

1 Standards

- .1 Materials shall be new and work shall conform to the referenced standards, to the National Building Code of Canada 2010 (NBC) and all applicable provincial and municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

2 Taxes, Fees, Permits, and Certificates

- .1 Contractor to pay all taxes properly levied by law (including federal, provincial and municipal).
- .2 Contractor to pay all fees and obtain all permits. Provide authorities with drawings and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to the requirements of the authority having jurisdiction.
- .3 A building permit has been processed by the City of Ottawa and is ready for pick-up. Pay permit fee, calculating the cost on the basis of the tender price.
- .3 Contractor to obtain and maintain the permit for the duration of the project.
- .4 Contractor to be responsible to apply occupancy permit after the completion of the work.
- .5 Contractor to be responsible to contact the City of Ottawa for any required inspection.

3 Fire Safety Requirements

- .1 Comply with the National Building Code of Canada 2010 (NBC) for fire safety in construction and the National Fire Code of Canada 2010 (NFC) for fire prevention, fire fighting and life safety in building in use.
- .2 Comply with Human Resources and Social Development Canada (HRSDC), Fire Commissioner of Canada (FCC) standards:
 - .1 No. 301: Standard for Construction Operations
 - .2 No. 302: Standard for Welding and Cutting
 - .3 No. 374: Fire Protection Standard for General Storage (Indoor and Outdoor)
 - .4 Available from Fire Protection Engineering Services, Labour Program, HRSDC or following internet site:
http://hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/index.shtml
 - .5 Retain all fire safety documents and standards on site.
- .3 Welding, soldering, grinding, cutting and coring:
 - .1 Prior to welding, soldering, grinding, cutting and coring work, obtain hot work permits from the Fire Prevention Unit as directed by the Departmental Representative. Store flammable liquids in approved CSA containers inspected by the Departmental Representative. No open flame shall be used unless permitted and authorized by the Fire Prevention Unit.

- .2 At least 3.5 business days prior to commencing welding, soldering, grinding, cutting work and coring procedure, provide to Departmental Representative:
 - .1 Notice of intent, indicating fire protection devices affected, time and duration of isolation or bypass requested.
 - .2 Completed welding permit as defined in FC 302 and as described in .3 below.
 - .3 Details of the activities, including exact locations, and schedule and duration.
 - .4 The permit will be provided on location. The Departmental Representative's Fire Prevention Specialist review site (have it signed by General Contractor (CG) and provide the permit. Permit is only valid if fire watcher (GC) has signed it and posted on site at all times when performing the work. Work is not to start until the permit has been granted.
 - .5 Return welding permits to Departmental Representative immediately upon completion of procedures for which permits were issued.
- .3 A fire watcher as described in FC 302 shall be assigned when welding, soldering, grinding or cutting operations are carried out in areas where combustible materials within 10 m may be ignited by conduction or radiation.
- .4 Where work requires interruption of fire alarms or fire suppression, extinguishing or protection system, provide 4 weeks advanced notice with specific information to locations affected, including welding permit application. Perform this work during off-hours as defined in Section 01 14 00 Work Restrictions.
 - .1 Provide watchman service as described in FC 301; In general, watchman service is defined as an individual conversant with Fire Emergency Procedures, performing fire picket duty within an unprotected and unoccupied (no workers) area once per hour.
 - .2 Retain and pay for services of manufacturer for fire protection systems on daily basis or as approved by FCC, to isolate and protect all devices relating to:
 - .1 modification of fire alarms, fire suppression, extinguishing or protection systems;
 - .2 cutting, welding, soldering or other construction activities which might activate fire protection systems.
- .5 Immediately upon completion of work, restore fire protection systems to normal operation and verify that all devices are fully operational.
- .6 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.
- .7 Burning rubbish and construction waste materials is not permitted on site.

- .1 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
- .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.
- .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
- .4 Refer to Section 01 45 00 - Quality Control.

5 Hazardous Materials

- .1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources Development Canada, Labour Program.
- .2 For work in occupied buildings give the Departmental Representative 10 working days notice for work involving designated substances, hazardous substances (Canada Labour Code Part II Section 10), and before painting, caulking, installing carpet or using adhesives.
- .3 The Departmental Representative (Occupational Health and Safety Engineer) must be provided with MSDS sheets at least 2 weeks prior to their use on site.
- .4 The Departmental Representative (Occupational Health and Safety Engineer) must be provided with 72 hours of notice for work involving designated substances, hazardous substances, and before painting, caulking, installing carpet or using adhesives (or any other odour-emitting activities).
- .5 For work involving designated substances, the information to be provided to the Departmental Representative (Occupational Health and Safety Engineer) must include:
 - .1 Summary of the work being performed,
 - .2 The name of the contractor performing the work,
 - .3 The dates and start and end times for the work,
 - .4 The name of the contractor performing clearance testing or monitoring (if relevant)
- .6 For work involving odour-emitting products, the information to be provided to the Departmental Representative (Occupational Health and Safety Engineer) must include:
 - .1 Summary of the work being performed,
 - .2 The name of the contractor performing the work,
 - .3 The dates and start and end times for the work,
 - .4 The product being used and for what purpose, Copies of the MSDS sheets in French and English (if the MSDS sheets have not previously been provided.
- .7 All abatement activities must be carried out during "off hours" Monday to Friday 18:00 to 06:30, if work is non-disruptive, and on Saturdays, Sundays and statutory holidays. Otherwise work must be carried out from 21:00 to 06:00 hours.

6 Removed Materials

- .1 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

7 Protection

- .1 Protect finished work against damage until take-over.
- .2 Protect adjacent work against the spread of dust and dirt beyond the work areas.
- .3 Protect operatives and other users of site from all hazards.
- .4 Provide a restricted protection zone around the perimeter of the building in the area of the work for a width of 3 m measured from the exterior face of the masonry wall, as indicated. Provide overhead protection for workers within this construction area for the duration of the project in accordance with Section 01 56 00 Temporary barriers and Enclosures, except where the steel tower provides protection.

8 Use of Site and Facilities

- .1 Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated. Refer to article "Scheduling" below for work that must be done during "off hours".
- .2 Premises adjacent to the site will be occupied and operational at all times during the construction period.
- .3 Maintain existing services to building and provide for personnel and vehicle access.
- .4 Where security is reduced by work provide temporary means to maintain security.
- .5 Provide sanitary facilities for site personnel. Use of facilities inside the building is strictly forbidden,
- .6 Closures: Protect work temporarily until permanent enclosures completed.
- .7 Provide snow removal as required to maintain complete site access during period of work. Coordinate the Departmental Representative to avoid conflict with existing snow removal contractors responsible for general snow removal on Parliament Hill.
- .8 Use by construction personnel of facilities located on Parliament Hill, such as cafeterias, transportation, washroom facilities, snow and ice areas/shelters, is strictly forbidden.
- .9 Coordinate work with other projects occurring on Parliament Hill and cooperate with other contractors to minimize traffic conflicts and access restrictions

9 Site Storage

- .1 Coordinate and receive deliveries of materials on site. Coordinate and respect procedures and security measures required by Departmental Representative.
- .2 On-site storage of materials and equipment must be located inside the construction yard. Storage capacity within the construction yard is very limited. Off-site storage may be required as specified in Section 01 52 00 - Construction Facilities.

- .3 Garbage bins, recycling bins and dump boxes must be located inside the construction yard, concealed from view from outside the hoarding area.
- .4 Use of client's garbage and recycling bins by construction personnel is strictly forbidden.

10 Cutting, Patching and Making Good

- .1 Cut existing surfaces as required to accommodate new work.
- .2 Remove all items so shown or specified.
- .3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.
- .4 Core drill openings in existing walls required to connect services, as indicated.
- .5 Install firestops and smoke seals in accordance with CAN/ULC-S115-05, Standard Method of Fire Tests of Firestop Systems, around pipe, ductwork, cables, and other objects penetrating fire separations to provide fire resistance not less than the fire resistance rating of surrounding floor, ceiling, and wall assembly.
- .6 Refer to Section 01 73 00 - Execution Requirements.
- .7 Wet coring is strictly forbidden on interior side of the tower.
- .8 A scope of work detailing all invasive work with health and safety measures must be provided to the Departmental Representative (Occupational Health and Safety Engineer) for review, at least 3 weeks prior to the start date for the work.

