



To: INVITED BIDDERS

02 December 2025

From: TENDER ADMINISTRATOR

Subject: **UNIVERSITY OF TORONTO
QIS Laboratory & CQIQC Suite
255 Huron Street
Toronto ONTARIO M5S 1A7**

UNIVERSITY PROJECT NUMBER: P078-24-109

Bids have been called for the above project from the following Contractors:

Chandos
DPI Construction Management Inc
Govan Brown
Morosons
MJ Dixon

Call for Bids: 02 December 2025

Site Tour: Mandatory for Invited Contractors.

**09 December 2025 at 11:30 am EST ON SITE AT 11:00 AM
SHARP (EST) in the building's main lobby (255 Huron Street)
as shown on Drawing A0.**

By attending, bidders agree to strictly follow the Project
Manager's instructions regarding site protocol.

If you require an accommodation due to a disability please contact the meeting organizer prior to the meeting date. We will work with you to make appropriate arrangements. Scented products can trigger serious health reactions in people with asthma, migraines, allergies or chemical sensitivities. Please avoid the use of perfume, cologne, scented hairspray, and other scented products. The University of Toronto is a Smoke-Free workplace.

Bid Closing: 19 January 2026 at 02:00:00 PM (EST). Late Bids will not be accepted.



All queries and requests for information during the bidding process should be directed to the Tender Administrator through Biddingo's question and answer function.

Bid security in the form of a digital Bid Bond and equal to 10% of the Bid Price is required.

FOR BID SUBMISSIONS OVER \$500,000, the following must also be included:

A digital agreement to Bond for 50% Performance Bond and
50% Labour and Material Bond

Availability of Tender Documents:

The Tender Documents shall only be available to Bidders for viewing, downloading, and (if desired) printing, as electronic documents through Biddingo.

To ensure receipt of the latest information and updates regarding this Tender, or if a prospective Bidder has obtained this solicitation document from a third party, all Bidders must create and register as a plan take for the opportunity at Biddingo.com. As a registered plan taker, the Bidder will be able to view and download the Tender Documents, to receive Addenda, email notifications, and to submit their Bid electronically through Biddingo.

It is the Bidder's responsibility to access, download, and become familiar with all applicable Tender Documents.

Users must be in compliance with the following criterion:

1. they have subscribed to Biddingo.com
2. they are listed by the University of Toronto (U of T) as a pre-qualified Contractor.

If Bidders encounter any issues with Biddingo, including subscription, logon and procedural issues or questions, Bidders should contact Biddingo Customer Service at:

Telephone: (416) 756-0955
E-mail: info@biddingo.com

For all questions regarding the University of Toronto tender process, please contact the University of Toronto's Tender Administrator through Biddingo's question and answer function.

UNIVERSITY OF TORONTO

TENDER DOCUMENTS FOR:
QIS Laboratory & CQIQC Suite
255 Huron Street
Toronto, ONTARIO M5S 1A7

UNIVERSITY PROJECT NUMBER:
P078-24-109

DATE ISSUED:
02 December 2025

MANDATORY SITE VISIT:
09 December 2025 at 11:30 am EST

11:30:00 AM SHARP (EST)

SUBMISSION CLOSING DATE:
19 January 2026,
2:00:00 PM (EST)

TABLE OF CONTENTS

LIST OF CONSULTANTS: SECTION 00 01 05	11
1.0 LIST OF CONSULTANTS.....	11
LIST OF DRAWINGS: SECTION 00 01 15	12
1.0 THE DRAWINGS.....	12
INSTRUCTIONS TO BIDDERS: SECTION 00 21 13	13
1.0 DEFINITIONS	13
2.0 BID CONTRACT.....	13
3.0 TENDER DOCUMENTS.....	14
4.0 AVAILABILITY OF TENDER DOCUMENTS.....	14
5.0 TENDER AND PROJECT SCHEDULE	15
6.0 COMMUNICATIONS AFTER THE ISSUANCE OF THE TENDER	15
7.0 EXAMINATION OF THE PLACE OF THE WORK (SITE).....	16
8.0 FILLING OUT THE BID FORM	17
9.0 CONSTRUCTION PERSONNEL INFORMATION.....	17
10.0 PREQUALIFIED ASBESTOS ABATEMENT SUBCONTRACTORS	18
11.0 PREQUALIFIED ROOFING SUBCONTRACTORS	18
12.0 PROCUREMENT FORM SUPPLEMENTS.....	18
13.0 BID SECURITY (Bid Bond).....	19
14.0 AGREEMENT TO PROVIDE PERFORMANCE BOND (Contract Bond).....	19
15.0 AGREEMENT TO PROVIDE LABOUR AND MATERIAL BOND (Contract Bond)	20
16.0 TAXES	20
17.0 DELIVERY OF BID FORM AND SUBMISSION DEADLINE.....	20
18.0 BID WITHDRAWAL AND AMENDMENT	21
19.0 IRREVOCABILITY PERIOD	21
20.0 COMPLIANCE WITH THE BID CONTRACT	21
21.0 EVALUATION OF BIDS AND ACCEPTANCE OF A BID.....	22
22.0 CLARIFICATION AND SUPPLEMENTAL INFORMATION	24
23.0 ADDENDA	24
24.0 BASE BID AND SUBSTITUTIONS	24
25.0 GENERAL LABOUR CONDITIONS	25
26.0 CONTRACT TIME	25
27.0 PERMITS.....	25
28.0 ACCESS TO THE PLACE OF THE WORK.....	25
29.0 BIDDERS TO FOLLOW INSTRUCTIONS.....	25
30.0 BIDS IN ENGLISH	25
31.0 NO INCORPORATION BY REFERENCE	25
32.0 INFORMATION IN TENDER IS FOR GUIDANCE ONLY	25
33.0 DISQUALIFICATION FOR CONFLICT OF INTEREST	26
34.0 DISQUALIFICATION FOR PROHIBITED CONDUCT	26
35.0 NO COMMUNICATIONS WITH THE MEDIA	26
36.0 NO LOBBYING	26
37.0 ILLEGAL OR UNETHICAL CONDUCT.....	27
38.0 PAST PERFORMANCE OR PAST CONDUCT	27
39.0 BIDDERS TO BEAR THEIR OWN COSTS	27
40.0 UNBALANCED BIDS.....	27
41.0 RESERVED RIGHTS OF THE OWNER.....	28

42.0	NO LIABILITY AND INDEMNIFICATION	28
43.0	BID PROTEST PROCEDURE	29
44.0	DISPUTES	29
45.0	BIDDER DEBRIEFING	29
46.0	CONFIDENTIALITY	30
47.0	GOVERNING LAW	30
AVAILABLE PROJECT INFORMATION: SECTION 00 31 00		31
48.0	GEOTECHNICAL INVESTIGATION REPORT	31
49.0	DESIGNATED AND HAZARDOUS SUBSTANCES INVESTIGATION REPORT	31
50.0	EXISTING BUILDING DRAWINGS	31
BID FORM: SECTION 00 41 13 – Bound Under Separate Cover		33
PROCUREMENT FORM SUPPLEMENTS: SECTION 00 43 00		34
51.0	ITEMIZED PRICES	34
52.0	UNIT PRICES	34
53.0	SUBCONTRACTORS AND SUPPLIERS	34
WARRANTY FORM (SAMPLE FORMAT): SECTION 00 65 36		36
54.0	PROJECT DESCRIPTION	36
55.0	WARRANTY INFORMATION	36
56.0	DEFINITION	36
57.0	WARRANTY	36
58.0	WARRANTY PERIOD	36
REVISIONS - LIST OF ADDENDA (SAMPLE FORMAT): SECTION 00 91 00		37
59.0	GENERAL	37
60.0	LIST OF ADDENDA	37
ADDENDUM NO.00 (SAMPLE FORMAT): SECTION 00 91 XX		38
61.0	GENERAL INSTRUCTIONS	38
62.0	DIVISION 00, DIVISION 01 DOCUMENTS	38
63.0	ADDENDUM SUMMARY	38
64.0	SPECIFICATION CHANGES	38
65.0	DRAWING CHANGES	38
66.0	BIDDER'S QUESTIONS	39
SUMMARY: SECTION 01 10 00		40
1.0	GENERAL	40
2.0	CONTRACT DOCUMENTS	40
3.0	GENERAL CONDITIONS	40
4.0	SPECIFICATIONS	40
5.0	DIVISION 1 - GENERAL REQUIREMENTS	42
6.0	DRAWINGS	42
7.0	DISCREPANCIES/CONFLICTS/OMISSIONS	42
8.0	DESCRIPTION OF THE WORK	42
9.0	PERFORMANCE OF THE WORK	43
10.0	EXISTING CONDITIONS SURVEY AND DOCUMENTATION	43
11.0	SEQUENCING, PLANNING, SCHEDULING AND COORDINATION OF CONSTRUCTION	44
12.0	COMPLETION DEADLINES	44
13.0	INTERRUPTIONS IN THE WORK	44
14.0	INCLEMENT WEATHER AND COLD WEATHER WORK	44
15.0	CONSTRUCTION PHASING	45
16.0	WORK PERFORMED UNDER SEPARATE CONTRACTS	45
17.0	PRE-TENDERED WORK AND ASSIGNMENT	45

18.0	PRE-ORDERED EQUIPMENT AND ASSIGNMENT	46
19.0	WORK BY OWNER	46
20.0	TEMPORARY SHUT DOWNS OF CONSTRUCTION OPERATIONS.....	46
21.0	FAIR WAGES	47
22.0	EXPANSION AND CONTRACTION	47
23.0	COINS, FOSSILS, ARTIFACTS, TREASURE AND OTHER HISTORIC ARTICLES	47
24.0	SITE SIGNAGE	47
25.0	PREMIUM TIME	47
MISCELLANEOUS GENERAL WORK: SECTION 01 11 00		49
1.0	DESCRIPTION OF MISCELLANEOUS GENERAL WORK	49
2.0	GENERAL	49
3.0	DUST FREE ENVIRONMENT	49
4.0	ALTERATIONS, CUTTING, PATCHING AND MAKING GOOD	49
5.0	SELF-LEVELING TOPPING	53
6.0	REMOVAL OF EXISTING FLOORING	54
7.0	REMOVAL OF EXISTING CEILING TILES	54
8.0	REPAIR TO EXISTING WORK	54
9.0	REPAIR TO EXISTING ROOFING	55
10.0	RELOCATED COMPONENTS	56
11.0	ASBESTOS REMOVAL	56
12.0	ASBESTOS REMOVAL	Error! Bookmark not defined.
PRICE AND PAYMENT PROCEDURES: SECTION 01 20 00		57
1.0	GENERAL INSTRUCTIONS	57
2.0	CASH ALLOWANCES	57
3.0	PRICES	57
4.0	APPLICATIONS FOR PROGRESS PAYMENT, RELEASE OF HOLDBACK, and FINAL PAYMENT	60
5.0	CONTRACT MODIFICATION PROCEDURES	61
CASH ALLOWANCES: SECTION 01 21 13		63
1.0	GENERAL	63
2.0	EXPENDITURE	63
3.0	TAXES, OVERHEAD & PROFITS	63
ADMINISTRATIVE REQUIREMENTS: SECTION 01 30 00		64
1.0	GENERAL INSTRUCTIONS	64
2.0	RELATED WORK SPECIFIED ELSEWHERE	64
3.0	START-UP BRIEFING MEETING	64
4.0	PROJECT (SITE) MEETINGS	64
5.0	PRE-INSTALLATION MEETINGS (CONFERENCES)	64
6.0	ADMINISTRATIVE PROCEDURES	65
7.0	SHOP DRAWINGS	66
8.0	SAMPLES	68
9.0	MOCKUPS AND QUALITY CONTROL PANELS	69
10.0	PROJECT RECORD DOCUMENTS	69
11.0	PROGRESS PHOTOGRAPHS	69
12.0	PROGRESS AND SUBMITTALS SCHEDULES	69
13.0	PROGRESS AND DAILY REPORTS	70
14.0	INSPECTION AND TEST REPORTS	70
15.0	WARRANTIES	70
16.0	CERTIFICATES AND TRANSCRIPTS	71
17.0	WASTE MANAGEMENT	71
SPECIAL PROJECT PROCEDURES: SECTION 01 35 13		72

1.0	GENERAL.....	72
2.0	RULES AND REGULATIONS FOR CONSTRUCTION PERSONNEL	72
3.0	RESTRICTIONS	74
4.0	OCCUPANCY OF THE EXISTING BUILDING(S)	74
5.0	CONTRACTOR'S USE OF THE EXISTING BUILDING(S).....	75
6.0	SERVICES IN THE EXISTING BUILDING(S).....	76
7.0	REMOVAL AND SALVAGE OF EXISTING MATERIALS, PRODUCTS, FURNISHINGS AND FURNITURE	76
8.0	EXISTING AREAS AND WORK OF OTHER CONTRACTORS	77
9.0	SECURITY REGULATIONS	78
10.0	USE OF FLAME AND VOLATILE SUBSTANCES.....	78
11.0	EQUIPMENT TO BE REMOVED.....	79
12.0	MECHANICAL AND ELECTRICAL PROCEDURES	79
13.0	ASBESTOS PROCEDURES	80
14.0	FUNGI (MOULD) REMEDIATION PROCEDURES	81
15.0	MAGNETIC FIELD/RADIO FREQUENCY (RF) FIELD SPECIAL SAFETY WARNINGS AND PRECAUTIONS.....	82
16.0	TEMPORARY WAY FINDING AND WARNING SIGNAGE	82
QUALITY REQUIREMENTS: SECTION 01 40 00		84
1.0	GENERAL.....	84
2.0	REGULATORY REQUIREMENTS	84
3.0	STANDARDS.....	84
4.0	QUALITY CONTROL PROCEDURES AND METHODS	85
5.0	QUALITY ASSURANCE	85
6.0	INSPECTION AND TESTING.....	86
7.0	INSPECTION BY AUTHORITY HAVING JURISDICTION.....	86
8.0	SAMPLES, MOCK-UPS AND QUALITY CONTROL PANELS	87
9.0	QUALITY CONTROL REFERENCE ROOM AND AREAS	87
10.0	WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS).....	87
11.0	ENVIRONMENTAL PRACTICES	87
12.0	WASTE MANAGEMENT	88
13.0	BUILDING THERMOGRAPHIC SCAN	88
INSPECTION AND TESTING SERVICE REQUIREMENTS: SECTION 01 45 23.....		89
1.0	GENERAL INSTRUCTIONS	89
2.0	SCOPE OF WORK	89
3.0	STANDARDS AND SPECIFICATIONS	89
4.0	COST OF INSPECTIONS AND TESTING.....	89
5.0	RESPONSIBILITIES	89
6.0	EARTHWORKS	91
7.0	CAISSONS	91
8.0	PRESTRESSED ROCK ANCHORS	91
9.0	ASPHALT PAVING	91
10.0	CAST-IN-PLACE CONCRETE AND REINFORCEMENT	91
11.0	PRECAST CONCRETE STAIRS	91
12.0	MASONRY GROUT	91
13.0	MASONRY MORTAR	91
14.0	CONCRETE BLOCK	91
15.0	CLAY BRICK	91
16.0	STRUCTURAL STEEL AND STEEL DECKING	92
17.0	LOAD BEARING STEEL STUD FRAMING	92
18.0	WATERPROOFING MEMBRANE	92
19.0	AIR BARRIER MEMBRANE	92
20.0	WATER REPELLENT COATING.....	92
21.0	VEHICLE TRAFFIC COATINGS.....	92

22.0	PEDESTRIAN TRAFFIC COATINGS	92
23.0	ROOFING	92
24.0	SPRAYED FIREPROOFING	93
25.0	FIRE STOPPING AND SMOKE SEALS	93
26.0	ALUMINUM CURTAIN WALL	93
27.0	FIRE PROTECTION SYSTEMS	94
28.0	ELEVATORS	94
29.0	PLUMBING	94
30.0	HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)	94
31.0	INTEGRATED AUTOMATION	94
32.0	ELECTRICAL	94
TEMPORARY FACILITIES AND CONTROLS: SECTION 01 50 00		95
1.0	GENERAL INSTRUCTIONS	95
2.0	ACCESS TO THE WORK	95
3.0	CONSTRUCTION SAFETY	95
4.0	PROTECTION	96
5.0	EMERGENCY EXITS AND FIRE ROUTES	97
6.0	ACCESSIBILITY FOR DISABLED	97
7.0	FIELD OFFICE AND STORAGE SHEDS	97
8.0	RESTRICTIONS	98
9.0	SECURITY REGULATIONS	98
10.0	HOURS OF WORK	98
11.0	USE OF FLAME AND VOLATILE SUBSTANCES	98
12.0	PARKING	98
13.0	USE OF ELEVATORS	99
14.0	WASTE CONTAINERS AND BINS	99
15.0	DESIGN AND SAFETY REQUIREMENTS FOR TEMPORARY FACILITIES	100
16.0	TEMPORARY SANITARY FACILITIES	100
17.0	TEMPORARY WATER	100
18.0	TEMPORARY HEATING	100
19.0	TEMPORARY POWER AND LIGHTING	101
20.0	TEMPORARY FIRST-AID FACILITIES	101
21.0	TEMPORARY VENTILATION	101
22.0	TEMPORARY FIRE PROTECTION	102
23.0	TEMPORARY USE OF NEW PERMANENT SERVICE AND EQUIPMENT	102
24.0	EXTERIOR TEMPORARY HOARDINGS, GATES, WALKWAYS AND RAMPS	102
25.0	TEMPORARY DUST TIGHT PARTITIONS AND SCREENS	103
26.0	TEMPORARY PROTECTION OF EXISTING PLANTING	104
27.0	TEMPORARY SIGNS	104
28.0	WEATHER PROTECTION	104
29.0	DRAINAGE	105
30.0	CONSTRUCTION MACHINERY AND EQUIPMENT	105
31.0	PROJECT SIGN	105
32.0	DUST, NOISE AND VIBRATION CONTROLS	105
33.0	PEST CONTROL	106
34.0	STORM AND SANITARY SEWERS, ELECTRICAL POWER LINES, STREET CAR POWER LINES, TELEPHONE LINES, TRAFFIC LIGHT STANDARDS, BUS SHELTERS AND NEWSPAPER BOXES	106
35.0	ROADS AND TRAFFIC CONTROL	107
36.0	CLEANING	107
37.0	CLEAN UP	107
PRODUCT REQUIREMENTS: SECTION 01 60 00		108
1.0	GENERAL INSTRUCTIONS	108

2.0	LABOUR AND PRODUCTS	108
3.0	SUBSTITUTIONS	108
4.0	DELIVERY, HANDLING AND STORAGE OF PRODUCTS	108
5.0	FASTENERS, ANCHORS, BRACES AND SUPPORTS	109
6.0	CONDUIT, PIPE AND SLEEVES IN CONCRETE	109
EXECUTION REQUIREMENTS: SECTION 01 70 00		111
1.0	GENERAL INSTRUCTIONS	111
2.0	EXAMINATION	111
3.0	SURVEYING	112
4.0	SETTING OUT	113
5.0	SOD TURNING CEREMONY	113
6.0	ADVERTISING	113
7.0	ADJACENT PROPERTY AND BUILDINGS	113
8.0	COOPERATION, COORDINATION AND LAYOUT	113
9.0	LOAD BEARING STRUCTURE	115
10.0	PROTECTION OF THE WORK, PROPERTY AND PERSONS	115
11.0	RELOCATION OF DOORS AND PARTITIONS	117
12.0	MECHANICAL AND ELECTRICAL REQUIREMENTS AT SOUND ATTENUATING PARTITIONS	117
13.0	COMPLETION OF INSTALLATION	117
14.0	OPERATION AND MAINTENANCE START UP	117
15.0	CLEAN- UP DURING CONSTRUCTION	117
16.0	FINAL CLEANING	118
17.0	TAKE OVER PROCEDURES	120
18.0	WARRANTY INSPECTION	122
PROJECT RECORD DOCUMENTS: SECTION 01 78 39		123
1.0	GENERAL INSTRUCTIONS	123
2.0	WORK INCLUDED	123
3.0	RELATED WORK SPECIFIED ELSEWHERE	123
4.0	SUBMITTALS	124
5.0	RECORD DRAWINGS	124
6.0	RECORD SPECIFICATIONS	126
7.0	RECORD PRODUCT DATA	127
8.0	MISCELLANEOUS RECORD SUBMITTALS	127
9.0	RECORDING AND MAINTENANCE	127
10.0	SAMPLE ELECTRONIC DATA TRANSFER AGREEMENT	129
GENERAL COMMISSIONING REQUIREMENTS: SECTION 01 91 13		131
1.0	PART 1 - GENERAL	131
2.0	PART 2 - PRODUCTS	140
3.0	PART 3 - EXECUTION	140
FACILITY OPERATION: SECTION 01 92 00		147
1.0	GENERAL INSTRUCTIONS	147
2.0	RELATED WORK SPECIFIED ELSEWHERE	147
3.0	RECORD DOCUMENTS	147
4.0	OPERATION AND MAINTENANCE MANUAL – EQUIPMENT AND SYSTEMS	147
5.0	OPERATION AND MAINTENANCE MANUAL – PRODUCTS AND FINISHES	149
6.0	WARRANTIES	150
APPENDIX A-UNIVERSITY OF TORONTO AODA TRAINING		152
VOLUNTEERS & OTHER SERVICE PROVIDERS		152
SCHEDULE 1 --- CCDC2 2020 SUPPLEMENTARY CONDITIONS		

(Bound under separate cover)

DESIGN DRAWINGS AND SPECIFICATIONS (Bound under separate cover)

DESIGNATED SUBSTANCES SURVEY REPORT (Bound under separate cover)

SUPPLEMENTAL REPORTS (to be issued by Addendum)

LIST OF CONSULTANTS: SECTION 00 01 05**1.0 LIST OF CONSULTANTS**

The Consultants who have prepared drawings (the “Drawings”) and/or specifications (the “Specifications”) and reports for the Work of the Contract are listed below. The Bidders shall not communicate with or contact the Consultants regarding this Tender.

1.1 ARCHITECT:

MCCALLUMSATHER

1.2 MECHANICAL ENGINEER:

MCCALLUMSATHER

1.3 ELECTRICAL; IT, AV, & SECURITY ENGINEER:

MULVEY & BANANI (MBII)

1.4 STRUCTURAL ENGINEER:

THORNTON TOMASETTI

1.5 COST CONSULTANT:

VERMEULENS

1.6 ACOUSTIC CONSULTANT

THORNTON TOMASETTI

END OF SECTION 00 01 05

LIST OF DRAWINGS: SECTION 00 01 15

1.0 THE DRAWINGS

The Drawings forming part of the Contract Documents for
P078-24-109 QIS Laboratory & CQIQC Suite
255 Huron Street, Toronto, Ontario are those listed on

Architectural Drawing No. A000 dated 27 NOV 2025.

END OF SECTION 00 01 15

INSTRUCTIONS TO BIDDERS: SECTION 00 21 13**1.0 DEFINITIONS**

- 1.1 For the purposes of this Section 00 21 13, Instructions to Bidders, all capitalized terms shall have the meaning given to them in the Contract, unless otherwise defined herein:
- 1.2 **"Addenda"** or **"Addendum"** means a written change, addition, alteration, correction or revision to the Tender Documents issued by the Owner.
- 1.3 **"Bid"** means the response of a Bidder to this Tender.
- 1.4 **"Bidder"** means any individual, sole proprietorship, joint venture, partnership or corporation which is invited to and participates in this Tender by submitting a Bid.
- 1.5 **"Bid Bond"** has the meaning given under section 13.1.
- 1.6 **"Bid Form"** means the form provided at Section 00 41 13.
- 1.7 **"Conflict of Interest"** means a situation in which financial or other personal considerations have the potential to compromise or bias professional judgment and objectivity. An apparent conflict of interest is one in which a reasonable person would think that the professional's judgment is likely to be compromised.
- 1.8 **"Contract"** means the Canadian Construction Documents Committee, Standard Construction Document CCDC2, 2020 Stipulated Price Contract and Section 00 73 00, Amendments to CCDC 2 2020 Supplementary Conditions, including all schedules and appendices thereto.
- 1.9 **"Deadline for Questions"** means the deadline for the submission of questions by Bidders as stipulated in the Tender Schedule under Section 5.1.
- 1.10 **"Deadline for Issuing Addenda"** means the deadline for the Owner to issue Addenda under this Tender as stipulated in the Tender Schedule under Section 5.1.
- 1.11 **"Irrevocability Period"** has the meaning given under Section 19.1.
- 1.12 **"Procurement Form Supplements"** means the form provided at Section 00 43 00.
- 1.13 **"OHSA"** has the meaning given under Section 7.7.
- 1.14 **"Owner"** refers to The Governing Council of the University of Toronto.
- 1.15 **"Submission Deadline"** means the deadline for submission of Bids stipulated in the Tender Schedule under Section 5.1.
- 1.16 **"Tender"** means this tender call for **[QIS Laboratory & CQIQC Suite & P078-24-109]** issued on **02 December 2025**.
- 1.17 **"Tender Documents"** has the meaning given under Section 3.1.

2.0 BID CONTRACT

- 2.1 The Owner is soliciting bids from qualified general contractors to carry out the project at 255 Huron St., Toronto. Each Bidder acknowledges that, by submitting a compliant Bid:

- 2.1.1 the Bidder has accepted an offer by the Owner to enter into a “bid contract” for the evaluation of Bids and the award of the Contract, if an award is made; and
- 2.1.2 the terms of the “bid contract” are represented by the Tender Documents described in Section 3.1.

3.0 TENDER DOCUMENTS

- 3.1 The following documents and Sections shall form the basis of this Tender and shall be examined by the Bidders (“**Tender Documents**”):
 - 1. Introductory Information inclusive of Section 00 01 05
 - 2. Drawings as indicated on Section 00 01 15
 - 3. Section 00 21 13, Instructions to Bidders
 - 4. Section 00 31 00, Available Project Information
 - 5. Section 00 41 13, Bid Form
 - 6. Section 00 43 00, Procurement Form Supplements (when requested)
 - 7. Section 00 65 36, Reference Warranty Form
 - 8. Section 00 73 00, Amendments to CCDC 2 2020 Supplementary Conditions Revision, including all appendices and schedules attached thereto.
 - 9. Section 00 91 00 Revisions - List of Addenda as issued prior to the Submission Deadline
 - 10. Section 00 91 XX Individual series of Addenda as issued prior to the Submission Deadline
 - 11. Specification Sections of Division 01 to 48 inclusive
 - 12. Canadian Construction Documents Committee, Standard Construction Document CCDC2, CCDC 2 2020 Stipulated Price Contract (Not Bound in The Specification).
- 3.2 Bidders must carefully examine the Tender Documents and any other information available to Bidders thoroughly to ensure that the Bidder has no reason to believe that there are uncertainties, errors, omissions, discrepancies, or ambiguities in the Tender Documents. Bidders shall notify the Tender Administrator of any uncertainties, errors, ambiguities, discrepancies, or omissions in the Tender Documents, in accordance with Section 5.0. If a Bidder has any doubt as to the meaning or intent of any part, or if a Bidder notices any departures from by-laws, codes or good practice, the Bidder shall be responsible for notifying the Tender Administrator. Each Bidder is solely responsible for conducting its own investigations and due diligence in preparing its Bid, and to raise questions or seek clarifications in accordance with Section 5.0, including any questions or clarifications from the Bidders’ anticipated Subcontractors.

4.0 AVAILABILITY OF TENDER DOCUMENTS

- 4.1 The Tender Documents shall only be available to Bidders for viewing, downloading, and (if desired) printing, as electronic documents through Biddingo.

To ensure receipt of the latest information and updates regarding this Tender, or if a prospective Bidder has obtained this solicitation document from a third party, all Bidders must create and register as a plan taker for the opportunity at Biddingo.com. As a registered plan taker, the Bidder will be able to view and download the Tender Documents, to receive Addenda, email notifications, and to submit their Bid electronically through Biddingo.

It is the Bidder’s responsibility to access, download, and become familiar with all applicable Tender Documents and the Biddingo platform.

Users must be in compliance with the following criteria:

- 1. they have subscribed to Biddingo.com

2. they are listed by the University of Toronto (U of T) as a pre-qualified Contractor

If Bidders encounter any issues or have questions in respect of Biddingo, including registration and subscribing, logging in, connectivity, or any other technical or procedural issues, Bidders should contact Biddingo Customer Service at:

Telephone: (416) 756-0955

E-mail: info@biddingo.com

5.0 TENDER AND PROJECT SCHEDULE

- 5.1 The Tender and Project processes are expected to take place according to the following schedule:

<u>Issue Tender</u>	02 December 2025
<u>Mandatory Site Visit</u>	09 December 2025 at 11:30 am EST
<u>Deadline for Questions</u>	7 January 2026 at 2:00 pm EST
<u>Deadline for responses to questions</u>	09 January 2025
<u>Deadline for Issuing Addenda</u>	13 January 2025
<u>Submission Deadline</u>	19 January 2026
<u>Award</u>	26 January 2025
<u>Occupancy</u>	21 August 2026
<u>Substantial Performance of the Work</u>	18 September 2026
<u>Ready-for-Takeover</u>	25 September 2026

The Tender process schedule is tentative only and may be changed by the Owner at any time, including without limitation after the Deadline for Issuing Addenda. If amended after the Deadline for Issuing Addenda, the Owner shall extend the Submission Deadline for a reasonable amount of time to be determined by the Owner in its sole discretion. The date for Substantial Performance of the Work is fixed. All times shall be local (EST).

6.0 COMMUNICATIONS AFTER THE ISSUANCE OF THE TENDER

- 6.1 Bidders and their representatives are not permitted to contact any employees, officers, agents, elected or appointed officials, or other representatives of the Owner, other than the Tender Administrator, concerning matters regarding this Tender. Failure to adhere to this rule may, in the Owner's sole discretion, result in the disqualification of the Bidder and the rejection of the Bidder's Bid.
- 6.2 Bidders should promptly examine all the electronic files and documents, comprising this Tender, including all Tender Documents, and may direct questions or seek additional information from the Tender Administrator via Biddingo's question and answer function on or before the Deadline for Questions. All questions or comments submitted by Bidders through Biddingo's question and answer function shall be deemed to be received once the question has been entered into Biddingo. An on-screen confirmation message may appear in Biddingo once the question has been received. If a system-generated confirmation is not received by the Bidder confirming that its question(s) have been received by Biddingo, the Bidder should contact Biddingo directly via telephone at (416) 756-0955, or email to info@biddingo.com.
- 6.3 All questions received through Biddingo will be reviewed and, if the Owner believes, in its sole discretion, that a response is warranted, the Owner will include the question and the answer in an Addendum in accordance with Section 23.0.

- 6.4 If the Owner elects to respond to a question, in setting out the question and providing a response, the Owner may answer similar questions from different Bidders only once, may edit the questions for clarity, and may ignore some or all of a questions which, in the Owner's sole discretion, are obscure, ambiguous, or unclear. Responses to questions submitted through Biddingo will be available to Bidders through an Addenda posted to Biddingo no less than 48 hours (excluding weekends and holidays) before the Submission Deadline.
- 6.5 The Owner will not respond to questions submitted after the Deadline for Questions.
- 6.6 Unless this Tender provides otherwise, no communications are to be directed to anyone at the Owner (except the Tender Administrator) or by any other means than submission through Biddingo. The Owner shall not be responsible for any information provided directly to Bidders by Biddingo.
- 6.7 The Owner is not responsible or liable for any misunderstanding by a Bidder regardless of the source of such misunderstanding.

7.0 EXAMINATION OF THE PLACE OF THE WORK (SITE)

- 7.1 Each Bidder is solely responsible, at its own cost and expense, to carry out its own independent research and due diligence or to perform any other investigations considered necessary by the Bidder to satisfy itself as to all existing conditions, circumstances and limitations effecting the Work, including the existence and/or locations of utilities and underground services. The Bidder's obligations described in this paragraph apply irrespective of any reports, data or other information contained in the Tender Documents. A mandatory site visit for invited Bidders will be held **on 09 December 2025 at 11:30 am EST at 11:00 AM SHARP (EST)**.
- 7.2 **Invited Bidders should meet in the building's main lobby at 255 Huron Street, as shown on Drawing 1/A000. Please confirm your intent to attend the mandatory site visit via email to the Tender Administrator using the Subject Heading – " P078-24-109 QIS Laboratory & CQIQC Suite – Mandatory Site Visit" to the Tender Administrator, (capprojsuppliers@utoronto.ca) before 12:00 pm on 05 December 2025, PPE not required.**
- 7.3 If a Bidder requires an accommodation due to a disability please contact the Tender Administrator prior to the meeting date. The Tender Administrator will work with the Bidder to make appropriate arrangements. Scented products can trigger serious health reactions in people with asthma, migraines, allergies or chemical sensitivities. We ask that all Bidders attending the mandatory site visit to please avoid the use of perfume, cologne, scented hairspray, and other scented products. The University of Toronto is a Smoke-Free workplace.
- 7.4 Bidders are invited to bring their subcontractors to accompany them at the mandatory site meeting.
- 7.5 The term "designated substances" has the meaning given it in the Occupational Health and Safety Act (Ontario) ("**OHSA** "). A list of designated substances, present at the Place of the Work, will be provided to Bidders by the Owner and/or the Consultant. In the event that Asbestos Containing Material (ACM) is included in the list, the Owner and/or the Consultant will also provide a report indicating the condition and location of any ACM that may be present at the Place of the Work. Unless the Work of the Contract is intended to handle or handle and remove ACM, in carrying out the Work under the Contract, Bidders shall ensure they do not handle, deal with, disturb or remove any designated substance identified in the list or indicated in the report respecting any ACM. Should a Bidder determine, prior to the Submission Deadline, that the Work cannot be completed without handling, dealing with, disturbing or removing any designated substance identified in either the list or the report, it shall immediately notify the Owner and the Consultant in writing so that, if necessary, instructions and/or clarifications may be issued in the form of an Addendum to all Bidders.

8.0 FILLING OUT THE BID FORM

- 8.1 Bidders shall fill out the Bid Form and upload it, for submission, to the Owner via Biddingo. Use the Bid Form supplied. Give all information requested. If in doubt as to how to complete any section of it, contact the Tender Administrator in accordance with Section 5.0.
- 8.2 Bidders shall provide the names of the Subcontractors and Suppliers that the Bidder shall employ for parts of the Work as listed in the Bid Form. Subcontractors and Suppliers named are subject to acceptance by the Owner. The successful Bidder may not change or substitute the named Subcontractors and Suppliers without the Owner's written consent. Failure to list Subcontractors and Suppliers where required, or the listing of more than one Subcontractor to perform an item of Work listed may result in the Bid being declared incomplete pursuant to Section 20.3. Where a Bidder lists "own forces" in place of the Subcontractors and Suppliers, the Bidder shall carry out such item of the Work with its own forces. Where "own forces" have been listed by a Bidder, the Owner reserves the right to obtain information from the Bidder and from third parties respecting the qualifications and experience of the Bidder's "own forces" for such item of the Work. If the Owner, acting reasonably, determines that the Bidder's "own forces" are not sufficiently qualified or sufficiently experienced to undertake such item of the Work, the Owner may reject the Bid.
- 8.3 Bidders shall fill in the Alternate Prices, Separate Prices, Mechanical Prices, Electrical Prices, and any other requested rate or pricing information and personnel information as listed in the Bid Form. All rates and prices are subject to acceptance by the Owner. Failure to submit any of the requested information in the Bid Form may result in the Bid being ruled incomplete pursuant to 21.3.
- 8.4 Bidders **shall** sign the Bid Form electronically as follows:
- 8.4.1 If the Bidder is a sole proprietorship, then the sole proprietor shall digitally sign the Bid Form in the place provided, in the presence of a witness, who shall also sign the Bid Form in the place provided. The Bidder shall insert the words "Sole Proprietor" on the Bid Form under the signature.
- 8.4.2 If the Bidder is a partnership, then one (1) of the partner shall digitally sign the Bid Form in the place provided, in the presence of a witness, who shall also sign the Bid Form in the place provided. The Bidder shall insert the words "Partner" on the Bid Form under the signature.
- 8.4.3 If the Bidder is a corporation, then an authorized signatory shall digitally sign the Bid Form in the place provided, in the presence of a witness, who shall also sign the Bid Form in the place provided. The Bidder shall insert the title or position of the duly authorized signatory on the Bid Form in the place provided.
- 8.5 The Owner and Bidder consent and agree to the use of electronic signatures pursuant to the *Electronic Commerce Act 2000*, SO 2000, c. 17 as amended from time to time with respect to the Bid Form and any other documents required to be signed and submitted to the Owner as part of the Bidder's Bid.

9.0 CONSTRUCTION PERSONNEL INFORMATION

- 9.1 Bidders shall submit, together with its Bid Form, the resumes and/or curriculum vitae of the Bidder's project manager, construction superintendent and safety coordinator that shall perform the Work of this Contract.

- 9.2 The resumes and/or curriculum vitae of the Bidder's project manager, construction superintendent and safety coordinator shall clearly indicate if they have asbestos training requirements and to which level of training. Bidders shall submit copies of training certificates where requested by the Owner.
- 9.3 Construction personnel information shall be clearly typed and formatted to present vital information in a logical sequence, with the Bidder's name prominently shown.

10.0 PREQUALIFIED ASBESTOS ABATEMENT SUBCONTRACTORS

- 10.1 To expedite the Work, the Owner maintains a list of prequalified Asbestos Abatement Subcontractors. Only those Asbestos Abatement Subcontractors prequalified by the Owner to perform parts of the Work shall be retained by the successful Bidder.
- 10.2 Bidders shall select from the prequalified Asbestos Abatement Subcontractor list (provided below) the Asbestos Abatement Subcontractor it will retain, and insert this information into the Bid Form. The subcontractor listed in the Bidder's Bid Form must be retained by the successful Bidder to perform the applicable portion(s) of the Work.
- 10.3 The prequalified Asbestos Abatement Subcontractors are as follows:
- Biggs & Narciso Construction Services Inc
 - Dewar Industrial Services Inc.
 - Envirosafe Inc.
 - I & I Construction Services Ltd.
 - Inflector Environmental Services LP.
 - JMX Environmental Inc.
 - Lions Group Inc.
 - Tri-Phase Group Inc.

11.0 PREQUALIFIED ROOFING SUBCONTRACTORS

Intentionally Deleted.

12.0 PROCUREMENT FORM SUPPLEMENTS

- 12.1 Additional information may be requested by the Owner prior to Contract award. Bidders, when requested, will fill out the Procurement Form Supplements, which must be completed and submitted to the Owner within 48 hours of receipt of the request from the Owner.
- 12.2 Bidders shall provide the names of the Subcontractors and Suppliers that the Bidder shall employ for parts of the Work as listed in the Procurement Form Supplements. Subcontractors and Suppliers named are subject to acceptance by the Owner. The successful Bidder may not change or substitute the named Subcontractors and Suppliers without the Owner's written consent. Failure to list Subcontractors and Suppliers where required, or the listing of more than one Subcontractor to perform an item of Work listed may result in the Bid being declared incomplete pursuant to Section 20.3. Where a Bidder lists "own forces" in place of the Subcontractors and Suppliers, the Bidder shall carry out such item of the Work with its own forces. Where "own forces" have been listed by a Bidder, the Owner reserves the right to obtain information from the Bidder and from third parties respecting the qualifications and experience of the Bidder's "own forces" for such item of the Work. If the Owner, acting reasonably, determines that the Bidder's "own forces" are not sufficiently qualified or sufficiently experienced to undertake such item of the Work, the Owner may reject the Bid.
- 12.3 Bidders shall sign the Procurement Form Supplements electronically in accordance with Section 8.4.

