RFQ-0756-2019

SPECIFICATION

FOR

PROJECT 20009824

Prime Contractor – NF91 Substation Upgrade

February 2019

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DRAWING NO.	DRAWING TITLE	REVISION	ISSUE DATE
	ELECTRICAL ARRANGEMENT		
F1731664-300-EA001	115/13.8KV STATION, BASIC LAYOUT, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA002	13.8KV AREA, E-HOUSE, EQP, LTG & RECEPTACLE, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA003	13.8KV AREA, E-HOUSE, SECTIONS VIEW, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA004	13.8KV AREA, E-HOUSE, CABLE TRAY & FLOOR OPENING, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA005	13.8KV AREA, E-HOUSE, BILL OF MATERIALS, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA006	13.8KV AREA, E-HOUSE, GROUNDING, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA007	13.8KV AREA, E-HOUSE, MONITORING CABINET, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA008	13.8KV AREA, E-HOUSE, HVAC, FIRE ALARM & SECURITY SYSTEM, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA009	115/13.8KV STATION, ELEVATIONS, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA010	115KV AREA, DISCONNECT SWITCH, GROUNDING DETAILS, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA011	115/13.8KV STATION, CABLE, CONDUITS, NEUTRAL & LIGHTING, PLAN & DETAILS, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
F1731664-300-EA012	115/13.8KV STATION, MAIN GROUNDING GRID, PLAN & DETAILS, ELECTRICAL ARRANGEMENT	00	Sep. 27, 2018
	EXISTING (FOR REFERENCE)		
1796-D-C1	SWITCHGEAR FOUNDATIONS & TUNNEL PLAN, SECTIONS & DETAILS	02	Sep. 27, 2018
1796-D-E4	LAYOUT AND ELEVATIONS	05	Sep. 27, 2018
1769-D-E5	GROUNDING PLAN AND DETAILS	03	Sep. 27, 2018
	CIVIL		
F1731664-075-CV001	115/13.8KV STATION, DRAINAGE & SPILL CONTAINM. SYSTEM, PLAN & DETAILS, CIVIL	00	Sep. 27, 2018
F1731664-075-CV002	115/13.8KV STATION, FINAL GRADE & ROAD PLAN, PLAN VIEW & SECTIONS, CIVIL	00	Sep. 27, 2018
	FOUNDATION		
F1731664-100-F001	115/13.8KV STATION, FOUNDATION KEY PLAN & LIST, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F002	115/13.8KV STATION, E-HOUSE BLDG FOOTINGS, CONC. & REINF. DETAILS,, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F003	115/13.8KV STATION, SPILL CONTAINMENT PIT FOR 'T1', PLAN & ELEVATIONS, CONC. & REINF. DETAILS, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F004	115/13.8KV STATION, SPILL CONTAINMENT PIT FOR 'T1', PLAN & ELEVATIONS, CONC. & REINF. DETAILS, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F005	115/13.8KV STATION, CONC. DUCT BANK "DB-1 & DB-2", PLAN, VIEW & SECTIONS, CONC. & REINF, FOUNDATION	00	Sep. 27, 2018

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F1731664-100-F006	115/13.8KV SUBSTATION, CONC. DUCT BANK “DB-1 & DB-2”, CONC. & REINF, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F007	115/13.8KV SUBSTATION, FENCE & FENCE FOOTINGS, CONC. & REINF. DETAILS, FOUNDATION	00	Sep. 27, 2018
F1731664-100-F008	115/13.8KV AREA, CAST-IN-PLACE OIL WATER SEPARATOR "HT-1", CONC. & REINF. DETAILS, FOUNDATION	00	Sep. 27, 2018
	STRUCTURAL		
F1731664-200-S001	115/13.8KV STATION, STEEL KEY PLAN & LIST, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S002	115/13.8KV STATION, POWER CABLE & PT/CT SUPPORTS “SPC-1 & 2” IN THE PITS, STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S003	115/13.8KV STATION, INSUL. & BUS SUPP. "SBS-1', STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S004	115/13.8KV STATION, FIREWALL BETWEEN “T1/T2”, PLAN, ELEVATION & SPECIFICATION	00	Sep. 27, 2018
F1731664-200-S005	115KV AREA, SERVICE PLATF. FOR TRANSF. “'PF-1 & 2" STEEL DESIGN, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S006	115/13.8KV STATION, NEUTRAL REACTOR BUS SUPP. STR, STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S007	115/13.8KV AREA, STEEL STAIRS & PLATF. AT PERSONAL DR, FOR E-HOUSE BLDG (1,0m ABOVE GRADE), STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S008	115/13.8KV AREA, STEEL STAIRS & PLATF. AT PERSONAL DR,, FOR E-HOUSE BLDG (1,0m ABOVE GRADE), STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S009	115/13.8KV AREA, STEEL STAIRS & PLATF. AT PERSONAL DR,, FOR E-HOUSE BLDG (1,0m ABOVE GRADE),, STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S010	115/13.8KV STATION, STEEL STAIRS & PLATF. AT FRONT DR, FOR E-HOUSE BLDG (1,0m ABOVE GRADE), STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S011	115/13.8KV AREA, STEEL STAIRS & PLATF. AT FRONT DR, FOR E-HOUSE BLDG (1,0m ABOVE GRADE), STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
F1731664-200-S012	115/13.8KV AREA, STEEL STAIRS & PLATF. AT FRONT DR, FOR E-HOUSE BLDG (1,0m ABOVE GRADE), STEEL DETAILS, STRUCTURE	00	Sep. 27, 2018
	PROTECTION & CONTROL		
F1731664-400-PCM001	13.8KV AREA, PCT BUILDING, AC STATION SERVICE, SCHEMATIC WIRING DIAGRAM	00	Sep. 27, 2018
NF91.SingleL.Jul2018	NF-91 AND E.T. CLARKE, OPERATING DIAGRAM	04	Sep. 27, 2018
CABLE LIST	McMASTER UNIVERSITY_CABLE LIST_R00_092718	00	Sep. 27, 2018

END OF SECTION 00 01 50

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	MECHANICAL		
M-100	MECHANICAL LEGEND AND DRAWING LIST	0	Oct. 7, 2016
M-101	PROCESS FLOW DIAGRAM	0	Oct. 7, 2016
M-102	METERING PLAN	0	Oct. 7, 2016
M-103	P&ID – FUEL GAS AND SCANNER AIR	0	Oct. 7, 2016
M-104	P&ID – FEED WATER AND STEAM	0	Oct. 7, 2016
M-105	P&ID – COOLING WATER AND LUBE OIL	0	Oct. 7, 2016
M-106	P&ID – BLOWDOWN AND TURBINE DRAINS	0	Oct. 7, 2016
M-107	P&ID –INSTRUMENT AIR AND CHEMICAL FEED	0	Oct. 7, 2016
M-108	P&ID – FLUE GASSES AND COMPRESSOR ROOM VENTILATION	0	Oct. 7, 2016
M-109A	P&ID –CHILLED WATER (2500 TON OPTION)	0	Oct. 7, 2016
M-109B	P&ID – CHILLED WATER (1200 TON OPTION)	0	Oct. 7, 2016
M-201	GENERAL ARRANGEMENT – OVERALL AND PIPE ROUTING	0	Oct. 7, 2016
M-202	GENERAL ARRANGEMENT – TURBINE AND HRSG	0	Oct. 7, 2016
M-203A	GENERAL ARRANGEMENT – CHILLER ROOM BASEMENT (2500 TON OPTION)	0	Oct. 7, 2016
M-203B	GENERAL ARRANGEMENT – CHILLER ROOM BASEMENT (1200 TON OPTION)	0	Oct. 7, 2016
M-204	GENERAL ARRANGEMENT – CHILLER ROOM SECOND FLOOR	0	Oct. 7, 2016
M-205	GENERAL ARRANGEMENT – GAS COMPRESSOR	0	Oct. 7, 2016
M-301	PART PLAN – TURBINE AND HRSG – LOWER	0	Oct. 7, 2016
M-302	PART PLAN – TURBINE AND HRSG – UPPER	0	Oct. 7, 2016
M-303	ELEVATION – TURBINE AND HRSG	0	Oct. 7, 2016
M-304	ELEVATION – TURBINE AND HRSG	0	Oct. 7, 2016
M-305	PART PLAN – TURBINE AND HRSG – ROOF	0	Oct. 7, 2016
M-306	PART PLAN – CHILLER ROOM BASEMENT – LOWER	0	Oct. 7, 2016
M-307	PART PLAN – CHILLER ROOM BASEMENT – UPPER	0	Oct. 7, 2016
M-308	PART PLAN – CHILLER ROOM SECOND FLOOR	0	Oct. 7, 2016
M-309	ELEVATIONS – CHILLER ROOM BASEMENT	0	Oct. 7, 2016
M-310	ELEVATIONS – CHILLER ROOM BASEMENT	0	Oct. 7, 2016
M-311	PART PLANS AND ELEVATION – GAS COMPRESSOR ROOM	0	Oct. 7, 2016
M-312	PART PLAN – PIPING RELOCATIONS	0	Oct. 7, 2016
M-313	PART PLAN – BREECHING CONNECTION	0	Oct. 7, 2016
M-401	MECHANICAL EQUIPMENT SCHEDULES	0	Oct. 7, 2016
M-402	MECHANICAL DETAILS	0	Oct. 7, 2016
M-403	MECHANICAL DETAILS	0	Oct. 7, 2016
	ELECTRICAL		
E-100	ELECTRICAL LEGEND AND DRAWING LIST	0	Oct. 7, 2016
E-101	SINGLE LINE DIAGRAM – MEDIUM VOLTAGE	0	Oct. 7, 2016
E-102	SINGLE LINE DIAGRAM – LOW VOLTAGE	0	Oct. 7, 2016
E-201	PART PLAN – TURBINE AND HRSG – ELECTRICAL	0	Oct. 7, 2016
E-202	PART PLAN – CHILLER ROOM BASEMENT – ELECTRICAL	0	Oct. 7, 2016

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E-203	PART PLAN – GAS COMPRESSOR ROOM – ELECTRICAL	0	Oct. 7, 2016
E-301	BLOCK DIAGRAM – CHP CONTROLS	0	Oct. 7, 2016
E-302	BLOCK DIAGRAM – CHPCS CONTROLS AND NETWORK ARCHITECTURE	0	Oct. 7, 2016
E-303	BLOCK DIAGRAM – INSTRUMENTATION	0	Oct. 7, 2016
	STRUCTURAL		
S0.1	GENERAL NOTES AND SPECIFICATIONS 1 of 3	0	Oct. 7, 2016
S0.2	GENERAL NOTES AND SPECIFICATIONS 2 of 3		
S0.3	GENERAL NOTES AND SPECIFICATIONS 2 of 3		
S1.2	FOUNDATION DEMOLITION PLAN/ NEW FOUNDATION PLAN	0	Oct. 7, 2016
S1.3	DEMOLITION ROOF PLAN AND MEZZANINE PLANS	0	Oct. 7, 2016
S1.4	ROOF PLAN EQUIPMENT ACCESS OPENING AND DETAILS	0	Oct. 7, 2016
S2.1	FOUNDATION DETAILS	0	Oct. 7, 2016
S2.2	STEAM VENT SILENCER SUPPORT AND EXIST. ROOF PART PLAN	0	Oct. 7, 2016
A1.1	ARCHITECTURAL PLANS AND SECTIONS		

END OF SECTION 00 01 50

1. BID SUBMISSION

1.1. Bids in the form of the Bid Form will be received until **2:00:00 PM local time, Friday February 22, 2019.** Sealed bids shall be addressed to:

The Board of Governors
Attention: Director, Facility Services
Campus Services Building, Room 121
McMaster University, 1280 Main Street West
Hamilton, Ontario, L8S 4M3

1.2. Bids shall be made upon the Bid Form and Supplementary Bid Forms provided and shall be enclosed in a sealed envelope bearing the name of the Bidder and endorsed:

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Project 20009824
Prime Contractor – NF91 Substation Upgrade

1.3. Complete blank spaces on the Bid Form and Supplementary Bid Forms.

1.4. Ensure that Bid Form and Supplementary Bid Forms are signed by an authorized officer of the Corporation under the Bidder's corporate seal if the Bidder is a Corporation, or by an authorized person if the Bidder is a partnership. When a partner or individual signs the Bid Form (without a seal) the signature shall be witnessed and shall be deemed to have all legal effect as if signed under seal. Submit bids with original signatures.

1.5. The authorized person under 1.4 above shall sign the Bid Form and thereby represents to the *Owner* and Consultant that he/she is the sole individual who has authority to bind the Corporation or partnership for the purposes of this bidding process.

1.6. Telephones or space will **not** be available for use by the bidders at the place of Bid Closing. Use of portable / mobile / cellular telephones by the invited bidders shall not be allowed in the offices at the place of Bid Closing.

2. BID IRREGULARITIES

2.1. Faxed and emailed bids will be declared invalid.

2.2. Time is of essence with respect to the submission of a bid. Bids received after the time stated for delivery will not be opened and will be returned to the bidder, at the bidders cost. It remains the sole responsibility of the bidder to ensure that the submission is made before time. No exceptions.

2.3. Unsealed bids will be declared invalid.

2.4. Qualifications on the Bid Form, a bid restricted by a limiting condition added to the bid form, or alterations to the bid form shall be cause for rejection of the bid.

2.5. Bids will be declared invalid for one or more of the following reasons at the exclusive discretion of the *Owner*; do not have blank spaces completed; addenda not acknowledged; are conditional; contain irregularities; or does not comply with the authorized signature requirements listed in item 1.4 of the Instructions to Bidders.

2.6. Failure to submit required supplementary information requested including Supplementary Bid Forms may cause the bid to be declared invalid.

3. CLARIFICATIONS

3.1. Bidders are requested to notify the *Consultant* of errors, omissions or discrepancies noted during examination of the bid documents so that instructions may be issued for clarification. Unless clarified prior to Bid Closing, include in the Bid Offer the costlier option.

3.2. Direct all questions or requests for clarification in writing only to the following:

Norm Hawton
Projects Director – McMaster University
Email: hawtonn@mcmaster.ca

3.3. Questions or request for clarification will be accepted / received up to 3 *Working Day*s prior to the bid closing.

3.4. Clarifications will be issued as addenda. Only those instructions issued in writing by the *Consultant* will be binding to the *Contract.* Verbal instructions, regardless of their source, will not be binding to the *Contract.*

3.5. Instructions and other information pertinent to the *Contract* will be issued not later than 2 *Working Day*s prior to closing date in the form of addenda to bidders.

3.6. Addenda or notification of an issued addendum will only be issued to Bidders that attended and signed the mandatory site visit sheet. Bidders shall ensure that their sub-trades receive the addenda.

3.7. *Consultant* and *Owner* will not accept or consider claims for extra costs incurred by a Bidder whose bid has been accepted, which are due to the failure of the Bidder or *Subcontractor*s to have reviewed the complete bid document including addenda issued during the bid period.

4. BID OPENING

4.1. Bids will not be opened publicly. This is a closed tender opening.

5. BID EVALUATION & AWARD

5.1. The selection process shall commence by checking all submitted bids for mandatory submission requirements that are listed under Section 1 and 2 of the Instructions to Bidders. In addition, attendance at the mandatory site visit, bonding and insurance requirements and any other project specific requirements listed elsewhere in these documents are considered mandatory for the purposes of bid evaluation. Submissions not meeting the mandatory requirements shall not be considered further and submitted costs will not be evaluated.

5.2. *Owner* will be under no obligation to accept the lowest or any bid and will have the right to reject any or all bids in its sole, absolute and unfettered discretion.

5.3. The *Owner* may not award a contract if all bids are over the project budget amount.

5.4. The *Owner* reserves the right for partial award of this *Contract* for budgetary or any other reason at the sole discretion of the *Owner* for any portion of the Work identified in this document. This includes the *itemized prices* and *separate prices* identified in the Supplementary bid form, if applicable. No additional compensation will be considered due to a reduction in the *Contract Price*.

5.5. The *Owner* reserves the right to verification of any vague, ambiguous or unclear aspect of a bid after bid opening, however is not obliged to do that and may elect to declare such a bid invalid. The determination shall be made exclusively by and at the sole discretion of the *Owner*.

5.6. The *Owner* will request to complete and submit the Base Bid Breakdown of Prices table, included in Section 00 43 10, Supplementary Bid Form – Pricing, from one or more of the low bidders. The bidders must submit this information within 24 hours of the receipt of such a request.

5.7. The *Owner* reserves the right to make an award on an overall basis, including consideration of *alternate prices* / *products* / *system options* which may be offered in writing with the bid, without

explanation. The lowest compliant submission shall be determined exclusively by the *Owner* after comparison of the base bid price and all other submitted prices.

6. ACCEPTANCE AND IRREVOCABILITY OF BID

6.1. Bids shall be irrevocable for ninety (90) days from the tender closing date.

7. BID SECURITY

7.1. For all bids in excess of One Hundred Thousand Dollars, submit with the Bid Form, a bid bond / certified cheque issued by a surety company acceptable to the *Owner* in the amount of 10% of the tender price as evidence of good faith that if awarded the *Contract,* the successful Bidder will execute and enter into a formal agreement within the time required and will furnish the security required to obtain the performance of the terms of the *Contract.*

7.2. Amount of the bid bond / certified cheque shall be paid to the *Owner* if the Bidder fails to execute the *Contract Documents* within 14 days of written notification of having been awarded the *Contract* or to furnish a performance bond within 10 days of receiving notification of having been awarded the *Contract.*

7.3. Upon execution of a *Contract* the bid bond / certified cheque shall be null and void.

8. AGREEMENT TO BOND

8.1. Submit an Agreement to Bond using the latest edition of the CCDC approved bond form to verify ability to provide a Performance Bond in the amount of 50% of the bid price for all bids in excess of One Hundred Thousand Dollars ($100,000.00). The cost to provide the required performance bond shall be included in the base bid price.

8.2. Submit an Agreement to Bond using the latest edition of the CCDC approved bond form to verify ability to provide a Labour and Material Payment Bond in the amount of 50% of the bid price for all bids in excess of One Hundred Thousand Dollars ($100,000.00). The cost to provide the required Labour and Material Payment bond shall be included in the base bid price. The premium cost included will be that necessary to provide coverage for the duration of the Project.

8.3. The Surety shall remain on the Bond until the acceptable correction of defects due to faulty materials or workmanship which may appear within a period of one year from the date of acceptance of the Work by the *Owner*. The Performance Bond will cover all expenses incurred in the event of, or as the result of, the Bidder's default.

8.4. Bonds shall be obtained from a recognized Bonding Company acceptable to the *Owner*, doing business in Canada and located in the Province of Ontario, and forwarded to McMaster University, Facility Services within 10 days of the receipt of the letter of acceptance.

8.5. Refer to CCDC 2-2008 and Supplementary Conditions 66 and 67.

9. EXAMINATION OF THE PLACE OF THE WORK

9.1. SITE VISIT: A mandatory site visit has been organized for all Bidders to attend. Failure to attend this site visit will result in the disqualification of that Bidder. The Bidders shall be required to sign the mandatory site visit sheet. The attendance of *Subcontractor*s is not mandatory at this meeting however there may be no other opportunity to review the site. **The site visit will commence from NF91 Substation, Thursday February 7, 2019 at 11:00 am sharp**.

9.2. Any Bidder(s) arriving late to the site visit may not be able to sign the sign-in sheet and risk disqualification from bidding.

9.3. Before submitting a Bid:

9.3.1. Examine the place of the work and adjacent areas to assess access and conditions affecting the execution of the contract.

9.3.2. Examine the site, locality, means of access and disposal and all other site conditions pertinent to the Contract. Bidders are to make their own assessment of soils surface and substrate

conditions and may conduct soils investigations to augment the information provided in the bid documents, if any, at the bidder's written request and own cost, and subject to the *Project Manager*'s approval.

9.3.3. Examine existing building and facilities, locality, means of access and disposal and all other conditions pertinent to the *Contract*. Bidders are to make their own assessment of existing conditions and may open up walls, ceilings and other construction for examination at the Bidder's written request and cost, subject to the *Project Manager*'s approval, to augment the information provided in the tender documents.

9.3.4. Information provided relating to existing conditions is not guaranteed. Bidders to verify and evaluate all information relative to actual conditions.

9.3.5. Examine municipality regulations and by-laws relating to hoardings, protected walkways, vehicular traffic movement, parking, and general use of municipal streets and property during construction.

9.3.6. Waiver: on taking part in a visit, briefing, or to conduct an investigation, bidders and their participants assume all risk of loss, damage, injury or death to the persons and property of itself, its representative, agents and employees from all causes, as a result.

9.3.7. Indemnity: in consideration of the opportunity to take part in a visit, briefing, or conduct an investigation, bidders and their participants assume the defence of, and indemnify and save harmless the *Owner*, its agents, employees and contractors, from and against all claims, losses, costs, damages, suits, actions, proceedings or demands and any liability from them to any person or property, arising therefrom.

10. SUBCONTRACTORS LIST IN THE SUPPLEMENTARY BID FORM

10.1. On the Supplementary Bid Form state the names of the proposed *Subcontractor*s.

10.2. The *Contractor* shall be required to prove to the *Project Manager*, the proposed trade subcontractor's ability to perform the *Work*. The documents that will have to be submitted include, but will not be limited to; CCDC 11 – 1996 (R20006), WSIB - CAD 7 Form, completed health and safety questionnaire, training certificates and resumes of proposed lead personnel. If the *Owner* and the Consultant determines that the proposed trade contractor does not have the qualifications or experience to perform the Work, then the *Contractor* shall propose an alternate subcontractor acceptable to the *Owner* at no extra cost to the *Owner*.

10.3. The *Contractor* shall not be allowed to change the *Subcontractor* listed on the tender form except by written consent of the *Owner* and the *Consultant*.

10.4. Only one *Subcontractor* must be named for a subcontract.

10.5. "Own Forces" or similar designation is not acceptable in lieu of a "*Subcontractor*" name unless the bidder submits with the Supplementary Bid Form written confirmation of employment of permanent personnel capable for performing the Work so identified.

10.6. No claims for payment will be accepted because of failure of Bidders to supply *Subcontractor*s with appropriate bid documents including addenda, which have been supplied to the bidders up to the time for submitting bids.

10.7. Refer to CCDC 2, GC 3.7 of General Conditions.

11. CONTRACT

11.1. The agreement between McMaster University and the successful Bidder will be the Standard Construction Documents CCDC 2-2008 Stipulated Price Contract as amended by the Supplementary Conditions shown in Div 00, Section 00 80 00.

