



PAUL DACUNHA
ARCHITECT INC

Project Manual

Project:
Renovations To:
Toronto Reference Library
Ground Floor Exterior Alcove Ledges
789 Yonge Street
Toronto, Ontario

Project No:
16126

Date:
February 13, 2017

Paul J. DaCunha
OAA, MRAIC
ARIDO, IDC, NCIDQ
Principal Architect and Interior Designer



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ARCHITECT INC

Bid Documents

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00100 Instructions To Bidders	FEBRUARY 13, 2017	5
00300 Bid Form	FEBRUARY 13, 2017	2
00301 Alternate, Unit, Separate and Identified Prices Form	FEBRUARY 13, 2017	1

Refer to Specifications for further information.

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1 Instructions to Bidders

1.1 SUMMARY

- 1.1.1 The intent of this bid call is to solicit and receive formal offers to perform the work required by the Bid Documents (the "Work").

1.2 BID SUBMISSION

- 1.2.1 Bids are to be submitted using the enclosed bid form ("Bid Form") in a sealed envelope marked:

**CONFIDENTIAL BID FOR
Renovations To
Toronto Public Library:
Toronto Reference Library
Ground Floor – Exterior Alcove Ledges**

- 1.2.2 Deliver bids as follows:

- .1 Date and Time: March 2, 2017, no later than 11:00.00 a.m. as per the designated clock at the Place of Receipt
- .2 Place of Bid Receipt: Hand deliver a sealed envelope labeled with bidder's name, and the name of the project, containing the bid to TPL Security Staff at the Front Desk at Toronto Public Reference Library, 789 Yonge Street, Toronto. The security staff will date and time stamp the envelope.

- 1.2.3 Oral, telephoned, facsimile or telex bids will not be considered, accepted or acknowledged.

- 1.2.4 Bids received after the bid submission deadline will not be considered, accepted or acknowledged. Such bids will be returned to the bidder unopened.

- 1.2.5 None of the Owner's facilities such as telephones, desks, or rooms may be used by bidders in the preparation of bids. No cellular phones, portable facsimile machines or other devices are permitted on the Owner's property during preparation of bids.

- 1.2.6 In the case of any dispute, the date and time stamped by the TPL Security Staff will be accepted as the official time of receipt. It is the Bidder's responsibility to ensure that their Bid is stamped prior to the closing time by the Security Staff.

1.3 INVITED BIDDERS

- 1.3.1 The following Bidders have been invited to bid on this project:

.1 Brown Daniels Associates Construction Services

Atten: Hallex Kong
12 Drummond Street, Suite 1,
Etobicoke, On, M8V 1Y8
T- 416-251-1757
E- hallexkong@rogers.com

.2 CB Construction Services Inc.

Atten: Chris Bellew
2611A Maple Grove Rd.
Bowmanville ON L1C 3K4
T – 905- 623 -2345
E - chris.cbcs@live.ca

- .3 **J. D. Strachan**
Atten: Don Hutchinson
482 Queen Street
Newmarket ON L3Y 2H4
T - 905-833-0681
E - don@jdstrachan.com
- .4 **Morosons Construction Ltd.**
Atten: Mike Moro
Atten: Reney Liu
103 Fairbank Avenue,
Toronto, ON M6E 3Y9
T- 416 -233 -4171
E- mike@morogroup.ca
E- reney@morogroup.ca

1.4 TORONTO PUBLIC LIBRARY PURCHASING POLICIES

- 1.4.1 It is the Bidder's responsibility to become familiar with, and, where required, comply with the City of Toronto and Toronto Public Library policies such as:
- .1 City of Toronto, Fair Wage Policy, which can be reviewed at www.toronto.ca;
 - .2 Environmentally Responsible Procurement Statement;
 - .3 Declaration of a Non-Discrimination Policy;
 - .4 Agreement to Abide by the Established Process;
 - .5 Exclude Bids from External Parties Involved in the Preparation or Development of a Specific Call/Request;
 - .6 Financial Control Policy;
 - .7 Procurement Processes Policy;
 - .8 Lobbying Disclosure for Request for Proposals and Tender/Quotations Calls Policy.
- 1.4.2 Copies of the above policies are available upon request.
Copies of the above policies are available upon request. Contact Mr. Scott Smith, Purchasing Agent, Toronto Public Library, 789 Yonge Street, Toronto, ON M4W 2G8, Office: (416) 393-7243
ssmith@torontopubliclibrary.ca
- 1.4.3 Yonge Street, Fax at 416 393 7115

1.5 INQUIRIES

The Consultant will accept inquiries from the invited bidders only (No sub-trade inquiries please.) Please send any sub-trade inquiries via the invited bidders. Direct all inquiries during the bidding period by email only to Paul DaCunha at paul.dacunha@sympatico.ca and include the statement “**URGENT BID QUESTION – TRL EXTERIOR ALCOVES**” at the top of the email. Questions and clarifications, will be assessed/reviewed by the consultant. IF the consultant deems it necessary, the issue/question will be included in addenda issued by the Consultant.

1.6 FORM OF CONTRACT

- 1.6.1 Submission of a bid will be considered an agreement by the bidder to execute the Canadian Standard Construction Document for Stipulated Price Contract, CCDC 2-2008.

1.7 BID FORM

- 1.7.1 Bidders shall complete the Bid Form in its entirety. Any items omitted or illegible, any alterations or erasures to the text, any qualifications or any conditions added, may cause the bid to be rejected.
- 1.7.2 Bidders shall sign, witness / seal in accordance with the following requirements:

.1 **Limited Company:** Full name of company and name(s) and titles of authorized signing officer(s) shall be printed or typed in space provided. Authorized signing officer(s) shall sign. Signing shall be done in the presence of a witness who shall also sign, or in the absence of a witness, the corporate seal shall be affixed.

.2 **Partnership:** Firm name and names(s) of the person(s) signing shall be printed or typed in space provided. One or more of the partners shall sign in the presence of a witness who shall also sign.

.3 **Sole Proprietorship:** Business name and name of sole proprietor shall be printed or typed in space provided. The sole proprietor shall sign in the presence of a witness who shall also sign.

1.8 OCCUPATIONAL HEALTH AND SAFETY

1.8.1 It will be the responsibility of the successful bidder to assume the responsibilities of the Constructor for the Work as defined in the Occupational Health and Safety Act, and in accordance with the Other Contractors, to co-ordinate safety standards, and to provide safety inspections at the interface of the work of Other Contractors.

1.9 TAXES AND DUTIES

1.9.1 Bidders shall include all applicable federal, provincial and municipal taxes and duties, except the Goods and Services Tax, in their Bid Prices.

1.10 SUBSTANTIAL PERFORMANCE DEADLINE & EARLY OCCUPANCY BY OWNER PRIOR TO SUBSTANTIAL PERFORMANCE

1.10.1 Refer to **Section 1100** for specific requirements.

1.10.2 Include in the Contract all premium payment for overtime work required to meet this requirement. No extra payment will be considered by the Owner.

1.11 MODIFICATION OF BIDS

1.11.1 Bids may not be modified after they are submitted.

1.12 WITHDRAWAL AND ACCEPTANCE OF BIDS

1.12.1 Bidders will be permitted to withdraw their bid if a request for withdrawal is received in writing up to one hour prior to the submission deadline. Withdrawal requests must be addressed to Scott Smith – Toronto Public Library Purchasing Agent, to the address previously noted above.

1.12.2 Withdrawn bids may be resubmitted in accordance with these Instructions to Bidders provided that the resubmitted bid is received at the address for receiving bids prior to the time and date fixed for receiving bids.

1.12.3 A bid may not be withdrawn at or after the time and date fixed for receiving bids and shall be open for acceptance by the Owner until the earlier of:

.1 The date on which another bidder has entered into a contract with the Owner for performance of the Work; or

.2 The date which is thirty (30) days after the date fixed for receiving bids.

.3 A required Substantial Performance, early start date.

1.12.4 The time period referred to in the preceding sub-paragraph shall commence at 12:01 a.m. of the day fixed for receiving bids and shall terminate at 11:59 p.m. of the thirtieth day thereafter. If that day falls on a Saturday, Sunday or statutory holiday, such day or days shall be omitted from the computation.

1.12.5 The lowest or any bid will not necessarily be accepted and the Owner reserves the right to reject any and all bids.

1.13 IRREGULARITIES

1.13.1 The Owner reserves the right not to consider non-conforming, informal, or conditional bids.

1.13.2 The Owner reserves the right to negotiate contract terms with a potentially acceptable bidder.

1.13.3 Discrepancies between words and figures will be resolved in favour of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favour of the correct sum.

1.14 OPENING OF BIDS

1.14.1 Bids will be opened by the Owner in public.

1.15 BIDDER'S QUALIFICATIONS

1.15.1 Bidders shall be registered or licensed in the Province of the Work as required by the law of the Province of the Work in order to perform the Work.

1.15.2 Bidders shall be actively engaged in the types of work required by the Bid Documents, and shall be able to refer to similar work performed by them.

1.15.3 The Owner may, before or during the bidding period or after bid submission, require any bidder to submit written proof of qualifications. Proof shall consist of the completed Canadian Standard form of Contractor's Qualification Statement, CCA Document No. 11 and such other data as the Owner may require.

1.15.4 Bidders shall, upon request, provide the Owner with such information as to the financial standing and the corporate organization of the bidder as the Owner may require and authorize the Owner to make such credit inquiries as it deems appropriate without obtaining further authorization from the bidders.

1.16 SITE VISIT AND EXAMINATION OF EXISTING CONDITIONS

1.16.1 Bidders shall visit the site and become fully aware of the conditions which shall be met in performing the Work. A **MANDATORY** site visit has been scheduled for **Thursday February 16, 2017 at 9:30 a.m.** meeting at the Place of the Work (at the ground floor security desk). Bidders will be requested to sign and sign-in sheet and present business cards to Paul DaCunha Architect Representative.

1.16.2 Submission of bid shall be deemed evidence that the bidder has examined the site, is familiar with conditions under which work will be done, and has obtained all information which may be necessary for proper execution of the Work.

1.16.3 Claims for extra payment and extensions to Contract Time will not be considered in respect of conditions which could have been or ought to have been ascertained by an inspection of the site prior to close of bids. Signing of Contract indicates acceptance by Contractor of conditions under which work will be done.

1.16.4 To arrange for access to and inspection of the site on dates additional to the mandatory visit, arrive at the branch during regular hours and contact the branch manager.

1.17 SUBSTITUTIONS

1.17.1 The Owner and Consultant do not intend to consider and/or act upon, applications by bidders for substitutions prior to bid closing. Do not propose substitutions on the Bid Form since they will be subject to interpretation i.e. as a qualification that may lead to a declaration of the bid as informal.

1.18 INTERPRETATIONS AND MODIFICATIONS OF BID DOCUMENTS

1.18.1 Bidders shall promptly notify the Consultant, in writing, of any ambiguity, discrepancy, omissions, inconsistency or error which they may discover upon examination of the Bid Documents or of the site, existing premises and local conditions.

1.18.2 Replies to questions and modifications to the Bid Documents will be issued in writing by the Consultant in the form of Addenda. Replies to questions and modifications made in any other manner will not be binding and shall be without legal effect.

1.19 HOURS OF WORK

- 1.19.1 All work is to be performed during branch hours, unless otherwise noted. All noisy work is to be completed after branch hours.

TRL Branch Hours:

Day	Opening Time	Closing Time
Monday	9:00 a.m.	8:30 p.m.
Tuesday	9:00 a.m.	8:30 p.m.
Wednesday	9:00 a.m.	8:30 p.m.
Thursday	9:00 a.m.	8:30 p.m.
Friday	9:00 a.m.	8:30 p.m.
Saturday	9:00 a.m.	5:00 p.m.
Sunday	1:30 p.m.	5:00 p.m.

- 1.19.2 It shall be understood that the Bid Prices include sufficient funds for all overtime. Refer to Section 01100 for detailed requirements.

1.20 ADDENDA

- 1.20.1 Addenda issued by the Consultant during the bidding period shall be incorporated into the bid proposal, they shall become part of the Bid Documents, and they must be listed on the Bid Form by the bidder.
- 1.20.2 Any Addenda issued during the bidding period will be sent only to invited bidders registered with the Consultant as having received complete sets of Drawings and Specifications.
- 1.20.3 As an addendum is sent out, each bidder will respond by email to Paul DaCunha Architect Inc. with written confirmation that they have received the addendum. (I.e: "We confirm that we have received addendum No.1 and it's contents.")
- 1.20.4 Each bidder shall ascertain prior to bid submission that all Addenda issued have been received.

1.21 COMMENCEMENT OF WORK

- 1.21.1 Particular attention is drawn to the requirement that the bidder shall commence non on site work immediately after the Contract is awarded.

1.22 ERRORS IN BIDS

- 1.22.1 The Owner will not entertain requests for gratuitous payments arising from errors alleged to have been made by the bidder in a bid which the Owner has accepted.

1.23 OTHER CONTRACTORS

- 1.23.1 Bidders are advised that the Owner may enter into separate contracts ("Other Contracts"), to perform various other works associated with the Project, during the Work of this Contract.
- 1.23.2 Include for the following costs in the Bid Price:
- .1 administration and construction co-ordination and interfacing of the Work with the Other Contractors
 - .2 connection to the Work with Other Contractors as necessary
 - .3 cutting, fitting and patching of the Work of this Contract as necessary to fit, to receive, or to be received by work of the Other Contractors
 - .4 mobilization, start-up, demobilization, and closeout to accommodate Other Contractor's work

END OF INSTRUCTIONS TO BIDDERS

1. BID OFFER SUBMITTED TO THE TORONTO PUBLIC LIBRARY (TPL)

1.1 BIDDER'S LEGAL NAME: _____

1.2 The Work:

1.3 I/We agree to provide all materials and labour for the proper completion of the Work for the **Stipulated Price of:**

_____ and ___/100 Dollars

(\$ _____) in lawful money of Canada; included in which are all costs, expenses, allowances, overhead, profit, exchange, all other charges, Federal and Provincial taxes and duties, except the Goods and Services Tax.

