



SPECIFICATIONS

WCC WASHROOM RENOVATIONS PHASE 1

**Tender Number: RFT25-06
For**

**100 Regina Street South
Waterloo, ON N2J 4P9**

Prepared by:



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Consulting Engineers 
MECHANICAL | ELECTRICAL | AQUATIC

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DEI Project No. 23115

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SPECIFICATIONS

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Part 1 General

1.1 WORK OF THIS CONTRACT

- .1 *Work of this Contract* comprises the following:
 - .1 Remove and replace all sanitary sewer piping serving all plumbing fixtures located in 3rd floor central washrooms and custodian closet as shown on drawings. Replace all sanitary piping to the point of the vertical stack tie-in. Replace vertical stack from point immediately below main branch tie-ins to point of roof penetration. Replace sanitary venting in ceiling above 2nd floor ceiling and to flood rim level of 3rd floor fixtures and as indicated on drawings. Remove and replace ceilings, walls, fittings and finishes as required to facilitate plumbing removal as shown on architectural drawings. Remove, replace, and provide new electrical fixtures during scope of renovation as indicated in electrical drawings.
- .2 Municipal Address: 100 Regina St S, Waterloo, ON N2J 4P9

1.2 DIVISION OF WORK

- .1 Division of the *Work* among *Subcontractors* and *Suppliers* is solely *Contractor's* responsibility. *Consultant* and *Owner* assume no responsibility to act as an arbiter to establish subcontract limits between Sections or Divisions of the *Work*.

1.3 SPECIFICATIONS LANGUAGE AND STYLE

- .1 These specifications are written in the imperative mood and in streamlined form. The imperative language is directed to Contractor, unless stated otherwise.
- .2 Complete sentences by reading "shall", " *Contractor* shall", "shall be", and similar phrases by inference. Where a colon (:) is used within sentences and phrases, read the words "shall be" by inference.
- .3 Fulfill and perform all indicated requirements whether stated imperatively or otherwise.
- .4 When used in the context of a *Product*, read the word "provide" to mean "supply and install to result in a complete installation ready for its intended use".

1.4 CONTRACT DOCUMENTS FOR CONSTRUCTION PURPOSES

- .1 *Owner* will supply *Contractor* with a complete set of *Contract Documents* in electronic form before commencement of the *Work*. *Contractor* may print hard copies for construction purposes as required.
- .2 *Owner* will also provide *Contractor* with two (2) hard copy sets of *Contract Documents* for construction purposes. Additional hard copy sets shall be at *Contractor's* expense for the cost of printing, handling and shipping.

1.5 DOCUMENTS AT THE SITE

- .1 Keep the following documents at *Place of the Work*, stored securely and in good order and available to *Owner* and *Consultant* in hard copy and or electronic form:
 - .1 Current Contract Documents, including Drawings, Specifications and addenda.
 - .2 Change Orders, Change Directives, and Supplementary Instructions.
 - .3 Reviewed *Shop Drawings*, *Product* data and samples.
 - .4 Field test reports and records.
 - .5 Construction progress schedule.
 - .6 Meeting minutes.
 - .7 Manufacturer's certifications.
 - .8 Permits, inspection certificates, and other documents required by authorities having jurisdiction.
 - .9 Current as-built drawings.
 - .10 Material Safety Data Sheets (MSDS) for all controlled *Products*.

1.6 CONTRACTOR'S USE OF PREMISES

- .1 Except as otherwise specified, Contractor has unrestricted use of Place of the Work from time of Contract award until Ready-for-Takeover Substantial Performance of the Work.
- .2 Confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and all other construction operations to limits required by laws, ordinances, permits, and *Contract Documents*, whichever is most restrictive. Do not unreasonably encumber *Place of the Work*.

END OF SECTION

Part 1 General

1.1 GENERAL INSTRUCTIONS

- .1 Comply with the General Conditions, Supplementary Conditions, and all of Division 1, General Requirements.

1.2 CASH ALLOWANCES FOR SUPPLY AND INSTALLATION OF PRODUCTS

- .1 Amount of each cash allowance includes:
 - .1 All costs to provide the specified *Products*, including supply, installation, and related costs, excluding *Value Added Taxes*.
 - .2 *Subcontractor's* and sub-*Subcontractor's* overhead and profit related to the cash allowance. The combined overhead and profit markup by sub-contractor on their own work is ten percent (10%).
- .2 Amount of each cash allowance does not include *Contractor's* overhead and profit, and other related costs, which shall be included in the *Contract Price* and not in the cash allowance.
- .3 Allow the stipulated sum of \$7,500.00 for the supply and installation of two (2) wall mounted bathroom countertops. Each countertop is approximately 17 sq ft with three (3) lavatories. This allowance applies to Phase 1.
- .4 Allow the stipulated sum of \$7,500.00 for the supply and installation of two (2) wall mounted bathroom countertops. Each countertop is approximately 17 sq ft with three (3) lavatories. This allowance applies to Phase 2.
- .5 Allow the stipulated sum of \$7,500.00 for the supply and installation of two (2) wall mounted bathroom countertops. Each countertop is approximately 17 sq ft with three (3) lavatories. This allowance applies to Phase 3.
- .6 Allow the stipulated sum of \$20,000.00 for the provision of carpet and baseboards and other unaccounted finishes in the Commercial Tenant (Raymond James) space. This allowance applies to Phase 3.

1.3 EXPENDITURE OF CASH ALLOWANCES

- .1 *Owner*, through *Consultant*, will provide *Contractor* with documentation required to permit pricing of a cash allowance item.
- .2 *Owner*, through *Consultant*, may request *Contractor* to identify potential *Suppliers* or *Subcontractors*, as applicable, and to obtain at least three competitive prices for each cash allowance item.
- .3 *Owner*, through *Consultant*, may request the *Contractor* to disclose originals of all bids, quotations, and other price related information received from potential *Suppliers* or *Subcontractors*.
- .4 *Owner*, through *Consultant*, will determine by whom and for what amount each cash allowance item will be performed. Obtain *Owner's* prior written approval in the form of a *Change Order* before entering into a subcontract, amending an existing subcontract,

or performing own forces work included in a cash allowance. Upon issuance of the *Change Order*, the *Contractor's* responsibilities for a cash allowance item shall be the same as for other work of the *Contract*.

- .5 Refer to CCDC 2 – 2020, GC4.1.4. Where the actual cost of the Work under any cash allowance exceeds the amount of the allowance, and unexpended amounts from other cash allowance shall be reallocated, at the Consultant's direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the Contract Price for overhead and project. Only where the actual cost of the Work under all cash allowances exceeds the total amount of all cash allowances shall the Contractor be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the Contract Documents.

END OF SECTION

Part 1 General

1.1 INDEX TO THIS SECTION

.1 This Section contains Articles prepared which represent the Owner's standards and policies. In all cases this Section is intended to be read in conjunction with and to coordinate with all other Sections. In the case of discrepancy between this Section and other Sections to more stringent Articles of any applicable Section shall apply.

.2 For convenience the following is a list of Articles contained in this Section.

Article:

- .1 Index to this Section
- .2 Supervision
- .3 Criminal Background Check
- .4 General Instructions
- .5 Administration
- .6 Shop Drawings and Product Data
- .7 Operations and Maintenance Manuals
- .8 As-built Drawings
- .9 Relations of Trades
- .10 Additional Drawings
- .11 Existing Site Conditions
- .12 Temporary Construction Fencing
- .13 Bylaws, Permits and Approvals
- .14 Organization
- .15 Canadian Products and Local Labour
- .16 Materials and Workmanship
- .17 Quality Control
- .18 Overtime
- .19 Scaffolding
- .20 Protection of Other Work
- .21 Fastenings
- .22 Supply and Install
- .23 Renovation to an Existing Occupied Building
- .24 Sequence of Construction
- .25 General Requirements
- .26 Coordination
- .27 Access to the Project
- .28 Subtrade Awards
- .29 Safety Data Sheets

- .30 Regulating Documents
- .31 Prime Contractor's Responsibilities
- .32 Manufacturers' Instructions
- .33 Air and Vapour Seal
- .34 Fire Safety
- .35 Hot Work
- .36 Construction Safety
- .37 Independent Tests and Inspections
- .38 Daily and Periodic Cleaning
- .39 Temporary Protection
- .40 Completion
- .41 Guarantees
- .42 Demolition, Reconstruction, Alteration and Making Good
- .43 Asbestos
- .44 Sanitary Facilities
- .45 Water Supply
- .46 Temporary Power (Hydro)
- .47 Required Submissions and Procedures
- .48 No Smoking Policy

1.2 SUPERVISION

- .1 Employ an experienced and qualified supervisor who shall be in complete charge of the Work from commencement to final completion of the Work and who shall be present at the site whenever work is being carried out. A working foreperson will not be acceptable. The supervisor shall not be changed after commencement of work without the Consultant's approval.
- .2 Supervise, direct, manage and control the work of all forces carrying out the Work, including subcontractors and suppliers. Carry out daily inspections to ensure compliance with the Contract Documents and the maintenance of quality standards. Ensure that the supervisory staff includes personnel competent in supervising all Sections of Work required.
- .3 Arrange for sufficient number of qualified assistants to the supervisor as required for the proper and efficient execution of the Work.
- .4 The owner reserves the right and option to have the contractor remove and replace any supervisor, at no additional cost to the owner, whom the owner feels is not qualified to perform the duties required under this contract.