11.2. It is intended that Notice of Contract Award will be received by the successful Bidder within 60 days of bid closing subject to budgetary approval.

12. PROJECT SCHEDULE

12.1. Following the Notice of Contract Award, the successful Bidder shall mobilize his forces and trades to commence on site work as soon as possible and no later than 10 *Working Day*s after receipt of Purchase Order.

12.2. Substantial Performance of the Work shall be complete by **October 30, 2020.**

13. LABOUR AND TRADES

13.1. Check the availability of labour and trades at the *Place of the Work*.

13.2. Bidders are requested to give consideration to employment of local labour and trades if suitable to the proper control and execution of the Work.

14. ESCALATION

14.1. Allow for escalation in costs of *Product*s and labour within the period of construction and include these costs in the bid amount.

15. TAXES

15.1. The Bidder shall show separately in the total tender pricing, all applicable Harmonized Sales Tax (HST) and shall be responsible to verify with the Customs and Excise Branch of Revenue Canada any rulings to payment of tax or tax exemptions.

15.2. Bidders will show applicable Harmonized Sales Tax (HST) owing on their invoices and draw certificates.

16. PERMITS AND APPROVALS

16.1. The *Owner* will obtain and pay for the Building Permit.

16.2. The Bidder is responsible and shall include in their bid price, the cost of for all other permits, approvals, licenses, or certificates necessary for the performance of *Work* including but not limited to, filing of “Notice of Project” with the Ontario Ministry of Labour, compliance with the City of Hamilton’s by-laws regarding specific permits, etc.

17. INSURANCE

17.1. Refer to GC 11.1 in CCDC 2-2008 and Supplementary Conditions SC 62 to 65.

18. SUBSTITUTIONS

18.1. The base bid Price shall be based on specified products and systems.

19. SPECIAL INSTRUCTIONS

19.1. Regulations:

The Bidder and their *Subcontractor*s shall strictly abide by the requirements of the Occupational Health and Safety Act.

19.2. New Truck routes:

As per the City of Hamilton By-law, trucking in and out of University property must be by way of Main Street and Cootes Drive entrances/exits only. Truck routes by way of Sterling Street and Forsythe Drive have been rescinded. Access to the campus for destinations North of Sterling Street will be made via the Main Street gate. For all other destinations, trucks will use the Cootes Drive gates. Stirling Street entrance must not be used for entering or exiting. Municipal truck routes are being strictly enforced by the City. Also refer to 01000 General Instructions Item 5.1.

19.3. Keys:

Keys to access areas of the work may be issued to the successful bidder. A deposit of $1,000.00 per key will be required. Cheque must be made payable to McMaster University. Upon return of the keys, a cheque will be processed to refund the key deposit. The successful bidder will be fully

responsible for such keys. It is imperative that the key holder ensures that the *Owner's* doors are kept secured at all times and that no unauthorized persons access the spaces opened as a result of the Work.

19.4. Parking:

The *Contractor* shall comply with the McMaster University Parking Regulations. A copy of these regulations may be obtained from the Office of the Parking Administrator at the E.T. Clarke Centre or from the Parking Services website: http://parking.mcmaster.ca/.

Externally marked commercial vehicles have access to the campus for deliveries. Parking on campus requires payment and adherence to the Parking regulations.

Monthly parking permits may be available on West Campus at the current rates at the discretion of Parking Services.

All vehicles must park in designated parking lots. Parking Services offers free shuttle bus service from West Campus lots to a central Campus drop off point during working hours, Current rates and bus schedules can be found on the Parking Services website.

Vehicles used on campus by *Contractors* must comply with City and Provincial licensing and operating Regulations.

Tracked or cleat type equipment shall not be operated on University property, including sidewalks and roadways, unless proper protection is provided to adequately prevent tearing or marking of the surface.

19.5. Waste Removal:

McMaster University has a contract with a waste disposal vendor. Successful Bidder encouraged to contact and use the University's vendor for disposal of any construction debris, including asbestos.

19.6. Designated Substance Requirements:

All bidders working on Designated Substances must be certified by the Ministry. Copies of the certification for all employees working at the McMaster site must be provided to the *Project Manager* before beginning work. McMaster University also requires proof of supervisory certification for the supervisor of those workers.

McMaster University shall engage the services of an Environmental Consultant to perform a hazardous materials investigation of the planned work areas. A Hazardous Material Assessment Report shall be made available to the successful bidder which will include a remediation program to be followed for the prescribed work.

Using tender drawings, project specifications and the Report, the successful bidder shall tender all remediation work providing a minimum of three (3) quotations for selection by McMaster University. Remediation work shall be managed by the successful bidder and paid for using the Cash Allowance. McMaster University shall engage and pay for an Environmental Consultant to provide monitoring and testing in accordance with McMaster's Designated Substances Control Program during construction. The Contractor shall allow for coordinating all remediation work with the Environmental Consultant as required.

19.7. Physical Plant and Planning and Construction Safety Handbook:

The requirements of the Physical Plant and Planning and Construction Safety Handbook, which has been included with the tender package, shall become an integral part of this *specification*. The attached Physical Plant's Health & Safety questionnaire has to be completed and submitted. The Risk Management Policies in our web page shall be complied with by the Bidder and all *Subcontractor*s.

Web Address for Risk Management Manual:

http://www.workingatmcmaster.ca/rmm/index.php; Risk Management Manual

Please be advised that the safety requirements outlined in the Construction Safety Handbook, Health & Safety questionnaire and the Risk Management Manual are mandatory when working on the McMaster Campus. They are not intended to replace applicable legislation, but to enhance the legislation for contractors working on our Campus.

19.8. Work in Health Sciences Centre (HSC) / McMaster University Medical Centre (MUMC): (This applies for projects at HSC only)

Contractors working in the HSC for McMaster University must not approach Hamilton Health Sciences (HHS) engineering for information. All questions should be directed to the *Consultant*. All requests for shutdowns should be directed to the *Project Manager*.

Included in this tender is the building specific "asbestos management plan" and infection control procedures. These documents are included in addition to McMaster University safety requirements. For the purposes of this tender, where these documents says refer questions to "HSS Engineering" substitute "McMaster University".

19.9. Work in McMaster University Nuclear Reactor and Nuclear Reactor Buildings: (This applies for projects at Building # 9 & 15 only)

Access to the reactor building is strictly controlled. The successful proponent shall be required to complete background and criminal record checks prior to gaining access to the Work site. Prior to the commencement of the Work, escorted access to the building will be provided through the Visitor policy of Building 9 and 15. All visitors will be required to provide valid photo identification prior to gaining access to the reactor building.

All workers performing work within the facility are also required to complete facility specific safety training provided by McMaster University and be designated as Nuclear Energy Workers by their employers during their time spent on this project. This 1 day training is not available on a regular basis and workers who fail to attend will be denied access to the work site until the training has been completed.

All workers will be required to follow building access and health and safety rules and requirements during the execution of the work.

Failure to comply with any of the above requirements will result in the denial of access to work site.

19.10. Accessibility for Ontarians with Disabilities Act (AODA):

McMaster University is committed to accessibility as expressed in the *Accessibility for Ontarians with Disabilities Act* (hereinafter referred to as the AODA), which places a legal obligation on McMaster to provide accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures and premises on or before January 1, 2025. McMaster University is committed to fostering, creating and maintaining a barrier-free environment for all individuals providing equal rights and opportunities, and as a result has established the McMaster University Accessibility Policy, which can be referenced at:

Site: http://www.mcmaster.ca/accessibility/useful_info.html

Document: http://www.mcmaster.ca/accessibility/docs/McMaster_Accessibility_Policy.pdf

All members of the University community, including *Supplier*s required to be on campus, contractors and *Subcontractor*s engaged by McMaster University, are responsible for adhering to and following the commitments set out in the Accessibility Policy. Bidders and their *Subcontractor*s must agree to adhere to the Policy. Those required to complete training may refer to the University's AODA Training Matrix at:

Site: http://www.mcmaster.ca/accessibility/useful_info.html

Document: http://www.mcmaster.ca/accessibility/docs/AODA_Training_Matrix.pdf

20. PRE-QUALIFIED BIDDERS

20.1. Bidders must submit the Supplementary Bid Form Subcontractors List with the Tender Form. The name of each *Subcontractor* who will be employed and whose quotation has been used in arriving at the Bidder's Contract Price, together with the nature of the work to be performed by the *Subcontractor* shall be included in the list.

20.2. The following bidders have been prequalified. Bids are invited from the following prequalified bidders only.

Contractors

Black & MacDonald Limited
31 Pullman Court
Scarborough,ON M1X 1E4

K-Line Maintenance & Construction Ltd
12731 Hwy 48
Stouffville, ON L4A 4A7

The State Group Inc
3206 Orlando Drive
Mississauga, ON. L4V 1R5

21. CONFIDENTIALITY

21.1. The Bidders agrees to ensure that it shall maintain the confidentiality and security of all Confidential Information and Personal Information, and that it shall not directly or indirectly disclose, destroy, exploit, or use any Confidential Information or Personal Information, except where required by law, without first obtaining the written consent of the *Owner*. The Bidders may disclose any portion of the *Contract Documents* or any other information provided to the Bidder by the *Owner* to any *Subcontractor* or *Supplier* if the Bidder discloses only such information as is necessary to submit a proposal and the Bidder has included a commensurate confidentiality provision in its contract with the *Subcontractor* or *Supplier*. The Bidders acknowledges that it will comply with all requirements of the Personal Information Protection and Electronic Documents Act. If any portion of the submission made by the Bidder is confidential, the Bidder may insert a watermark that says "CONFIDENTIAL" and the *Owner* will make every effort to maintain its confidentiality. The Bidder acknowledges that the *Owner* is bound by the provisions of the *Freedom of Information and Protection of Privacy Act* (FIPPA). The Bidders are advised that the *Owner* may be required to disclose any or all of the Confidential Information and Personal Information in the event that it is compelled to do so by law, through a request under FIPPA, or by the rules of any applicable regulatory authority.

END OF SECTION 00 21 13

Project Title and Location:	**RFQ-0756 - 2019** **Project 20009824** **Prime Contractor – NF91 Substation Upgrade**
Submitted To:	The Board of Governors Attention: Debbie Martin, MBA, CPA, CGA Assistant Vice President and Chief Facilities Officer Campus Services Building, Room 121, McMaster University, Hamilton, Ontario
Delivered To:	Campus Services Building, Room 121

We, _____
(Company Name)

of _____
(Business Address)

having examined the *Contract Documents* including addenda No. ____ to No. ____ inclusive (receipt of which is hereby acknowledged), and visited and examined the site, and examined all conditions affecting the work, hereby proposes and offers to furnish all material, labour, service, equipment and all incidentals, and to render all services and pay all applicable taxes (except HST) and all other charges as specified and/or as necessary for performance and completion of the *Work* required by the tender documents for the stipulated base bid price of:

_____ Dollars $ _____
(in Words) (In figures)

The above base bid is in Canadian funds, **includes** all specified Cash and Contingency Allowances, is based on specified *products* or systems and includes all taxes and duties except Harmonized Sales Tax (HST) in force at this date.

We have identified the harmonized sales taxes (**HST**) in the amount of:

_____ Dollars $ _____
(in Words) (In figures)

in Canadian funds is applicable to the *Work* but is excluded from our Bid Price.

Total Tendered Price:

_____ Dollars $ _____
(in Words) (In figures)

Declarations:

We hereby declare that:

a) We agree to use the mark-ups for changes in the *Work* as described in Supplementary Conditions SC44;

b) The Supplementary Bid Forms required for this tender, are attached and form an integral part of this Bid;

c) We agree to substantially perform the *Work* not later than **October 30, 2020.**

d) No person, firm or corporation other than the undersigned has any interest in this Tender or in the proposed Contract for which this Tender is made;

e) This Tender is open to acceptance for a period of ninety (90) days from the date of tender closing;

f) We have enclosed the following with this tender (unless called for as 'not required' or not provided in the tender documents):

i. Bid Bond
ii. Agreement to Bond (Performance and Labour and Materials Bond)
iii. Supplementary Bid Form 00 43 00 (Pricing)
iv. Supplementary Bid Form 00 43 10 (Subcontractors List)
v. Supplementary Bid Form 00 43 20 (H&S Questionnaire)

Signatures:

Signed, sealed and submitted for and on behalf of:

Company: _____
(Name)

_____
(Street Address or Postal Box Number)

_____
(City, Province & Postal Code) (Apply SEAL above)

Signature: _____

Name & Title: _____
(Please Print or Type)

Witness: _____

Dated at _____ this _____ day of _____ 20____

END OF SECTION 00 41 00

Project Title and Location: **RFQ-0756-2019**
Project 20009824
Prime Contractor – NF91Substation Upgrade

Submitted By: _____
(Name of Bidder)

BASE BID BREAKDOWN OF PRICES

The following is the breakdown of the total base bid price shown on the tender form. Base bid includes scope of work contained within the contract documents and the acceptance and full installation of a 2500 ton centrifugal chiller. **Prices do not include HST**.

No.	Item No.	Price ($)
1	**Project Overhead and Administrative Costs**	
.1	Bonding, Insurance, etc.	
.2	Mobilization & Demobilization	
.3	Project Administration	
.4	Others (Specify)	
2	**Construction Division Costs**	
.1	Site Preparation Including station civil work	
.2	Electrical Tower Service Component Upgrades	
.3	Receive & installation of 1st Transformer	
.4	Receive & Install new E-House including power wiring & controls	
.5	Receive & installation of 2nd Transformer	
.6	Demolition of existing transformers	
.7	Commissioning and Testing of Equipment, Controls	
.8	Final Site Modifications prior to transferring site back to Owner	
.9	Others (Specify)	
	Cash Allowance -E-House	$1,452,219.00
	Cash Allowance – Transformers	$2,525,400.00
Total Base Bid (Transfer this amount to the Tender Form)		**$**

***SUBJECT TO ADJUSTMENT BASED ON ACTUAL CONTRACTED PRICE (WHICH CONTRACTED PRICE SHALL BE SUBJECT TO MCMASTER'S APPROVAL)**

PROJECT PERSONNEL

We propose to use the following lead personnel for this project and hereby confirm that they have the required knowledge, qualifications and experience as required by the contract documents to carry out this project. We will not change the proposed project personal shown below without prior approval from the Owner and the Consultant.

Position	Name
Contractor's Project Manager	
Site Superintendent	
Site Foreman	

ITEMIZED PRICES

The following Itemized prices are included in the Base Bid Price and may be deleted by the owner at the time of the bid assessment and contract award process. **Prices do not include HST.**

No.	Description	Price($)

SEPARATE PRICES

The following separate prices are not included in the Base Bid Price. We understand that any one or all of the following separate prices can be selected by the owner and included in the total Contract amount. **Prices do not include HST**.

No.	Description	Deduct from Base Bid ($)	Change in Schedule
1	.		

ALTERNATE PRICES – PRODUCTS / SYSTEM OPTIONS

The following proposed alternate prices are not included in the Base Bid Price. The owner may select any one or all of the following proposed alternates after the contract award, and at that time will require details including specifications, modifications, and revisions to other work for each alternative. **Prices do not include HST.**

No.	Description of Alternate	Deduct from Base Bid ($)	Change in Time (Days)

LIST OF UNIT PRICES

The following unit prices are be used to determine payment for work added to and/or deducted from the Contract as shown on the drawings and required by the Specifications. These unit prices are for work measured in place, inclusive of all materials, labour, equipment, overhead, profits, taxes and miscellaneous charges. Submitting a Unit Price shall not prevent the Owner and the Consultant from negotiating a lump sum price for a Change to the Contract. **Prices do not include HST.**

No.	Description	Unit Price Add ($)	Unit Price Deduct ($)	Change in Time (Days)

END OF SECTION 00 43 00

Project Title and Location: **RFQ-0756-2019**
Project 20009824
Prime Contractor – NF91 Substation Upgrades

Submitted By: _____
(Name of Bidder)

1. SUBCONTRACTOR LIST

We propose to employ the following subcontractors for the execution of the Work:

DIVISION	NAME	PREQUALIFIED CONTRACTOR
Civil		Yes ☐ / No ☐
Structural		Yes ☐ / No ☐
Demolition		Yes ☐ / No ☐
Electrical – 115 kV		Yes ☐ / No ☐
Electrical – 13.78 kV		Yes ☐ / No ☐
Control Wiring		Yes ☐ / No ☐
Mechanical		Yes ☐ / No ☐
Hoisting & Rigging		Yes ☐ / No ☐
Fencing		Yes ☐ / No ☐
Commissioning		Yes ☐ / No ☐
Testing & Inspection		Yes ☐ / No ☐
Site Works		Yes ☐ / No ☐
Others (Specify)		
		Yes ☐ / No ☐
		Yes ☐ / No ☐
		Yes ☐ / No ☐
		Yes ☐ / No ☐

* Refer to Section 10.2 of the Instructions to Bidders for pre-qualified trade contractor services.

END OF SECTION 00 43 10

HEALTH & SAFETY QUESTIONNAIRE

COMPULSORY REQUIREMENTS

(all contractors working for McMaster University shall provide the following)

1. Provide copies of:
   a. Workers' Safety & Insurance, Certificate of Clearance — Yes ☐
   b. Construction Project Safety Management Plan — Yes ☐

HEALTH & SAFETY PROGRAMS AND PROCEDURES

2. Include copies of work practises and standard operating procedures for the following:
   a. WHMIS — Yes ☐
   b. Personal Protective Equipment — Yes ☐
   c. Portable Electrical/Power Tools — Yes ☐
   d. Fall Protection — Yes ☐
   e. Vehicle Safety — Yes ☐
   f. Housekeeping — Yes ☐
   g. Accident/Incident Reporting — Yes ☐
   h. Unsafe Condition Reporting — Yes ☐
   i. Emergency Preparedness, including evacuation plan — Yes ☐
   j. Waste Disposal — Yes ☐

   The following may not be applicable to all contractors (including subcontractors):
   k. Lockout and Tagout (LOTO) — Yes ☐ N/A ☐
   l. Confined Space Entry, Rescue, First Aid/CPR — Yes ☐ N/A ☐
   m. Compressed Gas Cylinders — Yes ☐ N/A ☐
   n. Electrical Equipment Grounding Assurance — Yes ☐ N/A ☐
   o. Powered Industrial Vehicles (Cranes, Forklifts, etc.) — Yes ☐ N/A ☐
   p. Asbestos Removal — Yes ☐ N/A ☐
3. Do you have written programs for the following:
   a. Hearing Conservation — Yes ☐ No ☐
   b. Respiratory Protection — Yes ☐ No ☐
   c. Hazard Communication — Yes ☐ No ☐
   d. Where applicable, have employees been:
      i. Trained — Yes ☐ No ☐
      ii. Fit Tested — Yes ☐ No ☐
      iii. Medically approved — Yes ☐ No ☐
4. Do you have a corrective action process for addressing individual Health & Safety performance deficiencies? — Yes ☐ No ☐
5. Equipment and Materials
   a. Do you have a system for performing hazard evaluations and establishing applicable health, safety and environmental specifications for acquisition of materials and equipment? — Yes ☐ No ☐
   b. Do you conduct inspections and maintenance on operating equipment in compliance with regulatory requirements (e.g., cranes, forklifts, etc.)? — Yes ☐ No ☐
   c. Do you maintain the applicable inspection and maintenance certification records for operating equipment? — Yes ☐ No ☐

6. Subcontractors
   a. Do you evaluate the ability of subcontractors to comply with applicable health and safety requirements as part of the selection process? Yes ☐ No ☐
   b. Do subcontractors have a written Health & Safety Policy/Program? Yes ☐ No ☐
7. Inspections and Audits
   a. Do you conduct Health & Safety inspections? Yes ☐ No ☐
   b. Are corrections of deficiencies documented? Yes ☐ No ☐
8. Risk Management Policies reviewed and shall be complied with. Yes ☐ No ☐
9. Physical Plant Safety Handbook and McMaster University emergency procedure policies received and shall be complied with. Yes ☐ No ☐
10. To comply with all applicable health and safety legislation, regulations for construction projects, fire regulations, environmental protection legislation, Municipal Bylaws, industry standards Yes ☐ No ☐

HEALTH & SAFETY TRAINING

11. Health & Safety Training:
    a. Do you know the regulatory Health & Safety training requirements for your employees? Yes ☐ No ☐
12. Job Skills
    a. Are employee job skills certified where required by regulatory or industry standards? Yes ☐ No ☐
13. Training Records
    a. Do you have Health & Safety and job skills training records for employees? Yes ☐ No ☐
    b. How do you verify understanding of training (check all that apply)?
       i. Written test Yes ☐ No ☐
       ii. Performance test Yes ☐ No ☐
       iii. Job Monitoring Yes ☐ No ☐
       iv. Oral test Yes ☐ No ☐
       v. Other (list) _____
    c. Include copies of training records: Yes ☐ No ☐
       Employee Identification
       Subject
       Date of training
       Name of Trainer
       Methods used to verify understanding
14. Health & Safety Orientation
    a. Do you have a Health & Safety Orientation Program for new hires and newly hired or promoted supervisors?
       New Hires Yes ☐ No ☐
       Supervisors Yes ☐ No ☐

HEALTH & SAFETY MANAGEMENT

15. Highest ranking health & safety professional in the company:

Name: _____ Title: _____

Telephone: _____ Fax: _____

Email: _____

16. Do you have a Health & Safety Coordinator? Yes ☐ No ☐
17. Do you provide company-paid health/safety training? Yes ☐ No ☐
18. Is your company experience rated (CAD-7 or equivalent)? Yes ☐ No ☐
    (If yes - attach appropriate Reports for the last three years)
19. Has an employee of your company suffered a work related fatal accident or "critical injury" (R.R.O. 1990, Reg. 834)? Yes ☐ No ☐
20. Has an employee of a subcontractor suffered a fatal accident or "critical injury" while performing work for your company? If you answered "yes" to either a) or b), please provide details for each accident that occurred since 1990 on a separate sheet. Yes ☐ No ☐
21. Has your company ever been subject of a Workwell Audit? Yes ☐ No ☐
22. If yes, what was your score? _____
23. Do you have a policy for the termination of contracts of subcontractors who do not comply with Occupational Health and Safety Act or Regulations or rules and policies of the contractor? Yes ☐ No ☐
24. Do you have a substance abuse policy"? Yes ☐ No ☐
25. Do your employees read, write and understand English such that they can perform the tasks safely. If no, provide a description of the plan to ensure they can safely perform the tasks. Yes ☐ No ☐
26. Do you conduct medical examinations for pre-employment? Yes ☐ No ☐

Name: _____ Title: _____

Signature: _____ Date: _____

END OF SECTION 00 43 20

The Supplementary Conditions void, supersede or amend the Standard Construction Document, CCDC 2-2008, Stipulated Price *Contract* as hereinafter provided, as the case may be. The numbering shown in the Supplementary Conditions follows and corresponds to the numbering of the CCDC 2-2008. Where a General Condition is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions shall remain unchanged.