1.4 I / We declare that I / we have carefully examined the Specifications, Schedules, Drawings and **ADDENDA No. _____ to No. _____**, prepared by Paul DaCunha Architect Inc, and that I/ we have visited and investigated the site, have examined all conditions affecting the Work for the above project in the preparation of this bid.

1.5 I/We will attain Substantial Performance of the Work in accordance with the requirements of **Section 01100.**

2. ALLOWANCES

2.1 I / We have included in the Bid Price allowances as specified in the drawings.

3. ALTERNATE, UNIT, SEPARATE and IDENTIFIED PRICES FORM

3.1 I / We have included attached the ALTERNATE, UNIT, SEPARATE and IDENTIFIED PRICES as specified in **Section 00301**. I/We understand that these prices are for the TPL's information only and will not be utilized in determining the successful bid.

4. BID ACCEPTANCE PERIOD AND FORM OF CONTRACT

4.1 I / We agree that this Bid is valid and subject to acceptance by the TORONTO PUBLIC LIBRARY for a Bid Acceptance Period of **thirty (30) days** from date of Bid Close, and that if notified of award of the Contract, I / we will execute a CCDC Document No. 2 - 2008 Agreement with the TORONTO PUBLIC LIBRARY for the Work.

5. BID IN FORCE (SIGNATURES, WITNESS, SEAL)

5.1 Refer to Instructions to Bidders for signature, witness and seal requirements.

5.1.1 **BIDDER'S ADDRESS:** _____

5.1.2 **BIDDER'S AUTHORIZED REPRESENTATIVE**

SIGNATURE _____

PRINTED OR/TYPED NAME _____

TITLE _____

5.1.3 **SEAL OR WITNESS SIGNATURE** _____

5.1.4 **PRINTED NAME** _____

5.1.5 Dated at _____ (City) this _____ (day) of _____ (Month), 2017.

END OF BID FORM

1. GENERAL

1.1.1 Drawings indicating the scope of the work of Other Contractors have been issued as part of the Bidding Documents for information purposes only. Determine the necessary coordination and interface issues indicated on, and inferable from, these documents, be responsible for and include appropriate cost and time allowances.

1.1.2 **Attach this form to the Bid Form.**

2. DEFINITIONS

2.1.1 **Alternative Price:** Alternative Descriptions are not included in the Bid Price. Alternative prices include labour, materials, equipment, insurance, overhead and profit, and which represent the complete, actual cost or credit to the Owner.

2.1.2 **Identified Price:** Includes labour, materials, equipment, insurance, overhead and profit, and which represent the complete, actual cost of the part of the Work described. Identified prices are provided for the Owner's information only and will not be deducted from the scope of the Work.

2.1.3 **Separate Price:** Separate Prices include labour, materials, equipment, insurance, overhead and profit, and which represent the complete, actual cost of the part of the Work described. Separate prices are provided for the Owner's information, are not part of the Bid Price but may be added to the bid Price if requested by the Owner.

2.2 **Unit Prices:** Unit Prices are not included in the Bid Price. Their prices include labour, materials, equipment, insurance and bonding, overhead and profit, and they represent the complete, actual cost or credit to the Owner.

3. ALTERNATE PRICE

3.1 Alternate Price No.1:

3.1.1 Description: Provide alternate price for the new wall/soffit assembly. Refer to Architectural Drawing 8/A00 for the Alternate wall/soffit assembly section.

3.1.2 Alternate Price No.1 \$ _____.

END OF SECTION

Section	Title	Date	Pages
SPECIFICATIONS			
DIVISION 1 GENERAL REQUIREMENTS			
01001	List of Prescribed Sub-Trades	FEBRUARY 13, 2017	2
01100	General Requirements	FEBRUARY 13, 2017	5
01300	Administration and Submittals	FEBRUARY 13, 2017	3
01500	Temporary Facilities & Controls	FEBRUARY 13, 2017	2
	List of Specifications	FEBRUARY 13, 2017	2
	List of Drawings and Schedules	FEBRUARY 13, 2017	1
DIVISION 2 SITEWORK			
02220	Demolition	FEBRUARY 13, 2017	1
DIVISION 5 METALS			
05500	Miscellaneous Metals	FEBRUARY 13, 2017	2
DIVISION 6 WOOD AND PLASTICS			
06100	Rough Carpentry	FEBRUARY 13, 2017	2
DIVISION 7 THERMAL AND MOISTURE PROTECTION			
07900	Miscellaneous Sealants	FEBRUARY 13, 2017	3
DIVISION 9 FINISHES			
09250	Gypsum Board	FEBRUARY 13, 2017	4
09900	Painting	FEBRUARY 13, 2017	5
DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS (Abacon Environmental Consultants Inc. Engaged Directly by TPL)			
	Designated Substances and Hazardous Materials Report	JANUARY 29, 2017	8
	Asbestos Removal - Standard Requirements		14
	Removal and Handling of Hazardous Materials – Scope of Work		1
APPENDIX			
	Fail-Safe – TR 15 LED Light Fixture		3
END OF LIST OF SPECIFICATIONS			

Drawing Reference Number	Title	Date (Latest of Issue/ Revision/ Drawing Dates)
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ARCHITECTURAL DRAWINGS

A00	CONTEXT PLAN, ALCOVE PLANS, SECTION AND IMAGES	FEBRUARY 13, 2017
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END OF LIST OF DRAWINGS

1. General

1.1 SUBCONTRACTORS

1.1.1 Certain portions of the Work are required to be performed by the subcontractors that are named below the applicable sub-trade heading in the List of Prescribed Sub-trades.

1.1.2 Please note that subcontractors have not been given tender documentation by the Library, nor has the Library necessarily made them aware of this project.

2. List of Prescribed Sub-Trades

2.1 ELECTRICAL SUB-TRADES

2.1.1 ELECTRICAL

.1 AJS Electrical Services Inc.
Tel: 416-286-8751
ajelectrical@sympatico.ca

.2 Jo-Tech Electric Ltd.
Tel: 905-660-0504
fab@jotech.ca

.3 Randall Electric Ltd.
Tel: 416-281-1722
randall@randall.ca

.4 RPG Electric Ltd.
Tel: 905-474-2723
estimating@rpgelectric.com

2.2 ASBESTOS ABATEMENT CONTRACTORS

2.2.1 ASBESTOS

.1 Biggs & Narciso Construction
Luis Narciso
181 Bentley St., Unit 14
Markham ON L3R 3Y1
P: 905-470-8788 ext. 223
F: 905-470-9102
luis@biggsandnarciso.com

.2 Caliber Environment Construction Services Inc.
Jim Ball
636 Edward Ave, Bldg B. Unit 7
Richmond Hill, ON L4C 0V4
Phone: 905-884-5500
jimball@caliberenv.com

.3 Envirosafe Inc.
Shaun Fralic
Envirosafe Inc.
80 Nashdene Rd. Unit 52, Bldg B

Scarborough, ON M1V 5E4
Phone: 416-292-1373
Email: shaun@envirosafe.ca

- .4 Ferro Canada Inc.
Chris Richardson
95 Royal Crest Ct. Unit 15
Markham ON L3R 9X5
P: 905-946-0787
F: 905-946-0780
Chris@ferrocanada.com
- .5 I & I Construction Services Limited [I02520]
Edward Barron or John Waters
70 Newkirk Road, Unit 6
Richmond Hill, ON L4C 3G3
P: 905-884-1290
F: 905-884-3267
tbarron@iandi.ca

END OF LIST OF PRESCRIBED SUBCONTRACTORS

1. General

1.1 HOURS OF WORK / ACCESS

- 1.1.1 All work is to be performed during branch hours, unless otherwise noted. All noisy work is to be completed after branch hours.

TRL branch hours:

Day	Opening Time	Closing Time
Monday	9:00 a.m.	8:30 p.m.
Tuesday	9:00 a.m.	8:30 p.m.
Wednesday	9:00 a.m.	8:30 p.m.
Thursday	9:00 a.m.	8:30 p.m.
Friday	9:00 a.m.	8:30 p.m.
Saturday	9:00 a.m.	5:00 p.m.
Sunday	1:30 p.m.	5:00 p.m.

- 1.1.2 All work can proceed upon award of the contract.

1.2 RED SUBSTANTIAL PERFORMANCE

- 1.2.1 The Owner requires Substantial Performance of the Work to be achieved by March 31, 2017.

1.2.2 STANDARDS

- 1.2.3 Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date or issue is specifically noted.

1.3 SAFETY MEASURES

- 1.3.1 Comply with the safety regulations of the Occupational Health and Safety Act and authorities having jurisdiction for the safety of the Work.

1.4 FIRE SAFETY DURING CONSTRUCTION

- 1.4.1 Provide fire prevention and protection measures to existing building as required by all authorities having jurisdiction.

- 1.4.2 Maintain exits, including stairways and exterior doors to the outside. Provide acceptable alternative exits where an existing exit is blocked off or deleted due to construction activities.

- 1.4.3 Where access to an exit through construction area is absolutely necessary, clearly define, protect and separate access from the construction area by a smoke tight fire separation equivalent to minimum 1hr. fire resistance rating.

- 1.4.4 All life safety systems must be reactivated at the end of each work day.

2. Products

2.1 PRODUCT QUALITY

- 2.1.1 Defective Products, 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.
- 2.1.2 Should any dispute arise as to quality or fitness of Products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- 2.1.3 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.

2.2 PRODUCT SUBSTITUTION

- 2.2.1 Whenever Products are specified exclusively by trade name, manufacturer's name or by catalogue reference, use only those items, unless written approval for substitution is obtained from Consultant.
- 2.2.2 Substitutions proposed after award of Contract will be considered only under the following conditions:
- .1 If the Products specified are not available it is the responsibility of the Contractor to research a substitute and to submit the following in a timely manner:
 - .2 a letter from the specified manufacturer stating that the specified Products are unavailable, and
 - .3 written confirmation, by letter, from the Contractor of the following:
 - .a the change in the Contract Price, and
 - .b the change in Contract Time, and
 - .c that the Contractor represents the substitute as equivalent to the originally specified product complete with supporting manufacturer's literature.
 - .4 if substitute Products are proposed as a result of a Contractor preference, it is the responsibility of the Contractor to submit the following in a timely manner:
 - .5 written submission, by letter, from the Contractor of the following:
 - .a the change in the Contract Price, and
 - .b a statement confirming no change in Contract Time, and
 - .c that the Contractor represents the substitute as equivalent to the originally specified product complete with supporting manufacturer's literature.
- 2.2.3 There is no obligation on the part of the Consultant or Owner to accept proposed substitutions. Acceptance of proposed substitutions by Owner does not relieve the Contractor's responsibility under the Contract.

2.3 PRODUCT STORAGE, HANDLING AND PROTECTION

- 2.3.1 Handle and store Products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- 2.3.2 Store packaged or bundled Products in original and undamaged condition with manufacturer's seals and labels intact.
- 2.3.3 Store products subject to damage from weather in weatherproof enclosures.

2.4 PRODUCT MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS

- 2.4.1 Unless otherwise indicated in specifications, install or erect Products in accordance with manufacturer's

instructions and recommendations. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

2.4.2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.

2.4.3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes Consultant to require removal and reinstallation at no increase in Contract Price.

2.5 WORKMANSHIP

2.5.1 Workmanship shall be best quality, 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.

2.5.2 Do not employ any unfit person or anyone unskilled in their required duties.

2.5.3 Decisions as to quality or fitness of workmanship in cases of dispute rest solely with Consultant, whose decision is final.

2.6 CONCEALMENT

2.6.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

2.6.2 Before installation, inform Consultant if there is a contradictory situation. Install as directed by Consultant.

3. Execution

3.1 EXAMINATION OF SURFACES DURING CONSTRUCTION

3.1.1 Before executing work against surfaces prepared by other Sections, examine such surfaces. Do not accept defective surfaces, or do any work to or on them, until the defects are remedied.

3.1.2 Commencement of work shall indicate acceptance of surfaces and responsibility concerning the conditions of same.

3.2 EXISTING SERVICES

3.2.1 Locate existing exterior services through the corresponding associated Public Utility. Remove site markings at the completion of the Work.

3.2.2 Locate existing interior services by visual, X-ray, EMF, and destructive (not damaging) means, as necessary.

3.2.3 Maintain operations of building services, data, telephone and alarm. Ensure no interruptions of these services during execution of the Work.

3.2.4 Do not undermine, damage or endanger existing footings, foundations, pipe lines, electrical conduit and wiring by digging, cutting or any other operation in the performance of the Work of this Contract.

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

- 3.2.6 If required by the Consultant, prepare interference and/or installation drawings showing the work of the various Sections as well as the existing installation, and submit these drawings to the Consultant for review before the commencement of work.

3.3 CUTTING AND PATCHING

- 3.3.1 Perform cutting, fitting, and patching to complete the Work.
- 3.3.2 Remove and replace defective and non-conforming work.
- 3.3.3 Properly prepare surfaces to receive patching and finishing.
- 3.3.4 Restore work with new products to match existing.
- 3.3.5 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- 3.3.6 At penetration of fire-rated wall, ceiling, or floor construction, completely seal voids with fire-rated material, full thickness of construction element.
- 3.3.7 Refinish surfaces to match adjacent finishes; for continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- 3.3.8 Do not cut damage or otherwise compromise structural elements of the base building without written approval from the Consultant.

3.4 MAKING GOOD

- 3.4.1 Make good materials and finishes which are damaged or disturbed during the process of alterations and reconstruction as part of the Work.
- 3.4.2 Where existing work is to be made good, match new work exactly with the old work in material, form, construction and finish unless otherwise noted or specified.
- 3.4.3 Preparation for new finishes:
.1 Remove existing finishes, as necessary.
.2 Fill cracks and depressions with suitable filler and finish smooth, as recommended by the manufacturer of the new finishes.
.3 Grind protrusions level with substrates and finish smooth.
.4 Remove all evidences of existing adhesive, grease, oil, soil and other encrustations of foreign material by washing, scraping and grinding if necessary.
.5 Clean and prepare substrates to receive new work.

