



ADDENDUM No. 3

Date: December 7, 2015

Project: Our Lady of Perpetual Help Renovation & Addition

Project No. 15022

From: David Stulov

The Following document, including any and all attachments, is made part of the Contract Documents, and all parts of this Tender Addendum are to be included in the Stipulated Price.

Addendum Item:

1. Additional Site Tour
 - Additional Site tour will be held on Wednesday December 9th at 9:00 AM for all trades wishing to attend.
2. Architectural Addendum No.1
 - Please see attached Bogdan Newman & Caranci Inc Architectural Addendum No. 1.
 - Issued for Tender Drawings and Specifications available for download under Tenders at www.jdstrachan.com

End of Tender Addendum No. 03

Addendum No. 1

To:	JD Strachan 36 Northline Road, Unit 3 Toronto, ON, M4B 3E2	Project:	Our Lady of Perpetual Help Church Renovations and Addition
Attn:	Don Hutchinson	Project No.	12062
email:	don@jdstrachan.com	Pages:	1 including Cover Page
Cc:	David Stulov Father Jim Hannah	Date:	December 7, 2015
From:	John Kapov	No.	1

This addendum forms part of the Contract Documents and modifies the original contract documents issued for TP2 Tender dated Jan 14, 2015. Bidders shall acknowledge receipt of this addendum and provide for the revisions as described in herein, in their Bids.

1.1 TITLE

1.1.1 Addendum No. 1

1.2 REFERENCE

- 1.2.1 Architectural Drawings and Specifications – Issued For Tender
- 1.2.2 Structural Drawings and Specifications – Issued For Tender
- 1.2.3 Mechanical Drawings and Specifications – Issued For Tender
- 1.2.4 Electrical Drawings and Specifications – Issued For Tender

1.2 DESCRIPTION

- 1.2.1 Revised drawings and specifications issued for Tender.

End of Addendum No. 1

SPECIFICATIONS

for

OUR LADY OF PERPETUAL HELP CHURCH – RENOVATIONS AND ADDITION 78 Clifton Road, Toronto, Ontario

ISSUED FOR PHASE 1 TENDER, PHASE 2 PRICING.
4 December 2015

OWNER: The Roman Catholic Archdiocese of Toronto
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NOTE: For additional specification refer to Drawings

DIVISION 3 AND DIVISION 5

Refer to Structural Specifications noted on Structural Drawings

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Refer to Mechanical specification issued under separate cover

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Refer to Electrical specification issued under separate cover

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PART 1 - GENERAL

1.1_ Description of Work Covered by Contract Documents

- .1 Work of this Contract comprises renovation work for the existing Narthex space on the ground floor, new washroom and general modifications of existing spaces on the basement level and a new 2 storey entrance addition at Our Lady of Perpetual Help Church, 78 Clifton Road, Toronto, Ontario.
- .2 Work under this Contract as per the Drawings, Specifications, General Conditions, Supplementary General Conditions includes;
 - .1 Pre-Construction Preparation;
 - .1 Locate existing above- and below-grade site utilities and services as identified on the Drawings, prior to any demolition or testing work,
 - .2 Remediation of any environmental issues shall be completed prior to Work of this Contract.
 - .2 Building Modifications
 - .1 Undertake selective demolition of parts of the facility, removal of contents, building services and debris from work completed.
 - .2 Provide interior alternations as indicated on Drawings, which includes demolition of corner room and certain facilities and provision of new flooring wall panels and ceilings and relocation of certain components.
 - .3 Revise the work of mechanical, electrical, fire alarm, trades.
 - .4 Maintain existing primary electrical services.
 - .5 Revise mechanical services including HVAC exhaust, and plumbing elements
 - .6 Recommission mechanical components as required.
 - .3 Emergency Systems
 - .1 All exits and access to exits shall remain open and operational at all times,
 - .2 All mechanical and electrical emergency systems shall remain operational at all times while the public have use of the building.
 - .3 Any temporary disruption or termination shall be reviewed and approved by the fire department prior to any work on the building emergency systems.

1.2 Environmental Conditions

1. Unanticipated Environmental Conditions
 1. Should any unanticipated environmental concerns arise, notify the Owner, Contractor, Architect and Consultant immediately and prior to recommencing Work in the identified area.
2. Existing Material to be Removed
 - .1 All debris removed from the Site shall meet the requirements of General - Waste Management Regulation under the Environmental Protection Act, latest issue.
3. Material Brought to Site
 - .1 All material brought on-site shall have a WHMIS document,
 - .2 Each subcontractor shall remove his/her debris, unused material, containers, protective clothes, etc. as required by General Waste Management Regulation under the Environmental Act, latest issue.

1.3 Examination of Documents and Existing Conditions on Site

- .1 If, while tendering, questions arise which involve a ruling from Consultant, or if a bidder is in doubt as to the extent or scope of any item of Work, or if Contractor discovers omissions, discrepancies or ambiguities in the Drawings or Specifications, he shall at once refer these matters to Consultant, who will issue an Addendum advising them of any ruling or correction. This Addendum shall then constitute a part of the Contract Documents, and shall

be included in the tendered stipulated sum.

1.4 Contract Method

- .1 Contract Documents
 - .1 Work will be performed under one Contract bound by the Agreement between Owner and Contractor, Canadian Standard Construction Document, CCDC 2 - 2008, for a Stipulated Price Contract.
 - .2 General Conditions of the Standard Construction Document, CCDC 2 - 2008 for a Stipulated Price Contract.
 - .3 Supplementary General Conditions to CCDC 2 – 2008.
 - .3 Division 1, General Conditions shall govern the Work of each Section of the Specifications.

1.5 Contract Work

- .1 Be responsible for inclusion of all Work required for completion of the Project and shall coordinate the Work of his Subcontractors to accomplish this.

1.6 Contract Drawings and Specifications

- .1 Specifications shall be considered as an integral part of the Drawings, neither the Drawings nor the Specifications shall be used alone. Any item omitted from one, but which is mentioned, or reasonably implied in the other, shall be considered as properly and sufficiently specified, and must be provided.
 - .1 Division 1, General Requirements of Specifications generally specifies Work and co-ordination that is the direct responsibility of Contractor, but shall not be interpreted to define absolutely the limits of responsibility that shall be established between Contractor and his Subcontractors by their separate agreements.
 - .1 Ensure that Subcontractors understand that the General Conditions of the Contract, the Supplementary General Conditions and Division 1.
 - .2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Owner and Consultants.
- .2 Work in the Specifications is divided into descriptive Sections which are not intended to identify absolute contractual limits between Subcontractors, or between Contractor and his Subcontractors. Contractor shall organize division of labour and supply of materials essential to complete the Project in all its parts.
- .3 Any discrepancies in the Contract Documents shall be immediately reported in writing to the Consultant. Contractor shall not proceed without direction from the Consultant.

1.7 Examination by Subcontractor

- .1 Each Subcontractor must satisfy himself by his own study of the Drawings, Specifications, Contract Documents, by calculations, and by inspection of the site, as to the conditions existing or likely to exist in connection with the execution of the Work. Subcontractor shall not claim at any time after submission of Tender that there was any misunderstanding with respect to the conditions imposed by the Contract.
- .2 Contractor and his Subcontractors shall state with his Tender that he has visited the site, and that he is familiar with all aspects governing construction.

1.8 Co-ordination with Work of Other Subcontractors and/or Contractors

- .1 Subcontractors shall cooperate and coordinate Work of this Contract, with Work undertaken by the Owner and/or his tenants that may be undertaken under a separate Contract.

1.9 Standard of Construction

- .1 It is the intention of this contract, that any hazardous materials and any environmental protection, if required, shall be remediated prior to the re-commencement of Work.
 - .1 Refer to the definitions for hazardous materials with regard to any material that may require investigation as to the possible nature of any material.
 - .2 Where a material may be hazardous, Contractor shall obtain the opinion and/or tests to determine by a specialist prior to continuing Work.
- .2 Construction Work of this Contract shall equal or exceed minimum standards specified for safety, temporary facilities, materials, installation methods, bracing shoring, workmanship, and construction Work in;
 - .1 Ontario Building Code, latest issue and all addenda and errata, Ontario Fire Code, latest issue and all addenda.
 - .2 National Fire Protection Association issued standards.except where additional or more stringent requirements are imposed by local jurisdictional authorities, or by the Drawings, Specifications, specified reference standards and other instructions included with, or issued in relation to, the Contract Documents for this Project.

1.10 Setting Out of Work

- .1 Assume full responsibility for and execute complete layout of work to locations, line and elevations indicated. Lay out work from control bench marks and reference points. Protect and preserve bench marks and reference points.
- 2. Layout devices needed to layout and construct Work.
 - .1 Verify grades, lines, levels, and dimensions indicated and report any errors, omissions, or inconsistencies to the Consultant,
 - .2 Ensure that necessary job dimensions are taken and trades are coordinated for the proper execution of Work.
 - .3 Verify that Work is executed in accordance with dimensions and positions indicated to maintain levels and clearances to adjacent Work.

1.11 Regulatory Agencies

- .1 Jurisdictional authorities whose requirements must be met for this Project shall include, but not restricted to, City of Toronto Building Department, Fire Department, Toronto Hydro and the Ontario Hydro Electric Corporation, Ministry of Labour.

1.12 Work Not In Contract

- .1 Work not to be included in the Contract, is noted "NIC" on the Drawings.

END OF SECTION 01010

PART 1 - GENERAL

1.1 Division 1

- .1 Provisions for all Sections of Division 1 shall apply to all Sections of the Specification.