1.3 CRIMINAL BACKGROUND CHECK

- .1 If requested, the prime contractor and associated sub-contractors shall provide the owner with a criminal background check covering offences under the Criminal Code, the Narcotics Control Act and any other offences which would be revealed by search of the automated Criminal Records Retrieval System maintained by the RCMP ("Criminal Background Check"), together with an Offence Declaration in an Owner's approved form for every individual, or employee of the contractor's who will be on site. For the purposes of this contract, the Owner shall determine in its sole and unfettered discretion whether an individual or employee of the Contractor may come into contact with occupants. All fees for these checks shall be borne by the contractor.

1.4 GENERAL INSTRUCTIONS

- .1 The Mechanical Contractor shall be the prime Contractor for this project.
- .2 Construct the Work under a single, lump sum, Stipulated Contract.
- .3 The term Contractor in this section refers to the prime Contractor for this project.

1.5 ADMINISTRATION

- .1 Contractor to arrange and schedule a pre-construction meeting two weeks prior to commencement of work. Present at meeting shall be:
 - .1 Prime contractor.
 - .2 Owner representative.
 - .3 Staff.
 - .4 Consultants.
 - .5 All trades.
- .2 Schedule and administer project meetings throughout the progress of the Work. Such meetings shall be held every two weeks, or more frequently if required to maintain project schedule.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Consultant and Owner.
- .4 Provide physical space and make arrangements for meetings.
- .5 Record the minutes. Include significant proceedings and decisions. Identify parties requiring action in right column of minute page.
- .6 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, the Consultant and the Owner.

1.6 SHOP DRAWINGS AND PRODUCT DATA

- .1 Furnish complete catalog data for manufactured items of equipment to be used in the Work to Consultant for review within 30 days after award of Contract.
- .2 Provide a complete list of shop drawings to be submitted prior to first submission.
- .3 Before submitting to the Consultant, review all shop drawings to verify that the products illustrated therein conform to the Contract Documents. By this review, the Contractor agrees that it has determined and verified all field dimensions, field construction criteria, materials, catalogue numbers, and similar data and that it has checked and coordinated each shop drawing with the requirements of the work and of the Contract Documents. The Contractor's review of each shop drawings shall be indicated by stamp, date and signature of a qualified and responsible person possessing by the appropriate authorization.
- .4 Shop drawings shall be submitted electronically as per the following directions.
 - .1 State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions, and other pertinent information.
 - .2 List on catalog covers page numbers of submitted items.
 - .3 Underline applicable data.
 - .4 Electronic Submissions:
 - .1 Electronically submitted shop drawings shall be prepared as follows:
 - .1 Use latest software to generate PDF files of submission sheets.
 - .2 Scanned legible PDF sheets are acceptable. Image files are not acceptable.
 - .3 PDF format shall be of sufficient resolution to clearly show the finest detail.
 - .4 PDF page size shall be standardized for printing to letter size (8.5"x11"), portrait with no additional formatting required by the consultant. Submissions requiring larger detail sheets shall not exceed 11"x17".
 - .5 Submissions shall contain multiple files according to section names as they appear in Specification.
 - .6 File names shall include consultant project number and description of shop drawing section submitted.
 - .7 Each submission shall contain an index sheet listing the products submitted, indexed in the same order as they appear in the Specification. Include associated PDF file name for each section.
 - .8 On the shop drawing use an "electronic mark" to indicate what is being provided.
 - .9 **Each file shall bear an electronic representation of the "company stamp" of the contractor. If not stamped the file submission will not be reviewed.**

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- .2 Email submissions shall include subject line to clearly identify the consultants project number and the description of the shop drawings submitted.
 - .3 Electronic attachments via email shall not exceed 10MB. For submissions larger than 10MB, multiple email messages shall be used. Denote related email messages by indicating "1 of 2" and "2 of 2" in email subject line for the case of two messages.
 - .4 Electronic attachments via web links (URL) shall directly reference PDF files. Provide necessary access credentials within link or as username/password clearly identified within body of email message.
 - .5 On site provide one copy of the "reviewed" shop drawings in a binder as noted above.
 - .6 Contractor to print **3** copies of "reviewed" shop drawings and compile into maintenance manuals.
 - .5 Additional shop drawings required by the contractor for maintenance manuals, site copies etc., shall be photocopies of the "reviewed" shop drawings. All costs to provide additional copies of shop drawings shall be borne by the contractor.
 - .6 Partial submittals will not be accepted.
 - .7 If material or equipment is not as specified or submittal is not complete, it will be rejected by Consultant.
 - .8 Catalog data or shop drawings for equipment, which are noted as being reviewed by Consultant or his Engineer shall not supersede Contract Documents.
 - .9 Review comments of Consultant shall not relieve this Division from responsibility for deviations from Contract Documents unless Consultant's attention has been called to such deviations in writing at time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.
 - .10 Check work described by catalog data with Contract Documents for deviations and errors.
 - .11 Shop drawings and product data shall show:
 - .1 Mounting arrangements.
 - .2 Operating and maintenance clearances. e.g. access door swing spaces.
 - .12 Shop drawings and product data shall be accompanied by:
 - .1 Detailed drawings of bases, supports, and anchor bolts.
 - .2 Acoustical sound power data, where applicable.
 - .3 Points of operation on performance curves.
 - .4 Manufacturer to certify as to current model production.
 - .5 Certification of compliance to applicable codes.

1.7 OPERATION AND MAINTENANCE MANUAL

- .1 Provide operation and maintenance data for incorporation into manual as in submittals' requirements.
- .2 Operation and maintenance manual to be approved by, and final copies deposited with, Consultant before final inspection.
- .3 Operation data to include:
 - .1 Control schematics for each system including environmental controls.
 - .2 Description of each system and its controls.
 - .3 Description of operation of each system at various loads together with reset schedules and seasonal variances.
 - .4 Operation instruction for each system and each component.
 - .5 Description of actions to be taken in event of equipment failure.
 - .6 Valves schedule and flow diagram.
 - .7 Colour coding chart.
 - .8 Spare parts equipment list.
 - .9 Manufacturers standard or extended warranty information.
- .4 Maintenance data shall include:
 - .1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
 - .2 Data to include schedules of tasks, frequency, tools required and task time.
- .5 Performance data to include:
 - .1 Equipment manufacturer's performance data sheets with point of operation as left after commissioning is complete.
 - .2 Equipment performance verification test results.
 - .3 Special performance data as specified elsewhere.
 - .4 Testing, adjusting and balancing reports as specified in Testing, Adjusting and Balancing Section.
- .6 Miscellaneous data to include:
 - .1 Letter of contractors warranty and guarantee.
 - .2 Index sheet.
 - .3 Tabbed format for each section.
 - .4 Manufacturers approved shop drawings.
 - .5 Spare parts list and source.
 - .6 List of Manufacturers and suppliers address for each piece of equipment.

.7 Approvals:

- .1 Submit 1 copy of Operation and Maintenance Manual to Consultant for approval. Submission of individual data will not be accepted unless so directed by Consultant.
- .2 Make changes as required and re-submit as directed by Consultant.
- .3 Provide two (2) of final operation maintenance manuals as well as a pdf file of the entire approved manual on a USB stick. Only one USB stick is to be provided containing both the approved manual and As-built drawings.

.8 Additional data:

- .1 Prepare and insert into operation and maintenance manual when need for same becomes apparent during demonstrations and instructions specified above.

