for Masonry.
 - .4 CSA-A371-04 (R2009), Masonry Construction for Buildings.
 - .5 CAN/CSA G30.18-09, Carbon-Steel Bars for Concrete Reinforcement.
 - .6 CSA S304.1-04 Design of Masonry Structures

PART 2 - PRODUCTS

- 2.1 MASONRY UNITS
- .1 Light weight block for concrete block units thickness to match partition: to CAN3-A165 Series (CAN3-A165.1).
 - .1 Classification: H/15/A/M.
 - .2 Size: modular.
 - .3 Special shapes: provide square, bull-nosed units for exposed corners. Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.
 - .2 Clay brick: existing salvage brick.
- 2.2 REINFORCEMENT AND CONNECTORS
- .1 Bar reinforcement: to CSA-A371 and CAN/CSA G30.18, Grade 400.
 - .2 Horizontal joint reinforcement for masonry walls: to CSA-A371 and CSA-A370, Masonry ties for areas to be re-bricked are indicated on drawings.
- 2.3 MORTAR AND GROUT
- .1 Use same brands of materials and source of aggregate for entire project.
-

- 2.3 MORTAR AND GROUT
(Cont'd)
- .2 Mortar and grout to CSA A179, Proportion Specification for job prepared mortar/grout or Property Specification for batch plant mortar/grout. Use Type S Mortar for interior walls, and Type N for Exterior Brick Veneer.
 - .3 Match existing mortar colour.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- .1 Do masonry work in accordance with CSA-A371 except where specified otherwise.
 - .1 Bond: running unless noted otherwise on drawings.
 - .2 Coursing height: match existing.
 - .3 Jointing: tool all joints concealed or exposed.

- .2 Build masonry plumb, level, and true to line, with vertical joints in alignment.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

- 3.2 CONSTRUCTION
- .1 Exposed masonry:
 - .1 Remove chipped, cracked, and otherwise damaged units, in exposed masonry and replace with undamaged units.
 - .2 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects. Make cuts straight, clean, and free from uneven edges.
 - .2 Building-In:
 - .1 Install masonry connectors and reinforcement where indicated on drawings.
 - .2 Build in items required to be built into masonry.
 - .3 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.
 - .4 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
 - .5 Install loose steel lintels over openings where indicated.

-
- 3.2 CONSTRUCTION
(Cont'd)
- .3 Concrete block lintels:
 - .1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
 - .2 End bearing: not less than 200 mm or as indicated on drawings.
 - .4 Support of loads:
 - .1 Use grout to CSA A179 where grout is used in lieu of solid units. Grout fill below points of bearing to floor level.
 - .5 Provision for movement:
 - .1 Built masonry to tie in with lateral support, with provision for vertical movement.
 - .2 Construct continuous movement joints as indicated on drawings.
 - .6 Interface with other work:
 - .1 Cut openings in existing work as indicated.
- 3.3 REINFORCING AND CONNECTING
- .1 Install masonry connectors and reinforcement in accordance with CSA-A370, CSA-A371 and CSA-S304.1 unless indicated otherwise.
- 3.4 VERTICAL REINFORCING
- .1 Notch bond beam blocks each side of openings if vertical jamb steel passes through lintel bearing.
- 3.5 HORIZONTAL REINFORCING
-JOINT REPLACEMENT
- .1 Unless noted otherwise, install heavy duty (4.76 mm side wires) ladder type joint reinforcement in all walls at 400 mm centres.
 - .2 Where noted, install heavy duty (4.76 mm side wires) ladder type joint reinforcing every course.
- 3.6 GROUTING
- .1 Grout masonry in accordance with CSA-S304.1, CSA-A371 and CSA-A179 and as indicated.
-

- 3.7 ANCHORS .1 Supply and install metal anchors as indicated.
- 3.8 LATERAL SUPPORT AND ANCHORAGE .1 Supply and install lateral support and anchorage in accordance with CSA-S304.1 and as indicated on drawings.
- 3.9 SITE TOLERANCES .1 Tolerances in notes to Clause 5.3 of CSA-A371 apply.
- 3.10 FIELD QUALITY CONTROL .1 Inspection and testing will be carried out by Testing Laboratory designated by DCC Representative.
- 3.11 CLEANING .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- 3.12 PROTECTION .1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

END

PELASS Daycare
Yarker, ON
Project No. 19038

MASONRY FOR MINOR WORKS

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PART 1 - GENERAL

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A 307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA International
 - .1 CSA G40.20/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16-09, Design of Steel Structures.
 - .4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-M03 (R2008), Welded Steel Construction (Metal Arc Welding) Metric.
- .3 Environmental Choice Program
 - .1 CCD-047-98 (R2005), Architectural Surface Coatings.
 - .2 CCD-048-98 (R2006), Surface Coatings - Recycled Water-borne.
- .4 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections plates pipe tubing bolts and include product characteristics, performance criteria, physical size, finish and limitations.
-

- 1.2 ACTION AND INFORMATIONAL SUBMITTALS (Cont'd)
- .2 (Cont'd)
 - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 70 12 - Safety Requirements 01 35 43 - Environmental Procedures.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
 - .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada for all work noted in this section.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
- 1.3 QUALITY ASSURANCE
- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.4 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
-

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Square Steel Tube: CAN/CSA-G40.21-04, Grade 350W.
- .3 Steel pipe: to ASTM A 53/A 53M standard weight.
- .4 Sheet steel: hot dipped galvanized, cold rolled, with stretcher level degree of flatness to ASTM A553; zinc coating designation Z275
- .5 Stainless Steel: 20 gauge brush stainless steel #304 finish.
- .6 Welding materials: to CSA W59-03.
- .7 Welding electrodes: to CSA W48 Series.
- .8 Bolts and anchor bolts: to ASTM A 307.
- .9 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
 - .2 Shop coat primer to CAN/CGSB-1.40.
-

-
- 2.3 FINISHES
(Cont'd)
- .3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.1.81.
- 2.4 ISOLATION COATING
- .1 Isolate aluminum from following components, by means of bituminous paint:
- .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.
- 2.5 SHOP PAINTING
- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .3 Clean surfaces to be field welded; do not paint.
- 2.6 ANGLE LINTELS
- .1 Steel angles: galvanized, sizes indicated for openings. Provide 150 mm minimum bearing at ends.
- .2 Weld or bolt back-to-back angles to profiles as indicated.
- 2.7 COUNTER TOP & BENCH SUPPORTS
- .1 Fabricate counter top and bench supports from 38 x 38 x 3.2 mm HSS as indicated. All open ends of HSS to receive welded steel caps, grind all edges smooth. Powder coat paint finish.
- .2 Provide all drill holes required for concealed anchorage of counters and for anchoring to building structure.
-

- 2.8 COUNTER TOPS
- .1 Refer to drawings for all dimensions and locations of stainless steel. Countertop including backsplash, to be brush stainless steel #304 finish 20 gauge min. Weld all edges and grind smooth.
 - .2 Acceptable product: Uline (H-4876).

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Consultant.
 - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

- 3.2 ERECTION
- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
 - .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
 - .3 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
 - .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
 - .5 Supply components for work by other trades in accordance with shop drawings and schedule.
 - .6 Make field connections with bolts to CSA S16 or Weld field connection.
-

- 3.2 ERECTION
(Cont'd)
- .7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.
 - .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer.
 - .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- 3.4 PROTECTION
- .1 Protect installed products and components from damage during construction.
 - .2 Repair damage to adjacent materials caused by metal fabrications installation.
- 3.5 SCHEDULE
- .1 Provide all metal fabrications required whether included in Section 2.0 or not, unless clearly covered by another section.

PART 1 - GENERAL

- 1.1 REFERENCE STANDARDS
- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-11.3-M87, Hardboard.
 - .2 Canadian Wood Council
 - .1 Wood Design Manual (R2014) Edition
 - .2 Engineering Guide for Wood Frame Construction 2014
 - .3 CSA Group (CSA)
 - .1 CSA O121-08(R2013), Douglas Fir Plywood.
 - .2 CSA O141-05(R2014), Softwood Lumber.
 - .3 CSA O151-09(R2014), Canadian Softwood Plywood.
 - .4 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.
 - .5 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
- 1.2 DELIVERY, STORAGE, AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

PART 2 - PRODUCTS

- 2.1 FURRING AND BACKING
- .1 Furring, backing, nailing strips, grounds, rough bucks:
 - .1 Grade 2 spruce is acceptable.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .4 Post and timbers sizes: "Standard" or better grade.
- 2.2 ACCESSORIES
- .1 General purpose adhesive: to CSA O112.9.
-

-
- 2.2 ACCESSORIES
(Cont'd)
- .2 Nails, spikes and staples: to ASTM F 1667.
 - .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
 - .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

PART 3 - EXECUTION

-
- 3.1 EXAMINATION
- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.

-
- 3.2 FRAMING
INSTALLATION
- .1 Install members true to line, levels and elevations, square and plumb.
 - .2 Construct continuous members from pieces of longest practical length.
 - .3 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
 - .4 Countersink bolts where necessary to provide clearance for other work.
 - .5 Install specified panel product for each application.

-
- 3.3 FURRING AND
BACKING
- .1 Install furring and backing as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, electrical equipment mounting boards, and other work as required.
 - .2 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
-

- 3.4 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

- 3.5 WASTE MANAGEMENT
- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Waste Management and Disposal.
 - .2 Re-use scrap lumber to the greatest extent possible. Separate scrap lumber for use on site as accessory components, including: shims, bracing, and blocking.
 - .3 Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill. Prevent saw dust and wood shavings from entering the storm drainage system.
 - .4 Do not burn scrap lumber that has been pressure treated.
 - .5 Do not send lumber treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

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

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS
- .1 Section 05 50 00 - Metal Fabrications: Stainless Steel counter tops.
 - .2 Section 06 47 00 - Plastic Laminate Finishing.
 - .3 Section 07 92 00 - Joint Sealants: Sealant materials and application.
- 1.2 REFERENCE STANDARDS
- .1 American National Standards Institute (ANSI)
 - .1 ANSI/ASME 18.6.1 1981 (R2012) Wood Screws (Inch Series).
 - .2 ANSI/BHMA A156.9-2010, Cabinet Hardware.
 - .3 ANSI/BHMA A156.11-2014, Cabinet Locks.
 - .4 ANSI/BHMA A156.16-2013, Auxiliary Hardware.
 - .5 ANSI/BHMA A156.18-2012, Materials and Finishes.
 - .6 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.
 - .7 ANSI A208.1-09, Particleboard.
 - .8 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.
 - .9 ANSI/HPVA HP-1-10, Standard for Hardwood and Decorative Plywood.
 - .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 Architectural Woodwork Standards (AWMAC AWS), 2014.
 - .3 ASTM International
 - .1 ASTM A 153/A 153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - .2 ASTM E 1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
 - .3 ASTM F 1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
 - .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-11.3-M87, Hardboard.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
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- 1.2 REFERENCE STANDARDS
(Cont'd)
- .4 (Cont'd)
 - .3 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
 - .5 CSA Group (CSA)
 - .1 CSA O112-M Series 1977 (R2006) Standards for Wood Adhesives.
 - .2 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .3 CSA O141-05 (R2014), Softwood Lumber.
 - .4 CSA O151-14, Canadian Softwood Plywood.
 - .5 CSA O153-M1980 (R2014), Poplar Plywood.
 - .6 CAN/CSA-Z809-08 (R2013), Sustainable Forest Management.
 - .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS
-
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Shop Drawings:
 - .1 Prepare and submit shop drawings in accordance with AWMAC AWS and as follows.
 - .2 Indicate details of construction, profiles, jointing, fastening and other related details.
 - .1 Scales: profiles full size, details half full size.
 - .3 Indicate materials, thicknesses, finishes and hardware.
 - .4 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
 - .5 Show location on casework elevations of backing required in supporting structure for attachment of casework.
 - .6 Indicate AWMAC AWS quality grade where different from predominant grade specified.
 - .7 Include color schedule of all casework items, including all countertop, exposed, and semi-exposed cabinet finishes, finish material manufacturer, pattern, and color.
 - .3 Samples:
 - .1 Prepare and submit samples in accordance with AWMAC AWS and as follows.
-

1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .3 (Cont'd)
.2 Submit duplicate samples of laminated plastic for each specified colour selection.