11 Sleeves, Hangers and Inserts

- .1 Co-ordinate setting and packing of sleeves and supply and installation of hangers and inserts. Obtain Departmental Representative's approval before cutting into structure.
- .2 Refer to Section 01 61 00 - Common Product Requirements.

12 Examination

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions
- .2 Prior to start of work, provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

13 Signs and flagman

- .1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etcetera, in both official languages or by the use of commonly-understood graphic symbols to the Departmental Representative's approval.
- .2 The General Contractor will be responsible to hire his own flagman on a full-time basis for the duration of the project.
- .3 No advertising will be permitted on this project.
- .4 Refer to Section 01 52 00 - Construction Facilities.

14 Security requirements

- .1 Interior and exterior Site Security
 - .1 Provide and pay for responsible security guard 24 hours/day and 7 days per week (separate from the security guard for control access during construction hours - see Section 01 52 00) for site security. Primary tasks of this individual will be as follows:
 - .1 Site security rounds (interior and exterior) should be complete once every hour 24 hrs a day and 7 days per week.
 - .2 Perform hourly fire watches of all the exterior and interior hoarding.
 - .3 Create and maintain a daily log of all incidents that occur on the site, and make available to the Departmental Representative upon request.
 - .2 A PWGSC commissionaire will be responsible for overseeing in conjunction with the security guard of the GC for access control to the site.
 - .3 For access to occupied building areas, which are not part of construction, Public Works requires 48 hour notice to the Departmental Representative to arrange for an escort.
 - .4 A minimum of 5 days notice must be given to Departmental Representative for interventions to existing access control, fire protection, electrical services, sprinkler, HVAC systems, etc. Note: Work requiring a hot work permit also requires 5 days notice.
- .2 Cables and equipments
 - .1 General Contractor to ensure that all cabling installations and conduit be properly labeled as per the Senate security naming nomenclature standards.
 - .2 General Contractor to ensure all pull strings must be installed in all conduits, zone or door box infrastructure for future use.
 - .3 General Contractor to ensure all obsolete cables be removed and discarded. Confirmation will be provided by the Departmental Representative.

15 Access and Egress

- .1 Use tower enclosure for temporary "access to" and "egress from" work areas. Maintain tower and components in accordance with relevant municipal, provincial and other regulations.
- .2 Keep within limits of work and avenues of access and egress.
- .3 Keep access gates to site area closed except for movement of materials or personnel.
- .4 Use access to building as indicated.
- .5 Schedule deliveries and removals of materials to minimize vehicle waiting time on site or adjacent areas.
- .6 Instruct drivers of vehicles associated with the Work to exercise care, patience and courtesy when driving on Parliament Hill. Give right-of-way to pedestrians and exercise extreme care when vehicles commence motion in any direction.
- .7 Accompany vehicles over 10 Tonne gross vehicle weight, with flagmen. Refer to the requirements of the Ontario Regulations for Construction Projects as referenced in Section 01 35 29 - Health and Safety Requirements.

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- .8 Obtain approval of Departmental Representative 5 business days in advance for all vehicles entering Parliament Hill grounds. Provide the Departmental Representative with the vehicle weights and configuration (no. of axes, dimensions, etc) 5 business days prior the vehicle coming to site for approval. The vehicle weights must be considered as distributed loads and therefore the pressure limitations are to be considered.
 - .9 Refer to Section 01 56 00 - Temporary Barriers and Enclosures.
- 16 Guarantees and Warranties
- .1 Before completion of work collect all manufacturer's guarantees and warranties and deposit with Departmental Representative.
- 17 Building Smoking Environment
- .1 Smoking is not permitted in the Building. Obey smoking restrictions on building property.
- 18 Scheduling
- .1 Refer to section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart for production of master schedule.
 - .2 Refer to Section 01 14 00 - Work Restrictions
- 19 Documents Required
- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.
- 20 Cost Breakdown
- .1 Following contract award submit breakdown of Contract Amount in detail. The breakdown should reflect the tasks described in the sequence of work and the nature of the works as identified in the specifications. The cost breakdown will be as required by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.
 - .2 Arrange the cost breakdown in accordance with the table of contents of these specifications.
- 21 Archaeology

- .1 All excavations are to be monitored by the Departmental Representative. Provide 5 days notice to the Departmental Representative prior to the commencement of excavation. Once notified the Departmental Representative will be on stand-by.
- .2 The Departmental Representative will signal to the Contractor when excavation, either mechanical or hand dug, must cease.
- .3 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and their contents, commemorative plaques, inscribed tablets, and similar objects found during the course of the work.
- .4 If such items are encountered, stop work immediately and give immediate notice to Departmental Representative. Await Departmental Representative's written instructions before proceeding with work in this area.
- .5 Relics, antiquities, items of historical or scientific interest remain her Majesty's property.

22 Meetings

- .1 Organize bi-weekly project meetings to discuss progress, schedule and issues. The Departmental Representative will record and distribute minutes of meetings. Arrange for Subcontractors to attend meetings as required. Meetings will occur during normal business hours, between Monday and Friday.

23 Submittals

- .1 All documentation to be compatible with Microsoft Office 2007 and AutoCAD 2009.
- .2 All documentation to be provided to Departmental Representative on completion date.

END OF SECTION

PART 1 GENERAL

1.1 General

- .1 This project requires work to be limited in place and time in order to minimize impact on Parliamentary operations. Be responsible for efficiently coordinating work to comply with the requirements of this Section. Contractor is to assume all costs related to the inefficiencies and loss of productivity caused by the requirements of this Section.

1.2 Access and Egress

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Allow access to all manholes within the work area to the Departmental Representative at all times.

1.3 Use of Site and Facilities

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.
- .5 Parking is not permitted on the site.
- .6 Do not leave unattended vehicles on the site.

1.4 Alterations, Additions or Repairs to Existing Building

- .1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.5 Existing Services

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 4 calendar weeks of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends. Provide with the notice, the details of the shutdowns, schedule, locations, and safety procedures, including sequence of work.
- .3 Provide for personnel, pedestrian and vehicular traffic.

- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 Special Requirements

- .1 Schedule Restrictions when Parliament is in Session (nominally September through June)
 - .1 Noise, odours, and structure borne vibrations will not be tolerated in occupied spaces during normal working hours.
 - .2 Paint interior public or occupied areas Monday to Friday from 21:00 to 06:00 hours only and on Saturdays, Sundays, and statutory holidays.
 - .3 When house is in session, carry out noise and vibration generating Work such as drilling or cutting joints in masonry from 21:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays. This also includes the operation of air compressors, generators, and other similar equipment that may be audible within occupied spaces. When the House of Commons has late sittings, all work that creates a disturbance shall cease until at least one hour after the House has adjourned.
 - .4 No work of any kind can be performed inside either vent tower when the Senate and House are in session.
 - .5 When house is in recess noise and vibration generating work shall be performed between 21:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays.
 - .6 Two daily equipment shutdowns will be required of the Contractor so as to minimize disturbance with activities on Parliament Hill which are of traditional heritage and tourist importance. During these periods, the Contractor shall shut off all audible equipment including compressors, generators, excavation or hoisting equipment and any other heavy equipment or hand operated equipment as directed by the Departmental Representative. These are:
 - .1 10:00 to 10:30 from May to September during Changing of the Guard ceremonies.
 - .2 10:55 to 11:10 daily to respect the page-turning ceremony at the Memorial Chapel.
 - .7 The Contractor shall cease all operations at the construction site each summer during the Sound and Light/Son et Lumière from May through September from 20:30 through 23:20 at no cost to the Departmental Representative.
 - .1 Shut down all site lighting during this period and lower all crane booms to the horizontal.
 - .8 The Contractor shall cease all operations at the construction site each year during the following times at no cost to the Departmental Representative:
 - .1 The Sound and Light event: daily from May through mid-September, from 20:30 to 23:20 hours.
 - .2 Remembrance Day: November from 10:45 to 11:15 hours.
 - .3 Canada Day: July 1 from 6:00 to July 2, 01:00 hours.
 - .4 Christmas Light Ceremony: first Thursday in December from 17:00 to 23:00 hours.
 - .5 Police Memorial Service: Last Sunday in September from 08:30 to 12:30 hours.