3.5 FINAL CLEANING

- 3.5.1 When the Work is Substantially Performed, remove surplus products, tools construction machinery and equipment not required for performance of remaining Work.
- 3.5.2 Clean hardware after installation in accordance with supplier's instructions.
- 3.5.3 Leave work broom clean before inspection process commences.
- 3.5.4 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

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- 3.5.5 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls ceilings.
- 3.5.6 Vacuum clean and dust building interiors, behind grilles, louveres and screens.
- 3.5.7 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- END OF SECTION

1. Administration and Submittals

1.1 DIVISION OF WORK

1.1.1 Work specified in the Specifications is divided into Sections for reference purposes only. Division of work between Contractor and Subcontractors is the Contractor's responsibility. The TPL does not assume responsibility to act as an arbitrator to establish subcontract limits between Sections or Divisions of the Work.

1.1.2 The term "NIC" means "Not In This Contract" i.e. not a Part of The Work to be Performed or Provided by The Contractor under the Contract. "NIC" work is specified and/or indicated on the Drawings as an aid to the Contractor in scheduling the amount of time and materials necessary for the completion of the Contract.

1.2 EXTRAS AND EXAMINATION OF EXISTING CONDITIONS

1.2.1 The Contractor will be deemed to have examined the site, become familiar with conditions under which work will be done, and obtained all information which may be necessary for proper execution of Contract. Extra payments will not be authorized for work that could have been determined by a careful examination of site and existing conditions, as determined by the Consultant.

1.3 PROJECT PROGRESS MEETINGS

1.3.1 Schedule and administer project progress meetings throughout progress of work.

1.3.2 Distribute written notice of each meeting four days in advance of meeting date to Consultant and Owner.

1.3.3 Present to, and review the current project schedule with the Consultant.

1.3.4 Provide physical space and make arrangements for meetings.

1.3.5 Record minutes. Include significant proceedings and decisions. Identify 'action by' parties.

1.3.6 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, Consultant and Owner.

1.4 RECORD DRAWINGS

1.4.1 After award of Contract, Consultant will provide a set of transparency drawings for purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by Consultant.

1.4.2 Record locations of concealed components of mechanical and electrical services.

1.4.3 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by Consultant.

1.4.4 On completion of Work and prior to final inspection, submit record documents to Consultant.

1.5 OWNER'S QUALITY CONTROL

1.5.1 Independent inspection/testing agencies may be engaged by Owner for purpose of inspecting and/or testing portions of Work. Costs shall be paid out of cash allowance.

1.5.2 Provide equipment required for executing inspection and testing by appointed agencies.

1.6 INSPECTION/TAKEOVER PROCEDURES

- 1.6.1 Prior to application for certificate of Substantial Performance, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete, defects are corrected and building is clean and in condition for occupancy. Notify Consultant in writing, of satisfactory completion of the Work and request an inspection.
- 1.6.2 During Consultant inspection, a list of deficiencies and defects will be tabulated. Correct same. When Consultant considers deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for certificate of Substantial Performance.
- 1.6.3 Conform to OAA/OGCA Document No.100 for takeover procedures.
- 1.6.4 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due. Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made.
- 1.6.5 Execute transition of Performance Bond to warranty period requirements.

1.7 Operating Maintenance data

- 1.7.1 Two weeks prior to Substantial Performance of the Work, submit to Consultant, three copies of operating and maintenance data. Data to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications Sections.

1.8 Project Record Manual

- 1.8.1 Owner (TPL) requires 5% of extra stock material in sealed boxes for all flooring material.
- 1.8.2 Submit three copies of Project Record Manual consisting of operation and maintenance data and one set of record (as-built) drawings white prints, also provide a digital copy on a USB flash drive. Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers, and manufacturers and submit material prior to final application for payment. Provide warranties fully executed and notarized.
- 1.8.3 Failure to submit Project Record Manual as outlined above will result in a charge of \$2,000.00 (Two thousand dollars).

2. SUBMITTALS

2.1 General

- 2.1.1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the Work.
- 2.1.2 Work affected by submittal shall not proceed until review is complete.
- 2.1.3 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 coordinated with requirements of the Work and Contract Documents.
- 2.1.4 Verify field measurements and affected adjacent Work are coordinated.

2.2 Submittals Required

- 2.2.1 I/We will supply the following before the Work commences on site:

- .1 Certified copies of insurance certificates and policies as required by the Contract.
- .2 A Workplace Safety & Insurance Board certificate
- .3 A Performance Bond and a Labour and Material Payment Bond, issued by a Surety acceptable to the Owner, if required.
- .4 A Workplace Safety & Insurance Board CAD-7 calculation report.

2.3 Cost Breakdown Schedule of Values.

2.3.1 Prepare and submit a Construction Component Cost Breakdown Schedule of Values before Work commences on site.

2.3.2 The aggregate sum of the components shall equal to the Contract Price.

2.4 Progress Payment & Change Order Summary

2.4.1 Prepare and submit a Progress Payment Summary before Work commences on site.

2.4.2 In addition to the schedule of values, prepare and submit both a Progress Payment Summary and a Change Order Summary with each progress payment application. Submit Summaries in accordance with the sample forms appended to this Section. No other forms or formats will be considered or accepted.

2.5 Shop Drawings and Product Data

2.5.1 Submit one transparency and 4 white prints of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.

2.5.2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connection, explanatory notes and other information necessary for completion of Work.

2.5.3 Adjustments made on shop drawings by Consultant are not intended to change Contract Price.

2.5.4 Make changes in shop drawings as consultant may require.

2.5.5 Submit 4 copies, unless otherwise noted, of product data sheets or brochures for requirements requested in specification Sections and as Consultant may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

2.6 Samples

2.6.1 Submit samples for review as requested in respective specification Sections.

2.6.2 Submit samples for review in finish as specified.

2.6.3 Deliver samples prepaid to Consultant's business address.

2.7 Inspection and Takeover Submittals

2.7.1 Refer to Inspection and Take-over requirements.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

- 1.1.1 Provide construction facilities and temporary controls in order to execute work expeditiously. Remove from site all such work after use.
- 1.1.2 Provide protection to prevent damage to other work and existing construction and finishes.
- 1.1.3 Confine the Work and operations of employees to limits indicated by Contract Documents. Do not unreasonably encumber premises with Products.
- 1.1.4 Provide adequate protection against dust, water and other damages to Owner's electronic and computer equipment, fittings and furniture. Use covers acceptable to the Owner. Remove protection after each work period.
- 1.1.5 Protect work in the existing building, such as floors, finishes, trim, etc., as completely as possible to hold the replacing of damaged work to a minimum.

1.2 INSTALLATION / REMOVAL

- 1.2.1 Provide construction facilities and temporary controls in order to execute work expeditiously. Remove from site all such work after use.

1.3 DELIVERY, UNLOADING, AND HOISTING

- 1.3.1 Co-ordinate with the building management use of temporary controls and facilities not provided under this Contract, including but not necessarily limited to material delivery, **unloading and hoisting**. Make prior arrangements and schedule use at times acceptable to the building management. Be responsible for payment for use of such facilities. Arrange for delivery and unloading of materials at areas designated by the building management. Do not interfere with vehicular traffic on the streets and pedestrian traffic on the sidewalks.
- 1.3.2 Do not overload lifting machinery that may be used for construction personnel and material hoisting beyond the rated capacity. Be responsible for safe operation of the lifting machinery and any damages resulted from its usage.

1.4 SECURITY PROVISIONS

- 1.4.1 Maintain and conform to existing security provisions required by the building management. Do not compromise such provisions.

1.5 HOARDING AND BARRICADES

- 1.5.1 Erect hoarding and barricades to protect public, workers, public and private property from injury or damage.
- 1.5.2 Provide lockable doors within hoarding for access to site by workers and vehicles.
- 1.5.3 Provide lockable doors within hoarding for access to site by workers.

1.6 PARKING

- 1.6.1 Parking will not be provided on site.

1.7 DUST TIGHT SCREENS

- 1.7.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- 1.7.2 Maintain and relocate protection until such Work is complete.

1.8 SITE STORAGE AND LOADING

- 1.8.1 Confine the Work; storage of materials and operations of employees to limits indicated by Contract Documents. Do not unreasonably encumber premises with Products.
- 1.8.2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.

1.9 SANITARY FACILITIES

- 1.9.1 **The Owner will provide and pay** sanitary facilities for workers in accordance with local health authorities.
- 1.9.2 Maintain sanitary facilities in a clean condition.

1.10 WATER AND POWER SUPPLY

- 1.10.1 **The Owner will provide and pay** for a continuous supply of water and power for construction use.

1.11 EQUIPMENT/TOOL/MATERIALS STORAGE

- 1.11.1 Provide and maintain, in clean and orderly condition, secure, lockable weatherproof sheds for storage of tools, equipment and materials.
- 1.11.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.12 PROJECT CLEANLINESS

- 1.12.1 Remove waste material and debris from site at end of each working day. Do not burn waste materials on site.
- 1.12.2 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.
- 1.12.3 Maintain the Work in tidy condition, free from accumulation of waste products and debris. Remove waste material and debris from site at end of each working day. Do not burn waste materials on site.
- 1.12.4 Provide own disposal bin for waste material and debris; do not use the landlords disposal bin.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

2. Products

2.1 MATERIAL AND DEBRIS

2.1.1 Demolition materials and debris are the property of the Contractor except as otherwise indicated.

3. Execution

3.1 PROTECTION

3.1.1 Provide and maintain temporary barricades and guard rails to protect the general public, Library staff, and workmen employed on the demolition and adjoining properties.

3.1.2 Provide and maintain full height temporary hoardings constructed of plywood or gypsum board on stud backing during demolition work to maintain free, safe passage including lighting if required, to the requirements of authorities having jurisdiction, and to the approval of the Consultant. Remove hoardings at completion of work of this Section. Do not interfere with use of adjacent buildings; maintain free, safe passage to and from same.

3.2 DEMOLITION

3.2.1 Demolish parts of the Work, existing materials, finishes, and construction as indicated, implied, and inferable as part of the Work and as necessary to accommodate the Work. Demolish in accordance with requirements of authorities having jurisdiction.

3.2.2 Arrange and pay for the disconnection, capping and for plugging of gas, water, electric, telephone and other services as necessary to execute the Work. Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

3.2.3 At end of each work shift leave work and the structure in a safe condition so that no items being demolished are in danger of toppling, collapsing, or falling. Minimize and control dust and dirt rising.

3.3 DISPOSAL

3.3.1 Remove all combustible materials, plastics, metal, glass, wood and other organic material from site.

3.3.2 Remove demolition materials and debris from the site and dispose of legally. Burning of debris or selling of materials on the site is not acceptable.

3.3.3 Do not place nor store material in streets, lanes, passageways.

3.3.4 This is to be read in conjunction with Pre-Renovation Survey of Designated Substances and Hazardous Building Materials, prepared by Abacon Environmental Consultants Inc., dated January 29, 2017.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

1.2 QUALITY ASSURANCE

1.2.1 Do steel welding work in accordance with CSA W59 unless specified otherwise, by qualified welders certified under CSA W47.1.

1.3 DESIGN REQUIREMENTS

1.3.1 Where required by authorities having jurisdiction, have work of this Section designed by a professional engineer licensed to design structures and registered in the Province of the Work.

1.3.2 Design **all** construction and connections to requirements of the building code and other authorities having jurisdiction. Maximum deflection of L/360 of clear span.

1.4 SUBMITTALS

1.4.1 Shop drawings: Submit the shop drawings in accordance with **Section 01300 bearing stamp or seal and signature of the professional structural engineer responsible for the design of the work of this Section.**

Indicate the following:

- .1 materials, core thicknesses
- .2 connections, joints, supports, reinforcement details
- .3 system arrangement and component sizes
- .4 method of assembly and anchorage,
- .5 locations of exposed fasteners,
- .6 finishes and hardware
- .7 accessories

2. Products

2.1 MATERIALS

2.1.1 **Steel sections and plates:** CAN3-G40.21, Grade 300W.

2.1.2 **Steel pipe:** ASTM A53, schedule 40.

2.1.3 **Welding materials:** CSA W59.

2.1.4 **Bolts and anchorbolts:** ASTM A307.

2.1.5 **Galvanizing:** Hot dip galvanize, after fabrication, all steel used in exterior construction to CSA G164.

2.1.6 **Shop coat primer:** CAN/CGSB-1.40-M.

2.1.7 **Zinc primer:** Zinc rich, ready mix to CGSB 1-GP-181M.

2.1.8 **Grout:** Non-shrink, non-metallic, flowable, 24h, [15 MPa|2100 psi], pull-out strength [7.9 MPa|1150 psi].

2.2 FABRICATION - GENERAL

2.2.1 Refer to drawings for items and details of work of this Section.

- 2.2.2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured. Where possible, fit and shop assemble work, ready for erection.
- 2.2.3 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.
- 2.2.4 Accurately form connections with exposed faces flush; mitres and joints tight.
- 2.2.5 Continuous weld joints for the full length of each joint. Grind or file exposed welds and steel sections smooth.
- 2.2.6 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items. 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.
- 2.2.7 Clean surfaces to be field welded; do not paint.
- 2.2.8 Provide galvanized finish for exterior work, prime paint for interior work.

2.3 MISCELLANEOUS STEEL SECTIONS

- 2.3.1 Provide all steel items not indicated to be supplied under other Sections.
- 2.3.2 Where sections are required to be built into masonry or concrete supply such members to the respective Sections.

2.4 ANCHOR BOLTS AND OTHER MEANS OF ANCHORAGE

- 2.4.1 Provide all anchor bolts and expansion bolts or other means of anchorage required for building into floors, walls and ceilings, where it is necessary to secure metal and wood to concrete, masonry or steel work. Supply anchor bolts, nuts and similar hardware to the respective Sections for fastening.