1.4 QUALITY
ASSURANCE

- .1 Perform Work of this Section by single architectural wood casework fabricator with minimum 5 years of current architectural casework production experience and having completed minimum one project in the past 5 years with value within 20% of the cost of the work of this Section.
- .2 Mock-ups:
.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
.2 Shop prepare one base cabinet unit, complete with hardware and shop applied finishes, and install where directed by Consultant
.3 Allow 24 hours for inspection of mock-up by Owner before proceeding with Work.
.4 When accepted, mock-up will demonstrate minimum standard for Work.
.5 Do not proceed with work prior to receipt of written acceptance of mock-up by Consultant.
.6 Accepted mock-up may remain as part of finished work.

1.5 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver wood casework only when area of work is enclosed, plaster and concrete work is dry, and area is broom clean and site environmental conditions are acceptable for installation.
- .3 Protect millwork against dampness and damage during and after delivery.
- .4 Store millwork in ventilated areas, protected from extreme changes of temperature and humidity, and within range recommended by AWMAC AWS for location of project.

- 1.5 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)
- .5 Store materials indoors in dry location in clean, dry, well-ventilated area.
 - .6 Protect architectural woodwork and hardware from nicks, scratches, and blemishes.
 - .7 Replace defective or damaged materials with new.
 - .8 Waste Management: for packaging and materials, in accordance with Section 01 74 21 - Waste Management and Disposal.

PART 2 - PRODUCTS

- 2.1 QUALITY GRADE
- .1 Provide all materials and perform all fabrication in accordance with AWMAC AWS Custom Grade.
- 2.2 LUMBER
- .1 Softwood and Hardwood Lumber: Sound lumber to specified AWMAC AWS quality grade requirements, kiln-dried to moisture content recommended by AWMAC AWS for location of the Work.
- 2.3 PANEL MATERIALS
- .1 Interior mat-formed wood particleboard: to ANSI/NPA A208.1, industrial grade M-2 or M-3, medium density (640-800 kg/m³), thickness 19 mm unless indicated otherwise.
 - .1 Use moisture resistant grade 2-M-2 or 2-M-3 for countertops and splash-backs to receive plumbing fixtures.
 - .2 Douglas fir plywood (DFP): to CSA 0121, standard construction.
 - .3 Canadian softwood plywood (CSP): to CSA 0151, standard construction.
- 2.4 LAMINATED
PLASTIC MATERIALS
- .1 Laminated plastic for flatwork: to NEMA LD3.
 - .1 High pressure decorative laminated (HPDL) plastic.
-

2.4 LAMINATED
PLASTIC MATERIALS
(Cont'd)

- .1 (Cont'd)
 - .1 (Cont'd)
 - .1 Type: GP (general purpose).
 - .2 Horizontal Surfaces: HGS to suit application, 1.2 mm thick.
 - .3 Vertical Surfaces: VDS to suit application, 0.71 mm thick.
 - .4 Colour: multilayered.
 - .5 Pattern: woodgrain.
 - .6 Finish: matte.
 - .7 Colour and finish to be selected by Consultant.
 - .8 Acceptable Products: Formica, Arborite, Wilsonart.
 - .2 Laminated plastic liner sheet: CLS grade, 0.6 mm thick, white colour.
 - .3 Thermofused Melamine: to NEMA LD3 Grade LPDL, .
 - .4 Edge finishing for doors, drawer fronts, shelves and false fronts:
 - .1 3mm PVC to match face.
 - .5 Laminated plastic adhesive:
 - .1 Adhesive: as recommended by manufacturer.

2.5 CASEWORK
FABRICATION -
GENERAL

- .1 Fabricate casework of specified core and surface finish materials to specified AWMAC AWS quality grade.
 - .1 Construction type: frameless.
 - .2 Door-cabinet interface: flush overlay.
- .2 Set nails and countersink screws apply plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .3 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .4 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .5 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .6 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

2.5 CASEWORK
FABRICATION -
GENERAL
(Cont'd)

- .7 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

2.6 LAMINATED
PLASTIC CASEWORK
FABRICATION

- .1 Do laminated plastic fabrication in compliance with NEMA LD3, Annex A and specified AWMAC AWS quality grade.
- .2 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .3 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm. Keep joints 600 mm from sink cutouts.
- .4 Form shaped profiles and bends as indicated, using post-forming grade laminate to laminate manufacturer's instructions.
- .5 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .6 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .7 Apply laminated plastic liner sheet to interior of cabinetry.
- .8 Drawer Construction:
.1 Sides:
.1 Custom grade: LPDL (melamine) or HPDL on particleboard, thickness 16 mm.
.2 Premium grade: 7-ply veneer core with HPDL faces.
.2 Bottoms: MDF with melamine surfaces, thickness 6 mm.
.3 Joinery: Meeting requirements of AWMAC for Grade specified.
.4 Drawer bottoms fully housed into sides and sub front and mechanically fastened to back or plowed into back

2.7 CABINET
HARDWARE

- .1 Hardware to be confirmed by Architect:
 - .1 Hinges: Hettich soft-close, self closing 110 degree opening, nickel plated complete with mounting plates (19mm and 10mm overlay) or equivalent by Richelieu.
 - .2 Drawer slides: Accuride model #2132 or equivalent.
 - .3 Slides for pull out steps: Hafele Ball Bearing Extra Heavy Duty Accuride 3600-201.
 - .3 Cabinet door and drawer pulls: Hettich Guarani or Richelieu 1094 matte nickel finish.
 - .4 Shelf supports: 5 mm steel pins to fit holes drilled.
 - .5 Plastic grommets: 55 mm diameter plastic grommets to allow passage of electrical plugs.
 - .6 Hooks: 89mm heavy duty brushed chrome coat hook Richelieu 235 or equal.

2.8 CABINET LOCKS

- .1 Provide locks as shown on elevations at all cabinet doors and drawers.
- .2 Cabinet locks: to ANSI/BHMA A156.11, designated by letter E and numeral identifiers as listed below.
 - .1 Door or drawer locks: half mortised into back of door or drawer.
 - .2 Elbow catches: at all double doors with locks.
- .3 Keying: All locks keyed alike.
 - .1 Provide 1 key per lock.
 - .2 Stamp keying code numbers on keys and cylinders.

2.9 ACCESSORIES

- .1 Wood screws: steel, type and size to suit application.
- .2 Nails and staples: to CSA B111 and ASTM F 1667.
- .3 Splines: metal.
- .4 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for architectural woodwork installation in accordance with manufacturer's instructions.

3.2 INSTALLATION

- .1 Install architectural wood casework in accordance with AWMAC AWS grade for respective items.
 - .2 In case of conflict between Contract Documents and AWMAC AWS grade requirements, Contract Documents govern.
 - .3 Install prefinished millwork at locations shown on drawings.
 - .1 Position accurately, level, plumb straight.
 - .4 Fasten and anchor millwork securely.
 - .1 Supply and install heavy duty fixture attachments for wall mounted cabinets.
 - .5 Countersink mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws securing cabinets end to end.
 - .6 Use draw bolts in countertop joints.
 - .7 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
 - .8 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.
 - .9 Apply moisture barrier between wood framing members and masonry or cementitious construction.
-

3.2 INSTALLATION
(Cont'd)

- .10 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
- .11 Make cutouts for inset equipment and fixtures using templates provided.
- .12 Provide removable back panels as noted and where required to access pipe chases.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
 - .1 Clean millwork inside cupboards and drawers and outside surfaces.
 - .2 Remove excess glue, pencil and ink marks from surfaces.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Waste Management and Disposal.

3.4 PROTECTION

- .1 Protect millwork from damage until final inspection.
- .2 Protect installed products and components from damage during construction.
- .3 Repair damage to adjacent materials caused by architectural woodwork installation.

PART 1 - GENERAL

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA O112-M1977(R2001, Standards for Wood Adhesives.
 - .2 CAN/CSA O141-91(R1999), Softwood Lumber.
 - .3 CSA O151-M1978(R1998), Canadian Softwood Plywood.
- .3 Environmental Choice Program (EPC)
 - .1 CCD-044-95, Adhesives.
 - .2 CCD-045-95, Sealants and Caulking Compounds.
- .4 National Electrical Manufacturers Association (NEMA)
 - .1 NEMA LD-3-95

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate samples of joints, edging, cutouts and postformed profiles.
 - .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
 - .4 Closeout Submittals:
 - .1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Procedures/ Submittals.
-

1.3 DELIVERY,
STORAGE, AND
HANDLING

- .1 Storage and Protection:
 - .1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Maintain relative humidity between 25 and 60% at 22 degrees C during storage and installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Laminated plastic for postforming work: to NEMA LD 3.
 - .1 Type: Postforming.
 - .2 Grade: HGP.
 - .3 Size: 1.016 mm thick.
 - .4 Colour: selected from Manufacturers range for colour, pattern and finish.
 - .5 Acceptable manufacturers: Formica, Arborite, Wilsonart.
- .2 Plywood core: to CSA O151 solid two sides, 19 mm thick.
- .3 Laminated plastic adhesive: contact adhesive to CAN/CGSB-71.20.
 - .1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
- .4 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
 - .1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
- .5 Sealants:07 92 00.
- .6 Draw bolts and splines: as recommended by fabricator.

2.2 FABRICATION

- .1 Comply with NEMA LD 3, Annex A.
- .2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.

2.2 FABRICATION
(Cont'd)

- .3 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.
- .5 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .7 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .8 Apply laminated plastic liner sheet to interior of cabinetry where indicated.

PART 3 - EXECUTION

3.1 MANUFACTURER'S
INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Install work plumb, true and square, neatly scribed to adjoining surfaces.
 - .2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
 - .3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm on centre, 75 mm from edge. Make flush hairline joints.
-

3.2 INSTALLATION
(Cont'd)

- .4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
- .5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.
- .6 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where indicated approved. Slightly bevel arrises.
- .7 For site application, offset joints in plastic laminate facing from joints in core.

3.3 PROTECTION

- .1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminated surfaces by approved means. Do not remove until immediately before final inspection.

3.4 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Perform care and cleaning with NEMA LD 3, Annex B.
- .3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames .

PART 1 - GENERAL

1.1 SECTION INCLUDES .1 Requirements for installation of floor hatches and their components.

1.2 RELATED SECTIONS .1 Section 09 30 13 - Ceramic Tiling.

1.3 REFERENCES .1 American Society for Testing and Materials International, (ASTM)
.1 ASTM A 506-00, Specification for Alloy and Structural Alloy Steel, Sheet and Strip, Hot-Rolled and Cold-Rolled.
.2 Canadian General Standards Board (CGSB).
.1 CAN/CGSB-1.105-M91, Quick-Drying Primer.

1.4 SUBMITTALS .1 Shop Drawings:
.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate size and description of components, materials, attachment devices, description of frame and finish, and construction details.
.3 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Steel sheet: regular quality alloy steel to ASTM A 506.
.2 Prime paint for steel: to CAN/CGSB-1.105.
.3 Isolation coating: alkali resistant bituminous paint or epoxy solution.