- .6 Firefighter Memorial Service: Second Sunday in September from 08:30 to 12:30 hours.
- .7 Budget day.
- .8 State visits and special events.
- .9 In spite of compliance with the restrictions above, random interruptions caused by occupant requirements will occur due to the unpredictable nature of the schedule of Parliament. Assume 30 days of random interruptions in addition to the events specified in 1.6.8, for the period between May 1 and September 30, and an additional 30 days between October 1 and April 30.
- .2 Schedule restriction when Parliament is in recess (nominally between June and September)
 - .1 As per 1.6.1 except noise generating work can be undertaken between 18:00 and 06:00 Monday to Friday, and any time Saturday, Sunday, and Statutory Holidays.
- .3 Abatement of designated substances must be done after providing 10 business days' notice to the Departmental Representative. Work can begin once the Departmental Representative has implemented mitigation measures. All abatement activities must be carried out Monday to Friday between 18:00 to 06:00 and on weekends if the work is non-disruptive. If it is disruptive it must be done between 21:00 and 06:00.
- .4 Unrelated construction activities:
 - .1 The exterior mobilization on the House of Common Tower cannot begin until after January 24, 2014, as another project will be active in this area.
 - .2 Major projects will be underway on the west side of Centre Block, making this area inaccessible throughout the time of construction.
- .5 Submit schedule in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.
- .6 MSDS sheets to be provided by the contractor to the Departmental Representative 2 weeks prior to any work.
- .7 Schedule deliveries and removals of materials from 18h00 to 06h00 during the week or on Saturdays, Sundays and statutory holidays.

1.7 Dust Control

- .1 Assume dust from construction will travel from the open scaffold to the ground and be dispersed widely by wind. Take measures to limit the impact of the dust on building occupants and visitors to the Hill during periods of work when dust is being generated. These measures include:
 - .1 Wash windows and skylights within 20m of the scaffold weekly.
 - .2 Remove dust from the leaves of adjacent trees and plants by spraying with a hose once weekly. Provide a personnel lift to enable the upper canopy of trees to be reached.
 - .3 Remove accumulations of dust from monuments weekly.
 - .4 Check drains on adjacent roofs for accumulations of sediment and remove as required.

1.8 Security

- .1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.
- .2 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.
- .3 The keys to access the site and the keys of all the existing and temporary interior doors affected by the interior hoarding will be held by Security. After hours the keys will be made available at the Centre Block Main Guard Post, 24/7. Provide additional keys to House of Common, Senate Protective Service and RCMP Security.
- .4 The Contractor shall provide 72 hours notice of each delivery and vehicle access to the site, complete with vehicle make and model, colour, licence plate number, names of vehicle occupants and date of birth. Vehicle occupants will be subject to the same security requirements as personnel employed on the project.
- .5 Access to areas outside of the spaces enclosed by hoarding, as indicated on plans, is restricted and will require prior approval for each instance no less than 48 hours beforehand.

1.9 Building Smoking Environment

- .1 Comply with smoking restrictions. Smoking is not allowed.

1.10 Equipment restriction

- .1 The use of gas powered or pneumatic tools within occupied areas of the building is strictly prohibited.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

END OF SECTION

PART 1 GENERAL

1.1 Suggested Sequence of Work

- .1 Currently, the towers are restrained by timber blocking and cables
- .2 These stabilization systems shall be used to ensure the safe and proper implementation of permanent stabilization systems with minimum negative impact on the tower masonry. This will require the execution of the main interventions in a specific sequence which is specified below.
- .3 Suggested sequence: House of Commons Tower:
 1. Remove windows by dismantling from inside, with crane basket on the exterior for safety. Conserve off site
 2. Remove louvres by dismantling from inside, with crane basket on the exterior for safety. Lower to ground with crane. Conserve off site
 3. Erect exterior scaffolding to ensure emergency access from tower
 4. Adjust spacing of cable restraints to allow for access into the tower.
 5. Replace copper roof
 6. Install interim scaffolding for HVAC dismantling
 7. Dismantle ductwork
 8. Remove existing exhaust fan at 5th floor
 9. Dismantle interim scaffolding
 10. Remove intermediate platform
 11. Erect interior scaffolding and central mechanical/electrical supports
 12. Install new plumbing
 13. Install new conduit and/or flex cable
 14. Install final ductwork on scaffold
 15. Swap over old to new plumbing
 16. Connect new electrical
 17. Remove existing conduit and plumbing
 18. Install exhaust fan(s) at lower level
 19. Connect existing exhaust ducts to sock(s)
 20. Install duct sock(s)
 21. Chimney removal, masonry and structural reinforcement work, starting at the top
 22. The structural steel and anchors shall be installed only in restored masonry. The interior brick shall be restored before mounting the steel frame. The exterior Nepean stone masonry shall be restored before the installation of the in-plane anchors.
 23. Allow for 28-day curing period before coring in the newly restored masonry.
 24. Allow for 14-day curing period before coring in masonry within a 3 m radius of newly restored masonry.
 25. The stone quoins shall be restored in vertical order starting from the lower sections. In the strapped sections with wood blocks and cables, the wood blocks and cables shall be removed in small sections not exceeding 1.0 m in height to allow for the restoration of masonry and the installation of the in-plane anchors.

26. Remove exterior timber shoring incrementally as reinforcing is completed
27. Install vertical reinforcing
28. Install new flues
29. Remove interior scaffold. Install permanent platforms and mechanical bracing at intervals as the scaffolding is removed.
30. Reinstall upper windows/louvres
31. Dismantle exterior scaffolding
32. Erect secondary exterior scaffolding bearing on adjacent roofs
33. Repair or replace sills used to support main scaffold
34. Reinstall lower windows
35. Remove secondary exterior scaffolding
36. Repair damage to adjacent roof
37. Install new doors
38. Clean

.5 Suggested sequence: Senate Tower:

1. Remove windows by dismantling from inside, with crane basket on the exterior for safety. Conserve off site
2. Remove louvres by dismantling from inside, with crane basket on the exterior for safety. Lower to ground with crane. Conserve off site
3. Erect exterior scaffolding to ensure emergency access from tower
4. Replace copper roof
5. Remove intermediate platform
6. Install upper and lower scaffolding as separate systems
7. Connect existing exhaust ducts to sock(s)
8. Install interior hoarding
9. Deconstruct washrooms
10. Chimney removal, masonry and structural reinforcement work, starting at the top
11. Remove exterior timber shoring incrementally as reinforcing is completed
12. The structural steel and anchors shall be installed only in restored masonry. The interior brick shall be restored before mounting the steel frame. The exterior Nepean stone masonry shall be restored before the installation of the in-plane anchors.
13. Allow for 28-day curing period before coring in the newly restored masonry.
14. Allow for 14-day curing period before coring in masonry within a 3 m radius of newly restored masonry.
15. The stone quoins shall be restored in vertical order starting from the lower sections. In the strapped sections with wood blocks and cables, the wood blocks and cables shall be removed in small sections not exceeding 1.0 m in height to allow for the restoration of masonry and the installation of the in-plane anchors.
16. Install new slabs and wall in washrooms as soon as structural work at these levels is complete.

17. Install new plumbing
18. Connect new electrical
19. Fit up washrooms
20. Remove existing conduit and plumbing from shaft
21. Install vertical reinforcing
22. Install new flues
23. Remove interior scaffold. Install permanent platforms and mechanical bracing at intervals as the scaffolding is removed.
24. Reinstall upper windows/louvres
25. Dismantle exterior scaffolding
26. Erect secondary exterior scaffolding bearing on adjacent roofs
27. Repair or replace sills used to support main scaffold
28. Reinstall lower windows
29. Remove secondary exterior scaffolding
30. Repair damage to adjacent roof
31. Install new doors
32. Clean

PART 2 PRODUCTS

- 2.1 Not Used
.1 Not Used.