AGREEMENT BETWEEN *OWNER* AND *CONTRACTOR*

ARTICLE A-3 *CONTRACT* DOCUMENTS

SC1 Add documents to the existing list of *Contract* Documents in paragraph 3.1 of Article A-3 *CONTRACT* DOCUMENTS as follows:

- All Addenda issued
- the Tender Form as accepted by the *Owner*
- the Supplementary Bid Forms as accepted by the *Owner*
- the Supplementary Conditions to the Stipulated Price *Contract*
- the tender documents including Specifications, Drawings and any specific University standards, policies or procedures referenced within these documents.

ARTICLE A-5 PAYMENT:

SC2 Delete the first 3 lines of Paragraph 5.1 and replace it with the following:

5.1 "Subject to the provision of the *Contract Documents*, and a Statutory Holdback of 10% as per the Construction Lien Act and an additional 1% Deficiency Holdback, the *Owner* shall:"

SC3 In Paragraph 5.1.2 of Paragraph 5.1, replace "holdback" with "Statutory Holdback".

SC4 In Sentence 5.1.3 of Paragraph 5.1, replace "*Contract Price*" with "*Contract Price*, including the 1% Deficiency Holdback."

SC5 In Sentence 5.3.1, delete Sentences 5.3.1. (1) and 5.3.1. (2) and replace Sentence (1) with the following:

1% per annum above the prime rate
(Insert "Canadian Imperial Bank of Commerce" as the name of the chartered lending institution whose prime rate is to be used.)

DEFINITIONS

SC6 Add new definitions 27, 28, 29, 30, 31 and 32 as follows:

27. Contemplated Change Order
A *Contemplated Change Order* is a document with a proposed change to the scope of the *Work* including time, cost, or quality prepared by the *Consultant* on behalf of the *Owner* and issued to the *Contractor* for pricing. *Contemplated Change Order* is not an authorization for *Work* to proceed. If *Work* is to proceed and if the quote is accepted, a *Change Order* will be issued.

28. Field Supervisor / Inspector
Means the person, firm or corporation appointed by the Director, Facility Services for the purpose of assisting in the supervision and inspection of the *Work* and the materials to be used in the *Work*.

29. Health and Safety Risk Inspector
Means the independent person, firm or corporation that the *Owner* has appointed for the purpose of third party inspection of the safety procedures followed at the *Place of the Work*.

30. Letter of Agreement
Means the communication in writing received by the *Contractor* from the *Owner* stating the intent of project award.

31. Other *Contractor*
Means any person or firm or corporation employed by or having a *Contract* directly or indirectly with the *Owner* otherwise than through the *Contractor*.
The latter shall be the Constructor for the purposes of the Occupational Health and Safety Act and at no time shall the University be put in the position of the Constructor.

32. Project Manager
Means the person, firm or corporation appointed by the Director, Facility Services to co-ordinate and liaise with all stakeholders and represent the *Owner* on this project.

GENERAL CONDITIONS OF THE STIPULATED PRICE *CONTRACT*

PART 1 GENERAL CONDITIONS

GC 1.1 *CONTRACT* DOCUMENTS

SC7 Delete subparagraph 1.1.7.1 and replace it with the following:

"The order of priority of documents, from highest to the lowest, shall be

- *Change Orders* and/or *Change Directives*
- The signed and executed Agreement between the *Owner* and the *Contractor*
- The Tender Form as accepted by the *Owner*
- Addenda issued to the tender documents
- The Supplementary Conditions (Division 00 – Section 00 80 00) to CCDC 2
- The Definitions of CCDC 2
- The General Conditions of CCDC 2
- Division 1 of the *Specifications*
- Technical *Specifications*
- Material and finishing schedules
- The Drawings

SC8 Delete Paragraph 1.1.8 and replace it with the following:

"The *Owner* shall provide to the *Contractor* without charge a digital copy of the *Contract Documents* to perform the *Work*. Hard copies required shall be the responsibility of the *Contractor* and shall be provided at no additional cost to the *Owner*."

SC9 Add a new Paragraph 1.1.11 to read;

"The *Project Manager* shall be the main point of contact for the *Contractor* for all *Owner* related issues."

PART 2 ADMINISTRATION OF THE *CONTRACT*

GC 2.2 ROLE OF THE CONSULTANT

SC10 Add new Paragraph 2.2.19 to read;

"The *Consultant* will have authority in an emergency to stop the progress of the *Work* whenever in his opinion such stoppage may be necessary to ensure the safety of life, or of the structure, or neighbouring property."

GC 2.3 REVIEW AND INSPECTION OF THE *WORK*

SC11 Add after "inspection reports relating to the *Work*" in paragraph 2.3.3, the following:

", and no later than 2 *Working Day*s from the date of the inspection"

SC12 Add new Paragraph 2.3.8 to read;

"The *Contractor* shall facilitate access to the *Work* for the *Owner*'s *Health and Safety Risk Inspector* at all times. The *Contractor* shall obtain the Health and Safety Risk Inspection Reports from the Inspector, submit an electronic copy to the *Project Manager* and must ensure that all items listed on the report are addressed and resolved to the satisfaction of the *Health and Safety Risk Inspector* within one (1) *Working Day* of issuance of such a report. The *Contractor* shall provide written confirmation to the *Project Manager* regarding resolution of the item within one (1) *Working Day* after resolution."

GC 2.4 DEFECTIVE *WORK*

SC13 Add new Paragraph 2.4.4 to read;

"If the *Contractor* does not remove condemned materials or *Work* within the time fixed by written notice by the *Consultant* or the *Project Manager*, the *Owner* may remove them and may store such materials at the expense of the *Contractor* until removal. If the *Contractor* does not pay the expense of such removal within five (5) Working days thereafter, the *Owner* may, upon ten (10) Working Days written notice sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the *Contractor*. Should the debris not be of any commercial value, the *Contractor* shall bear the full cost of the disposal in a certified / licensed waste management facility."

PART 3 EXECUTION OF THE *WORK*

GC 3.1 CONTROL OF THE *WORK*

SC14 Add new paragraph 3.1.3 to read:

"3.1.3 The *Contractor* shall be solely responsible for adherence to the *Contract* Time and for coordinating various parts of the *Work* under the *Contract* to meet the requirements of *Contract* Time.

SC15 Add new paragraph 3.1.4 to read:

"3.1.4 Prior to commencing any construction activities, fabrication or procurement of *Subcontractors*, the *Contractor* shall verify all unconfirmed dimensions including the dimensions indicated on drawings with a suffix or a prefix +/- or indicated with the

wording “verify on site” or a similar indication/notation/wording, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract* Documents. Where discrepancies are observed, the *Contractor* shall immediately notify the Consultant in writing and obtain written clarifications from the Consultant before proceeding with the affected *Work*.

GC 3.2 CONSTRUCTION BY *OWNER* OR OTHER *CONTRACTOR*S

SC16 Delete Paragraph 3.2.2 in its entirety and replace it with the following:

"3.2.2 When separate *Contract*s are awarded for other parts of the Project, or when *Work* is performed by the *Owner*'s own forces, the *Owner* shall enter into separate *Contract*s with *Other Contractors* under conditions of *Contract* which are compatible with the conditions of the *Contract*."

SC17 To Paragraph 3.2.3, Add Sub-Paragraphs 3.2.3.4, 3.2.3.5, 3.2.3.6 & 3.2.3.7 to read:

“3.2.3.4 assume overall responsibility for compliance with the applicable health and construction safety legislation at the *Place of the Work*, be the Constructor for the purposes of the Occupational Health and Safety Act and supervise the *Other Contractors* employees while they are within the *Place of the Work* Perimeter;

3.2.3.5 ensure that insurance coverage is provided to the same requirements as are called for in GC 11.1 INSURANCE and Supplementary Conditions 61 to 64 and coordinate such insurance with the insurance coverage of the *Contractor* as it affects the *Work*; and

3.2.3.6 take all reasonable precautions to avoid labour disputes or other disputes on the Project arising from the *Work* of *Other Contractors* or the *Owner*'s own forces.”

GC 3.4 DOCUMENT REVIEW

SC18 Add new Paragraphs 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6 & 3.4.7;

“3.4.2 Unconfirmed dimensions may be indicated on the Drawings, or elsewhere in the Tendering Documents shall be confirmed on site. If clarification is required of the Consultant for such unconfirmed dimensions, errors, inconsistency or omission, a request for information (RFI) must be issued to the Consultant. The Consultant will issue clarifications to the *Contractor* in writing. The *Contractor* shall not proceed with the *Work* until the Consultant has responded to the RFI, and in dealing with such error, inconsistency or omission, the *Contractor* shall co-operate with the *Owner* and the Consultant in good faith to resolve such errors, inconsistency or omission so as to avoid any increase in the *Contract* Price or delay in the progress of the *Work*. Neither the *Owner* nor the Consultant will be responsible for the consequences of any action of the *Contractor* based on oral instructions.

3.4.3 Prior to undertaking construction, the *Contractor* shall be responsible for determining from measurements taken at the *Place of the Work* the exactness of unconfirmed dimensions. If required, the *Contractor* shall obtain and pay for the services of a licensed Ontario Land Surveyor to ascertain and determine unconfirmed dimensions. Once established, the *Contractor* shall provide the *Consultant* with the results. Also, in consultation with the *Consultant*, the *Contractor* shall determine if adjacent dimensions are affected. If they are, the *Consultant* shall adjust same to comply with dimensions obtained at the *Place of the Work*. Such dimensions shall not affect the *Contract Price*.

3.4.4 All dimensional changes resulting from Paragraphs 3.4.2 and 3.4.3 shall be noted on the *Contractor*'s as-built drawings."

3.4.5 Where verified and determined dimensions from the *Place of the Work* are required in the preparation of *Shop Drawings*, the *Contractor* shall determine the exactness of the dimensions prior to the preparation of these drawings."

3.4.6 By submitting a bid, the *Contractor* shall be deemed to have examined the *Place of the Work*, *Drawings* and *Specifications* and to have satisfied himself as to the conditions of the premises under which he will be required to operate in performing his part of the *Work*. When preparing his tender for *Work* to be undertaken in an existing building, the *Contractor* is to examine the working drawings of the building in order to become familiar with the materials used so as to provide for proper fittings, fastenings and levelling of any furnishings. No allowance will be made afterwards on behalf of the *Contractor* by reason of any error or negligence or failure on his part to properly examine the existing conditions of the *Place of the Work* and the *Drawings* and *Specifications* in a new construction and the existing working drawings and site/building existing conditions in case of *Work* in an existing building.

3.4.7 Neither the *Owner*'s and/or the *Consultant*'s review or approval of the design or other documents or the *Work* (the "Review"), not the failure of the *Owner* and/or *Consultant* to provide comment shall limit, waive or diminish the *Contractor*'s obligations, responsibilities, duties or liabilities under the *Contract*. The Review by the *Owner* and/or *Consultan*t is intended only as a review to ascertain or approve that the design or document or the performance of the *Contractor*'s duties, liabilities, responsibilities or obligations under the *Contract* including, without limitation, the *Work*, generally meets the intention of the *Contract*. The Review is not an assurance or confirmation of the adequacy, quality, fitness, suitability or correctness of the *Contractor*'s obligations, responsibilities, duties, and liabilities under the *Contract*, including, without limitation, the *Work*, for which the *Contractor* is solely responsible in accordance with the *Contract* and *Contract Document*"

GC 3.5 CONSTRUCTION SCHEDULE

SC19 Delete subparagraph 3.5.1.1 in its entirety and replace with the following:

"3.5.1.1 The *Contractor* shall prepare and submit to the Project Manager and the Consultant, a detailed construction schedule that indicates the timing of the major activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship in compliance with Division 01, Section 01 33 00 – Submittal Procedures.

SC20 Add new Paragraph 3.5.2 to read;

"3.5.2 The *Contractor*'s schedule updates will be used as a guide for determining the rate of progress and completion dates. If, in the judgment of the *Owner*, it becomes necessary to accelerate the *Work* or transfer the installation to another point, such decisions shall be jointly made by the *Contractor* and the *Owner*. If the actual *Work* on site is behind schedule or is deemed to be behind schedule in the opinion of the *Owner*/*Project Manager* and/or the *Consultant*, a written notification will be provided to the *Contractor*. The *Contractor*, within 5 *Working Day*s of receipt of such a notice, shall submit a Recovery Plan to the *Project Manager* and *Consultant* demonstrating how the *Contractor* will achieve the recovery of the schedule.

Contractor shall so prosecute the *Work* by means of extra or continuous shifts or otherwise, that the designated completion dates is accomplished, all of which shall be

done without additional cost to the *Owner*. Some or all *Work* may happen outside regular business hours or weekends to accommodate the operating schedule of the various students and staff present in the building and such *Work* shall be done without additional cost to the *Owner*.

If either the *Project Manager* or the *Consultant* so request the *Contractor* shall prepare a recovery schedule separate from the project schedule and specific for the recovery phase which shall be subject to weekly monitoring and updates regarding the tasks planned and accomplished. This shall continue until the *Project* has recovered from the schedule delay in the opinion of the *Project Manager* and the *Consultant*."

GC 3.6 SUPERVISION

SC21 Delete the period at the end of the Paragraph 3.6.1 and add to the end;

"and must be identified in the Supplementary Bid Forms in the area provided. Such identified personal must not be changed without the written consent of the *Owner* and the *Consultant* and unless the supervisor proves to be unsatisfactory to the *Owner* and/or the *Consultant* or ceases to be in the employ of the *Contractor*."

GC 3.7 *SUBCONTRACTORS* AND *SUPPLIERS*

SC22 Add to the end of Paragraph 3.7.2:

"*Contractor* shall not change the *Subcontractors* and *Suppliers* identified in the Supplementary Bid Forms without written permission from the *Owner*."

GC 3.8 LABOUR AND PRODUCTS

SC23 Delete the period and add to the end of first sentence in Paragraph 3.8.2 to read:

"and of best quality, except *Owner*'s material specified to be re-used."

SC24 Add a new Paragraph 3.8.4 to read:

"3.8.4 The *Contractor* shall pay all the workmen engaged by him in carrying out the *Work* not less than the minimum standard rate of wages and employ them not more than the maximum hours of labour, as recognized for the respective workmen engaged and branches of trade in the area of the *Contractor*, and as required by the various collective labour agreements in force in the Province of Ontario and at the *Place of the Work*."

SC25 Add new Paragraph 3.8.5 to read:

"3.8.5 The *Contractor* shall give preference wherever reasonable to use of local labour, local *Suppliers* and sub-trades. "

SC26 Add new Paragraph 3.8.6 to read:

"3.8.6 The *Owner* has established design standards for the campus – "McMaster University Design and Construction Standards", for materials, equipment, apparatus, etc and only these shall be acceptable. The *Consultant*s have based their *Specifications* on this document. If the *Contractor* finds a discrepancy between the Specifications and the McMaster University Design and Construction Standards, a RFI must be immediately issued for clarification.

The *Contract* Base Bid shall be based on the materials, equipments and apparatus specified in the *Specifications*.

*Contractor*s may quote alternatives if so requested in the Supplementary Bid Form. All manufactured articles, materials and equipment shall be applied, installed, connected, erected, tested and cleaned and conditioned as directed by the manufacturers unless specified to the contrary."

SC27 Add new Paragraph 3.8.7 to read:

"3.8.7 All goods and materials must be of Canadian manufacture unless such goods and materials are not manufactured in Canada, are specified otherwise, or are not competitive."

SC28 Add new Paragraph 3.8.8 to read:

"3.8.8 There are no Construction Trade Union Requirements.

The *Contractor* acknowledges, covenants, represents and warrants to the *Owner* that in performing the *Work* it shall at all times exercise the degree of care and skill that ought to be exercised by a competent *Contractor* in performing *Work* of the nature contemplated therein and that the *Contractor* has the necessary experience, skill and expertise required to enable it to fulfill its obligations, duties, responsibilities and liabilities under the *Contract*."

GC 3.9 DOCUMENTS AT THE SITE

SC29 Add new Paragraph 3.9.2 to read:

"3.9.2 The *Contractor* shall maintain project record drawings and record accurately significant deviations from *Contract* documents caused by site conditions and changes ordered by the *Owner* or the Consultant. The *Contractor* shall mark all changes in red on one set of drawings.

All the following information has to be recorded.

.1 Depths of various elements of foundation in relation to ground floor level (main entrance area)
.2 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
.3 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
.4 Field changes of dimension and detail.
.5 Changes made by Change Order or Supplemental Instruction.

Upon completion of the *Work* and prior to final inspection, neatly transfer notations to a second set and submit both sets to the Consultant."

GC 3.11 USE OF THE *WORK*

SC30 Add new Paragraph 3.11.3 to read:

"3.11.3 The *Contractor* shall abide by the *Owner*'s policies, procedures and instructions regarding noise levels on *Place of the Work* and shall be required to schedule *Work* in consultation with the *Owner*'s staff and in such a way to avoid disturbance to ongoing academic activities on campus.

SC31 Add new Paragraph 3.11.4, 3.11.5, and 3.11.6 to read:

"3.11.4 The *Contractor* shall enforce the *Owner*'s policies, procedures and instructions regarding warning signs, construction signs, advertisements, dust generation, fires, vehicular or pedestrian traffic disruption, drugs, alcohol, smoking and other related requirements.

3.11.5 The *Contractor* acknowledges that during the Term of the *Contract*, the Place of the *Work* is and will continue to be occupied by the *Owner* and the *Owner* will continue to carry out its normal operations at the place of the *Work*. The *Contractor* agrees to perform the *Work* in the least intrusive manner possible. Without limiting the generality of the foregoing, the *Contractor* acknowledges and agrees that it shall carry out its duties, responsibilities and obligations under the *Contract* in such a manner so as not to disrupt or interfere with any of the *Owner*'s existing facilities and ongoing operations or other operations located in or on the Place of the *Work* and the areas adjacent to the Place of the *Work*.

3.11.6 Upon the *Owner*'s request to the *Contractor*, the *Owner* shall have the right of occupying and/or using any part or parts of the *Work* whether partially performed or entirely complete or whether completed on schedule or not for the purposes of installing and testing fittings and equipment or for other use before the completion of the *Contract*. In the event the *Owner* desires to exercise the privilege of occupancy and/or use of the *Work* as provided above, the *Contractor* shall cooperate with the *Owner* throughout by making available for the *Owner*'s use such building services as heating, ventilation, cooling, water, lighting and telephone for the space or spaces to be occupied and/or used and if the equipment required to furnish such services is not entirely completed at the time the *Owner* desires to occupy and/or used the aforesaid space or spaces, the *Contractor* shall make every reasonable effort to complete same as soon as possible to the extent that the necessary equipment can be put into operation and use. Any extra cost beyond that originally required to complete the *Work* arising from such early occupancy and/or use shall be borne by the *Owner*.
In the event that the *Owner* exercises the privilege of occupancy and/or use of the *Work* as provided above, it agrees not to materially interfere with the respective *Work* of the *Contractor*, *Subcontractors* or *Suppliers* and under the understanding that the *Owner* will be occupying the Premises within a construction site which will require compliance with all normal construction site requirements including, without limitation, health and safety requirements.
It is understood, however, that the *Owner*'s occupancy and/or use of such space or spaces of the *Work* shall not constitute the *Owner*'s acceptance of any *Work*, materials or equipment which are not in accordance with the *Contract Documents* nor affect the warranty period under the *Contract* nor relieve the *Contractor* from its obligations, duties, responsibilities and liabilities to complete the *Work* nor for responsibility for loss or damage due to or arising out of defects in or malfunctioning of any *Work*, material or equipment nor from any other unfulfilled duties, liabilities, obligations or responsibilities under the *Contract*. If damage results from any act of the *Owner*, the *Owner* shall assume its share of the responsibility for such damage"

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

SC32 Add to the beginning of Paragraph 4.1.5 to read:

"Any moneys spent from the cash allowances must be authorized by a Cash Allowance Authorization document."

PART 5 PAYMENT

GC 5.1 FINANCING INFORMATION REQUIRED OF THE *OWNER*; AND GC 5.2 APPLICATION FOR PROGRESS PAYMENT

SC33 Delete GC 5.1 Financing Information Required of the *Owner* in its entirety. Add new Paragraph under GC 5.2 Application for Progress Payment, 5.2.8, to read:

"5.2.8 The *Contractor* shall ensure that all invoices submitted to the *Owner* be documented with records such as but not limited to *Subcontractor* and supplier billings, purchase orders, *Work* orders, invoices, 2nd and 3rd tier supplier or *Subcontractor* invoices, time sheets, certified payroll, *Work* tickets and bills of landing. It shall also include an updated project schedule, statutory declaration certifying that all accounts of the *Subcontractors* and *Suppliers* relative to the *Project* have been paid in full less any holdback monies and a certificate of standing from the WSIB stating that the *Contractor* has complied with the requirements of the Workers Compensation Act and is in good standing as the date of the certificate. The statutory declaration form is not required for the first draw, but for all subsequent dra*ws*.

GC 5.3 PROGRESS PAYMENTS

SC34 Paragraph 5.3.1.2, first line: Delete "calendar days" and substitute "*Working Day*s".

SC35 Delete Paragraph 5.3.1.3, and replace it with the following:

".3 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT on or before 10 (ten)*Working Day*s after the receipt of Certificate for Payment issued by the *Consultant* and items listed in 5.2.1.8 from the *Contractor*"

GS 5.4 SUBSTANTIAL PERFORMANCE OF THE *WORK*

SC36 In Paragraph 5.4.2: Delete "calendar days" and substitute "*Working Day*s".

SC37 Add Paragraph 5.4.5 as follows:

"5.4.5 Refer to Section 01 70 00, item 3.1"

GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE *WORK*

SC38 Paragraph 5.5.3: Delete in its entirety.