3. Execution

3.1 ERECTION

- 3.1.1 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- 3.1.2 Provide suitable means of anchorage such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- 3.1.3 Make field connections with high tensile bolts to CAN3-S16.1, or weld.
- 3.1.4 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- 3.1.5 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- 3.1.6 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- 3.1.7 Unless otherwise indicated, grout set work in concrete with non-shrink grout. Trowel surface smooth and flush with adjacent surfaces.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

2. Products

2.1 WOOD MATERIAL

2.1.1 **Lumber:** Acceptable to authorities having jurisdiction and unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with CSA 0141 and NLGA Standard Grading Rules for Canadian Lumber, 1987 edition.

2.1.2 **Lumber identification:** By grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

2.1.3 **Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:** S2S, Standard or better grade.

2.2 PLYWOOD

2.2.1 **Interior:** Provide Douglas fir plywood to CSA 0121, standard construction or Canadian softwood plywood to CSA 0151, standard construction.

2.2.2 **Plywood identification:** By grade mark in accordance with applicable CSA standards.

2.2.3 **Roofing and canopy plywood:** Council of Forest Industries (COFI) exterior grade plywood.

2.2.4 **Subfloor plywood:** Council of Forest Industries (COFI) plywood.

2.2.5 **Fire retardant treatment:** To provide flame spread, fuel contributed and smoke developed ratings of 25 or less, Non-Com or Dricon fire retardant chemicals by Koppers Company, Inc., Flame Proof LHC by Timber Specialties Ltd., or other acceptable equivalents.

2.3 WOOD PRESERVATIVE

2.3.1 **Wood preservative:** Super Solignum by Solignum Inc., Pentox by Osmose-Pentox Inc., or other acceptable equivalents. For painted surfaces use clear type and for concealed surfaces use green tinted type. Provide compatible surface applied preservative for cut ends.

3. Execution

3.1 INSTALLATION - GENERAL

3.1.1 Install members true to line, levels and elevations.

3.1.2 Construct continuous members from pieces of longest practical length.

3.1.3 Provide spanning members with "crown-edge" up.

3.2 ROOFING AND CANOPY CANTS, CURBS, FASCIA BACKING, AND BLOCKING

3.2.1 Provide wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using

galvanized fasteners.

3.2.2 Align and plumb faces of furring and blocking to tolerance of 1:600.

3.3 INTERIOR NAILING STRIPS, GROUNDS AND ROUGH BUCKS

3.3.1 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.4 INTERIOR FURRING, BLOCKING, AND NAILING STRIPS

3.4.1 Provide furring, blocking, and nailing strips as required to space-out and support equipment, cabinets, wall and ceiling finishes, frames, facings and other work as required.

3.5 WOOD PRESERVATIVE

3.5.1 Apply preservative in accordance with the manufacturer's written instructions.

3.5.2 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.5.3 Treat wood material as follows:

- .1 wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill
- .2 exterior site landscaping construction
- .3 wood in contact with masonry or concrete in contact with ground or fill

3.6 ELECTRICAL, DATA AND TELEPHONE EQUIPMENT BACKBOARD

3.6.1 Provide backboards for mounting electrical equipment as indicated. Use 3/4" thick plywood on 2" x 4" furring around perimeter and at maximum 12" intermediate spacing. Provide fire retardant treatment.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

1.2 SUMMARY

1.2.1 This Section specifies sealing work not specified in other Sections. Refer to other Sections for other sealants.

1.3 QUALITY ASSURANCE

- 1.3.1 **Applicators:** Recognized and established sealant applicators with at least five years experience and having skilled mechanics thoroughly trained and competent in the use of sealant equipment and the specified materials.
- 1.3.2 Arrange with the sealant manufacturers for visits at the job site by their technical representatives before beginning the sealant installation to discuss the procedures to be adopted, to analyze site conditions and to inspect the surfaces and joints to be sealed.

1.4 SUBMITTALS

1.4.1 **Samples:** Submit the following samples in accordance with **Section 01300**.
.1 **Sealants** minimum 4" long x 3/8" diam. for each type of material and colour

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture and water.

2. Products

2.1 GENERAL

2.1.1 **Sealant-general:** Non-bleeding and capable of supporting their own weight except for the self-levelling type sealant for horizontal surfaces. Allow for special colours as selected by the Consultant.

2.2 MASKING, PRIMERS, AND CLEANING SOLVENTS

2.2.1 Provide products compatible with each other, designed to suit the specific job conditions and as recommended by the sealant manufacturer.

2.3 SEALANT - POLYURETHANE TWO COMPONENT

2.3.1 Multi-component modified polyurethane sealant, conforming to CAN/CGSB-19.24
.1 Acceptable products: Tremco Ltd DYmeric 240 or G.E. Silicones EP-6000

2.3.2 **Typical Locations:**
.1 **Exterior hollow metal** steel door frames and screens, both sides.

2.4 SEALANT - MILDEW RESISTANT SILICONE

2.4.1 CAN/CGSB-19.22, one component silicone

- .1 Acceptable products: G.E. Silicones, Sanitary 1702 or Dow Corning Canada Inc. ,786 Mildew-resistant Silicone Sealant

2.4.2 **Typical Locations:**

- .1 Underside of rims of **sinks** between sink rims and counters.
- .2 Around pipes and conduits passing through walls and ceilings in **washrooms**. Conceal sealant with escutcheons.
- .3 Joints in **ceramic tile walls** where joints occur over control and expansion joints in back-up walls
- .4 Joints between **counters/vanities** and walls in washrooms.
- .5 Joints between **urinals** and walls in washrooms.
- .6 Joints between **water closets** and walls and floors in washrooms.

2.5 **SEALANT - POLYURETHANE ONE COMPONENT**

2.5.1 CAN/CGSB-19.13

- .1 Acceptable products: DyMonic by Tremco Ltd.

2.5.2 **Typical Locations:**

- .1 Interior **gypsum board control joints**.
- .2 **Interior hollow metal** door, window and screen frames, both sides.

2.6 **SEALANT - SELF-LEVELLING POLYURETHANE**

2.6.1 Multi-component, self-levelling polyurethane,

- .1 Acceptable products: THC 900 by Tremco Ltd.

2.6.2 **Typical Locations:**

- .1 **slab-on-grade** control and expansion joints

2.7 **SEALANT - PREFORMED AIRSEAL**

2.7.1 Emseal Joint Systems, Emseal Expanding Foam Sealant 25V, compressed to 20 % of uncompressed dimension.

2.7.2 **Typical Locations:**

- .1 **As indicated on the Drawings**
- .2 **Mechanical curbs as indicated on the Drawings**

2.8 **MOVEMENT JOINT ACCESSORIES**

2.8.1 **Exterior:** Joint backing, non-absorbent, non-gassing, closed cell polyolefin foam, over sized 25%, Sof Rod by Tremco Ltd.

2.8.2 **Interior:** Bond breaker tape of type supplied or recommended by sealant manufacturer.

3. **Execution**

3.1 **PREPARATION**

3.1.1 Prepare surfaces in accordance with manufacturer's directions. Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work. Ensure joint surfaces are dry and frost free.

3.1.2 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.

3.1.3 Where necessary to prevent staining, mask adjacent surfaces prior to priming and sealing.

3.1.4 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to sealing.

3.2 MOVEMENT JOINTS

3.2.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

3.2.2 Apply bond breaker tape and joint backing to achieve correct joint depth and shape in accordance with manufacturer's instructions.

3.3 INSTALLATION

3.3.1 Refer to Drawings for sealing work not specifically listed in this Section and apply a two component polyurethane unless indicated otherwise.

3.3.2 Mix, apply, and cure sealant materials in strict accordance with manufacturer's instructions.

3.3.3 Provide sealant in continuous beads and fill voids and joints solid.

3.3.4 Tool form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities and to a slightly concave shape .

3.3.5 Do not cover up sealants until proper curing has taken place.

3.4 CLEANING

3.4.1 Remove excess compound on adjacent surfaces promptly using recommended cleaners as work progresses and upon completion.

3.4.2 Remove masking after initial set of sealant.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

1.2 QUALITY ASSURANCE

1.2.1 Do work in accordance with CSA A82.31 except where specified otherwise.

1.2.2 Provide work level to tolerance of 1/8" in 10'-0".

1.3 ENVIRONMENTAL REQUIREMENTS

1.3.1 Provide work only in areas closed and protected against weather, and maintained between 10 degrees C and 21 degrees C. In cold weather ensure that heat is introduced in sufficient time, before work commences, to bring surrounding materials up to these temperatures; and maintained until materials installed by this Section have cured.

1.3.2 Do not provide work in any area unless satisfied that work in place has dried out, and that no further installation of damp materials is contemplated.

2. Products

2.1 FRAMING, FURRING, SUSPENSION & ACCESSORIES

2.1.1 **Steel studs:** 25 gauge core thickness, hot dipped galvanized rolled form steel studs, widths as indicated, with knock-out holes for mechanical and electrical services.

2.1.2 **Floor and ceiling tracks:** 25 gauge core thickness, hot dipped galvanized rolled form steel tracks, width to suit studs.

2.1.3 **Furring runners and channels:** 25 gauge core thickness galvanized steel channels for screw attachment of gypsum board.

2.1.4 **Hangers, tie wires, inserts, anchors:** Manufacturer's standard, galvanized steel.

2.1.5 **Casing beads, corner beads, and trim:** 25 gauge hot dipped galvanized steel, perforated flanges, designed to be concealed with joint compound; do not provide J trim, provide CGC 200-A metal trim and suitable corner beads. Provide beads and trim in longest, continuous lengths possible.

2.1.6 **Partition Reinforcement:** 18 Ga, ZF075 galvanized sheet steel, dimensions as indicated.

2.2 GYPSUM BOARD

2.2.1 **Gypsum board:** CSA A82.27, 48" wide x maximum practical length, ends square cut, square edged base layer and taper edged face layer, thickness as indicated.

2.2.2 **Water resistant gypsum board:** CSA A82.27, water resistant and fire rated, 48" wide x maximum practical length, ends square cut, edges squared and tapered.

2.2.3 **Shaft wall liner:** 3/4" thick gypsum board panel, Type X Shaftliner by Westroc Industries Limited or other acceptable equivalents.

2.2.4 **Shaft wall gypsum board:** 5/8" Fireboard by Westroc Industries Limited or other acceptable equivalents.

2.2.5 **Shaft wall studs and runners:** Minimum 25 gauge thick galvanized steel members, J-Track and I-Stud by Westroc Industries Limited or other acceptable equivalents.

2.2.6 **Fire rated gypsum board:** CSA A82.27, Type X, 48" wide x maximum practical length, ends square cut, square edged base layer and taper edged face layer, thickness as indicated.

2.3 MISCELLANEOUS

2.3.1 **Reveal trims:** Extruded 6063-T5 aluminum, designed to be concealed with joint compound, maximum lengths, reveal width and depth as indicated, Final Forms I 500 Series by Gordon Inc. or other approved equivalents.

2.3.2 **Revoe Clip:** Extruded aluminum, designed to attach gypsum board/demountable partitions to T-Bar Ceilings without damage to the ceiling grid or tiles. Revoe Manufacturing Ltd.

2.4 COMPOUND AND TAPE

2.4.1 **Joint and laminating compounds:** As recommended by gypsum board manufacturer, high bond, low shrinkage and asbestos-free.

2.4.2 **Joint tape:** 2" wide reinforced tape.

2.5 ACOUSTICAL MATERIALS

2.5.1 **Acoustical insulation:** Roxul Plus by Roxul Inc., Thermafiber by CGC, or other approved equivalents, width to match stud spacing.

2.5.2 **Acoustical sealant:** Acoustical sealant by Tremco Ltd.

2.6 SECURITY COMPONENTS

2.6.1 **Expanded metal sheets:** Minimum 0.060" thick flattened expanded carbon steel sheets, nominal 1/2" x 1" diamond shaped openings, hot dipped galvanized.

2.6.2 **Metal strappings:** 1" wide, 22 gauge thick galvanized steel strips.

2.6.3 **Bullet Resistant Panels:** 7/16" Fibreglass reinforced polyester laminate panels, protection level 3, by CR Laurence of North America.

3. Execution

3.1 PARTITION AND WALL FRAMING

3.1.1 Align partition top and bottom tracks and secure at 24" o.c. maximum.

3.1.2 Place studs vertically at 16" oc, unless otherwise noted, and not more than 2" from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

3.1.3 Attach studs to bottom track using screws or other approved means of fastening.

3.1.4 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs.

3.1.5 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 2" apart using clips or other approved means of fastening placed alongside frame anchor clips.

- 3.1.6 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Provide intermediate studs above and below openings in same manner and spacing as wall studs.
- 3.1.7 Frame openings and around built-in equipment, cabinets, access panels, on four sides. **Extend framing into reveals.** Check clearances with equipment suppliers.
- 3.1.8 Provide stud or furring channel secured between studs for attachment of fixtures, electrical boxes, washroom accessories, and other items including grab bars.
- 3.1.9 Terminate partitions at ceiling height except where indicated otherwise.
- 3.1.10 Provide Revoe Clips every 24" maximum for partitions being secured to T-Bar ceilings and for door frames or glazing units being secured at underside of ceiling. Screw from top to allow revoe clip to be moved, if required. Refer to manufacturers recommendations for installation.
- 3.1.11 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- 3.1.12 Apply two continuous beads of acoustical sealant at junctions of metal framing and structure, including bottom and top tracks, where partitions abut fixed building components. Fill junction completely and continuously from floor to ceiling, or to structure for full height partitions.
- 3.1.13 Frame for gypsum board faced vertical bulkheads within and at termination of ceilings.
- 3.1.14 Retain expanded metal sheets to each stud with continuous metal strapping and secure with self-tapping flat head screws at maximum 12" centers. Overlap joints by minimum 2".

3.2 GYPSUM BOARD

- 3.2.1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- 3.2.2 Apply gypsum board to furring or framing using screw fasteners, at 12" oc.
- 3.2.3 Apply water resistant gypsum board where indicated.

3.3 FIRE RATED ASSEMBLIES

- 3.3.1 Construct fire rated assemblies where indicated, to requirements of authorities having jurisdiction.