13.0 BID SECURITY (Bid Bond)

- 13.1 Bidders must submit with their Bid Form, bid security in the form of a digital unconditional **Bid Bond** (the “**Bid Bond**”) in an amount equal to 10% of the Contract Price, made payable to the “The Governing Council of the University of Toronto”, by a surety licensed to conduct surety and insurance business in Canada.
- 13.2 The Bid Bond shall be available to the Owner to assist in protecting itself against loss arising from any act or omission by the Bidder inconsistent with the Owner’s right to accept the Bid during the Irrevocability Period including the failure by the Bidder to furnish to the Owner the Performance Bond in accordance with Section 21.6.
- 13.3 Bidders **must** submit the digital Bid Bond (a photocopy, scanned copy and/or a facsimile copy of the Bid Bond shall **not** be acceptable to the Owner), which must meet the following criteria:
- 13.3.1 The Bid Bond submitted by the Bidder must be verifiable by the Owner with respect to the totality and wholeness of the Bid Bond form, including: the content; all digital signatures; all digital seals; with the Surety Company, or an approved verification service provider of the Surety Company;
- 13.3.2 The Bid Bond submitted must be viewable, printable and storable in standard electronic file formats acceptable to the Owner, and in a single file. Allowable format includes pdf;
- 13.3.3 The verification may be conducted by the Owner immediately or at any time during the life of the Bid Bond and at the discretion of the Owner with no requirement for passwords or fees; and
- 13.3.4 The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding Section 13.3.1 above. Bid Bonds failing the verification process will not be considered to be valid, and the bid shall be rejected. Bid Bonds passing the verification process will be treated as original and authentic.
- 13.4 Bidders shall include the cost of the digital Bid Bond in the Contract Price.
- 13.5 Bidders may obtain information regarding e-bonding from the Surety Association of Canada’s website: <https://www.suretycanada.com/>
- 13.6 The Bid Bond shall be issued by a Surety Company licensed to carry on business in Ontario. Bid Bonds must be irrevocable and open for bid acceptance for the period of time provided therefore in the Bid Form.
- 13.7 Bid Bonds of Bidders other than the successful Bidder, shall be returned (by electronic means permitted by Biddingo) after the expiration of the Irrevocability Period.
- 13.8 The Bid Bond of the successful Bidder shall be returned (by electronic means permitted by Biddingo) provided the Bidder executes the Contract and fulfills the requirements specified in the Letter of Award.

14.0 AGREEMENT TO PROVIDE PERFORMANCE BOND (Contract Bond)

- 14.1 For Bids over \$500,000, submit with the digital Bid Form a copy of a digital unconditional agreement to bond issued by a Surety Company licensed to conduct surety and insurance business in Canada proposed by the Bidder, that such Surety Company will execute a form of Performance Bond (Contract Bond) acceptable to the Owner and compliant with the Construction Act in an amount equal

to 50% of the Contract Price arising from the acceptance of the Bid, the terms of such agreement permitting the Bidder to call for such from the date of closing of Bids. Bidders **must** submit the digital Agreement to Bond, as a photocopy and/or a facsimile copy of the Agreement to Bond shall **not** be acceptable to the Owner. Bidders shall include the cost of the Performance Bond in the Contract Price.

15.0 AGREEMENT TO PROVIDE LABOUR AND MATERIAL BOND (Contract Bond)

- 15.1 For Bids over \$500,000, submit with the digital Bid Form a copy of a digital unconditional agreement to bond issued by a Surety Company licensed to conduct surety and insurance business in Canada proposed by the Bidder, that such Surety Company will execute a form of Labour and Material Payment Bond (Contract Bond) acceptable to the Owner and compliant with the Construction Act in an amount equal to 50% of the Contract Price arising from the acceptance of the Bid, the terms of such agreement permitting the Bidder to call for such from the date of closing of Bids. Bidders **must** submit the digital Agreement to Bond, as a photocopy and/or a facsimile copy of the Agreement to Bond shall **not** be acceptable to the Owner. Bidders shall include the cost of the Labour and Material Payment Bond in the Contract Price.

16.0 TAXES

- 16.1 Include in the Bid price, all applicable Taxes: Customs Duties, Excise Taxes, Brokerage Fees; but excluding Harmonized Sales Tax (HST).
- 16.2 All defined terms in the Contract apply herein. The University instructs all bidders to price the Work without contingency for any anticipated tariffs. In accordance with the GC 10 Taxes and Duties of the CCDC contracts (2, 5B, and 14) the successful bidder may seek an increase or decrease in the Contract Price under GC 6.6 – Claims for a Change in Contract Price in the event that a tariff is applied after the closing date. Subject to the University's approval, University will pay for tariffs upon its receipt of satisfactory written documentation evidencing the payment of the tariffs and that the bidder(s) has mitigated the impact of the tariff. For example, a mitigation strategy may indicate the use of a lower cost substitute, as approved in writing by the Consultant and/or University, where applicable, and that meets the requirements of the Contract Documents.
- 16.3 The University requires the lowest price bidder or their alternate to provide the University with a tariff mitigation strategy that lists the Products the bidder anticipates may be subject to future tariffs, as well as the potential impact of the tariff on the Contract Price and Contract Time, and the strategies that the bidder intends to apply in order to mitigate the impact of the tariffs on the Contract Price and Contract Time.

17.0 DELIVERY OF BID FORM AND SUBMISSION DEADLINE

- 17.1 Bidders must submit original digital files (PDF format) of the Bid Form through Biddingo by or before the Submission Deadline. Bids received after the Submission Deadline shall not be considered by the Owner.
- 17.2 Bids delivered orally, hand delivered in-person, by telegraph, by telephone proposals, facsimile and/or email will **not** be accepted by the Owner.
- 17.3 Bidders are cautioned that the timing of their Bid submission is based on when the Bid is received and electronically time and date stamped by Biddingo, and not when a Bidder commences submission transmission, as transmission can be delayed due to file transfer size, transmission speed, or other technical factors. For these reasons, the Owner recommends that Bidders allow sufficient time to upload their Bids and attachments (if applicable) and to resolve any issues that may arise in advance of the Submission Deadline. The official passing of the Submission Deadline shall be determined by the Biddingo system web clock.

- 17.4 Bidders should receive a system-generated confirmation email from Biddingo advising when the Bid has been successful received by Biddingo. If a confirmation email is not received, the Bidder should contact Biddingo technical support immediately via telephone at (416) 756-0955, or email to info@biddingo.com. It is the Bidder's responsibility to ensure that the Bid has been received by Biddingo.

18.0 BID WITHDRAWAL AND AMENDMENT

- 18.1 Bidders may withdraw their Bids prior and up until the Submission Deadline. Following the Submission Deadline, no Bids may be withdrawn. The Bidder is solely responsible for ensuring its Bid is withdrawn prior to the Submission Deadline through Biddingo.
- 18.2 Bidders may amend their Bids prior and up and until the Submission Deadline. Notwithstanding the Owner's right to seek clarification or further information pursuant to Section 22.0, following the Submission Deadline, no Bidder shall be permitted to amend its Bid.

19.0 IRREVOCABILITY PERIOD

- 19.1 All Bids shall be irrevocable for 60 days from the Submission Deadline (the "**Irrevocability Period**") and may not be withdrawn or amended, other than non-substantive amendments arising from clarifications provided in accordance with this Tender. The Irrevocability Period shall terminate at 11:59 PM EST of the 60th day following the Submission Deadline. If the 60th day falls on a statutory holiday, the 60th day shall be deemed to be the next business day.
- 19.2 After the Submission Deadline, the Owner, in its sole discretion, may extend the irrevocability period unilaterally by an additional thirty (30) days by issuing a written Addendum to that effect to each of the Bidders which submitted a compliant Bid.

20.0 COMPLIANCE WITH THE BID CONTRACT

- 20.1 Bids **shall** be declared **non-compliant** and be rejected by the Owner if any of the following occur:
- 20.1.1 A Bid is received after the Submission Deadline.
 - 20.1.2 If the Bidder does not complete the Bid Form.
 - 20.1.3 If the blank spaces on the Bid Form for the following are not completed correctly:
 - 20.1.3.1 Bidder's name (2 locations).
 - 20.1.3.2 Number of Addenda included in the Bid.
 - 20.1.3.3 Contract Price.
 - 20.1.4 If the Bid is not accompanied by the digital Bid Bond as specified herein.
 - 20.1.5 If the Bid is not accompanied by the digital Agreement to Bond as specified herein.
 - 20.1.6 If the digital Bid Bond and/or the digital Agreement to Bond has the wrong project name/information or the digital Bid Bond or the digital Agreement to Bond is not executed by the surety or by its authorized agent.
 - 20.1.7 If the Bidder does not attend the mandatory site visit.

- 20.2 Bids **may** be declared **non-compliant** and may be rejected at the Owner's discretion if any of the following occur:
- 20.2.1 If the Bidder qualifies the Bid and/or adds conditions to the Bid by modifying the Bid Form or a Procurement Form Supplement (if any) and/or adding an appendix to the Bid Form or a Procurement Form Supplement (if any).
 - 20.2.2 If the Bidder, upon request by the Owner, fails to provide a completed Procurement Form Supplement within 48 hours in accordance with Section 12.0.
 - 20.2.3 If the Bidder submits a Bid Form or Procurement Form Supplement after the Submission Date to amend a prior Bid Form or Procurement Form Supplement that the Bidder has already submitted.
- 20.3 Bids **may** be declared **incomplete** and, at the Owner's discretion, the Owner may request that said Bidder(s) provide the required information within 48 hours if any of the following occur:
- 20.3.1 If the Bid contains minor irregularities including, but not limited to the following in respect of the Bid Form and any Bid Form Supplement:
 - 20.3.1.1 Minor clerical errors.
 - 20.3.1.2 Isolated pages of the Bid Form which are missing but in the opinion of the Owner would not directly affect the Bid submitted.
 - 20.3.1.3 Uninitialed changes on the Bid Form amended by over-writing but not initialled by the Bidder.
 - 20.3.1.4 Mathematical errors on the Bid Form which are not consistent with the Contract Price, provided that any correction does not change the Contract Price offered in the Bid Form.
 - 20.3.2 If the Bidder fills in the blank spaces on the Bid Form using the terms "N/A" (not applicable), "N/A" (not available) or "NIL" (0), or "---"(intentionally left blank), except where appropriate.
 - 20.3.3 If the Bidder fails to submit the List of Subcontractors completed as specified in the Bid Form.
 - 20.3.4 If the Bidder fails to submit the Alternate or Separate Prices completed as specified in the Bid Form.
 - 20.3.5 If the Bidder fails to submit the Mechanical Pricing completed as specified in the Bid Form.
 - 20.3.6 If the Bidder fails to submit the Electrical Pricing completed as specified in the Bid Form.
 - 20.3.7 If the Bidder fails to submit Construction Personnel Information with the Bid Form as specified in Section 9.0.
 - 20.3.8 If the Bidder fails to submit Itemized Prices, Unit Prices, or Subcontractors/Suppliers/Manufacturers in the Procurement Form Supplements as specified in Section 12.0.

21.0 EVALUATION OF BIDS AND ACCEPTANCE OF A BID

- 21.1 The Owner reserves the right, in its sole discretion, to reject or waive minor errors and non-compliance contained in a Bid without having to disqualify a Bidder. For the purposes of this Section

- 21.1, minor errors and matters of non-compliance are those which do not have the effect of creating an advantage of one Bid over the another, but may be merely a matter of form.
- 21.2 The Owner intends to award the Contract, if there is an award, to the Bidder which submits a compliant Bid which provides the best value to the Owner based on the proposed Contract Price for the base Bid, or the base Bid as adjusted by any Alternative Price(s) that the Owner elects to accept in its sole discretion.
- 21.3 In the event of a tie following evaluation of Bids by the Owner, the Contract will be awarded, if an award is made, on the basis of the most advantageous time schedule where the date for Substantial Performance of the Work is not specified in the Tender Documents. If the tie is still unresolved, the Owner will determine the successful Bidder by a single coin toss performed in the presence of the tied Bidders.
- 21.4 Should the Owner receive no compliant Bids, the Owner, in its discretion, may re-tender all or any part of the Project, or may negotiate a contract for the whole or any part of the Project with any of the Bidders who submitted a non-compliant Bid. If negotiations fail, in the discretion of the Owner, the Owner reserves the right to cancel or re-issue the Tender pursuant to Section 42.0.
- 21.5 If only one Bid is received, the Owner will notify the Bidder that its Bid is the only one received for evaluation and, upon being so advised, the Bidder may:
- 21.5.1 Request that the Owner return the Bid unopened and the Owner agrees to do so; or,
- 21.5.2 Authorize the Owner, in writing, to open the Bid, but, in that case, the Bidder specifically agrees that the Owner is not required to award the Contract and may reject the Bid even if the Bid is compliant.
- 21.6 If all Bids received by the Owner are in excess of the Owner's budget, the Owner may, in its sole discretion:
- 21.6.1 reject all Bids and re-issue the Tender, including all Tender Documents without revision and without disclosing any of the Bids or pricing received;
- 21.6.2 enter into negotiations with the lowest compliant Bidder, notwithstanding that their pricing is in excess of the Owner's budget without cancellation of all Bids or consideration to other Bidders, and require that the lowest compliant Bidder negotiate with the Subcontractors listed in its Bid Form. If such negotiations fail, the Owner, in its sole discretion may negotiate with the next lowest Bidder, or elect to cancel or re-issue the Tender pursuant to Section 42.0.
- 21.7 Following the evaluation process, the Owner shall issue a Letter of Award to the successful Bidder. The successful Bidder shall be required to execute the Letter of Award and return it to the Owner within 2 days of the Bidder's receipt of the Letter of Award.
- 21.8 In addition to all other remedies available to the Owner, if the successful Bidder fails to execute the form of Contract or satisfy any other applicable conditions set out in the Letter of Award, the Owner may, in its sole and absolute discretion and without incurring any liability, withdraw the award and proceed with the selection of another Bidder.
- 21.9 Following the issuance of the Letter of Award, a meeting between the successful Bidder and the Owner shall be arranged to co-ordinate and schedule the Work. It shall be the successful Bidder's responsibility to implement and co-ordinate the phasing of the Work. Construction for this Project shall commence as soon as possible, and must be substantially performed within the time period agreed upon in the Bidder's Bid Form.

- 21.10 Once the Contract is executed by the Owner and the selected Bidder, the other Bidders shall be notified by public posting of the outcome of the Tender on Biddingo.

22.0 CLARIFICATION AND SUPPLEMENTAL INFORMATION

- 22.1 When evaluating Bids, the Owner reserves the right to seek clarification or further information from a Bidder or third parties in order to verify, clarify, or supplement information provided in a Bidder's Bid, including but not limited to clarification with respect to whether a Bid meets the minimum requirements set out in this Tender.
- 22.2 Proponents will cooperate with the Owner in the verification of information and shall promptly respond to all requests for clarification or additional information. Failure to respond in a timely manner may result in the Bid being rejected.
- 22.3 By submitting a Bid, Bidders are deemed to consent to the Owner's verification of such information. The Owner is not obliged to seek clarification or further information. Any clarification or further information sought by the Owner shall not permit a Bidder to change a Bid in any substantive manner, including with respect to pricing.
- 22.4 Requests for such additional information shall not be construed as an award of the Contract, acceptance of a Bid or rejection of a Bid.

23.0 ADDENDA

- 23.1 This Tender may be amended only by Addendum in accordance with this Section 23.0.
- 23.2 If the Owner, for any reason, and in its sole discretion determines that it is necessary to provide additional information relating to this Tender, such information will be communicated to all Bidders by Addendum, which shall be posted in Biddingo. Each Addendum forms an integral part of this Tender and may contain important information, including significant changes to this Tender. Bidders are responsible for obtaining all Addenda issued by the Owner through Biddingo.
- 23.3 If the Owner determines that it is necessary to issue an Addendum less than eight days prior to the Submission Deadline, or following the Submission Deadline, the Owner may extend the Submission Deadline for a reasonable period of time or establish a new Submission Deadline.
- 23.4 Bidders will be required to check a box confirming their receipt, review, and acceptance of Addenda before submitting their Bid through Biddingo.

24.0 BASE BID AND SUBSTITUTIONS

- 24.1 Bidders shall base their Bids on the materials, methods, firms and equipment named in the Specification. It is emphasized that no deviation from the specified materials, methods, firms or equipment will be allowed without written approval of the Owner. Any proposed substitutions shall be submitted in accordance with the following:
- 24.1.1 Should the Bidder propose any substitution of any materials or equipment the Bidder shall submit for the Owner's consideration prior to the Submission Deadline, a separate list of proposed substitutions and consequent changes to Contract should such substitutions be approved for use in the Contract. The difference in cost shall include all work by other trades if affected by the proposed substitutions. All proposed substitutions shall fit in the space allocations of the items already included and designed for.
- 24.1.2 Any substitution proposed by a Bidder shall also comply with the General Labour Conditions as specified in the Contract.

25.0 GENERAL LABOUR CONDITIONS

- 25.1 Any part of the Work performed by successful Bidder that falls under the provisions of any collective agreements by which the Owner is bound, or which the Owner is contractually required to apply to any given project, shall in each case be performed by employees covered by the applicable collective agreement.
- 25.2 Bidders should carefully review the Contract for the University's applicable updated General Labour Conditions. Copies of all labour agreements relevant to the General Labour Conditions are found at the following University of Toronto website: <http://agreements.hrandequity.utoronto.ca/>
- 25.3 The University of Toronto is unable to provide legal advice as to whether union labour will be required in relation to the performance of services on any given project. Bidders seeking greater certainty in this regard should obtain independent legal advice.

26.0 CONTRACT TIME

- 26.1 Refer to Section 01 10 00, Summary.
- 26.2 The Work of this Contract shall commence as soon as possible after Owner approval. The Work is to be performed continuously until the specified Substantial Performance date.

27.0 PERMITS

- 27.1 Contractor shall obtain ALL permits necessary for the Work specified herein, except that the Owner shall apply, obtain and pay for the Building Permit as issued by the Municipality of Toronto Building Department.

28.0 ACCESS TO THE PLACE OF THE WORK

- 28.1 Construction access to the Place of the Work shall be as approved by the Owner and the authorities having jurisdiction.

29.0 BIDDERS TO FOLLOW INSTRUCTIONS

- 29.1 Bidders should structure their Bids in accordance with the instructions in this Tender. Where information is requested in this Tender, any response made in a Bid should reference the applicable section numbers of this Tender.

30.0 BIDS IN ENGLISH

- 30.1 All Bids are to be in English only.

31.0 NO INCORPORATION BY REFERENCE

- 31.1 The entire content of the Bidder's Bid should be submitted in an integrated format, without reference to the content of websites or other external documents. The examination of the Bidder's Bid should not require a reviewer to search outside the Bid for external documents. Any document not integrated with a Bid will not be considered to form part of the Bid.

32.0 INFORMATION IN TENDER IS FOR GUIDANCE ONLY

- 32.1 While the Owner has used considerable effort to ensure an accurate representation of information in this Tender, the information contained in this Tender is supplied solely as guidance for Bidders. The

information contained in this Tender is not guaranteed or warranted to be accurate by the Owner, nor is it necessarily comprehensive or exhaustive. Nothing in this Tender is intended to relieve Bidders from forming their own opinions and conclusions with respect to the matters addressed in this Tender.

- 32.2 Each Bidder must carefully review the Tender Documents for completeness and to ensure that the Bidder has no reason to believe that there are any uncertainties, errors, omissions, or ambiguities in the Tender Documents. Each Bidder is solely responsible for conducting its own investigations and due diligence in preparing its Bid, and to raise questions or seek clarifications in accordance with this Tender.

33.0 DISQUALIFICATION FOR CONFLICT OF INTEREST

- 33.1 Bidders must complete and submit the "Declaration of Conflict of Interest" form attached to this Tender certifying that:
- 33.1.1 No person other than the Bidder has or will have any interest or share in their Bid.
 - 33.1.2 There is no collusion or arrangement between the Bidder and any other Bidder(s) in connection with this Tender.
 - 33.1.3 The Bidder has no knowledge of the contents of other applications and has made no comparison of figures, agreements, arrangements, expressed or implied, with any other party in connection with the making of the Bid.
 - 33.1.4 Neither the Bidder nor members of his/her immediate family or any employee of the Bidder shall have any direct or indirect interest in any other entity that provides goods or services to the Owner. Bidders shall immediately disclose any potential conflict of interest should it arise, before during, or after this Tender and/or any award of any contract.
 - 33.1.5 Neither the Bidder nor members of his/her immediate family or any employee of the Proponent shall offer or receive any reimbursement from or to any employee of the Owner, from or to any vendor, consultant, or contractor employed by the Owner in accordance with University of Toronto policy governing this matter.
 - 33.1.6 The Owner may disqualify a Bidder for any conduct, situation, or circumstances, determined by the Owner, in its sole and absolute discretion, to constitute a conflict of interest.
- 33.2 Bidders must not engage in any communications that could constitute a Conflict of Interest and should take note of the declaration set out in the Declaration of Conflict of Interest.

34.0 DISQUALIFICATION FOR PROHIBITED CONDUCT

- 34.1 The Owner may disqualify a Bidder, rescind a Letter of Award, or terminate a Contract subsequently entered into if the Owner determines that the Bidder has engaged in any conduct prohibited by this Tender.

35.0 NO COMMUNICATIONS WITH THE MEDIA

- 35.1 Bidders must not at any time directly or indirectly communicate with the media in relation to this Tender or the selection of a Bidder pursuant to this Tender, or any agreement entered into pursuant to this Tender without first obtaining the written permission of the Tender Administrator.

36.0 NO LOBBYING

- 36.1 Bidders must not, in relation to this Tender or the evaluation and selection process, engage directly or indirectly in any form of political or other lobbying whatsoever to influence the selection of the successful Bidder(s).

37.0 ILLEGAL OR UNETHICAL CONDUCT

- 37.1 Bidders must not engage in any illegal business practices, including activities such as bid-rigging, price-fixing, bribery, fraud, coercion, or collusion. Bidders must not engage in any unethical conduct, including lobbying, as described above, or other inappropriate communications; offering gifts to any employees, agents, or other representatives of the Owner; deceitfulness; submitting Bids containing misrepresentations or other misleading or inaccurate information; or any other conduct that compromises or may be seen to compromise the competitive process provided for in this Tender.

38.0 PAST PERFORMANCE OR PAST CONDUCT

- 38.1 Notwithstanding any other information contained in the Tender Documents, the Owner may prohibit a Bidder from participating in a procurement process based on past performance or based on inappropriate conduct in a prior procurement process, including but not limited to the following conduct arising on current or past projects between the Bidder and the Owner:

38.1.1 illegal or unethical conduct;

38.1.2 refusal of the Bidder to honour submitted pricing;

38.1.3 any conduct, situation or circumstance determined by the Owner, in its sole and absolute discretion, to have constituted a Conflict of Interest;

38.1.4 in the past two years, the Bidder has previously breached or been in default of compliance with any term of any agreement with the Owner and such breach or default has not been waived by the Owner or the Bidder has not cured the default;

38.1.5 the Bidder, at the time of issuance of this Tender, or anytime during the procurement process, has an outstanding claim by the Owner against it or is engaged in an ongoing legal dispute with the Owner, except disputes in adjudication under the Construction Act; or

38.1.6 the Bidder has threatened the Owner with a claim or legal action within the previous two years.

39.0 BIDDERS TO BEAR THEIR OWN COSTS

- 39.1 Each Bidder shall be solely responsible for all costs incurred in the preparation and submission of a Bid, and participating in this Tender. The Owner, their representatives, and agents are not and shall not be liable for any costs incurred by any of the Bidders in relation to the preparation of a Bid, responding to this Tender, and/or participation in this Tender process, including without limitation responding to requests for clarification, or any other expense of the Bidder in relation to this process, including in the event this Tender process is cancelled.

40.0 UNBALANCED BIDS

- 40.1 Each item listed in the Bidder's shall be a reasonable price for such work as is the custom of the trade.

- 40.2 Bids that contain prices which:

40.2.1 appear to be so unbalanced or out of line with the custom of the trade as likely to adversely affect the interests of the Owner; or

40.2.2 do not reflect, in the Owner's reasonable discretion, actual costs plus a reasonable amount for profit, overhead costs, and other expenses;

may be rejected by the Owner.

41.0 RESERVED RIGHTS OF THE OWNER

41.1 The Owner reserves the following rights, which each of the Bidders acknowledges and agrees to accept as a condition of participating in this Tender:

- 41.1.1 make public the name of any or all Bidders;
- 41.1.2 accept or reject any or all Bids, including the lowest priced Bid;
- 41.1.3 disqualify any or all Bidders;
- 41.1.4 request written clarification of any Bid, and the submission of supplementary written information in relation to the clarification request and incorporate a Bidder's response to such request for clarification into the Bidder's Bid;
- 41.1.5 waive formalities and accept Bids that substantially comply with the requirements of this Tender, as determined by the Owner, in its sole discretion;
- 41.1.6 reject qualified or conditional Bids;
- 41.1.7 verify with any Bidder or with a third party, including references, any information set out in a Bid;
- 41.1.8 assess a Bidder's Bid on the basis of: (i) a financial analysis determining the actual cost of the Proposal when considering factors including quality, service, price, and transition costs arising from the replacement of existing goods, services, practices, methodologies, and infrastructure (howsoever originally established); and (ii) in addition to any other evaluation criteria or considerations set out in this Tender, consider any other relevant information that arises during this Tender process and assess a Bidder's Bid on the basis of such relevant information;
- 41.1.9 disqualify any Bidder whose Bid contains misrepresentations or other inaccurate or misleading information;
- 41.1.10 disqualify a Bidder, rescind a Letter of Award, terminate negotiations, or terminate a contract subsequently entered into if the Bidder has a conflict of interest or has engaged in any conduct that breaches the process rules or otherwise compromises or may be seen to compromise the competitive process;
- 41.1.11 make changes to this Tender, provided those changes are issued by way of Addenda to this Tender;
- 41.1.12 cancel this Tender process at any stage without award, without issuing a new Tender for the same or similar Work; and
- 41.1.13 cancel this Tender process at any stage and issue a new Tender for the same or similar services and invite others to submit Bids, in addition to the Bidders.

42.0 NO LIABILITY AND INDEMNIFICATION

- 42.1 By submitting a Bid, the Bidder acknowledges the Owner's rights as stated in this Tender and absolutely waives any right of action against the Owner, its representatives, agents or advisors for not accepting or for rejecting a Bid, whether such right of action arises in contract, negligence, bad faith, or any other cause of action.
- 42.2 Without limiting the foregoing, under no circumstances, shall the Owner, or any of its representatives, agents or advisors, be liable to any Bidder, whether in contract, tort, restitution, bad faith, or pursuant to any other cause of action or legal theory, for any claim, action, loss, damage, cost, expense or liability whatsoever and howsoever arising from this Tender process, a Bidder's Bid, or due to the

acceptance or non-acceptance of any Bid, or as a result of any act or omission by the Owner or its their representatives, agents or advisors.

- 42.3 Each Bidder shall defend, indemnify and hold harmless the Owner and its representatives, agents, employees, officers, directors, partners and assigns from and against all claims, demands, damages, losses, injuries, expenses, costs including legal fees, actions, suits or proceedings (collectively "Claims") by whomsoever made, brought or prosecuted in any manner, arising out of, resulting from or attributable, directly or indirectly, to the Bidder's participation or intended participation in this Bid process, including Claims arising out of the Bidder's investigation of the Place of the Work, the project site, and attendance at meetings.

43.0 BID PROTEST PROCEDURE

- 43.1 Bidders covered by the Canadian Free Trade Agreement (CFTA) are entitled to submit a protest respecting the Bid process by following the bid protest procedures described in the agreement. All other Bidders may contact the Tender Administrator with respect to a bid protest. The contact particulars for the Tender Administrator are provided in the Bid Solicitation Letter, Section 00 10 00.

44.0 DISPUTES

- 44.1 In the event of a dispute arising in connection with this Bid process including, without limitation, a dispute concerning the existence of the "bid contract" or a breach of the "bid contract", or a dispute as to whether the Bid of any Bidder was submitted on time or whether a Bid is compliant, the Owner, in its unqualified subjective discretion, may refer the dispute to confidential binding arbitration before a single arbitrator with knowledge of procurement/bidding law and practice at Toronto, Ontario pursuant to the Arbitration Act, 1991 (Ontario), as amended. If the parties to the arbitration are unable to agree on an arbitrator within 10 Working Days from the date that the dispute is referred to arbitration, the appointment shall be made by the Appointing Committee of ADR Chambers, Toronto. In the event that the Owner refers the dispute to arbitration, the Bidder agrees that it is bound to arbitrate such dispute with the Owner. Unless the Owner shall refer such dispute to arbitration, there shall be no arbitration of such dispute
- 44.2 In the event the Owner refers a dispute to arbitration, the Owner may give notice of the dispute to one or more of the other Bidders who submitted Bids, whether or not they may be compliant, each of whom shall be a party to and shall be entitled to participate in the arbitration, and each of whom shall be bound by the arbitrator's award, whether or not they participated in the arbitration.
- 44.3 In the event the Owner refers a dispute to arbitration, the parties to the arbitration shall exchange brief statements of their respective positions on the dispute, together with the relevant documents, and submit to an arbitration hearing which shall last no longer than two days, subject to the discretion of the arbitrator to increase such time. The parties further agree that there shall be no appeal from the arbitrator's award.
- 44.4 This Article is not intended to form part of any "bid contract" that may come into being between a Bidder and any prospective Subcontractor or Supplier of that Bidder.

45.0 BIDDER DEBRIEFING

- 45.1 Following the conclusion of this Bid process, and providing that the Contract has been awarded and executed, the Owner will offer separate debriefings to each unsuccessful Bidder at a time and on a date and for a duration to be confirmed by written notice issued by the Owner to Bidders. Where an unsuccessful Bidder desires a debriefing, it shall provide a written notice to the Owner requesting a debriefing within 60 (sixty) days from the date the Letter of Award has been issued or the unsuccessful bidder has been notified.

46.0 CONFIDENTIALITY

- 46.1 All information provided by or obtained from the Owner in connection with this Tender, either before or after the issuance of the Tender, is the sole property of the Owner and must be treated as confidential. Such information is not to be used for any purpose other than replying to this Tender and the performance of the Contract, if the Contract is awarded. Upon conclusion of the Tender process, Bidders, if requested by the Owner, agree to return to the Owner all information provided by the Owner or obtained by the Bidder within the Tender process.
- 46.2 By submitting a Bid, Bidders acknowledge that:
- 46.2.1 with respect to information provided in a Bid, such information may not be kept in confidence by the Owner during the evaluation process, and that the contents of a Bid may be disclosed, on a confidential basis, to the Owner's advisors retained for the purpose of evaluating or participating in the evaluation of Bids; and
 - 46.2.2 the Owner is subject to the Freedom of Information and Protection Privacy Act ("FIPPA") and that information submitted in a Bid may be subject to disclosure under the provisions of that legislation. The Proponent agrees to the appropriate disclosure of the information submitted, subject to the provisions of FIPPA.
- 46.3 The Owner may engage in a public process which involves displaying or divulging to the public stakeholders and other interested parties, information submitted by Bidders in response to this Tender. Submission of a Bid constitutes each Bidder's permission for the Owner to divulge, reproduce and/or display, without compensation to the Bidder, any or all elements in response to this Tender for the purpose of publicizing the Project, obtaining comments, or seeking approval of authorities having jurisdiction. The Owner will use reasonable efforts to protect pricing and other sensitive and confidential information provided by Bidders in their Bids from access by competitors or the public, but the Owner does not accept any liability in the event that any such material is disclosed, even if the Owner, its staff or any other person associated with the Owner may have been negligent with respect to such disclosure.
- 46.4 In the event that a Bidder imposes conditions on the use, display, publication or disclosure of some or its entire Bid, the Owner reserves the right to reject such Bid.

47.0 GOVERNING LAW

- 47.1 This Tender shall be construed pursuant to the laws of the Province of Ontario. Both this Tender and the Contract shall be in the English language.

END OF SECTION 00 21 13

AVAILABLE PROJECT INFORMATION: SECTION 00 31 00**48.0 GEOTECHNICAL INVESTIGATION REPORT**

Intentionally Deleted.

49.0 DESIGNATED AND HAZARDOUS SUBSTANCES INVESTIGATION REPORT

- 49.1 The designated and hazardous substances investigation report is included for reference with this Document with the understanding that it is not a comprehensive study or complete report of existing conditions which may exist at the Place of Work. Contractor shall immediately advise the Owner (University) of conditions about which they have knowledge or information.
- 49.2 The following designated and hazardous substances investigation report prepared by
*Hazardous Construction Materials Group
F&S Property Management
University of Toronto*
is bound under separate cover:
- Designated and Hazardous Substances Investigation Report,
University of Toronto, 255 Huron Street, Toronto, P078-24-109, "Scope of Work – Designated
Substances Abatement/Procedures
QIS Lab & CQIQC Suite Project# P078-24-109 McLennan Physical Laboratories (Building #078)",
dated 13 August 2025 and consisting of 43 pages.
- 49.3 Neither the Owner (University) nor the Designated and Hazardous Substances Investigation Consultant guarantee the accuracy or completeness of the Designated and Hazardous Substances Investigation Report. Contractor shall examine the existing conditions which may affect methods or cost of construction before commencing the Work of the Contract.
- 49.4 Reference documents governing work involving designated substances, including asbestos containing or contaminated building material and reference to University of Toronto environmental programs related to worker health and safety.
- 49.5 Acknowledgement of Ontario Regulation 278/05, "Designated Substance - Asbestos on Construction Projects and in Building and Repair Operations"
- 49.6 Read, be familiar with, and refer to the University's Asbestos Management Program found at web link <https://ehs.utoronto.ca/our-services/occupational-hygiene-safety/asbestos-management-program/> . Prior to commencing any work, read and sign Acknowledgement Asbestos Designated Substances Project Management UPDC Form, found at web link: <https://www.fs.utoronto.ca/projects/design-standards-and-project-forms/>
- 49.7 By way of reference to University of Toronto Amendments to CCDC2-2020 Supplementary Conditions, GC 9.2 regarding Environmental Programs and Contractor Safety Programs, refer to, read and be familiar with University of Toronto Environmental Programs found at web link <https://ehs.utoronto.ca/resources/policies-and-procedures/>

50.0 EXISTING BUILDING DRAWINGS

- 50.1 Pertinent existing building Drawings are included for reference with this Document with the understanding that they are not comprehensive or complete Drawings of existing conditions which

may exist at the Place of Work. Contractor shall immediately advise the Owner (University) of conditions about which they have knowledge or information.

50.2 The Existing Building Drawings are not included at this time.

50.3 The Owner (University) does not guarantee the accuracy or completeness of the Existing Building Drawings. Contractor shall examine the existing conditions which may affect methods or cost of construction before commencing the Work of the Contract.

END OF SECTION 00 31 00

BID FORM: SECTION 00 41 13 – Bound Under Separate Cover

END OF SECTION 00 41 13

PROCUREMENT FORM SUPPLEMENTS: SECTION 00 43 00

These Procurement Form Supplements should be delivered to the address listed below within 48 hours of request by the Owner. The form should be completed in its' entirety.

NAME OF BIDDER: _____

TO: **THE GOVERNING COUNCIL UNIVERSITY OF TORONTO**
c/o University Planning, Design & Construction
Project Management
255 McCaul Street
4th Floor
Toronto, Ontario M5T 1W7

Attention: Tender Administrator

UNIVERSITY OF TORONTO
QIS Lab & CQIQ Suite
255 Huron Street,
Toronto, ONTARIO M5S 1A7
UNIVERSITY PROJECT NUMBER: P078-24-109

51.0 ITEMIZED PRICES

51.1 An Itemized Price is the Bidder's price for a specific item of Work included in the Contract Price and is provided for information purposes only.

51.2 Itemized Prices include all labour, materials, products, equipment, services, respective overhead and profit, taxes (excluding the Harmonized Sales Tax - HST), disbursements and related charges required to provide these items and represents the total amounts which are included in the Contract Price and as such represent the actual cost to the Owner. The Itemized Prices for the Work of the Contract are as follows;

51.2.1 **Itemized Price No. 1:** The actual cost included in the Contract Price for all Work for the supply and installation of the **QIS Suite** work as indicated in the Drawings and specified herein, including but not limited to;
Architectural, electrical and mechanical and any other associated work shall be _____ and _____/100 Dollars (\$) .

51.2.1 **Itemized Price No. 1:** The actual cost included in the Contract Price for all Work for the supply and installation of the **CQIQ Suite** work as indicated in the Drawings and specified herein, including but not limited to;
Itemized Price Item #2 Description and any other associated work shall be _____ and _____/100 Dollars (\$) .

52.0 UNIT PRICES

Intentionally Deleted

53.0 SUBCONTRACTORS AND SUPPLIERS

53.1 I/we the undersigned propose to employ the following Subcontractors and Suppliers to perform or supply an item of the Work called for by the Contract. I/we confirm that all such Subcontractors and Suppliers have been investigated to confirm their reliability and competency to carry out or supply such Work in accordance with the Contract. I/we acknowledge that Section 00 21 13, Instructions to Bidders, require that we list only one Subcontractor or Supplier for each item of Work described in this Bid Form. I/we further acknowledge that where we have entered "own forces" to perform an item

of the Work, it is our intention to use "own forces" for that purpose. After Bid submission, no substitution for a Subcontractor, Supplier or "own forces" will be permitted except as provided in the Contract.

TRADES**SUBCONTRACTOR/ SUPPLIER**

Section 02 41 00 - Selective Demolition

Section 06 10 00 - Rough Carpentry

Section 06 20 00 - Finish Carpentry and Millwork

Section 08 00 00 - Door, Frame, Screen and
Hardware Installations

Section 08 80 00 - Glass and Glazing

Section 08 44 00 - Structural Glass Walls

Section 12 35 53 - Flexible Laboratory
Furniture System

Section 13 21 13 - Modular Cleanroom

53.2 List of Suppliers/Manufacturers

I/we propose to employ the following manufacturers to perform/supply the Mechanical and other specified Divisions of the Work of this Contract. I/we confirm that all such manufacturers have been investigated to confirm their reliability and competency to carry out or supply such Work in accordance with the Contract. I/we acknowledge that Section 00 21 13, Instructions to Bidders, requires that we list only one manufacturer for each item of Work described in this Bid Form Supplement. I/we further acknowledge that no changes from this list may be made without the written approval of the Owner.

Section/Sub-trade - Mechanical**Item of Equipment****Manufacturer's Name****BAS system**

NAME OF BIDDER: _____

Signature of Duly Authorized
Signing Officer

Name and Title

Signature of Witness

Name and Title

Dated at _____ this ____ day of _____ 20____.

END OF SECTION 00 43 00

WARRANTY FORM (SAMPLE FORMAT): SECTION 00 65 36

54.0 PROJECT DESCRIPTION

UNIVERSITY OF TORONTO
PROJECT ADDRESS
UNIVERSITY PROJECT NUMBER: P000-00-000

55.0 WARRANTY INFORMATION

55.1 THE GOVERNING COUNCIL OF
THE UNIVERSITY OF TORONTO
University Planning, Design & Construction
255 McCaul Street
4th, Floor
Toronto, Ontario
M5T 1W7

55.2 Date: _____, _____

55.3 Section Number and Title: _____

55.4 Company's Name: _____

(Ltd/Inc. Or any assignee or successor's title)

Address: _____

56.0 DEFINITION

56.1 Give a clear description of the work under this Warranty and the remedial action to be taken under the Warranty, complying with requirements specified under respective Sections of the Specifications.

57.0 WARRANTY

57.1 Contractor for valuable consideration warrant all Work defined above is free from any defect or deficiency in quality of work and materials. Without limiting generality of foregoing, (*State particulars of each warranty here and generally as specified*) for Warranty Period herein set out, and in consideration as aforesaid Contractor covenant to remedy any defect or deficiency due to faulty materials or workmanship appearing within Warranty Period according to notice in writing received from the Owner, or their duly authorized agents.