SC39 Add new Paragraph 5.5.6 to read:

"5.5.6 Deficiency Holdback (*Owner*'s holdback): The deficiency holdback amount of 1% is held by the *Owner* to ensure a timely correction of all deficiencies and will be in addition to the monies retained towards the Record Drawings as per Section 01 70 00 item 4.7. The *Owner's* holdback shall be paid to the *Contractor* after the *Consultant* issues a Certificate for Payment to that effect. The *Contractor* shall have 45 *Working Days* from the date of *Substantial Performance of the Work* to correct the deficiencies and claim the deficiency holdback amount. If the *Contractor* fails to comply, the *Owner* shall use the deficiency holdback monies to use their own forces or employ other *Contractor*s for the deficiencies cleanup. After review and verification that all deficiencies are made good to the complete satisfaction of the *Consultant* and

the *Owner*, within the 45 day time period from the date of *Substantial Performance of the Work*, the *Consultant* shall issue the Certificate for Payment for deficiency holdback payment. The *Owner* shall pay the *Contractor* within 10 *Working Day*s after the receipt of the Certificate including the invoice and all other required documentation from the *Consultant*."

GC 5.7 FINAL PAYMENT

SC40 Paragraph 5.7.2: Delete "calendar days" and substitute "*Working Day*s".

SC41 Paragraph 5.7.4, second line: Delete "5 calendar days" and replace it with "10 *Working Day*s".

SC42 Add new Paragraph 5.7.5:

"5.7.5 The release of the remaining Holdback, less outstanding deficiencies monies shall become due and payable on the day following the expiration of the statutory limitation period stipulated in the lien legislation applicable to the *Place of the Work*, or where such legislation does not exist or apply in accordance with such other legislation, industry practice or such other provisions which may be agreed to between the parties, providing that the *Owner* may retain out of such Holdback monies any sums required by law to satisfy any liens against the *Work* or monetary claims against the *Contractor* and enforceable against the *Owner*, and providing that the *Contractor* has submitted to the *Owner* a sworn statement that all accounts for labour, sub*Contract*s, *Product*s, construction machinery and equipment and other indebtedness which may have been incurred by the *Contractor* in the performance of the *Work*, and for which the *Owner* might in any way be held responsible, have been paid in full, except Holdback monies properly retained".

GC 5.8 WITHHOLDING OF PAYMENT

SC43 Add new Paragraph 5.8.2:

"5.8.2 The *Consultant* may withhold from the *Contractor* the greater of, ten thousand dollars ($10,000) or 0.05% of the value of the *Contract*, pending submission and approval of all *Project* Close-Out documentation or activities including but not limited to the following; record drawings, guaranty/warranty information, user/operator trainings, final testing and balancing reports, final cleaning, handover of spare parts or maintenance materials, and operations and maintenance manuals."

PART 6 CHANGES IN THE *WORK*

GC 6.1 *OWNER*'S RIGHT TO MAKE CHANGES

SC44 Add new Paragraphs 6.1.3, 6.1.4, 6.1.5, 6.1.6 and 6.1.7:

"6.1.3 All claims resulting from Changes in the *Work* which would extend the *Contract Time* shall be presented by the *Contractor* concurrently with his change in *Contract Price*."

"6.1.4 Changes in the *Work* may be initiated by the *Consultant* and issued to the *Contractor* in the form of a Supplemental Instruction, which should not normally include any change in the *Contract Price* and change in the *Contract Time.* The *Consultant* will issue a contemplated change order if the change includes any change in the *Contract Price* or *Contract Time*. If it is the opinion of the *Contractor* that the issued Supplemental Instruction or a response to a RFI involves a change in the *Contract Price* and/or *Contract Time*, the *Contractor* shall formally notify the *Consultant* in writing within seven (7) *Working Day*s following the date of the Supplemental

Instruction that the changes involve an amendment to the *Contract Price* and/or *Contract Time*. If satisfied the *Consultant* shall issue a contemplated change order."

"6.1.5 While submitting a price in response to a contemplated change order value of changes shall be determined on the basis of the cost of *Contractor*'s direct costs for the Changes in the *Work* plus a fixed percentage fees to cover the indirect costs such as administration, supervision, overhead and profit as follows:

.1 *Contractor*'s fixed percentage fees while using his own forces shall be:
Net price of materials and *Place of the Work* direct labour including statutory charges and burdens, plus 10% for overhead and profit;
.2 *Subcontractors*' charges shall be:
Net price of materials and *Place of the Work* direct labour including statutory charges and burdens, plus 10% for overhead and profit;
.3 *Contractor*'s percentage fees on all *Subcontractor*'s and Supplier's charges shall be no more than 5%;
.4 The *Contractor* and their *Subcontractors* must provide a sufficient breakdown of the costs involved while submitting a quote for the Changes in the *Work* and assist the *Consultant* and *Owner* to evaluate the quote. The fixed percentage cost must be shown as a separate line item on all quotes.
.5 Pending final determination of value, payments on account of changes shall be made on the *Consultant*'s certificate."

"6.1.6 It will be the *Contractor*'s responsibility to notify the Bonding Company of all changes in the *Work* so that the Performance Bond will not be invalidated."

"6.1.7 The *Owner*, reserves the right to have extra *Work* done by its own employees, agents or *Other Contractors* if agreement cannot be reached with the *Contractor*. The *Contractor*'s responsibilities in such cases shall be in accordance with GC 3.2 Construction by *Owner* or *Other Contractors* as amended by SC 16 and SC 17."

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

SC45 Add new Paragraph 6.4.5 to read:

"6.4.5 The *Owner*, through the *Consultant*, will provide all reasonable assistance to those parties requiring existing site information but takes no responsibility for the accuracy of information contained on archived documents supplied at the request of others. The party requesting the information shall be responsible for verifying the accuracy of information provided."

GC 6.5 DELAYS

SC46 Add to the end of paragraph 6.5.4 the following:

The *Notice in Writing* of the cause of delay shall also indicate the best estimate of the *Contractor* as to its estimated duration and its likely effect upon the time to complete the *Work*. Upon termination of the circumstances giving rise to the delay, the *Contractor* shall give to the *Owner* written notice of the termination of the delay and the total effect upon the *Contract Time*."

SC47 Add new paragraph 6.5.6 as follows:

"6.5.6 In the event of delay in the performance of any portion of the *Work*, the *Contractor* shall use its best efforts to rearrange and reschedule the *Work* so as to minimize the ultimate delay in the completion of the *Work*. The *Contractor* shall be responsible for

the care, maintenance and protection of the *Work* in the event of any shutdown. The *Contractor* will co-operate with the *Owner* and the *Consultant* to avoid labour complications."

SC48 Add new Paragraph 6.5.7 to read:

"6.5.7 Any additional time granted for the completion of the *Contract* will be conditional upon the *Contractor* providing the *Owner* with evidence that all bonds or other securities, furnished to the *Owner* by the *Contractor* have been increased and extended a lease to the limit of the time extension. Any extension of time that may be granted to the *Contractor* shall be so granted and accepted without prejudice to any rights of the *Owner* whatsoever under this *Contract*, and all of such rights shall continue in full force and effect after the time limited in this *Contract*, power and authority is given to the *Owner* or the *Project Manager* or any person to take any action consequent upon the act, default, breach, neglect, delay non-*Work* or *Contract*, or any portion thereof, such powers of authorities may be exercised from time to time and not only in the event of the happening of such contingencies, before the time limited in this *Contract* for the completion of the *Work*, but also in the event of the same happening after the time so limited in the case of the *Contractor* being permitted to proceed with the execution of the *Work* under an extension of time granted by the *Project Manager*."

SC49 Add new Paragraph 6.5.8 to read:

"6.5.8 In the event of the *Owner* granting an extension of time, time shall continue to be of the essence of this *Contract*."

PART 7 DEFAULT NOTICE

GC 7.1 *OWNER*'S RIGHT TO PERFORM THE *WORK*, TERMINATE THE *CONTRACTOR*'S RIGHT TO CONTINUE WITH *WORK* OR TERMINATE THE *CONTRACT*

SC50 Add the following to the end of Paragraph 7.1.2 :

"Without limiting what is stated above, the *Contractor* will be considered to have failed to comply with the requirements of the *Contract* to a substantial degree if the *Contractor* fails to maintain in force the bonds or the insurance required to be maintained by the *Contractor* under this *Contract* or is not in compliance with GC 10.4 WORKERS' COMPENSATION.

The *Project Manager* may notify the *Contractor* to discontinue all *Work* under the *Contract*, if:

.1 the *Contractor* fails or neglects to commence the *Work* or to prosecute the *Work* diligently and at a rate of progress that in the opinion of the *Project Manager*, will ensure the entire completion of the *Work* within the time limited therefore under this *Contract*;

.2 the *Work* or any part thereof, is not progressing continuously and in such a manner as to ensure its entire completion, in the opinion of the *Project Manager*, within the time stipulated for completion;

.3 the *Contractor* fails or refuses to remedy any defective or unsatisfactory *Work* when so ordered by the *Project Manager* or to comply with any reasonable order of the *Project Manager*; or

.4 the *Contractor* shall persist in any course of action in violation of any of the provisions of this *Contract*."

SC51 Add to Paragraph 7.1.5 to read:

"The *Owner* may then employ such means as it may deem necessary to complete the *Work* including exercising any rights of the *Owner* under the Performance Bond, and in such case the *Contractor* shall remain liable for all losses, damages, expenses, or costs which may be suffered by the *Owner* by reason of such delay and /or default by the *Contractor*."

GC 7.2 *CONTRACTOR*'S RIGHT TO SUSPEND THE *WORK* OR TERMINATE THE *CONTRACT*

SC52 Delete "5 Working Days" from paragraph 7.2.4 and replace with "10 Working Days".

SC53 Add new paragraph 7.2.6 as follows:

"7.2.6 If the *Contractor* suspends the *Work* or terminates the *Contract* as provided for in paragraphs 7.2.1. to 7.2.5 above, he shall ensure the *Place of the Work* and the *Work* is left in a safe, secure condition as required by the law of the *Place of the Work* and the *Contract Documents*.

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY
GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

SC54 Delete Paragraph 9.1.1 completely and replace it with the following:

"9.1.1 The *Contractor* shall protect the *Work* and the *Owner*'s property and property adjacent to the *Place of the Work* from damage which may arise as the result of the *Contractor*'s operations under the *Contract*, including verifying loading capacity of floors prior to storing material on either existing or new floors, and shall be responsible for such damage, except damage which occurs as the result of:

.1 acts or omissions by the *Owner* and/or the *Consultant*."

Delete GC 9.2.3 and GC 9.2.4.

GC 9.4 CONSTRUCTION SAFETY

SC55 In the first sentence of paragraph 9.4.1, delete "Subject to paragraph 3.2.2.2 of GC 3.2 – CONSTRUCTION BY *OWNER* OR OTHER CONTRATORS," and replace with the following: "As per paragraph 3.2.2 amended by SC 12,"

SC56 Add a new Paragraph 9.4.2 to read:

"9.4.2 The *Contractor* shall maintain continuously adequate protection of all his *Work* from damage and shall take all reasonable precautions to protect the *Owner*'s property from all injury to his *Work* and shall make good any damage or injury to the property of the *Owner* irrespective as to whether or not reasonable protective precautions have been taken. He shall adequately protect adjacent property as required by law and the *Contract Documents*."

SC57 Add a new Paragraph 9.4.3 to read:

"9.4.3 The *Contractor* shall provide proper protection of all his materials and these shall be properly covered and temporarily stored until they are installed in their proper locations. The *Owner* will designate places where shipments can be received from

Suppliers. Temporary heat shall be supplied by the *Contractor* when required. No furniture or interior fittings shall be stored outside a building or in locations not designated by the *Owner*."

SC58 Add a new Paragraph 9.4.4 to read:

"9.4.4 The *Contractor* shall provide and maintain all necessary lights, barricades, guards, signs and other protective devices as required by the appropriate by-laws, regulations or as stipulated in these *Specifications*."

SC59 Add a new Paragraph 9.4.5 to read:

"9.4.5 The *Contractor* shall protect himself, his *Subcontractors* and the *Owner* against theft as it concerns the *Project* or his operations."

PART 10 GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

SC60 Delete Paragraph 10.1.2 and 10.1.3 and replace it with the following:

"10.1.2 Any increase or decrease in cost to the *Contractor* due to changes in government sales taxes, custom duties or excise taxes occurring after the date of the tender shall increase or decrease the *Contract Price* accordingly. For greater certainty the parties agree that the *Contractor* is not entitled to any mark-up for profit, overhead or otherwise in connection with any increase in taxes or duties and that the *Contract Price* will be increased only by the actual amount of increased taxes or duties actually paid to the government. If any such taxes or duties be retroactively reduced, the *Owner* shall be entitled to withhold payment to the *Contractor* of a sum equal to the amount of such tax or duty reduction but only after the *Contractor* has received the benefit of such tax or duty reduction.

"10.1.3 When an exemption from or recovery of, government sales taxes, customs duties or excise taxes is applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner* (or his agent) assist, join in, or make application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the *Owner*. The *Contractor* agrees to endorse over to the *Owner* any cheques received from governmental authorities as may be required to implement the foregoing."

GC 10.2 LAWS, NOTICES, PERMITS AND FEES

SC61 Add new paragraphs 10.2.8 and 10.2.9 to read:

"10.2.8 The Contractor declares and represents that in entering into the Contract with the Owner for the performance of the Work, it has either:

.1 investigated for itself the character of the Work to be done and all local conditions including, without limitation, the position of pole lines, conduits, water mains, sewers, and other underground and overground utilities and structures; or,

.2 not having so investigated, the Contractor has assumed and does hereby assume all risk of conditions now existing or arising in the course of the Work which might or could make the Work or any items thereof more expensive in character or more onerous to fulfill than was contemplated or known when the Contract was signed.

10.2.9 If any term or provision of the Contract is held to be invalid or unenforceable, the Owner may elect to sever and delete such term or provision and the remainder of the Contract shall remain in full force and effect.

PART 11 INSURANCE AND *CONTRACT* SECURITY

GC 11.1 INSURANCE

SC62 Add to the end of Paragraph 11.1.1.1

"The policy shall not contain any exclusions as respects blasting, excavation, shoring, underpinning or for any damage to underground property."

SC63 Add new Sub-Paragraph 11.1.1.8

".8 *Contractor*s Tools Machinery and Equipment Insurance to the satisfaction of the *Owner*/*Project Manager*

a) Fire insurance, extended coverage, or special insurance on *Construction Equipment* and tools owned by or rented to or in the care, custody and control of the *Contractor*.

b) *Contractor*'s Equipment Insurance to cover all *Construction Equipment* owned or rented or for which the *Contractor* may be responsible against all risks or loss or damage with coverage to allow for the immediate replacement on the site of such lost or damaged equipment. All settlements of claims for any loss or damage shall be made without the risk of subrogation against the *Owner* or any of their employees, servants and agents.

The *Contractor* shall require his *Subcontractors* to provide similar insurance on tools machinery and equipment that is owned or rented or in the care, custody and control by the *Subcontractor*. The amount of insurance required by each *Subcontractor* shall be determined by the *Contractor* and approved by the *Consultant* and the *Project Manager*."

SC64 Add new Sub-Paragraph 11.1.1.9

".9 Fire Insurance

The *Contractor* shall maintain Fire Insurance acceptable to the *Owner*, with standard Extended Coverage Endorsement and Riot, Vandalism or Malicious Acts Extension Endorsement in the joint names of the *Owner* and *Contractor* to no less than the total replacement value of the *Work* done and material delivered to the *Place of the Work*, payable to the *Owner* and *Contractor* as their respective interests may appear, and protecting each in such terms as well preclude subrogation claims by the Insurer against anyone insured thereunder. He shall furnish evidence of all such policies to the other party hereto, before commencement of the *Work* by the *Contractor* or his *Subcontractors*, and such insurance must be issued by Insurance Companies acceptable to the *Owner* and doing business under the laws of the Province of Ontario.

The policies shall be endorsed to the effect that the *Owner* will be given thirty (30) days' notice by registered mail of the expiry or cancellation of the policies or of any reduction in the coverage which would affect the interests of the *Owner*. The policies and endorsements thereto shall relate to the term of the *Contract* not to specific dates.

In the event of a loss, the *Contractor* shall act on behalf of the *Owner* and himself for the purpose of adjusting the amount of such loss with the Insurer. On completion of such adjustment the *Contractor* shall repair the damage and complete the *Work* and shall be entitled to receive from the *Owner* (in addition to any sum due under the *Contract*) the amount at which the *Owner*'s interest has been appraised in the adjustment, to be paid as the *Work* of restoration proceeds and in accordance with the *Consultant*'s certificates. Damage shall not affect the rights and obligations of either party under the *Contract* except as aforesaid, and except that the *Contractor* shall be entitled to such reasonable extension of time for completion of the *Work* as the *Consultant* may decide.

In the event that the *Owner* occupies the building or any part thereof prior to the date of *Substantial Performance of the Work* as certified by the *Consultant*, any increase in cost of insurance arising out of such occupancy shall be at the *Owner*'s expense.

All such insurance shall be maintained continuously until a date then (10) days after issuance by the *Consultant* a certificate of *Substantial Performance of the Work* and readiness for occupancy, after which date the *Owner* shall assume responsibility for insuring the *Work*.

SC65 Add new Paragraph 11.1.9 to read:

"11.1.9 The *Owner* shall be named as an Insured in all policies."

GC 11.2 *CONTRACT* SECURITY

SC66 Add new Paragraph 11.2.3 to read:

"11.2.3 The *Contractor* shall provide and pay for a 50% Performance Bond covering the performance of the *Contract* for all tenders of $100,000 or more. The form of the bond shall be CCDC 221.

Evidence must be submitted that such a Bond can be obtained. The premium cost included will be that necessary to provide coverage for the duration of the *Project*. The Surety shall remain on the Bond until the acceptable correction by the *Contractor* of defects due to faulty materials or workmanship which may appear within a period of one year from the date of acceptance of the *Work* by the *Owner*."

SC67 Add new Paragraph 11.2.4 to read:

"11.2.4 The *Contractor* shall provide and pay for Labour and Material Payment Bond in the amount of 50% of *Contract Price* covering the performance of the *Contract* for all tenders of $100,000 or more. The form of the bond shall be CCDC 222."

PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

GC 12.3 WARRANTY

SC68 Paragraph 12.3.1: Add:

"Approximately 15 days prior to the expiration of the warranty period of the *Contract*, the *Contractor, Owner* and *Consultant* shall jointly inspect the *Place of the Work* and *Work of the Contract*, identify defects and deficiencies which may be observed at that time and not previously reported and defects and deficiencies previously reported and not corrected."

SC69 Add GC 12.3.7 as follows:

"12.3.7 Defects and deficiencies identified shall be corrected at a time convenient to the *Owner*."

SC70 Add new Paragraph 12.3.8 to read;

"12.3.8 If any defect is corrected under the conditions of GC 2.4, the time period for the warranty in that particular item in the *Work* shall begin again from the date when the defect is corrected and if such defect be corrected more than once the time period for warranty applicable shall begin again from the latest date when such defect is corrected."

SC71 Add new paragraph 12.3.9 as follows:

"12.3.9 In the event of partial occupancy by the *Owner*, guarantees for the equipment and furnishings supplied by the *Contractor* in the physical area taken over will start from the date of occupancy of that area.
Equipment remote from the area but required for its use will not be taken over but warranty for the particular equipment may commence from the date of occupancy except that it must extend for a 6-month period after the date of acceptance of the building. Maintenance and operation of the equipment remote from the area will be the responsibility of the *Contractor* until *Substantial Performance of the Work* and take-over of the area in which the equipment is situated.
Before commencing repair *Work* under warranty or guarantee, the *Contractor* shall contact the *Consultant* and the *Owner* for the following:
a) approval of materials and procedures to be used,
b) Co-ordination and scheduling of the repair.

SC72 Add new General Condition:

GC 12.4 *CONTRACTOR*'S DISCHARGE OF LIABILITY

"12.4.1 The Contractor shall discharge all liabilities incurred by it for labour, materials or services, used or reasonably required for use in the performance of this Contract, on the date upon which each becomes due. The Contractor shall, upon written request of the Owner, take immediate steps to discharge or vacate all construction liens registered against the Project Lands as outlined below.

"12.4.2 The *Contractor* shall cause every Subcontractor engaged in the performance of this Contract to discharge all liabilities of this Contract. All liabilities of every Subcontractor, as aforesaid, shall be discharged on the date upon which each becomes due including, but not limited to payment of salaries/wages of workmen. At the request of the Owner, the Contractor shall furnish the Owner with satisfactory evidence that its liabilities and those of its Subcontractors, as aforesaid, have been discharged.

12.4.3 Notwithstanding any other term or condition in the Contract Documents, the Consultant shall not be obliged or obligated to issue a certificate and the Owner shall not be obligated to make payment to the Contractor if at the time such certificate or payment was otherwise due:
.1 a claim for lien has been registered against the Project Lands; or
.2 the Owner of the Project Lands has received a written notice of lien; or,
.3 the Owner reasonably believes that any party has purported to retain title to Products or materials in respect of which an application for payment has been made.

12.4.4 In the event that a construction lien arising from the performance of the Work is registered against the Project Lands, the Contractor shall within ten (10) calendar days, at its sole expense, vacate or discharge the lien from title to the Premises. If the lien is merely vacated, the Contractor shall, if requested, undertake the Owner's defence of any subsequent lawsuit commenced in respect of the lien at the Contractor's sole expense.

12.4.5 In the event that the Contractor fails or refuses to vacate or discharge a construction lien within the time specified above, the Owner shall, at its option, be entitled to take all steps necessary to vacate and/or discharge the lien and all costs incurred by the Owner in so doing (including, without limitation, legal fees on a full indemnity basis in the amount and cost of any security posted to vacate the lien) shall be for the account of the Contractor. The Owner may deduct such amounts from amounts otherwise due or owing to the Contractor. If the Owner vacates the lien, it shall be entitled to retain all amounts it would be required to retain pursuant to the Construction Lien Act, R.S.O. 1990, c.C.30, as amended if the lien had not been vacated.

12.4.6 Without limiting any of the foregoing, the Contractor shall indemnify the Owner for all costs (including, without limitation, legal fees on a full indemnity basis) it may incur in connection with the lien or subsequent lawsuit brought in connection with the lien or in connection with any other claim or lawsuit brought against the Owner by any person that provided services or materials to the Project Lands which constituted a part of the Work.

12.4.7 This general condition/supplementary condition does not apply to construction liens claimed by the Contractor.

12.4.8 The Consultant shall be the "Payment Certifier" for the purposes of the *Construction Lien Act* in respect of amounts due to the Contactor under the Contract.