PART 3 EXECUTION

- 3.1 Not Used

END OF SECTION

PART 1 – GENERAL

1.1 REGULATORY REQUIREMENTS

.1 An investigation into the presence of designated substances for the Ventilation Towers rehabilitation and the installation of new parking spaces at the Centre Block located on the Parliament Hill, Ottawa, Ontario, was performed in order to meet the requirements of the *Canada Labour Code* also stipulates under Part II, Section 124 that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. Also, it was performed to meet the requirements of Section 30 of the Ontario Occupational Health and Safety Act, Revised Statutes of Ontario, 1990, Chapter O.1. Furthermore, Section 125(1)(z.14) of the *Canada Labour Code* stipulates that the employer will take all reasonable care to ensure that all persons granted access to the work place, other than the employer's employees, are informed of every known or foreseeable health and safety hazard to which they are likely to be exposed in the work place. By having a Designated Substances Report (DSR) completed, the Departmental Representative will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the duration of the project. The informed Departmental Representative will then be able to impose appropriate health and safety precautions for all applicable personnel as required.

.2 The designated substances identified in the *Occupational Health and Safety Act* and its corresponding regulations are:

- .1 **Acrylonitrile:** "Designated Substances"
O. Reg 490/09, as amended.
- .2 **Arsenic:** "Designated Substances"
O. Reg 490/09, as amended.
- .3 **Asbestos**
 - .1 "Designated Substances"
O. Reg 490/09, as amended.
 - .2 "General – Waste Management"
O. Reg 347/09, as amended
 - .3 "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations"
O.Reg 278/05 (as amended)
 - .4 *PWGSC Departmental Policy DP 057 – "Asbestos Management"*
- .4 **Benzene:** "Designated Substances"
O. Reg 490/09, as amended.
- .5 **Coke Oven Emissions:** "Designated Substances" *O. Reg 490/09, as amended.*
- .6 **Ethylene Oxide:** "Designated Substances"
O. Reg 490/09, as amended.

- .7 **Isocyanates:** "Designated Substances"
O. Reg 490/09, as amended.
- .8 **Lead:**
 - .1 "Designated Substances"
O. Reg 490/09, as amended.
 - .2 "General – Waste Management"
O. Reg 347/09, as amended
 - .3 Hazardous Products Act's
*Regulations Amending the Surface
Coating Materials Regulations*
SOR/2005-109
- .9 **Mercury:**
 - .1 "Designated Substances"
O. Reg 490/09, as amended.
 - .2 "General – Waste Management"
O. Reg 347/09, as amended
- .10 **Silica:** "Designated Substances"
O. Reg 490/09), as amended.
- .11 **Vinyl Chloride:** "Designated Substances"
O. Reg 490/09, as amended.
- .3 All contractors requesting tenders from
subcontractors shall furnish this report to
subcontractors.

1.2 VALIDITY DATE

- .1 El Houcine Faouzi, Environmental Analyst of the
Environmental Services Directorate of the Real
Property Branch, PWGSC, conducted the on-site
survey for this report on 2011/06/24.
- .2 The work area is located at the Centre Block
Building, Parliament Hill, Ottawa, Ontario. The
scope of the work proposed is understood to consist
of rehabilitating the ventilation towers by replacing
(where needed) the stone and mortar, tightening the
building envelope and rehabilitating windows. The
scope of work also includes some modifications to
the parking lot on the North side which include the
installation of barrier free spaces adjacent to the
Library, the modification of the parking space on
west side of loading dock to a barrier free space and
the extension of the existing parking space across
North from loading dock to create a barrier free spot.
 - .1 The scope of work for this report involved a
review of the information from the
Designated Substance Report prepared by
InAIR Environmental Ltd. in 2007. A visual
inspection of building materials and contents
for the presence of suspected designated

- substances in the project areas has been also completed by ESD staff on 2011/06/24.
- .2 From the visual inspection suspect materials were sampled and analyzed, where appropriate, for the above substances. On the basis of this inspection, two (2) mortar samples were collected for lead analysis on 2011/06/24. Samples were then submitted for analysis to the EXOVA Accutest Laboratory (an accredited CAEAL lab) located at 146 Colonnade Road, Nepean, Ontario, K2E 7Y1.
 - .3 The surveys were limited to those areas, which could be accessed by non-destructive means. The visual inspection and sampling was limited to readily accessible areas. Destructive testing was not included in the investigation, but is recommended prior to any major demolition. Due to the nature of building construction, some inherent limitations exist as to the possible thoroughness of the designated substance survey. The survey did not include the demolition of floors, floor finishes, plaster ceilings or walls or other areas to examine concealed conditions. No confined space was accessed for the purpose of this report.
 - .4 It is possible that the designated substances aforementioned are present in non-accessible areas and concealed spaces (i.e., wall and ceiling cavities), or confined spaces. No other areas outside the defined work boundaries have been assessed.
 - .5 Prior to beginning work, it must be confirmed with the Departmental Representative that no additional designated substances have been brought to the project area.
 - .6 In addition, the survey refers to PCBs and halocarbons; however, it does not refer to other substances that may be present in the day-to-day usage for specialized equipment or areas in buildings (i.e. lead shields, fume hoods, etc.).
 - .7 There is a possibility that materials which could not be reasonably identified within the scope of this assessment or which were not apparent during previous site visits may exist. Should any designated substance be encountered in the course of demolition, work must be stopped, precautionary measures taken, and the Departmental Representative must be notified

immediately. **Do not proceed until written instructions have been received.**

PART 2 - DESIGNATED SUBSTANCES

2.1 SURVEY RESULTS

.1 **ACRYLONITRILE:** Not Identified

.2 **ARSENIC:** Not Identified

.3 **ASBESTOS: Identified**

Asbestos is a naturally occurring material. In general, it has historically been intentionally added to many building materials in the construction industry to increase thermal or chemical resistance properties. More common uses are thermal insulation for pipes and boilers, structural steelwork fireproofing, floor tiles and in-wall and ceiling plasters. There are two classes of asbestos-containing materials: friable and non-friable. Friable asbestos-containing materials are loose in composition or can be easily crumbled using hand pressure. Non-friable asbestos-containing materials are more durable and are held together by a binder such as cement, vinyl or asphalt.

Representative caulking, plaster, drywall joint compound and elbow insulation have been taken on November 4 and 7, 2007 by InAIR Environmental Ltd. Analytical results indicate that the window caulking around platform of the West Ventilation Tower contains non-friable chrysotile asbestos. It also indicates that the pipe elbow insulation in the West Ventilation Tower mechanical area (kitchen access) contains friable chrysotile asbestos. The results are shown in Table 1 below.

Table 1 - Asbestos Sample Results

Sample number	Material	Location	Asbestos Type	Asbestos content (%)
WVTT-001a-c*	Pipe elbow insulation	West Ventilation Tower mechanical area (Kitchen access)	Chrysotile	60
WVTT-002a-c*	Window caulking	Windows around platform of the West Ventilation Tower	Chrysotile	15
EVT-001a-c*	Grey caulking	East Ventilation Tower, Exterior	n/a	n/d
EVT-002a-c*	Black caulking	East Ventilation Tower, Exterior	n/a	n/d
EVT-003a-c*	Old grey caulking	East Ventilation Tower, Exterior	n/a	n/d
EVT-004a-c*	Wall plaster	Inner walls, East Ventilation	n/a	n/d

		Tower		
EVT-005a-c*	Drywall joint compound	Inner walls, East Ventilation Tower	n/a	n/d

* Sampled by InAIR Environmental Ltd in 2007

n/d = none detected

n/a = not applicable

.4 **BENZENE:** Not Identified

.5 **COKE OVEN EMISSIONS:** Not Identified

.6 **ETHYLENE OXIDE:** Not Identified

.7 **ISOCYANATES:** Not Identified

.8 **LEAD:** Not Identified

Lead is a naturally occurring metal. It was used primarily in paint prior to the 1980's to increase the drying process. Lead in paint becomes a danger when it is old or damaged, as it creates lead dust and chips. Lead can also be found in soldered joints installed on piping up to the mid 1990s and in older cast iron bell and spigot joints.