2.2 FLOOR ACCESS
HATCH

- .1 Floor access door shall be Type T (762 mm x 915 mm) to receive 3mm sheet flooring as manufactured by The Bilco Company. Frame shall be 1/4" (6.35mm) extruded aluminum with built-in neoprene cushion and with strap anchors bolted to exterior. Door leaf shall be 1/4" (6.35mm) aluminum smooth plate to withstand a live load of 150lb/ft² (732 kg/M²) with a maximum allowable deflection of 1/150th of the span. Cast steel cam-action hinges shall be bolted to the underside and pivot on torsion bars for smooth, easy and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. Doors shall open to 90 degrees and lock automatically in that position. A vinyl grip handle shall be provided to release the cover for closing. A Type 316 stainless steel snap lock and removable turn handle shall be provided. Aluminum shall be mill finish, with bituminous coating to be applied to exterior of frame by manufacturer. Hardware shall be zinc plated and chromate sealed. Installation shall be in accordance with manufacturer's instructions. Manufacturer shall guarantee against defects in material or workmanship for a period of five years.

2.3 FABRICATION

- .1 Fabricate components free of twists, bends, or visual distortion and insulated. Weld corners and joints.
- .2 Assemble floor hatch components as indicated.

PART 3 - EXECUTION

3.1 MANUFACTURER'S
INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

- 3.2 INSTALLATION
- .1 Erect components plumb, level and in proper alignment.
 - .2 Ensure continuity of building envelope air barrier and vapour retarder systems.
 - .3 Adjust and seal assembly with provision for expansion and contraction of components.
 - .4 Secure prefabricated curb assembly to structure.
- 3.3 CLEANING
- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

- 1.1 References
- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 ULC-S115-05, Standard Method of Fire Tests of Firestop Systems.
 - .2 Firestopping contractor shall be a member in good standing of the International Firestop Council (IFC).
- 1.2 Shop Drawings
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.
- 1.3 Product Data
- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.
- 1.4 Waste Management and Disposal
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
-

PART 2 - PRODUCTS

- 2.1 Materials
- .1 Use fire stop materials from a single manufacturer only for this project. Acceptable Manufacturers:
 - .1 Ad Fire Protections Systems Inc.
 - .2 Hilti Canada Corporation
 - .3 3M Canada Inc.
 - .4 Tremco Ltd.
 - .2 Fire stopping and smoke seal systems: in accordance with ULC-S115-1995(R2001).
 - .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC-S115-1995(R2001) and not to exceed opening sizes for which they are intended and conforming to special requirements specified in 3.5.
 - .2 Firestop system rating: refer to drawings for Fire Ratings and Fire Separations.
 - .3 Service penetration assemblies: certified by ULC in accordance with ULC-S115-1995(R2001) and listed in ULC Guide No.40 U19.
 - .4 Service penetration firestop components: certified by ULC in accordance with ULC-S115-1995(R2001) and listed in ULC Guide No.40 U19.13 and ULC Guide No.40 U19.15 under the Label Service of ULC.
 - .5 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
 - .6 Pillow type fire stopping and smoke seals at openings intended for ease of re-entry such as cables and cable trays.
 - .7 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
 - .8 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
-

- 2.1 Materials
(Cont'd)
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
 - .10 Sealants for vertical joints: non-sagging.

PART 3 - EXECUTION

- 3.1 Preparation
- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
 - .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
 - .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
 - .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

- 3.2 Installation
- .1 Fire stopping shall be installed by one installer, experienced in the application of listed fire stop systems.
 - .2 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.
 - .3 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
 - .4 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
-

- 3.2 Installation (Cont'd)
- .5 Tool or trowel exposed surfaces to a neat finish.
 - .6 Remove excess compound promptly as work progresses and upon completion.
- 3.3 Inspection
- .1 Notify Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.
- 3.4 Schedule
- .1 Firestop and smoke seal at:
 - .1 Penetrations through all fire-resistance rated assemblies including, but not limited to all fire-rated masonry, concrete, and gypsum board ceilings, floors, partitions and walls.
 - .2 Top of fire-resistance rated walls and roof assembly.
 - .3 Intersection of fire-resistance rated partitions.
 - .4 Penetrations through fire-resistance rated floors, ceilings and walls.
 - .5 Openings and sleeves installed for future use through fire separations.
 - .6 Around mechanical and electrical assemblies penetrating fire separations.
 - .7 Rigid ducts: greater than 129 cm²: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.
- 3.5 Clean Up
- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
 - .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C 919-02, Standard Practice for Use of Sealants in Acoustical Applications.
 - .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 19-GP-5M, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
 - .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
 - .3 CGSB 19-GP-14M, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
 - .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- 1.2 SUBMITTALS
- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Manufacturer's product to describe.
 - .1 Caulking compound.
 - .2 Primers.
 - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- 1.3 DELIVERY, STORAGE, AND HANDLING
- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.
-

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

1.5 PROJECT
CONDITIONS

- .1 Environmental Limitations:
 - .1 Do not proceed with installation of joint sealants under following conditions:
 - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
 - .2 When joint substrates are wet.
- .2 Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 ENVIRONMENTAL
REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

PART 2 - PRODUCTS

2.1 SEALANT
MATERIALS

- .1 Materials: Approved Manufactures - Tremco, Sika, or Dow Corning.
- .2 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .3 When low toxicity caulks are not possible, confine usage to areas which offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.
- .4 Where sealants are qualified with primers use only these primers.

2.2 SEALANT
MATERIAL
DESIGNATIONS

- .1 Type 1: low modulus, one component, moisture curing, modified polyurethane joint sealer to: ULC CAN4 S115 CAN/CGSB-19.13-M87, ASTM C 920-02, Type S, Grade NS Class 25.
- .2 Type 2: One part, high performance, neutral cure, medium modulus, silicone sealant to: ASTM C 920-02 Type S, Grade NS, Class R5, CAN/CGSB-19.13-M87.
- .3 Type 3: One part, moisture cure, general purpose construction grade acetoxy silicone sealant to ASTM C 920-02, Type S, Grade NS, CAN/CGSB-19.13-M87.
- .4 Type 4: One part, acrylic latex, fast setting, pliable seal with minimum shrinkage sealant to ASTM C 834-00e1, CAN/CGSB 19.GP-17M.
- .5 Type 5: Single component, non-skinning, non-hardening synthetic rubber acoustical sealant to CAN/CGSB-19.21-M87.
- .6 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
 - .1 Extruded closed cell foam backer rod.

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- 2.2 SEALANT MATERIAL DESIGNATIONS (Cont'd)
- .6 (Cont'd)
 - .1 (Cont'd)
 - .2 Size: oversize 30 to 50 %.
 - .2 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.
- 2.3 SEALANT SELECTION
- .1 Perimeters of exterior openings where frames meet exterior facade of building (i.e. brick, block, precast masonry): Sealant type:1.
 - .2 Control and expansion joints in exterior surfaces of unit masonry walls: Sealant type:1.
 - .3 Seal interior perimeters of windows: Sealant type: 2.
 - .4 Perimeter of exterior side of windows where frames meet exterior masonry or metal siding type 1.
 - .5 Interior control and expansion joints in floor surfaces: Sealant type: 4.
 - .6 Perimeters of interior frames, as detailed and itemized: Sealant type: 4.
 - .7 Joints at perimeter of non-load bearing Gypsum board Sealant type: 5.
 - .8 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Sealant type: 3.
 - .9 Exposed interior control joints in drywall: Sealant type: 4.
- 2.4 JOINT CLEANER
- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
 - .2 Primer: as recommended by manufacturer.
-

PART 3 - EXECUTION

3.1 PROTECTION

- .1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE
PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

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

3.5 APPLICATION

- .1 Sealant.

3.5 APPLICATION
(Cont'd)

- .1 (Cont'd)
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing.
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
 - .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup.
 - .1 Clean adjacent surfaces immediately and leave Work neat and clean.
 - .2 Remove excess and droppings, using recommended cleaners as work progresses.
 - .3 Remove masking tape after initial set of sealant.

PART 1 - GENERAL

- 1.1 Related Sections
- .1 Section 07 92 10 - Joint Sealing: Caulking of joints between frames and other building components.
 - .2 Section 08 71 10 - Door Hardware - General: Supply of finish hardware, including weatherstripping and mounting heights.
 - .3 Section 08 80 50 - Glazing: Glazing.
 - .4 Section 09 91 23 - Painting.
- 1.2 References
- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 Canadian Standards Association (CSA International)
 - .1 G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-M1989(R2001), Welded Steel Construction (Metal Arc Welding) (Metric Version).
 - .3 Canadian Steel Door Manufacturers' Association, (CSDMA).
 - .1 CSDMA, Specifications for Commercial Steel Doors and Frames, 1990.
 - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.
 - .4 National Fire Protection Association (NFPA)
 - .1 NFPA 80-2007, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-2003, Standard Methods of Fire Tests of Door Assemblies.
 - .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S1004-80 (R1985), Fire Tests of Door Assemblies.
 - .2 CAN4-S105-S105-85(R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.
-

- 1.3 Shop Drawings
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing firerating finishes.
 - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

- 1.4 Requirements
- .1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council in conformance with CAN4-S104M NFPA 252 for ratings specified or indicated.

PART 2 - PRODUCTS

- 2.1 Materials
- .1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
 - .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

- 2.2 Primer
- .1 Touch-up prime CAN/CGSB-1.181.

- 2.3 Accessories
- .1 Door silencers: single stud rubber/neoprene type.
 - .2 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
 - .3 Metallic paste filler: to manufacturer's standard.
-

2.3 Accessories
(Cont'd)

- .4 Fire labels: metal riveted.
- .5 Sealant:07 92 10.
- .6 Glazing:08 80 50.
- .7 Make provisions for glazing as indicated and provide necessary glazing stops.
 - .1 Design exterior glazing stops to be tamperproof.

2.4 Frames
Fabrication General

- .1 Fabricate frames in accordance with CSDMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Interior frames: 1.6 mm (16 gauge) welded type construction.
- .4 Exterior Frames: 1.6 mm (16 gauge) welded type construction.
- .5 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .6 Protect mortised cutouts with steel guard boxes.
- .7 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .8 Manufacturer's nameplates on frames and screens are not permitted.
- .9 Conceal fastenings except where exposed fastenings are indicated.
- .10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.5 Frame Anchorage

- .1 Provide appropriate anchorage to floor and wall construction.
-

- 2.5 Frame Anchorage (Cont'd)
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
 - .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
 - .4 Locate anchors for frames in existing openings not more than 150 mm (6") from top and bottom of each jambs and intermediate at 660 mm (26") o.c. maximum.

- 2.6 Frames: Welded Type
- .1 Welding in accordance with CSA W59.
 - .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
 - .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
 - .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
 - .5 Securely attach floor anchors to inside of each jamb profile.
 - .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

PART 3 - EXECUTION

- 3.1 Installation General
- .1 Install labelled steel fire rated frames to NFPA 80 except where specified otherwise.
 - .2 Install frames to CSDMA Installation Guide.

- 3.2 Frame Installation
- .1 Set frames plumb, square, level and at correct elevation.

- 3.2 Frame Installation (Cont'd)
- .2 Secure anchorages and connections to adjacent construction.
 - .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm (4'0") wide. Remove temporary spreaders after frames are built-in.
 - .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
 - .5 Caulk perimeter of frames between frame and adjacent material.
- 3.3 Finish Repairs
- .1 Touch up with primer finishes damaged during installation.
 - .2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.
- 3.4 Glazing
- .1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 08 11 00 - Metal Frames
 - .2 Section 08 71 10 - Door Hardware - General.
 - .3 Section 08 80 50 - Glazing.
- 1.2 REFERENCES
- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
 - .1 Quality Standards for Architectural Woodwork 1998.
 - .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
 - .3 Canadian Standards Association (CSA International).
 - .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
 - .2 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
 - .3 CAN/CSA-O132.2 Series-90(R1998), Wood Flush Doors.
 - .4 CSA O132.5-M1992 (R1998), Stile and Rail Wood Doors.
 - .5 CSA Z808-96, A Sustainable Forest Management System: Guidance Document.
 - .6 CSA Certification Program for Windows and Doors 00.
 - .4 Environmental Choice Program (ECP).
 - .1 CCD-045-92, Sealants and Caulking Compounds.
 - .2 CCD-046-92, Adhesives.
 - .5 National Fire Protection Association (NFPA).
 - .1 NFPA 80-2007, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-2003, Standard Method of Fire Tests of Door Assemblies.
 - .6 Underwriters' Laboratories of Canada (ULC).
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- 1.2 REFERENCES .6 (Cont'd)
- .1 CAN-4S104M-80 (R1985), Fire Tests of Door Assemblies.
 - .2 CAN4-S105-M85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104-1980 (R1985).