58.0 WARRANTY PERIOD

58.1 Commences as per the General Conditions and Supplementary Conditions of the Contract.

58.2 Name and Address of Contractor

Signature

Signature

SEAL

SEAL

END OF SECTION 00 65 36

REVISIONS - LIST OF ADDENDA (SAMPLE FORMAT): SECTION 00 91 00

59.0 GENERAL

- 59.1 As addenda are issued during the Bid period, the following list of addenda shall be revised sequentially listing all addenda issued for the Work by date and shall be issued with each addendum.
- 59.2 For convenience purposes, the list of addenda shall also include a general list of all headings of each addendum.

60.0 LIST OF ADDENDA

<u>ADDENUM NO.</u>	<u>DESCRIPTION</u>
--------------------	--------------------

<u>DATE ISSUED</u>

END OF SECTION 00 91 00

ADDENDUM NO.00 (SAMPLE FORMAT): SECTION 00 91 XX**61.0 GENERAL INSTRUCTIONS**

61.1 The information contained herein will constitute an addendum to the Specifications and Drawings for:

UNIVERSITY OF TORONTO

PROJECT TITLE

PROJECT NUMBER P000-00-000

61.2 Upon receipt of Bids, it will be assumed that all matters pertaining to this addendum are included in the Base Bid amount.

61.3 The following revisions will amend the Specifications and Drawings and all items added or deleted thereon will be included for in the Bid submission.

62.0 DIVISION 00, DIVISION 01 DOCUMENTS

62.1 Refer to Document Description Section XX XX XX Sub Section X.X
Add or Delete or Revise

62.2 Refer to Document Description Section XX XX XX Sub Section X.X
1. Add or Delete or Revise

62.3 Add or Delete or Revise

63.0 ADDENDUM SUMMARY

Refer to accompanying Addendum Summary dated Day Month Year bearing consultant's number XXXXXX and totalling XX pages for a list of additions, deletions, or revisions to the technical drawings and specifications.

64.0 SPECIFICATION CHANGES

64.1 Refer to accompanying Category 1 Specification dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

64.2 Refer to accompanying Category 2 Specification dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

64.3 Refer to accompanying Specifications dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

65.0 DRAWING CHANGES

65.1 Refer to accompanying Category 1 Drawing dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

65.2 Refer to accompanying Category 2 Drawing dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

65.3 Refer to accompanying Drawings dated Day Month Year bearing consultant's number #XXXXXX and totalling XX pages for additions, deletions, or revisions.

66.0 BIDDER'S QUESTIONS

66.1 Refer to the following Bidders Questions at time of Bidder's Site Tour, and Consultant's Answers:

Q1. "???"

A1. ???

Q2. "???"

A2. ???

Q3. "???"

A3. ???

END OF ADDENDUM NO. XX

SUMMARY: SECTION 01 10 00**1.0 GENERAL****1.1 General instructions:**

1.1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 CONTRACT DOCUMENTS

2.1 Work will be performed under one Contract. The Contract will be in the form of the Agreement between Owner and Contractor, Canadian Standard Construction Document, CCDC 2 - 2020, Stipulated Price Contract as amended by Section 00 73 00, Amendments to CCDC 2 - 2020 - Supplementary Conditions attached herewith and marked as Schedule 1, which includes Appendix 2, CCDC 40 - 2018 - Amendment to Rules for Mediation and Arbitration of Construction Disputes; and all Addenda as issued, and otherwise as defined in Definitions of CCDC 2, 2020.

3.0 GENERAL CONDITIONS

3.1 The General Conditions of the Standard Construction Document, CCDC 2 - 2020 Stipulated Price Contract, as amended by Section 00 73 00, Amendments To CCDC 2 - 2020 - Supplementary Conditions attached herewith and marked as Schedule 1, which includes Appendix 2, CCDC 40 - 2018 - Amendment To Rules For Mediation and Arbitration Of Construction Disputes; and all Addenda as issued, and otherwise as defined in Definitions of CCDC 2, 2020, will govern the Work specified in each section of the Specifications.

4.0 SPECIFICATIONS

- 4.1 Division 1 - General Requirements, of the Tender Documents generally specify works and co-ordination of the Work that is the direct responsibility of the Contractor, but shall not be interpreted to define absolutely the limits of responsibility that must be established between the Contractor and his Subcontractors by their separate agreements.
- 4.2 Ensure that Subcontractors understand that the General Conditions of the Contract, Supplementary Conditions and Division 1 - General Requirements, apply to technical Specification Sections of the Tender Documents governing their work.
- 4.3 Ensure that the Work includes all labour, equipment and Products required, necessary or normally recognized as necessary for the proper and complete performance of the work of each construction trade.
- 4.4 Specifications format:
- 4.4.1 Specifications are organized into Divisions, with the Divisions organized into information, bidding and contractual Documents and technical Sections generally using the division format and Construction Specifications Institute/Construction Specifications Canada (CSI/CSC) MasterFormat numbering system.
- 4.4.2 Specifications use Document and Section numbers and titles for identification and cross-reference purposes. Documents and Sections in the Specifications are in numeric sequence, however the sequence is incomplete. Refer to Section 00 01 10, Table of Contents for the Documents and Sections included in the Contract Documents.

- 4.4.3 Work in the Specifications is divided into descriptive technical Specification Documents and Sections which are not intended to identify absolute contractual limits between Subcontractors, nor between the Contractor and his Subcontractors. Contractor shall organize division of labour and supply of materials essential to complete the Work in all its parts and provide a total enclosure and protection from weather of interior spaces, as established in the General Conditions of the Contract.
- 4.5 Specifications content:
- 4.5.1 Language used in the Specifications is abbreviated, imperative mood or streamlined type. Words and meaning shall be interpreted by the appropriate Consultant who authored the Specification Document and/or Section.
- 4.5.2 Specifications use certain conventions for style of language and intended meaning of certain words, terms and phrases when used in particular situations. These conventions shall include, but shall not be limited to the following;
- 4.5.2.1 Wherever the word "building" occurs in the Contract Documents it shall be taken to mean all the buildings included in the Work.
- 4.5.2.2 Wherever in the Contract Documents the words, "approval", "approved", "direction", "directed", "selection", "selected", "request", "requested", "report", and similar words are used, such approvals, directions, selections, requests and reports shall be given by the Consultant (Architect) in writing unless specifically stated otherwise.
- 4.5.2.3 Wherever in the Contract Documents the word "provide" is used in any form, it shall mean that the work concerned shall include both supply and installation of the products required for the completion of that part of the Work.
- 4.5.2.4 Wherever in the Contract Documents the word "supply" is used in any form, it shall mean that the work specified to be supplied includes delivery to the Site and unloading at location directed.
- 4.5.2.5 Wherever in the Contract Documents the word "installed" issued in any form, it shall mean that the work specified for installation includes but not limited to; uncrating, unpacking, and moving from stored location to place of installation and installing to meet specified requirements.
- 4.5.2.6 Wherever in the Contract Documents it is specified that Work is to proceed or to meet approval, direction, selection or request of the authorities having jurisdiction or others, such approval, direction, selection or request shall be in writing.
- 4.5.2.7 Wherever in the Contract Documents or as directed by the Consultant (Architect) it is specified that the Work shall be repaired, made good or replaced, it shall be performed without any additional cost to the Owner (University).
- 4.5.2.8 Whenever in the Contract Documents the term "and/or" is used, the Consultant (Architect) shall decide which of the possible meanings, to be derived at from the sentence where this term occurs shall govern.
- 4.5.3 Wherever mentioned in the Specifications, or indication on the Drawings and Schedules, of materials, Products, operations, or methods, that requires the Contractor to provide each item mentioned, or indicated of the quality or subject to qualifications noted, and perform

according to conditions stated each operation prescribed, and Contractor shall provide the labour, materials, Products, equipment and services to complete the Work.

5.0 DIVISION 1 - GENERAL REQUIREMENTS

5.1 The provisions of Division 1 shall apply to each technical specification Section of the Specifications.

6.0 DRAWINGS

6.1 Drawings are intended to graphically convey the scope of the Work and indicate general and approximate location in Metric Units, arrangement and size of fixtures, equipment, ducts, piping, conduit and outlets. Contractor shall obtain more accurate information regarding location, arrangement and sizes from study and coordination of Drawings, and shop drawings and become familiar with conditions and spaces affecting these matters before proceeding with the Work. Where conditions require reasonable changes in indicated location and arrangements, make such changes at no additional cost to the Owner (University). The Contract Price shall take into consideration unavailability of components dimensioned in Imperial units, and replace with approved component available in metric units.

7.0 DISCREPANCIES/CONFLICTS/OMISSIONS

- 7.1 If discrepancies or conflicts in, or omissions from Drawings, Specifications or other Contract Documents are suspected, or if there is doubt as to meaning or intent thereof, notify the Owner (University) immediately. If there are discrepancies or conflicts between Sections or between Contract Documents, then the most stringent requirements shall govern and there shall be no additional costs to the Owner (University).
- 7.2 Drawings, Specifications and other Contract Documents are intended to be in compliance with federal, provincial and municipal laws, by-laws, regulations and other requirements of the authorities having jurisdiction. Perform the Work in conformity with such requirements. If discrepancies, conflicts or omissions are suspected, notify the Owner (University) immediately.
- 7.3 Comply with the Owner's (University's) written instructions or explanations.
- 7.4 Promptly, and not later than within ten (10) Working Days of becoming aware of circumstances which may require a change in the Work or other directions, Contractor shall give written notice to the Owner (University) outlining such circumstances and request written directions. Do no work in affected area, or perform work that would prevent the Owner (University) from properly assessing situation or evaluating change, without its prior written approval. The Owner (University) will act promptly to give Contractor directions so the Work is not unreasonably delayed.

8.0 DESCRIPTION OF THE WORK

- 8.1 Work of this Contract shall include furnishing labour, materials, equipment, services and other related expenses to perform or execute complete construction of facility as specified in the Contract Documents.
- 8.2 Term "NIC" means that work of this Project which is not being performed or provided under this Contract. The term means "Not in this Contract" or "Not a Part of the Work to be performed or provided by Contractor".
- 8.3 "NIC" work may be specified or indicated on the Drawings as an aid to Contractor in scheduling amount of time and materials necessary for completion of Contract.

- 8.4 Words "by others" when used in the Specifications or indicated on the Drawings shall not mean by someone other than Contractor. Only means by which something shown or specified shall be indicated as not being included in Contract is by use of initials "NIC" or words "Not in (the) Contract"; or "by the Owner"; or "by the University", or "by (an) Other Contractor".

9.0 PERFORMANCE OF THE WORK

- 9.1 Work of this Contract once commenced at the place of the Work, shall be completed within the shortest possible time, consistent with the Contract requirements.
- 9.2 Work of this Contract shall be organized as much as possible prior to commencement at the Place of the Work, and supplies of materials and Products shall be secured and deliveries of same scheduled including, in part, the supply and delivery of specially manufactured items, all to favour the expeditious Performance of the Work.
- 9.3 Work of this Contract shall not commence at the existing building(s) until the Contractor has satisfied the University Project Manager and Consultant that Products and materials will be available at the time required for building into the Work, and that unavailability of Products and materials at the appropriate time will not prejudice the expeditious Performance of the Work.
- 9.4 All areas immediately above, below and beyond the construction enclosures may contain required Mechanical and/or Electrical services, special rooms and highly sensitive research and/or equipment. These areas must be kept clean, free from dust, dirt, debris and waste construction materials.
- 9.5 All loose demolition, waste construction materials, new construction materials and Products shall therefore be transported beyond the construction enclosures in closed containers. Sweep clean all closed containers of dust, dirt and debris before entering occupied areas.

10.0 EXISTING CONDITIONS SURVEY AND DOCUMENTATION

- 10.1 Prior to commencing active selective demolition or other work at the Place of the Work, Contractor shall examine and survey the existing work and items which are to remain or be re-used in the finished Work, and shall document existing conditions and damage to existing floors, walls, ceilings, door frames, doors, door hardware, equipment, other items and the like using digital photography and/or digital video photography methods acceptable to the University and a written documentation list to support the electronic existing conditions survey and documentation. Items shall include floors, walls, ceilings, door frames, doors, door hardware, equipment and the like on the designated access route to the construction enclosures.
- 10.2 Contractor's prepared existing conditions survey and documentation shall be reviewed by the Contractor with the University Project Manager and Consultant prior to proceeding further with the Work.
- 10.3 Contractor shall furnish the University Project Manager and Consultant with both an electronic copy and a full colour hard copy of the above mentioned existing conditions survey and documentation.
- 10.4 Contractor shall be responsible for the "making good", at his own expense, of any damage sustained by the existing work and items which are to be re-employed in the finished Work throughout the duration of construction operations. Such "making good" shall be to the acceptance of the University Project Manager and Consultant and in accordance with the requirements of Section 01 35 13 - Special Project Procedures.

SPEC NOTE: MODIFY ARTICLE AS REQUIRED TO SUIT NEW BUILDING CONSTRUCTION AND/OR RENOVATION CONSTRUCTION.

11.0 SEQUENCING, PLANNING, SCHEDULING AND COORDINATION OF CONSTRUCTION

- 11.1 Sequencing, planning, scheduling and coordination of construction shall be based on maintaining continuous operation and access to the adjacent existing building(s) during construction. Provide safe and easy access and exits from the adjacent building(s) during construction.
- 11.2 Plan and schedule construction as described herein and specified in Section 00 41 13, Bid Form. Plan and schedule renovation construction and repair work to accommodate anticipated difficulties, indicated on and inferable from the Contract Documents, to accommodate the on-going operations of the Owner (University) with minimal disruption and coordinate the Work required in the Owner (University) occupied spaces adjacent to, or above, or below the Place of the Work (Site), on room by room basis and in accordance with a schedule mutually agreed upon with the Owner (University), while performing the work in accordance to the Owner's constraints of the daily hours of work available to perform the Work, as follows:
- 11.2.1 Work which results in significant noise, audible to areas outside the Work area or which transmits vibratory sounds through the building assemblies, or is being performed by an **Asbestos Abatement Subcontractor or involves Asbestos work procedures, shall be performed between 7:00 pm to 8:00 am after regular working hours, during Monday to Friday and weekends.**
- 11.2.1.1 Examples of work which transmit vibratory sounds through the building assemblies are: Hammer-drilling, core-drilling, powder-activated concrete nails, demolition, saw cutting, chipping or hammering of concrete floors and masonry or concrete walls dropping objects on floors.
- 11.2.1.2 Otherwise, Work which results in no significant noise, audible to areas outside the Work area or which does not transmit vibratory sounds through the building assemblies or does not involve Asbestos Work Procedures and is not disruptive to University staff and is in separate rooms from the staff occupied rooms, will be performed between **8:00 am and 5:00 pm.**
- 11.3 Contractor shall notify the Owner (University) in writing a minimum of seven (7) Working Days prior their intention to begin work in an occupied area. The Owner (University) shall accommodate the request within seven (7) Working Days of notification. Co-ordination with the proper authorities at the Owner (University) shall be crucial. Submit a progress schedule before commencement of the Work. Coordinate any suggested changes to schedule with the Owner (University). Schedule shall include adequate time for Product delivery and shop drawing preparation, review and re-submission.

12.0 COMPLETION DEADLINES

- 12.1 Schedule the Work to meet deadlines committed.

13.0 INTERRUPTIONS IN THE WORK

- 13.1 Suspend parts of the Work affected as required to allow the Owner (University) to review and accept mock-ups and to establish standards of workmanship for remainder of Work.

14.0 INCLEMENT WEATHER AND COLD WEATHER WORK

- 14.1 Take precautions during inclement weather and provide adequate protection. Continue the Work, including during the winter months, if applicable, until the Work is completed and accepted.

Inclement weather or extra work caused thereby shall not be considered valid reason for additional payment or delay in satisfactory conclusion of the Work.

15.0 CONSTRUCTION PHASING

16.0 WORK PERFORMED UNDER SEPARATE CONTRACTS

- 16.1 Work not to be included in the Contract, as noted "NIC" on the Drawings, shall be governed by Article GC 3.2, Construction by Owner or Other Contractors, of the General Conditions of the Contract and as amended by the Supplementary Conditions attached herewith and marked as Schedule 1.
- 16.2 In addition to the previous paragraph, some work of the total Project shall be performed and items installed under separate contracts, to expedite the Work and other purposes in the Owner's (University's) interests.
- 16.3 Contractor shall, as part of Work of this Contract, fully co-operate with the work under separate contracts by Other Contractors as required to expedite the work of the total Project.
- 16.4 Work being performed under separate contracts at the Place of the Work shall include, but not be limited to the following;
- 16.4.1 FF&E – Loose office Furniture supply and installation:
- CQIQC Suite
 - Conference, meeting, and coffee tables
 - Office Desks, wardrobes, storage cabinets & chairs
 - Lounge chairs and sofas
 - QIS Suite
 - Chairs and collab table.
- 16.4.2 Audio Video Equipment Supply and installation
- 16.4.3 Research equipment supply and installation
- 16.5 Contractor shall provide Other Contractors performing work under separate contracts reasonable access and amount of time to review Work of this Contract in regards to how it affects the work under separate contracts.

17.0 PRE-TENDERED WORK AND ASSIGNMENT

- 17.1 The Owner (University) has pre-tendered specific portions of the Work, to expedite the Work and other reasons in the Owner's (University's) interests.
- 17.2 Contractor herein agrees to accept assignment of the pre-tendered contracts for the Work, and employ the Subcontractors assigned by the Owner (University) for the following;

(Intentionally blank)

- 17.3 Relations and responsibilities between the Contractor and Subcontractors pre-tendered by the Owner (University) shall be as defined in CCDC 2 - 2020, Standard Construction Document, General Conditions of the Stipulated Price Contract, and amended by Section 00 73 00, Supplementary Conditions attached herewith and marked as Schedule 1. Assigned Subcontractors shall in addition to the foregoing, provide the following;

- 17.3.1 Furnish to the Contractor, bonds covering faithful performance of the pre-tendered subcontracted work and payment of obligations there under when the Contractor is required to furnish such bonds to the Owner (University).
- 17.3.2 Purchase and maintain liability insurance to protect the Owner (University) and Contractor from claims until the insurance under the Contractor's Contract is in place.
- 17.4 Contractor's responsibility for the purchase, handling and installation of pre-tendered work of this Contract shall be the same as for other work forming part of the Work of this Contract by the Contractor.

18.0 PRE-ORDERED EQUIPMENT AND ASSIGNMENT

- 18.1 The Owner (University) has pre-ordered specific equipment of the Work, to expedite the Work and other reasons in the Owner's (University's) interests.
- 18.2 Contractor herein agrees to accept assignment of the pre-tendered contracts for the Work, and employ the Subcontractors assigned by the Owner (University) for the following;
 - 18.2.1 Haskris - Supply and Deliver of Chiller (CH1). Supplier to sign CCA-1 with successful Bidder at time of Assignment.
 - 18.2.1.1 \$68,469.00 USD
 - 18.2.2 Engineered Air - Supply and Deliver of AHU 01 and AHU 02
 - 18.2.2.1 Including Change Order 01 and Change Order 02
 - 18.2.2.2 \$501,825.00 CAD + HSTUofT to assign the PO based on Engineered Air's Terms and Conditions.
- 18.3 Relations and responsibilities between the Contractor and Subcontractors for pre-ordered equipment and assignment by the Owner (University) shall be as defined in CCDC 2 - 2020, Standard Construction Document, General Conditions of the Stipulated Price Contract, and amended by Section 00 73 00, Supplementary Conditions attached herewith and marked as Schedule 1. Assigned Subcontractors shall in addition to the foregoing, provide the following;
 - 18.3.1 Furnish to the Contractor, bonds covering faithful performance of the pre-ordered equipment and assignment work and payment of obligations there under when the Contractor is required to furnish such bonds to the Owner (University).
 - 18.3.2 Purchase and maintain liability insurance to protect the Owner (University) and Contractor from claims until the insurance under the Contractor's Contract is in place.
- 18.4 Contractor's responsibility for the purchase, handling and installation of pre-ordered equipment and assignment work of this Contract shall be the same as for other work forming part of the Work of this Contract by the Contractor.

19.0 WORK BY OWNER

- 19.1 Permit the Owner (University) and/or his contractors to inspect the Work at any reasonable time, and to perform such work and install such equipment as the Owner (University) may require.

20.0 TEMPORARY SHUT DOWNS OF CONSTRUCTION OPERATIONS

- 20.1 Contractors and Subcontractors shall be aware at all times that the on-going functions and activities of existing building(s) will continue. The Owner (University) and the University Project Manager may at any given time request that any work of Contract be temporarily ceased.
- 20.2 Reasonable temporary shut downs and interference are for emergency and/or sensitive security reasons and they shall not be construed as cause of elimination or restriction of Contractor's Construction Schedule, claims for delay of Work, nor additional costs to the Owner (University).
- 20.3 The Contract Price shall include and allow for such temporary shut downs.

21.0 FAIR WAGES

- 21.1 Wherever possible, give preference to the use of local labour, building mechanics, suppliers and subtrades. Ensure that the rates of wages, hours and conditions of work of persons employed at the Place of the Work are in accordance with the provincial codes and are as generally recognized and accepted in the locality.

22.0 EXPANSION AND CONTRACTION

- 22.1 Make provisions for expansion and contraction due to temperature changes within components, products and assemblies, and between adjacent component Products and assemblies. Ensure provisions for expansion, contraction and building movements prevent damages from occurring to and within components, Products and assemblies.

23.0 COINS, FOSSILS, ARTIFACTS, TREASURE AND OTHER HISTORIC ARTICLES

- 23.1 Refer to Section 00 73 00, Amendments to CCDC 2 - 2020 - Supplementary Conditions attached herewith and marked as Schedule 1 for coins, fossils, artefacts, treasure and other historic article requirements.

24.0 SITE SIGNAGE

- 24.1 All site signage prior to fabrication and installation shall have the written approval of the Owner (University). Refer to Section 01 50 00 - Temporary Facilities and Controls for the site signage.
- 24.2 Contractor shall submit to the Owner (University) a layout of all required signage, showing types, sizes and locations.

25.0 PREMIUM TIME

- 25.1 Contractor shall ensure that each Subcontractor shall be aware of and shall take into consideration that any work which will cause disruption to the daily operation of the building(s) and the Owner (University) will have to be after the normal operating hours of the building(s). Contractor shall co-ordinate the foregoing with the Subcontractors.
- 25.2 The Contract Price as stated in the Contract Documents shall be deemed to include for premium time when premium time is required in connection with the Work in order to maintain the Mechanical and Electrical services to the occupied areas of the Owner's (University's) building(s) and grounds, or to meet construction schedule, or to restore the interrupted Mechanical and Electrical services to the occupied areas of the Owner's (University's) building(s) as quickly as possible, minimizing the duration of the interruption of such services.

- 25.3 Refer to subsection 11 SEQUENCING, PLANNING, SCHEDULING AND COORDINATION OF CONSTRUCTION for work which shall be performed 7:00 pm to 8:00 am after regular working hours and on weekends.

END OF SECTION 01 10 00

MISCELLANEOUS GENERAL WORK: SECTION 01 11 00**1.0 DESCRIPTION OF MISCELLANEOUS GENERAL WORK**

- 1.1 Comply with Division 1, General Requirements and documents referred to therein.
- 1.2 Provision of labour, materials, products, equipment and services to complete miscellaneous Work items required to complete the Contract Work, which are not specified elsewhere, shall be provided under this Section unless otherwise directed.
- 1.3 Be responsible for agreeing with the sub-trades with regard to the division of the Work before bidding. Extent of cutting or demolition required by Subcontractors will be determined by the Contractor.

2.0 GENERAL

- 2.1 New materials shall match existing in every respect and be compatible with adjacent materials.
- 2.2 Obtain University's approval of installed dust-proof screens, protective coverings and protection methods before proceeding with alteration work.
- 2.3 Materials resulting from demolition and required to be retained shall be removed promptly by skilled mechanics in accordance with requirements of authorities having jurisdiction where applicable, in safe manner to minimize danger to required component. Store such items in designated area.

3.0 DUST FREE ENVIRONMENT

- 3.1 It is imperative that University's operational areas remain clean and dust free. It will be the Contractor's responsibility to ensure this. If the Contractor fails to maintain these conditions the University will retain the services of a professional maintenance company to fine clean the areas in question and have the maintenance company invoice the Contractor directly.
- 3.2 Be responsible to keep operational areas clean and dust free. Prevent contamination of and nuisance to adjacent areas and properties near the Work from dust by taking appropriate dust control measures. Take measures to prevent dust and dirt rising and migrating to occupied areas including return air systems and/or adjacent properties. Respond immediately to complaints of dust received from the public, authorities, University.
- 3.3 Adjacent work areas remaining in use by the University during construction period will have furnishings, and equipment covered under this Contract, completely prior to commencement of each of the Contractor's working periods and shall be removed thereafter. If required by University, Contractor shall also provide additional dust covers and keep them in clean and usable conditions.
- 3.4 Before the Work proceeds, the Contractor shall provide temporary dust-proof partitions and screens constructed as described in Section 01 50 00 and sealed at floor, walls, ceilings, or intersecting members in a manner to prevent dust and dirt infiltration into adjacent areas of the building.
- 3.5 Contractor shall leave work area remaining in use by the University clean and ready for use between each work period.

4.0 ALTERATIONS, CUTTING, PATCHING AND MAKING GOOD

- 4.1 Conform to the University's Policies and Procedures for Contractors and shut down protocol where applicable.

- 4.2 Provide Products, materials, construction, and workmanship and finish compatible matching existing in every respect unless indicated otherwise. Ensure new materials used to alter; repair damage work, patching and making good are compatible with existing components and materials.
- 4.3 Set up and maintain permanent reference points and provide general dimensions and elevations for all work from time to time as required by individual trades, and be fully responsible for accuracy of such reference points. All trades shall be notified that lines and levels are to be obtained from Contractor for proper coordination.
- 4.4 Do not endanger the existing building, the Work or property by cutting, digging, or similar activities. No Section shall cut or alter the work of another Section unless such cutting or alteration is approved by the latter Section, the Owner (University) and the Consultant.
- 4.5 Perform work in a manner such as to cause a minimum of noise and interference to use of existing premises and services. Provide maximum safety for occupants during work.
- 4.6 Fit construction tightly to ducts, pipes and conduits to stop air movement completely. The Section performing work that penetrates fire, air, vapour, moisture, thermal or acoustic separations of the building shall pack voids tightly with mineral fibre fire stop material as may be required, seal the air, vapour and moisture barriers and caulk joints as may be required to ensure that no air movement through the penetration is possible.
- 4.7 Cutting, drilling and sleeving of the Work shall be done only by the Section who has installed it. The Section requiring drilling and sleeving shall inform the Section performing the work of the location and other requirements for drilling and sleeving.
- 4.8 Throughout entire construction period, provide proper and safe means of fire exit from all zones of existing building at all times, to approval of authorities having jurisdiction.
- 4.9 Wherever it becomes necessary to cut or interfere in any manner with existing apparatus for short periods of time, do work at such times as agreed upon with University.
- 4.10 If required in critical locations prepare interference and/or installation drawings showing work of various trades as well as existing installations. Submit to University and/or authorities having jurisdiction for written permission before commencement of Work.
- 4.11 If unscheduled disturbance to use of existing premises and services is required to complete work, inform University with advance notice of seven (7) days minimum. Provide information of requirements and perform work at times directed by University.
- 4.12 Make provisions to join new work to existing and to install new supporting members, anchors and other items necessary for completion of work. Provide temporary bracing where required.
- 4.13 Proceed with demolition of or alterations to any portion of existing building only after approval of University has been obtained, and after weather tight, dustproof and soundproof screens have been erected to provide thorough protection to adjoining areas and rooms.
- 4.14 When permission has been granted to proceed with alterations in existing building, carry out work expeditiously and continuously to completion.
- 4.15 Carry out the Work so as to minimize dust migration and sound transmission. Protect items sensitive to and which could be damaged by dust. Where practical, keep demolition areas wetted.
- 4.16 During performance of the Work, adequately protect the Work completed and in progress, and existing work to remain, such as floors, finishes, trim, and similar components, as completely as

possible to minimize replacement of damaged work by each Subcontractor and trade. Work damaged or defaced due to failure to provide adequate protection shall be repaired, or removed and replaced as directed by University.

- 4.17 Properly coordinate work of various trades. Take into consideration existing installations to assure best arrangement of pipes, conduits, ducts and mechanical, electrical and other equipment and items, in available space. Under no circumstances will any extra payment be allowed due to failure by Contractor to coordinate work.
- 4.18 For critical locations, consult with University and prepare interference and installation drawings showing work of various trades as well as existing installations for review before commencing work such locations. Coordinate with mechanical and electrical trades.
- 4.19 Remove, store and reinstall existing fixed equipment, fixtures and components which interfere with construction work.
- 4.20 Provide cutting and patching required for access to execute service alterations. Conceal capped services unless specifically indicated to remain exposed. Patch to conceal altered and capped services. Cutting, patching and making good of existing work to accommodate new work and requirements specified under other Sections shall be done in conjunction with work specified herein. Coordinate such work.
- 4.21 Prior to cutting and drilling through structural and load bearing members, (e.g. Slabs, columns, beams and shear walls), obtain University's review and written acceptance of cut location and layout.
- 4.22 Provide cutting such as core drilling of existing concrete and masonry walls and slabs to accommodate services through existing assemblies to accommodate alterations. Contractor shall obtain radiography (X-ray) imaging and/or high frequency, electro-magnetic penetrating radar imaging as may be required.
- 4.23 Prior to performing radiography (x-ray) imaging for core drilling, Contractor shall ensure that the University radiography (x-ray) imaging safety procedures are considered and discussed with all construction personnel, University staff and students so that they are aware of the radiography (x-ray) imaging safety procedures involved. University radiography (x-ray) imaging safety procedures shall include, but shall not be limited to the following:
 - 4.23.1 Contractor **MUST** obtain a Radiography Source Permit from the University Radiation Protection Office ten (10) days (minimum of seventy-two (72) hours may be possible under certain circumstances) prior to performing x-ray imaging procedures. Under **NO** circumstances shall x-ray imaging procedures be performed by the Contractor without prior written notification and approval from the University. Contractor shall post the Radiography Source Permit in a conspicuous location outside the space where the x-ray imaging procedures shall be performed. An 80' - 0" (24.40m) radius **MUST** be established around each x-ray imaging site, and **ALL** x-rays will be done after regular operating hours. For the health and safety of the building occupants **NO one is allowed** in the building during x-ray imaging time periods.
 - 4.23.2 Where site conditions do not make it feasible to perform x-ray imaging, Contractor **MUST** exercise reasonable judgment to evaluate whether there is a chance that coring will cause the severing of electrical, low voltage or **ANY** other service that may be in the structure that is being penetrated. Use of hammer chisels may be necessary in some buildings. A thorough inspection of both sides of the surfaces **MUST** be performed by the Contractor. Contractor shall use a flux scanner to check for live load alternating current (AC). Where applicable, the opening of drop ceilings on the underside of the floors **MUST** be done to expose the break through area. Small diameter pilot holes **MUST** be drilled prior to final coring or chiselling.

- 4.23.3 A qualified electrician with access to circuit scanner **MUST** be present during coring or chiselling procedures should **ANY** services be severed. University Campus Police ((416) 978 – 3000) and the University Project Manager **MUST** be contacted immediately on such occurrence. Depending on the circumstances, Contractor **MAY** be asked to begin restoration procedures of the severed services immediately. ANY penetration of structural beams, columns or supports **MUST** be cleared by the University Project Manager before proceeding. Patching and making good of coring or chiselling shall be the responsibility of the Contractor.
- 4.23.4 Where applicable, and where acceptable to the University Project Manager, Contractor **MAY** alternatively use high frequency, electro-magnetic penetrating radar imaging. Procedures for high frequency, electro-magnetic penetrating radar imaging shall be similar to the x-ray imaging procedures. University Project Manager shall clarify the requirements of electro-magnetic penetrating radar imaging procedures with the Contractor where necessary.
- 4.24 Contractor shall employ tradesmen qualified in work being cut and patched to perform work correctly and skillfully.
- 4.25 Do not undermine, damage, or endanger existing structure and structural components, pipe lines, electrical conduit and wiring by digging, cutting or any other operation in performance of Work of this Contract. Immediately repair and make good existing work so affected, including working after regular working hours, to University's approval, recommendation and satisfaction at no additional cost to the University.
- 4.26 Except where structural requirements are indicated on Drawings, do not cut, drill or sleeve load bearing members without first obtaining University's written authorization for each condition.
- 4.27 Cutting and patching for holes required by Mechanical and Electrical work shall be as follows:
- 4.27.1 Include under the work of Divisions 21 and 26 for cutting or provision of holes up to and including 50 square inches (32258 mm²) and related patching, except as indicated otherwise.
- 4.27.2 Include under the Contractor's work, holes and other openings larger than 50 square inches (32258 mm²), and chases, bulkheads, furring and required patching. Contractor shall be responsible for determination of work required for holes in excess of 50 square inches (32258 mm²).
- 4.28 Contractor shall be responsible for all cutting and patching in addition to that specified for mechanical and electrical work, and shall directly supervise performance of cutting and patching by other Sections.
- 4.29 Perform drilling of existing work carefully, leaving a clean hole no larger than required.
- 4.30 Make cuts clean and true with smooth edges. Fit units to tolerances established by existing work and in conformance with best standard practice for applicable class of work.
- 4.31 Cut off, cap, divert or remove existing services in areas being altered which are affected by changes as required or as directed by municipal authorities and utility company concerned, and University. Protect and maintain active services to existing building.
- 4.32 Where new work connects with existing and where existing work is altered, perform necessary cutting and fitting required to make satisfactory connections with existing work under this Contract, so as to leave entire work in a finished condition. Match new Work exactly with existing work in material, form, construction and finish unless otherwise noted or specified. Make joining work inconspicuous.

- 4.33 Make good materials, surfaces, and finishes damaged or disturbed due to the Work of this Contract.
- 4.34 The term "making good" shall mean repairing or filling operations performed on existing floors, walls, ceilings or any other exposed surfaces. Making good also means repairing, restoring, refurbishing, rehabilitating, or performing filling operation on any existing components disturbed due to work of this Contract, to at least the condition existing at the commencement of the Work, in terms of construction integrity, finishes, alignment with existing adjoining surfaces, compatibility of materials, sound attenuation criteria, exfiltration/infiltration requirements, air/vapour barrier and thermal continuity. It is intended that finished surfaces match existing in every respect, compatible and line with existing adjoining surfaces.
- 4.35 Fill unused and unfilled sleeves and holes in non-fire rated floors and partitions not otherwise filled, by approved means. If unused sleeve is in fire or sound barrier, fill in manner to restore or maintain fire or sound barrier rating. Filling of openings in fire rated floors and partitions as specified herein.
- 4.36 If non-designated and unclassified sprayed fire resisting, sound absorbing, or insulation applications are encountered, inform University for examination and instructions. Restore damaged, non-asbestos type fireproofing to original condition before covering with finishes.
- 4.37 Work shown on Drawings, Schedules and Specifications may or may not be all work required to be done in existing building. Make good and perform all necessary Work including incidentals to make a complete job of alterations work.
- 4.38 Provide alterations indicated on and implied by the Contract Documents.
- 4.39 Demolish existing, obsolete construction as part of alterations and prepare areas to receive new work.
- 4.40 Refer to mechanical and electrical Specifications and Drawings for removal, capping, and alterations to mechanical and electrical work, e.g., conduit, wiring, fixtures, ducts, piping and other service lines.
- 4.41 Protect active services which are intended to remain and which pass through spaces involved in alterations and repairs.
- 4.42 Conceal piping, duct, conduit and other service alterations in ceilings, walls and furred spaces if possible.
- 4.43 Repair adjacent construction and surfaces which are damaged or disturbed as a result of alterations.
- 4.44 Disconnection and sealing off electrical services to area being demolished: Division 26, Electrical.
- 4.45 Disconnection and sealing off steam heating and hot water to area being demolished: Division 22 and 23, Mechanical.

5.0 SELF-LEVELING TOPPING

- 5.1 Bonding Slurry: Acceptable Manufacturers and Products: Surfacrete Concentrate by Sika Canada.
- 5.2 Self-leveling Topping: Maxxon Canada Level Right-FS 10, Level Right-Plus, Level-Right or Commercial Topping in accordance with manufacturer's recommendations. Level-Right FS 10: 0 - 9 mm (0" - 3/8") thickness; up to 7000 psi, thin topping self-leveling floor underlayment for topping concrete or precast. Proper surface preparation shall be provided such shot blasting or epoxy primers; remove tile glue and adhesive or other exterior foreign material. Other acceptable Manufacturers and Products: Floor Leveler C26 UL by Target Products Ltd.

- 5.2.1 Nut-based abrasive blasting medium, including walnut shells, are not permitted to be used on University of Toronto projects.

6.0 REMOVAL OF EXISTING FLOORING

- 6.1 Remove existing flooring and adhesive/setting bed materials completely, down to concrete substrate.
- 6.2 Shot blast existing concrete or prepare existing surfaces by other means acceptable to University, and which are compatible with subsequent applied underlayment or applied finish Grind existing terrazzo floor as required, clean surfaces, and remove adhesives. Remove ridges and trowel marks and scrape substrate to a smooth level surface. Surfaces shall be smooth, clean, and free of gouges, matter detrimental to bond of underlayment and flooring and shall be ready to receive underlayment and flooring.
- 6.2.1 Nut-based abrasive blasting medium, including walnut shells, are not permitted to be used on University of Toronto projects.
- 6.3 New control joints in the finished flooring shall be in the same location as the control joints in the sub-floor.
- 6.4 Provide skim coats, primers and bonding agent slurries to neutralize residue adhesives and setting beds and to provide a suitable substrate to receive scheduled floorings. Fill new and existing depressions, dished areas, low spots, voids, gaps, cracks, joints, holes and other substrate defects with skim coat and self-leveling topping to achieve a flat substrate to within following tolerances: 3 mm (1/8") total maximum deviation + and - along a 3000 mm (10') straight edge applied omni-directionally over entire floor area.
- 6.5 Underlayment shall have compressive strength of 4100 psi after 28 days and tolerance of 3 mm (1/8") in 10'-0" measured with straightedge in any direction.
- 6.6 Coordinate with substrate preparation specified in floor finishes Sections.

7.0 REMOVAL OF EXISTING CEILING TILES

- 7.1 Removals of existing ceiling lay-in tile panels and retain existing hangers and provide additional if required to accommodate new ceiling lay-in tile panels to meet design requirements.
- 7.2 Ensure that existing suspension systems are adequately secure to allow installation of new ceiling lay in tile system.
- 7.3 Coordinate with electrical and mechanical trades to assess complete scope of new work to allow for their work such as feeder runs and similar work by mechanical and electrical trades.
- 7.4 Coordinate with Division 22 Plumbing, Division 23 HVAC, and Division 25 Integrated Automation for mechanical components.

8.0 REPAIR TO EXISTING WORK

- 8.1 Make good existing materials, and prepare the surfaces and refinish all finished surfaces damaged, marred, replaced, or otherwise remedied in the existing building(s).
- 8.2 Term "make good" shall mean repairing, restoring, refurbishing, rehabilitating, or performing filling operation on any existing components such as existing floors, walls, ceiling or any other exposed surfaces disturbed due to work of this Contract, to at least condition existing at commencement of the Work, in terms of construction integrity, finishes, alignment with existing adjoining surfaces,

compatibility of materials, sound attenuation criteria, exfiltration/infiltration requirements, air/vapour barrier and thermal continuity repairing or filling operations performed on It is intended that finished surfaces match and line with existing adjoining surfaces.