1.8 AS-BUILT DRAWINGS

.1 Site records:

- .1 Contractor shall provide 2 sets of reproducible mechanical drawings. Provide sets of white prints as required for each phase of the work. Mark thereon all changes as work progresses and as changes occur. This shall include changes to existing mechanical systems, control systems and low voltage control wiring.
- .2 On a weekly basis, transfer information to reproducibles, revising reproducibles to show all work as actually installed.
- .3 Use different colour waterproof ink for each service.
- .4 Make available for reference purposes and inspection at all times.

.2 As-built drawings:

- .1 Prior to start of Testing, Adjusting and Balancing (TAB) (if applicable), finalize production of as-built drawings.
- .2 Identify each drawing in lower right hand corner in letters at least 3 mm (1/8") high as follows: - "AS-BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW SYSTEMS AS INSTALLED" (Signature of Contractor) (date).
- .3 TAB (if applicable) to be performed using as-built drawings.
- .4 Submit hard copy to Consultant for approval. When returned, make corrections (if any) as directed.
- .5 Once approved, submit completed reproducible paper as-built drawings as well as a scanned pdf file copy on USB stick with Operating and Maintenance Manuals.

1.9 RELATIONS OF TRADES

- .1 The Contract Specifications have been generally divided into trade sections for the purpose of ready reference.
- .2 The Contractor is responsible for coordinating all trades. He is solely responsible for determining the lines of demarcation between Contractor and/or trades. Neither the Consultant nor the Owner, assumes any responsibility for any such determination or for any dispute arising concerning it. No extras will be considered due to any such dispute concerning either labour or materials.
- .3 Specifications and drawings form an integral part of the Contract Documents. Any subject or item omitted from one, but which is mentioned or reasonably implied in the other shall be considered as properly and sufficiently specified and will be part of the Work.

1.10 ADDITIONAL DRAWINGS

- .1 Consultant may furnish additional drawings to assist proper execution of the Work. These drawings will be issued for clarification only. Such drawings, however, shall have the same meaning and intent as if they were included with plans referred to in the Contract Documents.

1.11 EXISTING SITE CONDITIONS

- .1 Exterior site work is not applicable.
- .2 Locate all refuse bins in areas approved by the consultant and Owner's staff. Bins are not to interfere with playground areas parking or vehicle circulation and at the discretion of the Owner, may require construction fencing surrounding bins for safety during building's occupied hours.

1.12 TEMPORARY CONSTRUCTION FENCING

- .1 Refer to Temporary Protection.

1.13 BYLAWS, PERMITS AND APPROVALS

- .1 Nothing indicated on the Drawings or Specifications is intended to be in conflict with any law, by-law or regulation of Municipal, Provincial, or similar Authority Having Jurisdiction.
- .2 Work of this Contract must conform with such laws, by-laws and/or regulations. Any required variation to, or deviation from, the drawings and specifications, shall be performed in accordance with the Contract.
- .3 Furnish inspection certificates and/or permits as may be applicable as evidence that the installed Work conforms with laws, by-laws and regulations of Authorities Having Jurisdiction.
- .4 Each subtrade shall obtain and pay for all permits and licenses required by Municipal, Provincial, or other authorities Having Jurisdiction, particular to their trade.

- .5 It is the final responsibility of the Contractor to obtain all the required approvals and permits and includes in his Total Stipulated Price, the cost of such approvals, permits and fees.
- .6 Any revisions or deviations required by any Authorities Having Jurisdiction must be reviewed by the Consultants before implementation.

1.14 ORGANIZATION

- .1 Organize the Work of each section as required for satisfactory and expeditious completion of the Work. Take field dimensions required for the Work. Fabricate and install work to suit field dimensions and conditions.
- .2 If applicable, take into account existing work to ensure best arrangements of components in available space. Contact the Consultant prior to commencing Work in critical locations and interface with other Contractors' Work.
- .3 Provide all forms, templates, anchors, sleeves, inserts and accessories required to be installed in the Work. Set in place or instruct the applicable subtrade as to their location. Pay costs of extra work, if required, as a result of a failure to comply with these requirements at the proper time.
- .4 Before starting his work and from time to time as the work progresses, each Subcontractor shall examine the work and materials installed by the other Subcontractors insofar as it effects his own work, and the Contractor shall promptly notify the Consultant IN WRITING, if any condition exists that will prevent any Subcontractor from giving a satisfactory result in his own work.
- .5 Should any Subcontractor start his own work without such notification, it shall be construed as an acceptance by him of all preceding work and as a waiver of all claims or questions as to its suitability for receiving his work.

1.15 CANADIAN PRODUCTS AND LOCAL LABOUR

- .1 To the extent that the same are available and consistent with the proper economy and expeditious completion of the Contract, Canadian equipment, materials, products and other such applicable items are preferred by the Owner to be used in the Work, wherever possible and practical.

1.16 MATERIALS AND WORKMANSHIP

- .1 All materials shall be new and the best of their respective kinds, where a specific grade or brand is not indicated. Pre-packaged materials shall be delivered and stored in unopened containers.
- .2 All work performed under this Contract shall be done by three (3) competent persons skilled in their respective trades. They shall make use of such templates, jigs or special tools as may be required for the operation involved.
- .3 The acceptance of any materials or workmanship shall not be a bar to their subsequent rejection, if found defective.
- .4 Adequate, dry storage facilities shall be provided, and all stored materials shall be protected from damage and theft.

- .5 All Contractors will do Work in accordance with the best industry practice of the type of work specified, unless the Contract Documents stipulate more precise requirements, in which case, the more precise requirements shall govern.
- .6 Do Work in a neat, plumb & square manner. Ensure that various work components are properly installed, forming tight joints and appropriately aligned junctions, edges and surfaces, free of warps, twists, waves, or other such irregularities.
- .7 Wherever indicated on the drawings or specifications, or in the manufacturers' / suppliers' written instructions, arrange to have manufacturers' / installer's representatives inspect the Work which incorporates their materials, products or items.
- .8 Do not permit materials to come in contact with other materials such conditions may result in corrosion, staining, discolouration or deterioration of the completed Work. Provide compatible, durable separators where such contact is unavoidable.
- .9 The design of the Work is based on the full interaction of its component parts. No provisions have been made for conditions occurring during construction. Ensure that no part of the Work is subjected to a load which will endanger its safety, or which might cause permanent deformation.
- .10 Conceal pipes, ducts, conduit, wiring and other such items requiring concealment preferably in, wall or ceiling construction of all finished areas. If in doubt as to method of concealment, or intent of the Contract Documents in this regard, request clarification from the Consultant before proceeding with the Work.
- .11 Lay out mechanical and electrical work well in advance of concrete placement and furring installation to allow for proper concealment. Test and inspect Work before applying pipe covering and before it is concealed.
- .12 Provide and maintain control lines and levels required for the Work. Lay out the Work in accordance with these lines and levels and dimensions indicated on the drawings.
- .13 Verify lines, levels and dimensions and report any errors or inconsistencies on the drawings to the Consultants.
- .14 Final responsibility of satisfactory completion of all the Work, however, lies with the Contractor.

1.17 QUALITY CONTROL

- .1 The Consultants and authorized Owners staff shall have access to all areas of the Work, including any off site construction facilities.
- .2 The Contractor shall give timely notice requesting inspection if Work is designated for special tests, inspections, or approvals by the Consultants, or any other authorized Owners staff, or testing and inspection company.
- .3 If the General Contract covers or permits to be covered Work that has been designated as outlined above, he shall uncover such work, have the inspections and tests satisfactorily completed and make good such work at no additional cost to the Owner.