1.2 Safety

- .1 Conform to the Occupational Health and Safety Act (Ontario), latest issue.
- .2 Enforce fire prevention methods. Do not permit bonfires, open flame heating devices or accumulation of debris. Take necessary measures to prevent spontaneous combustion.
- .3 Provide adequate fire extinguishers for the protection of the Work.
- .4 Do not store materials in the building without prior approval from the Contractor.
- .5 Maintain and keep clear all fire exit routes. Coordinate the closure or obstruction of all exit routes with Contractor and Architect.

1.3 Co-ordination

- .1 Review Contract Documents and advise Contractor and Architect of possible conflicts between parts of the Work before preparation of shop drawings, ordering of products or commencement of affected Work.
- .2 Coordinate all Work in each area and Work on which subsequent depends to facilitate mutual progress, and to prevent conflict between parts of the Work.
- .3 Ensure that each Subcontractor informs Contractor other Subcontractors of construction sequence, surface and environmental conditions required for the successful execution of his Work, and that these conditions are met in the execution of all Work.
- .4 Ensure that Work to be enclosed within ceiling and/or wall spaces can be so accommodated without interference with other parts of the Work.
- .5 Ensure that setting drawings, templates, and all other information necessary for the location and installation of materials, holes, sleeves, inserts, anchors, accessories, fastenings, connections. and access panels are provided by each Section whose Work requires cooperative location and installation by other Sections, and that such information is communicated to the applicable installer.
- .6 Sections giving installation information in error, or too late to incorporate in the Work shall be responsible for having additional Work done which is thereby made necessary.

1.4 Examination before Execution of Work

- .1 Examine existing and completed Work in place before fabrication or execution of Work to be incorporated with the existing and/or new Work. Check dimensions and locations, examine surfaces and other site conditions affecting to Subcontractor's Work, and fabricate to suit where applicable.
- .2 Defective Work resulting from application to, installation on, or incorporation with unsatisfactory previous Work shall be considered the responsibility of those performing the later Work.

1.5 Security of Existing Site and Building

- .1 Subcontractors shall be solely responsible for their material, equipment and vehicles during the Work of this Contract.
- .2 Coordinate with Contractor/Architect's for access to the site.
- .3 Subcontractors shall remove all graffiti, and make good all damage caused by vandalism that occurs during the Work of this Contract.
- .4 Subcontractors shall assume all responsibility for any and all deductible amounts for insurance claims arising for Work of this Contract.

1.6 Work at Public Property

- .1 Verify that required permissions related to Project Work at adjoining private and public property are obtained before commencing Work, and include charges levied by public bodies for this Work in Contract.

1.7 Public Utilities and Services

- .1 Verify limitations imposed on Project Work by presence of utilities and services, and ensure that no damage occurs to them.
- .2 Notify service authorities concerned so that they protect, remove, relocate or discontinue them as

they may require.

- .3 Make arrangements and pay for connection charges for services required for Project Work, including final connection charges that are part of service contracts between the Owner and each utility, including telephone service.

1.8 Protection of Work and Property

- .1 Work shall include necessary methods, materials, and construction to ensure that no damage to Work, materials, property and persons results from the Work of this Contract.
- .2 Protect all existing and new Work from the elements. Provide on-hand and ready for use, all equipment necessary for adequate protection against wind, water and extremes of temperature. Perform all Work in cold and hot weather only as required by appropriate reference standards.
- .3 Pump dry excavations, pits and other construction holes or depressions.
- .4 Remove snow and ice immediately from the building except from finished roofing.
- .5 Provide positive drainage for all exterior surfaces with constant slopes to drains and away from construction.
- .6 Protect adjacent public and private property. Make good all damages to satisfaction of Contractor. Re-sod and replant damaged lawns and planting.
- .7 Protect trees growing on adjacent sites by whatever physical means may be necessary to prevent damage. Do not cut root systems during Work, nor cover them with surplus materials, debris, or earth. Do not use trees for anchorage or rigging of cables. Obtain approval of Landscape Architect before cutting any roots.
- .8 Brace and shore masonry walls until their designated lateral support is incorporated at both top and bottom.
- .9 Any bracing members shown on Drawings are those required for finished structure only, and shall not be assumed adequate for construction purposes.
- .10 Keep surfaces free of dirt, grease, oil or other materials detrimental to the successful application of finished materials where they will subsequently be applied.
- .11 Schedule finish Work at end of construction when interference from tradesmen is at a minimum.
- .12 Do not allow heavy or rough items to rest against finish surfaces, and take particular care to ensure that finished work is not scarred, stained or otherwise damaged by workers, construction aids, stored materials or imposition of concentrated static loading.
- .13 Protect each finished surface of completed Work by methods approved by its applicator.
- .14 Protect roof coatings, membranes and finishes from damage following their installation and during remainder of Project Work.

1.9 Workmanship

- .1 Work shall be executed by workman specifically trained and experienced for his task.
- .2 Perform Work on public property to the requirements of authorities having jurisdiction.

1.10 Fabrication

- .1 Fabricate and install materials to be used on the exterior of the building shall be designed, fabricated and installed to shed water.
- .2 Expansion joints, control joints, reveals, chases, joints between dissimilar materials and panels of similar materials shall be caulked with a sealant (and required priming and backing) specifically recommended by the sealant manufacturer for the particular application, unless noted otherwise on Drawings.
- .3 Ensure that all parts of the Work fit snugly, accurately and in true planes.

1.11 Expansion and Contraction of Materials and Systems

- .1 Design, fabricate, layout and construct all Work to accommodate structural and thermal movement, particularly the building structure, roof and exterior walls.
- .2 Provide and install all material and workmanship necessary to maintain integrity of items such as, fire separations, fire-rated assemblies, and thermal, air and moisture barriers.
- .3 Do not install Work that could inhibit expansion and/or contraction of Work of other Sections.

1.12 Cutting, Fitting, Patching and Replacement

- .1 Obtain approval from Architect before cutting, drilling or sleeving structural load-bearing

- construction.
- .2 Only the trade who has executed Work shall cut, drill or patch it.
- .3 Cut and drill with true, smooth edges and to minimum suitable tolerances.
- .4 Fit construction closely to ducts, pipes, and conduits. Pack voids tightly to prevent air movement.
- .5 Section performing Work that penetrates a fire, air, vapour, moisture, or thermal separation shall pack voids tightly with rock wool, seal air, vapour and moisture barriers, and caulk joints as may be required to ensure that no air movement through the penetration is possible.
- .6 Replace, and otherwise make good, damaged Work.
- .7 Make patches invisible in final assembly.
- .8 Patching or replacement of damaged Work shall be done by Subcontractor under whose Work it was originally executed, and at the expense of Subcontractor who caused the damage.

1.13 Fastenings

- .1 Fastenings required for installation of Work are a part of that Work.
- .2 Ensure delivery of fastenings to site in ample time for installation by other than the supplier when applicable, and ensure that the supplier gives assistance in setting if requested.
- .3 Install fastenings to provide anchorage that is permanent and of sufficient strength, and that will not loosen from vibration or other causes normal to building use.
- .4 Do not use fastenings of wood plugs or blocking in masonry or concrete unless approved by Architect, or which cause spalling or cracking of materials in which installed, or which will set up electrolytic action between them and other Work with which they are in contact, or that are powder actuated unless approval of Architect is given in each instance.
- .5 Keep exposed fastenings to a minimum. Space exposed fastenings evenly and symmetrically, and as approved by the Architect prior to installation.
- .6 Use exposed metal fasteners and accessories of a permanent type that are of the same texture, colour and finish as the base metal on which they occur.
- .7 The shape and size of the exposed fastening shall be approved by the Architect prior to installation of Work.

1.14 Layout Prior to Installation

- .1 Where electrical conduit is exposed to view, and where mechanical ducting, piping and control wiring is exposed to view obtain Contractor / Architect's approval of layout prior to installation.
- .2 Install exposed electrical conduit and wiring and mechanical ducting, piping and control wiring perpendicular and/or parallel to the exterior and interior wall surfaces.
- .3 Installation of layout undertaken without Contractor / Architect's approval will be re-done at the cost of the Subcontractor installing the Work.
- .4 Work that is possible to be installed in a concealed location, must be installed in a concealed location unless approved in advance by the Architect. Parts of assemblies or part of operating equipment that is possible to be constructed or installed in a concealed manner, must be installed in a concealed manner; no exceptions.

1.15 Fire Separations and Protections

- .1 Construct fire separations, fire protection and closures to ensure that in no place is their fire rating lessened by voids or diminishing of their construction.
- .2 Provide fire protection of individual members for their entire length and girth.
- .3 Ensure that integrity of fire separations, protections, closures and firestopping is maintained by methods approved by the Architect and jurisdictional authorities.
- .4 Doors and door frames installed in fire rated partitions and walls shall be fire-rated doors with appropriate ULC requirements whether identified in the door, door frame, and/or door hardware schedule or not.
- .5 The notation "ULC" is the abbreviation for the Underwriters Laboratory of Canada. All work, noted as a specific design assembly, shall be done in strict accordance with that assembly. Variations and substitutions will not be permitted. All electrical and mechanical work within a ULC design assembly shall be to ULC requirements for that assembly whether called for elsewhere differently or not.
- .6 All Work through fire separations shall be to ULC requirements whether specified or not.