- 8.3 Where existing openings are indicated as filled-in, blocked in or new openings cut into walls, existing items removed or any form of alteration to existing surface or material is made, term "make good" shall be deemed to apply whether specifically noted or not.
- 8.4 The Work shown on the Drawings, Schedules and Specifications may or may not be all the work required to be done in the existing building. Make good and perform all necessary work including incidentals to make a complete job of the alterations Work.
- 8.5 Repair existing damaged work matching existing components in every respect. Replace existing damaged work with new materials matching in shape, size, colour and workmanship.
- 8.6 Finish the new surfaces flush with existing surfaces. Make junctions between the existing and new work, or at replaced or remedial work visually undetectable. Make surfaces adjacent to one another of the same material, unit sizes, colour, and texture. If this is impossible, make a proposal of intended method of "making good" for acceptance of the University Project Manager and Consultant prior to installation.
- 8.7 Tuck new masonry work into existing masonry when installed in the existing building(s).
- 8.8 Repoint defective joints as follows:
 - 8.8.1 Cut back joints 13 mm (2") taking care not to damage units. Remove dust and loose materials by brushing or by water jet. If water jet is used, allow excess water to drain before repointing.
 - 8.8.2 Repoint with same mix and colour as original.
 - 8.8.3 Pack mortar tightly in thin layers, and tool joint to match non defective joints.

9.0 REPAIR TO EXISTING ROOFING

- 9.1 Install new roofing system where existing roofing has been removed or damaged due to work of this Contract. Cut openings in existing roof system (except deck) required for work. Protect and seal adjacent roofing from water and damage due to elements. Make Good roofing system to match existing as promptly as possible.
- 9.2 At junction of new roofing with existing, remove existing flashing, fascia and cant.
- 9.3 Remove gravel for distance of 900 mm (36") beyond junction between new and existing membrane.
- 9.4 Trim edges of existing roofing to even, straight line.
- 9.5 In event of unexpected discovery of damaged and/or wet insulation in area of work, immediately notify the Project Manager. The Project Manager may authorize remedial Work, if any, in writing. Do such remedial Work, as addition to the Contract.
- 9.6 Remove debris and waste material, clean deck and provide new vapour barrier, insulation, tapered insulation and roof membrane at disturbed area.
- 9.7 Install roofing system matching existing in every respect, lapping onto existing membrane 400 mm and 500 mm (16"). Ensure watertight junction between existing and new roofing.

- 9.8 Make junctures at new equipment and altered or added vertical surfaces using elastic flashing or modified bituminous flashing as specified, required or indicated.
- 9.9 Pour coat entire area of alteration and cover with aggregate as required.
- 9.10 Replace or repair metal flashings to match existing.

10.0 RELOCATED COMPONENTS

- 10.1 Disconnect services on items for relocation forms part of the work of Electrical and Mechanical Divisions.
- 10.2 Disconnect fastening and anchorage of items to be relocated. Patch abandoned fastening and anchorage holes to match with and flush with adjacent surfaces.
- 10.3 Carefully relocate items indicated and repair any damage received as a result of relocation in accordance with University's directions.
- 10.4 Relocate existing washroom accessories and other components noted on Drawings complete anchoring to floors to match existing in new location.
- 10.5 Refer to Mechanical and Electrical Drawings for relocation of mechanical and electrical components.

11.0 ASBESTOS REMOVAL

- 11.1 Remove asbestos containing / contaminated materials as noted on Drawings and Hazardous Material Report in accordance with Hazardous Material Report including conforming to Ministry of Labour draft lead regulation and asbestos removal and waste disposal requirements.
- 11.2 The intent of the work of asbestos removal is to remove and dispose of materials containing asbestos and materials contaminated with asbestos only if the material is accessible, as defined in the investigation report.
- 11.3 In the event of unexpected discovery of suspect asbestos-containing materials is discovered which are not reported in the investigation report, notify University for proper directions and then remove asbestos prior to commencement of work of this Contract.
- 11.4 Comply with Ontario Regulation 278/05 made under the Occupational Health and Safety Act and entitled Designated Substance - Asbestos on Construction Projects and in Building Repair Operations. Conform to the University of Toronto Asbestos Management Program and follow University's Asbestos Abatement Procedures as outlined in Specifications. In any case of conflict with these Specifications, more stringent requirements shall apply.
- 11.5 Transport deliver and deposit waste receptors and containers in accordance with Ontario Regulation under the Environmental Protection Act (General Waste Management) and as amended. Obtain permits from all authorities having jurisdiction for transporting and disposal of asbestos waste and submit copies to Consultant.

END OF SECTION 01 11 00

PRICE AND PAYMENT PROCEDURES: SECTION 01 20 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 CASH ALLOWANCES

- 2.1 Read and be governed by GC 4.1 in CCDC 2-2020.
- 2.2 Cash allowances shall be carried by the Contractor.
- 2.3 No expenditure against cash allowances shall be made or incurred except as instructed by the Owner in writing.
- 2.4 No additional mark up for overhead and profit will be allowed where individual cash allowances are exceeded. No refund of mark-up will be required if the expenditure is less than the cash allowances.
- 2.5 Include the following cash allowances in the Contract Price:
- 2.5.1 Inspection and testing:
- 2.5.1.1 For the independent inspection and testing of the Work listed in Section 01 45 23, include the sum of: **\$5,000.00**
- 2.5.1.2 For the assignment of the supply and delivery of the Chiller listed in the drawings, include the sum of: **\$96,500.00**
- 2.5.1.3 For the assignment of the supply and delivery of the two AHUs listed in drawings, include the sum of: **\$501,825.00**

3.0 PRICES

- 3.1 General:
- 3.1.1 Prices included in the Contract shall be complete for the applicable work, and shall constitute the full consideration, payment, compensation and remuneration to the Contractor for all such work. For greater certainty, but without limitation to the foregoing, such prices shall constitute full and complete consideration, payment, compensation and remuneration to the Contractor for the following, subject to adjustment only as specified in the Contract Documents:
- 3.1.1.1 Expenditures for wages and for salaries of workers, engineers, superintendents, draftspersons, foremen, timekeepers, accountants, expeditors, clerks, watchmen and such other personnel as may be approved, employed directly under the Contractor and while engaged on the applicable Work at the Place of the Work and expenditures for travelling and board allowances of such employees when required by location of the applicable work or when covered by trade agreements and when approved. Provided, however, that nothing shall be included for wages or salary of the Contractor if an individual, or of any member of the Contractor's firm if the Contractor is a firm or the salary of any officer of the Corporation if the Contractor is a corporation, unless otherwise agreed to in writing.

- 3.1.1.2 Expenditures for material used in or required in connection with the construction of the applicable work including material tests and mix designed required by the laws or ordinances of any authority having jurisdiction and not included under subparagraph 3.1.1.8.
- 3.1.1.3 Expenditures for preparation, inspection, delivery, installation, and removal of materials, plant, tools and supplies.
- 3.1.1.4 Temporary facilities as required for the applicable work.
- 3.1.1.5 Travelling expenses properly incurred by the Contractor in connection with the inspection and supervision of the applicable Work or in connection with the inspection of materials prepared or in course of preparation for the applicable Work and in expediting their delivery.
- 3.1.1.6 Rentals of all equipment whether rented from the Contractor or others, in accordance with approved rental agreements including any approved applicable insurance premiums thereon and expenditures for transportation to and from the site of such equipment, costs of loading and unloading, cost of installation, dismantling and removal thereof and repairs or replacements during its use on the applicable Work, exclusive of any repairs which may be necessary because of defects in the equipment when brought to the Work, or appearing within thirty (30) days thereafter.
- 3.1.1.7 Cost of all expendable materials, supplies, light, power, heat, water and tools (other than tools customarily provided by tradesmen) less the salvage value thereof at the completion of the applicable Work.
- 3.1.1.8 Assessments under the Workmen's Compensation Act, the Unemployment Insurance Act, Canada Pension Act, statutes pay or any similar statutes; or payments on account usual vacations made by the Contractor to his employees engaged on the applicable Work at the Site to the extent to which such assessments or payments for vacations with pay relate to the Work covered by the specified price, and all sales taxes or other taxes where applicable.
- 3.1.1.9 Amounts of all Subcontracts related to the specified price.
- 3.1.1.10 Premiums on all insurance policies called for under this Contract as related to the specified price.
- 3.1.1.11 Royalties for the use of any patented invention on the applicable Work.
- 3.1.1.12 Fees for licences and permits in connection with the applicable Work, excluding the building permit.
- 3.1.1.13 Duties and taxes imposed on the applicable Work.
- 3.1.1.14 Such other expenditures in connection with the applicable Work as may be approved.
- 3.1.1.15 Provided always that except with the consent of the Owner (University), the above items of cost shall be at rates comparable with those prevailing in the locality of the Work.

3.2 Unit Prices

- 3.2.1 Provide Unit Prices where requested in Section 00 43 00, Procurement Form Supplements.
- 3.2.2 Provide Unit Prices which are measurable units of part of the Work (or Products supplied to the Place of the Work only), including overhead and profit. These Unit Prices may be used for either an addition to (extra) or a deduction from (credit) the Contract amount for the duration of the Contract.
- 3.2.3 In addition to Clause 3.2.2, Unit Prices shall be defined as follows:
- 3.2.3.1 Unit Prices included in the Owner (University) and Contractor Agreement, and which were submitted as a part of the Bid, shall be based on units of measurement described in the bidding documents to include for labour, materials, installation, preparation of shop drawings, delivery, handling, disposal of surplus material, overhead and profit, and any other direct or indirect expenditures, of such work measured complete in place, and as further described in other Sections of this Specification.
 - 3.2.3.2 Unit Prices for specified units of measurements, shall apply to any and all Work which can be measured in the said units regardless of the variations in productivity and Site conditions, or the time when instructions to carry out that Work will be issued.
 - 3.2.3.3 Unit Prices shall apply only to the net change in quantities for each unit of Work in each change to the Work, provided that the instructions to change have been given before the start of Work and/or ordering of equipment.
 - 3.2.3.4 After the Work has started, the Unit Prices shall cover the new Work. Work completed and to be removed to accommodate the new Work shall be paid for as described for changes in the Work in the General Conditions on a lump sum or by cost and fixed or percentage fee basis.
 - 3.2.3.5 Work under the schedule of Unit Prices would be done in stages, as directed, and could be done at any time after substantially completing the Work as per the scope of the Work.

3.3 Itemized Prices

- 3.3.1 Provide Itemized Prices where requested in Section 00 43 00, Procurement Form Supplements.
- 3.3.2 Provide Itemized Prices which are prices required to determine the amount included in the bid amount for a specified portion of the Work. This may be required for consultants' billing purposes, cost data records, building permits, construction grants or the Owner's (University's) accounting data.

3.4 Alternative Prices

- 3.4.1 Provide Alternative Prices where requested in Section 00 41 13, Bid Form.
- 3.4.2 Provide Alternative Prices which are the prices for the difference in price of alternative products or systems in lieu of specified Products or systems. These Alternative Prices may

be used for either an addition to (extra) or a deduction from (credit) the bid amount, if accepted by the Owner (University).

4.0 APPLICATIONS FOR PROGRESS PAYMENT, RELEASE OF HOLDBACK, and FINAL PAYMENT

- 4.1 Read and be governed by GC 5.2 (APPLICATIONS FOR PROGRESS PAYMENT), GC 5.4 (SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK), and GC 5.5 (FINAL PAYMENT) in CCDC 2-2020, as modified by the Supplementary Conditions attached herewith and marked as Schedule 1.
- 4.2 Application for progress payment shall be dated and submitted to the Owner (University) and the Consultant on the last day of the agreed monthly payment period and the amount claimed shall be for the value, proportionate to the amount of the Work performed and Products delivered and incorporated into the Work at that date. Applications for release of holdback and for final payment shall be submitted in accordance with the specific requirements of GC 5.4 and GC 5.5, respectively.
- 4.3 The Consultant shall review and assess the application for payment for compliance with the requirements of the Contract and the amounts claimed prior to issuing a payment certificate to the Owner (University). Where the Consultant is the Owner's (University's) in-house architectural and engineering services, the application for payments are to be forwarded by e-mail to the Owner's (University's) Construction Coordinators as follows:

Attention: Kent Au Project Manager
c/o University of Toronto
University Planning, Design & Construction, Project Management Group
255 McCaul Street, 4th Floor
Toronto, Ontario M5T 1W7

e-mail: kent.au@utoronto.ca

- 4.4 When application for progress payments have been reviewed and approved in writing as compliant with the requirements of the Contract by the Project Manager, forward progress claims and all required documents, to the Consultant who shall forward the documents to the Owner (University) for progress payments. Submit to the Owner's (University's) Project Manager as follows:

Attention: Kent Au, Project Manager
c/o University of Toronto
University Planning, Design & Construction, Project Management Group
255 McCaul Street, 4th Floor
Toronto, Ontario
M5T 1W7

e-mail: kent.au@utoronto.ca

- 4.5 Strictly follow the payment template procedure as follows;

Original Contract	\$10,000.00	A
Authorized Changes	\$2,000.00	B (Back-up Required)
Revised Contract:	<u>\$12,000.00</u>	A+B

Value of Work Completed to Date	\$5,000.00	D (Back-up Required)
Holdback Deducted	\$500.00	E [D *10%]
Less Holdback Released	\$0.00	F
Holdback Remaining	\$500.00	G [E-F]
Subtotal	<u>\$4,500.00</u>	H [D-G]
Less Previous Certificates Payments	\$0.00	I (H of previous Certificate)
Gross Amount Payable before HST	<u>4,500.00</u>	[H-I]
HST	\$315.00	K [J *13%]
TOTAL	<u>\$ 4,815.00</u>	L [J+K]

- 4.6 **ALL** Payment Applications **MUST** comply strictly with the requirements for a "Proper Invoice", as that term is defined and described in Supplementary Conditions attached herewith and marked as Schedule 1 and

1. clearly quote the U of T Project Number
2. clearly quote the U of T Purchase Order Number

- 4.7 Applications for Payment will be returned to the company issuing the application if the above stated submission requirements, as well as the requirements in the Contract, **ARE NOT** strictly followed.

5.0 CONTRACT MODIFICATION PROCEDURES

- 5.1 Read and be governed by CCDC 2-2020 and Section 00 73 00 attached herewith and marked as Schedule 1 for the definitions of Supplemental Instruction or Site Instruction, Change Order, and Change Directive, and as specified herein.
- 5.2 After the Contract is awarded and signed by the Contractor and the Owner (University), any changes to the Contract must be documented and authorized, using the following documentation:
- 1) Supplemental Instruction or Site Instruction.
 - 2) Change Order.
 - 3) Change Directive.
 - 4) Contemplated Change Notice:
 - i. Contemplated Change Notice is a written notice prepared by the Consultant and is a method of obtaining quotations for changes to the Work within the general scope of the Contract Documents. Unless noted otherwise in the Contemplated Change Notice, changes to the work are not to proceed until authorized by a Change Order.
- 5.3 Where provided, Unit Prices for additions and deletions to the work shall be those as reviewed and accepted by the Owner (University). The Unit Prices shall include all overhead and profit.
- 5.4 Where provided, Wage Schedule for additions and deletions to the work shall be those as reviewed and accepted by the Owner (University).

- 5.5 Where the Contractor or any of his subcontractors proceeds with changes in the work on a time and material basis, daily time sheets and material slips shall be submitted. The application for a final change order must be accompanied by these time sheets, material slips and cost breakdown.
- 5.6 Where the Owner (University) and Contractor cannot mutually agree on the cost or evaluation of a given change, the Contractor, upon receiving written directions from the Owner (University), the Contractor shall proceed with the required change without delaying the Work, and the evaluation of the given change will be submitted for arbitration at the completion of the Work.
- 5.7 The Owner (University) and Consultant shall have twenty-one (21) Working Days in which to review and accept the Contractor's quotation for each given change in the Work.
- 5.8 The Consultant and his consultants from time to time may issue Supplemental Instructions and/or Site Instructions solely for the purpose of answering Requests for Information (RFI) from the Contractor and his subcontractors, and clarifying the Drawings and Specifications. As such, the Contractor shall not be permitted to apply costs against the Supplemental Instructions and/or Site Instructions.

END OF SECTION 01 20 00

CASH ALLOWANCES: SECTION 01 21 13**1.0 GENERAL**

1.1 General Requirements:

1.2 Comply with requirement of The General Conditions of the Contract.

1.2.1 The University reserves the right to call or have Contractor call competitive bids; for portions of work to be paid for out of Cash Allowances. Relationship of Contractor and Other Contractors performing portions of work to be paid out of Cash Allowances will be such as between the Contractor and his subcontractors.

1.2.2 The following allowances will be included in Stipulated Contract Price for items of work which will be finalized at a later date.

1.2.3 An allowance for:

Inspection and Testing of new openings\$5,000.00
and penetrations through the roof

Assignment of the Supply and delivery of the Chiller.....\$96,500.00

Assignment of the Supply and delivery of the two AHUs.....\$501,825.00

Total Stipulated Sum Cash Allowances \$603,325.00

CHILLER AND AHUS**2.0 EXPENDITURE**

2.1 Expenditure of Allowance:

2.1.1 Expenditures against Cash Allowance will be made only upon receipt of written authority from the University.

2.1.2 Copies of **ALL** invoices for labour, materials and equipment will be submitted to the University as required to substantiate charges against the allowances.

2.1.3 Contract Price will be adjusted by means of Change Order to the Contract to reflect expenditures against the allowance.

2.1.4 Unexpended portions of the Allowances will be credited to the University on completion of the work or when directed.

3.0 TAXES, OVERHEAD & PROFITS

3.1 Taxes, Overhead and Profits:

3.1.1 Fees on account of applicable taxes, overhead and profit, management, supervision and handling the work covered by the allowances - ARE NOT included in above Cash Allowances. Such charges will be included in the Stipulated Contract Price.

END OF SECTION 01 21 13

ADMINISTRATIVE REQUIREMENTS: SECTION 01 30 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 RELATED WORK SPECIFIED ELSEWHERE

- 2.1 Section 01 40 00 - Quality Requirements: quality control procedures and methods.
- 2.2 Section 01 70 00 - Execution Requirements: Field Engineering through to Take-Over Procedures.
- 2.3 Section 01 78 39 - Project Record Documents: for administrative and procedural requirements for Project record documents, including submission of electronic data.
- 2.4 Section 01 92 00 - Facility Operation: requirements for, Operations and Maintenance Manuals.

3.0 START-UP BRIEFING MEETING

- 3.1 Prior to commencement of the Work, University Project Manager will organize and attend a start-up briefing meeting with the Owner (University), Mechanical and Electrical Consultants, and the Contractor and all key site personnel including Subcontractors for all major trades.
- 3.2 University Project Manager will chair this meeting and record the minutes including the names and affiliation of persons present. Copies of the minutes will be issued to Owner (University), Contractor and Consultants.
- 3.3 University Project Manager will outline their administration procedures and special conditions relating to design and construction.
- 3.4 Owner (University) will outline their administration procedures and special conditions relating to construction and environmental protection.
- 3.5 Contractor will outline their administration procedures and all conditions relating to construction.

4.0 PROJECT (SITE) MEETINGS

- 4.1 Contractor shall organize weekly regular Project (site) meetings, with the Owner (University), Consultant and their authorized representatives, major Subcontractors and only such others as are specifically invited to provide supplementary information for specific items.
- 4.2 Contractor will chair this meeting and record the minutes including the names and affiliation of persons present, decisions and action required.
- 4.3 Copies of the minutes will be issued to Owner (University), Consultant (Architect) and all Engineers.
- 4.4 Contractor shall make copies as required to issue to Mechanical and Electrical Subcontractors, and other major Subcontractors whose part of the Work is pertinent to the discussions at the meeting.
- 4.5 Contractor shall organize and preside over Project meetings with Subcontractors and suppliers as required to coordinate, schedule and expedite the Work. Hold these meetings separate from meetings with the Owner (University), Consultant (Architect) and Engineers.

5.0 PRE-INSTALLATION MEETINGS (CONFERENCES)

- 5.1 Contractor shall organize pre-installation meetings (conferences) at the Place of the Work, with the Subcontractor, installer, manufacturer's representative, fabricators involved in or affected by the installation and its coordination or integration with other Products and installations that have preceded or will follow the portion of the Work to be discussed and only such others as are especially invited to provide supplementary information for specific items.
- 5.2 Contractor will chair these pre-installation meetings (conferences) and record the minutes including the names and affiliation of persons present, decisions and action required. Contractor shall initiate whatever actions are necessary to resolve impediments to the performance of the construction activity and reconvene at pre-installation meeting (conference) at the earliest feasible date.
- 5.3 Pre-installation meetings (conferences) agenda shall include review of progress of other construction activities and preparations that relate directly to the particular construction activity under consideration including but not limited to the requirements as follows; Contract Documents, addenda, options, related supplemental instructions or site instructions, related change orders, related change directives, related contemplated change notices, purchases, deliveries, submittals, review of mock-ups, possible conflicts, trade responsibilities, compatibility of materials and problems, time schedules, weather limitations, manufacturer's written recommendations, warranty requirements, acceptability of surfaces and substrates, temporary facilities and controls, space and access limitations, regulations of authorities having jurisdiction, inspection and testing requirements, required performance results and protection of construction personnel requirements.
- 5.4 Copies of the minutes will be issued to Owner (University), Consultant (Architect), all Engineers and all pre-installation meeting (conference) attendees.
- 5.5 Contractor shall make copies as required to issue to Mechanical and Electrical Subcontractors, and other major Subcontractors whose part of the Work is pertinent to the discussions at the pre-installation meeting (conference).
- 5.6 Contractor shall organize and preside over the pre-installation meetings (conferences) for each construction activity that requires coordination and scheduling with other construction activities of the Work. Hold these pre-installation meetings (conferences) separate from project (site) meetings and meetings with the Owner (University), Consultant (Architect) and Engineers.

6.0 ADMINISTRATIVE PROCEDURES

- 6.1 Submit to Consultant for review as specified the following submittals:

1. Shop drawings.
2. Samples.
3. Product data.
4. Certification and verification of performance.
5. Mock-ups and quality control panels.
6. Operating and maintenance manuals.
7. As-built record documents.
8. Progress photographs.
9. Progress and submittals schedules.
10. Progress and daily reports.
11. Inspection and test reports.
12. Warranties.
13. Certificates and transcripts.

- 6.2 Submit submittals with reasonable promptness and in an orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- 6.3 Work affected by the submittal shall not proceed until review is complete.
- 6.4 Review submittals prior to submission to the Consultant. The review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.
- 6.5 Verify field measurements and affected adjacent Work are coordinated.
- 6.6 Contractor's responsibility for errors and omissions in submission is not relieved by Consultants review of submittals.
- 6.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultants review.
- 6.8 Keep one reviewed copy of each submission at the Place of the Work.

7.0 SHOP DRAWINGS

- 7.1 Read and be governed by GC 3.10 in CCDC 2-2020 and the Supplementary Conditions attached herewith and marked as Schedule 1.
- 7.2 Term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.
- 7.3 Do not use Consultant's Drawings for shop drawings.
- 7.4 Method of submission:
 - 7.4.1 Submit, as an e-mail attachment to each person being copied, an editable with comments electronic PDF data file of all Architectural, Civil, Structural, Mechanical and Electrical shop drawings. If pre-printed Product data or Product data catalogue sheets are used submit scanned editable with comments electronic PDF data file copies of each for Architectural Civil, Structural, Mechanical and Electrical items. Consultant will return the stamped PDF files with notes if applicable and stamped PDF copies of data or catalogue sheets except record copies for Consultant. Copies of white prints or data sheets will be retained by the Consultant for his records.
 - 7.4.2 Prepare shop drawings using metric scales and dimensions.
 - 7.4.3 Provide blank space, minimum 4" (102mm) x 8" (204mm), for the Contractor's and Consultant's stamps on the right side of each shop drawing.
 - 7.4.4 Arrange for additional copies of shop drawings for authorities requiring same after they have been reviewed by the Consultant. Copies shall be true copies of those reviewed by the Consultant.

- 7.4.5 Show on shop drawings complete details of items to be provided and their interface with other components of the Work. Submittals showing isolated uncoordinated information are not acceptable. Clearly note dimensions and methods of fastening.
- 7.4.6 Contractor to provide coordinated interference drawings for mechanical and electrical systems together.
- 7.4.7 Include Product data, manufacturers' specifications, certification of compliance to standards and installation instructions as specified in respective specification Sections.
- 7.4.8 Circle or note on data or catalogue sheets which list optional dimensions, model number and accessories, the specific options to be supplied.
- 7.4.9 Identify shop drawings and data sheets with the following:
1. Project name and number.
 2. Manufacturer's, supplier's and Contractor's name.
 3. Reference to Drawing and Specification section number identifying location and description of items shown on shop drawing.
 4. Identify mechanical, electrical and specialty equipment by system, name and number or code shown on the Drawings, Schedules or in the Specification.
- 7.4.10 Do not construct, fabricate or deliver parts of the Work requiring shop drawings prior to receiving shop drawings stamped "REVIEWED" or "Reviewed AS MODIFIED" by the Consultant.
- 7.4.11 Consultant's stamp initialled under "REVIEWED" indicates that conformity to design and general arrangement is acceptable and fabrication may proceed, subject to the conditions of G.C. 3.10 in Standard Construction Document CCDC 2 - 2020, Stipulated Price Contract, as amended by Section 00 73 00, Amendments to CCDC 2 - 2020 - Supplementary Conditions attached herewith and marked as Schedule 1. No further submittals are required. Do not add new details to shop drawings which have been initialled "REVIEWED".
- 7.4.12 Consultant's stamp initialled under "REVIEWED AS MODIFIED" or "REVIEWED AS NOTED" indicates that conformity to design and general arrangement is acceptable and fabrication may proceed subject to corrections being made as noted. No further submittals are required unless specifically requested by the Consultant.
- 7.4.13 Consultant's stamp initialled under "REVISE AND RE-SUBMIT" indicates that the shop drawing is not acceptable and is to be resubmitted.
- 7.4.14 Noted comments made on shop drawings by the Consultant are not authorization for changes to the Contract Price. If comments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.
- 7.4.15 Indicate Products, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the Specification section under which the adjacent items will be supplied and installed. Indicate cross references to the Drawings and Specifications.

- 7.4.16 Make changes in shop drawings as the Owner may require, consistent with Contract Documents. When resubmitting, notify the Project Manager in writing of any revisions other than those requested.
- 7.4.17 Shop drawings for exterior doors, windows, curtain wall and skylight frames in exterior building walls and roofs MUST be coded and clearly indicate enclosure principles as follows; indicate the line of the "air seal" using bold dotted type lines for the line of the air seal, indicate the "drainage path" using bold broken type line with directional arrows which indicate the path of the drainage flow, indicate all locations of outside air pressure as "Po" and indicate all locations of inside air pressure as "Pi". If these shop drawings are not coded as stated above, they will be stamped "REVISE AND RE-SUBMIT" by the Consultant.
- 7.4.17.1 These shop drawings MUST be coded to show the following building enclosure principles:
1. Line of air seal through the assembly and its interface with the building assembly.
 2. Drainage and ventilation paths through the assembly and to the exterior.
 3. Pressure differences through the assembly.
- 7.4.17.2 Make changes in shop drawings as the Owner may require, consistent with Contract Documents. When resubmitting, notify the Project Manager in writing of any revisions other than those requested
- 7.4.17.3 Include the final revised and reviewed Shop Drawings as Project Record Documents in Operation and Maintenance Manuals specified in Section 01 92 00.

8.0 SAMPLES

- 8.1 Submit for review samples in duplicate as requested in respective specification Sections.
- 8.2 Label samples as to origin and intended use in the Work, and deliver prepaid to the Project Manager's business address.
- 8.3 Notify the Project Manager in writing, at the time of submission of deviations in samples from requirements of Contract Documents.
- 8.4 Adjustments made on samples by the Owner are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Project Manager prior to proceeding with the Work.
- 8.5 Make changes in samples which the Owner may require, consistent with Contract Documents. Resubmit samples unacceptable to the Project Manager.
- 8.6 Sample Products delivered to the Place of the Work prior to review by the Owner are subject to rejection by the Owner.
- 8.7 Submit with samples of site and shop applied coatings, the type, thickness and classification, generic material, manufacturer's trade name and code number and code number for colour for each layer. Submit total coating thickness.
- 8.8 Submit complete specification of application procedure for coatings.

- 8.9 Submit test reports with samples, prepared by an independent testing authority acceptable to the Owner if specified or requested by the Owner.

9.0 MOCKUPS AND QUALITY CONTROL PANELS

- 9.1 Refer to Section 01 40 00.
- 9.2 Provide mock-ups and quality control panels as specified in respective specification Sections.

10.0 PROJECT RECORD DOCUMENTS

- 10.1 After award of the Contract, the Project Manager will provide the successful Contractor with one electronic data CD having the electronic data files in PDF format of the complete set of Drawings sealed by the consultant and Specifications for construction purposes and the complete set of Drawings in AutoCAD Version 2013 format not sealed by the consultant for construction purposes for marking up in the field recorded 'As-Built' Record Documents. The successful Contractor shall be required to use the electronic data CD to prepare their own printed sets of documents for the quantity that they require. Accurately and neatly record deviations caused by conditions at the Place of the Work and changes ordered by the Owner (University).
- 10.2 Record locations of concealed components of mechanical and electrical services.
- 10.3 Mark invert elevations of underground services.
- 10.4 Identify documents as "Project Record Copy". Maintain in new condition and make available for inspection at the Place of the Work by the Owner.
- 10.5 On completion of Work and prior to final inspection, submit project record documents to the Project Manager as specified under "Project Record Documents" in Section 01 78 39.

11.0 PROGRESS PHOTOGRAPHS

- 11.1 On commencement of Work and coincident with progress claims thereafter, submit to the Owner (University), digital copies of photographs to indicate progress of the Work.
- 11.2 On each photograph, legibly indicate the date photograph was taken. Each photograph shall be taken from a constant location of exposure to clearly indicate the progress of the Work.

12.0 PROGRESS AND SUBMITTALS SCHEDULES

- 12.1 Submit the following schedules to the Project Manager within two (2) weeks from date of award of Contract unless otherwise specified herein.
- 12.1.1 Progress schedule:
- 12.1.1.1 Prepare a progress schedule of the Work consistent with the preliminary schedule. Allow time for preparing and reviewing shop drawings, delivery of major items and equipment and the completion of construction for each Subcontractor or special operation required to construct the building and finish exterior areas of the Work.
- 12.1.1.2 Keep progress schedule up to date and advise parties concerned of changes.
- 12.1.1.3 Issue digital copies to all parties concerned. Issue revised copies at suitable intervals.

12.1.2 Submittals schedules:

12.1.2.1 Prepare and submit a schedule listing shop drawings showing the anticipated date of submission and the date review is required.

12.1.2.2 Prepare and submit a schedule listing samples showing the anticipated date of submission and the date review is required.

12.1.2.3 Coordinate these schedules with the progress schedule.

12.1.3 Cost breakdown schedule:

12.1.3.1 Prepare a cost breakdown for each section of the Work coordinated with the progress schedule.

12.1.3.2 Submit a draft format for acceptance by the Consultant.

12.1.3.3 Keep the cost breakdown schedule up to date with the progress schedule and advise the Consultant of changes.

12.1.3.4 Issue revised copies to the Consultant at time of each change.

13.0 PROGRESS AND DAILY REPORTS

13.1 Progress reports:

13.1.1 Submit to the Owner (University), progress reports coincident with Project site meetings and with each progress payment claim consisting of a concise description and a marked-up schedule showing physical percentage complete by item and in total.

13.2 Weekly reports:

13.2.1 Maintain in the field office at the Place of the Work a written **weekly** record of the progress of parts of the Work available to the Project Manager. Show dates of commencement and completion of parts of the Work, daily high and low temperatures and other weather particulars, number of people engaged on the Work (including sub-trades) broken down in groups for each part of the Work.

14.0 INSPECTION AND TEST REPORTS

14.1 Refer to Sections 01 40 00 and 01 45 23.

14.2 Submit inspection and test reports as specified in each respective Specification sections.

15.0 WARRANTIES

15.1 Read and be governed by GC 12.3 in CCDC 2-2020 and Section 00 73 00 attached herewith and marked as Schedule 1.

15.2 Read and be governed by the General Conditions of the Contract.

15.3 Warranties shall be issued in the name of the Owner (University) and signed by the respective Subcontractor.

- 15.4 In instances where part of the Work cannot be completed for reasons beyond the control of the Contractor (e.g. climatic conditions, strikes), a separate certificate of Substantial Performance will be required and warranties will be adjusted accordingly.
- 15.5 Submit copies of warranties as specified in respective specification Sections for inclusion in Operations and Maintenance Manuals and Products specified in Section 01 92 00.

16.0 CERTIFICATES AND TRANSCRIPTS

- 16.1 Immediately after award of the Contract and when instructed by the Consultant submit Workers' Compensation Board status, transcription of insurances, and Performance Bond and Labour and Material Payment Bond.

17.0 WASTE MANAGEMENT

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

END OF SECTION 01 30 00

SPECIAL PROJECT PROCEDURES: SECTION 01 35 13**1.0 GENERAL****1.1 General Instructions**

- 1.1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.
- 1.1.2 The purposes of the special project procedures are as follows:
 - 1.1.2.1 Special project procedures shall be required for the full duration of the Work of this Contract for the renovation of the existing building(s) as indicated on the Drawings and specified in the Specifications, so that at the same time the existing building(s) which are under renovation or alteration can be maintained safe and fully operational, while providing educational and/or research services for the University students, education staff, including support, maintenance and administration personnel, visitors and the Public.
 - 1.1.2.2 Special project procedures shall also ensure the Contractor provides full accessibility to the existing building(s) under renovation or alteration forming the Work of the Contract to the University students, education staff, including support, maintenance and administration personnel, suppliers, other contractors, visitors and the Public.
 - 1.1.2.3 Special project procedures shall apply to each part of the Work of the Contract related to the existing building(s) performed by the trades' persons specializing in such work.

2.0 RULES AND REGULATIONS FOR CONSTRUCTION PERSONNEL

- 2.1 Fundamental to any and/or all rules and regulations, whether written and/or unwritten, is the fact that the Owner (University) is the guardian of, and has full responsibility for the welfare and well-being of the students receiving an education and doing research at the facility, and education staff providing educational services assisted by support, maintenance and administration personnel.
- 2.2 Where the following rules and regulations for all construction personnel of the Work of the Contract attempts as much as possible to foresee all circumstances which may affect the Work of this Contract carried out by the construction personnel, the Owner (University) in its sole opinion and judgement may so decide that any act of omission or commission is detrimental to the students, education staff, and including support, maintenance and administration personnel. The Owner's (University's) opinion and judgement is **final**.
- 2.3 The following rules and regulations shall be construed as being general in nature and designed as a guide for behavior of all construction personnel, including suppliers and their employees while performing the Work of this Contract in and/or on the properties of the Owner (University):
 - 2.3.1 Communication with the Owner's (University's) personnel and staff shall all be routed through the University Project Manager.
 - 2.3.2 Where the Work of this Contract causes results which are detrimental to the operations of the Owner (University), or is distressing or disturbing to students, staff and personnel, to the point where the University Project Manager feels that such work should stop until conditions change, then such work shall stop on order of the University Project Manager.

- 2.3.3 Where construction personnel perform Work of this Contract in more than one area of the building(s), such work shall be scheduled so that occupied areas are avoided during scheduled class times and activities. Where the aforementioned regulation is not possible, the Contractor shall have a frank discussion with the University Project Manager and Consultant, and amicable arrangements shall be made. The University Project Manager may require to consult with the University Property Manager and/or University education staff or support personnel.
- 2.3.4 Construction personnel shall review all procedures with the University Fire Prevention Officer(s) in which open flame is used as part of the Work of this Contract. Any procedures which shall give off hazardous fumes and/or odours strong enough to harm and/or cause discomfort to the University students, personnel/staff, visitors and the Public, as these fumes and/or odours will be carried by air currents of the mechanical ventilation distribution system to the remote corners of the building(s) shall be reviewed with University Environmental Health and Safety. All construction personnel shall strictly follow the recommendations and written requirements of the respective department. In addition to the aforementioned regulation, construction personnel shall limit the amounts of volatile mixtures, flame producing apparatus and the like, within the building(s) to an amount no greater than that required for one (1) day's use. Items of volatile mixtures, flame producing apparatus and the like shall not be stored overnight in the building(s).
- 2.3.5 Construction personnel shall comply with and enforce the Owner's (University's) rules with regards to smoking. Smoking and/or transporting of lit tobacco products of any description through or in the building(s) by construction personnel within shall not be permitted or tolerated. When the aforementioned actions are discovered, or when advised by the University Project Manager, such actions shall be grounds for immediate removal of the cause(s) and the construction personnel involved from the Owner's (University's) building(s).
- 2.3.6 Construction personnel shall not bring and/or drink alcoholic beverages in the building(s), or on the properties of the Owner (University). When the aforementioned actions are discovered, or when advised by the University Project Manager, such actions shall be grounds for immediate removal of the cause(s) and the construction personnel involved from the Owner's (University's) building(s).
- 2.3.7 Noisy behaviour and/or "horse play" of any type by the construction personnel is strictly forbidden. When the aforementioned actions are discovered, or when advised by the University Project Manager, such actions shall be grounds for immediate removal of the cause(s) and the construction personnel involved from the Owner's (University's) building(s).
- 2.3.8 Operation of air compressors, drilling machines, tamping devices, tractors, tractor trailers, floats and other noise making equipment shall be limited to the time period as determined by the University Project Manager to suit the situation(s) and condition(s) of the Place of the Work.
- 2.3.9 Construction personnel shall pay particular attention to the limiting features such as; doorways, stairwells and elevators. Under no circumstances will the existing elevators be overloaded, their governing mechanisms distorted, or be required to perform service unusual to their normal every day operation.
- 2.3.10 Construction personnel shall wear a legible numbered identification patch or tag on their person at all times on which the name of their employer company is clearly indicated.
- 2.3.11 Construction personnel shall not consume food or drink within the construction enclosures for hygienic reasons.

- 2.3.12 Construction personnel shall not use washrooms at the Owner's (University's) building(s) unless authorized to do so, and shall use only the designated washrooms as instructed by the University Project Manager. Refer to Section 01 50 00 - Temporary Facilities and Controls for additional requirements.

3.0 RESTRICTIONS

- 3.1 The Work shall be confined to the Place of the Work (Site) limits indicated on Drawings and/or within area defined by property lines. Work on the Municipal property shall be carried out under regulations of respective Municipality and authorities having jurisdiction including without any limitations any associated fees, permits, insurance or bonding required.
- 3.2 Assume responsibility for care, custody and control of the Place of the Work (Site) and perform the Work to extent covered in Contract Documents. Make good damage to the existing Site and existing building(s) (if any) due to the Work of this Contract.
- 3.3 Bring the following restrictions to the attention of the construction personnel and workers on the Work and enforce them:
- 3.3.1 Restrict construction personnel and workers to Place of the Work and necessary access routes to it. Restrict non-construction personnel from the Place of the Work (Site), except for Contractor-authorized visitors.
- 3.3.2 Restrict construction activities in public, in Owner (University) occupied areas, in locations designated to off-hours agreed in Preconstruction Meeting without additional cost to the Owner (University), and return these areas to normal operations as soon as possible.
- 3.3.3 Do not use explosives without written acceptance of the Owner (University) and authorities having jurisdiction.
- 3.3.4 Nut-based abrasive blasting medium, including walnut shells, are not permitted to be used on University of Toronto projects.