- .4 *The Consultants or the authorized Owners Staff may order any part of the Work to be examined, if such Work is suspected not to be according to the Contract Documents. If, upon examination, such work is found not to be in accordance with the Contract Documents, then the Contractor shall correct such Work and pay for cost of examinations and correction. If such Work is found to be in full accordance with the Contract Documents, the Owner shall pay for the cost of examination and making good.*
- .5 If defects are revealed during inspection and/or testing, the appointed agency may request additional inspection and/or testing to ascertain the full degree of defects. The Contractor shall correct the defects and irregularities as reported by the inspection and/or testing agency, at no additional cost to the Owner and the Contractor shall pay all associated costs for retesting and re-inspection.
- .6 The Contractor shall provide any tools, materials or equipment that may be required by the inspection and/or testing agencies in retesting the Work. (e.g., Video camera rental to re-inspect incorrectly installed sewer lines, if applicable).
- .7 The employment of inspection and/or testing agencies does not, in any way, affect the Contractor's responsibility to perform the Work in strict accordance with the Contract Documents.
- .8 The Contractor shall remove all defective work, whether the result of poor workmanship by him or his sub-trades, use of defective or damaged products, whether or not incorporated into the Work and any Work that has been rejected by the Consultants or authorized Owners Staff as failing to conform to the Contract Documents. Replacement and execution of the affected Work shall be done in full accordance with the Contract Documents, making good other trades' work damaged by such removals or replacements at no additional charge to the Owner.
- .9 If, in the opinion of the Consultant and/or the authorized Owner's Staff, it is not expeditious to correct the defective Work, or Work not performed in accordance with the Contract Documents, the Owner, may, at its sole discretion, deduct from the Contract Price, the difference in value between the work performed and that required by the Contract Documents, the amounts of which shall be determined by the Owner.
- .10 The notable exception to the above item is a faulty installation of base and asphalt paving. If, the inspection agency, after performing random test holes to determine compaction and thickness of sub base, base and asphalt, determines that either one or both, are not according to what was specified in the Contract Documents, the Owner will not accept credits for such inconsistencies but rather, demand that any such installation be removed and redone in its entirety, at the pleasure and convenience of the Owner, but within the first year of the warranty period.

1.18 OVERTIME

- .1 Where this section conflicts with instructions provided in City of Waterloo front end documents, the City of Waterloo front end documents shall take precedence.
- .2 The Contractor must include in his Total Stipulated Tender Price, all costs for overtime work which may be necessary to complete the various portions of the Work, in accordance with the Completion Dates specified in the *Form of Tender*.
- .3 The Owner shall not entertain requests for any payments in connection with overtime work that may be required by the Contractor, or any of his sub-trades, in order to comply with the above referenced dates.

1.19 SCAFFOLDING

- .1 All necessary scaffolding shall be provided and constructed according to all by-laws and safety regulations. It shall be removed promptly and completely when no longer required

1.20 PROTECTION OF OTHER WORK

- .1 Each trade shall avoid damage to other trades and shall take all measures necessary and provide all masking and materials necessary, to provide adequate protection.
- .2 Each Subcontractor shall be held responsible for all damage to work installed by others that is caused by this work or by anyone employed by him.
- .3 Patching and repairing of damaged work shall be done by the Contractor who installed the work, as directed by the Consultant, but the cost of same, shall be paid for by the Contractor who is responsible for the damage.

1.21 FASTENINGS

- .1 All fastenings must be permanent, of same metal, or compatible with any metals with which they are in contact, of adequate size and spacing, to ensure permanent anchorage against load or shear.
- .2 Exposed fastenings must be evenly spaced, neatly laid out and must not mar surfaces of prefinished materials.
- .3 No ram setting or similar techniques will be permitted, without prior written approval of the Consultant.

1.22 SUPPLY AND INSTALL

- .1 Unless specifically noted, "*supply only*", any reference to supply intends the **supply and installation** of material or item so noted.

1.23 RENOVATIONS TO AN EXISTING OCCUPIED BUILDING

- .1 For this project construction hours will be restricted to the hours between 6:00 p.m. and 7:00 a.m. on all days where the building is operating with employees in-office. This work restriction applies to noisy and distracting work on the 3rd floor, and all work on the 2nd floor.
- .2 All access to the operating building will be made after hours or on weekends in coordination with the owner's staff.
- .3 Connection of any services must be made after hours and in such a way that it leaves no disturbance to materials or systems, nor any exposed construction conditions within the operating building's area.
- .4 If at any time, equipment or materials must be delivered to the site during occupied hours, and if approval of the owner's staff is received, the Contractor shall designate a full time Flag person to control construction traffic for the duration of any traffic or delivery related activities.
- .5 The Contractor shall maintain construction fencing at all times.
- .6 **Catering trucks are not permitted on the site whatsoever.**
- .7 Contractor shall minimize nuisances to the facility's operation such as noise, dust, odours. Due to noxious fumes, roofing and asphalt paving shall be done after hours (after 4:00 p.m., or during the weekends). Refer also to other specification sections.
- .8 **During each daily work period, it will be the contractor's responsibility to carefully move, cover for protection or otherwise relocate all furniture out of the work area to suit his requirements. Daily communication with the staff is mandatory in this regard. Prior to 7 a.m. each day, the contractor shall replace all furniture to its original location ensuring the room and all furniture and equipment is in clean, fully functional condition. Again, each morning at the start of the facility's day, the Contractor's site superintendent will check with staff regarding the acceptability of the conditions as left by the contractor.**

1.24 SEQUENCE OF CONSTRUCTION

- .1 At the outset of the construction period the contractor shall present and review with the consultants and Owner a detailed schedule of work and planned sequence of operations.
- .2 The contractor shall regard and abide by the hours of construction as indicated and have regard for the **sequence of work** areas as indicated on the drawings.
- .3 The contractor shall present and require approval of his work sequence prior to start of construction.

1.25 GENERAL REQUIREMENTS

- .1 All Contractors shall examine carefully all drawings and specifications to inform themselves fully of all conditions and limitations pertaining to the work of the contract.
- .2 All Contractors shall co-operate and co-ordinate their work for the proper completion of the work, including co-ordination of delivery dates and commencement of sub-trades work.
- .3 The responsibility for all work, including temporary structures, shoring and erection shall at all times rest with the Contractor and his Subcontractors. The Consultant will review construction methods and shop drawings for general arrangements only. The method of obtaining the results contemplated by the Contract Documents shall be determined by the Contractor.
- .4 The undertaking of period site review by the Consultant or Owner Representative shall not be construed as supervision of actual construction, nor make them responsible for providing a safe place for work, visit, use, access, travel, or occupancy of the Consultant's or Owner's employees or agents.
- .5 The Contractor shall be fully responsible for coordinating and expediting the work of all Subcontractors and shall employ the necessary and qualified personnel to provide the required quality of labour and materials and to prevent delays in the progress of the project. Each trade shall be afforded all reasonable opportunities for the installation of its work and for the storage and handling of its materials.

1.26 COORDINATION

- .1 The Contractor shall coordinate all work and preparation on which subsequent work depends to facilitate mutual progress, and to prevent any conflict.
- .2 The Contractor shall ensure that each trade makes known, for the information of the Contractor and other trades, the environmental and surface conditions required for the execution of its work; and that each trade makes known the sequence of others' work required for installation of its work.
- .3 The Contractor shall ensure that each trade, before commencing work, knows the requirements for subsequent work and that each trade is assisted in the execution of its preparatory work by trades whose work depends upon it.
- .4 The Contractor shall ensure that shop and layout drawings, templates, and all information necessary for the location and installation of materials, openings, inserts, anchors, accessories, fastenings, connections and access panels are provided by each trade whose work requires cooperative location and installation by other trades and that such information is communicated to the applicable installer.
- .5 The Contractor shall ensure that delivery of materials supplied by one trade to be installed by another is well before the installation begins.
- .6 The Contractor shall inform all trades that giving installation information in error, or too late to incorporate in the work, shall be responsible for any extra work caused thereby.

1.27 ACCESS TO THE PROJECT

- .1 The Contractor for this Work shall, at all times allow Owner, or any other Owner commissioned contractor or their employees, access into the building or around the premises, undisturbed, whether union or non-union, as may be required in the execution of other portions of the building work and installation of equipment, etc.
- .2 The Contractor shall cooperate fully with any and all owners commissioned Contractors.

1.28 SUBTRADE AWARD

- .1 The Contractor shall, on notice of award of the contract, obtain the Consultants approval of a complete list of all persons or firms to which he proposes to sublet any part of the work, the trades or divisions of work which are to be sublet to each, and the amount of each trade. The Contractor shall provide to the Consultant a financial breakdown showing all divisions of the work amounting to the full sum of the contract. Mechanical and Electrical trades shall be further broken down as specified in Mechanical and Electrical Divisions.

1.29 SAFETY DATA SHEETS

- .1 Contractors shall comply with WHMIS requirements in accordance with the Occupational Health and Safety Act (Ontario). Before commencement of work and during the full term of the Contract, the Contractor shall provide a list with current MSDS for all hazardous materials proposed for use on the Project. The Contractor shall label hazardous materials used and/or supplied on the Project in accordance with WHMIS requirements. The Contractor shall conform to the Environmental Protection Act for disposal and clean-up requirements. The Contractor shall 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 the location where work of this Contract will be performed. The Contractor shall 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.
- .2 The Contractor shall provide Material Safety Data Sheets for all WHMIS regulated products brought into the building, provide WHMIS training for specific regulated products to any building staff who will be working in the proximity of or who may be exposed to the product.
- .3 The Contractor shall ensure that the following material and safety data sheets are submitted prior to commencing installation and application of at least the following:

Lead-free solder	sealants and caulking
Resilient flooring	painting and finishing
Fertilizers	glues and adhesives
Pesticides	herbicides

Any other product which may give off air borne particles after installation.