12.4.9 The Contractor, acting alone, shall be the "Payment Certifier, for the purposes of the *Construction Lien Act* in respect of amounts due to any sub-contractor as defined under the *Construction Lien Act*.

12.4.10 So long as the Consultant has made reasonable efforts to fulfil its role as Payment Certifier, the Consultant shall have no liability to the Contractor for any act or omission on the part of the Consultant as Payment Certifier, and, subject to the Consultant making such reasonable efforts, the Contractor hereby releases the Consultant of and from any such liability. The Contractor shall, at the request of the Owner, execute and deliver to the Owner and the Consultant, under seal if requested by the Owner, a form of release to give effect to the foregoing."

SC73 **"Add new PART 13 – MISCELLANEOUS**

Add new Supplementary Condition to Part 13 as follows

GC 13.1 **RESPONSIBILITY FOR REPORTING**

Add a new paragraph 13.1.1 to read:

13.1.1 Other Individuals including those who are not employees but are engaged by the University to perform a service or have been granted access to institutional tools and resources are responsible for reporting dishonest or fraudulent conduct to a member of Internal Audit or Security Services when they have a reasonable basis for believing such acts have occurred."

SC74 "Add new Supplementary Condition to Part 13 as follows

GC 13.2 **REVIEW BY *OWNER* AND CONSULTANTS**

Add a new paragraph 13.2.1 to read:

13.2.1 Neither the *Owner's* and/or *Consultant's* receipt, review or approval of any documents of the *Work* nor the failure of the *Owner* and/or *Consultant's* to provide comments shall limit, waive or diminish the *Contractor's* obligations, responsibilities, duties or liabilities under the *Contract*. The review or approval by the *Owner* and/or *Consultant* is intended only to ascertain that the document or the performance of the *Contractor's* duties, liabilities, responsibilities, or obligations under the *Contract* including, without limitation, the *Work* generally meets the intention of the *Contract* and is not an assurance or confirmation of the adequacy, quality, fitness, suitability or correctness of the *Contractor's* obligations, responsibilities, duties and liabilities under the *Contract* including without limitation, the *Work*, for which the *Contactor* is solely responsible in accordance with the *Contract*."

SC75 "Add new Supplementary Condition to Part 13 as follows

GC 13.3 **NON-INTERFERENCE**

Add a new paragraph 13.3.1 to read:

13.3.1 The *Contractor* acknowledges that the *Place of the Work* is and will continue to be occupied by the staff and students and the *Owner* will continue to carry out its normal operations at the *Place of the Work*. The *Contractor* agrees to perform the *Work* in the least intrusive manner possible. Without limiting the generality of the foregoing, the *Contractor* acknowledges and agrees that it shall carry out its duties, responsibilities, and obligations under the *Contract* in such a manner so as not to disrupt or interfere with any of the existing facilities and ongoing operations or activities or other operations located in the area adjacent to, in the vicinity of or proximate to the *Place of the Work*."

SC76 "Add new Supplementary Condition to Part 13 as follows

GC 13.4 **LIQUIDATED DAMAGES**

Add a new paragraph 13.4.1 to read:

13.4.1 It is agreed by the parties to the *Contract* that in case the *Work* called for under the *Contract* is not substantially performed by the date for *Substantial Performance of the Work* as set forth in the *Contract Documents*, damages will be sustained by the *Owner* and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the *Owner* will sustain in the event of and by reason of such delay and the parties hereto agree that the *Contractor* will pay to the *Owner* the sum of $2,000.00 for liquidated damages for each and every calendar day's delay in attaining Substantial Performance of the *Work* beyond the date specified and it is agreed that this amount is an estimate of the actual damage to the *Owner* which will accrue during the period in excess of the prescribed number of working days. The *Owner* may deduct any amount due under this paragraph from any monies that may be due or payable to the *Contractor* and any account whatsoever. The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or alternative that may be available to the *Owner*."

END OF SECTION 00 80 00

1. DIVISION OF WORK

1.1. *Work* specified in the specifications is divided into Sections for reference purposes only. A section may consist of the work of more than one *Subcontractor* or *Supplier*. The division of *work* between *Contractor* and *Subcontractors* is the *Contractor*'s responsibility. The *Specifications* are intended to be read as a whole. The *Owner* and *Consultant* assume no responsibility to act as an arbitrator to establish subcontract limits between Sections or Divisions of the *Work*.

2. WORK PROVIDED BY OWNER OR PERFORMED UNDER SEPARATE CONTRACTS

2.1. The term "NIC" means that work of the Project which is not being performed or provided by the Contract; the term means "Not in this Contract" or "Not a Part of the *Work* to be performed or provided by the *Contractor*".

2.2. "NIC" work is specified and/or indicated on the Drawings as an aid to the *Contractor* in scheduling the amount of time and materials necessary for the completion of the Contract.

3. EXAMINATION

3.1. Examine existing conditions at the *Place of the Work* and in the vicinity of the *Place of the Work* and make provision and allowances for these conditions in the execution of the *Work*.

3.2. Examine bid documents including *drawings* and *specifications* and pay special attention to locations where various parts of the *Work* must be carefully co-ordinated. Advise the *Consultant* of conflicting requirements and request clarification.

3.3. Before proceeding with parts of the *Work* examine preceding work and ensure that conditions are satisfactory to receive subsequent work. Do not proceed with subsequent parts of the work until unsatisfactory conditions are corrected.

3.4. Examine access and storage conditions at the *Place of the Work* prior to delivery of *Products*.

3.5. Examine 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.

4. REFERENCE STANDARDS

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

4.2. Read and be familiar with standards referred to in these specifications.

4.3. Conform to or exceed the requirements of the standards referred to in the specifications.

4.4. In the event of conflict between the referenced standards and the specifications, the specifications govern.

5. TRUCK ACCESS ROUTE, WORK PROTECTION AND SECURITY

5.1. Trucks coming to or going from McMaster University for the purposes of the Work, belonging to the Contractor, Subcontractors or Suppliers shall NOT use Stirling Street or Forsythe Drive. It shall be the Contractor's responsibility to enforce this requirement on their personal, sub-trades and suppliers. Contractor shall take all steps necessary to ensure awareness of this rule among their subcontractors and suppliers; and discuss this item in every construction meeting to ensure compliance. Violators shall be subject to strict disciplinary action which shall include but is not limited to;

5.1.1. Suspension of the driver from driving on campus;

5.1.2. Suspension of the supplier/subcontractor from working on campus,

5.1.3. Penalties including fines up to $500 per incident and/or disqualification of the Contractor from bidding on all future McMaster University projects.

5.2. Protect existing services, structures, landscaping and other items required to remain and newly installed *Work* during construction with secure and durable coverings, barricades or guards suitable for the various conditions. Perform the *Work* in a manner to avoid damage.

5.3. Where construction operations must be executed or traffic routed over finished floors, lay minimum 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.

5.4. Where construction operations must be executed over finished roofs and waterproofed areas lay minimum 12mm thick plywood covering. Secure plywood to prevent damage and penetration of roof and waterproofed surfaces. Provide means to prevent wind uplift.

5.5. Cover openings in equipment, ducts and pipes until final connections are made.

5.6. Protect exposed live electrical equipment during construction for personal safety.

5.7. Shield and mark live electrical parts with appropriate warnings.

5.8. Provide temporary doors for rooms containing electrical distribution equipment. Keep doors locked except when under the direct supervision of a qualified electrician.

5.9. Wherever practical lock or barricade finished areas.

5.10. As soon as construction is sufficiently advanced, enclose accessible openings to provide security. Provide temporary doors with security hardware.

5.11. Ensure continuous security of the *Work* and construction equipment.

5.12. Provide protection against the elements to maintain *Products* and installations from damage and deterioration.

5.13. Remove snow and ice immediately from parts of the *Work* except finished roofs. Do not use salt and avoid mechanical damage.

6. CONSTRUCTION SAFETY

6.1. Observe and enforce all construction safety measures, as contained in the Ontario Occupational Health & Safety Act Regulations for Construction Projects, the current regulations of the Ministry of the Environment, and other requirements of Federal, Provincial, Municipal and other authorities having jurisdiction.

6.2. 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. Be responsible to provide full safety program for anyone who gets paid for services on site including management staff, labour, delivery drives, service personnel and other involved for services on site.

6.3. 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 applies.

6.4. Arrange for pre-project meeting related to safety, joint safety inspections with University where required, Site safety training and safety inspections with accident investigation procedures.

6.5. Joint Health and Safety Committee: The *Contractor* shall be responsible for the establishment and operation of the Joint Health and Safety Committee as required by the Occupational Health and Safety Act.

6.6. Provide and maintain temporary ladders and stairs as required during construction. Provide suitable handrails and substantial barricades around all openings for protection of workman. Ladders and handrails will be strongly constructed and will comply with all requirements of safety authorities having jurisdiction over the *Work*.

6.7. Be responsible for design, erection, operation, maintenance and removal of temporary structural and other temporary facilities. Engage and pay for registered Professional Engineering personnel

skilled in appropriate disciplines to perform these functions where required by law or by Contract Documents; and in ALL cases where such temporary facilities and their method of construction are of such a nature that professional Engineering skill is required to produce safe and satisfactory results.

6.8. Conform to Construction Safety Association of Ontario's manual on Propane in construction. Watch work area for minimum of 30 minutes after hot work is completed. Provide Site fire security when required by local building department and/or municipal fire department. Ensure that water supply is adequate for fire fighting.

6.9. 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.

6.10. *Contractor* and all workers on project will conform in every case to good and safe practice in accordance with existing regulations and to requirements as laid down by authorities having jurisdiction over the *Work*.

6.11. Promptly report in writing to University all accidents which cause death, personal injury or property damage arising out of or in connection with performance of the *Work* whether on or adjacent to site. Where death or serious injuries or serious damage are caused, accident will be reported immediately by telephone or messenger to University.

6.12. If any claim is made by anyone against *Contractor* or any Subcontractor on account of any accident, *Contractor* will promptly report fact in writing to the University giving full details of claim.

6.13. Provide at site, equipment and medical facilities necessary to supply first-aid service to anyone who may be injured in connection with the *Work*, and to conform to requirements of authorities having jurisdiction over *Work*.

7. WHMIS REQUIREMENTS

7.1. Comply with Workplace Hazardous Materials Information System in accordance with the Occupational Health and Safety Act (OSHA) requirements.

7.2. Before commencement of work and during full term of the Contract, provide a list with current Materials Safety Data Sheets (MSDS) of all hazardous materials proposed for use on the Project.

7.3. Label hazardous materials used and/or supplied on the Project in accordance with WHMIS requirements.

7.4. 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.

7.5. Obtain from the *Owner*, where applicable, a list and MSDS of hazardous materials that may be handled, stored or used by *Owner*'s employees and/or Other Contractors retained by the *Owner* at location where work of this Contract will be performed.

7.6. 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 WHMIS requirements.

8. DELIVERY, HANDLING AND STORAGE OF PRODUCTS

8.1. 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.

8.2. Advise the *Consultant* promptly of changes in delivery schedule which adversely affect the progress of the *Work* and completion date.

8.3. Store *Products* in suitable accommodation. Maintain environment recommended by the *Products* manufacturers.

8.4. 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.

8.5. Deliver packaged *Products* in original, unopened, and undamaged containers with manufacturer's labels and seals intact.

9. SERVICE INTERRUPTIONS

9.1. The *Contractor* will make arrangements with the *Project Manager* for all service shut-downs and will co-ordinate the efforts of all those engaged in such service shut-downs.

9.2. A minimum of two (2) week's notice shall be given to the *Project Manager* for all such shut-downs. When notice is given, please state date, duration of shut-down, and the system(s) to be shut-down.

9.3. All shut-downs will be scheduled in such a manner as to minimize disruption to the occupants of the building. Therefore, the *Contractor* requiring the service shut-down shall be prepared to work any overtime required at his cost, to complete the *Work*. The *Contractor* requiring the service shutdown is responsible for all overtime labour costs and associated material costs necessary to maintain the operation of all life safety, security and any other essential equipment or systems during partial or complete service shutdown or building shutdown.

10. FASTENERS, ANCHORS, BRACES AND SUPPORTS

10.1. 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 vibrations.

10.2. Keep exposed fasteners to a minimum. Space evenly and neatly.

10.3. 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.

10.4. Where hangers are suspended from concrete slabs install inserts before concrete is placed using inserts designed for the specific purpose.

10.5. Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

10.6. Where built-in inserts are inaccessible due to subsequent installation of ducts, pipes or other installations use anchors appropriate to the load requirements. Locate built-in inserts to avoid damage to reinforcing bars.

10.7. 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.

10.8. 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 meters.

10.9. 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.

10.10. Provide reinforcing or connecting supports where required to distribute loading to the structural components.

10.11. 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.

10.12. 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.

11. CUTTING AND PATCHING

11.1. Refer to the General Conditions of the CCDC 2, GC 3.12 CUTTING AND REMEDIAL WORK

11.2. Do not cut, bore or sleeve existing load bearing structure without the written permission of the *Consultant* unless specifically indicated on drawings. Submit details with each request for permission.

11.3. Perform cutting and demolition by methods, which will prevent damage to other portions of the work and will provide proper surfaces to receive installation of repairs and new work. Perform fitting and adjustment of *Products* to provide finished installation complying with the specified tolerances and finishes.

11.4. For patching or replacement of *Work* removed, use *Products* which comply with the pertinent Sections of these specifications.

12. LOAD BEARING STRUCTURE

12.1. Do not cut, bore, or sleeve load bearing structure without the written permission of the *Consultant* unless specifically detailed on the drawings.

12.2. Submit details with each request for permission.

13. ADJACENT PROPERTY AND BUILDINGS

13.1. Examine, protect, and restore if damaged by the execution of the *Work*, all property adjacent to the *Work* or that may be affected by the *Work*, including all equipment and services within the properties.

14. DUST CONTROL

14.1. During progress of the *Work*, provide adequate measures to control dust. If requested by the Project Manager, provide a Dust Control and Monitoring Plan for approval, outlining the proposed dust control methods that will be implemented by the *Contractor* while working on the site.

14.2. Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

14.3. Transport dusty materials in covered haulage vehicles.

14.4. Transport wet materials in suitable watertight haulage vehicles.

15. WORKMANSHIP AND PRODUCTS

15.1. *Products*, materials, equipment and articles (referred to as *Products* throughout *specifications*) incorporated in *Work* shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of *Products* provided.

15.2. Use one manufacturer's *Products* only, throughout the *Work* where the use or purpose is similar, unless specified otherwise.

15.3. Use specified *Products* only or *Products* listed as acceptable. Where more than one *Product* is named any one of these may be used.

15.4. Where *specifications* are descriptive or performance type without a named manufacturer submit verification of conformance with *specification* in a form acceptable to the *Consultant* (e.g., independent tests, reports, data sheets and details).

15.5. Follow manufacturer's instructions for fabrication, application and installation. Request clarification by consultant if manufacturer's instructions conflict with specifications.

15.6. Defective *Products* will be rejected, regardless of previous inspections. Inspection does not relieve *Contractor*'s responsibility, but is precaution against oversight or error. Remove and replace defective *Products* at own expense and be responsible for delays and expenses caused by rejection.

15.7. Should any dispute arise as to quality or fitness of *Products*, decision rests solely with *Consultant* based upon requirements of *Contract Documents*.

15.8. Instruct manufacturers to eliminate visible trademarks and labels except for labels of CSA, ULC, WH and other similar authorities and where necessary to identify capacities, ratings and part numbers. Manufacturer's identification may be applied in concealed locations. Have CSA, ULC and WH labels applied in inconspicuous locations (e.g., on door hinge edge, inside of access panels or other accessible locations).

15.9. Ensure the timely arrival and installation of all *Products* at the *Place of the Work*. This includes ordering the specified *Products* with sufficient lead time to insure no delays are incurred due to late procurement of *Products*. Pay all costs related to rush transportation of any *Products* due to improper order process.

16. SUBSTITUTIONS

16.1. Requests for substitutions for specified *Products* 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, and evidence of quality of the substitution.

16.2. Substitutions will not be considered unless submitted on *Consultant*'s Request for Substitution Form and shall not be used until authorized in writing by the *Consultant*.

16.3. 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 for delays due to acceptance of substitutions are the responsibility of the *Contractor*.

16.4. Where the *Specifications* include "or other approved equivalents" or similar clauses, substitutions proposed after award of *Contract* will be considered only under the following conditions:

16.4.1. if Products specified are not available; or

16.4.2. if substitute products to those specified, which are brought to the attention of and considered by the Consultant as equivalent to those specified, will not increase the Contract Price and Contract Time; or

16.4.3. if substitute Products to those specified, which are brought to the attention of and considered by the Consultant as superior to those specified, will not increase the Contract Price and Contract Time; or

16.4.4. if a Product is specified together with a requirement for performance and, in the opinion of the Contractor, the specified Product will not produce the required results.

16.5. There is no obligation on the part of the *Consultant* or *Owner* to accept proposed substitutions. Acceptance of proposed substitutions by *Owner* does not relieve the *Contractor*'s responsibility under the Contract.

17. CO-ORDINATION AND LAYOUT

17.1. Co-ordinate the installation of the *Work*.

18. COMPLETION OF INSTALLATION

18.1. Install systems and *Products* in a complete and finished condition satisfactory to the *Consultant* and the *Owner*.

18.2. Install equipment, devices and controls in a complete and fully operating condition complete with accessories and connections required to fulfill their intended function.

END OF SECTION 01 00 00

1. PROJECT MEETINGS

1.1. Immediately upon being awarded the contract, the Contractor shall arrange for a job meeting to be held on the site, at which time, the Project Manager, Consultants, qualified representatives of the Contractor and his Subcontractors as required will be in attendance.

1.2. At the first meeting, a general programme of work and administration procedures will be outlined and a day and time set for subsequent project meetings every two weeks. This shall not limit the *Contractor*, *Project Manager* or the *Consultant*s to arrange more frequent project meetings as and when required.

1.3. The *Contractor* must submit the 24 X 7 Emergency Contact List (3 contacts minimum + 1 contact for the major sub-trades) to the *Project Manager* and *Consultant* at the meeting:

1.4. Project meetings thereafter will be held on the same day and time for principals or responsible persons of the *Contractor* and major Subcontractors as required. The Project Manager, Consultants and their authorized representatives will attend. The *Contractor* shall chair the meeting, record the minutes, and distribute copies to all attending persons, absentees and two copies to the Owner within 3 *Working Days* of the meeting. The *Contractor* must update and issue a revised version of the minutes if comments, errors and omissions are noted by the meeting participants. Each project meeting report shall include an outline of the progress of the work and list all outstanding items which are critical to the work schedule.

1.5. *Contractor* shall make copies as required to issue to Subcontractors whose part of the *Work* is pertinent to the discussions at the meeting. *Contractor* to organize and preside over site meetings with *Subcontractors* and *Suppliers* as required to co-ordinate, schedule and expedite the work. Hold these meetings separate from the *Owner*/*Consultant*/*Contractor* meetings.

2. PROGRESS RECORDS

2.1. Maintain a permanent written record on site of the progress of the work. This record shall be available to the Owner at the site, and a copy shall be furnished to him on request. The record shall contain:

2.1.1. Daily weather conditions, including maximum and minimum temperatures.

2.1.2. Dates of the commencement and completion of the work of each trade in each area of the project.

2.1.3. Conditions encountered during excavation.

2.1.4. Dates of erection and removal of formwork in each area of the project.

2.1.5. Dates of pouring the concrete in each area of the project, with quantity and particulars of the concrete. Include daily temperatures for areas within enclosures to protect concrete during cold weather operation.

2.1.6. Work force on project daily.

2.1.7. Visit to site by personnel of Owner, Consultants, Jurisdictional Authorities and testing companies.

END OF SECTION 01 20 00

1. GENERAL

1.1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the work. Submit shop drawings in electronic form or hard copies, as per the requirement of the Consultant. Hard copies shall be in the form of 4 whiteprints of Architectural shop drawings and 4 whiteprints of all Structural, Mechanical and Electrical shop drawings. On each drawing provide a 75 x 180 mm blank space for the Consultant's use. Upon receipt of drawing, the Consultant will review, mark corrections or changes, and return drawing. Original drawings shall be corrected and resubmitted with 4 copies for the Consultant's further review and further revisions if necessary. Drawings will be returned to Contractor for reproduction. All fixture cuts, equipment brochures and printed descriptive literature shall be submitted on letter size paper. For such material provide 6 copies for each of Architectural items and 7 copies for each of Structural, Mechanical and Electrical items.

1.2. *Work* affected by the submittal shall not proceed until review is complete.

1.3. Review submittals prior to submission to *Consultant*. The review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated 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.

1.4. The *Consultant*'s review will not include review of dimensions, quantities, calculations, weights, fabrication processes, construction means or methods, the co-ordination of trades or safety factors relating to the construction for which the *Contractor* has the sole responsibility in connection therewith. Should any errors in dimensions, or interferences with other work be noticed by the *Consultant* in his review of the shop drawings, the attention of the *Contractor* will be called to them, but review of shop drawings by the *Consultant* shall not, in any way whatsoever, relieve the *Contractor* from the responsibilities indicated in CCDC2-2008– GC3.10 SHOP DRAWINGS. Shop drawing review by the *Consultant* does not authorize changes in the *Contract Price* and changes in the *Contract Time*. Such changes shall be determined in accordance with CCDC2-2008 PART 6 CHANGES IN THE WORK.

1.5. Keep one reviewed copy of each submission at the *Place of the Work*.

2. SHOP DRAWINGS

2.1. Arrange for additional copies of shop drawings for *Subcontractor*s and for authorities requiring same after they have been reviewed by the *Consultant*. Copies shall be true copies of those reviewed by the *Consultant*.

2.2. Prepare shop drawings using scales and dimensions to match project drawings.

2.3. Show on shop drawings complete details of items to be provided including pads, bases, supports, and hangers and their interface with other components of the *Work*. Clearly note dimensions and methods of fastening.

2.4. Circle or note on data or catalogue sheets which list optional dimensions, model number and accessories, the specific options to be supplied.

2.5. Identify shop drawings and data sheets with:

2.5.1. Project name and number.

2.5.2. Names of manufacturer, supplier and Subcontractor.

2.5.3. Reference to Drawing and Specification Section identifying location and description of items shown on shop drawing.

2.5.4. Identify mechanical, electrical and speciality equipment by system, name and number of code shown on the Drawings, Schedules or in the specification.

2.6. Do not construct, fabricate or deliver parts of the *Work* requiring shop drawings prior to receiving stamped reviewed shop drawings by the *Consultant*.