- 1.3 SUBMITTALS .1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For caulking materials during application and curing.
 - .2 For door materials and adhesives.
- .2 Shop Drawings:
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate door types and cutouts for lights and louvres, sizes, core construction, transom panel construction and cutouts.

- 1.4 QUALITY CONTROL .1 Regulatory Requirements:
- .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.
 - .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

- 1.5 Warranty .1 Provide manufacturer's standard extended warranty for all materials and installations.
- .2 Submit extended warranties in accordance with the General Conditions of the Contract.
-

1.6 DELIVERY,
STORAGE, AND
HANDLING

- .1 Storage and Protection:
 - .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
 - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
 - .3 Protect doors from scratches, handling marks and other damage. Wrap doors.
 - .4 Store doors away from direct sunlight.

1.7 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
- .4 Divert unused adhesive material from landfill to official hazardous material collections site.
- .5 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 WOOD FLUSH
DOORS

- .1 Solid core: to CAN/CSA-0132.2.1.
 - .1 Construction:
 - .1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks,ply construction.
 - .2 Face Panels:
 - .1 Hardwood; stain grade premium white birch.
 - .3 Adhesive: Type I for interior doors.

2.2 GLAZING .1 Glazing: Section 08 80 50.

- 2.3 FABRICATION .1 Vertical edge strips to match face veneer.
- .2 Prepare doors for louvres and glazing. Provide solid premium white birch glazing stops with mitred corners.
- .3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.
- .4 Provide (2 section) dutch doors where indicated.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

- 3.2 INSTALLATION .1 Unwrap and protect doors in accordance with CAN/CSA-0132.2 Series-90 (R1998) Series, Appendix A.
- .2 Install labelled fire rated doors in accordance with NFPA 80-2007.
- .3 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-0132.2 Series-90 (R1998) Series, Appendix A.
- .4 Adjust hardware for correct function.
- .5 Install glazing in accordance with Section 08 80 50 - Glazing.
- .6 Install louvres where specified and stops.
-

3.3 ADJUSTMENT

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

3.4 CLEANING

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking; clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 07 92 10 - Joint Sealers: caulking of joints between frames and other building components.
 - .2 Section 08 80 50 - Glazing.
- 1.2 REFERENCES
- .1 Aluminum Association (AA), Designation System for Aluminum Finishes (2000)
 - .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-79.1-M91, Insect Screens.
 - .3 Canadian Standards Association (CSA) International
 - .1 AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights", and
 - .2 CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights".
 - .3 CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .4 CAN/CSA-Z91-M90, Safety Code for Window Cleaning Operations.
- 1.3 SHOP DRAWINGS
- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim junction between combination units elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes fasteners, and caulking. Indicate location of manufacturer's nameplates.
-

- 1.4 TEST REPORTS .1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:
- .1 Windows.
 - .2 anodized finish, weathering characteristics.
 - .3 Air tightness.
 - .4 Water tightness.
 - .5 Wind load resistance.
 - .6 Condensation resistance.
 - .7 Block operation - sliding windows only.
 - .8 Ease of operation - windows with operable lights.
 - .9 Forced entry resistance.
 - .10 Mullion deflection - combination and composite windows.

- 1.5 CLOSEOUT SUBMITTALS .1 Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

- 1.6 WASTE MANAGEMENT AND DISPOSAL
- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .2 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
 - .3 Plastic caulking tubes are not recyclable and must not be diverted for recycling with other plastic materials.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Materials: to CSA PKG.A440-00 supplemented as follows:
 - .2 All windows by same manufacturer, Alumicor Series 970 fixed, 5 1/4' (130 mm) thermally broken.
-

2.1 MATERIALS
(Cont'd)

- .3 Sealants: 2 part polyurethane (Dymonic by Tremco) (CAN/CGSB-19.24-M90) exterior use only, Colour to match frame, and Spectrum 2 by Tremco for interior use.
- .4 Insulating Foam Air Barrier: One component polyurethane foam, Enerfoam manufactured by Abisko Mfg Inc or approved equivalent.
- .5 Panning Trim: Extruded aluminum alloy 6063-T5, min 2mm (.0.70") thickness, designed to hook and lock into window frame. Join panning corners utilizing integral screw ports and screws and back seal. Cover exterior wood utilizing integral screw ports and screws and back seal. Cover exterior wood and steel surfaces with extruded aluminum, min 2.0mm thick. Sheet metal formed shapes are not acceptable. Provide panning trim with min 5 degree slope away from window frame
- .6 Glass: Section 08 80 50 - Glazing.
- .7 Isolation coating: alkali resistant bituminous paint.

2.2 WINDOW TYPE AND
CLASSIFICATION

- .1 Types:
 - .1 Fixed: with removable double glazing insulating glass.
- .2 Classification rating: to CSA PKG.A440-00.
 - .1 Air tightness: A3.
 - .2 Water tightness: B7.
 - .3 Wind load resistance: C5.
 - .4 Condensation resistance: Temperature Index, I52.
 - .5 Forced Entry: F2.
 - .6 Glazing: G2.
- .3 Maximum U-value 0.38.
- .4 Windows shall conform to the requirements in,
 - .1 AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights", and

- 2.2 WINDOW TYPE AND CLASSIFICATION
(Cont'd)
- .4 (Cont'd)
- .2 CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights".
- .5 Performance grades for windows shall be selected according to the CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard/Specification for Windows" so as to be appropriate for the conditions and geographic location in which the windows will be installed.
- .6 Windows shall conform to the performance grades selected under 2.2.5 when tested in accordance with the AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS - North American Fenestration Standard/Specification for Windows".
- 2.3 FABRICATION
- .1 Fabricate in accordance with CSA PKG.A440-00 supplemented as follows:
- .2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
- .3 Face dimensions detailed are maximum permissible sizes.
- .4 Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Finish steel clips and reinforcement with shop coat primer to CAN/CGSB-1.40-97 380 g/m² zinc coating to CAN/CSA-G164-M92 (R1998).
- 2.4 ALUMINUM FINISHES
- .1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.
- .1 Clear anodic finish to match existing windows.
-

- 2.5 ISOLATION COATING
- .1 Isolate aluminum from following components, by means of isolation coating:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

- 2.6 GLAZING
- .1 Glaze windows in accordance with CSA PKG.A440-00 & Section 08 80 50 - Glazing.

PART 3 - EXECUTION

- 3.1 WINDOW INSTALLATION
- .1 Install in accordance with CSA PKG.A440-00.
 - .2 Arrange components to prevent abrupt variation in colour.
 - .3 Apply foam insulation in shim spaces at perimeter of framing using manufacturer's approved applicator gun in accordance with manufacturer's instructions to maintain continuity of thermal barrier. Fill gaps, cracks and holes with sealant, making allowance for post-expansion of foam. Apply successive layers as required, allowing previous layer to cure prior to applying successive layers. Cut back or tool foam to allow for finish caulking. Install panning around window to bridge gap between masonry veneer and window.

- 3.2 CAULKING
- .1 Seal joints between windows and concrete sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 08 11 00 - Metal Door Frames.
 - .2 Section 08 14 10 - Flush Wood Doors.
 - .3 Drawing 309 - Door Hardware Schedule
- 1.2 REFERENCES
- .1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
 - .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
 - .2 Standards.
 - .1 ANSI/BHMA A156.1-1981, Butts and Hinges.
 - .2 ANSI/BHMA A156.3-1984, Exit Devices.
 - .3 ANSI/BHMA A156.4-1986, Door Controls (Closers).
 - .4 ANSI/BHMA A156.6-1986, Architectural Door Trim.
 - .5 ANSI/BHMA A156.8-1982, Door Controls - Overhead Holders.
 - .6 ANSI/BHMA A156.10-1991, Power-operated Pedestrian Doors.
 - .7 ANSI/BHMA A156.15-1981, Closer/Holder Release Device.
 - .8 ANSI/BHMA A156.16-1981, Auxiliary Hardware.
 - .9 ANSI/BHMA A156.18-1987, Materials and Finishes.
 - .3 ULC-S132-93 (R2001) Emergency exit and emergency fire exit hardware.
- 1.3 SUBMITTALS
- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
-

- 1.3 SUBMITTALS
(Cont'd)
- .2 (Cont'd)
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
 - .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
 - .4 Furnish other sections with two (2) complete sets of hardware templates for related fabricating and installation.
 - .5 Submit for owner review and comments two (2) key schedules listing the door number, hardware heading or item, lock function and the key group.
 - .6 Closeout Submittals
 - .1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- 1.4 QUALITY
ASSURANCE
- .1 Regulatory Requirements:
 - .1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
 - .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- 1.5 DELIVERY,
STORAGE, AND
HANDLING
- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
 - .2 Storage and Protection:
 - .1 Store finishing hardware in locked, clean and dry area.
-

- 1.5 DELIVERY, STORAGE, AND HANDLING
(Cont'd)
- .3 Where required, package items of hardware separately for delivery to other fabricators for their installation.
- 1.6 WASTE DISPOSAL AND MANAGEMENT
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- 1.7 MAINTENANCE
- .1 Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
.2 Supply two sets of wrenches for door closers locksets and fire exit hardware.

PART 2 - PRODUCTS

- 2.1 HARDWARE ITEMS
- .1 Use one manufacturer's products only for similar items.
- 2.2 DOOR HARDWARE
- .1 Locks and latches:
.1 Locks and latches: to ANSI/BHMA A156.13, cylindrical lock sets, designed for function as stated in Hardware Schedule.
.2 Latch bolts to be anti friction with separate latch guard.
.3 ULC labels and 19mm throw for all fire rated doors.
.4 Auxiliary dead bolts to have hardened steel pin inserts.
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2.2 DOOR HARDWARE
(Cont'd)

- .1 (Cont'd)
 - .5 Lever trim is required, trim to have concealed through bolt mounting and the lever is to be solid cast or forged material with a return to the door face.
 - .6 Finished as stated in Hardware Schedule.
 - .7 Acceptable Manufacturers:
 - .1 Schlage locks.
- .2 Butt and hinges:
 - .1 Butts and hinges: to ANSI/BHMA A156.1, three knuckle concealed bearing. Exterior out swing doors must be non-ferrous and have non-removable pins (NRP).
 - .2 Acceptable Manufacturers:
 - .1 Hagar - no alternatives
- .3 Door Closers and Accessories:
 - .1 Door controls (closers): to ANSI/BHMA A156.4.
 - .2 To have full adjustment features including back check, general speed, and latch speed control.
 - .3 All interior door closers to have reduced opening force spring power of 22N as required by the barrier free codes.
 - .4 Surface mounted door closers are to be located on the room side of the door whenever possible.
 - .5 Provide all mounting plates for door closers required to mount on special door and frame conditions. Check all door and frame details from related trades to ensure dimensions have not changed and hardware will not conflict with window lite kits.
 - .6 Where listed, door closers are to have full body covers to match the project finishes.
 - .7 Acceptable Manufacturers:
 - .1 LCN 4041
- .4 Architectural door trim: to ANSI/BHMA A156.6, as listed in Hardware Schedule.