- .4 *The Contractor and all of his Subcontractors must note that specifically, Asbestos and Asbestos containing materials, solder for piping containing lead, and Painting & Coatings containing lead and/or mercury must be excluded from any part of the Work.*
- .5 The Contractor must submit Certificates of Compliance, prior to the application for Substantial performance, for each of the following items:
 - .1 An affidavit relative to the use of Lead-free solder for all domestic water lines, regardless of location.
 - .2 Products for which Material Safety Data Sheets have been submitted and accepted.
 - .3 Other Work/Products identified in the Contract Documents as requiring a Certificate of Compliance.
- .6 Each Certificate of Compliance must indicate names and addresses of the project, the Owner, the date of Issue, produce description including name, number, manufacturer, with a statement verifying that the Work/Product installed meets specified requirements and, if applicable, complies with the submitted and accepted Material Safety Data Sheets.
- .7 Each Certificate of Compliance must be issued on the trade's letterhead, properly executed, under whose work the respective Work/Product has been provided.
- .8 Each Certificate of Compliance must be endorsed by the Contractor with his authorized stamp/signature.

1.30 REGULATING DOCUMENTS

- .1 The Contractor and all of his Subcontractors, Suppliers/Installers etc, must conform to the Ontario Building Code, Canadian Electrical Code (CEC). CAN3-B44 and CAN3-W59, The Occupational Health and Safety Act, Ontario, 1990 (Bill 208), the National Fire Code, the local Municipal Fire Code, and all other applicable Codes and Building Bylaws. All must also conform to the requirements of the Authorities Having Jurisdiction, such as Public Utilities. Where required under the Occupational Health and Safety Act, engage a Professional Engineer to design formwork and falsework for concrete.
- .2 Contract forms, codes, standards and manuals referred to in these specifications are the latest published editions at the date of close of tenders. The Contractor and all of his Subcontractors, Suppliers/Installers must meet or exceed the requirements of specified standards.
- .3 Provide, on site, copies of documents referred to in the Specification for joint use of Contractor and Consultant.

1.31 PRIME CONTRACTOR'S RESPONSIBILITIES

The list of Contractor's responsibilities identified below is by no means comprehensive, nor is it in any priority or critical order. It is here, merely to identify the most often forgotten or ignored responsibilities of the Contractor and is reproduced only as a reminder. The Consultants and the Owner advise the Contractor that it is he/she who is responsible for all aspects and facets of the Project, from start to completion, from compliance with Occupational Health and Safety regulations to compliance with all codes and statutes.

- .1 The Contractor will be responsible to take all necessary steps to protect personnel (workers, visitors, general public, etc.) and property from any harm during the course of the contract.
- .2 All equipment shall be in safe operating condition and appropriate to the task.
- .3 Only competent personnel will be permitted on site. During the site introduction, *only the Consultant* will determine who is competent. The Contractor will cause to remove from the site any persons not observing or complying with safety requirements.
- .4 The Contractor shall comply with, and shall ensure that all of his Subcontractors, Suppliers, Installers etc., comply with all Federal, Provincial and Municipal Safety Codes and Regulations and the Occupational Health and Safety Act.
- .5 The Contractor shall supply competent personnel to implement his safety program and ensure that all Subcontractors comply with the Owner's standards, and those of the Occupational Health and Safety Act.
- .6 The Owner will provide periodic monitoring to ensure that safety requirements are met, and that safety records are properly kept and maintained. Continued disregard for safety standards can cause the Contract to be canceled and the Contractor removed from the site.
- .7 The Owner may hire Commissioners to perform inspections of building systems at the closing stages of the work of this contract. If so contracted and identified in the *Instructions to Bidders*, the Contractor shall cooperate with and coordinate the work of the Owners Commissioners on site.
- .8 The Contractor will report to the Owner and Jurisdictional Authorities any accident or incident involving personnel and/or property of the Contractor, Owner, or Public, arising from the Contractor's or any of his Subcontractors' execution of the work.
- .9 The Contractor will include all provisions of this contract in any agreement with Subcontractors, and hold them equally responsible for safe work performance.
- .10 If the Contractor is responsible for a delay in the progress of the work due to an infraction of legislation or Owner Health and Safety requirements, the Contractor will, without additional cost to the Owner, work such overtime, and acquire and use for the execution of the work such additional labour and equipment as to be necessary in the sole opinion of the Owner's Representative and Consultant, to avoid delay in the final completion of the work or any operations thereof.

1.32 MANUFACTURERS' INSTRUCTIONS

- .1 Unless otherwise specified, the Contractor and all his Subcontractors shall comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 The Contractor shall notify the Consultant in writing of any conflict between the Specifications and Manufacturer's Instructions and have same clarified.

1.33 AIR AND VAPOUR SEAL

- .1 For work within the scope of this project, the Contractor shall ensure that exterior walls, windows, floor and roof surfaces provide an airtight and vapour-tight membrane to prevent problems due to building vapour migration.
- .2 In general, the air/vapour barrier must be achieved on the interior side of the thermal insulation.

1.34 FIRE SAFETY

- .1 The Contractor and all of his Subcontractors must comply with requirements of standard for Building Construction Operations DFC No. 301-1975, issued by Dominion Fire Commissioner.
- .2 The appropriate clauses of the Ontario Building Code relating to fire protection shall be strictly followed.
- .3 The Contractor shall provide and maintain free access to temporary or permanent fire hydrants acceptable to local fire department.

1.35 HOT WORK

- .1 All precautions will be taken by the contractor and sub trades staff to work safely and to provide the necessary protection to persons and property from open flames and hot sparks. All such construction activity is considered Hot Work and the following steps are to be followed:
 - .1 Whenever possible, the contractor is to complete hot work in their own shop or out of doors at the site.
 - .2 For on-site work (indoors, out of doors), advise the Owner's site contact prior to work being performed, of related dangers. In the event of a fire as a result of the Hot Work, notify the fire department and the Owner's site contact immediately, whether extinguished or not.
 - .3 When possible, remove or cover nearby flammable materials with a flame retardant blanket, set up barriers to protect staff (i.e., pilons, shields, caution tape).
 - .4 Have all necessary doors, windows and/or drapes closed to exposure to control arc flash and smoke migration. Request of the Owner's site contact to shut down all fan systems in the area to control smoke migration.
 - .5 The contractor shall provide and keep extinguishers handy and in good working condition. Temporarily cover all smoke detectors in area during time of work.
 - .6 When work is done, advise site contact and recommend a fire watch/spot check be done several hours after work is completed. Uncover smoke detectors.

1.36 CONSTRUCTION SAFETY

The Contractor and all his trades must observe and enforce construction safety measures required by Canadian Construction Safety Code, Workplace Safety & Insurance Board, (formerly known as Workers' Compensation Board), and Municipal statutes. In particular, the Ontario Construction Safety Act, the regulations of the Ontario Department of Labour and Ontario Hydro Safety Requirements shall be strictly enforced. In event of conflict between any provisions of above authorities the most stringent provisions will apply.

*The Contractor is reminded, once again, that it is **he/she** who is responsible for Occupational Health and Safety on this Project. The items listed below are only guidelines of the Owner's expectations in this regard and not to be construed to be comprehensive or total in nature.*

- .1 **The Owner** will take every reasonable precaution to prevent injury or illness to **students**, employees and the public, participating in Owner activities, or performing their duties. This shall be accomplished by providing and maintaining a safe, health working environment by providing the education necessary to perform these activities or duties safely.
- .2 **The Owner** is vitally interested in the health and safety of all Contractors and their workers performing work for the Owner. Cooperation and support of the Contractor in the protection of workers from injury or occupational disease is a major, continuing object of the Owner. To achieve these goals, the Owner, in concert with the Contractors, will endeavour to make every effort to ensure that the Contractors provide a work site, which is a safe and healthy work environment. The Owner insists that all Contractors and their workers are dedicated to the continuing objective of reducing risk and injury. The Board may cause to remove persons from the site for a duration determined solely by the Board and persons not observing or complying with the foregoing Health and Safety Standards. The Board may monitor the Project to ensure that foregoing Health and Safety standards are met and that safety records are properly kept and maintained. Repeated or continued disregard for the said Health and Safety standards will constitute breach of contract and may at the Board's discretion result in the contract being cancelled and the Contractor being removed from the site. The Contractor shall ensure that all provisions for Health and Safety Committees, minutes and records are made and that procedures in this regard are strictly followed. Committee size shall be outlined in the Occupational Health and Safety Act.
- .3 The Contractor covenants and agrees to comply with all statutory and other obligations, including, without limitation, the provisions of the Occupational Health and Safety Act (Ontario) and all Regulations thereto, and all amending and successor legislation, including without limitation, Bill 208 (the "Act") in connection with all work performed by either the Contractor, Subcontractors, or any Other Contractor on, or in connection with, the Project.