2.7. *Consultant*'s stamp initialled under "NO COMMENT" indicates that conformity to design and general arrangement is acceptable and fabrication may proceed. No further submittals are required. Do not add new details to shop drawings which have been initialled "NO COMMENT".

2.8. *Consultant*'s stamp initialled under "SEE COMMENT" 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*.

2.9. *Consultant*'s stamp initialled under "RESUBMIT" or "REJECTED" indicates that the shop drawings is not acceptable and is to be resubmitted.

2.10. Structural design and performance requirements for which the *Contractor* is responsible under the *Contract* will not be reviewed by the *Consultant* but written evidence that the design and performance requirements have been achieved shall be submitted, through the *Contractor*, to the *Consultant* by a registered professional engineer, who has designed and inspected such part of the *Work* and, whose fee shall be paid by the *Contractor*.

2.11. Noted comments made on shop drawings by the *Consultant* are not authorization for changes to the *Contract Price* and *Contract Time*. If comments affect the value of *Work*, state such in writing to the *Consultant* prior to proceeding with the *Work*.

2.12. Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of *Work*. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

2.13. Make changes in shop drawings as the *Consultant* may require, consistent with *Contract Documents*. When resubmitting, notify the *Consultant* in writing of any revisions other than those requested.

3. SAMPLES

3.1. Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the *Work*.

3.2. Prepare mock-ups at the *Place of the Work* as requested in respective specification Sections. The *Contractor* shall provide a written notice minimum 2 Working Days prior to the *Project Manager* and *Consultant* for inspection and approval of the mock-up. The mock-ups shall be full-size representation of the proposed system.

3.3. Deliver samples prepaid to the site office.

3.4. Notify the *Consultant* in writing, at the time of submission of deviations in samples from requirements of *Contract Documents*.

3.5. Adjustments made on samples by the *Consultant* are not intended to change the *Contract Price*. If adjustments affect the value of *Work*, state such in writing to the *Consultant* prior to proceeding with the work.

3.6. Make changes in samples, which the *Consultant* may require, consistent with *Contract Documents*. Resubmit samples unacceptable to the *Consultant*.

3.7. Sample products delivered to the *Place of the Work* prior to review by the *Consultant* are subject to rejection by the *Consultant*.

3.8. 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.

3.9. Submit complete specification of application procedure for coatings.

3.10. Submit test reports with samples, prepared by an independent testing authority acceptable to the *Consultant* if specified or requested by the *Consultant*.

4. OPERATING AND MAINTENANCE MANUALS

4.1. Prior to occupancy by the *Owner* submit to the *Consultant* 2 copies of operating and maintenance instructions. Refer to Section 01 70 00 Project Closeout, and Mechanical and Electrical Sections.

4.2. Manuals shall contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Instructions in this manual shall be in simple language so as to guide the *Owner* 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.

4.3. The Contractor shall furnish to the Owner and the Consultant within three months after Substantial Performance of the Work, two (2) sets of the equipment data books (the "Equipment Data Books") which shall include Vendor data and drawings for each product. The Contractor represents and warrants that adherence to the Operating Manual and the Equipment Data Books shall allow safe, lawful and reliable operation of the Work at the levels and capacities contemplated by the Contract and that such operation shall in no way impair any warranty or guarantee on the Work as provided in the Contract Documents. The Operating Manual and Equipment Data Books shall be arranged in proper order, indexed and assembled for all divisions of the Work and suitably bound. If required by an applicable authority, the Contractor shall prepare such portion or portions of the Operating Manual and Equipment Data Books at earlier times than those indicated above so as to meet the requirements of the applicable authority. Bind contents in three-ring, hard covered, plastic jacketed binders. Organize contents into applicable categories of work, parallel to specification Sections.

4.4. In addition to information specified, include the following:

4.4.1. Title sheet, labelled "Operating and Maintenance Instructions", containing project name and date.

4.4.2. List of names, addresses and phone numbers of *Subcontractors* and *Suppliers* who can effect repair or maintenance on equipment.

4.4.3. List of contents.

4.4.4. Final shop drawings and product data of equipment.

4.4.5. Record drawings of mechanical and electrical installation.

4.4.6. Full description of building systems and operation.

4.4.7. physical requirements;

4.4.8. equipment list;

4.4.9. recommended spare parts list;

4.4.10. electrical load list;

4.4.11. description for each system of the Work;

4.4.12. start up safety;

4.4.13. work checkout;

4.4.14. commissioning and start up sequence;

4.4.15. plot plan and equipment layouts;

4.4.16. single line diagram;

4.4.17. area classification drawing;

4.4.18. operating procedures and maintenance instructions for each of the major plant systems and products including schematic drawing;

4.4.19. start up procedures (the procedures should make reference to specific Product and valve tag numbers);

4.4.20. normal shut down procedures;

4.4.21. emergency shut down procedures;

4.4.22. normal operating conditions (temperature, pressure, volume as applicable);

4.4.23. troubleshooting for systems.

4.5. The Contractor shall furnish to the Owner and the Consultant within three months after Substantial Performance of the Work, two (2) sets of the equipment data books (the "Equipment Data Books") which shall include Vendor data and drawings for each product. The Contractor represents and warrants that adherence to the Operating Manual and the Equipment Data Books shall allow safe, lawful and reliable operation of the Work at the levels and capacities contemplated by the Contract and that such operation shall in no way impair any warranty or guarantee on the Work as provided in the Contract Documents. The Operating Manual and Equipment Data Books shall be arranged in proper order, indexed and assembled for all divisions of the Work and suitably bound. If required by an applicable authority, the Contractor shall prepare such portion or portions of the Operating Manual and Equipment Data Books at earlier times than those indicated above so as to meet the requirements of the applicable authority.

5. AS-BUILT RECORD DOCUMENTS

5.1. After award of *Contract* the *Consultant* will provide a set of drawings, details and schedules, and a set of specifications with addenda for the purpose of maintaining as-built documents. Do not use these sets for daily working purposes. Accurately and neatly record deviations from *Contract Documents* caused by conditions at the *Place of the Work* and changes ordered by the *Consultant*.

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

5.3. Mark invert elevations of underground services.

5.4. Identify drawings as "Project As-built Copy". Maintain in new condition and make available for inspection on site by the *Consultant*.

5.5. On completion for *Work* and prior to final inspection, submit as-built record documents to the *Consultant* as specified in Section 01 70 00 Project Closeout.

6. PROGRESS AND SUBMITTAL SCHEDULES

6.1. Submit the following schedules to the *Consultant* within 10 Working Days from date of award of *Contract* unless otherwise specified herein.

6.2. Construction schedule:

6.2.1. Prepare a detailed construction schedule of the *Work* consistent and to comply with the *Contract Time* requirements including the start up and substantial performance of the Work dates. Construction Schedule shall show the work breakdown structure broken down to the sub-task that cannot be broken down any further and must include but not limited to preparing and reviewing shop drawings, lead/delivery time for materials and equipment, work of *Subcontractors*, special operation required to construct the building, finishing work and project closeout tasks.

6.2.2. Keep progress schedule up to date on a weekly basis and advice parties immediately concerned of changes of any change affecting the *Substantial Performance of the Work*. . Submit an updated construction schedule with each progress payment.

6.2.3. Print and issue copies to all parties concerned. Issue revised copies at suitable intervals.

6.3. Submittals schedule:

6.3.1. Prepare and submit a Shop Drawings schedule to the Consultant listing and showing the anticipated date of submission, review period, allowance for revisions and approval. The Shop Drawings schedule shall be updated on a periodic basis and reviewed at the project meetings.

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

6.3.3. Co-ordinate this schedule with the construction schedule.

7. COST BREAKDOWN AND CASH FLOW SCHEDULE

7.1. Prepare and submit a schedule of values / cost breakdown for each section of the *Work* and a monthly cash flow schedule co-ordinated with the construction schedule.

7.2. Submit a draft format of the schedule of values and cash flow schedule for acceptance by the Consultant and the Project Manager as indicated in CCDC2-2008 - GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT .

7.3. Keep the cash flow schedule up to date with the construction schedule and advise the *Consultant* of changes.

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

8. PROGRESS AND DAILY REPORTS

8.1. Progress reports: The Contractor shall submit to the *Consultant a draft of the* monthly progress report for approval 15 Calendar days before the first application for payment. It shall consist of a detailed breakdown and concise description showing physical percentage complete by item and in total. Once the format is approved, submit a current progress report with each progress payment claim.

END OF SECTION 01 30 00

1. CONTRACTOR'S QUALITY ASSURANCE PROGRAM

1.1. The Contractor shall submit to the Owner and the Consultant for their review, a quality assurance program (the "Quality Assurance Program"). The Quality Assurance Program shall already be in use by the Contractor and, as a minimum requirement, shall meet the requirements of Canadian Standards Association CSAZ299.3 or such other requirements as set out in the Contract Documents. It shall be designed so that all quality requirements are obtained by progressive implementation of the controls and inspection functions stated in the Quality Assurance Program. The Contractor shall make any modifications to the Quality Assurance Program as are reasonably requested by the Owner and/or the Consultant. The Contractor shall provide the Owner and the Owner's Consultant with regular Quality Assurance Reports.

1.2. The minimum requirements of the Quality Assurance Program shall include, but shall not be limited to, the following:

1.2.1. a system by which design changes, drawing revisions, changing notices, subcontractors and sub-subcontractor correspondence and other correspondence is handled in a controlled manner;

1.2.2. a system for all purchased or manufactured materials to be identified, inspected to the specified standard and covered by a material test report;

1.2.3. a system by which all measuring and testing equipment is properly stored, handled and calibrated to a known standard;

1.2.4. a system by which all incoming materials is inspected to the specified standard, accepted, allocated safe storage and properly recorded;

1.2.5. a system pursuant to which process inspection requirements shall be clearly stated for all operations and carried out by qualified personnel;

1.2.6. a system pursuant to which component final inspections will be carried out and accepted by authorized personnel prior to release for shipping or major assembly;

1.2.7. well controls including approved procedures, qualified operators and methods to a recognized standard;

1.2.8. a system pursuant to which non-conformance to design requirements shall be recorded and all solutions to same made by the Owner or the Project Manager are also recorded;

1.2.9. a system pursuant to which all equipment shall be given design handling and safe storage instructions;

1.2.10. a system pursuant to which all the Owner's supplied items can be inspected and received in a manner which allows replacement or correction;

1.2.11. a system pursuant to which a record of all quality inspections, tests and actions shall be kept for all items in an orderly and identifiably manner; and,

1.2.12. a system pursuant to which the Owner, the Consultant and the Representative shall be afforded access to all manufacturing areas and quality records and issued with copies of subcontractor and sub-subcontractor drawings and manufacturing schedules

2. CONTRACTOR'S QUALITY CONTROL

2.1. Ensure that the only specified or approved materials are used.

2.2. Provide and maintain an effective quality control program and perform sufficient inspections and tests of all items of work, including those of Subcontractors, to ensure compliance with Contract Documents.

2.3. Perform the Work in accordance with the Contract Documents and to manufacturer's directions, or to methods, which have been submitted and approved in writing by the Consultant prior to proceeding with the Work.

2.4. Ensure that these requirements are made clear to the trade foremen immediately before their work commences at the site.

2.5. Finish appropriate facilities, instruments and testing devices required for performance of the quality control function.

2.6. Include surveillance and tests specified in the technical sections of the Specifications.

2.7. Inspection or tests required by codes, ordinances or by authorities having jurisdiction shall be the responsibility of, and paid for by, the Contractor, unless otherwise stated in the Contract Documents.

2.8. All required certificates of inspection testing or approval shall be secured by the Contractor and delivered to the Owner in such time as not to delay progress of the Work.

3. INSPECTION AND TESTING – OWNER'S QUALITY CONTROL

3.1. The Owner may appoint an independent inspection and testing company to carry out inspection and testing of the *Work* for conformance to the *Contract Documents* for the Owner's own quality control. Such costs for inspection and testing will be paid either through a cash allowance or directly by the *Owner*. However, any additional inspection and testing due to non-conformance to the *Contract Documents* shall be at the *Contractor*'s expense.

3.2. Inspection and testing does not relieve the *Contractor* of responsibility to supply specified Products and to properly execute the *Work*.

3.3. 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*.

3.4. Correct improper installation procedures reported in inspection and test reports as instructed by the *Consultant* and without increase to the *Contract Price*.

3.5. Pay costs for re-inspection and testing of replaced *Work* as directed by the *Consultant* and for delays.

3.6. It is not the responsibility of inspection and testing agencies to supervise, instruct in current methods or accept or reject a part of the *Work* but only to examine and to report conditions.

3.7. Advise the *Consultant* and the appropriate inspection and testing agencies not less than 48 hours prior to the commencement of the part of the *Work* to be inspected and tested.

3.8. Ensure presence of the authorized inspection and testing agencies at the commencement of the part of the *Work* specified to be inspected or tested.

3.9. Ensure that inspection and testing reports are issued within 48 hours and that the *Consultant* is informed immediately if the report indicates improper conditions or procedures.

3.10. Co-operate and provide facilities for inspection and testing agencies to perform their duties.

3.11. 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 agency.

3.12. Pay the cost of tests for reinforcing steel unidentified by mill test reports.

4. INSPECTION AND TESTING SAMPLES, MOCK-UPS AND QUALITY CONTROL PANELS

4.1. 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*.

4.2. Refer to specification Sections for specific requirements.

4.3. Parts of the *Work* not conforming to accepted samples, mock-ups and quality control panels will be rejected.

END OF SECTION 01 40 00

1. TEMPORARY HOARDINGS, WALKWAYS, RAMPS AND GATES

1.1. Erect temporary hoardings, covered walkways, fences, railings and ramps as required to conform to by-laws and regulations governing the location of the Work.

1.2. Provide and maintain for duration of *Contract*, or until directed by *Consultant* to be removed, 7' high chain link fence enclosures around work area to limit of *Work* indicated on drawings, complete with lockable gates for access to *Work* area and material deliveries.

1.3. Prevent unauthorized entry to the Site. Barricade, guard, or lock access points to the satisfaction of the *Consultant* and post "NO TRESPASSING" signs. Snow fencing is prohibited as protection for sidewalk or other pedestrian passage without the *Consultant*'s permission in every instance.

1.4. Install signs for movement of public around *Work* Site as directed by the *Consultant*.

1.5. Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stairwells, open edges of floors and roofs as required for protection of *Work*, workers and the public.

1.6. Maintain enclosures in a tidy and secure condition. Remove unauthorized signs and posters daily if such have been applied.

1.7. Alter as required to suit construction purposes.

1.8. Remove fencing, guard rails and barricades upon *Contract* Completion.

2. PROTECTION OF EXISTING TREES

2.1. Tree Protection General Policy

2.1.1. Anyone failing to adhere to the tree protection policies and specifications outlined below will be financially responsible for any resulting damage to trees.

2.1.2. Trees protected may not be removed, injured or destroyed in any way without written authorization from the Grounds Manager. Note that the term "tree" refers to all parts of the tree, including all roots.

2.1.3. No objects are permitted to be attached to protected trees.

2.1.4. Protected trees within or adjacent to a construction area must be protected by a barrier.

2.2. The Tree Protection Zone

The following is a chart showing minimum required distances for determining a Tree Protection Zone. Some trees and some site conditions may require a larger Tree Protection Zone (TPZ).

Table 1 – Tree Protection Zones:

Trunk Diameter (DBH)*	Minimum Protection Distances Required**
<10 cm	1.8 m
11 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100 cm	6.0 m

*Diameter at breast height (DBH) measurement of tree trunk taken at 1.4 meters above the ground.
**Tree Protection Zone distances are to be measured from the outside edge of the tree base.

2.3. Within a Tree Protection Zone (TPZ) there must be:

2.3.1. No alteration or disturbance to existing grade of any kind;

2.3.2. no changes to the grade by adding fill, excavating or scraping;

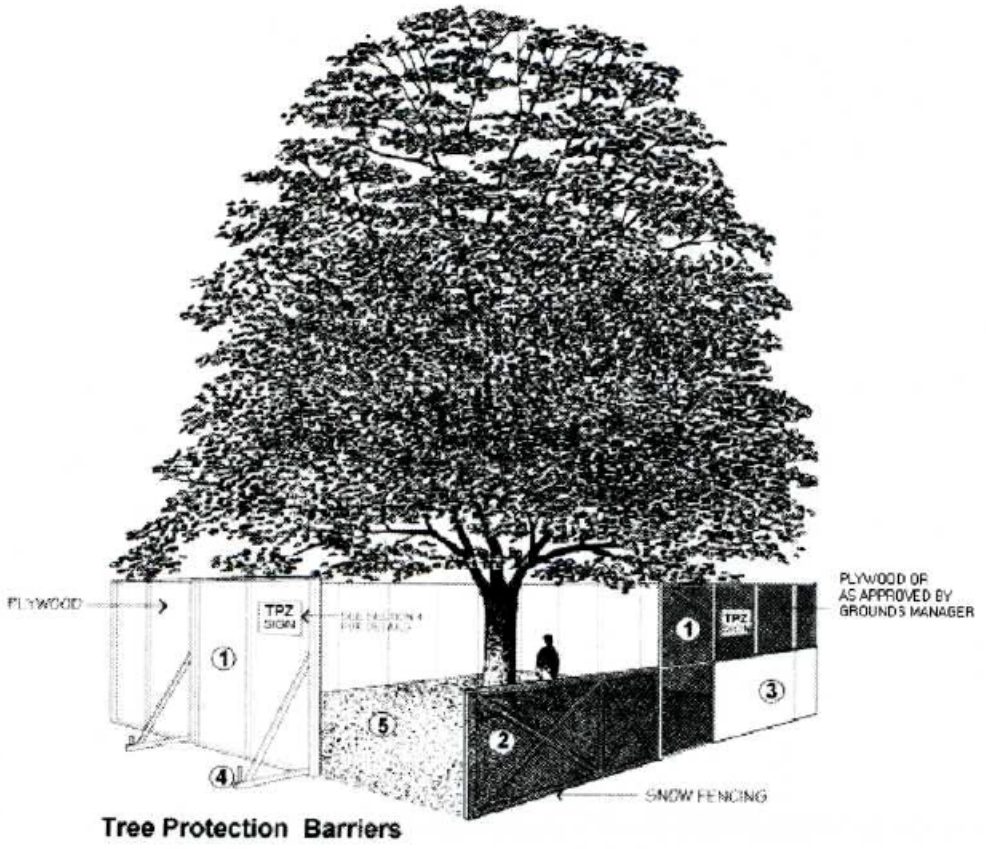
2.3.3. no storage of construction materials or equipment;

2.3.4. no storage of soil, construction waste or debris;

2.3.5. no disposal of any liquids e.g. concrete sleuth, gas, oil, paint; and

2.3.6. no movement of vehicles, equipment or pedestrians.

The above mentioned requirements are for area(s) designated as a TPZ. These requirements should be used as guidelines for all other areas where tree roots are impacted. The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the dripline.



Tree Protection Barriers

2.4. Tree Protection Barriers

2.4.1. Tree protection barriers for trees situated on the campus allowance where visibility must be maintained can be 1.2m (4ft) high and consist of orange plastic web snow fencing on a wood frame made of 2”x4”s.

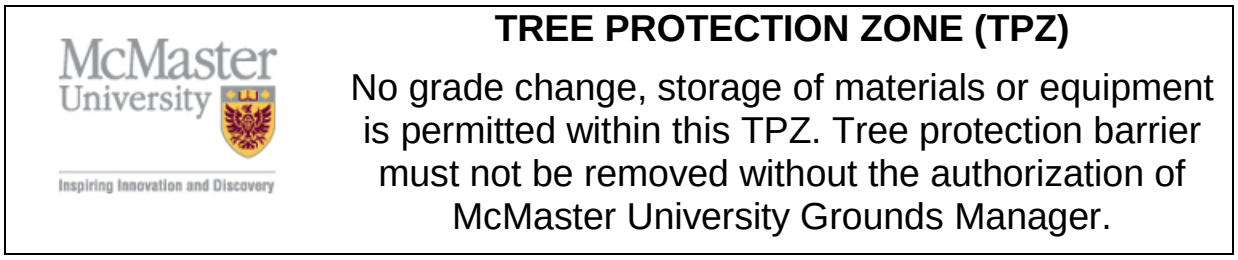
2.4.2. Where some excavate or fill has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the Tree Protection Zone.

2.4.3. All supports and bracing should be outside the Tree Protection Zone. All such supports should minimize damaging roots outside the Tree Protection Barrier.

2.4.4. No construction activity, grade changes, surface treatment, excavations or trenching of any kind is permitted within the Tree Protection Zone.

2.5. Tree Protection Signage

2.5.1. A sign that is similar to the illustration below must be mounted on all sides of a Tree Protection Barrier. The sign should be a minimum of 40cm x 60cm and made of white gator board or equivalent material.



2.5.2. Site and Landscape Plans- Tree Protection Notes and Graphics: An applicant for a construction project must provide a site plan and/or landscape plan that indicates the tree protection plan.

2.5.3. Excavation, Trenching and Tunnelling- No excavating or trenching is permitted within a TPZ .

2.5.4. Tree Removal, Relocation or Cutting: Any requests for removal, cutting, pruning or relocating a protected tree must be approved by McMaster University Grounds Manager (ext. 26102).

2.5.5. Emergencies: Emergency repairs to underground utilities are permitted to commence immediately

3. WEATHER PROTECTION

3.1. 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.

3.2. Provide wind breaks and sun shades to allow proper setting and curing of cementitious materials.

3.3. Protect building materials from freezing.

4. TEMPORARY PROTECTION

4.1. Protect existing work to remain. Provide covering and other protection material.

4.2. Minimize and control formation of dust. Protect all persons from effects of dust, and components, which could be harmed or contaminated by dust. Provide workers with dust masks and ensure proper use.

4.3. Provide daily vacuuming of construction dust from corridors and connecting areas as work progresses. This will be considered a minimum requirement; increase vacuuming if necessary.

5. TEMPORARY WATER

5.1. *Contractor* may connect to existing water supply. *Contractor* shall make such connections at own expense. Cost of water reasonably so used will be provided without charge.

5.2. *Contractor* will arrange for temporary connections to existing services through appropriate subcontractors and maintain all temporary lines, extensions, and hose as required.

6. TEMPORARY POWER AND LIGHTING

6.1. Comply with the requirements of codes, by-laws and regulations governing temporary power and lighting at the location of the work.

6.2. *Contractor* shall 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.

6.3. *Contractor* shall arrange for general temporary lighting throughout *Work* areas. Each Subcontractor shall provide special task lighting required in the execution of the *Work*.