1.16 Adjusting

- .1 Verify that Work functions properly, and adjust it accordingly to ensure satisfactory operation.
- .2 Ensure that all parts of Work fit snugly, accurately and in true planes, and that moving parts operate positively and freely, without binding and scraping.
- .3 Lubricate products as recommended by the supplier.

1.17 Designated Substances Reports and WHMIS Documents

- .1 Owner has commissioned "Designated Substances Reports" .
- .2 Meet the requirements of Sections 01300 and 1600. Subcontractors, who fail to submit WHMIS reports prior to the delivery of material on-site, shall be deemed to assume all responsibility.
- .3 Make the reports and all Workplace Health Material Index Sheets available to jurisdictional authorities and legitimately interested parties.

1.18 Debris

- .1 Arrange and pay for the removal of all debris from the site.
- .2 Place cloths and other disposable materials that are a fire-hazard in closed, metal containers, and remove from the site each night.
- .3 Coordinate location of all bulk containers for debris with Contractor prior to their arrival on site. Make good damage caused by bulk containers.

1.19 Cleaning

- .1 Ensure that the installer removes soil, spatters, droppings, labels and debris from his Work and from adjacent Work immediately on installation. Leave Work in new condition.
- .2 Maintain premises "broom clean" at all times during construction.
- .3 Final cleaning is specified in Section 01700.
- .4 Refer to Section 09410 for "power washing" of existing floor.

END OF 01220

PART 1 - GENERAL

1.1 Section Includes

- .1 Coordinate Work with other contractors under administration of Contractor.
- .2 Schedule preconstruction and progress meetings.

1.2 Project Meetings

- .1 Schedule, administer and preside at regularly scheduled project meetings throughout progress of Work as agreed with Consultant.
- .2 Provide physical space and make arrangements for meetings.
- .3 Prepare agenda for meetings, and record minutes. Include significant proceedings and decisions. Identify action by parties.
- .4 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, and to the Consultant and Owner.

1.3 Construction Organization and Start-up

- .1 Request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of the Owner, Consultant, major Subcontractors and others as recommended by Contractor.
- .3 Coordinate use of site and facilities through Consultant's procedures for project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.

1.4 On-Site Documents

- .1 Maintain and update documents at a minimum of every week; one copy each of the following, and maintain all previous documents on site:

1.5 Schedules

- .1 Submit preliminary construction progress schedule in accordance with Section 01320 - Construction Progress Documents to Consultant for review.
- .2 After review, revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work revise and resubmit as directed by Consultant.

1.6 Submittals

- .1 Submit preliminary shop drawings, product data and samples in accordance with Section 01330 for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Consultant.
- .2 Submit requests for payment for review, and for transmittal to Consultant.
- .3 Submit requests for interpretation of Contract Documents, and obtain instructions through Consultant.
- .4 Process change orders through Consultant.
- .5 Deliver closeout submittals for review and preliminary inspections, for transmittal to Consultant.

END OF SECTION 01310

PART 1 - GENERAL

1.1 Schedules Required

- .1 Submit schedules as follows:
 - .1 Breakdown of Subcontractor's tender prices
 - .2 Construction Progress Schedule.
 - .3 Submittal Schedule for Shop Drawings and Product Data.
 - .4 Submittal Schedule for Samples.
- .2 Product Delivery Schedule.
- .3 Shutdown or closure activity.

1.2 Submissions

- .1 Submit initial format of schedules within 7 working days after award of Contract.
- .2 Submit schedules, and update approved schedules weekly.
- .3 Distribute copies of revised schedules monthly to all concerned parties.
- .4 Instruct recipients to report to Contractor within 5 days, any problems anticipated by timetable shown in schedule.

1.3 Format for Schedule of Values and Anticipated Progress Applications

- .1 Schedule of Values
 - .1 Provide breakdown of each subcontract values in sufficient detail for Consultant to review;
- .2 Schedule of Anticipated Progress Draws
 - .1 Provide a list of anticipated progress draws to assist the Owner in scheduling payments to Contractor.

1.4 Format for Progress Schedules

- .1 Prepare schedule in form of a horizontal Gant bar chart Schedule.
- .2 Provide a separate bar for each major item of work or operation.
- .3 Split horizontally for projected and actual performance.
- .4 Provide horizontal time scale identifying first and last work day of each week.
- .5 Format for listings: Table of Contents of this specification in chronological order of start of each item of work.

1.5 Progress Photographs

- .1 1 set of prints 200 x 300 mm, glossy, colour with binding margin at one end.
- .2 Identification: typewritten name and number of project and date of exposure on 25 x 50 mm white patch in upper right hand corner or on reverse side.

1.6 Submittals Schedule

- .1 Include schedule for submitting shop drawings, product data, samples, and scheduling for resubmission of unacceptable material or documents.
- .2 Indicate dates for submitting, review time, resubmission time, last date for meeting fabrication schedule.
- .3 Include dates when submittals and delivery will be required for Owner-furnished products.
- .4 Include dates when reviewed submittals will be required from Consultant .

END OF SECTION 01320

PART 1 - GENERAL

1.1 Administrative

- .1 Prepare a Schedule identifying the anticipated shop drawings, samples, etc., and include an allowance for review, redraw, and resubmittal to the Architect.
- .2 Contractor shall review, stamp and sign all submittals, and;
 - .1 Forward submittals that are complete and correct, or with minor errors.
 - .2 Submittals that have obviously not reviewed by Contractor will be returned by Architect.
- .3 Contractor shall coordinate related submittals in order to avoid site discrepancies.
- .4 Submit to Architect submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Work affected by submittal shall not proceed until review is complete.
- .6 Verify that necessary submittal requirements have been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined.
- .7 Notify Architect, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are coordinated.
- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Architect's review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Architect review.
- .11 Keep one reviewed copy of each submission on site.

1.2 Shop Drawings, Product Data, Catalogue Cuts and Data Sheets

- .1 Refer to CCDC 2 GC 3.11.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 days for Architect's review of each submission.
- .5 Adjustments made on shop drawings by Architect are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Architect prior to proceeding with Work.
- .6 Make changes in shop drawings as Architect may require, consistent with Contract Documents. When resubmitting, notify Architect in writing of any revisions other than those requested.
- .7 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Details of appropriate portions of Work as applicable:
 - .1 Clear and obvious notes of any proposed changes from Drawings and Specifications
 - .2 Details to indicate construction arrangements of the parts and their connections and interconnections with other Work
 - .3 Location and type of anchors and exposed fastenings
 - .4 Materials and Finishes
 - .5 Descriptive names of equipment
 - .6 Mechanical and electrical characteristics when applicable
 - .7 Information to verify that superimposed loads will not affect function, appearance, and safety of the Work detailed as well as that of interconnected Work
 - .8 Dimensions and dimensioned locations of proposed chases, sleeves, cuts clearances and holes in structural members
 - .9 Specified certifications and affidavits of compliance with Code or performance

- standards signed by an officer of the issuing organization
- .10 Fabrication and erection dimensions
- .11 Layout, showing dimensions, including identified field dimensions, and clearances.
- .12 Setting or erection details.
- .13 Capacities
- .14 Performance characteristics.
- .15 Operating weight.
- .16 Wiring diagrams.
- .17 Single line and schematic diagrams.
- .18 Relationship to adjacent work.
- .19 Standards
- .8 After Architect's review, distribute copies.
- .9 Submit a minimum of 4 prints of shop drawings for each requirement requested in specification Sections and as Architect may reasonably request.
- .10 Submit 2 prints cop(y)(ies) of product data sheets or brochures for requirements requested in specification Sections and as requested by Architect where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Supplement standard information to provide details applicable to project.
- .12 If upon review by Architect, no errors or omissions are discovered or if only minor corrections are made, transparency or copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.3 Samples

- .1 Submit 3 samples for review as requested in respective specification Sections. Label samples with origin and intended use with heavy felt pen on back of samples.
- .2 Deliver samples prepaid to Architect or to site office.
- .3 Notify Architect in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Architect are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Architect prior to proceeding with Work.
- .6 Make changes in samples which Architect may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 Mock-ups

- .1 Erect mock-ups in accordance with 01450 - Quality Control.

1.5 Certificates

- .1 Immediately after award of Contract, submit and Transcripts of Work Place Safety and Insurance Board status, transcription of insurances, etc.

1.6 Workplace Health Material Index Sheets

- .1 Submit 2 copies of all product data sheets for all material to be used at the site and/or incorporated into the Work.
- .2 Post all WHMIS in a location available for legitimately interested parties.

1.7 Inspection Reports

- .1 Submit test results as specified to Architect in duplicate. Sign each copy by a responsible office of the testing laboratory or company.

END OF SECTION 01330

PART 1 - GENERAL

1.1_ Scope of Work

1. Work of this Contract shall not commence until all hazardous and/or toxic material have been removed from the site by Work of other Contractor.
2. Any material that is required to remain on-site by legislation shall be contained in a lockable room. The constructed room by other Contractor shall meet the requirements of the Province to contain such material. The room and any containers shall be constructed by others.

1.2 References

- .1 Provincial Legislation
 - .1 General - Waste Management Regulation under the Environment Protection Act (Ontario), latest issue.
 - .2 Transportation of Dangerous Goods Act (TDGA), latest issue.
 - .3 Motor Vehicle Safety Act (MVSA), latest issue.