4.0 OCCUPANCY OF THE EXISTING BUILDING(S)

- 4.1 The existing building(s) will remain in full use and occupancy throughout the duration of construction of the Work of this Contract. Contractor shall schedule and perform the Work of this Contract so that conflict is minimized.
- 4.2 Contractor shall perform the Work of this Contract in and around the existing building(s) at approved times and as mutually agreeable to the University, so not to inconvenience or hinder the occupation of the building(s) by the Owner (University), the University's personnel/staff and the students.
- 4.3 Give the Owner (University) a minimum of seven (7) working days' written notice of intention to commence work in a room, or area(s) of existing building(s) so that he may prepare the space(s).
- 4.4 Before the Work of this Contract begins and on a routine basis, construction personnel shall be thoroughly informed of the necessity to exercise **extreme** caution in any of their activities which may interrupt an essential service serving the "occupied areas" for which an alternate supply, service or facility has not been provided.
- 4.5 The Owner (University) and/or his separate contractors reserve the right to enter the area(s) of Work of this Contract for the purpose of placing and/or fitting equipment before completion of the Work of

this Contract. Such entry shall not interfere with or prevent the Contractor from performing the Work of this Contract. Also, such entry shall not in any way be considered as acceptance of the Work of this Contract by the Owner (University), or in any way relieve the Contractor from responsibilities under Work of this Contract.

- 4.6 Any interruption(s) of mechanical and electrical services to "occupied areas" **must** be pre-arranged with the University Project Manager. Where any such interruption(s) is impossible to avoid, it shall be of the shortest duration possible and restricted to times acceptable to the University Project Manager in writing. Contractor shall apply in writing to the University Project Manager well in advance of any contemplated and/or intended interruption(s).
- 4.7 Construction personnel shall be confined to the enclosed construction areas except when absolutely necessary to perform work and duties directly connected to the Work of this Contract. Contractor shall make arrangements with the University Project Manager well in advance of work and/or duties required outside the enclosed construction areas.
- 4.8 In order to reduce to a minimum, the period of time required for Work of this Contract within the existing building(s), each area of Work of this Contract shall be pre-planned in complete detail and all materials for the entire work within the area shall be on hand or readily available. Before work in each area of the work of this Contract begins, the Contractor shall well in advance make appointment(s) with the University Project Manager to measure and review the areas to be renovated for the purposes of pre-planning.
- 4.9 The University Project Manager **must** be informed well in advance by the Contractor of any Work of this Contract which would likely affect the students, university personnel/staff, and/or the routine(s) of the existing building(s). The welfare of the students and preservation of the existing building(s) operations **must** be the first concern at all times.
- 4.10 Contractor shall perform the Work of this Contract as quietly as possible in and around existing building(s) at all times the Owner (University), the University personnel/staff and the students are occupying the existing building(s).
- 4.11 Maintain continuation of fire protection in existing building(s) as specified herein.
- 4.12 Maintain existing exits and ensure that proper and safe means of egress from all parts of existing building(s) to open spaces are provided at all times to the approval of jurisdictional authorities. Locate and install exit lights, and illuminate temporary means of egress.
- 4.13 Maintain access to service and delivery entrances as specified herein.
- 4.14 Maintain security of existing building(s) during the Work of this Contract as specified herein.

5.0 CONTRACTOR'S USE OF THE EXISTING BUILDING(S)

- 5.1 Limit access of the construction personnel to the existing building(s) only at the locations acceptable to the University Project Manager.
- 5.2 Ensure that the construction personnel perform work in existing building(s) only as required under the Contract.
- 5.3 Access to the work areas shall be through existing corridors and occupied areas as directed by the University Project Manager in consultation with the Consultant.

- 5.4 Do not store or place demolition waste, construction materials, Products and other supplies in the corridors and "occupied areas". The Owner (University) shall not be responsible for, or pay for loss of construction materials, Products, other supplies, tools and/or equipment left in corridors and occupied areas. Contractor shall maintain the corridors and occupied areas clean and free of dust and debris from transportation of demolition waste, construction materials, Products, equipment and other supplies.
- 5.5 Construction personnel shall occupy areas of the existing building(s) for their purposes only as directed and only while the Work is in progress. Keep assigned areas clean under Work of this Contract, and return them to an "as was" condition at completion of construction. Replace, or make good as approved, damage to the existing building(s), fixtures and fittings caused during use by the construction personnel. Include cost of installation and making good of other work thereby affected in replacement.
- 5.6 Contractor shall assume total responsibility for the security of the area(s) of the existing building(s) being renovated upon commencement of Work of this Contract, except for those areas specifically retained by the Owner (University) for its exclusive use during construction.

6.0 SERVICES IN THE EXISTING BUILDING(S)

- 6.1 Ensure that the existing Mechanical and Electrical services are not damaged during demolition and construction. Arrange with the mechanical and electrical Subcontractors to immediately cut off and cap concealed services uncovered during the Work.
- 6.2 Do not interrupt the Mechanical or Electrical services of the existing building(s), except for temporary close-downs to make connections to new work, and as approved by prior arrangements with the University Project Manager. Give the University a minimum of seventy-two (72) hours written notice of intention to interrupt the Mechanical and/or Electrical services in the existing building(s), in any area.
- 6.3 In no case shall the Mechanical and/or Electrical service interruptions affect the total existing building(s).
- 6.4 Should existing Mechanical and/or Electrical services be accidentally uncovered and disrupted, make complete restoration immediately, and ensure adequate protection to avoid further disruption until alternative means of providing permanent continuation of the services are made.
- 6.5 Make payment for restoration work of uncovered or disrupted Mechanical and/or Electrical services as specified in the foregoing, at no additional cost to the University if, in the opinion of the University Project Manager and Consultant, that such work could have been reasonably foreseen by examination at time of bidding, and/or which has been caused by lack of proper care and protection.
- 6.6 Unless specified otherwise, restore the Mechanical and/or Electrical services on which the Work is performed to original condition.

7.0 REMOVAL AND SALVAGE OF EXISTING MATERIALS, PRODUCTS, FURNISHINGS AND FURNITURE

- 7.1 Before any Work is commenced in any area of the existing building(s), the Owner (University) may remove furnishings and movable furniture that do not require disconnecting from services, storing same in some other portion of building or off premises. Supply, install and maintain during demolition work, temporary barriers and protective covers required for safety, in compliance with requirements of authorities having jurisdiction. Items not removed but required to stay, shall be protected with approved dust proof covering specified herein. Items not required shall be removed from premises by Contractor. Obtain the Owner's (University's) approval prior to removal.

- 7.2 Where existing items are designated for relocation or removal, relocate or remove these items unless specified elsewhere, or specified to be done by Other Contractors or the University.
- 7.3 Demolish only those portions of the existing building(s) as indicated on the Drawings and necessary for incorporation of the Work. Carry out demolition in accordance with requirements of CSA S350 and in strict accordance with other requirements of authorities having jurisdiction.
- 7.4 Remove building elements, components, materials, and equipment as required by the Work. Remove carefully items designated to be handed over to University. At end of each work shift leave work in a safe condition so that no part of the remaining structure is in danger of toppling, collapsing, or falling.
- 7.5 Limit removal of items to smallest areas possible, and "make good" the disturbed existing work.
- 7.6 Relocate building elements, components, materials, and equipment as indicated on the Drawings.
- 7.7 Materials resulting from demolition and not required to be retained shall be removed promptly from the Place of the Work (Site) in accordance with requirements of authorities having jurisdiction and in safe manner to minimize danger at the Place of the Work (Site) and during disposal. Obtain the Owner's (University's) approval prior to removal. Conform to requirements of municipality's Works Department regarding disposal of waste materials.
- 7.8 Unless specified otherwise or noted otherwise, or designated otherwise at the Place of the Work (Site), building components, manufactured specialties, miscellaneous metals and other items which are noted to be moved but not relocated shall remain the property of the University. Return such items to the Owner (University) in an adequately preserved and usable condition on the date of Substantial Performance of the Work, or other mutually agreed date.
- 7.9 Materials and Products recovered from the existing work in the existing building(s) which are not relocated or required by the Owner (University) shall become the property of the Contractor and shall be disposed of away from the Place of the Work.
- 7.10 Remove debris and accumulated dirt from the existing building(s) immediately as it accumulates. Ensure that during removal operations through the existing building(s) that existing work is not damaged and dirt, debris and dust is not spread. Repair of damages will be at the expense of the guilty party, and at no expense to the University.
- 7.11 Maintain the work areas in the existing building(s) constantly broom clean to avoid tracking of dirt, debris and dust into adjacent areas. Immediately clean up dirt, debris and dust resulting from the Work of Contract that is deposited in the existing building(s) outside of the work areas. Make a daily inspection to ensure that the work access areas and construction access areas are maintained clean and undamaged as specified herein.
- 7.12 Clear away dirt, rubbish and loose litter resulting from work of this Section, minimum daily. Keep dust to a minimum. When necessary and practical demolition works shall be sprayed periodically with water to reduce dust.
- 7.13 Comply with the requirements for cutting and patching requirements as specified herein.

8.0 EXISTING AREAS AND WORK OF OTHER CONTRACTORS

- 8.1 Commencement of parts of the Work, in existing areas and in areas provided by Other Contractors, will be deemed to signify the Contractor's acknowledgment and acceptance of those parts of the Work.

- 8.2 Immediately report defects which affect the quality and performance of the Work in writing to the Owner (University).
- 8.3 Existing premises will remain occupied during the Work. Perform the Work to cause minimum interference with activities in existing premises and maintain maximum safety to occupants. Take reasonable measures to minimize and control noise, dirt and dust during the Work.
- 8.4 Before entering the existing premises to carry out the Work, or to obstruct or take out of use any area of existing premises, or to cause any other interference, request and have a meeting with the Owner (University) in order to reach agreement as to time and length of time you may interfere, possess, obstruct or remove from use any such area or services.
- 8.5 Maintain temporary entrances to building(s) including enclosed hoardings as required by authorities having jurisdiction and to their approval standard. Maintain access to the existing service entrance(s) at all times, including ready access for fuel oil trucks and other delivery vehicles.

9.0 SECURITY REGULATIONS

- 9.1 Perform the Work in accordance with following security requirements and regulations:
 - 9.1.1 Ensure only necessary tools and equipment are brought to each work area where access by the Public is possible. Keep constant check on these items and, at end of each work shift, bring all tools and equipment to storage room as directed.
 - 9.1.2 The Owner (University) will provide a security escort for the Work in locations where it deems necessary.
 - 9.1.3 The Owner (University) may issue suitable keys to Contractor, where possible. Contractor shall sign receipt for keys issued and shall be responsible for admittance of its authorized personnel only to areas for which keys provide access. Return keys to the Owner (University) immediately upon request.
 - 9.1.4 Direct inquiries regarding security regulations to the University Project Manager, who will advise the Contractor of any additional requirements.
 - 9.1.5 Perform the Work taking into consideration movement of the building(s) occupants.

10.0 USE OF FLAME AND VOLATILE SUBSTANCES

- 10.1 Contractor shall schedule the use of flame, such as torches, and volatile substances well in advance with the University Project Manager and Consultant. Obtain burn permit from University prior to use of flame and volatile substances.
- 10.2 The Owner (University) may wish to have their personnel/staff standing by with fire extinguishing equipment, in the area(s) of Work where flame and/or volatile substances are being used. Contractor shall co-ordinate the scheduling of the use of flame and/or volatile substances with the Owner's (University's) personnel/staff.
- 10.3 Contractor shall exercise **extreme** caution in handling and using materials, products or tools which could conceivably cause fire or explosion.
- 10.4 All flammable liquids and volatile substances must be handled and stored in approved containers. Paint materials shall be stored and mixed only in approved locations as directed by the University

Project Manager and Consultant. All oily waste and rags after use must be placed in approved safety containers and removed at the end of each working day.

11.0 EQUIPMENT TO BE REMOVED

- 11.1 The Owner (University) shall have the right of first refusal for all equipment to be removed.
- 11.2 Accordingly, the Owner (University) through the University Project Manager and Consultant shall identify all such equipment and items prior to the commencement of the Work by the Contractor.

12.0 MECHANICAL AND ELECTRICAL PROCEDURES

- 12.1 Mechanical and electrical shutdowns and planning of such operations that may affect the Owner's (University's) and/or the University students', education staff's, and the support, maintenance and administration personnel's use of the mechanical and electrical services shall be co-ordinated with the University Project Manager and other authorities at the University as the University Project Manager may deem necessary and/or appropriate.
- 12.2 Contractor and his Subcontractors herein agree that at all times that the **on-going functions of the existing building(s) shall continue**. The Owner (University) through the University Project Manager may at any given time request that any Contract Work activity be temporarily ceased at no additional costs to the Owner (University) due to the interference being caused. The Contractor and his Subcontractors shall comply with the University Project Manager's directions and obey the University Project Manager's decisions.
- 12.3 It is vital that the existing mechanical and electrical services be maintained at all times.
- 12.4 Provide access to fire alarm pull stations at all times.
- 12.5 Shutdowns, if required, shall be scheduled in advance with the Owner (University) and the shutdown time period shall be minimized to the Owner's (University's) convenience.
- 12.6 Major shutdowns shall take place either after regularly scheduled class hours during weekdays, or on weekends, as directed by the University Project Manager unless otherwise agreed to by the Owner (University), and at no additional costs to the Owner (University).
- 12.7 Mechanical and/or electrical services in occupied areas of the existing building(s) shall not be connected and/or disconnected without the Owner's (University's) prior approval.
- 12.8 Existing operating valves and switches closed/shut off and opened/turned back on by the Contractor and his Subcontractors shall be tagged and marked as follows:
 - 1. University of Toronto Project name/number.
 - 2. Name of Contractor.
 - 3. Name of Subcontractor
 - 4. Tradesman's name.
 - 5. Date(s) and time(s) closed or shut off.
 - 6. Date(s) and time(s) to be opened or turned back on.
- 12.9 The University of Toronto forms required within various procedures, each of which is available from the University Project Manager, shall include, but not be limited to the following:
 - 1. University of Toronto - Request for Electrical Services Shutdown form,

2. University of Toronto - Regulations for Contractors having Access to U of T Facilities and Services, Utilities & Building Operations Division, High Voltage Substations and Electrical Rooms
3. University of Toronto - Facilities & Services, Utilities & Building Operations Division - Application for Work on LIVE Electrical Equipment
4. University of Toronto - Regulations for Contractors Having Access to U of T Facilities and Services, Utilities & Building Operations Division - Mechanical Rooms and Building Roofs
5. University of Toronto – Request for Mechanical Service Shutdown
6. University of Toronto - Fire Prevention Services Request for Fire Alarm and Sprinkler System Activity
7. University of Toronto - Notice of Excavation, Crane or Heavy Equipment Utilization, - St. George Campus
8. University of Toronto - Regulations and Procedures for Security and Safety by Those Using Service Tunnels
9. University of Toronto - Rooftop Access Consent/Waver Agreement

A sample of each can be found at the following link:

<https://www.fs.utoronto.ca/projects/design-standards-and-project-forms/>

10. University of Toronto –Confined Space Entry Permit (Confined and Restricted Spaces)
11. Radiography Source Permit System (Radiation Safety)

A sample of each can be found at the following link:

<https://ehs.utoronto.ca/resources/policies-and-procedures>

13.0 ASBESTOS PROCEDURES

- 13.1 Conform to the Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under Occupational Health and Safety Act as amended, and the University of Toronto - Asbestos Management Program available at <https://ehs.utoronto.ca/resources/policies-and-procedures/> . Provided that in the case of conflict with these Specifications, the most stringent requirements shall apply.
- 13.2 Contractor and his subcontractor's shall duly and accurately fill out the Contractor's Workers Asbestos Awareness Training Program Form of all construction personnel who shall be performing the Work, or a portion of the Work at the Place of the Work (Site), and provide copies to the University Project Manager and other representatives as designated by the Owner (University) at the construction start-up meeting. Where any of the Contractor's and his subcontractor's construction have not received Asbestos Awareness Training acceptable to the Owner (University), the Contractor shall provide and pay for the additional Asbestos Awareness Training required by the Owner (University) at no additional cost to the Contract.
- 13.3 After reading and studying the University of Toronto - Asbestos Management Program, the Contractor and his subcontractors shall, duly and accurately fill out the Contractor's Acknowledgement of

Asbestos Management Program Form, and provide copies to the University Project Manager and other representatives as designated by the Owner (University) at the construction start-up meeting.

- 13.4 In event of unexpected discovery of friable material, do no work that will disturb the friable material until it is determined if friable material contains asbestos and immediately report discovery, orally and in writing to the Owner (University). The Owner (University) will authorize remedial work, if any, in writing. Contractor shall perform such remedial work, as an addition to Contract.
- 13.5 Copies of the Owner's (University's) Type 1, 2, or 3 asbestos abatement Standard Operating Procedures prepared by the University's Office of Environmental Health and Safety are available at the following link: <https://ehs.utoronto.ca/resources/policies-and-procedures/> .
- 13.6 Take adequate precautions to avoid disturbing friable materials containing asbestos. Should such materials be disturbed, then suspend work in area in question and immediately report orally and in writing to the Owner (University). Any contamination of surrounding areas shall necessitate clean-up of affected areas in accordance with the requirements of the O. Reg. 838 and the University of Toronto Asbestos Management Program, under the Asbestos Procedures as specified herein. Except where required to be dealt with under other Sections of the Specifications, the Owner (University) will authorize remedial work, if any, in writing. Contractor shall perform such remedial work as an addition to Contract.
- 13.7 Owner's (University's) asbestos procedures and forms, each of which is available from the University Project Manager, shall include, but shall not be limited to the following:
1. University of Toronto - Acknowledgement of University of Toronto "Asbestos Management Program", Ontario Regulation 278/05, "Designated Substance-Asbestos on Construction Projects and in Building and Repair Operations" and Designated Substances Survey Report.
 2. "Contractor's / Sub-Contractor's Workers Asbestos and Designated Substances, Training & Work Experience" form.
 3. "Asbestos Management Program", University of Toronto.
 4. University of Toronto - ID R2.04 Standard Operating Procedures for the Control of Asbestos Fibres During Type 2 Operations, DRILLING OF HOLES IN PLASTER WALLS AND CEILINGS THAT CONTAIN ASBESTOS WITH HEPA FILTERED TOOL

14.0 FUNGI (MOULD) REMEDIATION PROCEDURES

- 14.1 Where potential fungi (mould) material may be present, the Contractor shall report such conditions to the Owner (University) including, but not limited to the following conditions:
- 14.1.1 Wherever new or old water damage is found. New water damage must be reported immediately and dealt with within twenty-four (24) to forty-eight (48) hours of wetting. Identify the source of the water damage and if it contained a high level of bio-contaminants (eg. sewage, river water).
- 14.1.2 Wherever strong odours consistent with fungi (mould) are noted or reported.
- 14.1.3 Wherever specific physical symptoms potentially related to fungi (mould) are noted or reported. People who have asthma, bronchitis, hay fever or other allergies, or have weakened immune systems are more likely to react to fungi (mould). The most common symptoms include, but shall not be limited to; runny nose, eye irritation, skin rash, cough,

congestion, fatigue, headache and aggravation of asthma. Refer to the Ontario Ministry of Labour - Mould in Workplace Buildings Alert 20: ISSN 1195-5228, Hazard Summary.

- 14.2 Conform to the Owner's (University's) Level I, II, III, Iva, and Ivb Procedures for The Remediation of Fungi in Indoor Environments prepared by the University's Office of Environmental Health and Safety. Copies of the Owner's (University's) Level I, II, III, Iva and Ivb Procedures for The Remediation of Fungi in Indoor Environments prepared by the University's Office of Environmental Health and Safety can be obtained from the University Project Manager.
- 14.3 In the event of unexpected discovery of potential fungi (mould) material, do no work that will disturb the potential fungi (mould) material until it is determined if the material contains fungi (mould) and immediately report discovery, orally and in writing to the Owner (University). The Owner (University) will authorize remedial work, if any, in writing. Contractor shall perform such remedial work, as an addition to Contract.
- 14.4 Take adequate precautions to avoid disturbing fungi (mould) materials. Should such materials be disturbed, then suspend work in area in question and immediately report orally and in writing to office of Construction Health and Safety Branch, Ministry of Labour nearest to the Place of the Work and to the Owner (University). Any contamination of surrounding areas shall necessitate clean-up of affected areas in accordance with requirements of Construction Health and Safety Branch, Ministry of Labour and the University's Fungi (Mould) Remediation Procedures under the work of this Section. Except where required to be dealt with under other Sections of Specifications, the Owner (University) will authorize remedial work, if any, in writing. Contractor shall perform such remedial work as an addition to Contract.

15.0 MAGNETIC FIELD/RADIO FREQUENCY (RF) FIELD SPECIAL SAFETY WARNINGS AND PRECAUTIONS

intentionally deleted

16.0 TEMPORARY WAY FINDING AND WARNING SIGNAGE

- 16.1 Contractor shall provide all temporary way finding, directional, information and warning signage and tapes as required and as specified herein for the smooth, efficient and continuous operation of the building(s) as higher education and research facilities, life safety protection and direction of traffic of the University students, visitors, the Public and the Owner's (University's) staff/personnel. In addition to the aforementioned requirements, provide all additional temporary way finding, directional, information and warning signage and tapes as directed later by the University Project Manager.
- 16.2 Temporary way finding, directional, information and warning signage and tapes shall include, but shall not be limited to the following:
- 16.2.1 Floor/wall directional arrows: Colour coded, pressure sensitive, self-adhesive, die cut vinyl type 4-3/4" (121mm) x 6" (150mm) floor/wall directional arrows and 3" (75mm) diameter floor/wall dots, Model No. S52-A220 and Model No. S52-A210 by Tenaquip Ltd., or other Product and manufacturer acceptable to the University Fire Prevention Officer, University Project Manager and Consultant. Colours shall be as selected later by the Owner (University) in consultation with the Consultant.
- 16.2.2 Information directories: Colour coded, pressure sensitive, self-adhesive, write-on, die cut vinyl information type directories indicating department name(s) and/or room number(s) and having directional arrows acceptable to the University Project Manager and Consultant, by Tenaquip Ltd., or other manufacturer acceptable to the Owner (University) and Consultant.

Colours shall be as selected later by the Owner (University) in consultation with the Consultant.

- 16.2.3 Warning, caution, danger, emergency and miscellaneous symbol type signage: Pressure sensitive, self-adhesive, write-on, die cut vinyl warning, caution, danger, emergency, and miscellaneous symbol(s) type signage as required and acceptable to the University Project Manager and Consultant, by Tenaquip Ltd., or other manufacturer acceptable to the Owner (University) and Consultant.
- 16.2.4 Safety aisle and warning type tapes: Colour coded, pressure sensitive, self-adhesive, vinyl aisle marking and warning type tapes as required and acceptable to the University Project Manager and Consultant, by Tenaquip Ltd., or other acceptable Product and manufacturer acceptable to the Owner (University) and Consultant. Colours shall be as selected later by the Owner (University) in consultation with the Consultant.
- 16.2.5 Illuminated type fire exit and life safety signage: Shall be as approved by the Ontario Fire Marshall, Toronto Fire Department, University Fire Prevention Officer, University Project Manager and Consultant. Where so approved by the authorities having jurisdiction and the University Fire Prevention Officer, in lieu of aforementioned illuminated fire exit and life safety signage, the Contractor may provide "photo luminescent" type temporary fire exit and life safety signage, "Johnsonite Safe-T-First Permalight Signage System" by Johnson Rubber Company Canada Ltd., division of Duramax Inc., Waterloo, Ontario, or approved equal.
- 16.3 Co-ordinate all temporary way finding, directional, information and warning signage and tapes with construction phasing and dustproof screen requirements. Refer to Section 01 10 00 - Summary and Section 01 50 00 - Temporary Facilities and Controls.
- 16.4 When each phase of the Work is complete, carefully remove from existing surfaces to remain, relocate and/or provide new temporary way finding, directional, information and warning signage and tapes as required and as directed by the authorities having jurisdiction, the University Project Manager and Consultant.
- 16.5 After removal of temporary way finding, directional, information and warning signage and tapes, Contractor shall patch, repair, make good, repaint and/or replace existing finish(es) on existing surfaces designated to remain to the satisfaction of the University Project Manager and Consultant.

END OF SECTION 01 35 13

QUALITY REQUIREMENTS: SECTION 01 40 00**1.0 GENERAL**

1.1 General instructions

1.1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 REGULATORY REQUIREMENTS

2.1 Ontario Building Code (OBC).

2.2 National Building Code (NBC).

2.3 Regulatory requirements generally are identified by date of publication. Where no date is indicated refer to the current edition as of the date for receipt of Bids.

3.0 STANDARDS

3.1 Read and be familiar with standards referred to in these Specifications. Conform to most recent version of the Standards, except where date is indicated.

3.2 Conform to or exceed the applicable requirements of the standards referred to in the Specifications.

3.3 In the event of conflict between the referenced standards and the Specifications, the Specifications shall govern.

3.4 Standards generally are identified by date of publication. Where no date is indicated refer to the current edition as of the date for receipt of Bids.

3.5 Canadian and American standards referenced in the Specifications may include, but are not limited to the following:

- Aluminum Association (AA).
- American Architectural Manufacturers Association (AAMA).
- American Concrete Institute (ACI).
- American Iron and Steel Institute (AISI).
- American Institute of Steel Construction (AISC).
- American National Standards Institute (ANSI).
- American National Standards Institute/Door and Hardware Institute (ANSI/DHI).
- American Society of Heating, Refrigeration and Air Conditioning (ASHRAE).
- American Society for Testing and Materials (ASTM).
- American Welding Society (AWS).
- Architectural Woodwork Institute (AWI).
- Architectural Woodwork Manufacturers Association of Canada (AWMAC).
- Building Owners and Manufacturers Association (BOMA).
- Canadian General Standards Board (CGSB).
- Canadian Institute of Steel Construction (CISC).
- Canadian Lumberman's Association (CLA).
- Canadian Paint Manufacturer's Association (CPMA).
- Canadian Roofing Contractors Association (CRCA).
- Canadian Standards Association (CSA).
- Canadian Sheet Steel Building Institute (CSSBI).
- Factory Mutual (FM).
- Flat Glass Marketing Association (FGMA).

- Glass Association of North America (GANA).
- Illuminating Engineering Society of North America (IES).
- Intertek Testing Services ETL SEMKO (ITS).
- Ministry of Transportation, Ontario (MTO).
- National Association of Architectural Metal Manufacturers (NAAMM).
- National Electrical Manufacturer's Association (NEMA).
- National Fire Protection Association (NFPA).
- National Glass Association (NGA).
- National Hardwood Lumber Association (NHLA).
- National Lumber Grades Authority (NLGA).
- National Research Council (NRC).
- Ontario General Contractors Association (OGCA).
- Ontario Painting Contractors Association (OPCA).
- Ontario Provincial Standards Specification (OPSS).
- Ontario Industrial Roofing Contractors Association (OIRCA).
- Porcelain Enamel Institute (PEI).
- Society of Automotive Engineers (SAE).
- Steel Joist Institute (SJI).
- Steel Structures Painting Council (SSPC).
- Terrazzo, Tile and Marble Association of Canada (TTMAC).
- Underwriters' Laboratories of Canada (ULC).
- Underwriters' Laboratories Inc. (UL or ULI).
- Warnock Hersey (WH).
- Workplace Hazardous Materials Information System (WHMIS).

3.6 International standards referenced in the Specifications include, but are not limited to the following:

- International Organization for Standardization (ISO).
- British Standards (BSs)
- Deutsches Institut für Normung (DIN). (In English, the German Institute for Standardization)

4.0 QUALITY CONTROL PROCEDURES AND METHODS

4.1 Provide and pay for quality control procedures and methods required to ensure compliance with the intent of the Contract Documents including independent inspection and testing specified herein.

5.0 QUALITY ASSURANCE

5.1 Reliability of calculations by date sensitive equipment, systems and components

- 5.1.1 Date sensitive equipment, systems and components thereof must individually and in conjunction properly function and continue to correctly process, sequence and utilize date and time related data for all dates and times, which occur during a reasonable life expectancy for said equipment, systems and components thereof.
- 5.1.2 Correctly process, sequence, and calculate all date and date related data for all dates prior to, through and after January 1, 2000, including leap year calculations.
- 5.1.3 Software products that process date or date related data shall recognize, store and transmit date data in a format which explicitly and unambiguously specifies the correct century.
- 5.1.4 Each Subcontractor shall include this requirement in all Contracts and equipment orders for this Project.

5.1.5 Submittals:

- 5.1.5.1 Provide certification from suppliers and subcontractors providing date sensitive equipment, systems, and software that the proposed equipment, components and systems comply with these requirements.

6.0 INSPECTION AND TESTING

- 6.1 Inspection and testing will be performed by independent inspection and testing companies appointed and paid by the Owner (University).
- 6.2 Inspection and testing will be directed by the Contractor.
- 6.3 Inspection and testing does not relieve a Subcontractor of responsibility to supply specified Products and to properly execute the Work.
- 6.4 Remove and replace Products indicated in inspection and test reports as failing to comply with Specifications in accordance with instructions by the Consultant and without increase to the Contract Price.
- 6.5 Correct improper installation procedures reported in inspection and test reports as instructed by the Consultant and without increase to the Contract Price.
- 6.6 Pay costs for re-inspection and testing of replaced Work as directed by the Consultant and for delays due to the corrective part of the Work.
- 6.7 It is not the responsibility of inspection and testing agents to supervise, instruct in current methods or accept or reject a part of the Work but only to examine and to report conditions.
- 6.8 Advise the Owner (University), Consultant and the appropriate inspection and testing agent not less than 48 hours prior to the commencement of the part of the Work to be inspected and tested.
- 6.9 Ensure presence of the authorized inspection and testing agent at the commencement of the part of the Work specified to be inspected or tested.
- 6.10 Ensure that inspection and testing reports are issued promptly (normally within 48 hours) and that the Consultant is informed immediately if the report indicates improper conditions or procedures.
- 6.11 Co-operate and provide facilities for inspection and testing agents to perform their duties.
- 6.12 Provide proper facilities for storage of concrete specimens at correct temperature, free from vibration or damage in accordance with the instructions of the inspection and testing agent.
- 6.13 Pay the cost of tests for reinforcing steel unidentified by mill test reports.

7.0 INSPECTION BY AUTHORITY HAVING JURISDICTION

- 7.1 In the case that a Building Permit is required, the Building Permit will be applied for and paid for by University of Toronto.
- 7.2 Inspection performed by the Authority Having Jurisdiction shall be arranged by the Contractor as required by General Conditions 10.2.
- 7.3 In the case that a Building Permit is required, the Contractor shall be responsible for requesting from the Authority Having Jurisdiction a Document of Inspection Status issued by the Authority Having

Jurisdiction stating that inspection of the construction/demolition, under permits for all disciplines issued by the Authority, have been completed and passed in accordance to plans issued with the permits.

8.0 SAMPLES, MOCK-UPS AND QUALITY CONTROL PANELS

- 8.1 Refer to Section 01 40 00.
- 8.2 Refer to individual technical Specification sections for specific requirements.
- 8.3 Samples, mock-ups and quality control panels accepted by the Consultant establish the quality of workmanship and Products for subsequent similar parts of the Work.
- 8.4 Parts of the Work not conforming to accepted samples, mock-ups and quality control panels will be rejected.

9.0 QUALITY CONTROL REFERENCE ROOM AND AREAS

- 9.1 Intentionally Deleted

10.0 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

- 10.1 Comply with the Workplace Hazardous Materials Information System (WHMIS) in accordance with the Occupational Health and Safety Act (OHSA) requirements.
- 10.2 Before commencement of the Work and during full term of Contract, provide a list with current Materials Safety Data Sheets (MSDS) of all hazardous materials proposed for use at the Place of the Work.
- 10.3 Label hazardous materials used and/or supplied at the Place of the Work in accordance with the WHMIS requirements.
- 10.4 Provide detailed procedures for safe handling storage and use of hazardous materials. List special precautions and safe clean up and disposal procedures. Conform to Environmental Protection Act and other requirements of authorities for disposal and clean up requirements.
- 10.5 Obtain from the Owner (University), where applicable, a list and MSDS of hazardous materials that may be handled, stored or used by the University's employees and/or Other Contractors retained by the Owner (University) at the location(s) where the Work of this Contract will be performed.
- 10.6 Ensure that those who handle, and/or are exposed to or are likely to handle or to be exposed to hazardous materials are fully instructed and trained in accordance with the WHMIS requirements.

11.0 ENVIRONMENTAL PRACTICES

- 11.1 Take active role in implementing environmentally sound business practices and producing goods and services that lessen burden on environment in production, use and final disposition. Support implementation of reduction, reuse and recycling strategies and use of environmentally sound Products. Reduce or eliminate excessive packaging, and promote use of environmentally responsible packaging practices.
- 11.2 Use environmentally sound Products that are made, used and disposed of in a manner that significantly reduces harm it would otherwise cause to the environment. Products may be declared as environmentally sound because it is made in a way that improves energy efficiency, reduces

hazardous by products, uses recycled material, or the Product itself can be recycled or re-used, or it is in some way environmentally benign.

- 11.3 Conform to the Canadian Code of Preferred Packaging Practices to reduce waste, including but not limited to the following:

11.3.1 Use, where appropriate, combination of packaging materials such as; re-useable containers, blanket wrap or cushioning material provided that all reasonable requirements of material handling, transportation and storage are observed.

11.3.2 Packaging materials such as craft paper and corrugated cartons shall be made from re-claimed products to facilitate recycling of secondary materials.

11.3.3 Packaging materials shall be clearly labeled to display their recycled content and recyclability

11.3.4 Ensure that packaging materials are removed from the Place of the Work and disposed of in environmentally responsible manner.

12.0 WASTE MANAGEMENT

- 12.1 Comply with all applicable regulations and requirements of Ontario Regulations 102/94, Waste Audits and Waste Reduction Workplans and 103/94, Industrial, Commercial and Institutional Source Separation Programs under the Environmental Protection Act of Ontario, including preparing and submitting waste audit and reduction plan specified in Section 01 30 00. For definitions refer to Ontario Regulation 105/94, Definitions.

13.0 BUILDING THERMOGRAPHIC SCAN

- 13.1 Upon completion of the Work, and at any time during the one-year warranty period, the Owner (University) may arrange and pay for an independent agency to carry out a thermographic scan of the building to determine the acceptability of the thermal performance of the exterior building envelope.
- 13.2 Results of thermographic scan of entire building will be evaluated to determine acceptance or rejection of any part of the building envelope by the Owner (University) and Consultant.
- 13.3 Contractor shall carry out remedial work as required to bring the quality of any rejected portion of the building envelope to that acceptable to the Owner (University) and Consultant. Contractor shall pay for costs of any follow-up thermographic scans required to determine acceptability of remedial work. This procedure shall be repeated until all parts of the building envelope have been accepted by the Owner (University) and Consultant.

END OF SECTION 01 40 00

INSPECTION AND TESTING SERVICE REQUIREMENTS: SECTION 01 45 23**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 SCOPE OF WORK

- 2.1 Having inspection and testing companies does not in any way relieve the Contractor and the Subcontractors from their contractual responsibility to perform the Work in conformance with the applicable Specifications Sections, Drawings, Schedules and reviewed and accepted shop drawings, regardless of the inspections and tests, which are only to verify conditions and to be regarded as an aid to the Work alone.
- 2.2 Inspections and testing companies shall report all observed deviations from the Drawings and Specifications directly to the Owner (University) and Consultant. Instructions to the inspection and testing companies will be given through the Owner's (University's) Project Manager and Consultant.

3.0 STANDARDS AND SPECIFICATIONS

- 3.1 Where the requirements of the Drawings or Specification Section(s) are at variance with the standards, the Specification Section(s) requirements shall apply and where discrepancies occur between the Drawings, Specification Section(s) and the reviewed and accepted shop drawings, the latter shall be followed.

4.0 COST OF INSPECTIONS AND TESTING

- 4.1 The cost of all inspections and testing services shall be paid for by the Owner (University) or by Cash Allowance(s) per Section 01 21 13 Cash Allowances.
- 4.2 Inspection and testing will be ordered by the Contractor, and carried out by independent inspection and testing companies or agents appointed by the Owner (University).

5.0 RESPONSIBILITIES

- 5.1 Contractor:
- 5.1.1 Contractor shall supply a set of Drawings, Specifications and Schedules including all addenda for the use of the inspections and testing companies. Subcontractors shall be advised by the Contractor of the inspections and testing appointments.
- 5.1.2 Contractor shall advise the appropriate inspections and testing companies not less than forty-eight (48) hours prior to the commencement of any Work to be inspected and tested. Contractor shall ensure that proper facilities are provided and co-operate fully with the respective inspection and testing companies and their inspectors.
- 5.1.3 Provide inspectors full access and co-operation to areas of the Work requiring inspection and testing.
- 5.1.4 Inspector(s) shall be present at the commencement of all Work pertaining to inspections and testing. Incorrect procedures shall be corrected immediately and where necessary, defective work replaced.

- 5.1.5 It is not the duty or responsibility of inspection and testing personnel to supervise the Work, or instruct in correct methods of application or installation, but merely to examine and make factual reports.
- 5.1.6 Inspections and tests shall not relieve the Contractor from responsibility, but is a precaution against oversight or error. Defective material shall be removed and replaced by the Contractor and his Subcontractor(s) at their own expense and he shall also be responsible for all unnecessary delay caused by rejection and for the payment of costs for any additional testing required by the Owner's (University's) Project Manager and/or Consultant.
- 5.2 Subcontractors:
 - 5.2.1 Subcontractor(s) shall advise the Contractor not less than seventy-two (72) hours prior to the commencement of any Work to be inspected and tested.
 - 5.2.2 Provide inspectors full access and co-operation to areas of the Work requiring inspection and testing.
- 5.3 Inspection and testing companies:
 - 5.3.1 Inspection and testing companies, their personnel, employees and inspectors shall be totally independent and have no affiliations with the Contractor, Subcontractors, fabricators, suppliers or others performing the Work of the Contract. Contractor shall submit to the Owner's (University's) Project Manager and Consultant, evidence of previous experience of inspection and testing services acceptable to the Owner's (University's) Project Manager and Consultant. Inspectors shall be registered engineers in the Place of the Work.
 - 5.3.2 Study the requirements and intent of the Drawings and Specifications including all addenda.
 - 5.3.3 Carry out all inspections and testing as described herein and such additional inspections and testing as may be directed by the Owner's (University's) Project Manager and Consultant.
 - 5.3.4 The inspection and testing company's representative shall inform the Owner's (University's) Project Manager and Consultant of each visit to the Place of the Work (Site), plant or mill at the time of the visit.
 - 5.3.5 Supply and distribute copies of all inspection reports and test reports promptly to the Owner's (University's) Project Manager and also to such parties as the Owner's (University's) Project Manager may designate.
 - 5.3.6 Inform the Contractor and the superintendent at the Place of the Work immediately of condition, qualities or procedures which do not comply with the requirements or, intent of the Drawings and Specifications, prepared by the Consultant and the Owner's (University's) other consultants.
 - 5.3.7 Acceptance or rejection of the materials or workmanship is not the responsibility of the Inspections and Testing Authority, but that of the Owner's (University's) Project Manager and Consultant.
- 5.4 Reports and distribution:
 - 5.4.1 Inspection and Testing Companies shall report each inspection and/or test individually, comprehensively, in writing and signed by an authorized representative of the applicable inspections and testing company. Inspection and Testing Companies shall distribute reports directly as follows:

1. Owner's (University's) Project Manager.
2. Consultant.
3. Municipal Building Department (where applicable).
4. Consultant's sub consultant when inspection and/or testing of the Work are required (Structural/Mechanical/Electrical).
5. Contractor.
6. Subcontractor(s) performing work being inspected and/or tested.

5.5 Report data shall include, but shall not be limited to the following:

1. Name of Inspection and testing company.
2. Project Name and Project Number.
3. Name of Owner's (University's) Project Manager.
4. Consultant's Name.
5. Contractor's Name.
6. Subcontractor's Name.
7. Dates of inspections and reports.
8. Air temperature.
9. Weather.
10. General comments on application and workmanship.
11. Any deviations from accepted procedures, Drawings and Specifications.