3.4 INSTALLATION - SHAFT WALL

- 3.4.1 Construct work in accordance with manufacturer's instructions and to requirements of authorities having jurisdiction.
- 3.4.2 Securely fasten floor and ceiling J-Track to structure at 24" o.c.
- 3.4.3 Erect liner panel vertically between tracks. Provide I-studs between liner panels with panels inserted in the stud groove.
- 3.4.4 Apply two layers of shaft wall gypsum board to studs and tracks on the opposite side of liner panels. Fasten base layer horizontally to studs with 1" screws at 12" o.c. Apply face layer vertically over base layer with joints staggered and attached with 1-5/8" screws staggered from those on base layer, spaced at 12" o.c. and driven into studs.
- 3.4.5 Allow for movement of structures, so that the wall will not have load imposed.
- 3.4.6 Finish and seal shaft wall in accordance with the requirements specified hereinafter.

3.5 ACCESSORIES

- 3.5.1 Erect casing beads, corner beads straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured by screw fasteners. Fit corners accurately, free from rough edges.
- 3.5.2 Provide corner beads at external corners of gypsum board partitions and where indicated.
- 3.5.3 Provide casing beads at gypsum board terminations, at gypsum board wall/ceiling junctions, where gypsum board butts against surfaces having no trim concealing junction and where indicated.

3.6 ACCESS DOORS

- 3.6.1 Install access doors to allow access to electrical and mechanical items.
- 3.6.2 Rigidly secure frames to furring or framing systems.

3.7 TAPING AND FILLING

- 3.7.1 Fill joints, casing beads, corner beads, screwholes and depressions on gypsum board surfaces exposed to view to provide smooth seamless surfaces and square neat corners.
- 3.7.2 Apply joint compounds and reinforcing tapes in accordance with manufacturer's specifications.
- 3.7.3 Feather edges of compounds into surfaces of gypsum boards. After skim coat has dried for at least 24 hours sand to leave smooth for decoration. Do not sand paper face of gypsum board.
- 3.7.4 At internal corners: First fill gaps between boards with joint compound. Imbed creased reinforcing tape into a thin coat of joint compound applied 2" wide at each side of corner. Apply cover coat. Apply skim coat to one side of joint, and when dry apply skim coat to other side.
- 3.7.5 At screwheads and nailheads: Fill holes and depressions with joint compound and sand smooth.
- 3.7.6 Finish gypsum board joints above finished ceiling with tape and first coat of joint compound.

END OF SECTION

1. General

1.1 GENERAL REQUIREMENTS

1.1.1 Conform to requirements of Division 1.

1.2 QUALITY ASSURANCE

1.2.1 Employ a Subcontractor with a minimum of two years experience as an independent contractor specializing in painting.

1.3 SUBMITTALS

1.3.1 Provide paint samples for approval as required by the Consultant and in accordance with **Section 01300**.

1.3.2 Paint Schedule approval: Before ordering, submit a schedule endorsed by the paint manufacturers of all paint types, showing brands and quality identification of material to be used, for approval.

1.4 DELIVERY, STORAGE AND HANDLING

1.4.1 Provide a locked room or rooms for storage of paint materials and equipment in accordance with the requirements of the authorities having jurisdiction.

1.4.2 Keep oily rags, waste and other similar combustible materials in closed metal containers and remove at end of each day. Take precautions to avoid spontaneous combustion.

2. Products

2.1 PAINT

2.1.1 Acceptable manufacturers include:

- .1 Benjamin Moore
- .2 Glidden
- .3 PPG
- .4 Seco
- .5 Sherwin William

2.1.2 Paint and finishing materials: Highest grade, first line quality of the manufacturer.

2.1.3 Gloss terms: Having the following values when tested in accordance with ASTM D523 "Test for Specular Gloss", 60 degree gloss meter method:

- .1 Flat: 5 to 20.
- .2 Eggshell: 20 to 40.
- .3 Semi-gloss: 40 to 60.
- .4 Gloss: 60+.

2.2 THINNERS AND CLEANERS

2.2.1 **Thinners, cleaners, etc.:** Type and brand recommended by the paint manufacturer, bearing identifying labels.

3. Execution

3.1 WARNING & PROTECTION

- 3.1.1 Post "wet paint" signs while work is in process or drying.
- 3.1.2 Post "no smoking" signs where volatile materials are being used.

3.2 PREPARATION - GENERAL

- 3.2.1 Thoroughly vacuum clean all surfaces to be painted.
- 3.2.2 Furnish sufficient drop cloths, shields and protective equipment to prevent spray or dropping from fouling surfaces not being painted. Covers shall be placed before painting commences and remain until completed.
- 3.2.3 Place cotton waste, cloths and material which may constitute a fire hazard in metal containers and remove daily from site.
- 3.2.4 Remove all electrical plates, surface hardware, fittings and fastenings, prior to painting operations. Store and replace in undamaged condition on completion of work in each area.
- 3.2.5 Mask off and protect finished surfaces and materials in a manner acceptable to the Consultant.

3.3 PREPARATION - WOOD

- 3.3.1 Sand finish surfaces smooth with No. 00 sandpaper. Clean soiled surfaces with an alcohol wash. Wipe off dust and other loose dirt, or vacuum clean before application of coatings.
- 3.3.2 Seal knots, pitch, and sapwood with two coats of shellac. After prime coat is dry and sanded, fill nail and screw holes, and cracks with wood filler, or with putty for interior work and caulking compound for exterior work. Colour fillers to match wood or stain if surfaces are given clear final coatings. Smooth, sand, and prime fillers when set.
- 3.3.3 Sand and fill exposed plywood and particle board edges. Use filler compatible with finishing materials.

3.4 PREPARATION - METAL SURFACES

- 3.4.1 **Unprimed steel:** Remove weld flux, scale and rust with scrapers, wire brushes, wire power wheels, sandblasting, chipping, or grinding as may be required. Finish surfaces smooth, and remove weld flux alkali contamination with phosphoric acid solution. Wash with solvent.
- 3.4.2 **Primed steel:** Before touch-up of prime paint, smooth out surface irregularities; clean weld joints, bolts, nuts, and damaged areas with phosphoric acid solution; and wash with solvent.
- 3.4.3 **Galvanized steel:** Prepare galvanized surfaces using abrasive blast cleaning with sand. Wash thoroughly with mineral spirits, and wipe dry with completely clean cloths. Phosphatize surfaces in accordance with CGSB 31-GP-116, or apply one coat of etch type primer unless otherwise specified.

3.5 PAINT GRADE WOOD DOORS - PREPARATION AND EDGES

- 3.5.1 Fill open end grain and expansion spaces in plywood core.
- 3.5.2 Retouch, hand clean, and spot sand doors as required.
- 3.5.3 Paint door edges including stiles, top and bottom rails as well as cut outs. Unfinished doors will be listed as deficiencies.

3.6 APPLICATION

- 3.6.1 Do work by skilled tradesman, to manufacturer's directions. Apply paint only when dust-free conditions prevail. Results shall be even, uniform in sheen, colour and texture; free from brush or roller marks, or other defects.
- 3.6.2 Apply paint by brush or roller. Spray painting may be permitted at the approval of the Consultant before work commences.
- 3.6.3 The Consultant may at any time prohibit the use of spray painting for such reasons as carelessness, poor masking or protective measures, drifting paint fog, disturbance to other trades or failure to obtain a dense, even, opaque finish.
- 3.6.4 Do not paint exterior surfaces during windy or rainy weather, or when temperature is below 10 degrees C, or when surfaces are damp or exposed to hot sun. Interior temperatures shall be minimum 15 degreesC.
- 3.6.5 Permit paint to dry and touch up suction spots before applying succeeding coats.
- 3.6.6 Tint various coats of multiple coat work to distinguish between coats.
- 3.6.7 The painting coats as specified are intended to cover surfaces perfectly. If the Contractor is of the opinion that the specified materials will not provide uniform coverage, report in writing to the Consultant, before commencing the work. If surfaces finished as specified are not covered perfectly apply additional coats at no additional cost.
- 3.6.8 Use same brand of paint for primer, intermediate, and finish coats.
- 3.6.9 Reduce materials only when indicated by paint manufacturer. Reduce only with approved thinner.
- 3.6.10 Remove finishing hardware, fittings and trim prior to painting and replace after painting is finished. Alternatively, use masking tape and remove tape before paint is dry.
- 3.6.11 Strain paint through fine mesh if hardened paint or foreign materials are present in the container.
- 3.6.12 Keep sprinkler heads free of paint.
- 3.6.13 Paint both sides and edges of plywood backboards for equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.7 EXISTING SURFACES

- 3.7.1 Paint or repaint all existing surfaces of items or rooms where noted, including "new" work which has been incorporated into the existing work and existing work which has been damaged, altered or otherwise disturbed during renovation operations.
- 3.7.2 Repaint surfaces or rooms adjacent to rooms where alterations or renovations have been carried out and which have been damaged or otherwise disturbed by the alterations or renovations. Where such damages occur, repaint completely.
- 3.7.3 Remove from existing surfaces to be painted all rust, scale, oil grease, mildew, chemicals and other foreign matters.
- 3.7.4 If coatings on existing surfaces have failed so as to affect the proper performance or appearance of paint to be applied, or if such coatings can be easily removed, remove them and prepare the substrates properly. Dull hard or glossy surfaces by sanding, sandblasting or by other abrasive methods prior to painting.
- 3.7.5 Repaint surfaces entirely between changes of planes which have been incorporated into the existing work

and existing work which has been damaged, altered or otherwise disturbed during renovation operations. Give existing surfaces two coats of paint or enamel over the existing finish to match the previous finish.

- 3.7.6** Patch and prepare existing surfaces to be firm, smooth, dry, free from loose material and lime burn. Provide a continuous skim coat as necessary to achieve a suitable substrate.

3.8 INTERIOR FINISHES

- 3.8.1** For gypsum board ceilings (except service areas) apply: One coat latex primer-sealer and two coats flat latex enamel.
- 3.8.2** For gypsum board walls (except service areas) apply: One coat latex primer-sealer and two coats eggshell latex enamel.
- 3.8.3** For gypsum board walls and ceilings in service areas (Storage, Janitor, and Electrical rooms) as indicated apply: One coat latex primer-sealer.
- 3.8.4** For concrete block walls apply: One coat block filler and one coat latex primer-sealer.
- 3.8.5** For cast-in-place concrete walls and ceilings apply: One coat latex primer-sealer.
- 3.8.6** For galvanized and zinc coated metal apply: One coat latex metal primer and two coats semi-gloss alkyd enamel.
- 3.8.7** For primed ferrous metal surfaces apply: One coat alkyd metal primer and two coats semi-gloss alkyd enamel.
- 3.8.8** For wood work and wood doors to receive paint finish apply: One coat enamel undercoat and two coats of semi-gloss alkyd enamel.
- 3.8.9** For wood work to receive varnish or lacquer: One coat of wood filler and two coats of semi-gloss polyurethane.
- 3.8.10** For wood work and wood door to receive stained finish: One coat of wood filler, one coat of stain and two coats of semi-gloss polyurethane.
- 3.8.11** For plastic laminate clad wood door sides, top and bottom edge as well as cut outs: One coat enamel undercoat and two coats of semi-gloss alkyd enamel. Colours to match plastic laminate. Unfinished doors will be listed as deficiencies.
- 3.8.12** For concrete floor apply: Concrete sealer, Florseal W.B.
- 3.8.13** For fire retardant finish on combustible materials apply: One coat enamel undercoater, one coat fire retardant intumescent paint and one coat fire retardant overcoat.

3.9 EXTERIOR FINISHES

- 3.9.1** For gypsum board surfaces apply: One coat exterior alkyd primer and two coats egg shell exterior alkyd enamel.
- 3.9.2** For wood to receive paint finish apply: One coat exterior alkyd primer and two coats exterior alkyd house paint.
- 3.9.3** For primed ferrous metal surfaces apply: One coat lead primer and two coats exterior gloss alkyd enamel.
- 3.9.4** For galvanized and zinc coated metal surfaces apply: One coat rust inhibitive primer and two coats exterior gloss alkyd enamel.

3.9.5 **For masonry, concrete and cement plaster surfaces apply:** Two coats exterior flat latex paint.

3.9.6 **For traffic, direction, parking lines and markings apply:** Two coats of alkyd traffic paint.

3.10 SEMI-CONCEALED SURFACES

3.10.1 Paint one coat of flat black to surfaces which are visible through mechanical grilles, for example, walls behind convector cabinets and interior of ducts behind air grilles.

3.11 CLEANING

3.11.1 Remove paint marks and splatterings, as work proceeds and on completion.

END OF SECTION

**Pre-Renovation Survey of
Designated Substances
And Hazardous Building Materials**
For the Upgrade of Exterior Alcoves

At

**Toronto Reference
Library**

REPORT TO

**Toronto Public Library
1076 Ellesmere Road
Toronto, Ontario M1P 4P4
Attn: Mr. Arturo Luque**

January 29, 2017

Submitted By
Abacon Environmental Consultants Inc.
62 Ventana Way
Woodbridge, ON L4H 1L8

1. INTRODUCTION

Abacon Environmental Consultants Inc. (Abacon) was retained by the Toronto Public Library (the Library) to conduct a pre-renovation survey of designated substances (DS) and hazardous building materials (HazMat) in the areas of the upcoming renovations in the Toronto Reference branch library located at 789 Yonge Street in Toronto, Ontario. The survey was undertaken by the Library prior to the upcoming renovation work, as necessary to comply with the requirements of Ontario Occupational Health and Safety Act (the Act). The scope of the survey was to identify designated substances, with specific attention to asbestos-containing materials (ACM) as well as other hazardous building materials (HazMat) that might be present within renovation zone.

The renovation zone encompasses the main level exterior soffits located in the southern end and northern end of the building. The upcoming renovations include replacement of light fixtures and installation of bird nettings inside the soffit alcoves.

Abacon inspected the area on January 25, 2017. The scope of work included:

- Review of the existing Asbestos Re-assessment Survey Report for Toronto Reference branch dated October 1, 2012.
- Review of the records of renovations, known to Abacon, conducted in the building after the date of the update report as referenced above.
- On-site inspection.
- Observations for other DS and HazMat.
- Provision of a DS Survey Report (this Report) with recommendations.