1.3 Definitions

- .1 **Deconstruction:** The systematic dismantling of a structure.
- .2 **Recycling:** The use of a building material which has been processed in some way for use in a form and function which is different from its original form and function.
- .3 **Disassembly:** The physical detachment of materials from a structure. Includes prying, pulling, cutting, unscrewing, etc.
- .4 **Waste Audit:** A detailed inventory of the materials in a building. Involves quantifying (by volume or weight) amounts of materials and wastes generated during deconstruction. Indicates quantities of reuse, recycling and landfill.
- .5 **Waste Reduction Workplan:** A written report which outlines all actions to be taken to reduce, reuse and recycle materials during the course of deconstruction. Actions based on the finding of the waste audit.
- .6 **Alternate Disposal:** The reuse and recycling of materials by a designated facility, user or receiving organization which has valid Certificate of Approval to operate. The alternative to landfill disposal.
- .7 **Waste Management Coordinator (WMC):** Contractor shall be responsible for supervising all waste management activities as well as coordinating all related, required submittal and reporting requirements.
- .8 **Hazardous Materials:** Not included in this Contract.
- .9 **Used Building Material Receipt:** Receipt issued at end destination for materials designated for alternate disposal.
- .10 **Hauler:** A company (possessing appropriate and valid Certificate of Approval) contracted to transport waste and/or reusable/recyclable materials off site to designated facility, user or receiving organization.
- .11 **Weigh Bill:** Receipt received from a recycling facility indicating the weight and content of each load/bin of material.

1.4 Submittals

- .1 Contractor is responsible for fulfilment of all reporting requirements.
- .2 Submit 3 copies of certified weigh bills, bills of lading and/or used building material receipts from authorized disposal sites and reuse and recycling facilities for material removed from site to Owner on a monthly basis. Written authorization from Architect is required to deviate from the haulers facilities, receiving organizations listed in waste reduction workplan.

- .3 Workers and subcontractors must possess current Certificates of Approval, permits to remove, handle and dispose of wastes categorized as hazardous.
- .4 Keep copies of all submittals on file for minimum of five years after completion of project.

1.5 Existing and Deconstruction Drawings

- .1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams and details showing sequence of deconstruction work, materials designated for salvage and support of structures and underpinning.
- .2 Submit drawings stamped and signed by qualified professional Engineer registered and licensed in the Province of Ontario.

1.6 Quality Assurance

- .1 Regulatory Requirements: Ensure Work is performed in compliance with all applicable provincial regulations.

1.7 Site Conditions

- .1 Existing Conditions:
 - .1 Should materials resembling spray or trowel applied asbestos or other designated substance listed be encountered in course of deconstruction, stop work, and notify Owner, Contractor, and Architect immediately. Do not proceed until written instructions have been received.
 - .2 Base structures to be deconstructed on their condition at time of site visit during Bid period. Be responsible for provision of all services required for deconstruction.

1.8 Environmental Protection

- .1 Ensure deconstruction work does not adversely affect adjacent ground water or contribute to excess air noise pollution.
- .2 Do not dispose of waste or volatile materials into storm or sanitary sewers. Ensure proper disposal procedures in accordance with all applicable provincial regulations.
- .3 Do not pump water containing suspended materials into storm or sanitary sewers, or onto adjacent properties in accordance with authorities having jurisdiction.
- .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with having jurisdiction authorities and as directed by Architect.
- .5 Prevent extraneous materials from contaminating air beyond deconstruction area, by providing temporary enclosures during Work.
- .6 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on temporary roads.
- .7 Erect temporary fencing to protect salvaged materials from vandalism, adverse weather, or inadvertent damage by heavy machinery.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 Site Verification of Conditions

- .1 Investigate site and structure to determine dismantling, processing and storage logistics required prior to commencement of Work.
- .2 Develop strategy for deconstruction to facilitate salvage of reusable and recyclable materials.

3.2 Removal From Site

- .1 Transport material designated for alternate disposal using approved haulers, facilities and receiving organizations in accordance with all applicable regulations.
- .2 Dispose of materials not designated for alternate disposal in accordance with all applicable regulations. Disposal facilities must be those approved of.

END OF SECTION 01356

PART 1 - GENERAL

1.1 Section Includes

1. Inspection and testing, administrative and enforcement requirements.
2. Tests and mix designs.
3. Mock-ups.
4. Mill tests.
5. Equipment and system adjust and balance.

1.2 Manufacturer's Presence On-Site

1. Where required in this Specification, manufacturer's shall be present on-site as required to confirm that the work has been installed to the manufacturer's written instructions, and to the quality of workmanship to ensure that the Work has been completed satisfactorily.
2. Manufacturer shall provide a written extended warranty on those items identified in this Specification.
3. Contractor shall ensure that the required manufacturers' presence on-site and inspecting the Work as it progresses. Contractor shall record the Manufacturer's presence on-site.

1.3 Field Reviews

1. Refer to CCDC 2, GC 2.3
2. Give 2 days when requesting inspection if Work designated for special tests, inspections or approvals by Consultant instructions, or other Place of Work.
3. If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
4. Consultant may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
 1. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.
 2. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.

1.4 Independent Inspection/Testing Agencies

1. Independent Inspection/Testing Agencies will be retained by the Owner for purpose of inspecting and/or testing portions of Work.
 1. Costs for inspection/testing shall be borne by the Owner through part of cash allowance.
2. Independent Inspection / Testing Agencies shall;
 1. provide their own equipment required for executing inspection and testing by appointed agencies.
3. Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
4. If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Consultant. Pay costs for retesting and reinspection.

1.5 Access to Work

1. Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
2. Co-operate to provide reasonable facilities for such access.

1.6 Procedures

1. Notify appropriate agency and Consultant in advance of requirement for tests, in order that

- attendance arrangements can be made.
2. Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
 3. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.7 Rejected Work

1. Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
2. Make good other Contractor's work damaged by such removals or replacements promptly.

1.8 Reports

1. Submit 3 copies of inspection and test reports to Consultant.
2. Provide copies to Subcontractor of work being reviewed or tested, manufacturer or fabricator of material being reviewed or examined.

1.9 Tests and Mix Designs

1. Furnish test results and mix designs as may be requested.
2. The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Consultant and may be authorized as recoverable.

1.10 Mock-ups

1. Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
2. Construct in all locations acceptable to Consultant as specified in specific Section.
3. Prepare mock-ups for Consultant's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
4. Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
5. If requested, Consultant will assist in preparing a schedule fixing dates for preparation.
6. Specification sections identify whether mock-up may remain as part of Work or if it is to be removed and when.

1.11 Mill Tests

1. Submit mill test certificates as [requested] [required of specification Sections].

1.12 Equipment and Systems

1. Submit adjustment and balancing reports for mechanical, electrical [and building equipment] systems.
2. Refer to individual Sections for definitive requirements.

END OF SECTION 01450

PART 1 - GENERAL

1.1 Section Includes

- .1 Be responsible for all temporary utilities for the Work;
- .2 In locations where some or all utilities may be available from Owner, be responsible for;
 - .1 Special costs such as permanent and/or temporary disconnections and re-connections for all utilities and site services,,
 - .2 Special requirements, services, capacities, power, etc. required by the Contractor to complete the Work.
 - .3 Final cleaning and termination of use of spaces for Owner's utilities.
- .3 Provide and pay for all termination of utilities and services except where temporary use may be utilized by Contractor unless specified elsewhere.
- .4 Install and Remove
 - .1 Provide temporary utilities controls in order to execute work expeditiously.
 - .2 Remove from site all such work after use.

1.2 Water Supply

- .1 Provide continuous supply of potable water for construction use.
- .2 Arrange for connection with appropriate utility company and pay all costs for installation, maintenance and removal as required.

1.3 Temporary Power and Light

- .1 Provide and pay for temporary power during demolition Work for temporary lighting and operating of power tools, to a maximum supply of 230 volts, 30 amps.
- .2 Arrange for connection with appropriate utility company.
- .3 Provide temporary power for equipment
- .4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .5 Electrical power and lighting systems installed under this Contract may be used for construction requirements. Permanent power and lighting may not be used. Make good damage to electrical system caused by use under this Contract.

1.4 Temporary Communication Facilities

- .1 Provide and pay for temporary telephone, fax, data hook up, line[s] and equipment necessary for own use and use of Architect.

1.5 Fire Protection

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

END OF SECTION 01510

PART 1 - GENERAL

1.1 Section Includes

- .1 Construction aids.
- .2 Project identification.
- .3 Be responsible for all temporary construction facilities for the Work;
- .4 Be responsible for;
 - .1 Temporary protections, disconnections and re-connections for all available.
 - .2 Regular and final cleaning of use of spaces for Owner's utilities.

1.2 References

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1-GP-189M- 84 , Primer, Alkyd, Wood, Exterior.
 - .2 CGSB 1.59- 96 , Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA)
 - .1 CAN3-A23.1- 94 , Concrete Materials and Methods for Concrete Construction.
 - .2 CSA-0121- M1978 , Douglas Fir Plywood.
 - .3 CAN3-Z321- 96 , Signs and Symbols for the Workplace.

1.3 Installation and Removal

- .1 Provide construction facilities in order to execute Work expeditiously.
- .2 Remove from site all such Work after use.

1.4 Scaffolding

- .1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, temporary stairs if required.

1.5 Hoisting

- .1 Provide for any equipment and labour that may be required for hoisting materials and equipment.