6.0 EARTHWORKS

Intentionally Deleted

7.0 CAISSONS

Intentionally Deleted

8.0 PRESTRESSED ROCK ANCHORS

Intentionally Deleted

9.0 ASPHALT PAVING

Intentionally Deleted

10.0 CAST-IN-PLACE CONCRETE AND REINFORCEMENT

Intentionally Deleted

11.0 PRECAST CONCRETE STAIRS

Intentionally Deleted

12.0 MASONRY GROUT

Intentionally Deleted

13.0 MASONRY MORTAR

Intentionally Deleted

14.0 CONCRETE BLOCK

Intentionally Deleted

15.0 CLAY BRICK

Intentionally Deleted

16.0 STRUCTURAL STEEL AND STEEL DECKING

16.1 Standards and Specifications:

16.1.1 Refer to Section general requirements in S001 drawing set.

16.2 Inspection and testing required:

16.2.1 Refer to Section general requirements in S001 drawing set.

17.0 LOAD BEARING STEEL STUD FRAMING

Intentionally Deleted

18.0 WATERPROOFING MEMBRANE

Intentionally Deleted

19.0 AIR BARRIER MEMBRANE

Intentionally Deleted

20.0 WATER REPELLENT COATING

20.1 Standards and Specifications:

20.1.1 Refer to Section general requirements in S001 drawing set.

20.2 Inspection and testing required:

20.2.1 Refer to Section general requirements in S001 drawing set.

21.0 VEHICLE TRAFFIC COATINGS

21.1.1 Intentionally Deleted

22.0 PEDESTRIAN TRAFFIC COATINGS

Intentionally Deleted

23.0 ROOFING

23.1 Standards and Specifications:

23.1.1 As specified in Roofing design standard Revision 02 - November 28, 2023

23.1.2 Supervise water test of roofing membrane(s).

23.1.3 Overall inspection of completed roofing work.

23.1.4 Final roofing report:

23.1.4.1 On completion of all roofing membrane types and sheet metal work, submit a final report certifying each type of roofing membrane installed and sheet metal worthiness.

24.0 SPRAYED FIREPROOFING

24.1 Standards and Specifications:

- 24.1.1 ASTM E605, Test Methods for Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.
- 24.1.2 ASTM E736, Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
- 24.1.3 As specified in Section

24.2 Testing shall be performed in successive stages as follows;

- 24.2.1 Within each testing area, inspection and testing service shall randomly select a typical bay (grid line to grid line), select and test one (1) of the spray fireproofed structural elements for thickness and density in accordance with ASTM E605.
- 24.2.2 Within each testing area, inspection and testing service shall randomly select one (1) typical structural element of each type and test spray fireproofing for cohesion/adhesion in accordance with ASTM E736. Test shall be pulled to failure with results recorded in lb/ft² (kg/m²).
- 24.2.3 Contractor shall not proceed with sprayed fireproofing of next area unless test results of previously completed sprayed fireproofing work show compliance with the specified performance requirements.
- 24.2.4 Additional testing: Where sprayed fireproofing is removed, replaced and/or repaired, all additional testing required to determine compliance with the specified performance requirements shall be paid by the Contractor.

25.0 FIRE STOPPING AND SMOKE SEALS

25.1 As specified in Section 07 84 00.

25.2 Required testing:

- 25.2.1 Inspect and test each type of fire stopping and smoke seals per floor level. Where high numbers of defective fire stopping and smoke seals found during inspection and testing, increase number of each type of fire stopping and smoke seal inspections and tests as required to locate the defective installation and application procedures.
- 25.2.2 Using smoke generator, simulate smoke at a rate of 25 ft³/sec (0.71m³/second) and maintain the smoke density until inspection is complete
- 25.2.3 Contractor shall not proceed with fire stopping and smoke seals of the next area unless test results of previously completed fire stopping and smoke seals work show compliance with the specified performance requirements.
- 25.2.4 Additional testing: Where fire stopping and smoke seals are removed, replaced and/or repaired, all additional testing required to determine compliance with the specified performance requirements shall be paid by the Contractor.

26.0 ALUMINUM CURTAIN WALL

26.1 Standards and Specifications:

26.1.1 Refer to Architectural Section of the Specifications.

26.2 Tests required:

26.2.1 Refer to Architectural Section of the Specifications.

27.0 FIRE PROTECTION SYSTEMS

Intentionally Deleted

28.0 ELEVATORS

Intentionally Deleted

29.0 PLUMBING

29.1 Refer to inspection and testing requirements for plumbing specified in Section mechanical Specification

30.0 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

30.1 Refer to inspection and testing requirements for heating, ventilating, and air conditioning (HVAC) specified in Section mechanical Specification

31.0 INTEGRATED AUTOMATION

31.1 Refer to inspection and testing requirements for integrated automation as specified in Section mechanical Specification

32.0 ELECTRICAL

32.1 Refer to inspection and testing requirements for Electrical services and equipment as specified in Section Electrical Specification

END OF SECTION 01 45 23

TEMPORARY FACILITIES AND CONTROLS: SECTION 01 50 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 ACCESS TO THE WORK

- 2.1 The access route to the Work and the timing of deliveries shall be agreed upon well in advance with the University Project Manager and Consultant. Make prior arrangement with University prior to deliveries of materials.
- 2.2 The existing building(s) loading dock and area may be made available for deliveries of construction materials and equipment and removal of demolition materials, but only during restricted hours established by the University Project Manager. At no time shall deliveries of construction materials and equipment or disposal of waste materials interfere with or delay the University staff and/or personnel, services deliveries of supplies or disposal of the existing building(s) waste.
- 2.3 Contractor shall ensure that responsible construction personnel are on hand to receive materials, Products and equipment when delivered. The University shall not be responsible for receiving or storing construction materials, Products and equipment.
- 2.4 Receipt of prefabricated items too large for designated routes, may be arranged for transport to the work area(s) with the University Project Manager well in advance of receiving prefabricated items.
- 2.5 Establish procedures to minimize the tracking of mud, dirt, debris, dust and waste construction materials onto and/or in to the existing building(s).

3.0 CONSTRUCTION SAFETY

- 3.1 Observe and enforce all construction safety measures, as contained in the Occupational Health & Safety Act and Regulations for Construction Projects, current regulations of Ministry of Environment and other requirements of Federal, Provincial, Municipal and other authorities having jurisdiction.
- 3.2 For the purpose of the Occupational Health & Safety Act, the Contractor shall be designated the "Constructor", and shall assume the responsibilities of the Constructor as set out in that Act and its Regulations.
- 3.3 In the event of conflict between any of the provisions of Statutes, Regulations and By-laws, and other requirements of authorities, the **most** stringent provision shall apply.
- 3.4 Prior to commencement of construction for the Work, design a fire safety plan in conjunction with the local Fire Chief. Post the fire plan throughout construction as recommended. Do not allow accumulation of waste that may constitute a fire hazard.
- 3.5 Conform to the Construction Safety Association of Ontario's Manual on Propane in Construction.
- 3.6 Notify the Owner (University) before welding at the Place of the Work (Site), to obtain a Hot Work Permit from the Owner's (University's) Fire Prevention Officer and give a minimum of 48 hours' notice.
- 3.7 Ensure that all Work in the existing building(s), which is scheduled to remain, is protected. Prior to commencement of the Work, carry out pre-construction safety audit to identify hazards and establish protocols, commitment to safety, safety rules, and safety related chain of commands for making

openings, removal and replacements of various components. Design, implement, monitor and maintain a safe work environment throughout the Contract in accordance with procedures established during pre-construction safety audit. The Owner (University) will have the authority to correct deficiencies and disregard for good safety practice without any expense to the Owner (University) and which shall be paid for by the Contractor. Attendance to pre-construction safety audit shall be mandatory for Contractor, Subcontractors and major suppliers.

4.0 PROTECTION

- 4.1 Protect existing services, structures, landscaping and other items required to remain and newly installed Work during construction with secure and durable coverings, barricades, hoardings or guards suitable for the various conditions and as specified herein. Protect adjacent surfaces and structures against damage which may occur from falling debris or other causes. Perform the Work in a manner to avoid damage.
- 4.2 The Owner's (University's) students, staff, personnel shall be occupying the existing building(s) during the Performance of the Work. Provide for the safety of the existing building occupants and for the security of occupied areas. Provide protection and keep clear areas that are required for access to, and exit from, occupied areas. Maintain free, safe, protected, clear passage to and from the building(s) and the work area(s); refer to the Drawings for any specific hoarding or temporary partition locations. Maintain clear and safe fire exit routes as specified herein.
- 4.3 Particular attention will be paid to the prevention of fire and the elimination of fire hazards which would endanger the work or adjacent buildings and premises. Contractor will provide and maintain all necessary fire extinguishers during the Work at all times, located at convenient and accessible points, and meeting the approval of the Owner's (University's) Fire Prevention Officer.
- 4.4 Where construction operations must be executed or traffic routed over finished floors, lay minimum 1/4" (6mm) thick plywood coverings tightly fitted over surface in such areas. Secure plywood to prevent movement in a manner which will not damage finished surfaces.
- 4.5 Where construction operations must be performed over finished roofs and waterproofed areas lay minimum 1/2" (13mm) thick plywood covering. Secure plywood to prevent damage and penetration of roof and waterproofed surfaces. Provide means to prevent wind uplift.
- 4.6 Protect, relocate and maintain active building services to adjoining areas of building(s) without interruptions, except those required for connection for the Work which shall be coordinated with the Owner (University) as specified herein. Make good all damage.
- 4.7 It is essential that the existing building(s) be both water and weather-tight at all times. Therefore, the Contractor shall furnish all temporary protective enclosures, tarpaulins, etc., as may be required to protect openings made by the Work of this Contract.
- 4.8 Protect the existing work to remain. Provide coverings and other protection materials.
- 4.9 Cover openings in equipment, ducts and pipes until final connections are made.
- 4.10 Protect exposed live electrical equipment during construction for personal safety.
- 4.11 Shield and mark live electrical parts with appropriate warnings.
- 4.12 Provide temporary doors for rooms containing electrical distribution equipment. Keep doors locked except when under the direct supervision of a qualified electrician.

- 4.13 Wherever practical, lock or barricade finished areas.
- 4.14 As soon as construction is sufficiently advanced, enclose accessible openings to provide security. Provide temporary doors with security hardware.
- 4.15 Ensure continuous security of the Work and construction equipment.
- 4.16 Provide protection against the elements to maintain Products and installations from damage and deterioration.
- 4.17 Remove snow and ice immediately from parts of the Work except finished roofs. Do not use salt and avoid mechanical damage.

5.0 EMERGENCY EXITS AND FIRE ROUTES

- 5.1 Contractor shall not in any way interfere or impede the use of the emergency exit facilities in the occupied areas of the existing building(s).
- 5.2 Contractor shall not block or in any way utilize vehicular fire routes in a manner which would adversely affect the usefulness of the routes for firefighting and safety purposes at the existing building(s).

6.0 ACCESSIBILITY FOR DISABLED

- 6.1 The Contractor must use commercially reasonable efforts to avoid disrupting any means of access to the University used by those with disabilities.
- 6.2 If a disruption is unavoidable, the Contractor must promptly notify the Project Manager in advance, and then assist the Project Manager in ensuring the availability of alternative means of access during the disruption.
- 6.3 The Contractor will provide public notice of the disruption by posting in a conspicuous place prior to the commencement of the disruption a sign stating the anticipated duration of the disruption, along with a description of alternative means of access, if any, pursuant to the *Accessibility for Ontarians with Disabilities Act* ("AODA"), 2005, Regulation 429/07. A sample sign can be found at the following link:
<https://www.fs.utoronto.ca/projects/design-standards-and-project-forms/>
- 6.4 The Contractor should read, be familiar with, and comply to the University of Toronto's AODA Training – Volunteers & Other Service Providers attached as Appendix 'A' to this tender document.
- 6.5 Any charge brought against the University pursuant to AODA as a result of the Contractor's breach of these provisions will entitle the University to immediately terminate the Contract with no notice.

7.0 FIELD OFFICE AND STORAGE SHEDS

- 7.1 University may provide room for office and storage requirements. Be responsible to review this area and ascertain its suitability for purpose intended.
- 7.2 If designated area allotted for office and storage is not suitable then provide a temporary field office for construction administration having, but not limited to the following:

- 7.2.1 Heat, light, and telephone, table or counter for examining drawings and other furnishings required to facilitate administration of the Work. Long distance telephone calls shall be paid by the party responsible.
- 7.2.2 Minimum size space of 9' - 8" (3000mm) x 19' - 6" (6000mm) for a meeting room with heat, air conditioning, light, and chairs to accommodate persons required to attend site meetings. Provide a table for recording and for displaying the Drawings and Specifications.
- 7.3 Provide in the field office a minimum of four (4) CSA approved safety helmets and four (4) pair green label safety boots available for the exclusive use of the authorized visitors.
- 7.4 Provide auxiliary weather-proof storage sheds similar in appearance to field offices.
- 7.5 Submit sketch layout of temporary building or trailer locations if requested by the University Project Manager and Consultant.
- 7.6 Where existing areas are allocated for this purpose, be responsible to ensure that such areas are suitable for the purpose intended, type of materials to be stored and its adequacy. Maintain such areas and keep it clean during and after the completion of the Work. Be responsible to make sure that such area does not cause any fire hazard and cause any nuisance to the occupant and activities in the complex.

8.0 RESTRICTIONS

- 8.1 Refer to Section 01 35 13 - Special Project Procedures.

9.0 SECURITY REGULATIONS

- 9.1 Refer to Section 01 35 13 - Special Project Procedures.

10.0 HOURS OF WORK

- 10.1 Refer to Section 01 10 00 - Summary.

11.0 USE OF FLAME AND VOLATILE SUBSTANCES

- 11.1 Refer to Section 01 35 13 - Special Project Procedures.

12.0 PARKING

- 12.1 There is no free parking to anyone at the Place of the Work (Site). The Place of the Work (Site) is regularly patrolled and violators will be ticketed and/or towed. Contractors working on campus must have one of the following:
1. Cash parking receipt (obtained from machine or Kiosk); **OR**
 2. Commercial parking permits.
- 12.2 The Place of the Work (Site) has a severe shortage of parking spaces. However, a limited number of commercial permits on a weekly or monthly basis can be made available for the use of contractors who are involved in University construction projects and who **must** have access to vehicles in the normal course of their duties with the University.
- 12.3 Parking permits are not available to construction workers whose primary requirement for parking is transportation to and from the construction site. A limited number of cash parking spaces are

available to University visitors (see Appendix 2 of Parking Regulations for locations). All individuals are encouraged to use public transportation whenever possible.

- 12.4 The Parking Manager has the sole authority to issue a commercial permit. Requests for commercial permits must be accompanied by an "Application for a Commercial Parking Permit" signed by the University Project Manager.
- 12.5 If due to the nature of the Work, parking for equipment must be provided in a non-designated parking location, special permission must be granted by the University Project Manager.
- 12.6 Contractors must abide by the University of Toronto "Automobile Parking Regulations". Failure to do so may result in ticketing, towing and/or revoking of parking privileges.
- 12.7 Please ensure permit is displayed prominently on dash to avoid issuance of parking infraction notice.
- 12.8 Contractor shall be responsible for all vehicles working on this Project.

13.0 USE OF ELEVATORS

- 13.1 The Owner (University) shall allow use of one (1) elevator near the area(s) of the Work for Contractor to transport tools and limited to smaller construction materials and products which easily fit in the protected elevator cab, to and from the area(s) of the Work during limited hours and days as designated by the University Project Manager.
- 13.2 Construction personnel may have use of other elevators for transporting their persons only, to and from the area(s) of the Work during limited hours and as designated by the University Project Manager.
- 13.3 Contractor shall co-ordinate delivery times of smaller construction materials and products with the restricted hours of elevator use.
- 13.4 Contractor shall provide and ensure that the elevator cab interior and landing jamb protection are in place and secure all times. All damages to the elevator cab interior, doors, controls and landing jambs caused by Contractor shall be repaired/replaced to the satisfaction of the University Project Manager and Consultant, at no extra cost to the Owner (University).
- 13.5 The Owner (University) reserves the right at certain times and circumstances **not** to allow the Contractor use of the elevator(s), especially where it interferes with operation of the existing building(s). If the preceding occurs, Contractor shall make arrangements with the University Project Manager for temporarily extending the restricted hours use, or having alternate hours use of the elevator(s).

14.0 WASTE CONTAINERS AND BINS

- 14.1 Provide waste containers and bins for the disposal of demolition waste and construction materials waste in compliance with the waste management requirements in Section 01 40 00 - Quality Requirements.
- 14.2 Waste containers and bins shall be "closed box" type to prevent the waste materials from being wind-blown and contaminating the Owner's property, adjacent private and Public properties.
- 14.3 Sizes of the waste containers and bins shall be to fit the location(s) at the Place of the Work to the acceptance of the University Project Manager and/or Consultant.

- 14.4 The location(s) of the waste containers and bins shall be to the acceptance of the University Project Manager. The Owner (University) reserves the right to have the location(s) of the waste containers and bins re-located as required to suit the operations of the Owner (University) and the building(s) at no additional cost to the Owner (University).
- 14.5 Contractor and/or his subcontractors shall not use the Owner's (University's) and or the existing building's waste containers and bins for disposal of demolition waste and/or construction waste. If after investigation by the Owner (University), it is discovered that the Contractor and/or his subcontractors have used the Owner's (University's) and or the existing building(s) waste containers and bins for disposal of demolition waste and/or construction waste, the Owner (University) reserves the right to back charge the said Contractor, deduct the equivalent costs from the Contractor's next progress payment for the use of the said waste containers and bins.

15.0 DESIGN AND SAFETY REQUIREMENTS FOR TEMPORARY FACILITIES

- 15.1 Be responsible for design, erection, operation, maintenance and removal of temporary structural and other temporary facilities.
- 15.2 Engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform these functions where required by law or by the Contract Documents, and in all cases where such temporary facilities and methods of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.
- 15.3 Submit shop drawings bearing the seal and signature of registered professional engineering personnel skilled in the appropriate disciplines, indicating and showing temporary structural and other temporary facilities and methods of construction intended for the Work.

16.0 TEMPORARY SANITARY FACILITIES

- 16.1 Obtain the Owner's (University's) permission for the use of existing washroom facilities in the building. Keep location clean.

17.0 TEMPORARY WATER

- 17.1 Arrange for a temporary water connection and meter. Pay public utilities fees. Provide water meter, piping and valves as required.
- 17.2 Pay for water used until date of Substantial Performance of the Work.
- 17.3 Obtain permission from the Owner (University) and Consultant to use permanent services when available.

18.0 TEMPORARY HEATING

- 18.1 Provide for the proper heating and drying out of the building until completion by the use of appropriate heating equipment. Do not use "salamanders". Use forced hot air type heaters operated in well-ventilated locations. Protect the floors, walls and ceilings around the heating units. Ensure that no damage by staining results to finished floors during operation, servicing and refuelling.
- 18.2 Maintain the heated parts of the building(s) or temporary enclosures at not less than 10°C (50°F), or at such temperature specifically stated in the sections of the Specifications, for the proper installation of the various Products.

- 18.3 Provide at the Place of the Work and ready for operation between at least October 15th and April 30th, temporary plant and equipment for heating materials and forms and for maintaining the proper temperature and humidity of the concrete during curing. Refer to and comply with the requirements of CSA A23.1/A23.2-00.
- 18.4 Duct carbon dioxide gas (CO²) or other noxious or harmful gases from heaters to the exterior of the building(s).

19.0 TEMPORARY POWER AND LIGHTING

- 19.1 Arrange with the local public utility for temporary electrical power and meter. Pay for permits, connections including extension cords, and power used until date of Substantial Performance of the Work.
- 19.2 Comply with the requirements of codes, by-laws and regulations governing temporary power and lighting at the location of the Work.
- 19.3 Contractor will provide a power source on each floor in a central location. Each Subcontractor shall provide required extension cords from location where power is provided to location where it is needed.
- 19.4 Contractor will arrange for general temporary lighting throughout Work areas. Each Subcontractor shall provide special task lighting required in the execution of the Work.
- 19.5 Provide sufficient lighting to ensure sufficient visibility for the proper execution, safety and inspection of the Work.
- 19.6 Comply with Construction Safety Association's "Temporary Wiring Standards on Job Sites", the Ontario Electrical Code, and other authorities having jurisdiction.

20.0 TEMPORARY FIRST-AID FACILITIES

- 20.1 Provide site equipment and medical facilities necessary to supply first-aid service to injured personnel in accordance with regulations of the Workplace Safety and Insurance Act, 1997.

21.0 TEMPORARY VENTILATION

- 21.1 Inform the Owner (University) and the Consultant prior to commencement of the Work where hazardous or volatile adhesives, coatings or substances are used, and arrange to install adequate mechanical ventilation.
- 21.2 Do not allow excessive build-up of moisture inside the building. Provide temporary, portable desiccant de-humidification system units designed to withstand the construction environment complete with portable, inflatable plastic duct type airflow systems to provide the proper drying required to establish the proper humidity tolerances and prevent the growth of fungi (mould), at no additional costs to the Owner (University).
- 21.3 Where water damage has occurred during construction of the Work, provide additional temporary, portable desiccant de-humidification system units and inflatable plastic duct type airflow systems as may be required to establish the proper humidity tolerances and prevent the growth of fungi (mould), at no additional costs to the Owner (University).
- 21.4 Where the growth of fungi (mould) is discovered where water damage has occurred during construction of the Work, provide fungi (mould) remediation procedures in strict accordance with the

requirements of Section 01 35 13 - Special Project Procedures and in accordance with requirements of authorities having jurisdiction. Remediation procedures shall be reviewed and approved by University.

22.0 TEMPORARY FIRE PROTECTION

- 22.1 Provide and maintain in proper order, minimum of one (1) fire extinguisher in each work area, or more if directed by the University Fire Prevention Officer, University Project Manager and/or Consultant, prominently placed, until completion of Work.
- 22.2 Fire extinguishers shall be minimum 19.84 lbs. (9kg.), 4A-60BC type.
- 22.3 Remove fire extinguishers from the Place of the Work upon completion of Work or when directed by the University Project Manager and/or Consultant.
- 22.4 Where gas welding or cutting is to be done within 9' - 8" (3000mm) or above combustible material, or above space that may be occupied by persons, interpose shields of non-combustible material. Place tanks supplying gases for welding or cutting at no greater distance from the Work than is necessary and securely fasten in an upright position. Such tanks shall be free from exposure to the sun or high temperature.

23.0 TEMPORARY USE OF NEW PERMANENT SERVICE AND EQUIPMENT

- 23.1 Do not use any permanent service or equipment without the Owner's (University's) written approval. Comply with the Owner's (University's) instructions regarding use of permanent services and equipment.
- 23.2 Permanent services and equipment shall be substantially complete and certified by the Owner (University) and Consultant to be in proper operating condition before they may be used as temporary facilities.
- 23.3 Pay for fuel and operating costs.
- 23.4 Inspect permanent services and equipment being used as temporary facilities on a regular basis during use.
- 23.5 Provide competent persons to operate and maintain permanent systems for duration of temporary use period.
- 23.6 If required, perform repairs and maintenance immediately after each inspection. Upon termination of temporary use period, services and equipment shall be inspected, tested, adjusted, balanced and cleaned.
- 23.7 Permanent services and equipment shall be turned over to the Owner (University) in new and perfect operating condition.
- 23.8 Use of permanent systems and equipment as temporary facilities shall not affect the warranty conditions and warranty period for such systems and equipment. Ensure that the Owner (University) will receive full benefits of equipment manufacturers' warranties after Project takeover.

24.0 EXTERIOR TEMPORARY HOARDINGS, GATES, WALKWAYS AND RAMPS

- 24.1 Provide and maintain exterior temporary hoardings, covered walkways, fences, gates, railings and ramps for duration of the Contract, or until directed by the University Project Manager or Consultant to be removed.
- 24.2 Exterior temporary hoardings, covered walkways, fences, gates, railings and ramps shall include but not limited to the following:
 - 24.2.1 Erect exterior temporary hoardings, covered walkways, fences, gates, railings and ramps as required to conform to by-laws and regulations governing the location of the Work and acceptable to the Owner.
- 24.3 Provide substantial enclosures around existing plantings indicated on the Drawings to remain, and as specified herein.
- 24.4 Ensure that hoarding enclosures exposed to public view are clean and painted with two coats of exterior paint in a uniform colour acceptable to the University Project Manager and/or Consultant.
- 24.5 Maintain exterior hoarding enclosures in a tidy and secure condition. Remove unauthorized signs and posters if such have been applied on a weekly basis.
- 24.6 Alter the exterior hoarding enclosures as required to suit the construction purposes to the approval of the authorities having jurisdiction, the University Project Manager and/or Consultant.

25.0 TEMPORARY DUST TIGHT PARTITIONS AND SCREENS

- 25.1 Provide temporary dust tight partitions and screens where nature of Work requires access to floor areas above or below the floor being worked on to control dust migration and/or as specified herein and/or noted on Drawings.
- 25.2 Separate construction areas from occupied areas. Construct dust tight and wind proof screens as required to completely enclose the Work areas and the access passages to the Work areas from the other areas of the existing building(s).
- 25.3 Coordinate location of dust tight partitions, screens, weather barriers and doors with the Owner (University). Obtain the Owner's (University's) approval of installed dust tight partitions, screens, weather barriers, protective coverings and protection methods before proceeding with the renovation/alteration work.
- 25.4 Protective coverings shall be fire retardant coated, dust-proof fabric of premium grade, weighing minimum of 4.3 oz/sq.yd. (145 g/m²), Polyweave® Flame-Retardant Fabric by Polytrap Products, or P9M Fire Retardant Fabric by Inland Plastics Ltd., or other manufacturer acceptable to the Owner (University).
- 25.5 Fabricate and erect screens of 3-5/8" (92mm) metal studs at 16" (450mm) O.C., with 1/2" (13mm) gypsum board on both sides with closed joints. Maintain height indicated and/or noted on Drawings or as required to provide dust proof separation.
- 25.6 Tape or seal between adjacent boards and provide painted finish.
- 25.7 Seal perimeter of cutouts around fixtures, fittings and penetrations.
- 25.8 Extend screens from floor to underside of structure above unless otherwise shown, noted or approved otherwise.

- 25.9 Where applicable, construct screen partitions to provide required fire resistance ratings and smoke-tight separation to the approval of the authorities having jurisdiction.
- 25.10 Where exposed to the weather, fully cover the temporary screens with a heavy waterproof and dust proof fabric or polyethylene with lapped and sealed joints. Where required to have sound attenuation, fill spaces between studs with 4" (100mm) thick, glass fibre or mineral fibre insulation batts to deaden sound.
- 25.11 Thoroughly pack framing at junctions of screens with floors, walls and underside of structure with batt insulation and seal in a manner to prevent infiltration of dust, dirt, etc. Ensure that rooms within closed off areas which are not being altered are kept dust free.
- 25.12 Install temporary packing at bottom of doors through screens and to elevator entrances not being used during demolition and construction. Prevent dust seepage into existing adjacent spaces and occupied areas.
- 25.13 Remove screens and other temporary protection and make good damaged or blemished adjoining work when directed by the Owner (University) and/or Consultant.
- 25.14 Provide daily vacuuming of construction dust from corridors and connecting areas as the Work progresses. This shall be considered a minimum requirement; increase vacuuming as necessary. The Owner (University) may have vacuuming work done by others and cost deducted from Contractor's progress payments if this requirement is not fulfilled.

26.0 TEMPORARY PROTECTION OF EXISTING PLANTING

- 26.1 Erect sturdy and durable protection enclosures around existing planting (trees and plants) indicated on the Drawings to remain. Locate enclosures at the perimeter of the branch drip line or spread, or minimum 6' - 6" (1980mm) from trunk if drip line or spread is less than 6' - 6" (1980mm) radius. Do not anchor or fasten enclosures to the trunks or branches of the existing plantings.
- 26.2 Maintain enclosures through duration of construction and until final grading and planting is to commence in the area where protected planting occurs.
- 26.3 Do not use area inside enclosures for storage or construction operations.

27.0 TEMPORARY SIGNS

- 27.1 Except as specified herein, do not erect temporary signs.
- 27.2 Erect signs relating to safety on the Work, or mandatory regulation notices.
- 27.3 Prior to commencement of Work wherein hazardous or volatile cements, coatings, or substances are used, barricade entire area and post adequate number of "NO SMOKING" signs.
- 27.4 Contractor will be permitted to put his own sign on the hoarding subject to the Owner's (University's) review and approval.
- 27.5 For temporary way finding directional, information and warning signage, and warning marking tapes refer to Section 01 35 13 - Special Project Procedures.

28.0 WEATHER PROTECTION

- 28.1 Provide protective coverings to protect Work against damage caused by weather, including but not necessarily limited to rain, snow, ice, wind, frost and excessive heat.
- 28.2 Provide wind breaks and sun shades to allow proper setting and curing of cementitious materials.
- 28.3 Protect building Products from freezing.

29.0 DRAINAGE

- 29.1 Divert surface drainage water away from the excavation, site storage and construction areas.
- 29.2 Do not allow water to drain onto adjacent properties or over walks and roads. Use pumps and hoses or piping to conduct water to suitable disposal areas.
- 29.3 Keep excavated areas free from water until backfill operations are completed.
- 29.4 Provide sufficient standby pumping systems to ensure continuity of pumping operations.

30.0 CONSTRUCTION MACHINERY AND EQUIPMENT

- 30.1 Comply with codes, by-laws and regulations governing the erection and use of scaffolding, cranes, hoists, elevators, derricks and other equipment used for preparation, fabrication, conveying and erection of the Work. Provide fully qualified operators for mechanical hoisting equipment.
- 30.2 Submit erection drawings if required by the authority having jurisdiction.
- 30.3 Erect scaffolding independent of walls and in a manner to avoid interference with the parts of the Work in progress.
- 30.4 Provide and maintain temporary stairs, ladders and ramps required for movement and placing of Products, equipment and personnel. Remove when Work is completed.
- 30.5 Provide and maintain required shoring and bracing in accordance with Construction Safety Act and other applicable regulations.
- 30.6 Prevent sprayed materials from contaminating air beyond application area, by providing temporary enclosures.
- 30.7 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

31.0 PROJECT SIGN

- 31.1 Provide and erect where directed by the University Project Manager and/or Consultant a reinforced resin faced 19mm thick plywood sign approximately 6' - 0" (1830mm) x 12' - 0" (3660mm) mounted on a wind braced wood frame with wood blocking all around, painted in colours as directed by the University Project Manager and/or Consultant, to include the name of the Project, the name of the Owner (University), the name of the Consultant (Architect), the names of the Civil, Structural, Mechanical and Electrical Consultants (Engineers), Landscape Architect, Interior Designer, all other Consultants and the name of the Contractor.
- 31.2 Consultant will provide a drawing of the project sign after award of the Contract.

32.0 DUST, NOISE AND VIBRATION CONTROLS

- 32.1 At the start up meeting, confirm with the Owner (University) which adjacent areas/ floors are most sensitive and concerned to construction dust, noise and vibration.
- 32.2 Take measures to control dust, noise and vibration generated by the Work.
- 32.3 Take appropriate dust, noise and vibration control measures at times found necessary and at other times when complaints of dust, noise and vibration are received from the Public, the authorities having jurisdiction, the Owner (University) and Consultant.
- 32.4 The dust, noise and vibration control requirements are for the consideration of the Public and the authorities having jurisdiction. These dust, noise and vibration control requirements shall not be construed as cause for elimination or restriction of the Contractor's construction schedule, claims for delay of the Work, or additional costs for the Work.
- 32.5 Contractor shall be required at all times to keep to a minimum all noise of construction personnel, machines, tools, trucks and the like.
- 32.6 All equipment and tools shall be selected on a minimum noise basis.
- 32.7 Electric rather than gasoline type compressors shall be used in the Work of this Contract.
- 32.8 Scheduling of unavoidably noisy parts of the Work likely to disturb the students, education staff and/or the University personnel/staff shall be during restricted hours, arranged in advance with the University Project Manager and Consultant. Construction with excessive noise in the Owner's (University's) opinion may be limited to hours as specified in Section 01 10 00 Summary.
- 32.9 The Contract Price shall include for these requirements. Failure to take this requirement into consideration shall result in claims for extra being rejected, and without any cost to the Owner (University).

33.0 PEST CONTROL

- 33.1 Contractor shall provide all necessary measures, restraints, procedures and treatments to prevent the infestation and spread of insects, rodents and other such pests deemed to be present or found to be at the Place of the Work at any time, for the complete duration of the Contract.
- 33.2 Measures, restraints, procedures and treatments performed by the Contractor for pest control shall be conform to the requirements of the Ontario Building Code (OBC), City of Toronto By-Laws and Regulations, and all other requirements of the authorities having jurisdiction.

34.0 STORM AND SANITARY SEWERS, ELECTRICAL POWER LINES, STREET CAR POWER LINES, TELEPHONE LINES, TRAFFIC LIGHT STANDARDS, BUS SHELTERS AND NEWSPAPER BOXES

- 34.1 Where required, provide for removal, relocation and reinstallation in accordance with the requirements of City of Toronto Public Works Department, Hydro One, Toronto Hydro, Toronto Transit Commission (TTC), Bell Telephone and all other authorities having jurisdiction, including but not limited to the following:
 - 1. Buried storm and sanitary sewers.
 - 2. Overhead and buried electrical power lines.
 - 3. Overhead street car power lines.
 - 4. Overhead and buried telephone lines.

5. Intersection traffic light standards and traffic lights.
6. Toronto Transit Commission (TTC) bus shelters.
7. Newspaper sales boxes.

35.0 ROADS AND TRAFFIC CONTROL

- 35.1 Construct and maintain temporary service roads to the Place of the Work to ensure safe, convenient and adequate access.
- 35.2 Confine construction traffic, parking and storage to the Place of the Work.
- 35.3 Regulate parking at the Place of the Work and restrict to authorized cars only. Where practical locate temporary parking areas where permanent parking is to be provided.
- 35.4 Make and pay for arrangements for temporary use of adjacent properties including roads and walks.
- 35.5 Control traffic to and from the Place of the Work to public roads where public pedestrian and vehicular traffic occurs. Conform to local traffic regulations and police instructions.
- 35.6 When overhead work is in progress, provide and maintain flag persons, temporary traffic signals, barricades, flares, lights and/or lanterns as required to perform the Work and protect the Public as required the authorities having jurisdiction.
- 35.7 Upon completion, restore areas to original conditions, unless otherwise specified.

36.0 CLEANING

- 36.1 Clean exterior and interior areas prior to the start of finish Work.
- 36.2 Maintain interior areas free of dust and other contaminants during finishing operations.
- 36.3 Refer to Section 01 70 00 - Execution Requirements for additional cleaning requirements.

37.0 CLEAN UP

- 37.1 Maintain the Work in a tidy condition, free from the accumulation of waste products and debris, other than that caused by the Owner (University) or other contractors.
- 37.2 Deposit waste in waste containers at the end of each working day.
- 37.3 Remove debris and excess Products from the Place of the Work.
- 37.4 Refer to Section 01 70 00 - Execution Requirements for additional clean up requirements.

END OF SECTION 01 50 00

PRODUCT REQUIREMENTS: SECTION 01 60 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 LABOUR AND PRODUCTS

- 2.1 Read and be governed by GC 3.7 in CCDC 2-2020 and Document 00 73 00 attached herewith and marked as Schedule 1.
- 2.1.1 Provide and pay for labour, Products, tools, construction machinery and equipment, water, heat, light, power, transportation, and other facilities and services necessary for the performance of the Work in accordance with the Contract.
- 2.1.2 Use specified Products only, or Products listed as acceptable. Where more than one Product is specified any one of the specified Products may be used.
- 2.1.3 Where Specifications are descriptive or performance type without a named manufacturer, submit verification of conformance with the Specification in a form acceptable to the Consultant (e.g. independent test, reports, data sheets and details).
- 2.1.4 Follow manufacturer's instructions for application and installation. Request clarification by the Consultant if manufacturer's instructions conflict with Specifications.
- 2.1.5 Instruct manufacturers to eliminate visible trademarks and labels except for labels of CSA, ULC, ULI, WH and other similar authorities and where necessary to identify capacities, ratings and part numbers. Manufacturer's identification may be applied in concealed locations. Ensure CSA, ULC, ULI, and WH labels are applied in inconspicuous locations, such as on door hinge edge, inside of access panels or other accessible locations.

3.0 SUBSTITUTIONS

- 3.1 Requests for substitutions for specified Products, other than alternatives accepted prior to award of the Contract, will not be considered unless the request is accompanied by a written statement from the Contractor giving the reasons why the specified Product cannot or should not be used, evidence of equality of the substitution and amount of the change in the Contract Price.
- 3.2 Substitutions shall not be used until authorized in writing by the Consultant.
- 3.3 Ensure that substituted Products do not require changes to other Products and space requirements and do not exceed space allotted to specified Products. Costs for additional Products and labour or for delays due to acceptance of substitutions are the responsibility of the Contractor.

4.0 DELIVERY, HANDLING AND STORAGE OF PRODUCTS

- 4.1 Order Products in advance of requirement for installation and schedule delivery to minimize storage at the Place of the Work, but without causing delays due to late delivery.
- 4.2 Advise the Contractor and Consultant promptly of changes in delivery schedule which adversely affect the progress of the Work and completion date.
- 4.3 Store Products in suitable accommodation. Maintain environment recommended by Products manufacturers.

- 4.4 Store oils, gasoline and other combustible or volatile products in a locked separate storage shed away from other buildings. Limit quantity at the Place of the Work to minimum requirements for current operations.
- 4.5 Deliver packaged Products in original, unopened, and undamaged containers with manufacturer's labels and seals intact.

5.0 FASTENERS, ANCHORS, BRACES AND SUPPORTS

- 5.1 Install fasteners, anchors, braces and supports required to maintain installations attached to the basic building structure or to finished floors, walls and ceilings in a secure and rigid manner capable of withstanding the dead weight of the installed item, live loads, superimposed dead loads and vibration.
- 5.2 Keep exposed fasteners to a minimum. Space evenly and neatly.
- 5.3 Use fasteners compatible with structural requirements, finishes and types of material to be connected. Do not use materials subject to electrolytic action or corrosion where conditions will be liable to cause such action.
- 5.4 Verify that fasteners, anchors, braces and supports for suspended installations, and the structure to which they are to be secured are designed to support the load requirements including a safety factor.
- 5.5 Conduct on-site tests of installed anchors and fasteners, employing an independent testing laboratory acceptable to the Consultant using properly engineered and calibrated force measuring metres.
- 5.6 Where the floor, wall or ceiling construction is not suitable to support the loads, provide additional framing or special fasteners to ensure securement to the structural framing of the building or other structure which is to support the installation.
- 5.7 Provide reinforcing or connecting supports where required to distribute loading to the structural components.
- 5.8 Do not use wood plugs and explosive or hammer impact fasteners. Anchors in floor topping fills are not acceptable. Secure anchors in floors to the structural base.
- 5.9 Where a performance requirement is specified, submit engineering calculations and written verification, signed by a professional structural engineer registered in the province of the Place of the Work, that the installation has been inspected and is structurally sound and in accordance with design requirements.

6.0 CONDUIT, PIPE AND SLEEVES IN CONCRETE

- 6.1 Ensure that maximum outside diameter of conduits or pipes in slabs-on-grade is not greater than 1/3 slab thickness with minimum 2" (50mm) concrete cover.
- 6.2 Depress one conduit or pipe at crossovers and increase the slab-on-grade thickness to suit.
- 6.3 Maintain minimum spacing of parallel conduits or pipe of three diameters centre to centre.
- 6.4 For conduits or pipes greater than 1/3 slab thickness for slabs-on-grade increase concrete thickness to maintain minimum 2" (50mm) coverage above and below and extending 6" (150mm) each side.