Additional testing of building materials was not necessary. The existing records were sufficient for the determination of the extent of ACM and HazMat within renovation zone. It should be noted that a part of the upcoming work extends into the eastern part of the building. This part was constructed in 1990's and the materials within renovation are not anticipated to contain asbestos.

The Report includes two Appendices.

Appendix A Drawings. One drawing is included:
TRL-M-ACM-1 – Approximate Locations of ACM on Exterior Soffits.

Appendix B: Representative Images.

2. SURVEY FINDINGS – DESIGNATED SUBSTANCES

2.1. ASBESTOS

The following ACM were identified within renovation zone:

- Sprayed-on texture stucco on the underside of exterior soffits and inside lighting alcoves within the original building construction. The material was tested in the past and was found to contain 0.5% to 5% Chrysotile asbestos. The sprayed-on stucco is hard and can be considered non-friable ACM.
- Secondary ceiling above soffits built of drywall with asbestos-containing drywall joint compound containing 0.5% to 5% Chrysotile asbestos. The material is invisible from outside and is not expected to be affected by the upcoming renovation work.
- Not within renovation zone but in other parts of the building there are:
 - Asbestos-containing vinyl floor tiles (VAT) with underlying asbestos-containing mastic adhesives.
 - Drywall with asbestos-containing drywall joint compound.
- No suspect caulking, glazing materials or cement products were noted within the 1990's building addition.

2.2. LEAD

No suspect lead based paints were noted within renovation zone. Based on the age of the building, lead is presumed to be present in solder used in joints of cast iron drain/rain water leader piping and copper piping as well as in wire connections. The pipes possibly with lead joints/solder are not expected to be affected by the work.

2.3. MERCURY

Approximately 80 fluorescent light tubes, each containing small amount of mercury, are present within renovation zone. No other mercury-containing elements were noted.

2.4. SILICA

Crystalline silica is present in cement, cement blocks, bricks and mortar.

2.5. OTHER DESIGNATED SUBSTANCES

No process operations that would involve acrylonitrile, arsenic, benzene, ethylene oxide, isocyanates, and vinyl chloride were observed during the survey. Therefore the presence of any of

these substances in the buildings is not anticipated. There were no furnaces or coke stockpiles on site. Therefore coke emissions are not a concern.

3. SURVEY FINDINGS – OTHER HAZARDOUS MATERIALS

The ballasts inside fluorescent light fixtures were not inspected. It seems that the light fixtures were originally installed and the lighting ballasts are expected to contain Polychlorinated Bi-phenyls (PCBs).

All alcoves are affected by bird droppings. Substantial amount of the material has accumulated inside alcoves along and on the light fixtures. The bird droppings are considered a biohazard.

No other hazardous building materials were noted within renovation zone.

4. RECOMMENDATIONS

Based on visual observations and analytical test results the following is recommended:

1. The bird droppings, existing fluorescent light fixtures and fluorescent light tubes should be removed prior to other work. Subsequently the entire alcoves, along with the removed light fixtures and tubes should be disinfected.
2. The installation of mounting elements for the upcoming new separation walls on the surface of asbestos-containing stucco as well as the work described above in section 4.1 should be let to the a contractor specializing in the handling of ACM and HazMat.
3. All fluorescent light tubes should be recycled by a certified recycler.
4. PCB ballasts should be extracted from the old fixtures and evaluated for the content of PCB's. Those identified as containing PCB's should be handled as per the Library policy.
5. During the demolition, construction, or renovation activities, it is recommended that the spread of dust be controlled using standard dust control procedures. These include wet cutting of concrete and masonry products and elimination of the use of forced air to clean or remove dust. Respirators should be worn at all times during such work. Dry cutting and grinding should be prohibited.

5. GENERAL STATEMENT OF LIMITATIONS

In the performance of the work Abacon Environmental Consultants Inc. has exercised a degree of thoroughness and competence that is consistent with the profession. Abacon Environmental Consultants Inc. believes that the information presented in this report is factual at the time of the survey.

Materials similar to those found to contain asbestos were assumed to contain asbestos. Since the locations of asbestos-containing materials are inferred from a visual survey and a limited number of samples, the identification of asbestos-containing materials cannot be considered definitively precise. This report cannot be completely relied upon and professional judgment and caution should always be exercised while performing any type of building renovation involving cutting, drilling or other disturbance of any of the building materials. The accuracy of the data in this report is considered consistent with the objective and purpose of a survey typically performed prior to the construction or demolition activities.

The information provided by this report is intended for the sole use of our Client. Any use which a third party makes of this report, or its part, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Abacon Environmental Consultants Inc. and their associates accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Abacon Environmental Consultants Inc. and their associates reserve the right to review the comments on any interpretation of the data or conclusions derived by others. No warranties or representation, either expressed or implied, is included in this report.

Abacon Environmental Consultants Inc.

Marek Jakubczyk, M.Eng.
Principal

Appendix A

Drawings

Note:

The contents of Appendix A are included for the records only and shall not be used for any interpretation or evaluation of the extent of ACM or for the extent of work.

Appendix B

Representative Images

Textured plasters on exterior soffits containing 0.5% to 5% Chrysotile asbestos. Secondary ceilings above are made of drywall with asbestos-containing drywall joint compound.



Lighting alcoves with old fluorescent light fixtures contaminated with bird droppings. The ballasts inside the fixtures are likely to contain PCB's.



PART 1 – GENERAL**1.1. General Conditions**

- .1 The Terms of Reference, Scope of Work, Price Schedule, Time Schedule, Submission Requirements, Instructions to Bidders, General Requirements, General Terms and Conditions, and Attachments, as applicable, as specified elsewhere in the Tender Documents are hereby made a part of these specifications.
- .2 All sections of all Division form part of the Tender Documents and shall be read to determine their impact on the work of this section.

1.2. Scope of Work

- .1 Details of the asbestos-related work are described in a separate document:

Toronto Reference Library, Exterior Alcoves, Renovations 2017
Removal and Handling of Hazardous Materials, Scope of Work.

Other work:

- .2 Dispose of all asbestos waste as specified and in accordance with applicable legislation. In case of discrepancies more stringent requirements shall apply.
- .3 All non-cleanable items, waste and debris, including drywall generated within asbestos removal Work Areas shall be removed and disposed of as asbestos waste.
- .4 Clean thoroughly all building elements of all dust, debris and other waste, whether asbestos-containing or not within the layout of asbestos removal work.
- .5 Dispose of all non-asbestos waste resulting from all associated work.
- .6 Repair and make good on all security elements, electrical fixtures, wiring, sensors and other building elements damaged or unnecessarily removed during the asbestos removal work. Restore to original condition.
- .7 Coordinate all work with others on site and Consultant.
- .8 The contractor shall satisfy himself as to the full extent and requirements of the work. Verify extent of work and read entire contract documents before bidding. A pre-bid site visit is mandatory for tendering.

1.3. Associated PCB and Fluorescent Light Tube Removal Work

- .1 Refer to:
Toronto Reference Library, Exterior Alcoves, Renovations 2017
Removal and Handling of Hazardous Materials, Scope of Work.

1.4. Associated Thermal Insulation Work

- .1 Not Applicable.

1.5. Definitions

- .1 Authorized Visitor - Representative of the Owner, Inspector, the Consultant, and/or persons representing regulatory agencies.
- .2 Amended Water - Water with a non-ionic surfactant added to reduce water tension to allow thorough wetting of asbestos fibres.
- .3 Airlock - A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area typically consisting of two Curtained Doorways at least 1 m apart.
- .4 Curtained Doorways - An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings not less than 1/3 of the doorway width.
- .5 Clean Area - Either an Operating Area or an area in which removal work has already been successfully completed.

PART 1 – GENERAL

- .6 HEPA Vacuum - High Efficiency Particulate Aerosol (HEPA) filtered vacuum equipment acceptable to Health and Welfare Canada and meeting US Military Standard 282. This vacuum equipment shall have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 micrometer or larger.
- .7 Inspector - Representative of the Owner, or the Consultant or other as designated by the Owner to provide inspection and monitoring of the Contractor's work.
- .8 Improved Type 2 Enclosure – A Type 2 asbestos removal enclosure, as specified, improved with a Negative Air Pressure system generated by a Negative Air Pressure Filtration Unit, rated 800 CFM as a minimum, attached directly to the enclosure, exhausting to the outside of the building and providing a continuous inward air flow as verified by a smoke test tube. The total CFM rating of Negative Air Pressure Filtration Unit(s) inside the Improved Type 2 Enclosure must be sufficient to generate four air changes per minute.
- .9 Negative Air Pressure - A system which extracts air directly from the Work Area and discharges this air directly outside the building, sufficient to maintain a minimum pressure differential of 0.02 inch of water column relative to adjacent areas outside of Work Areas. This air extraction system is to be equipped with a High Efficiency Particulate Aerosol filtering system before discharge.
- .10 Operating Area - An occupied area where no asbestos removal work is underway, including exterior of the building.
- .11 Polyethylene Sheeting sealed with Tape - Polyethylene sheeting of thickness specified sealed with Tape along all edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect underlying surfaces from water damage or damage by Sealants, and to prevent escape of asbestos fibres through the sheeting into a Clean Area.
- .12 Work Area – Area where the actual removal of asbestos-containing materials takes place or an area during the preparation for asbestos removal.
- .13 Asbestos Warning Signs – clearly visible signage posted on the exterior sides of the Work Area Enclosures and on entrances to Decontamination Enclosures to warn of exposure to asbestos. The signs shall display the following text:

DANGER – ASBESTOS
 CANCER AND LUNG DISEASE HAZARD
 AUTHORIZED PERSONNEL ONLY
 RESPIRATORS AND PROTECTIVE CLOTHING
 ARE REQUIRED IN THIS AREA

Equivalent signs will be accepted.

1.6. Regulatory Agencies

- .1 Comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirement shall apply. These include, but are not limited to, the following:
 - .1.1. Ontario Occupational Health and Safety Act, RSO 2005 as amended and relevant Regulations.
 - .1.2. Regulation 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations under the Ontario Occupational Health and Safety Act.
 - .1.3. Ontario Ministry of the Environment Regulation 347 as amended by O.Reg. 461/05 under the Environmental Protection Act.
 - .1.4. Ontario regulation 362 R.R.O. 1990, Waste Management – PCB's under the Environmental Protection Act.
 - .1.5. Ontario regulation 463/10 – Ozone Depleting Substances.
 - .1.6. Government of Canada "Regulations Respecting the Handling, Offering for Transport and Transporting of Dangerous Goods".
 - .1.7. Health and Welfare Canada regulations, as applicable.
 - .1.8. Ontario Fire code.
 - .1.9. Regulation 647 - The Plumbing Code.
 - .1.10. WHMIS Regulations.
- .2 Comply with patents and with all applicable patent laws.

PART 1 – GENERAL**1.7. Existing Conditions**

- .1 The Contractor will be responsible for familiarizing himself with all existing conditions.

1.8. Submittals Before Commencing Work

The following documentation shall be submitted to the Consultant prior to the commencement of Work.

- .1 All necessary permits for transporting and disposal of asbestos waste.
- .2 Names of field supervisory personnel who will be responsible for the Work.
- .3 Original MTCU certificates as follows:
 - MTCU Asbestos Abatement Supervisor (AAS) accreditation for supervisory personnel. The original Supervisor certificate shall be carried by the Supervisor on the job at all times.
 - MTCU Asbestos Abatement Worker (AAW) accreditation for all asbestos workers to be engaged in the project. The original Asbestos Abatement Worker certificates shall be carried by all workers on the job at all times.
- .4 Material Safety Data Sheets (MSDS) for any sealant, surfactant or other material proposed for use.
- .5 Copies of all documents required by Section Notifications.
- .6 Proposed Work Schedule as described in Section Schedule.
- .7 Proposed emergency exit procedures.

1.9. Notifications

- .1 Prior to commencing Type 3 or Glove Bag work notify electronically, or in writing:
 - .1.1. The local office of Occupational Health and Safety Division of the Ontario Ministry of Labour.
 - .1.2. Disposal Authority (as applicable).
- .2 Notification to the office of the Construction Health and Safety Branch of the Ontario Ministry of Labour shall be on a prescribed form and shall include:
 - .2.1. The name and address of the person giving the notice.
 - .2.2. The name and address of the Owner and the place where the work will be carried out.
 - .2.3. The municipal address or other description of the place where the work will be carried out sufficient to permit the Inspector to locate the site.
 - .2.4. A description of work.
 - .2.5. The starting date and expected duration of the work.
 - .2.6. The name and address of the Supervisor in charge.
- .3 For the purposes of the Occupational Health and Safety Act, the Contractor will be designated the "Constructor" and will assume the responsibilities of the Constructor as set out in the Act and its Regulations unless Project Manager or General Contractor is assigned duty of the "Constructor".

1.10. Schedule

- .1 The Contractor shall provide sufficient labour and equipment to meet the schedule as described in other Sections of the Contract documents.
- .2 Submit work schedule including:
 - .2.1. Shifts to be worked.
 - .2.2. Work force.
 - .2.3. Starting date.
 - .2.4. Date of commencement of asbestos removal for each Work Area.
 - .2.5. Date of completion of asbestos removal for each Work Area.
 - .2.6. Date of completion of the project.
 - .2.7. Proposed locations of Decontamination Enclosures.

1.11. Restrictions

- .1 Do not allow smoking, eating or drinking in Work Areas.
- .2 Do not allow entry to Work Areas by unauthorized persons.
- .3 Do not use compressed air in Work Areas.
- .4 Open flames will not be permitted.
- .5 Burning of wastes will not be permitted.