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- .4 Without limiting the foregoing, for the purposes of this Contract, the Prime Contractor agrees that **he/she** shall be the “constructor” of the Project within the meaning of the Act, and as such, shall assume all the obligations and responsibilities, and observe all construction safety requirements and procedures, and duties of inspection imposed by the Act on the “constructor”, as therein defined, for all work and services performed by the Prime Contractor, Subcontractors and Other Contractors on or in connection with the Project.
 - .5 The Contractor further covenants and agrees that the Owner and its existing and former officers, trustees, employees and agents, and their respective heirs, executors, administrators, successors and assigns (hereinafter collectively referred to as the “Owner”) shall be released from any obligations or liabilities otherwise imposed on the Owner, or on any of them, pursuant to the Act in connection with the Project, and that the Contractor shall assume all liability and responsibility in connection with same.
 - .6 The Contractor agrees to save harmless and indemnify the Owner from any losses, damages, costs and expenses of any kind, or nature whatsoever, including all legal expenses, and all defense costs and related expert or consulting fees, incurred by the Owner, or any of them, arising in connection with the failure, default, or inability of the Contractor of the Owner, or any of them, to comply with any of the aforementioned statutory, or other legal requirements, or arising in connection with any breach by the Contractor of any of its covenants, agreements and obligations under this Contract.
 - .7 The Contractor shall inform and instruct Other Contractors that they, while performing work on this project, are under the authority of the Contractor. Other Contractors are to discuss and co-ordinate with, and follow instructions from, the Prime Contractor on all matters of site access, vehicles, deliveries, storage, temporary facilities, coordination with the work of other subcontractors, work methods, scheduling, labour conditions, construction safety, environmental protection, security and all other matters which relate to the safe and proper execution of construction work.
 - .8 The Contractor shall ensure that all supervisory personnel on job site are fully aware of the procedures and requirements outlined above and comply with all requirements specified.
 - .9 All Contractors are responsible to ensure that all machinery and/or equipment are/is safe and that the workers perform their tasks in compliance with established safe work practices or procedures. Workers must receive adequate training in their specific work tasks to protect their health and safety.
 - .10 The Contractor shall be responsible for all persons and companies performing work, including Other Contractors, on this project, at all times, up to and including, the date of Substantial Performance of the Work. Authority for coordination and instructions relating to all matters, which relate to the safe and proper execution of construction work shall rest with the Contractor. The Contract Price must include the Contractor’s fees for the coordination and supervision of the work of all Other Contractors.
 - .11 In addition to the responsibility of all contractors as outlined above, Subcontractors will be held accountable for the health and safety of workers under their supervision.
 - .12 Every worker must protect his/her own health and safety by working in compliance with the law and with safe work practices and procedures established by the authorities having jurisdiction.

- .13 All sections of the Occupational Health and Safety Act for Industrial Establishments, latest edition, and the Occupational Health and Safety Act for Construction projects, latest edition, shall be enforced, by the Contractor, in their entirety, throughout the duration of the construction project.
- .14 The Contractor shall provide the Consultant with the telephone number where the Contractor or his representative can be reached at any time, day or night, for the duration of the contract.
- .15 Where an accident, explosion, or fire causes a person injury at the work place, and the worker is disabled from performing the usual task, the Contractor shall prepare a written notice and shall forward same to the Ministry of Labour within four days of the occurrence with a copy to the Owner's Representative, who shall copy and inform the Owner's Supervisor of Health and Safety and/or the Owner's Joint Health and Safety Committee, containing such information and particulars as may be described.
- .16 Where a person is killed or critically injured from any cause at the work place, the Contractor shall immediately call the Ministry of Labour. A written notice from the Contractor shall be given to the Ministry of Labour within forty-eight hours after the occurrence, containing such information and particulars as may be prescribed, with copies to the Consultant and the Owner's Representative.
- .17 The Contractor is advised that the accident scene is under the jurisdiction of the Ministry of Labour and no wreckage, articles, etc., shall be interfered with, disturbed, destroyed, altered or carried away at the scene, or connected with the occurrence, until the Ministry of Labour has given permission.

1.37 INDEPENDENT TESTS AND INSPECTIONS

- .1 The Contractor shall appoint inspection firms as directed by the Consultant and make payments from the cash allowances specified in Division noted, except for the following, which shall be included in the contract:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
- .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .1 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
 - .2 Mill tests and certificates of compliance.
 - .3 Re-testing as already described in *Quality Control* of this Section.
- .3 The Consultant will authorize payment of inspection services from specified cash allowances, if so specified.
- .4 The Contractor shall furnish labour and facilities to:
 - .1 Provide access to work to be inspected and tested.
 - .2 Facilitate inspections and tests.
 - .3 Make good work disturbed by inspection and test.
 - .4 Pour concrete test cylinders and store as directed by Inspection Firm.

- .5 The Contractor shall notify Inspection Firms sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .6 Where materials are specified to be tested, the Contractor shall deliver representative samples in required quantity to testing laboratory.

1.38 DAILY AND PERIODIC CLEANING

- .1 As part of the Tender, the Contractor shall provide all necessary garbage bins through the duration of the project located where directed on site. **The contractor is again reminded that all areas of work must be made suitable for occupancy following the end of each daily work period when the facility is occupied.** Refer to requirements to relocate classroom furniture and equipment. The prime Contractor shall ensure that the following is accomplished:
 - .1 Keep all areas of the Work clean and orderly, free from accumulation of dirt, debris, garbage, oily rags, excess material, or all other trash items. Remove such items for all areas of the Work on a **daily basis**.
 - .2 Vacuum and/or broom interior building areas if affected by the work on a **daily basis** at the end of the work period. Vacuum again when ready to receive painting and other finishes. Continue cleaning on an “as needed” basis according to these minimum standards until the building is ready for inspection and takeover.
 - .3 Schedule cleaning operations so that resulting dust and other contaminants do not affect wet, newly painted surfaces.
 - .4 In preparation for Substantial Performance, whichever occurs first, conduct inspections of all exposed interior and exterior surfaces.
 - .5 Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from all exposed interior and exterior finishes, including glass and other polished surfaces.
 - .6 Remove all protective film from switchplates and hardware, particular kickplates.
 - .7 Clean lighting reflectors, lenses and other lighting surfaces.
 - .8 Broom clean paved surfaces and rake clean other disturbed surfaces in the area of the Work, to remove site debris caused by the Work of this Contract. Inspect for damages and make good.
 - .9 Remove debris and surplus materials from the roof areas and accessible concealed spaces.
 - .10 Replace heating, ventilation and/or air conditioning filters whether or not, the units were operated during construction operations.
 - .11 Refer to “clean-up” sections of the specifications for additional specific periodic and final clean up requirements.

- .2 The Contractor must note the Owner insists that tiled (VCT) and sheet good floors (vinyl or linoleum) be broom swept only. Wet mopping and waxing/polishing will be done by the Owner's Custodial Staff.
- .3 Do not provide sealants and waxes on terrazzo, ceramic, and other hard surfaced floors without reviewing products and methods of application with the Owner's Custodial Staff. Failure to comply with this requirement will result in the contractor stripping these floors in their entirety.