1.6 Site Storage / Loading

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.
- .3 Coordinate delivery, loading, receipt of goods and storage of same with MTCCC personnel

1.7 Equipment, Tool and Materials Storage

- .1 Provide and maintain lockable boxes for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in building

1.8 Sanitary Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Architect.

1.9 Construction Signage

- .1 Provide and erect, within 2 weeks of signing Contract, a project sign in a location designated by Consultant.
- .2 Construct one-sided sign of wood frame and plywood construction painted with lettering produced by a professional sign painter.
- .3 Indicate on sign, name of Owner, Architect, Engineers and Contractor of a design style established by Consultant.
- .4 No other signs or advertisements, other than warning signs, are permitted on site.

- .5 Project Identification Site Sign:
 - .1 Provide project sign comprising of wood framing and single-sided sign as detailed and as described below;
 - .1 Select and Fabricate Framework and battens: Select Structural White Spruce or Douglas Fir, dressed 4 sides.
 - .2 Pre-paint and Erect Signboard: 1200 x 2400 x 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA 0121.
 - .3 Paint all surfaces : alkyd type, without silicone additives. Primer to CGSB 1-GP-189, 2 coats pf enamel to CGSB 1.59.
 - .4 Fasteners: cadmium plated steel screws.
 - .5 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Contractor.
- .6 Safety and Instruction Signs and Notices:
 - .1 Signs and notices for safety and instruction shall be in both official languages Graphic symbols shall conform to CAN3-Z321.

END OF SECTION 01520

PART 1 - GENERAL

1.1 References

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.189M- 78 , Primer, Alkyd, Wood, Exterior.
 - .2 CGSB 1.59- 97 , Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA)
 - .1 CSA O121- M1978 , Douglas Fir Plywood

1.2 Install and Remove Temporary Barriers

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 Guard Rails and Barricades

- .1 Provide secure, rigid guard rails and barricades around open shafts, open stair wells, open edges of floors and roofs, and any adjacent floor surfaces of a different elevation more than 450 mm, and any object projecting out over a work or circulation area below 2.4 m.
- .2 Provide as required by governing authorities.

1.4 Weather Enclosures

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.5 Protection for Off-Site and Public Property

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.6 Protection of Building Finishes

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Consultant locations and installation schedule [3] days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

END OF SECTION 01560

PART 1 - GENERAL

1.1 Environmental Authorities

- .1 Remediation of any environmental issues that may exist are not included in Work of this Contract.

1.2 Disposal of Wastes

- .1 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.3 Drainage

- .1 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 Pollution Control

- .1 Maintain temporary pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.5 Environmental Remediation Enclosures

- 1. Environmental remediation enclosures shall be designed and constructed by remediation contractor, and in a location approved by Contractor, Architect and Consultant.

END OF SECTION 01561

PART 1 - GENERAL

1.1 Section Includes

- .1 Product quality, availability, storage, handling, protection, and transportation.
- .2 Manufacturer's instructions.
- .3 Quality of Work, coordination and fastenings.
- .4 Existing facilities.

1.2 Reference Standards

- .1 Within text of specifications, reference standards are in Section 01420 - References.
- .2 Conform to specified standards, in whole or in part in Specifications.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for testing will be borne by Contractor in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .5 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

1.3 Quality

- .1 Products identified in this Specification by manufacturer's name or by trade name are to establish the level of quality or to provide specific dimensions required. Alternative manufacturer's and products of equal quality may be submitted to Consultant as substitutes for the specified items.
 - .1 Do not substitute material, products, finishes, equipment or methods different from that shown on Drawings and specified without written approval of Consultant.
 - .2 Be solely responsible for additional or hidden costs and Work related to proposed substitutions to specified products whether identified at time of approval by Consultant, or at a subsequent time.
 - .3 Only Contractor shall make application for a substitution.
 - .4 Install products only by method and using application materials that are specified and approve by their manufacturers.
- .2 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.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 Availability

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves the right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 Storage, Handling and Protection

- .1 Ensure that materials and products are packed , protectively wrapped, packaged or bagged, shipped, delivered and stored to prevent damage to their structural and performance qualities, and finished appearance an that their moisture content is not increased beyond manufactured or specified installation limits.
- .2 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .3 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .4 Store products subject to damage from weather in weatherproof enclosures.
- .5 Store cementitious products clear of earth or concrete floors, and away from walls.
- .6 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .7 Store sheet materials, lumber and on flats, solid supports and keep clear of ground. Slope to shed moisture.
- .8 Store and mix paints in heated and ventilated room. Remove oily rags and other debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .9 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .10 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original and invisible to the eye
 - .1 Failure to have a flawless finish will require Contractor to replace the damaged material, performance characteristics, texture, surface and/or colour.
 - .2 Consultant shall be the sole judge of acceptability of the material.
 - .3 Do not paint over name plates.

1.6 Transportation

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Owner. Unload, handle and store such products.

1.7 Manufacturer's Instructions

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 Quality of Work

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant , whose decision is final.

1.9 Co-Ordination

- 1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 Concealment

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

- .2 Before installation, inform Consultant if there is interference. Install as directed by Consultant.

1.11 Remedial Work

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 Location of Fixtures

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate. Consultant may move any uninstalled fixture, outlet and/or equipment within a radius of 3.0 metres at no extra costs.
- .2 Inform Consultant of conflicting installations, interferences, or other items to be installed. Install fixtures as directed by Consultant.
- .3 Location of services on Drawings and illustrations are diagrammatic unless specifically dimensioned. Locate all building services so as to maximize usable occupied space. Location of building services off-set of electrical, mechanical, plumbing and sprinkler equipment.
- .4 Locate all building services off-set of architectural items, of Divisions 10, 15 and 16 elements recessed into walls and ceilings.

1.13 Fastenings

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.14 Fastenings - Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15 Protection of Work in Progress

- .1 Adequately protect Work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by Consultant, at no increase in Contract Price or Contract Time.
- .2 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

1.16 Existing Utilities

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

END OF SECTION 01610

PART 1 - GENERAL

1.1 Section

- .1 Survey Drawing(s) provided by Owner;
 - .1 Office and field engineering survey services for;
 - .1 property lines, easements, centreline of road allowance,
 - .2 site topography, landscape features and trees,
 - .3 existing site services, above ground, below ground, located in public and private property,
 - .4 existing structure(s) including all appropriate measurements.

1.2 References

- .1 Owner's registered plan prepared by an Ontario Land Surveyor who has signed and sealed the conditions that should reflect all existing conditions

1.3 Survey Drawing(s) and Reference Points

- .1 Existing base horizontal and vertical control points are designated on Drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Architect.
- .4 Report to Architect when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.4 Field Layout Survey Requirements

- .1 Contractor shall;
 - .1 Establish lines and levels, locate and lay out, by instrumentation.
 - .2 Establish pipe invert elevations at existing city piping and new piping on-site. Confirm inverts with finished grades.
 - .3 Establish foundations, column locations and floor elevations.
 - .4 Establish lines and levels for mechanical and electrical work.

1.5 Existing Services

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Architect of findings.
- .2 Remove abandoned service lines within the site. Cap or otherwise seal lines at cut-off points as directed by Architect.

1.6 Records

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.8 Submittals

- .1 On request of Architect, submit documentation to verify accuracy of field engineering work.
- .2 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform or not conform with Contract Documents.

END OF SECTION 01720

PART 1 - GENERAL

1.1 Section Includes

- .1 Requirements and limitations for cutting and patching the Work.

1.2 Submittals

- .1 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of any element of Project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of any operational element.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .2 Include in request:
 - .1 Identification of Project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Written permission of affected separate contractor.
 - .7 Date and time work will be executed.

1.3 Materials

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01330 - Submittal Procedures.

1.4 Preparation

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

1.5 Execution

- .1 Execute cutting, fitting, and patching including excavation and fill to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Remove and replace defective and non-conforming Work.
- .4 Remove samples of installed Work for testing.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.

END OF SECTION 01730

PART 1 - GENERAL

1.1 Project Cleanliness

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at regularly scheduled times.
- .3 Clear snow and ice from access to building, and bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use clearly marked separate bins for recycling.
- .7 Dispose of waste materials and debris at designated dumping areas off site.
- .8 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 Final Cleaning

- .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris caused by other Contractors.
- .5 Remove waste materials from site at regularly scheduled times.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fittings, walls, floors and ceilings.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fittings and equipment and specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps and surfaces.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Clean and sweep roofs, gutters, areaways, sunken wells.
- .16 Sweep and wash clean paved areas.
- .17 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.
- .18 Clean roofs, downspouts, and drainage systems.
- .19 Remove debris and surplus materials from concealed spaces.

END OF SECTION 01740

PART 1 - GENERAL

1.1 Section Includes

- .1 Administrative procedures preceding preliminary and final inspections of Work.

1.2 Inspection and Declaration

- .1 Contractor's Inspection:
 - .1 Conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Consultant's Inspection.
- .2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted, balanced and are fully operational in all respects.
 - .4 Operation of systems have been demonstrated to Owner's personnel.
 - .5 Work is complete and ready for Final Inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Consultant, and Contractor. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request reinspection.
- .5 Declaration of Substantial Performance: when Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment: When Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. If Work is deemed incomplete by Owner or Consultant, complete outstanding items and request reinspection.
- .8 Payment of Holdback: After issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with CCDC 2, General Conditions Article 5.5.

END OF SECTION 01770

PART 1 - GENERAL

1.1 Section Includes

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

1.2 Submission

- .1 Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- .2 Copy will be returned [after final inspection,] with Consultant's comments.
- .3 Revise content of documents as required prior to final submittal.
- .4 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, 3 final copies of operating and maintenance manuals.
- .5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .6 If requested, furnish evidence as to type, source and quality of products provided.
- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

1.3 Format

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Text: Manufacturer's printed data, or typewritten data.
- .7 Provide scaled CAD files in [dwg] format on compressed CD's.