- .1 According to the Hazard Products Act's *Regulations Amending the Surface Coating Materials Regulations* SOR/2010-224 allowable concentration of lead in surface coatings is 0.009 percent by weight (weight of lead to weight of paint), which is equivalent to 90 parts per million (ppm).
- .2 Representative mortar samples, taken on 2011/06/24 from the project area, have been analyzed for lead content. Analytical results indicate that no lead was detected the mortar samples. The results are shown in Table 2 below.

Table 2 - Lead Sample Results

Sample number	Description	Location	Lead Content (ppm)
VENT-Pb-1	Mortar on stones,	Exterior, West Ventilation Tower	n/d
VENT-Pb-2	Mortar on stones,	Exterior, East Ventilation Tower	n/d

n/d = none detected

.9 **MERCURY:** Not Identified

- .10 **SILICA: Identified**
Free crystalline silica is present in concrete and other cementing materials such as stones, gravel, mortar, plaster and drywall throughout the project area.
- .11 **VINYL CHLORIDE MONOMER:** Not Identified
- .12 **POLYCHLORINATED BIPHENYLS (PCBs):** Not Identified
- .13 **HALOCARBONS:** Not Identified

2.2 RECOMMENDATIONS

1. ASBESTOS

PWGSC's *DP 057, Asbestos Management*, sets policy, establishes roles and responsibilities and provides a code of practice for the management of and working with asbestos-containing materials. All work must be done in accordance with this directive, as well as all other applicable legislation. Disturbance of all asbestos (whether friable or non-friable) is regulated in Ontario by "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations" *O.Reg 278/05* (as amended by *O.Reg 493/09*), which outlines the precautions required when performing work involving asbestos-containing materials. The regulation stipulates appropriate respiratory protection, work procedures and ventilation requirements that must be utilized during the disturbance of any asbestos-containing materials, or materials suspected to contain asbestos.

.1 The following criteria shall be utilized in determining the classification of asbestos work as indicated in *PWGSC DP 057, Annex C, Appendix 5* and "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations" *O.Reg 278/05* (as amended by *O.Reg 493/09*). These criteria are not exhaustive. When classification of the work is uncertain, refer to the Ontario Regulation:

Type 1 work generally includes installation or removal of a wetted non-friable ACM with a hand tool; disturbance of wetted non-friable ACM with a powered tool equipped with a High Efficiency Particulate Aerosol (HEPA) dust collection device; removal of less than one square metre of wetted drywall materials where joint filling materials contain asbestos; removal

or replacement of less than 7.5 square metres asbestos-containing compressed mineral fibre-type ceiling tiles; collecting wetted samples of suspected friable asbestos material, and working close to friable sprayed asbestos, where the material may be affected by the work activities.

Type 2 work generally includes the removal or replacement of more than 7.5 square metres asbestos-containing compressed mineral fibre-type ceiling tiles; entry into ceiling space, crawl spaces, pipe tunnels etc., where friable asbestos debris is present; minor removal of friable ACM; Type 2 removal is limited to a maximum per work period of one square metre of surface area; the repair of asbestos mechanical insulation (no limit is imposed as to the amount of repair permitted under Type 2 conditions); and any disturbance not classified as either Type 1 or 3.

Type 3 work generally includes more than minor removal or disturbance of friable ACM; the use of a power tool on non-friable ACM without a HEPA exhausted dust collection; the spray application of an encapsulate or sealer to friable asbestos surfacing materials; the disturbance of the ductwork and air handling equipment serving or passing through areas of buildings with sprayed asbestos fireproofing or insulation, and the repair, alteration or demolition of a boiler, furnace, kiln or similar equipment with asbestos-containing refractory.

In the event of conflict between DP-057 and "Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations" *O.Reg 278/05* (as amended by *O.Reg 493/09*), the more stringent shall apply.

2. SILICA

.1 Silica occurs as crystalline material in cement. Crystalline silica is regulated under "Designated Substances" *O.Reg 490/09*, as amended, of the *Occupational Health and Safety Act* as a Designated Substance.

.2 Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is presumed present in concrete, stones, mortar, plaster and drywall within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.

.3 The Occupational Health and Safety Branch of the MoL has published the document entitled "*Guideline: Silica on Construction Projects*". This document classifies the disturbance of materials containing silica as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

3. CONTRACTORS DUTIES

The contractor must review the designated substance report and take the necessary precautions to protect the health and safety of the workers and the environment. As per Section 30(4) of the *Ontario Occupational Health and Safety Act*, the party hiring the contractor (i.e. Departmental Representative) shall ensure that the contractor and subcontractor (if any) for the project has received a copy of the designated substance report prior to entering a binding contract for the supply of work on the project. As per Section 27(2) (a, b, and c) of the *Ontario Occupational Health and Safety Act*, while onsite, the contractor supervisor shall exercise every reasonable precaution for the protection of a worker. If you have any questions about the designated substance report, please contact the Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 Requirements

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 Submittals

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Submit to Departmental Representative within 10 working days of Award of Contract, a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.
- .4 Submit modified Project Schedule to Departmental Representative within 20 working days of receipt of acceptance of Master Plan to include a cost column. This cost column shall include a cost associated to each task within the schedule. The total cost shall equal the total contract award. On a monthly basis, a separate column will be calculated called Earned Revenue. The Earned Revenue column will be the percent complete for each task multiplied by the Cost column. This will not necessarily equal the progress invoice submitted for that month. This is only used to understand how much work has been completed from a planned scheduled cost perspective. If change orders are issued, they will be added to the schedule as a task or multiple tasks complete with a cost associated with each task in the change order. The schedule shall also include a Resource column. Each task shall be assigned to a resource such as the subtrade associated with that task, General Conditions, PWGSC, Security Contractor, Arch Consultant Mech Consultant, Elect Consultant, etc.
- .5 Include in the Project Schedule allowances for delays to structural work caused by curing time requirements specified in Section 04 05 00 - Common Work Results for Masonry.

1.4 Master Plan

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.5 Project Schedule

- .1 The milestones of the project schedule will include the stages specified in Section 01 14 23 "Sequence of Work" and all the collateral tasks (contract award, shop drawings and samples, permits, testing and commissioning, etc.).
- .2 Develop detailed Project Schedule derived from Master Plan and the Milestones.
- .3 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 1. Contract award.
 2. All tasks described in the sequences of the work (section 01 14 23)
 3. Shop Drawings, Samples.
 4. Permits.
 5. On-site mobilization.

6. Excavation.
7. Substructure and foundations
8. Backfill.
9. Structural Steel.
10. Masonry work.
11. Roofing.
12. Interior Architecture
13. Plumbing.
14. Lighting.
15. Electrical.
16. Piping.
17. Controls.
18. Heating, Ventilating, and Air Conditioning.
19. Fire Systems.
20. Scaffolding removal
21. Final masonry repairs.
22. Final civil work.
23. Final landscaping work.
24. Testing and Commissioning.
25. Supplied equipment long delivery items.

1.6 Project Schedule Reporting

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- .3 Submit a 2-week look ahead schedule at every weekly construction meeting for review and acceptance by all parties. The look ahead schedule shall be a detailed Gantt chart outlining hour-by-hour activities to be conducted in the work period. Include an outline of all work which will have an impact on the occupants (ex. noisy work, etc.).