1.39 TEMPORARY PROTECTION

- .1 The Contractor must provide temporary barricades, screens or barriers as directed by the Consultant and/or authorized Owner Representative, for the safety of persons, or for dividing the Work from portion or portions of the building or site that may be required for use by the facility or others.
- .2 Properly protect the Work from any damage by the elements. In cold weather cover all exterior openings in the work areas likely to cause water damage.
- .3 During off hours and/or stages of suspended operations for whatever reasons, the Contractor must assume all responsibility for protection against the elements, theft and/or vandalism. This applies to all work in progress and to any materials, products, tools, equipment, or other such items left at the work site.
- .4 Properly protect floors and roofs from any damage. As required to protect existing terrazzo and VCT floors from soiling or damage by the movement of workers or materials and equipment, cover surfaces **on a daily basis** by means of covering with plywood or plastic. Take special precautions when moving heavy loads or equipment over floors and roofs.
- .5 The Contractor must keep floors free of oils, grease, or other such materials likely to discolour them and/or affect bonding of applied surfaces.
- .6 The Contractor must ensure that no part of the Work is loaded greater than it was designed for, when completed. Make any temporary support as strong as the permanent support. Place no load on concrete structure until it has sufficient strength to safely bear such load.
- .7 Protect glass and other finishes against heat, slab and weld splatters, using appropriate protective shields and covers.
- .8 The Contractor must provide and maintain, in good working order, appropriately labeled ULC fire extinguishers, to the approval of Authorities Having Jurisdiction.
- .9 The Contractor must provide a minimum of two safety helmets on site at all times for the use of the Consultant and any other Owner authorized visitors to the site. It is the Contractor's responsibility to make certain that any such visitors wear the protective headgear and any other safety gear, which may be necessary at that particular time of construction.

1.40 COMPLETION

- .1 Upon completion of the Work, all protection erected shall be removed, all damage to the Work and adjoining Work due to the lack or failure of such protection shall be made good and all debris, surplus materials tools equipment shall be removed from the work areas and the site, and the Project shall be left clean and tidy to the full and complete satisfaction of the Consultant and Owner Staff. The Contractor shall give written notice to the Consultant, requesting final inspection of the completed Project.
- .2 Refer to the pertinent sections of the Specifications for requirements with respect to submission of *Record Documents, Maintenance Materials, Special Tools, and Spare Parts*.

1.41 GUARANTEES

- .1 The following is a summary of the guarantees (in number of years) required by the contract:

.1	Entire Building, General Contract	One (1)
.2	Acoustic Ceilings	Two (2)
.3	Roofing, Flashing and Sheet Metal	Five (5)
- .2 Mechanical and Electrical: refer to mechanical and electrical divisions.
- .3 The guarantee period shall start on the date of issue of the Certificate of Substantial Performance of the Contract by the Consultant.

1.42 DEMOLITION, RECONSTRUCTION, ALTERATIONS AND MAKING GOOD

- .1 Refer also to Section Demolition and Removal. Where the new materials or equipment, additions and alterations interface with existing and where existing work is altered, execute all necessary cutting and fitting required to make satisfactory connections with existing Work under this Contract. Leave the entire Work in a finished workmanlike condition acceptable to Consultant.
- .2 Make good all exterior and interior finishes, waterproofing, and other materials and finishes which are damaged or disturbed during execution of Work. Warranties specified for materials and workmanship shall apply.
- .3 Disconnect and relocate, where necessary, existing services and reconnect as required to complete the Work. This work shall include, without being limited, to plumbing, drainage, electrical and gas required for accommodation of new work. Abandon all services not required in conformance with ordinances and laws.
- .4 Co-ordinate work of the various trades, taking into account existing installations to assure best arrangements of pipes, conduit, ducts mechanical, electrical and other equipment, in the available space.
- .5 If required, in critical locations prepare interference or installation drawings, or both, showing the work of various trades as well as existing installations. Submit to Consultant for written permission before commencement of work.
- .6 Drilling and cutting of existing work shall be carefully done, leaving a clean hole no larger than required. All patching shall be done to Consultant's approval.

- .7 Make good all areas disturbed to adjoining buildings due to the Work of this Contract.
- .8 **Effectively seal off work area from the rest of the building to permit the continuation of Owner's operations during new construction. Maintain all areas accessible clean and safe as required for the continuing operation and occupancy of the building.**
- .9 Provide dust and weather tight temporary enclosures complete with hinged doors, fastenings and locksets as required, to provide egress to and from all existing building areas. Do not obstruct or otherwise block required means of egress from the building at any time.
- .10 Dust-tight enclosures shall be of adequate construction, sufficient to obviate dispersion of dust and dirt into existing building.

1.43 ASBESTOS

- .1 It is the responsibility of this contractor to review the onsite asbestos report prior to starting any work.
- .2 Comply with the requirements of Regulations respecting Asbestos on Construction Projects and in Buildings and Repair Operations - made under the Occupational Health and Safety Act, ONT REG. 278/05 as amended.

NOTE: this building was constructed in mid 1980s and has no recorded asbestos on site.
- .3 Asbestos, if found on piping or vinyl asbestos tile may release asbestos fibres when cut or broken, during demolition or installation.
- .4 If asbestos is found, the Contractor shall stop work immediately and notify the Consultant with a list of the areas containing asbestos.
- .5 If so directed by the Owner, the Contractor shall employ an independent contractor to make tests in the areas to be renovated to ascertain, by written reports, the materials containing asbestos and the type. Costs shall be paid by the owner as extra costs under the terms of the contract.
- .6 No work shall proceed at this point, until all the asbestos has been removed or encapsulated according to approved regulations concerning asbestos removal.
- .7 Significant findings of unanticipated asbestos shall be considered and reviewed by the Owner and the Consultant. Any abatement or removal of unanticipated asbestos shall be considered at the sole discretion and direction of the Owner, in consultation with the Consultant, as possible additional work to the contract. This includes but is not limited to the following measures: The air quality must be tested and documented. The air must also be ventilated to ensure the safety of the workers. Care must be taken that the pollutants do not enter the rest of the building. Only if these conditions are satisfied may the Contractor proceed with their work.

1.44 POLYCHLORINATED BIPHENYL (PCB)

- .1 Conform to the Environmental Protection Act and Regulations, Ontario Regulation 11/82 as amended.

1.45 SANITARY FACILITIES

- .1 Only designated existing facilities as designated may be used during the construction period.
- .2 Maintain in a clean condition.

1.46 WATER SUPPLY

- .1 Existing water supply may be used for construction purposes.

1.47 TEMPORARY POWER

- .1 The existing building services may be used for temporary power required during construction for temporary lighting and the operating of power tools, to a maximum supply of 110 volts, 30 amps.

1.48 REQUIRED SUBMISSIONS AND PROCEDURES

.1 At Commencement of Contract

- .1 Supply Performance Bond and Labour and Material Bond as applicable to the requirements of the Owner.
- .2 Supply Public Liability and Property Damage Insurance Certificates.
- .3 Supply Certificates of good standing from Workplace Safety and Insurance Board (WSIB) for the Prime Contractor and all Subcontractors.
- .4 Supply Contract Sum Breakdown of all sub-trades or parts of work and general expense items.
- .5 Supply Construction Schedule.
- .6 Supply Schedule of Shop Drawing Submissions.

.2 During Construction

- .1 Adjust Allowances, as required.
- .2 Organize Job Meetings.
- .3 Supply Monthly Progress Reports and Construction Schedule, as applicable
- .4 Confirm that payments are being made to subcontractors and suppliers by submission of receipts with the second and subsequent Progress Payment Application. No payment will be made for material on the site but not installed or similarly incorporated into the work, unless Bill of Sale in proper format is provided.

.3 Upon Completion

- .1 Upon completion of work before the Final Certificate of Payment is issued, the following to be observed, executed and submitted:
 - .1 All deficiencies to have been completed in a satisfactory manner.
 - .2 All final clean-up to have been executed, as specified in this Section.
 - .3 Organize a Final Inspection tour at which to be present: the Owner's authorized representative; The Consultants, and their supervisory personnel, if any; the Contractor and his superintendent.
 - .4 Where the above procedure is impossible or where any deficiencies remain outstanding, the Owner's representative and the Consultant concerned, to inspect and accept the affected work and/or material upon notification by the Contractor, that all deficiencies involving this Consultant have been made good.
 - .5 A complete release of all liens arising out of this Contract, other than his own. If a subcontractor or supplier refuses to furnish a release of such a lien, furnish a bond satisfactory to the Owner to indemnify him against any claim under such a lien.
 - .6 Certificates of good standing from the Workplace Safety and Insurance Board (WSIB), for the Prime Contractor and all Subcontractors.
 - .7 All reference records, as specified, under this Section.
 - .8 Certificate of Inspection from Mechanical and Electrical Engineers.
 - .9 Publication of substantial performance in the Daily Commercial News as per Section 32 of the Construction Lien Act and provide proof of such publication to owner.
 - .10 Copies of all Lists of Deficiencies with each Deficiency verified when complete by only this project's job Superintendent. The Final List of Deficiencies to be signed, completed by all concerned, if accepted.
 - .11 Statement of Completion from the Contractor.
 - .12 Final adjustment of all Allowances.
 - .13 If applicable, Certificates required by Provincial, Municipal and other authorities having jurisdiction, including Building Permit signed off by all authorities.
 - .14 As-built Drawings.
 - .15 Operation and Maintenance Manuals.