2.2 DOOR HARDWARE
(Cont'd)

- .4 (Cont'd)
- .1 All kickplates, push plates, and bumper plates must have all sides bevelled and corners rounded to ensure there are no sharp edges. Supply plates with tape mounting or if screws are listed, with counter sunk screw holes. The plates will be .050 thick unless listed otherwise. Size to suit door width. Kickplate will be door width less 35 mm for single door and less 25 mm for pairs of doors.
 - .2 When push plates are listed with door pulls, install the push plate to conceal the through bolt.
 - .3 Pulls to be supplied with back to back (BTB) or through bolt mounting.
 - .4 All escutcheon plates to have a three digit room number engraved. Numbers to be 19mm high, Helvetica Medium, filled black.
 - .5 Acceptable Manufacturers:
 - .1 Hager
- .5 Door stops and holders:
- .1 Wall stops are only to be used on proper wall conditions such as block or masonry. Supply floor stops with sufficient height to suite the floor condition or undercut of doors.
 - .2 Overhead stops and holders to be surface mounted unless there is a conflict with door closers or other hardware. Provide door stays with friction action in locations that do not have door closers. Install overhead stops and holders for 90 DEG stop unless otherwise specified.
 - .3 Electronic door holder to be supplied to suit the specified voltage and be connected to the fire alarm system to release the door when signalled.
 - .4 Acceptable Manufacturers:
 - .1 Sargent
 - .2 Hager
- .6 Door seals:
- .1 Perimeter seals to be supplied to fully cover all gaps between the door, frame, and floor condition to seal against weather, sound, or smoke.

2.2 DOOR HARDWARE
(Cont'd)

- .6 (Cont'd)
 - .2 Frame gasketing to be closed cell neoprene. The extruded housing to have a rib to prevent distortion during installation. Aluminum frames to be equipped with felt inserts by the frame supplier.
 - .3 Door bottoms will be heavy duty and have an adjustment screw to ensure proper contact with the floor. Supply the correct drop insert for carpet where required.
 - .4 Supply thermally broken thresholds for all exterior door openings.
 - .5 Acceptable Manufacturers:
 - .1 KN Crowder
- .7 Door Operators:
 - .1 Power-operated pedestrian doors: to ANSI/BHMA A156.10.
 - .2 Door operators will be supplied and installed as listed. Electro-mechanical operator, powered by 1/4 hp motor. Power Transmission has only one moving part, ensuring superior reliability and low overall maintenance. Operator is non-handed to insure maximum versatility in adapting to varying field conditions. The operator housing provides a seal against dust, dirt and moisture.
 - .3 A self-contained, solid state integrated circuit controls the operation and switching of the swing power operator. Actuation shall be wireless battery operated. No external or auxiliary low voltage power source will be allowed. The controls include time delay (5 to 30 seconds) for normal cycle.
 - .4 Interfaced with the transmission system is a DC shunt-wound permanent magnet motor with sealed ball bearings. System operates from 120 VAC-60 cycle-1 phase power supply. Operator is mounted in the header case housing using vibration isolators to maintain quiet operation.
 - .5 Acceptable Manufacturers:
 - .1 Hunter with HA8 Bodies - no alternative

2.3 FASTENINGS

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

2.3 FASTENINGS
(Cont'd)

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

2.4 KEYING

- .1 All keyed locksets shall be Master keyed to Owner's request.
- .2 Provide keys in duplicate for every lock in this Contract.
- .3 Provide three master keys for each MK or GMK group.
- .4 Stamp keying code numbers on keys and cylinders.
- .5 All cored and devices to suit best core system

PART 3 - EXECUTION

3.1 MANUFACTURER'S
INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
 - .2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
 - .3 Furnish manufacturers' instructions for proper installation of each hardware component.
-

3.2 INSTALLATION

- .1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
- .2 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

3.3 ADJUSTING

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
- .3 Remove protective material from hardware items where present.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American National Standards Institute (ANSI).
 - .1 ANSI/ASTM E330-02, Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - .2 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C 542-94(1999), Specification for Lock-Strip Gaskets.
 - .2 ASTM D 2240-02b, Test Method for Rubber Property - Durometer Hardness.
 - .3 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB-12.8-97, Insulating Glass Units.
 - .4 Flat Glass Manufacturers Association (FGMA).
 - .1 FGMA Glazing Manual - 1997.
- 1.2 SCOPE
- .1 Work of this section:
 - .1 Aluminum Windows: Insulated glass comprised of 6 mm (1/4") clear tempered plate exterior light, 13 mm (1/2") air space and 6 mm (1/4") clear tempered plate interior light.
 - .2 Aluminum sliders: 6 mm (1/4") clear tempered glass.
 - .3 Interior wood, hollow metal and aluminum doors and interior windows.
 - .1 6 mm tempered glass
- 1.3 SUBMITTALS
- .1 Product Data: Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures
- 1.4 SITE CONDITIONS
- .1 Environmental Requirements:
 - .1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
-

- 1.5 WASTE MANAGEMENT AND DISPOSAL
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
 - .3 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .4 Dispose of corrugated cardboard polystyrene plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

PART 2 - PRODUCTS

- 2.1 MATERIALS:
SEALED INSULATING
GLASS
- .1 Insulating glass units: to CAN/CGSB-12.8, double, 25 mm overall thickness.
 - .1 Glass: to CAN/CGSB-12.3 CAN/CGSB-12.1 CAN/CGSB-12.2 CAN/CGSB-12.4 CAN/CGSB-12.10.
 - .2 Glass thickness: 6 mm (1/4") tempered glass inner and outer lights.
 - .3 Inter-cavity space thickness: 12 mm (1/2") with low conductivity spacers.
 - .4 Glass coating: Low "E" pyrolytic deposition to surfaces 2 and 4.
 - .5 Inert gas fill: Argon.
 - .6 max SHGC 0.40.
 - .7 min VT/SHGC: 1.10
 - .8 Acceptable Product: Solarban 60 by PPG.
 - .2 Safety Glass: To CAN/CGSB-12.1 Transport 6 mm thick, tempered Type 2.

- 2.2 MATERIALS
- .1 Sealant: Section 07 92 10.

- 2.3 ACCESSORIES
- .1 Setting blocks: Neoprene Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.
-

- 2.3 ACCESSORIES
(Cont'd)
- .2 Spacer shims: Neoprene Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
 - .3 Glazing tape:
 - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240; coiled on release paper; x mm size; black colour.
 - .4 Glazing clips: manufacturer's standard type.
 - .5 Lock-strip gaskets: to ASTM C 542.

PART 3 - EXECUTION

- 3.1 MANUFACTURER'S INSTRUCTIONS
- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

- 3.2 EXAMINATION
- .1 Verify that openings for glazing are correctly sized and within tolerance.
 - .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

- 3.3 PREPARATION
- .1 Clean contact surfaces with solvent and wipe dry.
 - .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
 - .3 Prime surfaces scheduled to receive sealant.

- 3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)
- .1 Perform work in accordance with FGMA Glazing Manual IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods.
-

- 3.4 INSTALLATION:
INTERIOR - DRY
METHOD (TAPE AND
TAPE)
(Cont'd)
- .2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.
 - .3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
 - .4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
 - .5 Place glazing tape on free perimeter of glazing in same manner described.
 - .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
 - .7 Knife trim protruding tape.
- 3.5 CLEANING
- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
 - .2 Remove traces of primer, caulking.
 - .3 Remove glazing materials from finish surfaces.
 - .4 Remove labels after work is complete.
 - .5 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
 - .6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- 3.6 PROTECTION OF FINISHED WORK
- .1 After installation, mark light with an "X" by using removable plastic tape or paste.

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C 442/C 442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
 - .2 ASTM C 475/C 475M-02 (2015), Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .3 ASTM C 630/C 630M-01, Specification for Water-Resistant Gypsum Backing Board.
 - .4 ASTM C 840-16, Specification for Application and Finishing of Gypsum Board.
 - .5 ASTM C 1002-14, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .6 ASTM C 1047-14a, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

1.2 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
 - .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
 - .3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
-

1.3 SITE
ENVIRONMENTAL
REQUIREMENTS

- .1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Do not dispose of unused paint and caulking materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Standard and Type X board: to ASTM C 36/C 36M-01, 12.7 mm thick, 15.9 thick as indicated 1200 mm wide x maximum practical length, ends square cut, edges bevelled.
 - .2 Metal furring and runner channels, hangers, tie wires, inserts and hangers.
 - .3 Nails: to ASTM C 514-01.
 - .4 Steel drill screws: to ASTM C 1002-01.
 - .5 Moulded metal corner beads, casing beads, control joints and edge trim: to ASTM C 1047-99, metal, 0.5 mm base thickness, perforated flanges, one piece length per location.
-

2.1 MATERIALS .6 Sealants: in accordance with Section 07 92 00
(Cont'd) - Joint Sealing.

.7 Joint compound: to ASTM C 475/C 475M-02,
asbestos-free.

PART 3 - EXECUTION

3.1 ERECTION .1 Do application and finishing of gypsum board
in accordance with ASTM C 840-02 except where
specified otherwise.

.2 Do application of gypsum sheathing in
accordance with ASTM C 1280-99.

.3 Install work level to tolerance of 1:1200.

.4 Frame with furring channels, perimeter of
openings for access panels, light fixtures,
diffusers and grilles.

.5 Furr for gypsum board faced vertical bulkheads
within and at termination of ceilings.

.6 Furr above suspended ceilings for gypsum board
fire and sound stops and to form plenum areas
as indicated.

.7 Install wall furring for gypsum board wall
finishes in accordance with ASTM C 840-02,
except where specified otherwise.

.8 Furr duct shafts, beams, columns, pipes and
exposed services where indicated.

3.2 APPLICATION .1 Do not apply gypsum board until bucks,
anchors, blocking, sound attenuation,
electrical and mechanical work are approved.

.2 Apply single layer gypsum board to wood
furring or framing using screw fasteners
Maximum spacing of screws 300 mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior
to application of walls in accordance
with ASTM C 840-02.

3.2 APPLICATION
(Cont'd)

- .2 (Cont'd)
 - .1 (Cont'd)
 - .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
 - .3 Apply water-resistant gypsum board to bathrooms, washrooms, and laundry rooms. Apply water-resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.
 - .4 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
 - .5 Install gypsum board with face side out.
 - .6 Do not install damaged or damp boards.
 - .7 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre
 - .2 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
 - .3 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
 - .4 Splice corners and intersections together and secure to each member with 3 screws.
 - .5 Install access doors to electrical and mechanical fixtures specified in respective sections.
-

3.3 INSTALLATION
(Cont'd)

- .5 (Cont'd)
- .1 Rigidly secure frames to furring or framing systems.
- .6 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .7 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
- .1 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .8 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .9 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .10 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .11 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

PART 1 - GENERAL

1.1 REFERENCE
STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM C 423-09, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - .2 ASTM E 580/E 580M-14 Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.
 - .3 ASTM C 635/C 635M-13a, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
 - .4 ASTM C 636/C 636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - .5 ASTM E 1264-14, Standard Classification for Acoustical Ceiling Products.
 - .6 ASTM F 1667-15 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .3 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

1.2 COORDINATION

- .1 Do not begin erection of ceiling suspension system until work above ceiling has been inspected by Consultant.

1.3 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for acoustical suspension, acoustic panels, acoustic tiles, and system accessories. Include product characteristics, performance criteria, physical size, finish and limitations.
-

1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .2 Delegated Design Submittals:
 - .1 Submit delegated design shop drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Indicate components and installation methods to conform to specified seismic design and construction requirements of Contract Documents and in general accordance with ASTM E 580/E 580M.
 - .3 Include supporting details, treatment of cross runners, main runners, and wall closures at terminal ends, suspension wire, lateral force bracing, light fixtures and services within the ceiling, seismic isolation joints and partition bracing.

1.4 CLOSEOUT
SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit operation and maintenance data for acoustical suspension for incorporation into manual.
- .3 Submit final certificate from design professional responsible for delegated detail design of ceiling indicating conformity with accepted shop drawings.

1.5 MAINTENANCE
MATERIALS

- .1 Provide extra acoustical units in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type of acoustical tile, required for project, minimum 1 complete factory-sealed package of each.
- .3 Ensure extra materials are from same production run as installed materials.
- .4 Deliver extra materials for each type of acoustical unit in original unopened packages clearly identified, including colour and texture.