- 6.5 Locate sleeves, conduits and pipes passing through suspended slabs, beams or walls so as not to impair the strength of the construction and at a spacing of not less than four diameters centre to centre.
- 6.6 Install continuously embedded conduits and pipes in the centre of the slab or wall. Install a maximum of six conduits with a maximum outside diameter of 2" (50mm) and at 6" (150mm) centre to centre in a bay of slab or wall. Crossovers are not permitted in suspended slab or wall unless the total crossover dimension is within the mid-third of the slab or wall thickness.
- 6.7 Maximum outside diameter of conduit or pipe placed in 6" (150mm) thick slabs or walls is 1" (25mm).
- 6.8 Do not install conduit or pipes in concrete slabs 3" (75mm) or less in thickness. (e.g.- over crests of steel deck or ribbed forms over O.W.S.J.'s).
- 6.9 Concrete fill predesigned openings around pipes and sleeves in non-fire rated floor, wall and roof assemblies in exposed locations.
- 6.10 Filling of predesigned openings around pipes and conduit in fire rated floor, wall, and roof assemblies shall be by Section 07 84 00, Fire Stopping and Smoke Seals.

END OF SECTION 01 60 00

EXECUTION REQUIREMENTS: SECTION 01 70 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 EXAMINATION

- 2.1 Make a careful examination of the Place of the Work (Site), and investigate and be satisfied as to all matters relating to the nature of the Work to be undertaken, as to means of access and egress thereto and there from, as to obstacles to be met with, as to the rights and interests which may be interfered with during construction of the Work, as to the extent of the Work to be performed and any and all matters which are referred to in the Drawings, Specifications and other Contract Documents, or which are necessary for the full and proper understanding of the Work and conditions under which it will be performed.
- 2.2 Contractor is held to have examined the Place of the Work (Site) and ascertained extent and nature of conditions affecting the Performance of the Work before bidding, including location of concealed/buried services which may have to be protected, removed or relocated.
- 2.3 Contractor is held to have examined the available Drawings of the existing building before bidding, and it shall be understood that the Contractor understands the existing conditions, extent of demolition, extent and nature of the Work and interfacing with existing, including extent of patching and making good required.
- 2.4 Contractor is held to have examined the Specifications, Drawings and other such Bidding and Contract Documents, before Bidding, and it shall be assumed that the Contractor understands these Specifications, Drawings and other such Documents.
- 2.5 Contractor is held to have reported to the Owner (University) before executing the Contract the following: ambiguities, discrepancies, omissions, errors, departures from building bylaws or from good practice discovered during examination. If ambiguities, discrepancies, or omissions are not reported and clarified, the most stringent requirement shall govern, as determined by the Owner (University).
- 2.6 Before commencing the work of any Section or trade, carefully examine the work of other Sections and trades upon which it may depend, examine substrate surfaces, and report in writing to the Owner (University) defects which might affect new Work. Commencement of new Work shall constitute acceptance of conditions and work by other Sections, trades, and Other Contractors upon which the new Work depends. If repair of surfaces is required after commencement of specific work it shall be included in the work of the trade providing a specific system or finish.
- 2.7 Previously completed work:
- 2.7.1 Where dimensions are required for proper fabrication, verify dimensions of previously completed work in place before fabrication and installation of work to be incorporated with it.
- 2.7.2 Verify that previously completed work and surfaces are satisfactory for installation or application, or both and that performance of subsequent work will not be adversely affected.
- 2.7.3 Ensure that work installed in an unsatisfactory manner is rectified by those responsible for its installation before further work proceeds.

- 2.7.4 Commencement of the Work will constitute acceptance of site conditions and previously executed work as satisfactory.
- 2.7.5 Defective work resulting from application to, or installation on, or incorporation with, unsatisfactory previous work will be considered the responsibility of those performing the later work.
- 2.8 Construction measurements:
 - 2.8.1 Take site dimensions of completed work before installation of the Work to be incorporated commences.
 - 2.8.2 Before commencing installation of the Work, verify that its layout is accurately in accordance with intent of the Drawings, and those positions, levels, and clearances to adjacent work are maintained.
 - 2.8.3 Before commencing the Work, verify that all clearances required by jurisdictional authorities can be maintained.
 - 2.8.4 If the Work or portion thereof is installed in wrong location, Contractor shall rectify it before construction continues.
 - 2.8.5 Where dimensions are not available before fabrication commences, the dimensions required shall be agreed upon between the Contractor and trades concerned.
 - 2.8.6 All measurements shall be Metric, unless noted otherwise.
 - 2.8.7 Give particular attention to finished dimensions and elevations of the Work. Make the finished the Work fit the indicated spaces accurately. Make the finished Work flush, plumb, true to lines and levels and accurate in all respects.
- 2.9 Examine access and storage conditions at the Place of the Work prior to delivery of Products.
- 2.10 Examine the Place of the Work and Drawings to ensure that openings, passageways and enclosures scheduled to be constructed prior to delivery and installation of Products are adequate to permit access to the place of installation with correct space dimensions provided. If conditions require, arrange for advanced delivery and protected storage.
- 2.11 Should the Contractor upon examination, encounter small indoor environmental areas of the existing building/structure that they suspect are contaminated with asbestos, Contractor shall follow the Asbestos Procedures in Section 01 35 13 - Special Project Procedures.
- 2.12 Should the Contractor upon examination, encounter small indoor environmental areas of the existing building/structure that they suspect are contaminated with fungi (mould), Contractor shall follow the Fungi (Mould) Remediation Procedures in Section 01 35 13 - Special Project Procedures.
- 2.13 No allowances shall be made subsequently by the Owner (University) for error or negligence in connection with these requirements and no claim will be considered for circumstances or omissions which could have been prevented or included for, had these examination procedures been followed.

3.0 SURVEYING

Intentionally Deleted.

4.0 SETTING OUT

- 4.1 Before commencing the Work, verify lines, levels and dimensions shown on the Drawings and report all discrepancies in levels or dimensions orally and in writing to the Owner (University) and Consultant. Be responsible for work done prior to receipt of the Owner's (University's) decision regarding reported discrepancies.

5.0 SOD TURNING CEREMONY

Intentionally Deleted.

6.0 ADVERTISING

- 6.1 Advertising is not permitted unless approved by the Owner (University).
- 6.2 Refer to Section 01 50 00 - Temporary Facilities and Controls.

7.0 ADJACENT PROPERTY AND BUILDINGS

- 7.1 Obtain written approval from the Owner (University) and separate owner of adjacent private and public property(s) before proceeding with a part of the Work which necessitates intrusions on such property(s).
- 7.2 This applies particularly to underpinning of adjacent buildings and where over-swing of cranes occurs. In these cases, obtain approval in writing from the separate owner(s) of each building affected.
- 7.3 Receipt of such approvals shall not limit responsibility for property damage or personal injury.

8.0 COOPERATION, COORDINATION AND LAYOUT

- 8.1 Cooperate and coordinate with Other Contractors and ensure that Subcontractors and trades cooperate and coordinate their work to have the Work performed expeditiously and to be satisfactory in all respects at completion. Ensure cooperation of workers in laying out and performing the Work. Maintain efficient and continuous supervision.
- 8.2 Ensure that Subcontractors and trades cooperate with other Subcontractors and trades whose work attach to or are affected by their own work. Ensure that minor adjustments are made to make adjustable work fit the fixed work.
- 8.3 Structural framing and Mechanical and Electrical Plan Drawings, riser and distribution layouts are generally diagrammatic to indicate the scope of that part of the Work. Refer to detail Drawings to determine dimensions and to establish exact locations and details. Where necessary confirm dimensions at the Place of the Work. Do not scale Drawings.
- 8.4 Pay particular attention to types of ceiling construction and clearances throughout, especially where recessed fixtures are required. Coordinate Work with other contractors and Subcontractors wherever ventilation ducts or piping installations occur to ensure that conflicts are avoided. Where several systems and Products are concentrated in an area and prior to installation, pre-plan the total installation by preparing full size or scale drawings detailing the location and identifying each system and Product. Minimum scale 1:50. Pay all drafting costs apportioned as appropriate to each part of the Work.
- 8.5 Install ceiling mounted components, including but not limited to ceiling hung interior design components, air terminals, sprinkler heads and lighting fixtures, in accordance with the final ceiling plans to provide maximum headroom, clearances for access, specified floor to ceiling heights and to

- minimize offsets in pipes, conduit, ducts and structural framing. Inform the Owner (University) of conflicting installations. Install as directed by the Owner (University).
- 8.6 Install and arrange ducts, piping, tubing, conduit, equipment, fixtures, materials and products to conserve headroom and space with minimum interference and in neat, orderly and tidy arrangement. Run pipes, ducts, tubing and conduit, vertical, horizontal and square with building grid, except where specific slope is required for proper function. Install piping, ducts, and conduit as close to underside of structure as possible unless shown otherwise.
- 8.7 Make provision for unrestricted relocation of light fixtures to replace ceiling panels at grid spaces of same size, without interference or restriction by items located within ceiling space.
- 8.8 Coordinate and provide items to be built-in (including anchors, nailing strips, blocks, bolts, sleeves, and similar items) and provide openings as and when required by Other Contractors, Subcontractors and trades concerned, together with templates, instructions, measurements and shop drawings. Have cutting, fixing and making good to work of Other Contractors, Subcontractors and trades required for, and make up time lost as result of, failure to comply with this requirement, at no additional cost to Owner (University).
- 8.9 Be responsible for coordinating products supplied in metric (SI) and imperial units into overall layout.
- 8.10 Properly coordinate the work of various Sections and trades, taking into account the existing installations to assure best arrangement of pipes, conduits, ducts and mechanical, electrical and other equipment, in available space. Under no circumstances will any extra payment be allowed due to failure by the Contractor to coordinate the Work. If required, in critical locations, prepare interference and/or installation drawings showing the work of various Sections and trades as well as existing installation, and submit these drawings to the Owner (University) for review before the commencement of the work of that Section or trade.
- 8.11 Notify the Consultant, and request further instructions if locations of fixtures, fittings, equipment and services to these items interferes with interior finishes and use of building.
- 8.12 Provide access doors suitable for room finish and locate to avoid interference with room finishes and fitments. Locate access doors to be symmetrical with adjacent installations and architectural features.
- 8.13 Remove, revise and replace systems and Products installed contrary to these requirements.
- 8.14 Ensure prompt delivery and placement of items required to be built into concrete and masonry prior to concrete pouring and at appropriate time during erection of masonry.
- 8.15 Coordinate with mechanical and electrical trades to ensure protecting, supporting, disconnecting, cutting off, capping, diverting, relocating or removing of existing services in areas of Work before the commencement of alteration work.
- 8.16 Prepare setting drawings showing location and size of all services penetrating structural components, walls, roof and floors of the building, larger than 2" (50mm) outside diameter (O.D.) Provide drawings showing equipment concrete base requirements.
- 8.17 Locate wall and ceiling diffusers and grilles in exact accordance with dimensions furnished by the ceiling installer, wall finish installer and masonry installer. Adjust duct branches to allow diffusers and grilles to coincide with ceiling and wall patterns.
- 8.18 Perform the Work at times to ensure a minimum of disturbance to building occupants.

- 8.19 In case of damage to active services or utilities, notify the Owner (University) and respective authorities immediately and make all required repairs under direction of the Owner (University) and respective authorities. Carry out repairs to such damaged services and utilities continuously to completion, including working beyond normal working hours.
- 8.20 Existing areas shall remain in use, except where alteration work is actually in progress. Confine effects of the Work to areas indicated on Drawings unless otherwise approved by the Owner (University).

9.0 LOAD BEARING STRUCTURE

- 9.1 Do not load the structure during construction with a weight or force greater than it is calculated to bear safely. Be solely responsible and liable for damages resulting from violation of this requirement. Provide temporary supports as strong as permanent support. Do not place loads on concrete floors until they have obtained their design strength.
- 9.2 Do not cut, bore, or sleeve load bearing structure without the written permission of the Owner (University) and Consultant unless specifically detailed on the Drawings.
- 9.3 Submit details in writing with each request for permission from the Owner (University) and Consultant.

10.0 PROTECTION OF THE WORK, PROPERTY AND PERSONS

- 10.1 Include in the Work necessary methods, materials, and construction to ensure that no damage or harm to work, materials, property and persons results from the Work of this Contract. Temporary facilities relating to protection are specified in Section 01 50 00 - Temporary Facilities and Controls.
- 10.2 Comply with all instructions and/or orders issued by the authorities having jurisdiction.
- 10.3 Ensure that compulsory wearing of certified hard hats and safety boots is observed by all persons employed for the Work of the Contract at the Place of the Work. Provide spare certified hard hats for visitors as required. Refuse admission to the Place of the Work to those refusing to wear the certified hard hats and safety boots.
- 10.4 Keep excavations, cellars, basements, and pits free of rainwater, ground water, backing up of drains and sewers, and all other water. Contractor shall pump dry the foregoing as required.
- 10.5 As applicable to the Place of the Work (Site), remove snow and ice immediately from interior of building, as well as sidewalks and entrances adjacent to the building(s). Use a de-icing agent as required and acceptable to the Owner (University) to maintain safe surfaces.
- 10.6 Protect adjacent private and public property from damage and, if damaged, make good immediately. Make good private and public property to match in all details its original condition in material and finishes as approved, and public property in accordance with requirements specified and/or instructed by the Owner (University) and/or Consultant.
- 10.7 Keep surfaces, on which finish materials will be applied, free from grease, oil, and other contamination which would be detrimental in any way to the application of finish materials.
- 10.8 Do not apply visible markings to surfaces exposed to view in finished state or that receive transparent finishes.

- 10.9 Protect surfaces of completed work exposed to view from staining, disfigurement and all other damage by restriction of access or by use of physical means suitable to the material and surface location. Establish with each Subcontractor the suitability of such protection in each case.
- 10.10 Schedule finish work at the end of construction when interference from tradesmen is at a minimum.
- 10.11 Brace and shore masonry walls until their designed lateral support is incorporated at both top and bottom, in accordance with safe construction practices.
- 10.12 Enforce the Owner's (University's) fire prevention methods at the Place of the Work for new Work, and maintain existing fire prevention methods in accordance with local governing authorities. Do not permit bonfires, open flame heating devices or accumulation of debris. Use flammable materials only if the Owner's (University's) safety precautions are taken, both in use and storage.
- 10.13 Do not store flammable materials in the building(s). Take necessary measures to prevent spontaneous combustion. Place cloths and other disposable materials that are a fire hazard in closed metal containers and remove them from the building every night.
- 10.14 Where flammable materials are being applied, ensure that adequate ventilation is provided, spark-proof equipment is used, and that smoking and use of open flames are prohibited.
- 10.15 Ensure that volatile fluid wastes are not disposed of in storm or sanitary sewers or in open drain courses.
- 10.16 Install 1/2" (13mm) fibreboard panels over 6 mils (0.152mm) thick polyethylene sheet lapped 4" (102mm) and taped with pressure sensitive tape, over completed finish flooring materials on which further construction work is performed or delivery of Products is made, or both. Seal joints between panels with reinforced pressure sensitive tape. Remove protection upon completion of all construction work or delivery of Products.
- 10.17 Where the work of other trades shall be completed over completed roofing membrane, install protective 1/2" (13mm) plywood over completed areas of roof on which other trades are to work. Remove protection upon completion of all construction work on roof.
- 10.18 For additional protection requirements, refer to Section 01 35 13 - Special Project Procedures and Section 01 50 00 - Temporary Facilities and Controls.
- 10.19 Public utilities and services:
- 10.19.1 Verify location of and limitations imposed by, existing mechanical, electrical, telephone and similar services, and protect them from damage. If necessary, relocate active services to ensure that they function continuously wherever possible in safety and without risk of damage or down time to the existing building(s).
- 10.19.2 Cap off and remove unused utility services encountered during work after approval is given by the utilities concerned or jurisdictional authorities, which ever may apply. Relocation, removal, protection and capping of existing utility services shall be performed only by the applicable utility and of other services by licensed mechanics.
- 10.20 Ensure that precautions are taken to prevent leakage and spillage from plumbing and mechanical work that may damage surfaces and materials finished or unfinished.

- 10.21 Where roofing/waterproofing membranes are installed, give constant close supervision to roofing/waterproofing membranes following their installation, during the time they are temporarily protected or exposed, to ensure that no damage occurs to them before completion of building.
- 10.22 Prevent spread of dust beyond the Place of the Work by wetting, or by other means acceptable to the Owner (University), as required or as directed by the Consultant and/or authorities having jurisdiction.
- 10.23 For additional requirements regarding Public utilities and services, refer to Section 01 35 13 - Special Project Procedures.

11.0 RELOCATION OF DOORS AND PARTITIONS

- 11.1 The Owner (University) reserves the right to relocate doors, frames and partitions at a later date, but prior to installation, without additional cost to the Owner (University), assuming that there will be no increase in number of doors and frames, nor greater lengths or heights of partition(s), and no increase in number of corners.
- 11.2 Should there be an increase or decrease in doors, frames or lengths of partition(s) after such relocation(s), the Contract Price will be adjusted in accordance with the provisions for changes in Contract Documents.

12.0 MECHANICAL AND ELECTRICAL REQUIREMENTS AT SOUND ATTENUATING PARTITIONS

- 12.1 Avoid sound transfer at sound attenuating partitions by careful location and treatment of ducts, grilles, diffusers, electrical outlets and boxes, and similar items. Where electrical boxes are back to back, serving each side, locate them a minimum of 10" (250mm) apart laterally and, if interconnected, use flexible connections, or apply 1/32" (0.75mm) thick sheet lead to back of boxes.

13.0 COMPLETION OF INSTALLATION

- 13.1 Install systems and Products in a complete and finished condition satisfactory to the Owner (University) and Consultant.
- 13.2 Install equipment, devices and controls in a complete and fully operating condition complete with accessories and connections required to fulfil their intended function.

14.0 OPERATION AND MAINTENANCE START UP

- 14.1 Provide services of skilled persons for a minimum of two (2) consecutive full weeks, or as otherwise required, to start in its proper sequence, and to thoroughly explain the operation and maintenance of each system and item of equipment to the Owner (University) including specialized instructions by the respective manufacturers where appropriate. Arrange with the Owner (University) suitable times for instructions to their operating and maintenance personnel. Provide the Owner (University) with a record of dates and durations of each instruction period together with the name of persons to whom the instructions were given.

15.0 CLEAN- UP DURING CONSTRUCTION

- 15.1 Remove from the Place of the Work all construction tools, unused materials not required to be handed over to the Owner (University), and debris.
- 15.2 Dispose of debris in authorized disposal areas of the municipality or as arranged privately by the Contractor to the approval of the authorities having jurisdiction.

- 15.3 Pay all costs of loading, cartage and unloading.
- 15.4 During construction, maintain the Work and access to the Work in a tidy condition and free from the accumulation of waste products and debris other than that caused by the Owner (University), Other Contractors or their employees.
- 15.5 At frequent and regular intervals during progress of the Work, clean up Place of the Work, the building and access to the place of the Work, and dispose of waste materials, rubbish, debris and snow. Provide containers and locate on site for collection of waste materials, rubbish and debris. Do not allow waste materials, rubbish and debris to accumulate and become unsightly or hazardous.
- 15.6 Lower waste materials in a controlled manner with minimum handling. Do not drop or throw materials from heights. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces. Sprinkle dusty debris with water.
- 15.7 Remove debris from occupied areas and areas where application of finishes has commenced, in sealed containers to minimize production of dust.
- 15.8 Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws. Burning or burying of rubbish and waste materials on or adjacent to the Place of the Work is not permitted. Do not dispose of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or sanitary sewer systems or into streams or waterways.
- 15.9 Remove waste materials, rubbish and debris from the site and dispose of in accordance with requirements of authorities having jurisdiction (including obtaining required permits) at public or private dumping areas off the Owner's (University) property.
- 15.10 Comply with Ontario and local regulations regarding separation and disposal of waste products in accordance with requirements for reduction, reuse and recycling programs, and in particular with the Ontario regulations for source separated waste from demolition and construction such as brick, concrete, wood, steel, gypsum board, corrugated cardboard and other material as may be required by authorities.
- 15.11 Remove from finished surfaces deposits which could stain, harden, set or become difficult to remove. Immediately remove run off from concrete or masonry occurring on glass and finished surfaces.
- 15.12 Use approved apparatus and cleaning materials and clean manufactured articles in strict accordance with manufacturer's directions. Vacuum clean construction dust from corridors and connecting areas daily during progress of the Work. This requirement is a minimum and shall be increased as required.
- 15.13 Vacuum clean the interior of building areas when ready to receive painting and other applied finishes. Maintain areas free of dust and other contaminants during finishing operations and thereafter until the Work are ready for final cleaning.

16.0 FINAL CLEANING

- 16.1 Thoroughly clean and where applicable, polish areas and surfaces of the completed Work immediately prior to Contractor's inspection for Substantial Performance of the Work as follows:
 - 16.1.1 Upon attaining Substantial Performance of the Work, remove surplus Products, tools, construction machinery and equipment not required for the Performance of the remaining Work. Also remove waste products and debris and leave the Work clean and suitable for occupancy by the Owner (University) unless otherwise specified.

- 16.1.2 Notify the Owner (University) when ready to proceed with final cleaning. Do not commence final cleaning until authorized to proceed by the University Project Manager.
- 16.1.3 Include for final cleaning of partial areas to be occupied by the Owner (University) due to phased construction. Cleaning shall include all surfaces, fixtures, fittings and components, new and existing.
- 16.1.4 Carry out all final cleaning and leave the Work in condition to meet the approval of the Owner (University). Final cleaning work shall include, but not be limited to; the cleaning of floors, partitions, walls, ceilings, doors, hardware, windows, glass, fixtures and equipment, the removal of debris and all work required on the interior and exterior to complete the building and site cleaning.
- 16.1.5 Remove stains, paint, grease, oil, temporary protection and covers, plaster, mortar droppings, labels, caulking and sealant compounds, and dirt from surfaces. Repaint damaged painted areas.
- 16.1.6 Vacuum clean and dust building interiors, behind grilles, louvers and screens.
- 16.1.7 Clean and polish glass, mirrors, hardware, tile, stainless steel, chrome, baked enamel, plastic laminate, mechanical and electrical fixtures and other such finishes.
- 16.1.8 Refinish or replace scratched or damaged metal items. Replace broken and scratched glass and mirrors.
- 16.1.9 Remove dirt and other soil from interior surfaces of existing glazing in windows and screens. Clean and polish glass in existing windows and screens.
- 16.1.10 Avoid contamination of surrounding surfaces with cleaning fluids. Install temporary protection, if required, and remove same immediately upon completion of the cleaning operation involved.
- 16.1.11 Use heavy duty type industrial machine for vacuum cleaning.
- 16.1.12 Exercise extreme care with abrasive and chemical cleaning agents and verify their compatibility with the finish and material to be cleaned.
- 16.1.13 Use experienced workers or professional cleaners for final cleaning. Use only cleaning materials and methods recommended by manufacturer of surface to be cleaned. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
- 16.1.14 Tile/terrazzo/vinyl/stone flooring:
- 16.1.14.1 Flooring shall be swept free of debris, corners cleaned and base boards free of marks and dirt. New flooring shall be scrubbed using appropriate solutions to remove factory installed protective coatings. Old flooring shall be stripped using appropriate chemical solution to remove any existing floor finish coating and base seal coatings. Apply to new/old flooring two coats of acrylic base coat sealer. Let floor completely dry between coats. Use prime quality top line Johnson/Dustbane Products. Apply two coats minimum of floor finish. Let floor dry between coats. Use Johnson Plaza or equivalent or better. Do not apply finish to the base boards.
- 16.1.15 Carpet flooring:

16.1.15.1 All carpet flooring shall be completely vacuumed using power brush equipped vacuum cleaner. Any and all stains caused by construction shall be removed using approved stain removal methodology. Where carpet is exposed to extensive dry wall dust and other fine dust particles, carpet shall be pile lifted using rotary pile lifting machine. In addition, carpet shall be cleaned using extraction method approved by the carpet manufacturer.

16.1.16 Furniture and fixtures:

16.1.16.1 All furniture and fixtures shall be completely dusted and damp wiped clean to remove all dust debris, finger prints, marks and other similar smudges. Upholstered furniture shall be completely vacuumed and where necessary extract cleaned if staining is caused due to the Work of this Contract.

16.1.17 Walls:

16.1.17.1 Wall shall be completely dusted and all marks removed. Where necessary, wall shall be washed if painting is not an option.

16.1.18 Lights:

16.1.18.1 All light troughs shall be cleaned to remove all dust. Lenses shall be cleaned and made free of smudges, dirt and debris.

16.1.19 Window/blinds:

16.1.19.1 Interior and inside exterior window shall be cleaned. Blinds (Venetian/slat or other similar components) shall be dusted and washed to remove dust, dirt and other debris. If necessary, contract out to sonic cleaning firm.

16.2 Total Completion of the Contract shall not be attained until the Contractor has removed all surplus Products, tools, construction machinery and equipment. Contractor must also have removed all waste products and debris, other than that caused by the Owner (University), Other Contractors or their employees.

17.0 TAKE OVER PROCEDURES

17.1 Contractor's inspection for Substantial Performance of the Work:

17.1.1 Refer to the current Construction Act for definition of Substantial Performance of the Work.

17.1.2 Prior to submitting an application for a Certificate of Substantial Performance the Contractor shall make a thorough inspection and list incomplete or unsatisfactory parts of the Work including items previously reported by the Consultant and issue copies of this list to parties responsible for completion or correction.

17.1.3 Subject to special conditions the Subcontractors shall correct all deficiencies prior to application for Certificate of Substantial Performance.

17.2 Contractor's application for Certificate of Substantial Performance:

17.2.1 When deficiencies have been corrected and the value of the Work to be completed and corrected is within the amount defined in the Construction Act for Substantial Performance of

the Work Contractor will make written application to the Consultant for a Certificate of Substantial Performance accompanied by a Statutory Declaration.

17.2.2 In the application state:

17.2.2.1 That the Contract is substantially performed in accordance with the conditions of the Construction Act.

17.2.2.2 That the completion of the balance of the Work is in process.

17.2.2.3 The date that the Work (or parts thereof) is scheduled to be completed and corrected.

17.2.2.4 The cost value of parts of the Work to be completed and corrected.

17.2.2.5 The cost value of parts of the Work which cannot be completed or corrected for reasons beyond the control of the Subcontractor.

17.3 Consultant's Certificate of Substantial Performance

17.3.1 Review shall be conducted by the Consultant's authorized representatives, Owner's (University's) authorized representatives, the Contractor, the Subcontractors and others as the Consultant may request.

17.4 Project Record Documents

17.4.1 Prior to occupancy by the Owner (University), in whole or part, submit project record documents, specified in Section 01 78 39, to the Owner (University) and Consultant.

17.5 Contractor's Application for Certificate of Payment of Holdback Monies

17.5.1 Prior to the termination of the lien period Contractor will submit to the Consultant a current cost statement accompanied by a Statutory Declaration, CCDC Document 9A-2001, and the record documents listed in Section 01 78 39. If in order, the Owner (University) through the Consultant will issue a certificate for the release of holdback monies.

17.6 Final Review for Completion of the Contract

17.6.1 When the Work is completed, and after making an inspection, Contractor will make a written request for a final review by the Consultant, who will notify the Owner (University). Contractor will arrange suitable dates for review by the Owner (University), Consultant and the Subcontractors.

17.6.2 Consultant will record deficiencies determined by this review with copies to the Owner (University) and the Contractor.

17.6.3 Subcontractors will correct deficiencies by a date mutually agreed with the Owner (University) and Consultant; unless a specific date is required by the Subcontract.

17.7 Contractor's Application for Statement of Completion of the Contract

17.7.1 Contractor will submit a statement from the Workplace Safety and Insurance Board (WSIB) verifying that fees are paid up to date of application for statement of Completion of the Subcontract.

18.0 WARRANTY INSPECTION

- 18.1 Consultant will arrange and conduct with the Owner (University) and the Contractor a warranty inspection prior to expiration of the one-year warranty period.

END OF SECTION 01 70 00

PROJECT RECORD DOCUMENTS: SECTION 01 78 39**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 WORK INCLUDED

- 2.1 This Section includes administrative and procedural requirements for Project Record Documents, including the following:

- 2.1.1 Items provided to the Contractor by the Consultant.

- 2.1.1.1 Subject to completion of the "Electronic Data Transfer Agreement", the Consultant will provide one electronic data CD having the electronic data files in PDF format of the complete set of Drawings sealed by the consultant and Specifications for construction purposes and the complete set of Drawings in AutoCAD Version 2013 format not sealed by the consultant for purposes for marking up in the field recorded 'As-Built' records and preparation of submittals and record documents. Sample of "Electronic Data Transfer Agreement" is included at the end of this Section.

- 2.1.2 Items submitted to the Consultant for review prior to distribution to the Owner (University) as specified herein:

1. Marked-up copies of Contract Drawings.
2. Newly prepared drawings.
3. Marked-up copies of Specifications, addenda and Change Orders.
4. Record information on Work that is recorded only schematically, when part of record documents.
5. Complete set of Request for Information (RFI)'s.

- 2.1.3 Items submitted to the Consultant for review prior to distribution to the Owner (University) as specified in Section 01 92 00 Facility Operation:

1. Marked-up copies of shop drawings.
2. Marked-up Product data submittals.
3. Warranties.

- 2.1.4 Items delivered directly to Owner (University) by the Contractor:

1. Orders.
2. Record samples.
3. Field records for variable and concealed conditions.
4. Project photographs.
5. Copies of Change Orders, submittals, substitutions, warranties and other forms that are part of this Project.

- 2.2 Refer to individual specification Sections for specific requirements that expand requirements of this Section.

3.0 RELATED WORK SPECIFIED ELSEWHERE

- 3.1 Section 01 30 00 – Administrative Requirements: submittals procedures
- 3.2 Section 01 92 00 - Facility Operations: for submittal of Operation and Maintenance Manuals and Products and Finishes Manuals.
- 3.3 Individual specification Sections: for specific requirements for submission of Project record documents of Products.

4.0 SUBMITTALS

- 4.1 Record drawings:
- 4.2 Submit record drawings as follows:
 - 1. One (1) set of record CAD drawing files on electronic media, formatted for CD ROM, on one disk.
 - 2. One (1) set of record drawing files in PDF format on electronic media, formatted for CD ROM on same disk with record CAD drawing files.
 - 3. One (1) printed set of record CAD drawings.
 - 4. Clearly label drawings and files.
- 4.3 Record specifications:
 - 4.3.1 Submit one (1) copy of Project's specifications, including addenda and Contract modifications in PDF format on electronic media, formatted for CD ROM on same disk with record CAD drawing & PDF files.
- 4.4 Record Product data:
 - 4.4.1 Submit one (1) copy of each Product data submittal in print copy and one (1) copy in PDF format on electronic media, formatted for CD ROM, on same disk with record CAD drawing, PDF files and record specifications.
 - 4.4.1.1 When Product data is required as part of the Operation and Maintenance Manuals, submit marked-up Product data as an insert in the manual instead of submittal as record Product data.

5.0 RECORD DRAWINGS

- 5.1 Record prints:
 - 5.1.1 Maintain one set of white prints of the Contract Drawings and shop drawings.
 - 5.1.2 Preparation:
 - 5.1.2.1 Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, Subcontractor, or similar entity, to prepare the marked-up record prints.
 - 5.1.2.1.1 Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - 5.1.2.1.2 Accurately record information in an understandable drawing technique.

5.1.2.1.3 Record data as soon as possible after obtaining it. Record and check the mark-up before enclosing concealed installations.

5.1.3 Content:

5.1.3.1 Types of items requiring marking include, but are not limited to, the following:

1. Dimensional changes to Drawings.
2. Revisions to details on Drawings.
3. Depths of foundations below first floor.
4. Locations and depths of underground utilities.
5. Revisions to routing of piping and conduits.
6. Revisions to electrical circuitry.
7. Actual equipment locations.
8. Duct size and routing.
9. Locations of concealed internal utilities.
10. Changes made by Supplemental Instruction or Site Instruction, Change Order or Change Directive.
11. Changes made following Consultant's written orders.
12. Details not on the original Contract Drawings.
13. Field records for variable and concealed conditions.
14. Record information on the Work that is shown only schematically.

5.1.4 Mark the Contract Drawings or shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If shop drawings are marked, show cross-reference on the Contract Drawings.

5.1.5 Mark record sets with erasable, red-coloured pencil. Use other colours to distinguish between changes for different categories of the Work at the same location.

5.1.6 Mark important additional information that was either shown schematically or omitted from the original Drawings.

5.1.7 Note Supplemental Instruction or Site Instruction numbers, Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

5.2 Record CAD Drawings:

5.2.1 Immediately before inspection for Substantial Performance of the Work, review marked-up record prints with Consultant. When authorized, prepare a full set of corrected CAD drawings of the Contract Drawings, as follows:

5.2.1.1 Format:

5.2.1.1.1 Same CAD program, version, and operating system as the original Contract Drawings. Contract Drawings are available in University's AutoCAD System. Verify and ensure its version.

5.2.1.1.2 Windows 7, operating system.

5.2.1.2 Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable. All revisions shall be clearly bubbled and labelled and noted in the revision column.

5.2.1.3 Refer instances of uncertainty to Consultant for resolution.

5.2.1.3.1 Consultant makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.

5.3 Newly prepared record drawings:

5.3.1 Prepare new drawings instead of preparing record drawings where Consultant determines that neither the original Contract Drawings nor shop drawings are suitable to show actual installation.

5.3.1.1 New drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.

5.3.1.2 Consult with Consultant for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record drawings and record drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

5.4 Format:

5.4.1 Identify and date each record drawing; include the designation "PROJECT RECORD DRAWING" (or As-Built Drawings) in a prominent location.

5.4.1.1 Record prints:

5.4.1.1.1 Organize record prints and newly prepared record drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

5.4.1.2 Record CAD Drawings:

5.4.1.2.1 Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file. Provide an index of all CAD files indicating CAD file name and a description of content.

5.4.1.3 Identification:

1. Project name.
2. Date.
3. Designation "PROJECT RECORD DRAWINGS" (or As-Built Drawings).
4. Names of Owner's (University's) Consultants.
5. Name of Contractor.

6.0 RECORD SPECIFICATIONS

6.1 Preparation:

- 6.1.1 Mark specifications to indicate the actual Product installation where installation varies from that indicated in Specifications, addenda, and Contract modifications.
 - 6.1.1.1 Give particular attention to information on concealed Products and installations that cannot be readily identified and recorded later.
 - 6.1.1.2 Mark copy with proprietary name and model number of Products and equipment furnished, including substitutions and Product options selected.
 - 6.1.1.3 Record the name of the Subcontractor including the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
 - 6.1.1.4 For each principal Product, indicate whether record Product data has been submitted in Operation and Maintenance Manuals instead of submitted as record Product data.
 - 6.1.1.5 Note related Change Orders, record drawings (and Product data) where applicable.

7.0 RECORD PRODUCT DATA

7.1 Preparation:

- 7.1.1 Mark Product data to indicate the actual Product installation where installation varies substantially from that indicated in record Product data submittal.
 - 7.1.1.1 Give particular attention to information on concealed Products and installations that cannot be readily identified and recorded later.
 - 7.1.1.2 Include significant changes in the Product delivered to the Place of the Work and changes in manufacturer's written installation instructions.
 - 7.1.1.3 Note related Change Orders, record drawings, (and Product data) where applicable.

8.0 MISCELLANEOUS RECORD SUBMITTALS

- 8.1 Assemble miscellaneous records required by other specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

9.0 RECORDING AND MAINTENANCE

9.1 Recording:

- 9.1.1 Maintain one copy of each submittal during the construction period for Project record document purposes. Post changes and modifications to Project record documents as they occur; do not wait until the end of the Project.
 - 9.1.1.1 Owner (University) and Consultant will periodically review record documents to assure compliance with this requirement.

9.2 Maintenance of record documents and samples:

- 9.2.1 Store record documents and samples in the field office apart from the Contract documents used for construction. Do not use Project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project documents for Consultant's reference during normal working hours.

10.0 SAMPLE ELECTRONIC DATA TRANSFER AGREEMENT

Electronic Data Transfer Agreement

This agreement is entered into and agreed by, between and among the Consultant(s), the Owner (University), the Contractor, Subcontractors and other recipients as applicable, and is made in reference to the Project, as named herein.

In consideration of the request of the Owner (University), the Contractor, the Subcontractor and other recipients to the Consultant(s), to deliver to the recipient(s) certain electronic data for use on the Project, the parties agree as follows:

Electronic data includes but is not limited to, computer-aided design (CAD) files including native file formats (DWG) and drawing exchange formats (DXF), files produced by word processing, spread sheet, scheduling, data base and other software programs. The electronic data may be provided in an original format produced by the Consultant(s) or an alternate, "translated" format as requested by other parties in this agreement. The specific electronic data and formats to be transferred are as follows:

The means by which the electronic data is transferred may include but are not limited to, electronic mail, file transfer protocol sites and disc copies transmitted between the parties in this agreement. The Owner (University) and recipient(s) acknowledge that electronic data transferred in any manner or translated from the system and format used by the Consultant(s) to an alternate system or format is subject to errors that may affect the accuracy and reliability of the data and that the data may be altered, whether inadvertently or otherwise. Accordingly, the Consultant(s) makes no warranty, express or implied, as to the accuracy of the information transferred. The electronic data are not the construction documents and differences may exist between these electronic files and correspondence hard-copy construction documents. The Consultant(s) reserves the right to retain hard copy originals in addition to electronic copies of the electronic data transferred, which originals shall be referred to and shall govern.

As consideration to the Consultant(s) for the transfer of the electronic data, the Owner (University) and the recipient(s) agree that the Consultant(s) shall not be liable for and hereby waive all claims and agree to indemnify and hold the Consultant(s) harmless from all liabilities, losses, damages or expenses (including attorneys' fees) arising out of, or connected with: (1) the transfer of electronic data by any means; or (2) the use, modification or misuse by parties other than the Consultant of the electronic data; or (3) the limited life expectancy and decline of accuracy or readability of the electronic data due to storage; or (4) any use of the electronic data by any third parties receiving the data from other parties to this agreement; or (5) the incompatibility of software or hardware used by the Consultant(s) and the other parties to this agreement.

The electronic data provided by the Consultant(s) under the terms of this agreement is the proprietary information of the Consultant(s) *(edit if owned by the Owner (University) or Owner (University)/Consultant jointly)*. All electronic data is to be treated as confidential and is not to be disclosed to or be shared with others without the Consultant's express, written consent.

All parties to this agreement acknowledge that the Project is being designed, bid and constructed according to a "Fast Track" schedule. The Consultant(s) shall issue the most current information available as of the date of this agreement, but does not undertake the responsibility for providing updated information as the Project proceeds. The recipient(s) of the electronic data may make specific written request for such updated information as recipient(s) deem necessary, which the Consultant(s) will then provide subject to the terms and conditions hereof.

The Consultant(s) shall be compensated by the Owner (University), Contractor, Subcontractor and other recipients as applicable, and upon receipt of payment in full shall transmit the electronic data to the appropriate

parties in this agreement. Compensation shall be an agreed to lump sum fee for the initial transfer of electronic data; the Consultant shall be compensated for subsequent updates for a fee to be determined at the time of the transfer. Reimbursable expenses shall be paid in full and are in addition to the lump-sum fee.

The parties have executed this agreement as of the dates stated below.