1.4 Contents - Each Volume

- .1 Table of Contents: provide title of project;
 - .1 date of submission; names,
 - .2 addresses, and telephone numbers of Consultant and [Contractor] [Construction Manager's Representative] with name of responsible parties;
 - .3 schedule of products and systems, indexed to content of volume.
- .2 For each product or system
 - .1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01450 - Quality Control.

1.5 Record Drawings

- .1 In addition to requirements in General Conditions,] maintain [at the site for [Consultant] [Owner] one record copy of:
 - .1 Contract Documents
 - .2 Addenda.
 - .3 Change Orders and other modifications to the Contract.
 - .4 Reviewed shop drawings, product data, and samples.

- .5 Field test records.
- .6 Inspection certificates.
- .7 Manufacturer's certificates.
- .2 Store record documents and samples documents used for construction. Provide secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Consultant .

1.7 Recording Actual Site Conditions

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual provided by Consultant.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .2 Field changes of dimension and detail.
 - .3 Changes made by change orders.
 - .4 Details not on original Contract Drawings.
 - .5 References to related shop drawings and modifications.
- .5 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.8 Equipment and Systems

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractors coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01450 - Quality Control].

- .15 Additional requirements: As specified in individual specification sections.

1.10 Materials and Finishes

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

1.11 Spare Parts

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.12 Maintenance Materials

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to [site] [location as directed] ; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.13 Special Tools

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.14 Storage, Handling and Protection

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

1.15 Warranties and Bonds

- .1 Separate each warranty or bond with index sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within [ten] days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.

END OF SECTION 01780

PART 1 - GENERAL

1.1 General Demolitions Conditions

- .1 Carry out demolition in accordance with the requirements of Part 8 of the OBC, and all authorities having jurisdiction.
- .2 Examine the building and Drawings to establish the extent of demolition. Where discrepancies exist, obtain ruling from Architect on extent or intent of demolition Work before commencing Work.

1.2 New Work On and/or Adjacent to Existing Work

- .1 Defective Work resulting from application to, installation on, or incorporation with unsatisfactory existing Work shall be considered the responsibility of those performing the later work.
- .2 Where new Work connects with existing and where existing Work is altered, carry out all necessary cutting and fitting required to make satisfactory connections with the existing Work under this Contract so as to leave the entire Work in a finished and workmanlike condition.
- .3 Make good all materials and finishes which are damaged or disturbed during the progress of demolition and reconstruction under the Contract.
- .4 Where existing Work is to be made good, the new Work shall match exactly the old Work in material, construction and finish unless otherwise noted or specified.
- .5 Finish a new surface flush with existing surface where junction is on same plane. Make junctions between new and old Work of the same material and invisible, or otherwise provide a reveal between materials as approved by the Architect. Reveals shall be of uniform width and depth, and be caulked.

1.3 Modifications to Existing Structure

- .1 Should the existing structure be found to vary in any way from that indicated on Drawings, notify the Architect for his direction before proceeding with any Work.
- .2 Remove members required by Drawings in such a manner to ensure that the structure required to remain in place shall not in any way suffer structural damage and consequential impairment. Particular attention is drawn to those members requiring only partial removal.
- .3 Any bracing members shown on Drawings are those required for finished structure only, and shall not be assumed adequate for construction purposes.
 - .4 Adequately brace and support existing structure or any structural member during construction to ensure alignment and safety. Such bracing and support shall be maintained until there are adequate permanent connections.
- .5 Prevent structural damage to existing building by Work in conjunction with it.

1.4 Disconnecting and Reconnecting Existing Services

- .1 Disconnect and reconnect existing services as required to complete the Work, including, without being limited to, plumbing, drainage, sprinklers, heating, ventilating, air conditioning and electrical services. Remove all Work not required to remain in place as part of the service system.
- .2 Remove items to be salvaged or re-used from existing locations with minimum damage. Disconnect and cap-off existing services.
- .3 Remove and re-install all existing wall, floor and ceiling material, surfaces, finishes and supports as required for the installation of new and/or relocated services and support systems including, but not limited to, plumbing, drainage, sprinklers, heating, ventilation, air conditioning and electrical services, ceiling support systems or partition or door bracing systems. Relocate existing supports as required for installation of new and/or relocated Work. Patch and make good all finished surfaces.

1.5 Protection

- .1 Weatherproof openings made in walls and roofs of existing building immediately they are opened.
- .2 Provide and maintain sturdy protection for existing floors. Replace damaged floor finishes.
- .3 Keep down dust during Work by removal and other control methods. Prevent spread of dust and debris into areas of existing building.
- .4 Protect by substantial methods and materials all parts of the building including re-used items, equipment, hardware, trim, stored goods and supplies, both within and without the building. Protect from damage by demolition, new construction, and construction traffic.

1.6 Conditions for Demolition and Removal of Work

- .1 Demolish only those portions of the existing building designated on Drawings and necessary for

- incorporation of new Work.
- .2 All cuts into, or sections removed from, existing material and finished surfaces shall be the minimum practical for the required Work. All cuts shall be straight, level and plumb, and in planes parallel or perpendicular to the building planes. Round openings shall be cut in a true circle.
 - .3 Do not undermine, damage or endanger existing footings, foundations, pipe lines, electrical conduit and wiring by any operation in the performance of the Work of this Contract. Immediately notify the Architect, and make good damage to the approval of the Architect.
 - .4 Cut openings, or remove portions of existing walls, partitions or slabs as required for the installation of new Work. Establish exact location of services and steel reinforcement in existing concrete slabs or walls before holes are made by non-destructive testing performed by authorized test laboratory. Perform all non-destructive testing when the building is not occupied by the Owner's personnel. Submit test results to Architect for approval in each instance before proceeding. Include the cutting of reinforcing steel and the cutting and relocation of services in the Scope of Work of this Contract.
 - .5 Do not use of pneumatic or powder activated equipment unless authorized by Architect.
 - .6 Make good floors and walls where walls and partitions have been removed. Fill holes, depressions and cracks with a material, approved by Architect, finished flush and smooth with adjacent surfaces.
 - .7 Clean existing concrete floors and walls to receive new finishes of all existing finishes, adhesives and other foreign matters leaving surfaces in a smooth, clean and dust free condition, satisfactory for application of new finishes.
 - .8 Carefully remove materials where indicated for reinstallation. Minimize damage to adjacent construction.
 - .9 Remove existing furred ceilings as required to accommodate the Work, including cutting of same for access for connections and running back of electrical services as called for on the Drawings. Remove or alter existing furred ceilings where new ceilings are called for.
 - .10 Maintain and restore all fire separations and fire resistance ratings damaged by the Work.
 - .11 Remove all existing carpet and tile as required for incorporation of new Work. Dispose of material off-site.

1.7 Services in Existing Building

- .1 Do not damage existing services during demolition work. Immediately cut off and cap concealed services uncovered during Work.
- .2 New mechanical and electrical services are to be located and connections to existing services made in the most compact manner possible to minimize the extent of removal.
- .3 Coordinate, install and arrange all mechanical and electrical services and fixtures so as to conserve headroom and space as much as possible, to provide minimum interference and to be neat, orderly and tidy. Unless otherwise noted, run services vertically and horizontally, square to the building grid. Conceal all services above ceilings unless specified otherwise. Maximum ceiling heights must be maintained. Dimensions on Drawings constitute minimum standards. Refer to mechanical / electrical coordination sections on Drawings. Conceal all new services within walls or behind furred-out gypsum board enclosures. Conceal all existing services to remain in place that are exposed due to removal for new Work of this contract.

1.8 Contractor's Use of the Existing Building

- .1 Limit access by construction personnel to only those areas of the building required for Work under this Contract, and ensure that it is used for no other purpose.
- .2 Secure existing building, furniture, material and equipment under the control of the Contractor. The Contractor shall be responsible for any deductible amounts in any claims for loss and/or damages against the Owner and/or his Tenants.
- .3 Use means to identify areas in the building in which Work is underway. Permit access to these areas to authorized personnel, and who are wearing proper safety equipment.

END OF SECTION 01950

1. General

1.1 DOCUMENTS

- .1 This section, along with the drawings, forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.
- .2 Drawings include architectural, mechanical, and electrical drawings.

1.2 DESCRIPTION OF WORK INCLUDED

- .1 Provide all labour, materials, equipment and services to supply, design, and erect structural steel required and/or indicated on the drawings or specified herein, including the supply of plates and/or angles for support of masonry, embedded steel parts, headed stud and deformed bar anchors, wedge anchors, and epoxy anchors which will form the connection between the structural steel, open web steel joists and masonry or concrete; and reinforcement of steel deck openings larger than 400 mm (16"). Report any discrepancies between structural, mechanical, electrical and architectural drawings to the Consultant and Structural Engineer immediately.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- .1 Section 03300 - Cast-in-Place Concrete
- .2 Section 04200 - Unit Masonry
- .3 Section 05000 - Testing of Structural Steel, Open Web Steel Joists and Deck
- .4 Section 05200 - Open Web Steel Joists
- .5 Section 05300 - Steel Deck
- .6 Section 05500 - Metal Fabrications
- .7 Section 05510 - Metal Stairs
- .8 Section 07800 - Fireproofing
- .9 Section 09900 - Painting

1.4 REFERENCE STANDARDS

- .1 Structural steel shall conform to the requirements of the following Standards unless otherwise required by the specification:
 - .1 Building Code
 - .1 Ontario Building Code – 2012
 - .2 Reference Standards
 - .1 CSA S16 - Limits States Design of Steel Structures.
 - .2 CSA S136 - North American Specification for the Design of Cold-Formed Steel Structural Members
 - .3 CSA W47.1 - Certification of Companies for Fusion Welding of Steel

Structures.