1.5 MAINTENANCE
MATERIALS
(Cont'd)

- .5 Deliver to Owner, upon completion of the work of this section.

1.6 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
.1 Store materials flat, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect acoustical ceiling tiles suspension grid components from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.
.4 Store extra materials required for maintenance, where directed by Owner.
- .4 Waste Management and Disposal:
.1 Separate waste materials for recycling or disposal in accordance with Section 01 74 21 - Waste Management and Disposal.

1.7 ENVIRONMENTAL
REQUIREMENTS

- .1 Permit wet work to dry before beginning to install.
- .2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20-40% before and during installation.
- .3 Store materials in work area 48 hours prior to installation.

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

- .1 Design Requirements:
 - .1 Intermediate duty system to ASTM C 635/ASTM C635M.
 - .2 Maximum deflection: 1/360th of span to ASTM C 635/ASTM C635M deflection test.
- .2 Seismic design requirements:
 - .1 Design acoustical ceiling installation to resist effects of earthquake motions under seismic design conditions specified in Contract Documents. Provide components as necessary to implement design.

2.2 ACOUSTICAL
CEILING SUSPENSION

- .1 Acoustical Ceiling Suspension system: non fire rated, made up as follows:
 - .1 2 directional exposed tee bar grid.
 - .2 Acceptable Product: Prelude ML 24 mm exposed Tee as manufactured by Armstrong WorldIndustries or equal by Certainteed or CGC.
 - .3 Colour: White.
 - .2 Basic materials for suspension system: commercial quality cold rolled steel.
 - .3 Exposed tee bar grid components: shop painted satin sheenwhite. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.
 - .4 Hanger wire: galvanized soft annealed steel wire:
 - .1 3.6 mm diameter for access tile ceilings.
 - .2 To ULC design requirements for fire rated assemblies.
 - .3 2.6 mm diameter for other ceilings.
 - .5 Hanger inserts: purpose made.
-

- 2.2 ACOUSTICAL
CEILING SUSPENSION
(Cont'd)
- .6 Accessories: splices, clips, wire ties, retainers and wall moulding, to complement suspension system components, as recommended by system manufacturer.
 - .7 Window Bulkheads: axiom classic, 400 deep straight AX16STR with inside corners AX16QSI, colour white.
 - .8 Seismic components and accessories: in accordance with accepted shop drawings.

- 2.3 ACOUSTICAL
CEILING PANELS
- .1 Acoustical Panel: to ASTM E 1264 and as follows.
 - .1 Acceptable Product: Cirrus second look II, as manufactured by Armstrong World Industries or equal by Certainteed or CGC.
 - .2 Size: 610 x 1220 with single score to appear as 610 x 610 tiles.
 - .3 Colour: White.
 - .4 Edge Profile: bevelled tegular 24 mm to interface with Prelude 24 mm exposed tee grid.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Verify conditions of substrates previously installed under other Sections or Contracts are acceptable for acoustical ceiling tile and track installation in accordance with manufacturer's written instructions.

- 3.2 INTERFACE WITH
OTHER WORK
- .1 Coordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

- 3.3 SUSPENSION
SYSTEM INSTALLATION
- .1 Comply with manufacturer's written installation instructions and recommendations, including product technical bulletins, product carton installation instructions, and data sheets.
-

3.3 SUSPENSION
SYSTEM INSTALLATION
(Cont'd)

- .2 Install suspension system in accordance with accepted shop drawings, Certification Organizations tested design requirements and ASTM C 636/C 636M except where specified otherwise.
- .3 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter with border units not less than 50% of standard unit width according to reflected ceiling plan.
- .4 Finished ceiling system to be square with adjoining walls and level within 1:1000.
- .5 Secure hangers to overhead structure using attachment methods as recommended by Manufacturer.
- .6 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.
- .7 Ensure suspension system is coordinated with location of related components. Provide carrying channels as necessary to bridge at unavoidable interference between suspension system and other work above ceiling.
- .8 Install wall moulding to provide correct ceiling height.
- .9 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.
- .10 Support at light fixtures, diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 610 mm around perimeter of fixture.
- .11 Interlock cross member to main runner to provide rigid assembly.
- .12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.
- .13 Install axiom trim at windows where indicated.

3.4 ACOUSTICAL
CEILING PANEL
INSTALLATION

- .1 Install lay-in acoustical panels in ceiling suspension system in accordance with manufacturer's instructions and as indicated.

3.5 SITE QUALITY
CONTROL

- .1 Arrange for periodic site visits by design professional responsible for delegated ceiling design work to review installed work for conformity to design.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
 - .1 Touch up scratches, abrasions, voids and other defects in painted surfaces.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Waste Management and Disposal.

3.7 PROTECTION

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

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
 - .2 ASTM F 1861 Standard Specification for Resilient Wall Resilient wall base.
 - .3 ASTM F710 Standard practice for Preparing Concrete Floors to Receive Resilient Flooring
 - .4 ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - .5 ASTM E 84 Standard Test Method for Surface burning Characteristics of Building Materials.
- .2 National Fire Protection Association (NFPA):
 - .1 NFPA 258 Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- .3 International Standards and Training Alliance (INSTALL):
 - .1 INSTALL Resilient Certification

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .3 Product Data submission to include manufacturer's specifications, product data sheet, MSDS and installation instructions.
 - .4 Submit one 300mm x 300mm sample of selected sample of flooring in finish, colour and texture as selected by the consultant, complete with a section of welding rod to match flooring.
 - .5 Quality Assurance Submittals:
-

1.4 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Comply with Manufacturer's ordering instructions and lead time requirements to avoid construction delays when ordering material.
- .3 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- .4 Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Material should be stored in areas that are fully enclosed and weather tight. The permanent HVAC should be fully operational, controlled and set at a minimum of 20°C.
- .5 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 PROJECT
CONDITIONS

- .1 In accordance with manufacturer's recommendations, areas to receive flooring should be clean, fully enclosed and weather tight. The permanent HVAC must be fully operational, controlled and set at a minimum of 20°C for a minimum of seven days prior to, during, and seven days after installation. The flooring material should be conditioned in the same manner for at least 48 hours prior to installation. Areas to receive flooring shall be adequately lighted to allow for proper inspection of the substrate, installation and seaming of the flooring, and for final inspection.

1.5 PROJECT
CONDITIONS
(Cont'd)

- .2 Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer. Areas to receive flooring must be conditioned to 20°C for a minimum of seven days prior to, during and seven days after the installation.
- .3 Verify actual measurements/openings by fielding measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.6 SEQUENCING AND
SCHEDULING

- .1 Install flooring after finishing operations, including painting, and ceiling operations and installations have been completed.
- .2 Do not install flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by resilient flooring manufacturer's recommended bond, moisture test and pH test. The contractor is responsible for all testing and must submit all results to the consultant for review.

1.7 MAINTENANCE

- .1 Extra Materials:
 - .1 Deliver to Owner Extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with division 1 Closeout Submittals Section.
 - .2 Provide the equivalent of 3% of total floor area of each colour, pattern and type flooring material required for project for maintenance use.
 - .3 Extra materials one piece and from same production run as installed materials.
 - .4 Identify each roll of sheet flooring and each container of adhesive.
 - .5 Deliver to Owner upon completion of the work of this section.
 - .6 Store where directed by Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Acceptable Products:
 - .1 IQ Optima sheet flooring by Tarkett (Johnsonite).
 - .2 Poly Flor Expona Flow sheet flooring by PolyFlor.
 - .3 Medintech or Medintone homogeneous sheet flooring by Armstrong.
- .2 Sheet flooring with backing : to ASTM F 1303, commercial.
 - .1 Roll Width: 2m Minimum.
 - .2 Roll Length: 20m Minimum
 - .3 Backing: as provide by manufacturer
 - .4 Gauge: 2.0mm Minimum
 - .5 Texture, Pattern and Colour: As selected by Architect from manufacturer's standard patterns and colours. Exact design to be determined during construction. Assume 20% accent colour.
 - .6 Allow for up to 2 colours of sheet flooring for the project to be selected in any amount, no minimum order.
 - .7 Adhesive: As recommended my manufacturer for application
 - .8 Seam adhesive: as recommended by flooring manufacturer. Colour to match flooring.
 - .9 Manufacturer's finish: No wax product.
- .3 Resilient base: continuous, top set, complete with premoulded end stops and external corners in locations indicated:
 - .1 Type: rubber.
 - .2 Style: cove.
 - .3 Height: 101.6 mm.
 - .4 Lengths: cut lengths thickness: 3.2 mm minimum 1200 mm.
 - .5 Colour: selected by Consultant.
- .4 Accessories
 - .1 For Patching, smoothing, and leveling monolithic subfloors (Concrete, Terrazzo, Quarry tile, ceramic tile, and certain metals), Provide Armstrong S-184 Fast-setting cement-based patch and skim coat.

2.1 MATERIALS
(Cont'd)

- .4 (Cont'd)
- .2 For Sealing Joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
- .3 Provide transition/reducing strips tapered to meet abutting materials, if required.
- .4 Provide resilient edge strips, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with colour to match with the flooring, or as selected by the architect from standard colors available.
- .5 Provide metal edge strips of required thickness to protect exposed edges of the flooring at flash cove base and or existing terrazzo base. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap - type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 - EXECUTION

3.1 Inspection

- .1 Examine Subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- .2 Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold or mildew.

3.1 Inspection
(Cont'd)

- .3 Report Conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- .4 Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.2 Preparation

- .1 Smooth concrete surfaces, removing rough areas, projections, ridges and bumps, and filling low spots, control or construction joints, and other defects with S-184 Fast-Setting Cement-based patch and skim coat as recommended by the flooring manufacturer.
- .2 Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.
- .3 Vacuum or broom - clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.3 Installation of
Sheet Flooring

- .1 Install Flooring in strict accordance with the latest edition of "Armstrong Guaranteed Installation System", F-5061.
 - .2 Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
-

3.3 Installation of
Sheet Flooring
(Cont'd)

- .3 If required, install flooring on pan-type floor access covers. Maintain continuity of colour and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
- .4 Scribe, cut, and fit or flash cove to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.
- .5 Adhere flooring to the subfloor without cracks, voids, raising and puckering at the seams. Roll with a 100-pound (45.36 kilogram) roller in the field areas. Hand-roll flooring at the perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.
- .6 Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips. Match edges for colour shading and pattern at the seams in compliance with the manufacturer's recommendations.
- .7 Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
- .8 (Prepare Heat-welded seams with special routing tool supplied for this purpose and heat weld with vinyl welding rod in seams.) (Prepare sealed seams with special seam adhesive supplied for this purpose.) Use methods and sequence of work in conformance with written instructions of the flooring manufacturer. Finish all seams flush and free from voids, recesses, and raised areas.
- .9 (Provide integral flash cove wall base where shown on the drawings, including cove fillet support strip and top edge cap trim. Construct flash cove base in accordance with the flooring manufacturer's instructions. Heat-weld seams as specified for those on the floor.)