OWNER

By: _____

Title: _____

Date: _____

CONSULTANT

By: _____

Title: _____

Date: _____

RECIPIENT

By: _____

Title: _____

Date: _____

RECIPIENT

By: _____

Title: _____

Date: _____

RECIPIENT

By: _____

Title: _____

Date: _____

RECIPIENT

By: _____

Title: _____

Date: _____

- *delete or add signature blocks as required*

END OF SECTION 01 78 39

GENERAL COMMISSIONING REQUIREMENTS: SECTION 01 91 13**1.0 PART 1 - GENERAL****1.1 Description**

- A. Commissioning: Commissioning is a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meet defined objectives and criteria. The Commissioning process begins at project inception (during the pre-design phase) and continues through the life of the facility. The commissioning process includes specific tasks to be conducted during each phase in order to verify that design, construction training and documentation meets the owner's project requirements and the construction documents.
- B. Commissioning Team: The members of the commissioning team consist of the contracted independent commissioning agent (CxA), the owner's representative, the general contractor (GC), the architect and design engineers, the mechanical contractor (MC), the electrical contractor (EC), the testing and balancing (TAB) contractor, the control contractor (CC), the facility operating staff, and any other installing subcontractors or suppliers of equipment. The contracted independent commissioning agent is hired by the University directly. The CxA directs and coordinates the project commissioning activities and the reports to the commissioning team. All team members work together to fulfill their contracted responsibilities and meet the objectives of the contract documents.

Commissioning shall:

- 1) Verify that contract documents include and meet the Owner's Project Requirements and intent.
 - 2) Verify that applicable equipment and systems are installed according to the contract documents, manufacturer's recommendations, industry accepted minimum standards and University Design Standard and that they receive adequate operational checkout by installing contractors.
 - 3) Verify and document proper performance of equipment and systems.
 - 4) Verify that O&M documentation left on site is complete.
 - 5) Verify that the owner's operating personnel are adequately trained.
 - 6) Verify that Owner's Project Requirements (OPR) are documented and updated as the project progresses.
- C. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions, apply to this section.
- B. ASHRAE Guideline 0-2019.

1.3 SUMMARY

- A. This section includes general requirements that apply to the implementation of the commissioning process without regard to specific systems, assemblies, and components.
- B. Related Divisions include the following:

Divisions.21, 22, 23, 26, 27 and 28.

1.4 DEFINITIONS

Acceptance - A formal action, taken by a person with appropriate provider (which may or may not be contractually defined) to declare that the project meets defined requirements, thus permitting subsequent activities to proceed.

Approval - Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the contract documents.

Basis of Design - A document that records the concepts, calculations, decisions, and product selections used to meet the owner's project requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

Checklists - Verification checklists that are developed and used during all phases of the commissioning process to verify that the owner's project requirements are being achieved. This includes checklists for general verification, plus testing, training, and other specific requirements.

Commissioning Agent (CxA) - The entity identified by the owner who leads, plans, schedules, and coordinates the commissioning team to implement the commissioning process.

Commissioning Plan - An overall plan developed by the commissioning agent that provides the structure, schedule and coordination planning for the commissioning process.

Commissioning Process - A quality-focused process for enhancing the delivery of a project. The process focuses upon verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the owner's project requirements.

Commissioning Process Activities - Components of the commissioning process.

Commissioning Process Progress Report - A written document that details activities completed as part of the commissioning process and significant findings from those activities that is continuously updated during the course of a project. Usually it is incorporated into the commissioning plan as an ongoing appendix.

Commissioning Team - The individuals who through coordinated actions are responsible for implementing the commissioning process.

Construction Checklist - A form used by the contractor to verify that appropriate components are on-site, ready for installation, correctly installed, and functional.

Construction Documents - Construction documents usually include the project manual (specifications), plans (drawings) and general terms and conditions of the contract.

Continuous Commissioning Process - A continuation of the commissioning process well into the occupancy and operations phase to verify that a project continues to meet current and evolving owner's project requirements. Continuous commissioning process activities are on-going for the life of the facility. Also see **On-Going Commissioning Process**.

Contract Documents - Contract documents frequently include price agreements, construction management process, sub-contractor agreements or requirements, requirements and procedures for submittals, changes, and other construction requirements, timeline for completion, and the

construction documents.

Coordination Drawings - Drawings showing the work of all trades to illustrate that equipment can be installed in the space allocated without compromising equipment function or access for maintenance and replacement. These drawings graphically illustrate and dimension manufacturers' recommended maintenance clearances.

Control system - A component of environmental, HVAC, security, and fire systems for reporting/monitoring and issuing of commands to/from field devices.

Data logging - The monitoring and recording of flows, currents, status, pressures, etc., of equipment using stand-alone data recorders separate from the control system or the trending capabilities of control systems.

Deferred Performance Tests (DPTs) - Performance tests that are performed, at the discretion of the CxA, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design, or other site conditions that disallow the test from being performed.

Deficiency - A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the contract documents.

Factory Testing - Testing of equipment on-site or at the factory, by factory personnel, with or without an owner's representative present.

Issues Log - A formal and ongoing record of problems or concerns – and their resolution – that have been raised by members of the commissioning team during the course of the commissioning process.

Nominal Group Technique - A formal, structured brainstorming process used to obtain the maximum possible ranked input from a variety of viewpoints in a short period of time. The typical approach is a workshop session where a question is presented, the attendees each record their responses on a piece of paper, the individual responses are recorded on a flip chart without discussion in a round robin fashion, all of the responses are discussed, and the participants rank their top five responses.

Non-Compliance - See **Deficiency**.

Non-Conformance - See **Deficiency**.

On-Going Commissioning Process - A continuation of the commissioning process well into the occupancy and operations phase to verify that a project continues to meet current and evolving owner's project requirements. On-going commissioning process activities occur throughout the life of the facility. Some of these will be close to continuous in implementation, and others will be either scheduled or unscheduled (as needed). Also see **Continuous Commissioning Process**.

Owner's Project Requirements - A written document that details the functional requirements of a project and the expectations of how it will be used and operated. This includes project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. (The term "Project Intent" is used by some owners for their commissioning process owner's project requirements or design.) To be included in Appendix A of the commissioning plan.

Over-ridden Value - Riding over a sensor value in the equipment's controls to observe the response of the equipment's operation. Also see **Simulated Signal**.

Phased Commissioning - Commissioning that is completed in phases as required by the phasing plan as approved for the project and other scheduling issues.

Quality Based Sampling - A process for evaluating a sub-set (sample) of the total population. The sample is based upon a known or estimated probability distribution of expected values; an assumed statistical distribution based upon data from a similar product, assembly, or system; or a random sampling that has scientific statistical basis.

Seasonal Performance Tests - Performance tests that are deferred until the system(s) will experience conditions closer to their design conditions based on weather conditions.

Part Load Tests – Performance tests that will include the operation of the system under part load conditions. The system will be confirmed to operate without cycling through loop tuning and review of trends.

Simulated Condition - Condition that is created for the purpose of testing the response of a system (e.g., raising/lowering the set point of a thermostat to see the response in a VAV box).

Simulated Signal - Disconnecting a sensor and using a signal generator to simulate a sensor value for the purpose of testing a full range of conditions.

Startup - The initial starting or activating of dynamic equipment, including completing construction checklists.

Systems Manual - A system-focused composite document that includes the operation manual, maintenance manual, and additional information of use to the owner during the occupancy and operations phase.

Test Procedure - A written protocol that defines methods, personnel, and expectations for tests conducted on components, equipment, assemblies, systems, and interfaces among systems. The test procedures are specified in the Technical Specifications sections of the contract documents. Performance testing covers the dynamic functions and operations of equipment and systems using manual or monitoring methods. Performance testing is the dynamic testing of systems under full operation. Systems are tested under various modes, such as during low cooling loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to respond as the sequences state.

Training Plan - A written document that details the expectations, schedule, budget, and deliverables of commissioning process activities related to training of project operating and maintenance personnel, users, and occupants.

Verification - The process by which specific documents, components, equipment, assemblies, systems, and interfaces among systems are confirmed to comply with the criteria described in the Owner's Project Requirements.

Trending – The monitoring, by a building management system or other electronic data gathering equipment, and analyzing of the data gathered over a period of time.

Vendor - Supplier of equipment.

1.5 COORDINATION

- A. Project Commissioning Team - The members of the project commissioning team will consist of the commissioning authority and any support personnel, the construction manager, the owner's facility staff (FS) or designee, the general contractor, subcontractors and/or vendors as required, and the architect/ engineer (A/E).

- B. Management - The CxA coordinates the commissioning activities through the construction manager. All members shall work together to fulfill their contracted responsibilities and meet the objectives of the contract documents. Refer to Paragraph 1.06 for additional management details.
- C. Scheduling - The contractor will integrate all commissioning activities into the overall project schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

1.6 COMMISSIONING PLAN

- A. The CxA will develop the commissioning plan which shall be included in the contract documents and project schedule when approved by the owner. The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.
 - 1) Commissioning during construction begins with an initial commissioning meeting conducted by the CxA where the commissioning process is reviewed with the project commissioning team members.
 - 2) Additional meetings will be required throughout construction, scheduled by the CxA, through the owner or GC, with necessary parties attending to plan, scope, coordinate, schedule future activities and resolve problems.
 - 3) Equipment documentation is submitted to the CxA, through the owner or GC, during normal submittals, including detailed startup procedures.
 - 4) The construction checklists are to be completed by the contractor (or its subcontractors), before and during the startup process.
 - 5) Construction checklists and startup must be completed before performance testing.
 - 6) Items of non-compliance in material, installation, or setup shall be corrected at no expense to the owner.
 - 7) The contractor ensures that the subcontractors' construction checklists are executed and documented and that startup and initial checkout are performed. The CxA verifies that the TAB, construction checklists and startup were completed according to the approved plans. This includes the CxA approving TAB, checklists and startup plans. This also includes witnessing startup of selected equipment. Any testing failure is to be corrected at no additional cost to the owner, and a re-test is to be performed, observed, and documented.
 - 8) The CxA develops and implements equipment and system performance test procedures. The forms and procedures are approved by the owner, GC and A/E.
 - 9) The performance tests are executed by the contractor under the direction of the CxA with the assistance of the facility staff. All documentation is by the CxA.
 - 10) The CxA reviews the O&M documentation for completeness and provides the commissioning record for the O&M manuals.
 - 11) Commissioning should be completed before substantial completion.
 - 12) The CxA develops procedures in accordance with the Owner's Project Requirements, reviews, pre-approves, coordinates, and implements the training provided by the contractor.

13) Deferred testing is conducted as specified or required.

1.7 COMMISSIONING TEAM

- A. Members appointed by contractor(s): Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated actions. The commissioning team shall consist of, but not be limited to, representatives of each contractor, including project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members appointed by owner:
 - 1. CxA - An entity identified by the owner who leads, plans, schedules, and coordinates the commissioning team to implement the commissioning process. Owner has engaged the CxA under a separate contract.
 - 2. Representatives of the facility user and operation and maintenance personnel.
 - 3. Architect and engineering design professionals.

1.8 RESPONSIBILITIES

- A. The general responsibilities of various parties in the commissioning process are provided in this sub-section. The specific responsibilities are in the Technical Specifications.
- B. All Parties
 - 1. Follow the commissioning plan.
 - 2. Attend initial commissioning meeting and additional meetings as necessary.
- C. Mechanical and Electrical Designers/Engineers

Construction and Phase

- 1. Perform normal submittal review, construction observation, as-built drawing preparation, etc., as contracted. One site observation should be completed just prior to system startup.
- 2. Provide any design narrative and sequences documentation requested by the CxA. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
- 3. Attend commissioning scoping meetings and other selected commissioning team meetings.
- 4. Participate in the resolution of system deficiencies identified during commissioning, according to the contract documents.
- 5. Prepare and submit the final as-built design intent and operating parameters documentation for inclusion in the O&M manuals. Review the O&M manuals.
- 6. From the contractor's red-line drawings, edit and update one-line diagrams developed as part of the design narrative documentation and those provided by the vendor as shop drawings for all applicable systems.
- 7. Review the construction checklists for major pieces of equipment for sufficiency prior to their use.
- 8. Review the performance test procedure forms for major pieces of equipment for sufficiency prior to their use.

9. Review the integrated test matrix and procedure including load bank sizing and quantities for sufficiency prior to their use.

Occupancy and Operations Phase

1. Participate in the resolution of non-compliance, non-conformance and design deficiencies identified during commissioning during warranty-period commissioning.

D. Commissioning Agent (CxA)

The contractors will provide all tools or the use of tools to start, check-out and test equipment and systems, except for specified testing with portable data-loggers, which shall be supplied and installed by the CxA.

The CxA will verify the execution of commissioning process activities using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, equipment submittals, construction checklists, training, operating and maintenance data, tests, and test reports to verify compliance with the OPR and construction documents. When a random sample does not meet the requirement, CxA will report the commissioning action item in the "Issues Log".

Construction Phase

1. Coordinates and directs the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.
2. Coordinate the commissioning work and, with the GC and owner, help integrate commissioning activities into the master schedule.
3. Revise the Construction Phase Commissioning Plan as necessary.
4. Plan and conduct a commissioning scoping meeting and other commissioning meetings.
5. Request and review additional information required to perform commissioning tasks, including O&M materials, contractor startup and checkout procedures.
6. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
7. Review normal contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.
8. Write and distribute construction checklists. Prepare and maintain completed construction checklist log.
9. Develop an enhanced startup and initial systems checkout plan with subcontractors.
10. Perform site visits, as necessary, to observe component and system installations. Attend selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies.
11. Approve construction checklist completion by selected site observation and spot checking.
12. Recommend approval of systems startup by reviewing startup reports and by selected site observation.
13. Oversee sufficient testing of the control system
14. With necessary assistance and review from installing contractors, finalize the performance test procedures for equipment and systems, including energy management control system trending, stand-alone data logger monitoring or manual performance testing. Submit to GC for review, and for approval if required.

15. With necessary assistance and review from installing contractors, finalize the integrated test matrix and procedure including load bank size and quantities. Submit to GC for review, and for approval if required.
16. Analyze any performance trend logs and monitoring data to verify performance.
17. Coordinate, witness, and recommend approval of manual performance tests performed by installing contractors. Coordinate retesting as necessary until satisfactory performance is achieved
18. Maintain a master Issues Log and a separate testing record. Provide the owner/ GC with written progress reports and test results with recommended actions.
19. Review equipment warranties to ensure that the owner's responsibilities are clearly defined.
20. Oversee and approve the training of the owner's operating personnel.
21. Compile and maintain a commissioning record and building systems book(s).
22. Review and approve the preparation of the O&M manuals.
23. Provide a final commissioning report (as described in this section).
24. Coordinate the development of a systems manual
25. Prepare a definition of points to be trended which will provide the operations staff clear indications of system function in order to identify proper system operation and trouble shoot problems. The CxA shall also provide any needed information on interpreting the trends.

Occupancy and Operations Phase

1. Coordinate and supervise required seasonal or deferred testing and deficiency corrections.
2. Return to the site at 9 months into the 12-month warranty period and review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have operating the building as originally intended. Make suggestions for improvements and for recording these changes in the O&M manuals. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports, documents and requests for services to remedy outstanding problems.
3. Assist in the development of a preventative maintenance plan, a detailed operating plan or an energy and resource management plan or as-built documentation.
4. Attend lessons learned session

E. General Contractor (GC)

Construction and Acceptance Phase

1. Facilitate the coordination of the commissioning work by the CxA, and, with the GC and CxA, ensure that commissioning activities are being scheduled into the master schedule.
2. Review and approve the final *Commissioning Plan—Construction Phase*.
3. Attend a commissioning scoping meeting and other commissioning team meetings.
4. Perform the normal review of contractor submittals.
5. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CxA.
6. Review and approve the performance test procedures submitted by the CxA, prior to testing.
7. Review and approve the integrated test matrix and procedure including load bank sizing and quantities submitted by the CxA, prior to testing.
8. When necessary, verify receipt, observe and witness startup and performance testing of selected equipment.
9. Review commissioning progress and deficiency reports.
10. Coordinate the resolution of non-compliance and design deficiencies identified in all phases of commissioning.
11. Sign-off (final approval) on individual commissioning tests as completed and passing. Recommend completion of the commissioning process to the Project Manager.

12. Assist the contractors in coordinating the training of owner personnel.

Occupancy and Operations Phase

1. Assist the CxA as necessary in the seasonal or deferred testing and deficiency corrections required by the specifications.
2. Ensure that any seasonal or deferred testing and any deficiency issues are addressed.

F. Contractor

The Contractors and their subcontractors and vendors shall assign representatives with expertise and authority to act on their behalf and schedule them to participate in and perform commissioning process activities including, but not limited to, the following:

Construction Phase

1. Facilitate the coordination of the commissioning and incorporate commissioning activities (the Commissioning Plan) into the Overall Project Schedule (OPS).
2. Provide detailed startup procedures
3. Include the cost of commissioning in the total contract price.
4. Ensure that all subcontractors and vendors execute their commissioning responsibilities according to the contract documents and the OPS.
5. Attend and participate in commissioning team meetings held on an As-required basis.
6. No later than 60 days prior to startup of the first piece of major equipment, meet with the CxA, GC, A/E, and PM and owner to finalize the detailed commissioning procedures/schedule.
7. Provide the training of owner personnel.
8. Review construction checklists provided by the commissioning authority.
9. Complete electronic construction checklists as work is completed and provide update to the commissioning authority as required.
10. Provide and install load banks required as per the integrated test procedures.
11. Accomplish commissioning process test procedures including integrated test matrix and functional performance testing.
12. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
13. Cooperate with the CxA for resolution of issues recorded in the "Issues Log".
14. Prepare O&M manuals, according to the contract documents, including clarifying and updating the original sequences of operation to as-built/as-tested conditions.

Occupancy and Operations Phase

1. Ensure that subcontractors provide assistance for seasonal or deferred performance testing, performed by the CxA, according to the specifications.
2. Ensure that subcontractors correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.
3. Perform all guarantee/warranty work for materials furnished under the contract for the time specified in the contract, including all warranties and curing all latent defects within the time period provided in the contract.

G. Vendors/Subcontractors

1. Provide all requested submittal data, including detailed startup procedures and specific responsibilities of the owner to keep warranties in force.
2. Assist in equipment testing per agreements with subcontractors and/or contractor.
3. Include cost of all special tools and instruments (only available from vendor, specific to a

piece of equipment) required for testing, operating, and maintaining equipment according to these contract documents in the base bid price to the contractor.

4. Provide requested information regarding equipment sequence of operation and testing procedures.
5. Review construction checklists and test procedures for equipment installed by factory representatives.

1.9 EQUIPMENT/SYSTEMS TO BE COMMISSIONED

- A. Refer to the relevant specification division and sections for systems and equipment commissioning requirements.

2.0 PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

- A. All testing equipment required to perform startup and initial checkout and required performance testing shall be provided by the contractor for the equipment being tested.
- B. All load banks are to be provided and installed by the contractor to test the system under full load.
- C. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance within the tolerances specified in the specifications. If not otherwise noted, the following minimum requirements apply:
 - Temperature sensors and digital thermometers shall have a certified calibration to NIST traceable standards within the past year to accuracy of 0.5-degree F and a resolution of + or - 0.1-degree F.
 - Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.
 - All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates readily available.

3.0 PART 3 - EXECUTION

3.1 MEETINGS

- A. Initial Meeting. The CxA, through the owner/GC, will schedule, plan and conduct an initial commissioning meeting. The contractor and its responsible parties are required to attend.
- B. Miscellaneous Meetings. Other meetings will be planned and conducted by the CxA as construction progresses. These meetings will cover coordination, deficiency resolution, and planning issues. These meetings will be held at least monthly, until the final 3 months of construction, when they may be held as frequently as one per week.

3.2 STARTUP, CONSTRUCTION CHECKLISTS, AND INITIAL CHECKOUT

The following procedures apply to all equipment/systems to be commissioned, according to Paragraph 1.9 Equipment/Systems to Be Commissioned.

- A. General. Construction checklists are important to verify that the equipment and systems are fully connected and operational. It ensures that performance testing (in-depth system checkout) may proceed without unnecessary delays. The construction checklists for a given system must be successfully completed and approved prior to startup and formal performance testing of equipment or subsystems of the given system.
- B. Startup and Checkout Plan. The CxA will assist the project commissioning team members

responsible for startup of any equipment. The primary role of the CxA in this process is to ensure that there is written documentation that each of the manufacturer-recommended procedures has been completed. The CxA shall provide construction checklists and startup shall be identified in the commissioning scoping meeting and on the checklist forms.

1. The checklists indicate required procedures to be executed as part of startup and initial checkout of the systems and the party responsible for their execution.
2. The contractor shall determine which trade is responsible for executing and documenting each of the line item tasks and transmit the checklists to the responsible subcontractors. Each form may have more than one trade responsible for its execution.
3. The contractor/subcontractor -with assistance from the CxA- responsible for the purchase of the equipment shall develop the full startup plan by combining the manufacturer's detailed startup and checkout procedures and the construction checklists.
4. The contractor/subcontractor shall submit the full startup plan to the CxA for review and approval.
5. The CxA will review and approve the procedures and the documentation format for reporting. The CxA will return the procedures and the documentation format to the contractor, through the GC.
6. The contractor will transmit the full startup plan to the subcontractors for their review and use.

C. Execution of Construction Checklists and Startup.

1. Four weeks prior to the scheduled start up, the contractor shall coordinate startup and checkout with the GC, A/E, and CxA. The execution and approval of the construction checklists, startup, and checkout shall be directed and performed by the contractor, subcontractor or vendor. Signatures are required of the applicable subcontractors for verification of completion of their work.
2. The owner, GC, and A/E as necessary, shall observe, at minimum, the procedures for each piece of primary equipment, unless there are multiple units, in which case a sampling strategy may be used. The CxA will observe all testing.
3. For lower-level components of equipment, (e.g., sensors, controllers), the CxA shall observe a sampling of the startup procedures.
4. The subcontractors and vendors shall execute startup and provide the CxA and A/E, through the owner, GC, with a signed and dated copy of the completed startup and construction checklists.
5. Only individuals of the contractor (technicians, engineers, tradesmen, vendors, etc.) who have direct knowledge and witnessed that a line item task on the construction checklist was actually performed shall check off that item. It is not acceptable for witnessing supervisors to fill out these forms.

D. Deficiencies, Non-Conformance, and Approval in Checklists and Start up (Master Issues Log).

1. The contractor shall ensure that the subcontractors clearly list any outstanding items of the initial startup and construction checklist procedures that were not completed successfully, on an attached sheet. The form and any outstanding deficiencies shall be provided, through the owner, GC, to the CxA within two days of test completion.

2. The CxA will review the report and issue either a non-compliance report or an approval form, through the GC, to the contractor. The installing subcontractors or vendors shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, shall notify the owner, GC as soon as outstanding items have been corrected, and resubmit an updated startup report with a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CxA will recommend approval of the execution of the checklists. Since this is an existing operating site, the Owner will require systems operating before they have been fully commissioned so that site operations can continue.
3. Items left incomplete, which later cause deficiencies or delays during performance may result in back charges to the contractor. Refer to Paragraph 3.05, herein, for details.

3.3 SUBMITTALS

- A. The CxA will provide appropriate contractors with a specific request for the type of submittal documentation the CxA requires facilitating the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team. At minimum, the request will include the manufacturer and model number, the manufacturer's printed installation and detailed startup procedures, full sequences of operation, O&M data, and performance data, any performance test procedures, control drawings and details of owner contracted tests. In addition, the installation and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the CxA. All documentation requested by the CxA will be included by the subcontractors in their O&M manual contributions.
- B. The CxA will review and approve submittals related to the commissioned equipment for conformance to the contract documents as it relates to the commissioning process, to the performance of the equipment and adequacy for developing test procedures. This review is intended primarily to aid in the development of performance procedures and only secondarily to verify compliance with equipment specifications. The commissioning authority will notify the owner, GC, PM or A/E as requested, of items missing or areas that are not in conformance with contract documents and which requires resubmission.
- C. The CxA may request additional design narrative from the A/E and controls contractor, depending on the completeness of the OPR documentation and sequences provided with the specifications.
- D. These submittals to the CxA do not constitute compliance for O&M manual documentation. The O&M manuals are the responsibility of the contractor, though the CxA will review and approve them.

3.4 PHASED COMMISSIONING

- A. The project requires startup and performance testing to be executed in phases. Phasing shall be coordinated with the owner, GC, CxA, and A/E and be reflected in the overall project schedule and commissioning schedule by the contractor. Final performance testing of all systems will be as required by the phasing plan. The performance testing of the "systems as a whole" will be performed before substantial performance of the entire project.

3.5 PERFORMANCE TESTING

- A. Requirements. The performance testing shall demonstrate that each system is operating according to the documented design intent and contract documents. Performance testing facilitates bringing the systems from a state of individual substantial completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified

and corrected, improving the operation and functioning of the systems.

- B. Coordination and Scheduling. The contractor shall provide sufficient notice, regarding their completion schedule for the construction checklists and startup of all equipment and systems to allow the performance testing to be scheduled. The commissioning team shall oversee, witness, and document the performance of all equipment and systems. The CxA in association with the contractor/subcontractors and facility staff shall execute the tests. Performance testing shall be conducted after the construction checklists, and startup has been satisfactorily completed. The control system shall be sufficiently tested and approved by the CxA before it is used, to verify performance of other components or systems. The air balancing and water balancing shall be completed before performance testing of air or water-related equipment or systems. Testing proceeds from components to sub-systems to systems. When the proper performance of all interacting individual systems has been achieved, the interface or coordinated responses between systems shall be checked.
- C. Development of Test Procedures. Before test procedures are finalized, the contractor shall provide to the A/E and the CxA all requested documentation and a current list of changes affecting equipment or systems, including an updated points list, program code, control sequences, and testing parameters. Using the testing parameters and requirements in the technical specifications, the CxA shall update/finalize specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Each contractor/subcontractor or vendor, as appropriate, shall provide assistance to the CxA in finalizing the procedures. Prior to finalization, the A/E shall review and concur with the test procedure.
- D. Test Methods.
1. Performance testing and verification may be achieved by manual testing or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone data loggers. The CxA may substitute specified methods or require an additional method to be executed other than what was specified, with the approval of the A/E and owner, GC. The CxA will determine which method is most appropriate for tests that do not have a specified method.
 2. Simulated Conditions. Simulating conditions shall be allowed, though timing the testing to experience actual conditions is encouraged wherever practical.
 3. Overridden Values. Overriding sensor values to simulate a condition, such as overriding the outside air temperature reading in a control system to be something other than it really is, is acceptable.
 4. Simulated Signals. Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is recommended over using the sensor to act as the signal generator via simulated conditions or overridden values.
 5. Altering Set points. Rather than overriding sensor values, and when simulating conditions is difficult, altering set points to test a sequence is preferable.
 6. Indirect Indicators. Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the test parameters, that the indirect readings through the control system represent actual conditions and responses.
 7. Setup. Each performance test shall be performed under conditions that simulate actual conditions as closely as is practically possible. The contractor/subcontractor(s) assisting the CxA in executing the test shall provide all necessary materials, system modifications, etc., to produce the necessary flows, pressures, temperatures, etc., necessary to execute the test according to the specified conditions. At completion of the test, the contractor/subcontractor(s) shall return all affected equipment and systems to their approved operating settings.

- E. Test Equipment. Refer to Part 2 for test equipment requirements.
- F. Problem Solving. The burden of responsibility to solve, correct, and retest malfunctions/failures is with the contractor, with A/E approval as required.

3.6 DOCUMENTATION, NON-CONFORMANCE, AND APPROVAL OF TESTS

- A. Documentation. The CxA shall witness and verify/pre-approve the documentation of the results of all performance tests. The CxA shall complete all documentation for performance testing.
- B. Non-Conformance.
 - 1. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CxA. In such cases the deficiency and resolution will be documented on the procedure form or on an attached sheet.
 - 2. As tests progress and a deficiency is identified, the CxA shall discuss the issue with the commissioning team, and the contractor.
 - a. When there is no dispute on the deficiency and the contractor accepts responsibility to correct it:
 - 1) The CxA will document the deficiency and the contractor's response and intentions. After the day's work, the CxA will submit the non-compliance reports to the GC. The contractor corrects the deficiency, signs the statement of correction at the bottom of the non-compliance form certifying that the equipment is ready to be retested and sends it back to the CxA.
 - 2) The contractor shall reschedule the test; and the test repeated.
 - b. If there is a dispute about a deficiency, regarding whether or not it is a deficiency:
 - 1) The dispute shall be documented on the non-compliance form with the contractor's response.
 - 2) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the A/E. Final acceptance authority is with the owner.
 - 3) The CxA documents the resolution process.
 - 4) Once the interpretation and resolution have been decided, the contractor corrects the deficiency, signs the statement of correction on the non-compliance form and provides it to the CxA, through the GC. The contractor shall reschedule the test and the test repeated until satisfactory performance is achieved.
 - 3. Cost of retesting a performance test is the contractor's.
 - 4. The contractor shall submit in writing to the GC at least as often as commissioning meetings are being scheduled, the status of each outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreement and proposals for their resolutions.
 - a. The CxA retains the original non-conformance forms until the end of the project.
 - b. Retesting shall not be considered a justified reason for a claim of delay or for a time extension by the contractor.
- C. Failure Due to Manufacturer Defect. If 10% (or three, whichever is greater) of identical pieces of equipment fail to perform to the contract documents (mechanically or substantively) due to a manufacturing defect, not allowing it to meet its submitted performance specification, all identical units may be considered unacceptable by the A/E or CxA. In such case, the contractor shall

provide the owner with the following:

- a. Within one week of notification from the owner, GC, the contractor or manufacturer's representative shall examine all other identical units making a record of the findings. The findings shall be provided to the GC within two weeks of the original notice.
 - b. Within two weeks of the original notification, the contractor or manufacturer shall provide a signed and dated, written explanation of the problem, cause of failures, etc., and all proposed solutions.
 - c. The A/E will determine whether a replacement of all identical units or a repair is acceptable.
 - d. Two examples, where applicable, of the proposed solution shall be installed by the contractor and the A/E shall be allowed to test the installations for up to one week, upon which the A/E will decide whether to accept the solution.
 - e. Upon acceptance, the contractor and/or manufacturer shall replace or repair all identical items, at their expense. The replacement/repair work shall proceed with reasonable speed beginning within one week from when parts can be obtained.
- D. Approval. The CxA notes each satisfactorily demonstrated function on the test form. Final approval of the performance test by the owner is made after review by the CxA and GC, following recommendations by the A/E.

3.7 DEFERRED TESTING

- A. Unforeseen Deferred Tests. If any check or test cannot be completed due to the project completion level, required occupancy condition or other deficiency, execution of checklists and performance testing may be delayed upon approval of the CxA and GC. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary parties will be negotiated.
- B. Seasonal Testing. During the warranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design) shall be completed as part of this contract. The CxA shall coordinate this activity through the owner/GC. Tests will be executed, documented by the CxA and deficiencies should be corrected by the appropriate contractor/ subcontractors with the CxA witnessing. Any final adjustments to the O&M manuals and as-builts due to the testing shall be made by the contractor.

3.8 TRAINING OF OWNER PERSONNEL

- A. See Divisions.21, 22, 23, 26, 27 and 28 for training requirements.

3.9 COMMISSIONING RECORD IN O&M MANUALS

The CxA is responsible to compile, organize and index the following commissioning data by equipment into labeled, indexed and tabbed, three-ring binders and deliver it to the GC, to be included with the O&M manuals.

- a. Commissioning Plan.
- b. System reports including design narratives and criteria including sequences. Each system shall contain the startup plan and report, approvals, corrections, construction checklists, completed performance tests, trending and analysis, training plan and recommended recommissioning schedule.

- c. Final Commissioning Report including an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning authority regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
- equipment meeting the equipment specifications
 - equipment installation
 - performance and efficiency
 - equipment documentation and design intent
 - operator training.

All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific performance test, inspection, trend log, etc. where the deficiency is documented. The performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, etc.) and include observations and conclusions from the testing.

END OF SECTION 01 91 13

FACILITY OPERATION: SECTION 01 92 00**1.0 GENERAL INSTRUCTIONS**

- 1.1 Read and be governed by Conditions of the Contract and other Sections of Division 1.

2.0 RELATED WORK SPECIFIED ELSEWHERE

- 2.1 Section 01 30 00 - Administrative Requirements: for submittals.
- 2.2 Section 01 40 00 - Quality Requirements.
- 2.3 Section 01 78 39 - Project Record Documents: for administrative and procedural requirements for Project record documents, including submission of electronic data.
- 2.4 Individual specification Sections; for specific requirements for submission of operation and maintenance data.

3.0 RECORD DOCUMENTS

- 3.1 Prior to occupancy by the Owner, in whole or part, submit the following record documents;
- 3.1.1 Project record documents specified in Section 01 78 39 assembled into the Operation and Maintenance Manual and Products and Finishes Manual.

4.0 OPERATION AND MAINTENANCE MANUAL – EQUIPMENT AND SYSTEMS

- 4.1 Prior to occupancy by the Owner (University), submit to the Consultant for review one (1) copy of the Operation and Maintenance Manual – Equipment and Systems. Upon final acceptance by the Consultant submit to the Owner (University) for record purposes:
- 4.1.1 Two (2) printed copies of the Operation and Maintenance Manual – Equipment and Systems, for each of the architectural/structural trade work, mechanical trade work and electrical trade work and
- 4.1.2 One (1) electronic data CD of the Operation and Maintenance Manual – Equipment and Systems, containing the electronic data files of the complete set for each of the architectural/structural trade work, mechanical trade work and electrical trade work.
- 4.1.3 Instructions in these manuals shall be in simple language so as to guide the Owner (University) in the proper operating and maintenance of building components. Maintenance instructions shall specify warnings of any maintenance practice that will damage or disfigure the specified Products.
- 4.2 Format:
- 4.2.1 Prepare data in the form of instructional manuals.
- 4.2.2 Submit data in commercial quality binders, having 2" (50mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings. Identify each binder with typed or printed title, OPERATION AND MAINTENANCE MANUAL – EQUIPMENT AND SYSTEMS; identify the title of Project and identify the contents of binder. Provide tabbed dividers for each separate piece of equipment and system arranged by

Specification section number, with typed description of Product and major component parts of equipment.

- 4.2.3 Submit text in the form of manufacturer's printed data, or typewritten data.
- 4.2.4 Bind drawings in with text.
- 4.2.5 Prepare a Table of Contents for each volume, organized in 3 parts. In the Table of Contents include title of the Project and schedule of each piece of equipment of system, indexed to content of the volume.
- 4.2.6 Part 1:
 - 4.2.6.1 Include directory listing names, addresses, telephone and fax numbers of Consultants including Architect, Engineers and Subconsultants, and a separate directory listing names, addresses, telephone and fax numbers of Contractor, Subcontractors, and major equipment suppliers, including local source of supplies and replacement parts.
- 4.2.7 Part 2:
 - 4.2.7.1 Include operation and maintenance instructions arranged by Specification section number for each piece of equipment or system, identifying names, addresses, telephone and fax numbers of Subcontractors and suppliers.
 - 4.2.7.2 Refer to Division 22 – Plumbing; Division 23 – Heating, Ventilating, and Air Conditioning (HVAC); Division 25 – Integrated Automation; and Division 26 – Electrical for additional requirements.
 - 4.2.7.3 In addition, include the following;
 - 4.2.7.3.1 Product data for each piece of equipment and system. Mark each sheet to clearly identify specific Product and component parts, and data applicable to installation. Delete inapplicable information. Supplement Product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project record documents as maintenance drawings.
 - 4.2.7.3.2 Manufacturer's literature, parts list for each component, and name and address of closest service organization and spare parts source, for each item of equipment.
 - 4.2.7.3.3 Voltage and ampere rating for each item of electrical equipment.
 - 4.2.7.3.4 Operating instructions. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
 - 4.2.7.3.5 Maintenance instructions.
 - 4.2.7.3.6 Cleaning and lubrication schedules, filter replacement schedules, overhaul and adjustment schedules, and similar schedules.
- 4.2.8 Part 3:

4.2.8.1 Include Project documents, reports and certificates, including the following;

4.2.8.1.1 Final corrected shop drawings. Fold shop drawings larger than 8-1/2" x 11" (216mm) x 280mm) and place in manila envelopes, three (3) hole punched for inclusion in appropriate sections of the binders.

4.2.8.1.2 Warranties. Refer to Article 6 specified herein.

4.2.8.1.3 As-built record drawings of architectural, mechanical and electrical installations.

4.2.8.1.4 Full description of building systems and operation.

4.2.8.1.5 Maintenance contracts. Include copies of each maintenance contracts, clearly stating terms and conditions.

4.2.8.1.6 Air and water balance reports.

4.2.8.1.7 Certificates:

- a) Include copy of each certificate specified in individual Specification Sections.
- b) Include copies of Ministry of Labour certificates.
- c) Include copies of inspection certificates as applicable for Electrical Inspection and Plumbing Inspection and other inspections carried out.

5.0 OPERATION AND MAINTENANCE MANUAL – PRODUCTS AND FINISHES

5.1 Incorporate the 'Operation and Maintenance Manual – Equipment and Systems' and 'Operation and Maintenance Manual – Products and Finishes' into the same manual.

5.2 Prior to occupancy by the Owner (University), submit to the Consultant for review one (1) copy of the Operation and Maintenance Manual – Products and Finishes. Upon final acceptance by the Consultant submit to the Owner (University) for record purposes:

5.2.1 Two (2) printed copies of the operating and maintenance manuals, for each of the architectural/structural trade work, mechanical trade work and electrical trade work and

5.2.2 One (1) electronic data CD of the operating and maintenance manuals, containing the electronic data files of the complete set for each of the architectural/structural trade work, mechanical trade work and electrical trade work.

5.3 Instructions in each manual shall be in simple language so as to guide the Owner (University) in the proper maintenance of Products and finishes.

5.4 Format:

5.4.1 Prepare data in the form of instructional manuals.

5.4.2 Submit data in commercial quality binders, 2" (50mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings. Identify each binder with typed or printed title, OPERATION AND MAINTENANCE MANUAL – PRODUCTS AND FINISHES; identify title of Project; identify contents of binder. Provide tabbed dividers for

each separate Product and finish, arranged by specification Section number, with typed description of Product and finish.

5.4.3 Submit text in the form of manufacturer's printed data, or typewritten data.

5.4.4 Prepare a Table of Contents for each volume, organized into three (3) parts. In the Table of Contents include title of the Project and schedule of each Product and finish, indexed to content of the volume.

5.4.5 Part 1:

5.4.5.1 Include directory listing names, addresses, telephone and fax numbers of Consultants including Architect, Engineers and Subconsultants, and a separate directory listing names, addresses, telephone and fax numbers of Contractor, Subcontractors, and major suppliers.

5.4.6 Part 2:

5.4.6.1 Include the following Product and maintenance data of each Product and each finish:

5.4.6.1.1 Product data of each Product and each finish, with catalogue number, size, composition, and colour and texture designations. Include information for re-ordering custom manufactured Products.

5.4.6.1.2 Product data of moisture protection and weather exposed Products listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

5.4.6.1.3 Maintenance instructions and manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

5.4.6.1.4 Include additional requirements as specified in the individual technical Specification sections.

5.4.7 Part 3:

5.4.7.1 Project certificates, including but not limited to the following:

5.4.7.1.1 Warranties. Refer to Article 6 specified herein.

6.0 WARRANTIES

6.1 Include warranties for inclusion in Products and Finishes Manuals specified herein.

6.2 Include copy of each warranty specified in individual technical Specification sections, set out in format specified in Section 01 30 00.

6.3 Include the following;

6.3.1 Proper name of the Owner (University) and Project.

- 6.3.2 Dates warranty commences and terminates. Commencement date as per the General Conditions and Supplementary Conditions of the Contract, unless especially agreed otherwise by the Owner in writing.
- 6.3.3 Precise terms and conditions of the warranty and the extent of remedial action to be performed.
- 6.3.4 Signature of an authorized official of the company issuing the warranty, and where applicable, the seal of the company.

END OF SECTION 01 92 00

APPENDIX A-UNIVERSITY OF TORONTO AODA TRAINING

VOLUNTEERS & OTHER SERVICE PROVIDERS