- .4 CSA W59 - Welded Steel Construction (Metal Arc Welding) (Metric version).
- .5 CSA G40.20 - General Requirements for Rolled or Welded Structural Quality Steel.
- .6 CSA G40.21 - Structural Quality Steel.
- .7 CSA G30.18 - Billet Steel Bars for Concrete Reinforcement.
- .8 CSA W186 - Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .9 ASTM F1554 Standard Specification for 36, 55 and 105 ksi yield strength Steel Anchor Bolts.
- .10 ASTM A193 – Standard Specification for Alloy-Steel Bolting Materials for Special Purpose Applications.
- .11 ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated 120 / 105 ksi Minimum Tensile Strength.
- .12 ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated 150 ksi Minimum Tensile Strength.
- .13 ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
- .14 CISC / CPMA Standard 1-73a - A Quick-Drying One-Coat Paint for Use on Structural Steel.
- .15 SSPC SP-6 - Commercial Blast Cleaning
- .2 Where the Standard is referenced in this specification it shall mean the documents specified in clause 1.4.1.2, as specified in the Building Code noted in clause 1.4.1.1, and their referenced documents.

1.5 DEFINITIONS FOR THIS SECTION

- .1 “Owner”, “Contractor” and “Consultant” as per the General Conditions and Definitions.
- .2 “Structural Engineer” shall mean a representative of Read Jones Christoffersen Ltd.
- .3 “Specialty Structural Engineer” is a Professional Engineer registered in Ontario responsible for components designed by the Contractor and who seals and signs shop drawings.
- .4 “Testing Agency” shall mean the testing agency responsible to the Owner.
- .5 “Standard” and “Standards” shall mean the reference standards listed under “Reference Standards” in this section.

1.6 QUALIFICATIONS

- .1 Structural steel fabricator shall have not less than five (5) years experience in the fabrication of structural steel.
- .2 Erector shall not have less than five (5) years experience in the erection of structural steel.
- .3 Steel fabricators and erectors must be certified under requirements of CSA W47.1 as required by CSA S16.
- .4 Welding procedures, welders and welding operations shall be qualified in accordance with Canadian Welding Bureau Standards.

1.7 EXAMINATIONS

- .1 All dimensions shall be taken from the drawings and verified by field measurement. Be responsible for the correctness of such measurements and report to the Consultant and Structural Engineer in writing all discrepancies between measurements in the field and those shown on drawings prior to commencing work. Verify location of anchor bolts and embedded steel and ensure that work prepared by other trades is at a proper elevation, on line, level and true.

1.8 SUBMITTALS

- .1 The Contractor shall submit, with the tender, written evidence of qualification of the steel fabricators and erectors for welding under Canadian Welding Bureau requirements.
- .2 The Contractor shall submit, with the tender, written evidence of ability to weld reinforcing steel to structural steel in accordance with CSA W186.
- .3 When requested, submit copies of mill test reports properly correlated to the materials used on the project.
- .4 Provide a schedule of fabrication to the Consultant, Structural Engineer and Testing Agency prior to the commencement of the fabrication.

1.9 SHOP DRAWINGS

- .1 Submit shop drawings prepared under direction of the Specialty Structural Engineer. Drawings of components and connections designed by the Contractor shall be sealed and signed by this Specialty Structural Engineer or a letter shall be submitted at the end of the project signed and sealed by this Specialty Structural Engineer. The letter shall identify what was designed by the Specialty Structural Engineer and list the final shop drawings by number with dates and revision numbers.
- .2 Shop drawings shall show complete shop and erection details necessary for fabrication and erection of the component parts of the structure, including cuts, copes, connections, holes, threaded fasteners, splices and location, type, size and extent of all welds. Splices not shown on the shop drawings will be rejected. All welds, both shop and field, shall be indicated by AWS Welding Symbols as specified in the CSA W59

Appendix D and E.

- .3 Provide a shop drawing clearly locating all anchor bolts, embedded plates, baseplates, etc.
- .4 Provide setting drawings, templates and directions for the installation of anchor bolts, plates and other devices.
- .5 Prior to starting erection work, submit a description of the methods, sequence of erection and type of equipment proposed for use in erecting structural steel for review of the effects of construction loads on the remainder of the structure.
- .6 Review of the shop drawings by the Structural Engineer is intended as an assistance to the Contractor and does not relieve the Contractor of his responsibility for the completeness or accuracy of his work and its conformance with the contract documents.
- .7 Fabrication that commences prior to shop drawing review by the Structural Engineer is at the risk of the Contractor.
- .8 Clearly identify on the shop drawing all revisions, changes, or modifications.
- .9 Resubmit reviewed shop drawings where noted in the Read Jones Christoffersen Ltd.'s review stamp, or when the Contractor makes revisions for his own purposes.
- .10 Allow at least two (2) weeks for shop drawing review by the Structural Engineer.
- .11 Structural drawings are not prepared to be used as erection or shop drawings. However, electronic files or sepias may be used by the Contractor under the following conditions:
 - .1 Copyright remains with Read Jones Christoffersen Ltd.
 - .2 The drawings will only be used for shop drawings for this project and not be put to any other use.
 - .3 Read Jones Christoffersen Ltd. assumes no liability for errors or omissions in the drawings. The Contractor assumes all risk and expenses associated with the use of structural drawings in the production of his work.
 - .4 References to Read Jones Christoffersen Ltd. must be deleted from the title block.
 - .5 The Contractor signs a release available from Read Jones Christoffersen Ltd. that addresses the above items in more detail.

1.10 SUPPLY OF ALTERNATE PRODUCTS

- .1 Should the rolled sections shown on the drawings not be procurable, or should substitution for those sections be desired, sections of equivalent strength, may be substituted if approved by the Consultant. In such cases full particulars, thereof must be submitted prior to the closing of Bid. Material substitutions after the closing of Bid, if accepted, will be at the Contractor's cost.

1.11 TESTING AND FIELD REVIEW

- .1 The Specialty Structural Engineer responsible for shop drawings, or the Specialty Structural Engineer's representative, shall visit the site to review in place the connections and components designed by that Specialty Structural Engineer. The Specialty Structural Engineer shall be satisfied or take steps to ensure that these connections and components substantially comply with the Specialty Structural Engineer's design. The Specialty Structural Engineer shall then provide a sealed and signed letter to the Consultant and Structural Engineer to this effect.
- .2 Prior to the commencement of work provide a schedule of shop fabrication to the Testing Agency.
- .3 If requested, submit certified mill tests in accordance with the Standards.
- .4 The Contractor shall advise the Testing Agency of the scheduling of all shop and field work pertaining to this Project. The Contractor shall permit the testing agency full access to the fabrication shop and the site, for the purpose of carrying out his work and he shall provide assistance required to aid in the performance of the inspection and testing.

1.12 STORAGE AND HANDLING

- .1 The Contractor shall be responsible for the protection of all steelwork during fabrication, shipping, storage and construction. All small bends and damage shall be reported to the Structural Engineer for instructions. Steel work which is bent, broken or otherwise damaged, shall be repaired or replaced by the Contractor prior to erection to the satisfaction of the Structural Engineer at no cost to the Owner.
- .2 The Contractor shall be responsible for proper scheduling of delivery and erection for the structural steel in accordance with the construction schedule.
- .3 Store structural steel members at the site above ground on platforms, skids or other devices so that ground dampness will not affect the bottom members of the stacks.
- .4 Steel, which is stored outdoors after fabrication, shall be protected from accumulations of standing water.
- .5 Other materials shall be stored in a weather tight and dry place until ready for use in the Work.
- .6 Packaged materials shall be stored in their original unbroken packages or containers.

1.13 COORDINATION WITH OTHER TRADES

- .1 Supply all necessary instructions and drawings to other trades for setting bearing plates, anchor bolts, and other members that are built in with the work of other trades. Provide punched holes for the convenience of other trades in attaching wood blocking or other materials. Coordinate with drawings of other disciplines for locations and details. Supply the necessary material in accordance to the construction schedule.

2. Products

2.1 MATERIALS

- .1 All steel shall be new unless otherwise indicated and be of sizes and shapes listed in the current CISC Handbook or AISC Handbook and as indicated on the drawings.
- .2 Rolled shapes, except wide flanges, and rolled plate shall be to CSA G40.21 - grade 300W or equal.
- .3 Wide flange rolled shapes and welded wide flange sections shall be to CSA G40.21 - grade 350W or equal.
- .4 Hollow structural sections shall be to CSA G40.21 - grade 350W, Class H or C.
- .5 High strength bolts shall be to ASTM A325 or A490, as required by the drawings.
- .6 Standard anchor rods shall be to ASTM F1554, 36ksi. High strength anchor rods shall be to ASTM A193, grade B7, see drawings for locations, if required.
- .7 Bolts and nuts shall be to ASTM A307.
- .8 Primer for interior exposure not to receive a shop or field paint finish shall be to CISC / CPMA Standard 1-73a or other pre-approved, unless noted otherwise.
- .9 Brick support angles and related framing materials exposed to weather, shall be galvanized to CSA G164.
- .10 Headed shear stud connectors shall be Nelson anchors with fluxed ends or other pre-approved equal conforming to ASTM A108. Studs to be automatically end welded with suitable stud welding equipment or shop fillet welded to develop full strength of the stud. Field fillet welded studs will be rejected.
- .11 Bar anchors shall be Nelson deformed bar anchors or pre-approved equal conforming to ASTM A496.
- .12 Welding consumables for all processes shall be fully approved by the Canadian Welding Bureau and certified by the manufacturers as complying with the requirements of this specification. Such certificates shall be not more than two (2) years old.
- .13 Electrode strengths to be equal to E49XX (E70XX) or better.
- .14 Grout for column bases shall be non-metallic, non-expanding and non-shrink type with a minimum strength of 35 MPa at 28 days, unless noted otherwise. Grout may be place in a dry pack or flowable consistency.