1.7 Project Meetings

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather-related delays with their remedial measures shall be discussed and negotiated.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 01 45 00 - Quality Control
- .2 01 78 00 - Closeout Submittals

1.2 Administrative

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has 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 and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.3 Shop Drawings and Product Data

- .1 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.
- .2 Where indicated in the respective specification sections, submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Ontario, Canada.
- .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 working days for Departmental Representative's review of each submission.
 - .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
 - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
 - .7 Accompany submissions with transmittal letter. Submissions without transmittal letters will be returned without being examined and shall be considered rejected. Include:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
 - .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
 - .9 After Departmental Representative's review, distribute copies.
 - .10 Submit 8 prints and 1 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
 - .11 Submit 8 prints and 1 electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Submit 8 prints and 1 electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit 8 prints and 1 electronic copy of manufacturers' instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .14 Submit 8 prints and 1 electronic copy of Manufacturers' Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .15 Submit 8 prints and 1 electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Delete information not applicable to project.
- .17 Supplement standard information to provide details applicable to project.
- .18 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, 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.
- .19 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 Samples

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative 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 Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative 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.

1.5 Mock-ups

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.6 Progress Photographs

- .1 Submit progress photographs in accordance with the Conditions of the Contract and of locations acceptable to the Departmental Representative.
- .2 Within 10 days after notice to proceed, submit 100 photographs showing existing building condition.
- .3 Submit a minimum of 20 progress photographs, monthly.
- .4 Upon completion, submit:
 - .1 2 sets 227 mm x 184 mm colour photographs in archival mountings in hardcover binders.
 - .2 Electronic copy of all photographs on CD.

1.7 Certificates and Transcripts

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.

PART 2 PRODUCTS

2.1 Not used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.

1.2 References

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 Province of Ontario
 - .1 Occupational Health and Safety Act, 1990 (Last amendment 2009), R.S.O.
 - .2 Ontario Regulation 213/91 - Construction Projects (Last amendment O.Reg.443/09), R.S.O.
 - .3 Provincial legislation Bill 124, January 2006 concerning Building Code Identification Number (BCIN).

1.3 Submittals

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 working days after date of Notice to Proceed and 3 weeks prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 Written safe work procedures to address the known hazards.
 - .4 Details and certifications of special safety measures for lifting.
 - .5 Copy of the site-specific Health and Safety Plan for review and approval
- .3 Submit 3 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and, on request by authority having jurisdiction.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets, where applicable a minimum of 10 working days prior to commencing work.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 working days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 7 working days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.4 Filing of Notice

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.5 Safety Assessment

- .1 Perform site specific safety hazard assessment related to project.

1.6 Meetings

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.7 Project/Site Conditions

- .1 Work at Site will involve contact with:
 - .1 Tar
 - .2 Pigeon droppings
 - .3 Silica
 - .4 Lead
 - .5 Chemical cleaning agents
 - .6 Silicone-based sealants
 - .7 Epoxy adhesives
 - .8 Paints, coatings and adhesives
 - .9 Asbestos containing materials
- .2 Refer to Section 01 14 25 - Designated Substances Report and the Material Data Safety Sheets (MSDS) for the materials specified in the various Specification Sections.

1.8 General Requirements

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.9 Responsibility

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- .3 Provide 5 hardhats for use by visitors.

- .4 The Contractor is responsible to hire his own Health and Safety Coordinator for daily monitoring and enforcing of the health and safety plan. A weekly site safety inspection report must be submitted to the Departmental Representative from the Health and Safety Coordinator hired by the Contractor.

1.10 Compliance Requirements

- .1 Comply with Ontario Health and Safety Act and Regulations for Construction Projects, R.S.O.

1.11 Unforeseen Hazards

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of the Province of Ontario and advise Departmental Representative verbally and in writing.

1.12 Posting of Documents

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of the Province of Ontario, and in consultation with Departmental Representative.

1.13 Correction of Non-Compliance

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 Blasting

- .1 Blasting or other use of explosives is not permitted.

1.15 Powder Actuated Devices

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.16 Special Safety Measures

- .1 Provide and pay for necessary BCIN (Building Code Identification Number) certifications required by the authorities having jurisdiction.
- .2 Comply with the following safety measures during working and lifting over the building roof.
 - .1 Attach lanyards to tools and equipment.
 - .2 Crane and lifting device safety factors: increase by 25% over manufacturer's safety factor.

- .3 Safety cushions (stunt blankets): Cover roof and unprotected work during lifting where tools, equipment and materials might fall.
- .4 Equip material to be lifted with double (redundant) lift lines and attachments.
- .5 Special safety measures shall be designed and certified by a qualified professional engineer registered in the Province of Ontario.

1.17 Work Stoppage

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 References

.1 Definitions:

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- .3 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

1.2 Action and Informational Submittals

- .1 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.
- .2 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction task[s].
- .4 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
 - .6 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated

- substance.
- .7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .8 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .9 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .10 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .11 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .12 Pesticide treatment plan to be included and updated, as required.

1.3 Fuel Storage

- .1 Propane powered equipment is not permitted.
- .2 Storage of other fuels on the site must comply with applicable Federal, Provincial, and Municipal requirements.

1.4 Pollution Control

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
 - .1 Provide temporary enclosures where indicated.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.5 Historical / Archaeological Control

- .1 Provide historical, archaeological, cultural resources plan that defines procedures for identifying and protecting historical, archaeological, cultural resources known to be on project site: and/or

identifies procedures to be followed if historical archaeological, cultural resources not previously known to be onsite or in area are discovered during construction.

- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

1.6 Notification

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Do not take action until after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

PART 2 - PRODUCTS

- 2.1 Not Used
 - .1 Not Used.

PART 3 - EXECUTION

3.1 Cleaning

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

PART 1 GENERAL

1.1 Responsibility

- .1 Because of the major heritage value of the building under contract, the repair conservation work must be executed with minimal disturbance to the existing building fabric.
- .2 Protection of the existing building fabric from damage caused by the work of this contract shall be the highest priority in the execution of the Work.
- .3 The Contractor shall implement all necessary protective measures and procedures to ensure the risk of damage to the existing building fabric is minimized.
- .4 The Contractor will be held responsible for the cost of remediation of damage to the existing building fabric caused by the work of the Contract.

1.2 Submittals

- .1 General: Submit each item in this Article in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Risk Assessment:
 - .1 Conduct a risk assessment to identify potential causes of damage to the building fabric arising from the Work of the Contract.
 - .2 Submit the risk assessment for review by the Departmental Representative within 5 working days of Contract Award.
- .3 Protection Plan:
 - .1 Based on the reviewed and accepted risk assessment, prepare a Protection Plan, indicating the measures to be taken to protect the existing building fabric during each stage of the Work.
- .4 Photographic and Video Records:
 - .1 Before commencing work in any location, submit a complete photographic and video record of the condition of the existing building fabric.
 - .2 Do not commence work in the location until the photographic and video record has been reviewed and accepted by the Departmental Representative.
 - .3 This photographic and video record will be used to assist the Departmental Representative in determining whether or not damage to the building fabric has occurred prior to or during the execution of the work.
- .5 Specific Damage Reports:
 - .1 In the event that damage to the existing building fabric does occur, immediately submit a damage report, in writing, to the Departmental Representative.
- .6 Monthly Monitoring Report
 - .1 Contractor to submit a monitoring report on the physical conditions of the historic fabric (interior finishes, masonry, etc..) with pictures and observations on a monthly basis.

1.3 Protection Plan

- .1 The Protection Plan shall include all necessary protective measures arising out of the risk assessment. These measures shall include:
 - .1 Protection of masonry against:
 - .1 Mechanical damage caused by specified masonry conservation processes not properly executed.
 - .2 Mechanical damage caused by temporary attachment of scaffolding to masonry surfaces.
 - .3 Surface damage caused by cleaning too intensively.
 - .4 Mechanical damage caused by the work of other trades, including falling objects.
 - .5 Damage caused by the use of chemical products for cleaning not properly removed and/or neutralized.
 - .6 Surface soiling caused by droppings of mortar, sealants, adhesives, paints and/or coatings used by the masonry trade or other trades.
 - .2 Protection of woodwork against:
 - .1 Mechanical damage caused by improper removal and/or improper repair and replacement of decayed or damaged material.
 - .2 Mechanical damage caused by improper removal and or improper replacement of existing caulking and/or glazing.
 - .3 Mechanical damage caused by falling objects.
 - .4 Surface damage caused by spillage, droppings or overspray of masonry cleaning products, mortar, sealants, adhesives, paints and/or coatings used by the masonry trade or other trades.
 - .5 Mechanical damage caused by the work of other trades, including falling objects.
 - .3 Protection of glazing from:
 - .1 Damage caused by falling objects.
 - .2 Damage caused by spillage, droppings or overspray of masonry cleaning products, mortar, sealants, adhesives, paints and/or coatings used by the masonry trade or other trades.
 - .4 Protection of building interior elements:
 - .1 Take special care to protect historic plaster work and woodwork from damage.
 - .2 Implement the special protective measures indicated on the drawings.
 - .3 Take particular care to avoid causing damage to plaster work and woodwork during the installation and removal of temporary partitions.
 - .4 Protection of other elements of the building fabric as necessary to protect against damage from any cause.
- .2 Review the drawings and the various specification sections and include in the Protection Plan all protective measures prescribed therein.
- .3 The Protection Plan shall clearly identify, in detail, the protective measures proposed for each building element.