PART 1 – GENERAL

1.12. Worker Protection

- .1 Instructions - Before commencing work, instruct workers in all aspects of work procedures, emergency exiting and health and safety personal protective procedures.
- .2 Respiratory Protection - Provide workers with personally issued and marked respiratory protective equipment acceptable to the Occupational Health and Safety Division of the Ontario Ministry of Labour, suitable for asbestos exposure in the Work Area. All respirators must be NIOSH approved and equipped in High Efficiency Particulate Aerosol (HEPA) filters suitable for asbestos (P100, N100 or R100). Every worker who enters Work Area must wear suitable respiratory protective equipment. A respirator provided by an employer and used by a worker shall be:
 - .2.1. Full-face positive pressure Powered Air Purifying Respirator (PAPR) or better in all Type 3 and Glove Bag operations if asbestos material being handled is adequately wetted and the handling does involve sprayed material containing only Chrysotile asbestos.
 - .2.2. Full-face pressure demand supplied air for dry removal, and for removal of sprayed material containing other than Chrysotile asbestos.
 - .2.3. Half face negative pressure respirators or better in Type 2 operations, if material is adequately wetted.
 - .2.4. Full-face negative pressure or better in Type 2 ceiling entry.
 - .2.5. Full face negative pressure or better in Type 2 operations involving the use of power tools equipped with a HEPA filtered dust collection device.
 - .2.6. Half-face negative pressure respirators or better in all Type 1 operations when material is adequately wetted.
 - .2.7. Used and maintained in accordance with the procedures specified in manufacturer's manual.
 - .2.8. Cleaned, disinfected and inspected after use on each shift, or more often if necessary.
 - .2.9. Shall have damaged or deteriorated parts replaced prior to being used by a worker.
 - .2.10. When not in use, shall be stored in a convenient, clean and sanitary location.
 - .2.11. Assigned to a worker for the worker's exclusive use.Maintain a minimum of two spare sets of respirators for exclusive use of Inspector and Authorized Visitor for an entry into a Work Area at any time.
- .3 Negative pressure respirators shall not be allowed to be used by unshaved workers or with beard.
- .4 Protective Clothing - Provide workers with protective clothing which shall:
 - .4.1. Be worn by every worker inside the Work Area,
 - .4.2. Consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck and be made of a material which does not readily retain nor permit penetration of asbestos fibres,
 - .4.3. Be repaired or replaced if torn,
 - .4.4. Include suitable footwear, head and face protection, gloves and other safety equipment as required for a specific job that may be undertaken within the Work Area,
 - .4.5. Provide protective clothing for the Inspector and Authorized Visitors for an entry into a Work Area at any time.

1.13. Approvals of Work Phases

An approval shall be obtained from the Inspector prior to initiation of the following phases for each individual Work Area:

- .1 Commencement of Work Area preparation,
- .2 Commencement of asbestos removal (pre-contamination inspection),
- .3 Commencement of Sealant application (cleanup inspection),
- .4 Dismantling of the enclosure,
- .5 Glove bag removal.

1.14. Protection, Repair and Replacement of Equipment and Materials

- .1 All equipment within and surrounding the Work Area shall be suitably protected by the Contractor.
- .2 All equipment, furniture, cabinetry, and building fabric damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Owner.

PART 1 – GENERAL

1.15. Air Monitoring

- .1 The Owner may implement air monitoring services to ensure safe progress of asbestos related work. The purpose of the Owner's air monitoring is to verify:
 - .1.1. That Contractor's activities do not contaminate the adjacent occupied areas,
 - .1.2. The Contractor's adherence to work procedures is adequate for an effective control of airborne asbestos fibres inside the Work Areas,
 - .1.3. Adequacy of respiratory protection equipment used by the Contractor.
- .2 From the commencement of the work until the completion of cleaning operations, the Inspector may collect air samples both inside and outside of the Work Area enclosures.
- .3 Samples will be collected and analysed using Phase Contrast Microscopy (PCM) following NIOSH method 7400. Air monitoring will begin prior to the commencement of Contractor's activities or at any time the asbestos-containing material is or may be disturbed until final clearance tests have indicated acceptable fibre concentration levels.
- .4 The Contractor may engage a testing laboratory for his own use; however these results shall not be accepted for the purpose of the Owner's monitoring. In case of discrepancy between the analytical results the Owner's results shall be deemed correct.
- .5 Ambient Air Monitoring in vicinity to Work Areas to detect faults in the Work Area separation barriers such as:
 - .5.1. Leakage of contaminated air from Work Area to the adjacent Operating Areas.
 - .5.2. Leakage of contaminated air from Work Area to the outside of the building envelope.
 - .5.3. Failure of Negative Air Pressure Filtration Unit(s).
 - .5.4. Failure of the Negative Air Pressure differential system.
 - .5.5. Ambient air monitoring may also be conducted inside the Clean Room of Worker Decontamination Enclosure to ensure proper operation of air locks and workers' adherence to proper decontamination procedures.

Should any of the above be detected the Contractor shall cease all asbestos abatement activities until the fault is corrected. The areas deemed contaminated shall be evacuated. The contaminated areas shall be enclosed, maintained and cleaned, following Type 2 operation procedures as specified herein. Air monitoring will be conducted in such areas to assess their suitability for re-occupancy. Work shall not re-commence until authorized by the Inspector in writing.
- .6 Clearance Air Testing will be performed by the Inspector inside Type 3 or/and inside Type 2 Work Area enclosures upon completion of final cleaning of each Work Area, visual acceptance by the Inspector and application and drying of a Sealant. Air testing will be conducted in compliance with the requirements of O.Reg. 278/05, to a clearance level of 0.01 fibres/cc. All samples will be analyzed by Phase Contrast Microscopy, NIOSH method 7400. Any additional testing by PCM or TEM shall be at the cost of the contractor. Any additional cleaning as a result of failed tests shall be at the cost of the contractor. The Owner reserves the right to back-charge the cost of such air testing to the contractor.
- .7 Occupational Air Testing may be performed by the Inspector during all phases of asbestos-related work in all Type 3 and Type 2 work activities to verify:
 - .7.1. Personal exposure levels of the Contractor's employees to airborne fibres,
 - .7.2. Suitability of respirators used by the Contractor,
 - .7.3. Adequacy of dust control techniques employed by the Contractor during asbestos-related work.

PART 2 – PRODUCTS

2.1. Materials

- .1 Asbestos Waste Receptors - 6 mil (0.15 mm) minimum thickness, appropriately labelled, sealable polyethylene bags and 6 mil (0.15 mm) minimum thickness sealable clear polyethylene bags for non penetrating waste. Or: 6 mil (0.15 mm) minimum thickness sealable clear polyethylene bags placed in sealable, rigid steel or plastic containers, appropriately labelled, for penetrating waste.
- .2 Bridging Encapsulant - Slow-drying superficial sealant creating a firm semi-flexible coat on the surface of asbestos material providing a superficial protective coating on the surface. Product must have flame spread and smoke development ratings both less than 50. Acceptable products: Borden Polyco, Childers Chill-Bridge CP211, Fosters 32-80, or equivalent.
- .3 Lock-Down Encapsulant (Sealant or Glue) - Slow-drying sealant which remains tacky on surface for a minimum of 8 hours for purpose of trapping residual airborne fibre during settling period. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Acceptable products: Borden Polyco 804, Double Ad TC-55, Childers Chill-Lock CP-240, or equivalent.
- .4 Penetrating Encapsulant - Fast-drying deep penetrating sealant easily entering the microstructure of asbestos material to permanently enhance cohesion of the penetrated material. Product must have flame spread and smoke development ratings both less than 50. Acceptable products: Borden Polyco, Childers Chill-Abate CP-210, or equivalent.
- .5 Polyethylene Sheeting - Fire retardant 6 mil (0.15 mm) minimum thickness as measured on site, in sheet sizes to minimize number of joints.
- .6 Rip-Proof Polyethylene Sheeting - Fire retardant, non-transparent 0.25 mm (10 mil) fabric made up from 0.15 mm (6 mil) weave and 2 layers 0.05 mm (2 mil) poly-laminate of total thickness of 10 mil as measured on site in sheet size to minimise joints.
- .7 Tape - Reinforced duct tape suitable for sealing polyethylene under both wet and dry conditions.
- .8 Wetting Agent - 50% polyoxyethylene ester and 50% polyglycol or polyoxyethylene ether, or equivalent approved product, to be mixed with water to a concentration to provide adequate penetration and wetting of asbestos-containing material. Acceptable products: Childers Chill-Sorb CP-225, or equivalent.

2.2. Equipment

- .1 Airless Pressure Sprayer - Spray equipment for application of Amended Water and Lock-Down Encapsulant. Airless pressure spray unit, such as Grace Hydrospray or approved equal.
- .2 Garden Sprayer - Hand pump type garden sprayer fabricated out of either metal or plastic equipped with a wand at the end of a hose that can deliver a stream or spray of liquid under pressure.
- .3 Glove Bag - Prefabricated, commercially available, 0.20 mm minimum thickness, PVC bag with integral 0.25 mm thick PVC gloves. Bag must be equipped with reversible double-pull double throw zipper on top to facilitate installation on pipe and progressive movement along pipe, with straps for sealing ends of bag around pipe, and with plastic flap under zipper for strength on pipe and to provide effective seal and with "zip-lock" feature. Bag must be acceptable to the Inspector for use.
- .4 HEPA Vacuum - High Efficiency Particulate Aerosol filtered vacuum equipment. Must have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 micrometers or larger. HEPA filters must have been individually tested and certified by the manufacturer. All HEPA Vacuums brought onto the job site shall be visibly clean, shall be in a good state of repair and shall be maintained in such state through completion of the project.
- .5 Negative Air Pressure Filtration Units - HEPA filter/fan units used to create Negative Air Pressure differential in the Work Area.
 - .5.1. Each Negative Air Pressure Unit shall detect a failure (low pressure differential) of the filter element and a low pre-set differential pressure condition to cause an audible alarm to sound.
 - .5.2. Each Negative Air Pressure Unit shall be equipped in HEPA filter which shall be 99.97% minimum efficient for particles greater than or equal to 0.3 micrometers and 100% efficient for particles 0.6 - 0.9 micrometers. The pre-filter shall be designed to trap large particles and protect the HEPA filters. The pre-filter shall be at least 98.0% efficient for 10 micrometer particles and 95.0% efficient for 5 micrometer particles.
 - .5.3. Provide manufacturer's certification that each HEPA filter has been individually tested and certified to have an efficiency of not less than 99.97 percent when challenged with 0.3 um

PART 2 – PRODUCTS

- dioxyphthalate (DOP) particles. Testing shall be in accordance with US Military Standard Number 282 and Army Instruction Manual 136-300-175A. Each filter shall bear a UL 586 label to indicate ability to perform under specified conditions. Each filter shall be marked with: the name of the manufacturer, serial number, air flow rating, and efficiency.
- .5.4. Installation of Negative Air Pressure Filtration Units shall be airtight and all joints shall be sealed. The gasket seal between the filter housing and the retaining frame inside the cabinet shall provide a zero-leakage seal to avoid filter bypassing.
 - .5.5. Perform and pay for an on-site DOP testing for each Negative Air Pressure unit to be used prior to commencement of asbestos removal if required by the Inspector. Each unit not performing to the HEPA requirement shall be removed from operations.
 - .5.6. Each unit not exhausting to the outside of the building shall be DOP tested on-site and certified.
- .6 Pressure Differential Recorder – Electronic pressure differential gauge equipped with automatic recorder allowing to monitor and record air pressure differential between two points. The device must operate in a continuous mode, allow for an instantaneous readout and be able to create a permanent record on a paper strip for archiving. The measured pressure differential range of the unit shall be - 0.02 i.w.g.
 - .7 Ground Fault Panel - Electrical Panel equipped with ground fault circuit breakers of sufficient capacity to power all electrical equipment and lights in Work Area with spare 25% capacity. All breakers shall have 5 mA ground fault protection. Panel should be complete with all necessary accessories including ground fault interrupter lights, test switch and reset switch.

PART 3 – EXECUTION – Type 3 Operation Procedures

3.1. Major Removal of Friable Asbestos-Containing Material – Type 3 Operation Procedures

- .1 Not applicable.

PART 3 – EXECUTION – Type 2 Operation Procedures

3.2. Minor Removal of Friable Asbestos-Containing Material – Type 2 Operation Procedures

- .1 Not applicable.

PART 3 – EXECUTION – Type 1 Operation Procedures

3.3. Removal of Non-Friable Asbestos-Containing Material – Type 1 Operation Procedures**.1 Work Area Preparation**

- .1.1. Isolate air handling and ventilation systems to prevent fibre dispersal to and contamination of other areas of the building. Seal all openings to ventilation system within the Work Area.
- .1.2. Shut off electrical power, de-energize and lock out electrical circuits extending into the Work Area.
- .1.3. Segregate Work Area with caution tapes and barricades, as necessary to prevent unauthorized entry.
- .1.4. Post Asbestos Warning Signs.
- .1.5. Pre-clean floors and all surfaces by non-moveable items by HEPA Vacuuming and wet wiping. Place Polyethylene Sheeting on floors and non-moveable items as drop sheets.
- .1.6. Drop sheets will not be required for the removal of asbestos-containing flooring materials.
- .1.7. Asbestos removal/repair work shall not commence until:
 - .1 Arrangements have been made for disposal of waste.
 - .2 Work Area is effectively separated from Operating Areas.
 - .3 Inspector's approval has been granted.

.2 Worker Protection

Before commencing work instruct workers in use of respirators, protective clothing, entry to and exit from Work Area, washing procedures and other protective measures. Provide workers with personally issued and marked respirators. All negative pressure respirators shall be fitted. Provide workers with full body disposable type coveralls. Provide other personal protection equipment as required under applicable safety regulations. General procedures for each worker shall be as follows:

- .2.1. Each worker shall remove street clothes in vicinity of Work Area or in other designated area (an existing Decontamination Enclosure or other place suitable for this purpose) and put on disposable coveralls and respirator before entering the Work Area. Alternatively, two coveralls shall be worn.
- .2.2. At the work site, in immediate vicinity to the Work Area, a washing facility for the washing of hands and face shall be made available and shall be used by every worker after exiting Work Area. As a minimum a bucket with clean water and soap will be provided at entrance to each Work Area.
- .2.3. Before leaving the asbestos removal Work Area, a worker shall decontaminate the protective clothing, boots, and respirator by using a HEPA Vacuum and damp wiping.
- .2.4. Immediately upon leaving the Work Area worker shall remove the used disposable coveralls and use washing facility.