1.49 NO SMOKING POLICY

- .1 The City of Waterloo has designated all properties to be smoke free. Smoking is not permitted on-site.

END OF SECTION

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Part 1 General

1.1 RELATED WORK

- .1 Metal Studs Section.
- .2 Supply of access doors for mechanical and electrical devices: Mechanical and Electrical Divisions.

1.2 REFERENCE STANDARDS

- .1 Do work to CSA A82.31-1977, except where specified otherwise.

Part 2 Products

2.1 GYPSUM BOARD

- .1 Plain: to CSA A82.27-M1977 Fire-Rated Type X, 5/8"thick, "Abuse Resistant Fire Code" gypsum board panels, tapered edges, by CGC, product number 2680, Tel 1 800 387-2690.
- .2 "Dens-Shield" by Georgia Pacific: Refer to Interior Cement Board System Section.

2.2 FASTENINGS AND ADHESIVES

- .1 Screws: to CSA A82.31-1977.
- .2 Adhesive: to CGSB 71 GP 25M.
- .3 Laminating Compound: to CSA A82.31-1077.
- .4 Concrete Anchors: Phillips Red Head TW-614 or equivalent. Do not use power activated fasteners for ceiling support.
- .5 Tie Wire: #16 gauge galvanized soft annealed steel wire.

2.3 ACCESSORIES

- .1 Casing Beads and Corner Beads: 0.5 mm base thickness commercial sheet steel with G90 zinc finish to ASTM A 525-78 A.
- .2 Joint compound and tape: Compound to CSA A82.31-1977, asbestos-free. Perforated 50 mm gypsum board joint tape.
- .3 Caulking: Acoustical sealant.

Part 3 Execution

3.1 GYPSUM BOARD APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- .2 Install metal studs plumb and true to sizes and locations indicated on drawings.
- .3 Apply single and double layers gypsum board to metal furring or framing, using screw fasteners and laminating adhesive. Maximum spacing of screw 300 mm oc.
- .4 Apply gypsum board to existing concrete block or brick surfaces, where indicated, using laminating adhesive.
- .5 Apply **Fire Rated Abuse Resistant** gypsum board at all areas of exposed gypsum board.

3.2 ACCESSORIES

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces, where practical. Make joints tight, accurately aligned and rigidly secure. Mitre and fit corners accurately, free from rough edges.
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated.

3.3 ACCESS DOORS

- .1 Install access doors to electrical and mechanical fixtures specified in respective Sections.
- .2 Rigidly secure frames to furring or framing systems.

3.4 TAPING AND FILLING, AND SOUND SEAL

- .1 Seal with acoustical sealant at ceilings, floors, wall intersections and all penetrations such as electrical outlets.
- .2 Finish face panel joint and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .3 Finish corner beads, control joints and trim as required with two (2) coats of joint compound and one (1) coat of taping compound, feathered out onto panel faces.
- .4 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.
- .5 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .6 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for painting.

END OF SECTION

Part 1 General

1.1 RELATED WORK

- .1 Shop painting miscellaneous metals:
- .2 Color code marking bands for identification of piping:
- .3 Finish and Colour Notes

1.2 REFERENCE STANDARD

- .1 Ontario Painting Contractors Association (OPCA) Architectural Specification Manual - referenced as OPCA Manual, latest Edition. Paint formulations and methods referred to herein refer to this Manual. If contractor is unfamiliar with this reference standard, contact the OPCA at (416) 498-1897.

1.3 ENVIRONMENTAL REQUIREMENTS

- .1 Do not apply paint finish in areas where dust is being generated.
- .2 Conform to requirements of OPCA Manual. **OPCA Inspection program is not required for this project.**
- .3 Comply with the requirements of Section 01570-Environmental Health and Safety.

1.4 FINISHES AND COLOURS

- .1 Allow for 6 colours total from all formulations for this project. Colours for patch painting shall match existing in colour and finish.

Part 2 Products

2.1 MATERIALS

- .1 Acceptable products: Per Chapter 5 OPCA Manual and as listed.
- .2 Paint materials for each paint system to be products of a single manufacturer.
- .3 Use low-VOC and low-odour paints only.

Part 3 Execution

3.1 PREPARATION OF SURFACES

- .1 Prepare surfaces to receive paint per Chapter 3 OPCA Manual.

3.2 APPLICATION

- .1 Sand and dust between each coat to remove defects visible from distance up to 1.5 m.
- .2 Finish closets and alcoves as specified for adjoining rooms.
- .3 Apply each coat at the proper consistency. Each coat of finish should be fully dry and hard before applying the next coat, unless the manufacturer's instructions state otherwise.

3.3 MECHANICAL AND ELECTRICAL EQUIPMENT

- .1 Refer also to Finish Notes in Finishes and Colour Notes Section.
- .2 Paint exposed conduits, pipes, hangers and other mechanical and electrical equipment occurring in finished areas. Colour and texture to match adjacent surfaces, except as noted otherwise. Coordinate with mechanical trades applying banding and labeling after pipes have been painted.
- .3 Paint surfaces inside of ductwork and elsewhere behind grilles where visible using primer and one coat of matte black paint.
- .4 Paint both sides and edges of plywood backboards for equipment before installation.
- .5 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.4 PAINT SYSTEMS

- .1 System references listed are based on Chapters 4A and 4B of OPCA Manual and are OPCA Premium Grade, unless noted otherwise.

3.5 INTERIOR FINISHES

- .1 Wood, where applicable:
 - .1 Doors, miscellaneous trim: INT. 1-A, Alkyd Semi-Gloss Finish, Premium Grade
 - .2 Casework and miscellaneous wood items:
 - .1 Birch Veneer casework: INT. 1-D, Semi transparent stain, two-component polyurethane varnish, Satin finish, Premium Grade.
- .2 Gypsum board: INT.4-B, Latex Eggshell Finish, Premium Grade.
- .3 Concrete Block: INT. 8-A, Latex Semi-Gloss Finish, Premium Grade; or Alkyd Gloss Finish, Premium Grade **Match existing colours and finishes. If existing is alkyd, latex paint will not be accepted at these locations.**

- .4 Miscellaneous metal:
 - .1 Primed: INT. 12-A, Alkyd Semi-Gloss Finish, Premium Grade
 - .2 Galvanized: INT. 13-A, Alkyd Semi-Gloss Finish, Premium Grade
- .5 Galvanized metal: INT. 13-A, Alkyd Semi-Gloss Finish, Premium Grade

3.6 EXTERIOR FINISHES

- .1 Miscellaneous metal:
 - .1 Primed: EXT. 11-A-Gloss, Premium Grade
 - .2 Galvanized: EXT. 12-A-Gloss, Premium Grade
- .2 Galvanized metal: EXT. 12-A-Gloss, Premium Grade.

END OF SECTION

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Part 1 General

1.1 PROJECT CONDITIONS

- .1 Air temperature at wall covering installation area must be above 20°C for 72 hours before, during, and 48 hours after installation.
- .2 Unwrap wall covering and allow to acclimatize in installation area for 24 hours before application.

Part 2 Products

2.1 GENERAL

- .1 All wall coverings required to **match existing in all respects**.
- .2 Sealer and adhesive: type as recommended by wall covering manufacturer.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify existing conditions are ready to receive the work of this Section.
- .2 Ensure substrate surfaces are firm, smooth and dry, free from loose material, and as recommended by wall covering manufacturer.

3.2 PREPARATION

- .1 Size and treat wall surfaces to receive wall covering.

3.3 APPLICATION

- .1 Use rolls in same dye lot numbers.
- .2 No horizontal seams are permitted.
- .3 Remove excess adhesive with damp sponge from seams as work progresses and wipe clean and dry with clean cloth towel.
- .4 Ensure no gaps, wrinkles, overlaps, or air pockets.

3.4 CLEANING

- .1 Leave completed work smooth and clean.
- .2 Wipe off excess adhesive from carpet or rubber base.

END OF SECTION

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