2.2 DESIGN

- .1 Unless otherwise noted connections and trusses shall be designed by the Contractor to the reference Standards by the Specialty Structural Engineer.
- .2 Where connections are detailed, use connection of the type and detail shown on the drawings. Modifications to the specified connection types and details will not be

permitted without prior approval from the Structural Engineer.

- .3 The following connections, and any connections so noted on the structural drawings, shall be designed as slip critical and shall be pre-tensioned:
 - .1 Trusses.
 - .2 Elements resisting crane loads.
 - .3 Connections for supports of running machines or other live loads that produce impact or cyclic loads.
 - .4 Connections where bolts are subject to repeated tensile loads.
 - .5 Connections using slotted holes in the direction of the load or oversize holes unless specifically designed to accommodate movement.
- .4 Connections for wind or seismic lateral load-resisting elements, such as bracing and drag struts, and others so noted on the structural drawings may be designed as bearing connections but shall be pre-tensioned.
- .5 Other bolted connections may be snug tight.
- .6 Use standard connection types where connections are not detailed on the structural drawings.
- .7 Design shall be for the forces and loads shown on the drawings and shall allow for the effects of beam deflections. Provide a minimum of two (2) 19 mm (3/4") A325 bolts or an equivalent weld for all beam to girder and beam to column connections. If forces or loads are not given, the connection shall be designed for the maximum uniform distributed load that the member can carry for the span shown.
- .8 Structural steel members spliced for ease of fabrication or transportation shall have splices designed to develop the full strength and stiffness of the member. Splices shall be subject to non-destructive testing as directed by the Structural Engineer. The cost for such testing shall be borne by the Contractor.
- .9 Provide stiffeners in beam webs at all locations where beams pass over supports. Unless noted otherwise in the structural drawings, web stiffeners shall be 10 mm minimum.
- .10 Provide separators for all double members in accordance with CSA S16.

3. Execution

3.1 FABRICATION

- .1 Fabrication shall be to CSA S16 and reviewed shop drawings.
- .2 Welding shall be to CSA W59.
- .3 Structural steel work shall be executed by skilled and experienced workmen.
- .4 Fabricated units shall be straight and true and without sharp kinks or bends, accurate to sizes shown.

- .5 Fabricate rolled steel sections so that any camber and/or sweep resulting from manufacturing is positioned to create a hump up between the ends, not a sag down.
- .6 Flame cut steel columns shall have their ends milled. Steel base plates supporting columns shall be flat.
- .7 Unless noted otherwise, all hollow structural sections shall be dry inside and closed airtight with end plates sealed with welds.
- .8 Visually inspect all plates and shapes for laminations. Repair plates or shapes that contain laminations in a manner approved by the Structural Engineer.
- .9 Headed shear stud connectors and deformed bar anchors shall be applied in strict accordance with the manufacturer's instructions and the Standards or shop fillet welded as per the Standards. Procedural control to be in accordance with W59 as a minimum. Field fillet welds will be rejected.
- .10 Obtain Structural Engineer's approval for holes required through structural steel that are not shown on the drawings.
- .11 Refer to Architectural drawings for extent and location of Architecturally exposed steel elements.
- .12 Remove and replace any work which is not acceptable to the Consultant, when and as directed. Such operation shall not become an extra charge to the Owner.
- .13 Steel members spliced for ease of fabrication shall develop the full strength and stiffness of the member.
- .14 Where roof slopes exceed 5% and do not permit flush bearing of the steel deck on the beams, provide continuous 3mm bent plates to the pitch and necessary to ensure full bearing of the steel deck. Co-ordinate with the deck supplier the locations that will require these bent plates.

3.2 CLEANING AND PRIMING

- .1 All steel shall be thoroughly cleaned of all loose mill scale, loose rust, oil or dirt.
- .2 Architecturally exposed steel members, related framing and exterior steel shall be primed.
- .3 Steel, which will be encased in concrete, fireproofed, zinc coated or galvanized, welded, receive shear studs, faying surfaces of slip resistant connections and the underside of base plates and bearing plates steel shall not be primed.
- .4 Structural steel which will not receive a finish paint coat and is required to be primed for interior exposure shall be cleaned in accordance with CISC / CPMA Standard 1-73 (minimum).
- .5 Structural steel to be primed for exterior exposure shall be cleaned in accordance with SSPC SP6 "Commercial Blast Cleaning" as a minimum.
- .6 Apply primers in accordance with the manufacturer's instructions.

- .7 Use paint prepared by manufacturer without thinning or adding admixtures. Execute painting on dry surfaces, free from rust, scale, or grease. Do not paint in temperatures lower than 8°C.
- .8 Where finish painting to parts inaccessible for finish painting after final assembly is required, apply two coats of paint during fabrication. Apply paint of 2 different colours so that missed areas can be detected.
- .9 Provide the following touchup for steel in an exterior exposure or which has a finish paint coat. After erection and after connections are completed, provide a field touchup coat of primer to all surfaces that had no paint shop coat and have been chipped or scraped. Touch up with primer and paint all shop coat painted areas that have been chipped or scraped.
- .10 Provide the following touchup for galvanized steel. After erection and after connections are completed, provide a field touchup coat of zinc rich paint to all surfaces that have been chipped or scraped.

3.3 ERECTION

- .1 The erector is fully responsible for erection methods, equipment, workmanship and safety precautions.
- .2 Confirm the setting of anchor bolts and bearing plates and make an instrument survey to verify the setting prior to erection of steel members.
- .3 Cutting or burning of baseplates to accommodate anchor bolts shall be cause for rejection of baseplates.
- .4 Install all temporary bracing that is required to stabilize the work against wind, earthquake and construction loads. Keep structure true and plumb until completion of the building. Assume complete responsibility for the extent and timing of the removal of such bracing. The bracing members indicated on the drawings are required for the finished structure and shall not be considered as adequate for temporary bracing. Any failure to make proper and adequate provision for stresses occurring during the erection from any causes whatsoever shall be entirely the responsibility of the Contractor.
- .5 As erection progresses, the work shall be securely bolted up to take care of all loads including wind and seismic during erection. Any failure to make proper and adequate provisions for loads during erection shall be solely the responsibility of the Contractor.
- .6 The Contractor shall be responsible for the design of all hooks, erection connections and handling gear.
- .7 Whenever piles of materials, erection equipment, or other loads are carried during erection, proper provision shall be made to take care of stresses resulting from same. All construction loads shall be adequately distributed so as not to exceed the capacity of any member.
- .8 Structural steel shall be assembled and erected in accordance with the approved

erection drawings and specified reference Standards.

- .9 Structural steel work on concrete shall be carefully located at the proper grade and rigidly secured in place, using steel shims. Spaces under the steel shall then be filled with nonshrink premix grout as soon as possible, and before placing any concrete toppings or precast concrete units.
- .10 Plumb, level and align individual members of steel work as specified in CSA S16.
- .11 The various members forming parts of complete frame or structure after being assembled shall be aligned and adjusted accurately before being fastened.
- .12 Bearing surfaces and surfaces which will be in permanent contact shall be cleaned before the members are assembled.
- .13 Temporary bolts, clips and angles etc. used to facilitate erection shall be removed unless noted otherwise on the drawings.

3.4 TEMPORARY FLOORING

- .1 Provide all temporary flooring, planking and scaffolding necessary in connection with erection of structural steel, or support of erection machinery in accordance with governing regulations and by-laws.

3.5 WELDING

- .1 Welding shall be done by the shielded metal-arc method in accordance with the requirements CSA W59. The welding operators shall be currently certified under CSA W47.1 for the work they are performing.
- .2 Submit, when requested, welding procedures prepared and sealed by a Specialty Structural Engineer for review.
- .3 Surfaces to be welded shall be free from loose scale, rust, paint, or other foreign matter. Where weld material is deposited in two (2) or more layers, each layer shall be cleaned before the next layer is deposited. Care shall be taken to minimize stresses due to heat expansion, contraction and distortion by using proper sequence in welding and by approved methods.
- .4 Appearance, quality of welds made, methods of correcting defective work shall be in accordance with CSA W59.
- .5 Welding of reinforcing bars to structural steel as per CSA W186.

3.6 COMPLETION

- .1 The Specialty Structural Engineer responsible for the sealed shop drawings, or his representative shall visit the site to review in place connections and components designed by that Specialty Structural Engineer to ensure substantial compliance with his sealed shop drawings. He shall then submit a sealed and signed letter of substantial compliance to the Consultant and Structural Engineer.
- .2 On completion of the work of this section, all protection erected in conjunction with

the structural steel work shall be removed, all damage to this work and adjoining work shall be made good and all surplus materials and debris and all tools, plant and equipment shall be removed from the site.

End of Section 05100