6.4. Provide sufficient lighting to ensure sufficient visibility for the proper execution, safety and inspection of the *Work*.

6.5. Comply with Construction Safety Association's "Temporary Wiring Standards on Job Sites", the Ontario Electrical Code, and other authorities having jurisdiction.

6.6. Provide and maintain temporary lighting required by the *Owner* for safety and security at temporary walkways, service areas and entrances provided for access to existing buildings during progress of construction.

6.7. Use of temporary lines and equipment shall be terminated when permanent services are installed and connected, and all temporary lines and connections shall be removed on completion of *Work* and existing work made good.

7. TEMPORARY FIRE PROTECTION

7.1. Provide and maintain in proper order at least one fire extinguisher in each work area, or more if directed by *Consultant*, prominently placed, until completion of *Work*.

7.2. Fire extinguishers shall be minimum 9kg 4A 60BC type. Used fire extinguishers shall be refilled or replaced.

7.3. Remove fire extinguishers from the *Place of the Work* upon completion of *Work* or when directed by *Consultant*.

7.4. Where gas welding or cutting is to be done within 3 m of 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.

7.5. Factory Mutual Hot Work Permit System shall be used.

8. CONSTRUCTION MACHINERY AND EQUIPMENT

8.1. 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.

8.2. Submit erection drawings if required by the authority having jurisdiction.

8.3. Erect scaffolding independent of walls and in a manner to avoid interference with the parts of the *Work* in progress.

8.4. Provide and maintain temporary stairs, ladders and ramps required for movement and placing of materials, equipment and personnel. Remove when *Work* is complete.

8.5. Provide and maintain required shoring and bracing in accordance with Construction Safety Act and other applicable regulations.

8.6. Prevent sprayed materials from contaminating air beyond application area, by providing temporary enclosures.

8.7. Ensure all propane containers are properly secured.

9. **TEMPORARY SIGNS**

9.1. Except as specified herein, do not erect temporary signs.

9.2. Erect signs relating to safety on the *Work*, or mandatory regulation notices. Erect sufficient signs in and around site (building corridors, gate, hoarding, etc.) indicating construction site; no entry hard hats and safety boots, etc. as required by the regulations and to the approval of the *Owner*.

9.3. 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. Conform also to McMaster's "No Smoking" policy within all Campus Building.

10. **CLEANING**

10.1. Clean interior areas prior to start of finish *Work*. Maintain interior areas free of dust and other contaminants during finishing operations.

11. **CLEAN UP**

11.1. *Owner* Remove waste material and debris from the *Place of the Work* and sort recyclable versus garbage and deposit in properly labelled containers at the end of each working day.

11.2. The *Contractor* shall legally dispose forthwith of any debris and surplus material accumulated at the *Place of the Work*, and where requested, the *Contractor* shall provide to the *Consultant* a true copy of the original certificate approval from a waste management system and a true copy of the original certificate of approval from the place of disposal for all debris and surplus material disposed of by the *Contractor* under the *Contract*.

11.3. The *Owner* shall have the right to set-off the cost of cleaning to the *Contractor* if it is not done within 24 hours of written notice to clean.

11.4. The *Owner* shall have the right to set-off the cost of damage to the *Place of the Work* caused by the *Contractor*'s, Subcontractor's or Supplier's vehicles, if not repaired within 5 Working Days of written notice to repair.

11.5. All material delivered to the *Place of the Work* shall be neatly stored or contained upon delivery only in areas as approved by the *Owner* or the *Consultant* and shall be secured and remain in the *Contractor*'s control until installed.

12. **ROADS AND TRAFFIC CONTROL**

12.1. A commercial pass may be issued to the *Contractor* for a company vehicle if requested and approved by the McMaster Project Manager. Permits will not be authorized by Parking without prior permission. The current cost of Commercial Permits can be found on the Parking and Transit website "parking.mcmaster.ca".

12.2. Parking for *Contractor*'s personal vehicles will be in the Zone "N", "O", or "P" lot. Current fees can be found on the "parking.mcmaster.ca" website. This lot is accessible Monday to Friday, from 6:00 a.m. until 7:00 p.m. Free shuttle bus service is offered to and from campus. Daily parking passes may also be purchased.

12.3. Contractors may park anywhere on campus on Saturday or Sunday providing they are displaying a parking pass for any zone and parked in a proper parking space.

12.4. Parking permits can be purchased from the Parking Department, E. T. Clarke Centre, Room 102.

12.5. Confine construction traffic, temporary parking and storage to the *Place of the Work*.

12.6. Upon completion, restore areas to original conditions, unless otherwise specified.

12.7. Regulate parking at the *Place of the Work* and restrict to authorized vehicles only.

12.8. See parking.mcmaster.ca website for up-to-date parking regulations and fees.

END OF SECTION 01 50 00

PART 1 - GENERAL

1.1. GENERAL INSTRUCTIONS

1.1.1. Read and conform to:

1.1.1.1. CCDC 2 - 2008, Stipulated Price Contract as amended in the Contract Documents.

1.1.1.2. Division 1 requirements and documents referred to therein.

1.2. ASSIGNED WORK

1.2.1. The Contract Price includes all amounts for work of other contracts entered into by the Owner and assigned to the Contractor. Be responsible for the nominated Subcontractors and Suppliers, including management, supervision, coordination among trades, handling, administration, submittals, expediting, scheduling, connections, progress payments, Overhead and profit and all other work to fully coordinate and integrate work of nominated Subcontractors into the Project. No consideration for additional costs for scope of this work will be considered by Owner.

1.2.2. Tenderers shall also include in their Tendered amount all costs for co-ordination of delivery, receiving, offloading, uncrating, hoisting, transporting, complete installation, commissioning, administration, supervision, overhead and profit in connection with the pre-ordered equipment. Tenders shall review the extent of work and services provided by the equipment suppliers as noted in documents provided in Appendices and provide all additional items and services, as required to fully commission the installation to the satisfaction of the Owner including warranties on the equipment incorporated in the pre-order documents.

1.2.3. Execute subcontract agreements (or assignment of existing subcontract agreements) with nominated Subcontractors immediately after award of the Contract. Thereafter the Owner shall cease to have any direct contractual relationship with nominated Subcontractors. Take full responsibility in the same manner as for all other Subcontractors and Suppliers performing the Work, augmenting materials, infection control requirements, labour and services as necessary to ensure complete integration and coordination of the assigned work.

1.2.4. The successful Contractor shall be responsible for 100% payment of the pre-ordered equipment outlined in the Appendices as per the payment terms quoted by the supplier of the equipment minus any amounts that may have been processed by McMaster University.

1.2.5. Owner retains right to communicate directly with nominated Subcontractors and Suppliers.

1.2.6. Specifications and Drawings of Assigned Work packages shall be provided to successful Contractor and shall form part of Contract Documents. It is the responsibility of the Bidder to make full allowance for additional Work and services required in order to complete the Work.

1.2.7. In order to expedite delivery, the Owner has previously pre-bid and awarded the following Work to the parties named below:

1.2.8. **Assigned Contract No: 1**

1.2.8.1. Provision of PTI Transformers in accordance with the following;

PTI Transformers LP, 101 Rockman St. Winnipeg, MB, R3T 0L7, Canada

1.2.8.1.1. Acceptance and full installation of the two 48 MVA transformers as per the contract documents.

Assigned contract amount:.....$2,525,400.00, excluding HST

1.2.9. **Assigned Contract No: 2**

1.2.9.1. Provision of Virelec E-House accordance with the following;

Virelec Inc., 2871 Plymouth Drive, Oakville, ON, L6H 5S5

1.2.9.1.1. Acceptance and full installation of the E-House as per the contract documents.

Assigned contract amount:.....$1,452,219.00, excluding HST

Bonds and Insurance must include the full value.

END OF SECTION 01 64 00

1. CLEAN UP

1.1. Thoroughly clean and where applicable, polish areas and surfaces of the completed Work immediately prior to application for Substantial Performance of the Work.

1.2. Use soaps, detergents, other special cleaning agents, polishes, equipment and methods recommended in writing by the manufacturer of the *Product* to be cleaned and polished.

1.3. Provide the *Owner* with instructions and names of products to be used for cleaning surfaces.

1.4. Remove dust and soil from surfaces by vacuuming, damp mopping, washing or scrubbing, as required.

1.5. Thoroughly wash exterior paved walkways, roadways and parking areas.

1.6. Clean and polish glass, mirrors and polished metal surfaces.

1.7. Clean mechanical and electrical equipment and accessories.

1.8. Remove temporary labels, protective coatings, temporary markings and tags, and thoroughly clean surfaces of adhesives.

1.9. Avoid contamination of surrounding surfaces with cleaning fluids. Install temporary protection, if required, and remove same immediately upon completion of the cleaning operation involved.

1.10. Use heavy-duty type industrial machine for vacuum cleaning.

1.11. Exercise extreme care with abrasive and chemical cleaning agents and verify their compatibility with the finish and material to be cleaned.

2. CONSTRUCTION TOOLS, UNUSED MATERIALS AND DEBRIS

2.1. Remove from the *Place of the Work* all construction tools, unused materials not required to be handed over to the *Owner*, and debris.

2.2. Dispose of debris in authorized disposal areas of the municipality or as arranged privately by the *Contractor* to the approval of authorities having jurisdiction.

2.3. Pay all costs of loading, cartage and unloading.

3. TAKE OVER PROCEDURES

3.1. Conform to OAA/OGCA Document 100.

4. RECORD DOCUMENTS

4.1. Prior to occupancy by the *Owner*, in whole or in part, submit Operating & Maintenance Manuals as indicated in Section 01 30 00 and the following documents to the *Consultant:*

4.1.1. Manufacturer's literature, parts lists, and name and address of closest service organization and spare parts source, for each item of equipment and voltage and ampere rating for each item of electrical equipment.

4.1.2. Copies of warranties set out in format acceptable to the *Consultant*. Refer to Section 01 30 00. Include the following:

- Proper name of the Owner and Project.
- Dates warranty commences and terminates.
- Precise terms and conditions of the warranty and the extent of remedial action to be performed.
- Signature of an authorized official of the company issuing the warranty, and where applicable.

4.1.3. Ministry of Labour Certificates.

4.1.4. Inspection Certificates, as applicable for items such as:

- Elevator Inspection.
- Electrical Inspection.
- Plumbing Inspection.
- Pressure Vessel Inspection.
- Piping and Boiler Inspection.
- Fire Alarm Verification.

4.1.5. Final corrected shop drawings in both paper and PDF format.

4.2. Assemble all data in sets of three "O" ring binders in same order as *Specification* Table of Contents with typed list of contents and plastic Section identification dividers. Refer to Section 01 30 00 for binding of operating maintenance manuals.

4.3. Place typed identifying label on each binder with project name, date and volume number if more than one binder is required.

4.4. Fold shop drawings larger than 215mm x 280mm (8½ x 11") and place in manila envelopes, 3-hole punched for inclusion in appropriate sections of the binders.

4.5. Provide one set of white prints of as-built drawings and two sets of specifications marked with appropriate changes.

4.6. Place As-built Drawings in protective sleeves and / or capped tubes and identify with typed labels.

4.7. For the purposes of calculating the Contractor progress draw as it relates to attaining *Substantial Performance of the Work,* the Record Documents may be assigned a value of up to 0.05 % of the total contract value of the project or $10,000 in the schedule of values, at the discretion of the Project Manager.

5. MAINTENANCE MATERIALS

5.1. Prior to occupancy by the *Owner*, in whole or in part, deliver and store at the location provided, the following maintenance materials:

5.1.1. Division 09 51 13 – Acoustical Ceilings: 1% of each type of acoustical tiles suitably boxed and identified.

5.1.2. Division 09 65 19 – Resilient Flooring: 1% of each type of resilient flooring material including base for each colour used, suitably boxed or rolled, wrapped and identified.

5.1.3. Division 09 91 23 – Paints, stains and transparent finishes: sealed 4 litre can of each different type and colour of paint and coating used for finished coats.

END OF SECTION 01 70 00

Facility Services

SAFETY HANDBOOK



Prepared by

Facility Services

June 2011

Previous Revision 2004

"physically preserving and enhancing McMaster University" – *Facility Services*

McMaster University
SECURITY SERVICES
Inspiring Innovation and Discovery

Contractor Safety

Crime Prevention Programs

Contractors on McMaster campus are members of our McMaster Community. It is the responsibility of everyone to ensure that work is done safely so McMaster can continue safe place to work, live and learn.

The following is to provide a quick reference to contractors on procedures that are in place at McMaster.

All workers need to know the following:

- *The name of the building they are working in.*
- *The room number near where they are working.*
- *The location of the nearest fire alarm pull station.*
- *The location of the nearest phone.*
- *The location of the nearest fire exit.*

In case of ANY emergency contact McMaster University Security Services at 905-522-4135

In case of Fire:

- ***If you detect a fire:*** *Activate the closest pull station and evacuate the building*
- ***If you hear the fire bells:*** *You must evacuate the building and wait until the all clear announcement is given by security or the building fire marshal. You cannot re-enter the building until you have been given the all clear.*
- ***If you accidentally activate the fire alarm system:*** *This is a problem usually associated contractors while working. If this happens to you, contact Security as soon as possible and advise them of the following:*
    - *Who you are*
    - *Where you are*
    - *What you did to cause the alarm*

You will still need to evacuate the building. You should attend the front entrance of the building and identify yourself to security upon their arrival.

In case of Accident/Injury:

- *Any injury or accident on McMaster campus needs to be reported* ***immediately*** *to McMaster Security Services.*
- *Security Services coordinates all emergency services.*
- *By calling Security Services first you start a chain of events which provides the most efficient emergency response possible.*

Security Services will:

- *Dispatch a highly trained emergency first aid team.*
- *Contact an ambulance (if required)*
- *Meet the ambulance at the entrance to the university and escort them via the most efficient route to the scene.*
- *Notify the university's department of Environmental and Occupational Health Support Services.*
- *Make any other contacts that are required for your specific situation.*

Working on campus during off hours:

Security Services needs to be aware of any person working on the campus after normal working hours.

Your Project Manager would have already advised security of your attendance, but you need to call to confirm this information once you have arrived on campus. Security will need to know the following:

- *Location you will be working*
- *Your expected hours*
- *What services you will be working on, or could become affected i.e.: electrical, plumbing*
- *You also need to contact security when you are leaving campus*

About McMaster Security

McMaster Security Services has a staff of 31 to assist you every minute of every day. The staff consists of 21 Peace Officers sworn in under the Ontario Police Act, and 4 highly trained dispatchers to answer your call 24 hours a day.

Officers patrol the campus by bike, car, and foot to complete their primary responsibility of protecting the persons and property within the McMaster community.

How to Contact Security:

- *905-522-4135*
- *905-525-9140 ext 24281*
- *Emergency phones located throughout the campus*
- ***Dial "88"** from any university phone*
- *All payphones have a no charge dial button to security*
- *All elevators have a direct phone to security*

Crime Prevention Tips:

- *Don't leave any tools unattended*
- *Always lock the area you are working in*
- *Report anything unusual or suspicious in your area immediately to Security Services*
- *Work in pairs for safety sake*

By Security Services

IMPORTANT PHONE NUMBERS

Please provide the Job Manager/Supervisor with a 24 hour emergency telephone number the contractor can be reached in the event of an emergency.

	Campus Extension	Outside Telephone #
All Emergencies Fire First Aid Ambulance Chemical Spill Radiation Hazard	**88**	
Security	24281	525-9140
Environmental & Occupational Health Support Services	24352	525-9140
Facility Services (McMaster University)		
Customer Service Centre (Trouble Calls 8:30 a.m. - 4:30 p.m.)	24740	525-9140
Parking	24232	525-9140

Project Manager/Supervisor

Name: _____

Location: _____

Extension: _____

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Introduction

Master University will assist and guide Contractors and Facility Services employees in the implementation and maintenance of an effective safety programme while working on University property.

This manual contains the minimum requirements to meet Occupational Safety and Health performance rules and procedures, which are an integral part of each contract or job to be performed, and which must be carried out fully, along with all other specifications for the job. The Contractor/Supervisor assumes the responsibility for the safety of their agents and employees and for the compliance of Sub-Contractors, and anything contained herein does not relieve the Contractor/Supervisor to ensure that their employees are fully familiar with McMaster University safety regulations prior to starting any work.

McMaster University expects that all Job Representatives will perform all work in keeping with the rules and regulations contained herein. It is expected that Contractors' employees and Facility Services employees will maintain a positive attitude towards safe work and safety procedures while working at McMaster. Employees sent off the job due to safety violations will not be allowed to work on any McMaster University job without further authorization from McMaster University.

These Safety Regulations for all contractors and employees make reference to Provincial Acts and Regulations. Should any procedure set forth herein conflict with applicable federal, provincial, or local laws, the more stringent regulation shall apply.

In addition to the rules set forth herein, contractors/employees working in or near an existing operating facility must be cognizant of and conform to McMaster's safety regulations for that area.

All contractors/employees undertaking work at McMaster University will be assigned a Project Manager or designate (Supervisor), who will act as their primary contacts while the job is under construction.

Guidelines for a Job Safety Checklist are given in Appendix I. These are intended to indicate the general nature of safety inspections to be done on the job site. The Contractor's Safety Committee/Supervisor shall review these and amend them as required for job specific issues and they can then be used as the job safety checklist.

McMASTER UNIVERSITY HEALTH, SAFETY AND FIRE REGULATIONS AND PROCEDURES FOR CONTRACTORS
(HEREIN CALLED SAFETY REGULATIONS)

I General

Certain terms used in the McMaster University Health, Safety and Fire Regulations and Procedures for contractors/employees require definition. For convenience, a list of such terms is given here, and will be supplemented when appropriate.

A. Definitions

1. "**Construction Job**" includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a job.

2. "**Contractor**" means the person or owner of a company who enters into an agreement with McMaster University to undertake certain work.

3. "**Controlled Product**" means any material which falls under one or more of the following classes:

    a. Compressed gas
    b. Flammable and combustible material
    c. Oxidizing Material
    d. Poisonous and infectious material
        i. Materials causing immediate and serious toxic effects
        ii. Materials causing other toxic effects
        iii. Bio hazardous infectious materials
    e. Corrosive material
    f. Dangerously reactive material

4. "**Critical Job**" means any work that is immediate in nature, in that delay of such work may result in bodily injury or property damage.

5. "**Hazardous Job**" means any work that may have the potential to cause bodily injury.

6. "**Job Representative**" means an employee of the Contractor who is appointed by the Contractor (may be the Contractor's Supervisor) to be responsible for safety, and who will be present at the worksite for the duration of the job.

7. "**Project Manager/Supervisor**" means the McMaster University employee directly responsible for the overall supervision, and the co-ordination of the Contractor's / employee's activity in carrying out the job.

8. "**Employee**" means an individual who is employed by the Facility Services Department and are members of Local 532 and 772 and includes all part time and summer student labour.

9. "**Job**" means any work, remedial or otherwise, which requires the rearrangement, relocation, or interruption in the daily operations of the University and / or its services and / or which inconveniences student or staff traffic.

10. "**Public Way**" means a designated right of way such as a sidewalk or roadway, whether public or McMaster University's own roadway.

11. "**Safety Regulations**" means the McMaster University Health, Safety, and Fire Regulations and Procedures for Contractors and Facility Services employees.

12. "**Sub-Contractor**" means a company/ person hired by and under the direction of the Contractor to do a portion of the specified job.

II Safety Regulations

A. Applicable government Regulations

1. The contractor/employee shall comply with the latest edition of the following documents, and in cases of conflict with this procedure, the more stringent rule or the Project Manager's/Supervisor's interpretation shall apply.

    - The Occupational Health and Safety Act-Revised Statues of Ontario 1990, c 0.1 (including amendments December 2001).

    - Occupational Health and Safety Regulation for Construction Projects, Revised Statutes of Ontario, 1990, c 0.1 (O.Reg 213/91 and Amendments including O.Reg 85/04).

    - Occupational Health and Safety Regulations for Industrial Establishments, (Regulations 851), with Amendments O.Reg 488/01.

    - The Workplace Safety Insurance Act, 1997, c 16.

    - Ontario Building Code Act 1992, S.O. c 23.

    - Ontario Regulation 388/97-Fire Code.

- Regulation 309-Environmental Protection Act, revised Ontario Regulation 189/04.
- Other applicable Convening Authorities' regulations which apply in specific situations.
- Workers' Compensation Board, First Aid Regulation (1101).
- Any subsequent Regulations as they come into effect.

B. Pre-Job Construction Safety Meeting

1. For all construction jobs, a pre-job construction safety meeting shall be held between the Project Manager/Supervisor and authorized Contractors' and Sub-Contractors' representatives and or employees, to discuss the work area, work content and methods, to define responsibilities, and record the name of the Contractor's job representative for all new contracts. The Contractor's job representative must be present at the meeting. The job representative appointed to a job shall not be changed without prior agreement from the Project Manager/Supervisor.

   The details of the meeting, with particular emphasis on the safety regulations as outlined in this document will be discussed and the minutes of the meeting forwarded to Environmental & Occupational Health Support Services. Responsibility, by name, should be clearly stated for each participant at the meeting including McMaster University's supervision. It is the responsibility of the Contractor to ensure that these safety regulations are then carried out during all jobs.

2. Weekly safety meetings and updates are required for contractors performing ongoing and various jobs on the campus. The Contractor is to record minutes of these meetings, with a copy forwarded to the Owner. Topics discussed and any corrective action required or taken is to be noted in the minutes. The Owner may attend these meetings.

3. It is the responsibility of the Contractor to ensure that their sub-contractors employees brought onto the site are fully instructed in McMaster University Safety Regulations prior to starting work. The employees should be instructed to review the checklists prior to starting work.

4. Environmental & Occupational Health Support Services shall be informed of the substantial completion for new buildings and major renovations. Environmental & Occupational Health Support Services will then perform a safety audit before the occupants of the building will be allowed to set up office. This will be co-ordinated through the Project Manager/Supervisor.

C. Work Permits

No hazardous jobs shall commence at any time without a McMaster University Work Permit and completed Safety Checklist. Any special procedures or requirements specified on the Work Permit and in applicable regulations shall be followed at all times.

1. The Work Permit is obtained from the Project Manager/Supervisor or their designate. The permit must be signed by the job representative who will be present while the work is in progress. The Work Permit must be posted at the job site at all times.