-
- 3.3 Installation of Sheet Flooring (Cont'd) .10 Extend flooring up existing terrazzo base where shown on drawings. Include support strip and top edge cap trim.
- 3.4 Installation of Accessories .1 Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
- .2 Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
- .3 Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
- .4 Apply (Overlap) metal strips where shown on the drawings, (after) flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.
- 3.5 Cleaning .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean and seal floor and base surface to flooring manufacturer's printed instructions.
- 3.6 Protection .1 Protect new floors from time of final set of adhesive until final inspection.
- .2 Prohibit traffic on floor for 48 hours after installation.
-

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RESILIENT SHEET FLOORING

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3.6 Protection
(Cont'd)

END OF SECTION

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .2 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, 2004.
- 1.2 SUBMITTALS
- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit product data and instructions for each paint and coating product to be used.
 - .3 Samples:
 - .1 Submit full range colour sample chips to indicate where colour availability is restricted.
 - .2 Submit duplicate 200 x 300 mm sample panels of each paint and stain with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- 1.3 DELIVERY, STORAGE AND HANDLING
- .1 Packing, Shipping, Handling and Unloading:
 - .1 Pack, ship, handle and unload materials in accordance with Section 01 61 00 - Common Product Requirements and manufacturer's written instructions.
 - .2 Acceptance at Site:
 - .1 Identify products and materials with labels indicating:
 - .1 Manufacturer's name and address.
 - .2 Type of paint or coating.
 - .3 Compliance with applicable standard.
 - .4 Colour number in accordance with established colour schedule.
-

-
- 1.3 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)
- .2 (Cont'd)
 - .1 (Cont'd)
 - .3 Remove damaged, opened and rejected materials from site.
 - .4 Storage and Protection:
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store materials and supplies away from heat generating devices.
 - .3 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
 - .6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
 - .7 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.
- 1.4 SITE CONDITIONS
- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces in accordance with Section.
 - .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .3 Provide continuous ventilation for seven days after completion of application of paint.
-

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Provide paint materials for paint systems from single manufacturer.
- .3 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.
- .4 Conform to latest MPI requirements for painting work including preparation and priming.

2.2 COLOURS

- .1 Colour schedule will be based upon selection of two (2) base colours and three (3) accent colours. No more than five (5) colours will be selected for entire project and no more than three (3) colours will be selected in each area.
- .2 Selection of colours from manufacturers full range of colours.

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site.
- .2 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1	Max. 5	Max. 10
- Matte Finish (flat)		

Gloss Level 2	Max.10	10 to 35
- Velvet-Like Finish		
Gloss Level 3	10 to 25	10 to 35
- Eggshell Finish		
Gloss Level 4	20 to 35	min. 35
- Satin-Like Finish		
Gloss Level 5	35 to 70	
- Traditional Semi-Gloss Finish		
Gloss Level 6	70 to 85	
- Traditional Gloss		
Gloss Level 7	More than 85	
- High Gloss Finish		

- .2 Gloss level ratings of painted surfaces as indicated and as noted on Finish Schedule.

2.5 INTERIOR
PAINTING SYSTEMS

- .1 Concrete block vertical surfaces: walls:
.1 INT 4.2D - High performance architectural latex GL4.
.2 RIN 4.1L High Performance architectural latex GL4.
- .2 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes.
.1 INT 9.2B - High Performance architectural latex GL4 and GL3 ceiling.
.2 RIN 9.2B High performance architectural latex GL4.
- .3 Galvanized metal: frames, misc. steel, pipes, and ducts.
.1 INT 5.3M - High performance architectural latex GL4 (galvanized metal hollow doors and frames).
.2 RIN 5.3J high performance architectural latex GL4.
- .4 Solid Core Wood Door:
.1 INT - 6.1G Semi-Transparent Stain with INT 6.1J Polyurethane varnish.
-

- 2.5 INTERIOR PAINTING SYSTEMS (Cont'd)
- .5 Wood paneling communication/electrical room plywood:
 - .1 INT 6.4A - Latex satin finish (over alkyd sealer).
 - .2 INT 6.4P - Pigmented fire retardant gloss level 4 coating ULC rated.
 - .6 All other exposed unfinished surfaces including ones that have been shop primed: paint with type as recommended by supplier.

- 2.6 EXTERIOR PAINTING SYSTEMS
- .1 Exterior steel doors, frames and lintels.
 - .1 Ext 5.3B Alkyd level 5 semi-gloss.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
 - .2 Apply paint materials in accordance with paint manufacturer's written application instructions.
 - .3 All exposed surfaces in this contract shall be painted unless pre-finished with a finish acceptable to DCC Representative.

- 3.2 EXAMINATION
- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to DCC Representative damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
 - .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
-

3.3 PREPARATION

- .1 Protection:
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking.
 - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
 - .3 Protect factory finished products and equipment.
 - .2 Surface Preparation:
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of DCC Representative.
 - .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
 - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
 - .5 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes.
-

3.3 PREPARATION
(Cont'd)

- .6 Touch up of shop primers with primer as specified.

3.4 APPLICATION

- .1 Apply paint by brush and roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
.1 Apply paint in uniform layer using brush and/or roller type suitable for application.
.2 Work paint into cracks, crevices and corners.
.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
.5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .5 Sand and dust between coats to remove visible defects.
- .6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .7 Finish closets and alcoves as specified for adjoining rooms.
- .8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.5
MECHANICAL/ELECTRIC
AL EQUIPMENT

- .1 Paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 Leave unexposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .8 Paint exposed fire protection piping red.
- .9 Paint exposed natural gas piping yellow.
- .10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.6 SITE TOLERANCES

- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
-

3.7 FIELD QUALITY CONTROL

- .1 Field inspection of painting operations to be carried out by DCC Representative.
- .2 Advise DCC Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
- .3 Cooperate with inspection firm and provide access to areas of work.

3.8 RESTORATION

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

PART 1 - GENERAL

1.1 REFERENCE
STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM A 167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A 653/A 653M-09, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .3 ASTM A 924/A 924M-09, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
 - .2 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
 - .3 CGSB 31-GP-107MA-90, Non-inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
- .3 CSA Group (CSA)
 - .1 CAN/CSA-B651-04, Accessible Design for the Built Environment.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.2 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 CLOSEOUT
SUBMITTALS

- .1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 MAINTENANCE
MATERIAL SUBMITTALS

- .1 Tools:
 - .1 Provide special tools required for assembly, disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
 - .2 Deliver special tools to Owner.

1.5 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect toilet and bathroom accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Sheet steel: to ASTM A 653/A 653M with ZF001 designation zinc coating.
 - .2 Stainless steel sheet metal: to ASTM A 167, Type 304, with brushed satin finish.
 - .3 Sustainability Characteristics:
 - .1 Laminate Adhesives:
 - .1 Urea Formaldehyde Free.
 - .4 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.
-

2.1 MATERIALS
(Cont'd)

- .5 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

2.2 COMPONENTS

- .1 Toilet tissue dispenser: single and double roll type, surface mounted, chrome plated steel frame, capacity of 500 double ply roll, roll under spring tension for controlled delivery.
- .2 Paper towel dispenser: for folded paper towels, stainless steel cabinet, hinged front panel, surface mounted. Acceptable product: B-262 as manufactured by bobrick or equal by Bradley or Frost.
- .3 Combination towel dispenser/waste receptacle: semi-recessed wall unit, approximately 430 mm wide, 1429 mm high, 106 mm deep. Interior of 0.8 mm galvanized steel, exterior of 0.8 mm brushed satin stainless steel. Suitable for dispensing folded paper towels. Removable galvanized steel waste receptacle, lockable access door with continuous full height stainless steel hinge. Acceptable Product: B-3942 as manufactured by Bobrick or equal by Bradley or Frost.
- .4 Soap dispenser: liquid push-in valve 102 mm spout, self contained 340 mL translucent polyethylene, stainless steel piston and valve assembly, tamper proof filler lock, surface mounted, exposed metal components chrome plated, exposed plastic components white.
- .5 Grab bars: 38 mm diameter x 1.6 mm wall tubing of stainless steel, 38 mm diameter wall flanges, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl bar at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2 kN. Clearance to wall to be 30-50 mm. Swing upgrab bars: equal to Bobrick B-4998.99.

2.2 COMPONENTS
(Cont'd)

- .6 Robe hook: stainless steel with max 50 mm projection.
- .7 Mirrors: wall mounted unit, fixed framed mirror 6 mm, stainless steel frame. Sizes as noted on drawings.
- .8 Shelf surface mounted, 100 deep, 400 wide, stainless steel.
- .9 Baby Changing Station: Koala Kare KB200-05 horizontal wall mounted baby changing station.

2.3 FABRICATION

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- .3 Brake form sheet metal work with 1.5 mm radius bends.
- .4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .5 Back paint components where contact is made with building finishes to prevent electrolysis.
- .6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA-G164.
- .7 Shop assemble components and package complete with anchors and fittings.
- .8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .9 Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

- .1 Chrome and nickel plating: to ASTM B 456, satin finish.

- 2.4 FINISHES
(Cont'd)
- .2 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to CAN/CGSB-1.88 and bake to hard, durable finish. Sand between final coats. Colour selected from standard range by Consultant.
 - .3 Manufacturer's or brand names on face of units not acceptable.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Verification of Conditions: verify that conditions of substrates and surfaces to receive toilet and bathroom accessories previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to toilet and bathroom accessories installation.

- 3.2 INSTALLATION
- .1 Install and secure accessories rigidly in place as follows:
 - .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
 - .2 Hollow masonry units, existing plaster or drywall: use toggle bolts drilled into cell or wall cavity.
 - .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
 - .4 Toilet and shower compartments: use male to female through bolts.
 - .2 Install grab bars on built-in anchors provided by bar manufacturer.
 - .3 Use concealed tamper proof screws/bolts for fasteners.
 - .4 Fill units with necessary supplies shortly before final acceptance of building.

-
- 3.2 INSTALLATION .5 Install mirrors in accordance with Section
(Cont'd) 08 80 00 - Glazing.
- 3.3 ADJUSTING .1 Adjust toilet and bathroom accessories
components and systems for correct function
and operation in accordance with
manufacturer's written instructions.
- .2 Lubricate moving parts to operate smoothly and
fit accurately.
- 3.4 CLEANING .1 Progress Cleaning: clean in accordance with
Section 01 74 00 - Cleaning.
.1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus
materials, rubbish, tools and equipment in
accordance with Section 01 74 00 - Cleaning.
- 3.5 PROTECTION .1 Protect installed products and components from
damage during construction.
- .2 Repair damage to adjacent materials caused by
toilet and bathroom accessories installation.
- 3.6 SCHEDULE .1 Locate accessories where indicated.

PART 1 - GENERAL

- 1.1 Related Sections
- .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .3 Section 01 78 00 - Closeout Submittals.
- 1.2 References
- .1 American National Standards Institute (ANSI)
 - .1 ANSI/NFPA 10-1998, Portable Fire Extinguishers.
 - .2 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S508-M90 (R1995), Rating and Fire Testing of Fire Extinguishers and Class "D" Extinguishing Media.
- 1.3 Shop Drawings and Product Data
- .1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.
- 1.4 Closeout Submittals
- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- 1.5 Waste Management and Disposal
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

PART 2 - PRODUCTS

- 2.1 Multi-Purpose Dry Chemical Extinguishers
- .1 Cartridge operated type or Stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for A, B and C class protection. Size 4.5kg 2A-10BC Rating.
-

2.2 Extinguisher
Brackets

- .1 Type recommended by extinguisher manufacturer.

2.3 Cabinets

- .1 Semi-recessed and surface mounted type as indicated on drawings, constructed of 1.6 mm thick steel, 180° opening door to 2.5 mm thick steel with latching device.
- .2 Cabinet to maintain fire resistive rating of construction in which they occur.
- .3 Cabinet door: with 5 mm full glass panel.
- .4 Finish:
 - .1 Tub: prime coated.
 - .2 Door and frame: white baked enamel finish.

2.4 Identification

- .1 Identify extinguishers in accordance with recommendations of ANSI/NFPA 10-1998 CAN/ULC-S508-2002.
- .2 Attach bilingual tag or label to extinguishers, indicating month and year of installation. Provide space for service dates.

PART 3 - EXECUTION

3.1 Installation

- .1 Install or mount extinguishers on brackets as indicated.