.3 Asbestos Removal

- .3.1. Thoroughly wet asbestos-containing material with Amended Water using Airless Sprayer.
- .3.2. Remove wetted asbestos material in small sections directly into a Waste Receptors suitable for the material being removed. When removing asbestos-cement panels avoid braking of the material.
- .3.3. Thoroughly clean entire Work Area by HEPA Vacuuming and wet wiping.
- .3.4. Schedule inspection with the Inspector before application of Lock-Down Encapsulant. A "white glove" test will be used as a standard.
- .3.5. After the completion of cleaning and after obtaining an approval from the Inspector spray two coats of a Lock-Down Encapsulant on all surfaces in Work Area. Apply Sealant using airless pressure sprayer.
- .3.6. Allow a minimum of 4-hour period for drying of Lock-Down Encapsulant and settling of airborne asbestos fibres. During this settling period, no entry or activity will be permitted in the Work Area.
- .3.7. The area will be declared clean by the Inspector if it passes visual inspection.
- .3.8. Obtain Inspector's approval for the removing drop sheets and barricades.
- .3.9. After the removal of Work Area Polyethylene Sheeting and all equipment: HEPA Vacuum and wet wipe all surfaces of all building elements and all non-moveable items within and in

PART 3 – EXECUTION – Type 1 Operation Procedures

vicinity of the footprint of the Work Area. All dust and debris, whether asbestos-containing or regular dust shall be removed.

PART 3 – EXECUTION – Glove Bag Removal

3.4. Glove Bag Removal

- .1 Not applicable.

PART 3 – EXECUTION – Waste Disposal

3.5. Waste Disposal

- .1 All waste, debris and all other items such as clothing, coveralls, and filters generated within asbestos removal Work Areas that cannot be cleaned properly for re-use or for disposal as non-asbestos waste shall be removed and disposed of as asbestos waste.
- .2 All drywall waste generated within asbestos removal Work Areas shall be treated and disposed of as asbestos waste.
- .3 Asbestos waste shall be placed in 6 mil (0.15 mm) thick minimum, appropriately labelled polyethylene bag and sealed with Tape. The bag shall than be placed in the second, transparent, 6 mil thick minimum, polyethylene bag, and sealed with Tape. If the waste contains sharp objects likely to puncture polyethylene bag then the bag shall be placed in a rigid impermeable container appropriately labelled and sealed.
- .4 Exterior of Asbestos Waste Receptors shall display warning labels. As a minimum, the labels shall read in 1-3/8" (35 mm) sans serif letters:

CAUTION
CONTAINS ASBESTOS FIBRES
AVOID CREATING DUST AND SPILLAGE
BREATHING ASBESTOS DUST MAY CAUSE
SERIOUS BODILY HARM

Equivalent signs will be accepted.

- .5 The polyethylene disposal bags shall be cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before being removed from Work Area.
- .6 All asbestos waste shall be disposed of in accordance with procedures established by the Ontario Ministry of the Environment Regulation 347 as amended to O.Reg. 461/05 under the "Environmental Protection Act" and the Government of Canada "Transportation of Dangerous Goods (TDG) regulation".
- .7 In inter-provincial transport the vehicle used for the transportation of asbestos waste must display placards as required by the TDG regulation.

For waste containing Crocidolite (Blue Asbestos)	UN2212
For waste containing Amosite (Brown Asbestos)	UN2212
For waste containing Chrysotile, Actinolite, Anthophyllite or Tremolite asbestos	UN2590

- .8 The hauler of asbestos waste must operate under the Ontario Ministry of Environment Certificate of Approval allowing transporting of asbestos waste.
- .9 The asbestos waste shall be transported to and disposed of at a waste site operating under the MOE Certificate of Approval. Operator of the waste site must have agreed to accept the asbestos waste in advance, prior to shipment of the waste.
- .10 The waste must be transported in a fully-enclosed truck or container,
- .11 The driver must be trained in spill clean-up procedures and able to handle minor spills.
- .12 The truck must be equipped with a shovel and broom, wetting agent, protective clothing, respiratory protective equipment, polyethylene bags of at least 6 mil thickness, bag closures, and at least 3 empty fibre drums.
- .13 All waste must be transported directly from the asbestos removal work site to the disposal site.
- .14 Proof of proper disposal of asbestos waste each load of waste leaving the site shall be submitted to the Consultant. As a minimum, copies of the following shall be submitted to the Consultant:
 - .12.1. Waste pick-up receipt,
 - .12.2. Weight receipt.

PART 3 – EXECUTION – Air Monitoring

3.6. Air Monitoring

- .1 Not Applicable.

END OF SECTION

1.1. General Conditions

- .1 The Terms of Reference, Scope of Work, Price Schedule, Time Schedule, Submission Requirements, Instructions to Bidders, General Requirements, General Terms and Conditions, and Attachments, as applicable, as specified elsewhere in the Tender Documents are hereby made a part of these specifications.
- .2 All sections of all Division form part of the Tender Documents and shall be read to determine their impact on the work of this section.

1.2. Scope of Work

Throughout all exterior areas scheduled for renovations, as per architectural drawings:

- .1 Remove all bird droppings, light fixtures and fluorescent light tubes. Extract fluorescent light ballasts for further inspection. Decontaminate all removed items and entire lighting alcoves. Clean thoroughly entire work areas and all removed items. Follow Small Scale (Level 1) operation procedures as per the CCA Construction Document 82/2004 "Mould Guidelines for the Canadian Construction Industry".

Use non-corrosive disinfectant effective on *Histoplasma*. Provide MSDS and MDS for the proposed disinfectant prior to the beginning of work.

Dispose of all removed bird droppings in double 6 mil plastic bags.

Within original building construction, after completion of the removals specified above:

- .2 Attach mounting elements to the surfaces of asbestos-containing stucco as specified in architectural drawings. Follow Type 1 operation procedures as specified in Section 02082 "Asbestos Removal".

DESCRIPTION

The 15" Terrapin LED provides exceptional aesthetics with impressive strength and is available in 20, 30 or 40 watt lumen packages. Polycarbonate lens, clear or opal, combined with four face plates provides a choice of different styles. Choose a photo control or motion sensor for control. Choose an emergency battery pack to provide egress illumination.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Housing

Shallow casting is die-cast aluminum. Backplate constructed of 16 gauge aluminum.

Face Plate Finish

Injection-molded polycarbonate color is matte black standard, matte white painted, or bronze painted. Border paint option is a premium baked-on finish. For custom colors, provide manufacturer paint number, RAL number or color chip.

Surface Conduit Box Finish

Polyester powder-coat paint applied in a five-stage process, 2.0 mil thickness, and baked on at 400° F. Finish is TGIC, textured, thermoset, polyester powder-coat.

Mounting

Surface, ceiling or wall. Interior or exterior.

Gasket

Die-cut closed-cell silicone gasket seals lens to casting. Gasket is secured with adhesive, and locked in place to the back casting. When the casting is not required, the gasket is mechanically attached to the back plate. One gasket seals the fixture.

Lens

One-piece, injection-molded opal or clear polycarbonate, 0.125" thick. Attached with 4 recessed T20 stainless-steel TORX®-head fasteners. **Lens Lifetime Warranty**, see page 3 for details.

Decorative Faces

Faceplate consists of high-impact, injection molded, 0.125" minimum thickness, polycarbonate overlay attached to lens with two recessed T20 stainless steel TORX®-head fasteners. Eyelid offers optimal

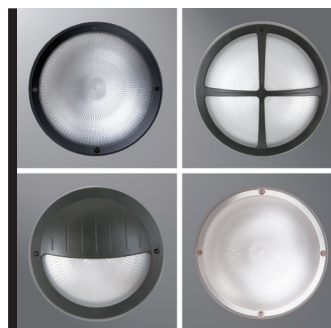
lamp shielding. Open face is lens for continuous radial light pattern. Border face utilizes the standard open lens with paint on the border, eliminating backlit halo effect.

Electrical

LED driver is mounted to the backpan for optimal thermal management. High efficiency LED mounted to circuit board. 70% lumen maintenance at 50,000 hours when operated in an environment as noted on the Maximum Ambient Operating/Option Matrix on the following page.

Labels

UL/cUL listed for wet locations, ceiling or wall mount. IP65 rated. Available to mount on combustible or non-combustible surfaces.



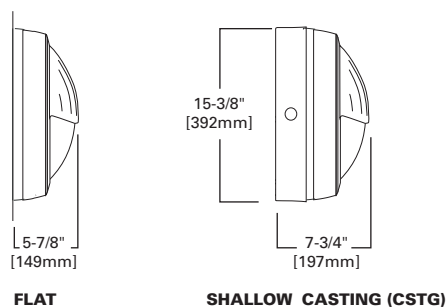
TR 15 LED

LD4 LED

15" Round
Terrapin LED
High Abuse
Polycarbonate

CEILING/WALL

MOUNTING



Delivered Lumens						
Wattage		TRO15	TRB15	TRR15	TRF15	TRE15
20	Clear	2945	2460	2585	2340	1245
	Opal	1595	1070	1125	1020	545
30	Clear	3930	3300	3465	3135	1665
	Opal	2125	1425	1500	1355	725
40	Clear	4875	4060	4265	3860	2045
	Opal	2640	1760	1850	1670	865
		Open	Border	Ring	Four Quadrant	Eyelid

Refer to LM-79 data for exact lumen output, input wattage and distribution.

RATINGS

UL/CUL listed for wet locations
IP65

TORX® is a registered trademark
of Camcar Division of Textron Inc.

ORDERING INFORMATION

SAMPLE NUMBER: 1RF15-LD4-20W-40-OPL-BZ-UNV-EDC1-EL12W/CS1G

T	R	15	LD4		UNV	ED		
Product T=Terrapin LED		Size 15=15"		Lens OPL=Opal CL=Clear		C1 =Single Circuit, Low Voltage Leads not connected D1 =Single Circuit, Low Voltage Dimming Leads connected to driver and presented at supply	Options ² F1 =Fuse(specify voltage) CS1G =Shallow Casting - Same as SCB15, but ships with fixture ^{3,4} PB120/CS1G =Photocell, 120V (Shallow Casting Necessary) ³ PB277V/CS1G =Photocell, 277V (Shallow Casting Necessary) ³ OS =Occupancy Sensor, Internal (behind lens), FM105 ^{7,9} EL12W/CS1G =Emergency Battery Pack, 12W (Shallow Casting Necessary), 30, 40 watt limited to max. 25°C ambient environment ^{3,8}	Accessories (order separately) VRSD =T20 Center-pin tamper-proof TORX®-head screwdriver
Shape R=Round		LD4 =LED 4.0		Color ^{1,6} BK=Black WH=White BZ=Bronze				
Style B=Border Paint ⁵ E=Eyelid ⁵ F=Four Quadrant ⁵ R=Ring ⁵ O=Open ⁶		Wattage ² 20W=20 Watt 30W=30 Watt 40W=40 Watt		Voltage UNV=Universal Voltage				
		Color Temp 35=3500K 40=4000K 50=5000K		Driver ED=Electronic Driver				

Notes:

- Custom colors available. Furnish RAL # or paint manufacturer/model #.
- See table below for wattage construction/options.
- When CS1G, PB120/CS1G, PB277/CS1G, EL12W/CS1G is specified, a color must be specified.
- CS1G has (4) threaded hubs suitable for 1/2" conduit (plugged).
- Color must be specified.
- Open lens/style does not require a color to be specified, unless used with a shallow casting (CS1G, PB120/CS1G, PB277/CS1G, EL12W/CS1G).
- 25C maximum ambient for 40W.
- 30 and 40 watt limited to max. 25°C ambient environment.
- OS only functional with 120V or 277V.

Maximum Ambient Operating/Option Matrix

	20W				30W				40W			
	Flat Mount		Shallow Cast		Flat Mount		Shallow Cast		Flat Mount		Shallow Cast	
	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
No options	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C
Fuse	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C	40C
Photocell	n/a	n/a	40C	40C	n/a	n/a	40C	40C	n/a	n/a	35C	35C
Occ Sensor	40C	40C	40C	40C	25C	25C	25C	25C	25C	25C	25C	25C
Fuse & Photocell	n/a	n/a	40C	40C	n/a	n/a	40C	40C	n/a	n/a	35C	35C
Fuse & Occ Sensor	40C	40C	40C	40C	25C	25C	25C	25C	25C	25C	25C	25C
EM	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C
EM & Fuse	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C
EM & Fuse & Photocell	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C
EM & Fuse & Occ Sensor	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C
EM & Photocell	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C
EM & Occ Sensor	n/a	n/a	40C	40C	n/a	n/a	25C	25C	n/a	n/a	25C	25C

DESIGN GALLERY

**Eyelid**

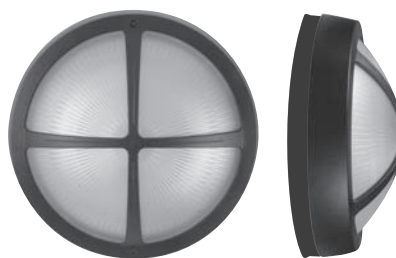
Polycarbonate eyelid/cover attached to lens with tamper resistant screws

**Border (Painted Border)**

Side and edge of lens painted, no front cover

**Ring**

Polycarbonate ring attached to lens with tamper resistant screws

**Four Quadrant**

Polycarbonate cover attached to lens with tamper resistant screws

**Open**

Unpainted lens only. No polycarbonate front cover

Lens Lifetime Warranty

Fail-Safe will repair or provide a replacement lens for any TR15 lens found to be inoperative due to physical abuse for the duration of the installation under normal conditions.

** To make a claim, contact your Cooper Lighting Agent to arrange an RMA (Return Material Authorization) for the claimed product. Upon receipt and verification of the defect, Cooper Lighting will return to you a repaired or, at Cooper Lighting's sole option, replacement fixture.