2. The Work Permit covers all types of hazards, for example:

    - Welding
    - Asbestos Removal
    - Hot Work (torch work, tarring operations, open flames, etc.)
    - Confined Space Entry
    - Service Locate/Excavation
    - Controlled Products
    - Chemicals
    - Any other work deemed hazardous by the Project Manager/ or Environmental & Occupational Health Support Services.

III Accident Prevention

A. Confined Space Procedures

1. No work requiring entry into a confined space such as sewers or tunnels shall commence without a Work Permit and clearance from Facility Services.

2. Contractor is directed to sections 60, 61, 62, and 63 of the Occupational Health and Safety Act Construction Projects Regulation, (Ont. Reg. 213/91). All requirements specified in the regulations must be met to obtain a Work Permit.

B. Lock-Out/Tag Procedures

1. If contract work requires lock-out procedures, the Project Manager/ Supervisor must be contacted to make the necessary arrangements. The lock-out tags are to be labelled and an emergency telephone number listed. When work is completed the Project Manager or Facility Services employee performing the work shall be contacted to have the locks removed. Project Manager/Supervisor shall be aware of work being performed by a Facility Services employee.

C. Asbestos Procedures

1. A Work Permit is required for any work associated with asbestos. Areas known to have asbestos will be designated by the Project Manager/Supervisor. A copy of McMaster University's asbestos survey is available for review in the office of the Facility Services Department. Extracts pertaining to a job are given in the specification (see page 20).

2. If asbestos is suspected or discovered during work, in an area not initially noted as an asbestos area, work must be stopped, and the Project Manager/Supervisor contacted immediately and the Technical Specialist's office informed to ensure verification and updating of main asbestos records.

D. Welding Procedures

1. All work requiring cutting or welding must be cleared through the Project Manager/Supervisor prior to starting a job. A Work Permit is required and precaution outlined on the back of the permit must be followed.

2. Before approving any cutting and welding permit, the Project Manager/Supervisor or their appointee shall inspect the work area and confirm that precautions have been taken to prevent a fire. In addition all sections as outlined in the Occupational Health and Safety Act and Regulations for Construction Projects, in particular sections 122, 123, and 124 (Ont. Reg. 213/91) and the Ontario Fire Code Regulation 388/97 shall be followed.

3. A fire watch must be maintained during, and 30 minutes after, completion of any welding or hot work operation.

E. Excavation

1. Work which requires excavation must be cleared through the Project Manager/Supervisor prior to starting the Job. A (service locate/excavation permit) work permit is required and described University procedures shall be followed.

2. All requirements of the Occupational Health and Safety Act, Construction Projects Regulation, (Ont. Reg. 213/91, Part Ill Excavations) shall be met to obtain a work permit.

F. Worksite Isolation

1. Barricading

    a. It is the responsibility of the Contractor/Supervisor to provide appropriate barricade, fencing, boarding, warning lights, and signage on the worksite. The locations and the extent of the worksite isolation should be discussed extensively with the Project Manager/Supervisor prior to the commencement of the work. Environmental & Occupational Health Support Services shall be provided with a written copy of this information. Barricades must be placed in such a manner to prevent unauthorized personnel from entering the worksite and potentially placing themselves in danger of injury. For construction jobs taking place in areas of heavy

pedestrian traffic, boarding will be used in place of fencing to keep pedestrians out of the construction areas.

2. Public Way

    a. When a pedestrian may be endangered from work on a job while using a public way adjacent to the job, a solidly constructed fence at least 2.4 meters in height shall be constructed between the public way and the job. Where a job is on or adjacent to a public way all equipment and material that might be a hazard to vehicular or pedestrian traffic shall be marked by flashing devices. Sections 64 to 69 of the Occupational Health and Safety Act, Regulations for Construction Projects (Ont. Reg. 213/91), should be consulted for further regulations concerning Public Way protection.

3. Demolition

    a. Only a worker directly engaged in the demolition or moving of a building or structure shall be in, on, or near the building or structure. Refer to sections 212 to 221, Occupational Health and Safety Act, Regulations for Construction Projects (Ont. Reg. 213.91).

    b. A demolition permit must be obtained from the City of Hamilton Building Department (546-2782) prior to commencement of demolition.

G. Operation of Vehicles on University Property

1. The contractor must provide a list of his mobile equipment requirements on site. Before entering University property, the Project Manager/Supervisor shall have this list and the appropriate arrangements made for access onto University grounds.

2. Construction vehicles used on University property shall not be loaded beyond their licensed capacity, and passengers shall ride within the cab. Riding upon running boards, fenders, hoods, scraper blades, and buckets, or in boxes or other attachments is prohibited. Employees must not board nor jump off moving vehicles.

3. Construction vehicles must be left in designated areas and, when not in use, shall not obstruct emergency vehicles or public ways.

4. Access to the construction site will be established by the Project Manager/ Supervisor prior to the start of construction.

5. All vehicles must obey the posted speed limits. Where there is no speed limit posted, the speed is 40 km/h maximum.

H. Tools and Equipment

1. Contractor's equipment must be in safe working order and be provided with safety guards and safety devices. Equipment is to be shut down when refuelling is taking place.

2. Separate storage areas are to be provided and identified for all full or empty cylinders, (e.g., oxygen, acetylene, propane, etc.). When cylinders are in use, they shall be protected from falling objects and are to be chained or strapped securely in a vertical position to a suitable object such as a rack, wall, or foundation or suitable mobile equipment. Caps must be in place when cylinders are not in use.

3. Cylinders must always be transported by some material handling device (not carried manually). When being transported in vehicles, the movement of cylinders should be prevented and the cylinders must have their gauges removed, and caps installed. Cylinders must never be hoisted with a rope or chain sling.

4. Tarpots, salamanders, stoves, etc. and/or equipment used for heating and melting shall be inspected and approved by the appropriate authorities before being put into service. Heating equipment must be kept clear of gloves, clothing, rags, boxes, etc.

5. Oil and propane fired space heaters are to be set on non-flammable bases and turned off overnight, at weekends and on holidays unless under supervision.

6. All hazardous materials shall be stored and dispensed in a building or area suitable for that purpose (i.e. well-ventilated and away from possible flammable sources) and in a safe condition approved by the Project Manager/Supervisor.

7. All oakum, rags, or other materials impregnated with paint thinners, etc., shall be stored in an approved, labelled container and/or area.

8. Approved safety containers must be used for the storage and transportation of flammable materials. All containers shall be appropriately labelled according to TDG/WHMIS legislation.

9. Where flammable materials are being transported or transferred, they shall be properly secured and ventilated.

10. A qualified person with an Ontario Propane Licence will be the only one allowed to work on propane insulations or to supervise the moving of these insulations.

11. NOTE: No hazardous waste products are to be disposed of by pumping or draining into sinks, ditches, or sewers. Waste products must be disposed of in an approved manner as specified by provincial and municipal statutes.

I. Controlled Products

1. Contractors and employees must comply with all aspects of the Workplace Hazardous Material Information System (WHMIS), (Ontario Regulation 860).

2. Contractors/Supervisors shall have all controlled products labelled according to WHMIS legislation when the materials are brought onto University property. Contractors/ Supervisors shall provide Workplace Labels for controlled products where no supplier labels are placed on containers.

3. A workplace label is not required where a material is decanted and the decanted material is used exclusively by the employee who decanted it, and the material is going to be used up during the shift in which it is filled.

4. Contractors/employees must have copies of Material Safety Data Sheets (MSDS) for all controlled products they bring onto University property readily available at the worksite. The Contractor/Supervisor must ensure that the information on the MSDS is up to date (MSDS are valid for three years from the date of production).

5. Any McMaster University employee or any Contractor working at McMaster University may request, through the Project Manager/Supervisor, a copy of any or all MSDS for controlled products used by the Contractor, if the controlled products are used or contained in an area where McMaster employees or other Contractors may enter.

6. Contractors who use controlled products shall ensure that their workers are properly trained in the safe use and handling of such products. Contractor's employees must be trained through the Construction Safety Association programme for construction workers. In addition, contractors should review with their employees: fire hazard information, health hazard information, controls which should be in place, and protective equipment to be used. When applicable, the same would apply to the Supervisor and Facility Services employees.

IV Injury Prevention

A. Safety Equipment-Supply and Use

1. The Contractor and their Sub-Contractors and Supervisor shall ensure that all personnel wear and use the safety equipment necessary to complete the work in a safe manner. This shall include, but not be limited to, the following: safety glasses, goggles, gloves, approved hearing protection, hard hats, respiratory protection, safety belts, ropes, face shields, footwear, or specialized safety equipment. Facility Services employees shall wear designated uniform and identification badge.

2. Weekly safety meetings are to be held by a designated safety representative of the Contractor to discuss safety problems and solutions. Attendance is to be recorded, as well as the topics discussed. Supervisors to hold weekly or bi-weekly shop meetings and appropriate time given to address safety issues or concerns relating to work.

B. Fire Protection Equipment

1. The Contractor/Supervisor will provide sufficient fire equipment for the work, construction areas, and all temporary buildings and equipment. The Contractor and Sub-Contractors and Supervisors shall ensure that all personnel are trained and capable of using this equipment in a safe manner.

V Emergency Procedures

A. Worksite Emergencies

1. Work site emergencies can arise from hazards within the workplace (e.g., fires, explosions, work accidents, and chemical spills), and from external causes such as natural disaster, civil strife and sabotage.

2. The Contractor/Supervisor shall provide alternative measures for safety of the job, work force and others during any shutdown of fire protection equipment of systems of part thereof.

3. The Contractor/Supervisor is responsible for establishing detailed Emergency Procedures with his employees in accordance with the work being performed. Emergency procedures must consider the types of emergencies which are likely to occur depending on the nature of the work. As a minimum, emergency procedures are to be established for:

    - Fire on the construction site and adjacent buildings,
    - Personal injury from falls, impalement, etc.,
    - Electrical shock

4. If an emergency situation arises in a job area, in which evacuation is necessary, the following procedure shall be incorporated into the Contractor's/Supervisor's procedures, and put into effect immediately.

    a. All equipment including vehicles shall be shut down immediately.

    b. There shall be no welding, burning, cutting, etc., in the area.

    c. No smoking will be permitted.

    d. All construction including Facility Services personnel will evacuate, by foot, to the safest and nearest assembly area for head count. They will remain there until the all clear is given, or further instructions are received, before resuming work.

5. In the event of a fire, gas leak, or chemical spill:

    a. Pull the nearest fire alarm, telephone 88, or from an outside phone, dial (905) 522-4135 Security, and give the name and location of the problem over the phone.

    b. Should you use any McMaster fire equipment, report this immediately to the Project Manager/Supervisor who will report the matter to the Security Department.

    c. Follow the steps in section **V Emergency Procedure 3** above.

6. In case of a serious injury to any employee:

    a. Call 88, or from an outside phone, dial (905) 522-4135 and Security will make necessary arrangements for medical attention and transportation to a qualified medical facility. Supervisors should accompany all injured persons who are required to go to hospital. The non-emergency extension for the Security Department is 24281.

    b. Follow the steps in section **V Emergency Procedure 3** above.

VI Other Safety Considerations

A. Smoking

Smoking is only permitted outside the buildings, no smoking within 9 meters of an entrance way into a building. No smoking is permitted beside an intake at street level.

B. Alcohol/Drugs

The consumption of alcohol or drugs on work sites is prohibited. The University reserves the right to remove anyone who is intoxicated or under the influence of drugs or appears to be.

C. Washroom Facilities

Contractors/Supervisors are required to provide employees with sanitary facilities, and to maintain them at all building sites. Contractor's employees shall not use washroom facilities in existing buildings unless otherwise specified by McMaster University.

D. Road Closure

1. Should the construction entail the blocking of any main or secondary road, Contractor concerned shall give the Project Manager/Supervisor at least one week notice, to enable proper provisions with Security, Parking and Transit Services and Environmental & Occupational Health Support Services, regarding the re-routing of emergency traffic.

2. The Project Manager/Supervisor must be notified when any blocked road is re-opened for normal traffic.

E. Fire Protection Shutdown/Operation

1. The Project Manager/Supervisor shall be notified at least one week in advance of any equipment to be shutdowns which affect fire protection systems or equipment.

2. Except in an emergency, no person shall operate any fire hydrant valve, sprinkler system, or alter any part of the existing fire protection equipment, without notification and written permission from the Project Manager/Supervisor.

F. Protection of Temporary Power Cables

1. Temporary power cables shall be protected at all times in construction areas. Whenever possible, they are to be suspended above ground. Where cables cross roadways for any extended period of time, they should be buried and protected by a sleeve. Where the above methods are not feasible, cables must be adequately protected by timber blocking and adequately marked when not visible, for example during a snowfall.

G. Work Areas

1. To maintain a safe area for workers, pedestrian and vehicular traffic, work areas for individual jobs will be designated, sign-posted, and properly protected as outlined in Section Ill of this document. Contractors' and supervisors' personnel must confine their work activities to these areas. If it is necessary to extend the work area for a temporary period, the precautions outlined in this document must be taken.

H. Controlled products

1. Controlled products as defined in the Occupational Health and Safety Act shall not be used in any form at McMaster University unless authorized by the Environmental & ' Occupational Health Support Services.

I. Housekeeping

1. The Contractor/Supervisor shall, at all times, keep the premises and site free from accumulation of waste material or rubbish caused by their employees or work. The waste material or rubbish is to be removed from the site by the Contractor/Supervisor, in containers supplied by the Contractor, on a regular basis, and in any event at intervals of not less than once per week. After completion of the work, the Contractor/Supervisor shall promptly remove his tools and scaffolding, clean up surplus debris and waste, and is responsible for removing it from University property.

VII FIRST AID

A. General

1. Every effort shall be made to contact emergency medical services immediately, dial 88 from a campus telephone or (905) 522-4135 (Security) from an outside phone.

2. It is the responsibility of the Contractor and /or Job Representative to:
   - Have in their possession a first aid kit as required in Regulation 1101.
   - Keep the kit clean, in good order, and refill as required.
   - Ensure injured personnel receive proper first aid treatment.

3. It is the responsibility of the Project Manager/Supervisor to ensure all employees are aware of the proper procedures regarding first aid treatment.

Appendix I

Job Safety Checklist

Housekeeping

- Is the floor surrounding your work area free from scrap, parts and tools?
- Are all aisles clear?
- Are there any combustible materials and other fire hazards around?
- Are all entrances and exits clear?
- Are there any protruding nails around?
- Are ladders stored when not in use?
- Are all hoses and cables coiled and placed in a safe place when not in use?
- Is housekeeping overhead being done?
- Are crane hooks left high enough to be safe?
- Are kick boards in place to prevent tools and materials from falling off?
- Are signs and guards placed around excavations and openings?
- Are materials stacked at a safe height?
- Is the floor area free of grease spots?
- Is litter placed in proper receptacles?

Ladders/Scaffolding

- Is the ladder free from broken or loose rungs or other defects?
- Are there any obstructions such as pipes, valve handles, etc., which could create a hazard for a worker climbing a ladder?
- Is the ground level, firm and free of grease and oil?
- When working on a ladder will it extend at least three feet above the upper support?
- When working on a ladder 10 feet or higher, is it held in place by a worker or securely fastened at the upper support?
- When using a step ladder as a self supporting unit, do not use the top two rungs of the step ladder for steps?
- Are all scaffolds erected and dismantled under the supervision of personnel knowledgeable and experienced in the operation?
- When working on a scaffold are workers tied off with a safety belt?
- Are scaffolds erected according to manufacturers' recommendations? Are counterweights on outrigger beams sufficient and secure?

Confined Space

- In preparation for a confined space, the Contractor/Supervisor shall discuss the plan with the workers/employees and review the confined space entry permit?
- Is there an easy way out of all parts of the confined space by manhole or other clear opening?
- Is all mechanical equipment in the confined space disconnected from its power course and locked out and tagged by responsible person?
- Is the confined space entry permit completed?

Welding

- Is welding and cutting equipment in good repair?
- Are sprinklers in service and fire hose available?
- Are serviceable fire extinguishers on hand and workers/employees trained on the equipment?
- Is the "hot work permit" completed and posted on the nearby wall/door?

Within 35 feet of work:

- Are floors swept clean of combustibles?
- Are combustible floors wetted down, covered with damp sand, metal or other shields?
- Are there any combustible material or flammable liquids?
- Are all wall and floor openings covered?
- Are covers suspended beneath work to collect sparks?

Work on walls and ceiling:

- Is construction non-combustible and without combustible covering?
- Are combustibles moved away from opposite side of wall?

Work on enclosed equipment (tanks, containers, ducts, dust collectors, etc.):

- Is construction non-combustible and without combustible covering?
- Are combustibles moved away from opposite side of wall?
- Is equipment cleaned of all combustibles?
- Are containers purged of flammable vapours?

Fire Watch

- Is fire watch provided during and 30 minutes after operation?
- Is the person on watch supplied with fire extinguishing equipment?
- Is the person on watch trained in the use of equipment and in sounding fire alarm?

Electrical Hazards

- Are extension cords and electrical fittings inspected for damage and are all electrical tools grounded?

Hoist

- Are counterweights sufficient and secured to the hoist?
- Are all bolts and pins in place?
- Are brakes working properly?
- Are all cable clips tight and installed with three U-bolts?
- Are guardrails in place and secure?

- Are key points of wear oiled and/or greased?
- Is engine oil checked?
- Are hoist-related equipment such as scoops and forks working properly?

Temporary Heating and Roofing

- Have propane cylinders been installed by a licensed installer?
- Are propane cylinders located at least 25' from the heat source?
- Is the tar kettle for roofing located at least 25' from any building or structure?

Asbestos Removal

- Has a work permit been issued by the Project Manager/Supervisor for the work which is to be done?
- Have you received and read a copy of the McMaster University Asbestos Report?

Note: If Ceiling entry is necessary then the following questions must be answered:

- Has the work been scheduled for a time when the area is not normally occupied?
- Have all the possible access points been secured and Asbestos Warning signs posted at all access points?
- Have all occupants been notified and cleared out of the area?
- Have the supply fans for the work area been shut off?
- Has the area been adequately covered with plastic drop sheets to protect all furnishings and walls from possible contamination?
- Are all workers equipped with appropriate respiratory protection and protective clothing?
- Are there sufficient 6 mil asbestos disposal bags at the worksite?
- Is there a Hepa-filter vacuum on site to clean all ceiling tiles as they are removed?

Note: After completing work,

- Has the area been thoroughly vacuumed with a HEP A vac and all drop sheets, disposable protective clothing disposed of in double 6 mil bags for asbestos material?
- Has all asbestos garbage been sealed and removed from the work area for disposal?

Excavation

- Contractor/Supervisor arranged for a service locate to be completed?
- Contractor/Supervisor completed a service locate/excavation permit?
- Has soil type been established?
- Are adjacent structures protected?

General

- Are emergency procedures fully understood? i.e., cease work, evacuate area, account for personnel.
- Are evacuation routes known?
- Are emergency telephone numbers known, procedure understood?
- Are the nature of chemicals, hazards and first aid response known?
- Are emergency shower, eyewash fountain locations and their use known?
- Do you know where the emergency equipment is located, i.e. fire blankets, extinguishers, etc.?
- Do you know what personal protective equipment you need to perform the job safely, i.e. goggles, safety hats, footwear, hearing protection, etc.?
- Have you obtained the appropriate permits and work permit?
- Do you understand the procedures outlined in the work permit?
- Are there any electrical hazards in area?
- Are ladder and scaffold standards and rules known?
- Are all lock-out and tag procedures understood?

Appendix II

Quick Reference Guide to the Occupational Health and Safety Act

References to the Act:	**Section**
Accompany Inspector Part VIII	54(3)
Health and Safety Representative, Selection and Duties of Part II	8(1-10)
Refusal to Work Where Health or Safety In Danger Part V	3

References to the Construction Projects Regulations:	**Section**
Access and Egress	70-72
Breathing Protection	59, 62
Confined Spaces	60-63
Cranes and Hoisting	150-156
Demolition	212-221
Electrical Hazards	181-195
Equipment-Cranes, etc.	157-165
Excavations	222-242
Explosive Actuated Tools	117-121
Explosives (Blasting)	196-206
Eye Protection	24
Fire Safety	52-59
Guardrails	26.3
Housekeeping	35-44
Hygiene/Drinking Water	28-30
Illumination (Lighting)	45
Ladders	78-84
Personal Protective Equipment	21-27
Platforms, Runways and Ramps	73-74
Public Way Protection	64-66
Rolling Scaffolds	129
Roofing	207-210
Safety Belts	26
Safety Hats and Footwear	22-23
Scaffolds	125-136
Skin Protection	25
Stairs and Landings	75-77
Storage and Materials	35-43
Suspended Scaffolds	137-142
Toilet or Privy	29
Traffic Control	67-69
Trenching	222-242
Welding and Cutting (cylinders)	122-124

Work Permit

Date of Issue: _____ Validity Period From: _____ To: _____
Location of Work: _____ Project, Job, or W.O.#: _____
Dept./Contractor: _____ Supervisor: _____
Description of Work: _____

Work Authorized:		
Welding/Burning (Hot Work Permit):	Yes ☐	No ☐
Entry/Work in Environmentally Hazardous	Yes ☐	No ☐
Area (i.e. Chemicals, Radioactive, Asbestos):	Yes ☐	No ☐
Confined Space Entry Permit:	Yes ☐	No ☐
Temporary Heat:	Yes ☐	No ☐
High Voltage:	Yes ☐	No ☐
Service Locate & Excavation Permit:	Yes ☐	No ☐
Gas Test Required:	Yes ☐	No ☐
Permission to Enter Required:	Yes ☐	No ☐
Other Hazard Checks Required (list below)	Yes ☐	No ☐

NOTE: any yes answers require completion on other side of form:

Personal Safety Equipment:

☐ Eye Protection:	☐ Scott Air Pack:
☐ Hearing Protection:	☐ Respirator:
☐ Dust Mask:	☐ Safety Harness:
☐ Protective Clothing: (Specify) _____	☐ Other: (Specify) _____

Permission to Enter Required:	Yes ☐	No ☐	N/A ☐
Is Training Required:	Yes ☐	No ☐	N/A ☐

Special Requirements:

☐ Barriers:	☐ Fire Extinguishers:
☐ Smoke Eater/Fans:	☐ Fire Watch/Standby Person:
☐ Lock out and Tags:	☐ Other: (Specify) _____

Leave work site safe and notify McMaster University when work complete and before leaving site.

I have reviewed the permit and conditions and understand the requirements. I am aware that I am responsible for and will directly supervise my personnel doing the work.

_____ Contractor

_____ Project Manager/Supervisor