PART 1 - GENERAL

- 1.1 Related Sections .1 Section 06 10 10 - Rough Carpentry
- 1.2 References .1 American Society for Testing and Materials (ASTM)
.1 ASTM D 1784-02, Specifications for Rigid PolyVinyl Chloride (PVC) Compounds and Chlorinated PolyVinyl Chloride (CPVC) Compounds.
.2 Environmental Choice Program (ECP)
.1 ECP-66-94, Office Furniture
- 1.3 General .1 All conditions of the contract apply to the work of this Section.
- 1.4 Scope of Work .1 This Section of the contract includes the following work supply and installation of roller blinds.
- 1.5 Shop Drawings .1 Submit Shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate dimensions in relation to window jamb, operator details, head and sill, anchorage details, hardware and accessories.
.3 Site verify all window widths and heights prior to fabrication.
- 1.6 Samples .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit duplicate samples of manufacturer's standard colours for selection by Consultant.
-

1.6 Samples .3 After approval a copy of the samples will be
(Cont'd)

1.7 Warranty .1 Provide written 5 year manufacturers warranty.

PART 2 - PRODUCTS

2.1 Roller Shades Exterior windows in Rooms indicated on
drawings: Double shading system (combined
solar and black out with 3-10% of sheerweave
tooler shade and - Opaque 4ply PVC/woven
fibreglass laminate fabric black out shade in
a NG70 rounded anodized aluminum cassette with
stainless steel chain with tie-down, matching
anodized hem bar. Colour: to be selected by
consultant. All black out shades to be
complete with extruded aluminum side and
bottom tracks installed on inside opening.
Colour to be selected by Consultant.

2.2 Hardware .1 Mounting Detail - jamb and wall mounted - all
mechanisms to be mounted within window
openings to the underside of window header
unless otherwise noted.

.2 Shade Orientation - Regular-roll shade cloth
to roll at window side of roller.

2.3 Shade Roller .1 Extruded aluminum tube, alloy 6063-T5, of a
Tube diameter required to support shade fabric
without excessive deflection. No adhesive tape
or rivet will be accepted to attach the shade.
A fabric attachment spline will be slid in
the tube groove, preventing shade detachment.
A portion of the tube under the groove shall
be reinforced allowing for flush insertion of
the spline.

- 2.4 Tube End Plug .1 End plug should consist of an outer stationary housing made of glass reinforced nylon. The bearing surface shall be a spring loaded pin end engaged into the center of the housing, made of proprietary General Electric Plastics lubricated PF30 material. The bearing surface shall provide smooth wear resistance operation.
- 2.5 Chain Drive .1 Adjustment-free system shall be comprised of multi-banded steel springs that create the pressure necessary to keep the shade in the desired position. All plastic components to be made of glass reinforced polyester termopolymer (PBT). The clutch shall develop no more than ½ pound drag for easy lift. System to be symmetrical for left or right hand installation.
- 2.6 Operating Chain .1 Shall be controlled by stainless steel bead chain 90 lb. load test.
- 2.7 Hembar .1 Type 1: Shall be extruded aluminum bottom bar, appropriate weight for shade to hang flat, inside hem, 38mm high x 10 mm deep, with closed ends.
- .2 Type 2: Shall be anodized extruded aluminum alloy, oval shaped hem bar, end cap colours to match the bottom bar, weighted appropriately for shade to hang flat, attached to the fabric by a plastic spline.
- 2.8 Chain Hold Down .1 Operating chain shall be fully secured with chain tie-down.
-

- 2.9 Black out shade track .1 At all window installation locations install continuous "C" shaped track for shades to run in to prevent visibility. In all locations the tracks must be installed on the interior side of window jambs. No tracks are to be surface mounted to prevent sharp exposed edges.

PART 3 - EXECUTION

- 3.1 Installation .1 This section is responsible for taking all necessary field dimensions and all dimensional co-ordination with the other sections of the work in order to ensure proper fit in both the vertical and horizontal directions. Blinds must be installed prior to substantial performance. Do not install blinds until all painting has dried and work zone has had dust removed.
- .2 Anchor as required to provide permanent rigidity.
- .3 Supply and install all fastenings, anchors, filler, panels, clips and accessories as required for the completion of the work.
- .4 Marked or torn components shall be replaced not repaired.
- .5 Adjust all operating hardware for smooth operation.
- .6 Remove all resultant debris from the site.
- .7 Make all systems fully operational and coordinate installation with division 16.
- .8 Check test operation of each unit and make adjustments to ensure proper installation.
- .9 Provide side and bottom channels at all blackout shade locations

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D 698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.5-M91 (March 1999), Low Flash Petroleum Spirits Thinner (Reaffirmation of December 1991).
 - .2 CAN/CGSB-1.74-2001, Alkyd Traffic Paint.
 - .3 Ontario Provincial Standard Specifications (OPSS)
 - .1 OPSS 302-April 1999, Construction Specification for Primary Granular Base.
 - .2 OPSS 310-March 1993, Construction Specification for Hot Mixed, Hot Laid Asphaltic Concrete Paving and Hot Mix Patching.
 - .3 OPSS 314-December 1993, Construction Specification for Untreated Granular, Subbase, Base, Surface Shoulder and Stockpiling.
 - .4 OPSS 1010-March 1993, Material Specification for Aggregates, Granular A, B, M and Select Subgrade Material.
 - .5 OPSS 1103-February 1996, Material Specification for Emulsified Asphalt.
 - .6 OPSS 1150-May 1994, Material Specification for Hot Mixed, Hot Laid Asphalt Concrete.
- 1.2 SAMPLES
- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit to Engineer, the asphalt mix design at least 2 weeks before paving work.
- 1.3 MEASUREMENT PROCEDURES
- .1 Included in Balance of Project.
-

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 11 - Cleaning and Waste Management.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Aggregates to: OPSS 1010.
 - .1 Granular A.
 - .2 Granular B Type II.
 - .3 Select subgrade.
- .2 Prime coat: SS-1 to OPSS 1103.
- .3 Tack coat: SS-1 to OPSS 1103.
- .4 Asphalt concrete: to OPSS 1150.
- .5 Traffic paint: Alkyd yellow (505-308) and white (513-301) to CAN/CGSB-1.74 and OPSS 1712.
- .6 Paint thinner: to CAN/CGSB-1.5.

PART 3 - EXECUTION

3.1 PAVEMENT
THICKNESS

- .1 As per cross section on detail drawing.

3.2 PAVEMENT
CONSTRUCTION

- .1 Application of tack coat: OPSS 1103. Apply only on clean and dry surface. Paint contact surfaces of curbs, gutters, manholes and like structures with thin, uniform coat of asphalt tack coat material.
- .2 Construction of asphalt concrete: OPSS 310.

3.3 TRAFFIC
MARKINGS

- .1 Paint stop lines, centre lines and other pavement markings in accordance with manufacturers recommendations and as indicated.

3.3 TRAFFIC
MARKINGS

(Cont'd)

- .2 Review layout with Engineer prior to application.
- .3 Use paint thinner in accordance with manufacturer's requirements.
- .4 Pavement surface to be dry, free from ponded water, frost, ice, dust, oil, grease and other foreign materials.
- .5 Air temperature to be above 10°C, wind speed less than 60 km/h and no rain in forecast within next 4 hours.
- .6 Paint lines to be of uniform colour and density with sharp edges.
- .7 Remove incorrect markings as directed by Engineer.

PART 1 - GENERAL

1.1 REFERENCE
STANDARDS

- .1 ASTM International
 - .1 ASTM A 53/A 53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 90/A 90M-09, Standard Test Method for Weight Mass of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
 - .3 ASTM A 123/A 123M-09, Standard Specification for Zinc (Hot Dip Galvanized) coatings on Iron and Steel Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-138.1-96, Fabric for Chain Link Fence.
 - .2 CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence.
 - .3 CAN/CGSB-138.3-96, Installation of Chain Link Fence.
 - .4 CAN/CGSB-138.4-96, Gates for Chain Link Fence.
 - .5 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 CSA Group (CSA)
 - .1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CAN/CSA-A3000-08, Cementitious Materials Compendium.

1.2 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for concrete mixes, fences, posts and gates and include product characteristics, performance criteria, physical size, finish and limitations.
-

1.3 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in accordance with manufacturer's recommendations.
 - .2 Store and protect fence and gate materials from damage.
 - .3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Concrete mixes and materials: in accordance with CSA A23.1.
 - .1 Nominal coarse aggregate size: 20-5.
 - .2 Compressive strength: 20 MPa minimum at 28 days.
- .2 Chain-link fence fabric: to CAN/CGSB-138.1.
 - .1 Type 1, ClassA, medium style, Grade 2, 38 mm diamond mesh.
 - .2 Height of fabric: as indicated.
- .3 Posts, braces and rails: to CAN/CGSB-138.2, galvanized steel pipe. Dimensions as indicated.
- .4 Top and bottom tension wire: to CAN/CGSB-138.2, single strand, galvanized steel wire.
- .5 Tie wire fasteners: steel wire.
- .6 Tension bar: to ASTM A 653/A 653M, 5 x 20 mm minimum galvanized steel.
- .7 Gates: to CAN/CGSB-138.4.

2.1 MATERIALS
(Cont'd)

- .8 Gate frames: to ASTM A 53/A 53M, galvanized steel pipe, standard weight 45 mm outside diameter pipe for outside frame, 35 mm outside diameter pipe for interior bracing.
 - .1 Fabricate gates as indicated with electrically welded joints, and hot-dip galvanized painted with zinc pigmented paint after welding.
 - .2 Fasten fence fabric to gate with twisted selvage at top.
 - .3 Furnish gates with galvanized malleable iron hinges, latch and latch catch with provision for padlock which can be attached and operated from either side of installed gate.
 - .4 Furnish double gates with chain hook to hold gates open and centre rest with drop bolt for closed position.

- .9 Fittings and hardware: to CAN/CGSB-138.2, galvanized steel.
 - .1 Tension bar bands: 3 x 20 mm minimum galvanized steel or 5 x 20 mm minimum aluminum.
 - .2 Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail.
 - .3 Turnbuckles to be drop forged.

- .10 Organic zinc rich coating: to CAN/CGSB-1.181 MPI #18.

- .11 Grounding rod: 16 mm diameter copperwell rod, 3 m long to Section 26 05 27 - Grounding - Primary.

2.2 FINISHES

- .1 Galvanizing:
 - .1 For chain link fabric: to CAN/CGSB-138.1 Grade 2.
 - .2 For pipe: 550 g/m² minimum to ASTM A 90.
 - .3 For other fittings: to ASTM A 123/A 123M.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for fence and gate installation in accordance with manufacturer's written instructions.

3.2 ERECTION OF FENCE

- .1 Erect fence along lines as indicated and to CAN/CGSB-138.3.
- .2 Excavate post holes 1220 mm depth.
- .3 Space line posts 2.4 m apart, measured parallel to ground surface.
- .4 Space straining posts at equal intervals not to exceed 150 m if distance between end or corner posts on straight continuous lengths of fence over reasonably smooth grade, is greater than 150 m.
- .5 Install additional straining posts at sharp changes in grade.
- .6 Install corner post where change in alignment exceeds 10 degrees.
- .7 Install end posts at end of fence and at buildings.
 - .1 Install gate posts on both sides of gate openings.
- .8 Place concrete in post holes then embed posts into concrete to minimum 200 mm depth.
 - .1 Extend concrete 50 mm above ground level and slope to drain away from posts.
 - .2 Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .9 Install fence fabric after concrete has cured, minimum of 5 days.
- .10 Install brace between end and gate posts and nearest line post, placed in centre of panel and parallel to ground surface.

3.2 ERECTION OF
FENCE
(Cont'd)

- .10 (Cont'd)
 - .1 Install braces on both sides of corner and straining posts in similar manner.
- .11 Install top rail between posts and fasten securely to posts and secure waterproof caps.
- .12 Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
- .13 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300 mm intervals.
 - .1 Knuckled selvedge at bottom.
 - .2 Twisted selvedge at top.
- .14 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450 mm intervals.
 - .1 Give tie wires minimum two twists.
- .15 Install grounding rods.

3.3 INSTALLATION OF
GATES

- .1 Install gates in locations as indicated.
- .2 Level ground between gate posts and set gate bottom approximately 40 mm above ground surface.
- .3 Install gate stops where indicated.

3.4 TOUCH UP

- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas.
 - .1 Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.

- 3.5 CLEANING
(Cont'd)
- .1 (Cont'd)
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
 - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Waste Management and Disposal.