1.4 Training

- .1 It is the Contractor's responsibility to ensure that all construction personnel are fully aware of the importance of the protection of the building fabric and are completely familiar with those parts of the Protection Plan that affect their work.
- .2 The Contract shall conduct a training session for each member of the workforce with respect to the Protection Plan and the specific protective measures to be implemented.

PART 2 PRODUCTS

- 2.1 Not used
 - .1 Not used.

PART 3 EXECUTION

- 3.1 Implementation of the Protection Plan
 - .1 At all times, comply with the provisions of the reviewed and accepted Protection Plan. Implement all protective measures prescribed therein.
 - .2 Supervise all construction personnel to ensure complete compliance with the provisions of the Protection Plan.
 - .3 Do not deviate from the Protection Plan without the prior written approval of the Departmental Representative.
 - .4 If a need for additional protection, not included in the Protection Plan, becomes evident, provide such additional protection at no additional cost to the Contract.
- 3.2 Remedial Work
 - .1 Contractor to provide and submit the repair methodology to the Departmental Representative for all individual remedial and repair work intended to address damages incurred during the construction phase. The methodology to be submitted prior the remedial work to be done for the Departmental Representative' approval.
 - .2 Make good any damage to the existing building fabric to the satisfaction of the Departmental Representative, at no additional cost to the Contract.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 04 03 06 - Historic - Cleaning Historic Masonry
- .3 Section 04 03 07 - Historic - Masonry Repointing and Repair
- .4 Section 04 03 08 - Historic - Mortaring.
- .5 Section 04 03 41 - Historic - Repair of Stone.
- .6 Section 04 03 42 - Historic - Replacement of Stone.
- .7 Section 04 05 00 - Common Work Results for Masonry.
- .8 Section 04 05 19 - Historic - Masonry Anchorage and Reinforcing.
- .9 Section 04 21 13 - Brick Masonry.

1.2 Definitions

- .1 Masonry Conservation: Conservation is defined as the work involved in the understanding, recording, retaining, and maintaining the original masonry materials composing the "fabric" of the building wherever possible. This work relies on bringing together the appropriate skills and personnel, materials and procedures that are recognized and published internationally as a means toward insuring the conservation work is completed in the most professional and responsible way possible.
- .2 Masonry Conservator is a conservator who has specialized his/her education in the usage and composition of materials related to historic masonry construction and sculpture, and who responsibly applies international standards to his/her work in this field of expertise, ensuring the documentation, retention, repair, and maintenance of masonry in the exposed environment.

1.3 Intent

- .1 The General Contractor shall hire the Masonry Conservator to provide all described services in this section throughout the duration of the project in order to complete the masonry conservation work on the building.
- .2 The intent is to follow international recognized standards and practices with regards to materials and skills in completing the conservation work on this building. By these means, every effort shall be made to secure, retain, preserve and protect as much of the original detail of the masonry as is possible.

1.4 Quality Assurance

- .1 Perform work in accordance with the "Code of Ethics and Guidance for Practice for Those Involved in the Conservation of Cultural Property in Canada", as published by:
 - .1 International Institute of Conservators - Canadian Group; and
 - .2 Canadian Association of Professional Heritage Consultants.
- .2 Do not change the Masonry Conservator without the prior written approval of the Departmental Representative. Provide at least 60 days notice of such change.

1.5 Submittals

- .1 Submit each item in this article in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Records: Keep written records as follows and submit when requested by the Departmental Representative:
 - .1 Record treatment information.
 - .2 Record materials used during treatment.
 - .3 Record examinations and findings, whether or not unusual.
 - .4 For progress of work.
 - .5 Record maximum and minimum daily air temperatures for 7 days prior to, during, and for 21 days following treatment. Take separate readings for ambient temperature and temperature within the scaffolding enclosure.
 - .6 Record relative humidity readings within the scaffolding enclosure for same period as specified for temperatures. Take separate readings at each level.
- .3 Weekly Reports:
 - .1 Submit the following detailed weekly reports to the Departmental Representative.
 - .1 Record of daily observations.
 - .2 Photographs showing representative sampling of work progress.
 - .2 Provide summary reports including record of daily observations in pre-approved standard format.
- .4 Final Report: Provide 3 copies of final report bound into 3-ring binders and 3 electronic copies. Include project record information as follows:
 - .1 A written summary of entire work.
 - .2 Records.
 - .3 Marked-up architectural drawings indicating conditions prior to commencement of Work.
 - .4 A complete set of digital photographs provided on a DVD

1.6 Photographic Records

- .1 In addition the written descriptive text, submit a photographic record of each typical example of conservation and restoration work completed on the building.
 - .1 To guarantee archival longevity, provide RAW, uncompressed digital files on archival quality DVDs. Minimum requirement for photographs is 12 MP.
 - .1 Photographically illustrate conditions of before, during, and after treatments for each typical intervention.
 - .2 Include files in the Final Report as specified under "Submittals".

PART 2 PRODUCTS

2.1 Materials

- .1 All materials related to the conservation interventions shall be purchased and supplied by the masonry Subcontractor. This does not extend to materials such as timber, plastic, etc. used for

setting up or enclosing the work area for work. The purchase and supply of these materials shall be the responsibility of the General Contractor.

2.2 Equipment

- .1 The Conservator shall provide all specialized tools and equipment familiar to his/her profession. This shall include photographic and computer equipment used for the documentation, correspondence, and recording of the conservation work.
- .2 Equipment and utilities normal to the work of a stone masonry project shall be supplied and maintained to the Conservator by the Masonry Subcontractor.

PART 3 EXECUTION

3.1 Responsibilities of the Masonry Conservator

- .1 Assist General Contractor in preparing a project schedule for the masonry work.
- .2 Determine and coordinate additional testing for materials proposed for use in the work.
- .3 Complete reports on changes to specified materials and/or intervention processes described in the Specifications.
- .4 Provide coordination and oversee demonstrated mock-ups of restoration interventions by Masonry Subcontractor.
- .5 Provide direction and hands-on assistance for mock-ups of specified conservation treatments.
- .6 Provide on-site training and direction of masons hired by the Masonry Subcontractor responsible for the conservation work and masonry cleaning. Train masons in the methods and procedures necessary to complete the masonry conservation work on the building.
- .7 The Conservator shall be on site on a full-time basis (100%) during the technically sensitive masonry work as per the following:
 - Protection work
 - Masonry cleaning
 - Sculpture conservation and repair
 - All mortaring operations (backpointing and finish pointing)
 - Stone repairs
- .8 The Conservator shall be on site on a part-time basis (60% - 4 site visits per week minimum) throughout the masonry intervention phase of work as per the following:
 - Masonry dismantling
 - Grouting
 - Stone replacement (jnt and ext)
 - All other masonry work not mentioned at the paragraph 3.1.7
- .9 The Conservator shall be available and on site within a 48 hours notice, throughout the masonry intervention phase of work (except for the work which require a full-time basis presence).
- .10 The Conservator shall provide an ongoing assessment of the quality of all aspects of the masonry work, including cleaning and treatment of sculptures, and shall report to the Departmental Representative any deficiencies or necessary changes to the work.
- .11 The Conservator shall mark out and closely supervise the work to all other areas of the building that are the work of the Masonry

Subcontractor to complete, especially masonry cleaning, mortaring and stone repairs.

- .12 The Conservator shall prepare and submit the documentation, both in written descriptive as well as photographic form, specified under "Submittals".

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 78 00 - Closeout Submittals.

1.2 Inspection

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of 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 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination, such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.3 Independent Inspection Agencies

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work, except for the grout and mortar tests (see .5 below). Cost of such services will be borne by Departmental Representative.
- .2 Provide 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 Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.
- .5 Testing on all types of mortar and grouts in the project (grouting, bedding mortar, front pointing mortar and backpointing mortar) will be carried out by a Testing Laboratory designated by the Departmental Representative and engaged by the Contractor. The laboratory tests will occur once a week during the entire grouting and mortaring operations through the project on all types of mortars and grouts. The tests will be done with onsite fresh samples and will include the compressive strength at 7 days and 28 days, air entrainment percentage, and Vicat cone testing (mortar only). Cost of such services shall be paid by the Contractor.

1.4 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.

1.5 Procedures

- .1 Notify appropriate agency and Departmental Representative 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 orderly sequence to not cause delays 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.

1.6 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 Departmental Representative 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.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 Reports

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested, manufacturer or fabricator of product being inspected or tested.

1.8 Tests and Mix Designs

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 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 locations acceptable to Departmental Representative unless otherwise specified in the specific section of the specifications.
- .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delay in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will review and comment on schedule dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 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 Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 PWGSC retains the right of refusal if proposed individuals do not meet required experience as determined by the Departmental Representative.
- .3 At the start of the construction, the general contractor will need to propose a Site Superintendent with a resume. The proposed Superintendent will need to be approved by the PWGSC Departmental Representative.
- .4 At the start of the construction, the general contractor will need to propose a head mason and copper roofing superintendent to be approved by the PWGSC Departmental Representative.
- .5 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
- .6 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .7 Use qualified licensed workers or apprentices in accordance with Trades Qualification and Apprenticeship Act and Ontario Apprenticeship Act respecting manpower vocational training and qualification.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 33 00 - Submittal Procedures.

1.2 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

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

1.4 WATER SUPPLY

- .1 The Departmental Representative will provide access to a continuous supply of domestic water for construction use.
- .2 Arrange for connection with the Departmental Representative and pay costs for installation, maintenance and removal.

1.5 COMPRESSED AIR

- .1 Provide and maintain temporary compressed air system as required.
- .2 Size entire system to carry out work specified in applicable sections. Pay all associated costs.
- .3 Obtain all permits. Pay associated costs. Submit certificates for record.
- .4 Use system within the noise criteria parameters as specified in Section 01 14 00 - Work Restrictions.
- .5 Maintain strict supervision of operation of equipment to to:
 - .1 Conform to applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.

1.6 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.
- .2 Burning rubbish and construction waste materials is not permitted on site.

1.7 TEMPORARY POWER AND LIGHT

- .1 Temporary power is available for use during construction for temporary lighting and operating of Power tools, to a maximum supply of 575 volts 225 amps 3 phase. The Contractor shall provide and pay for connection and disconnection at the end of the project. The Departmental Representative will pay for power consumption.

- .1 Provide power beyond that supplied by Departmental Representative. Pay all associated costs
- .2 Provide temporary power distribution and lighting as indicated and as required.
- .3 Provide temporary power connections to hook up site trailers.

1.8 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary communication equipment necessary for own use.
- .2 Provide dedicated, site-assigned line for facsimile hook-up.
- .3 Provide dedicated, site-assigned mobile telephone for key personnel.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 References

- .1 Canadian Standards Association (CSA):
 - .1 CAN/CSA-S269.2-M87(R2003), Access scaffolding for Construction Purposes.
 - .2 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .2 Province of Ontario.
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990 June 2002.
 - .2 Technical Standards and Safety Act, 2000 (TSSA).

1.2 Submittals

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide design drawings for scaffolding, signed and sealed by qualified professional engineer licensed to practise in the province of Ontario, where prescribed.
- .3 Provide shop drawings of construction yard layout, hoarding and fence details for approval of the Departmental Representative.

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 Design and erect scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, platforms and temporary stairs. Provide 85% open weave safety netting. No more than one level of scaffolding can be fully enclosed with sheeting at any given time due to wind load restrictions. Provide a roof to shed water.
- .3 Interior scaffolding may incorporate permanent rest platforms as indicated on drawings.
- .4 Design, install, and inspect scaffolds and work platforms required for work in accordance with relevant municipal, provincial and federal regulations.
- .5 Provide two means of egress at all levels.
- .6 The scaffold shall be inspected and certified by the Contractor's hired scaffold design professional engineer.
- .7 The Construction Documents (specifications and drawings) with respect to the scaffolding are intended for conceptual purposes only. The Contractor shall be responsible for the design of the scaffold and its foundation.
- .8 For pad footings founded on existing silty sand fill or native till in landscaped areas, a bearing resistance value at serviceability limit states (SLS) can be taken as 100 kPa and a factored bearing resistance value at ultimate limit states (ULS)

- can be taken as 150 kPa. A geotechnical resistance factor of 0.5 was incorporated into the bearing resistance value at ULS.
- .9 Be responsible for snow removal from the scaffolding during the winter, to prevent excessive loads from developing.
 - 10. Enclose lower 4.8m of stairs with non-climbable intrusion protection, consisting of painted 19 mm plywood complete with hollow metal doors and pressed steel frames and commercial grade hardware.
 - 11. Enclose first 4.8m of scaffolding above the flat roof at the 4th floor level of the Senate Tower with non-climbable intrusion protection, consisting of painted 19 mm plywood complete with hollow metal doors and pressed steel frames and commercial grade hardware.

1.5 Hoisting

- .1 Provide, operate and maintain hoists and equipment required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists and equipment.
- .2 Hoists and cranes to be TSSA certified and operated by qualified operators.
- .3 Provide foundations to support hoisting equipment.
- .4 Locate equipment at locations approved by Departmental Representative.
- .5 Comply with special safety measures listed under Section 01 35 29 - Health and Safety Requirements.

1.6 Site Storage/Loading

- .1 Provide on-site storage facility. Locate materials in a manner to cause least interference with site activities. Provide off-site storage in addition to trailer area designated.
- .2 Confine work and operations of employees to the areas prescribed by Contract Documents. Do not unreasonably encumber premises with products.
 - .1 Provide gravel surfacing as required to accommodate site storage and construction activities.
 - .2 Move stored products or equipment, which interferes with operations of Departmental Representative or other contractors.
 - .3 Obtain and pay for use of, off site, additional storage or work areas needed for operations.
 - .4 Do not load or permit to load any part of Work with weight or force that will endanger Work.
 - .5 Do not use roofs as storage areas.

1.7 Construction Parking

- .1 Parking will not be permitted on site nor on Parliament Hill. Vehicles will be towed away at vehicle owner's cost and liability.
- .2 Be responsible for parking including costs.

- .3 Provide and maintain adequate access to project site. Monitor access. Record and keep a log of all visitors entering and leaving the site. Restrict access to personnel who do not carry proper Site Access Security clearances and contractor's security pass as specified in Section 01 00 10 - General Instructions.

1.8 Security

- .1 Provide and pay for responsible security personnel to guard access to construction site (separate from Security guard for site security services) during construction hours.
- .2 A PWGSC commissionaire will be responsible for overseeing in conjunction with the security guard of the GC for access control to the site.

1.9 Offices

- .1 Departmental Representative will provide furnished office space for site meetings.
- .2 Provide facilities for Contractor's own office space in site trailer.
- .3 Provide offices for Subcontractors within construction area required to carry out Work.
- .4 Maintain in clean condition.

1.10 Equipment, Tool and Materials Storage

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

1.11 Sanitary Facilities and First Aid Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances and in location approved by Departmental Representative. Locate in staging area concealed from public view.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Provide a clearly marked and fully stocked first-aid case in a readily available location.

1.12 Construction Signage

- .1 No signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321. Locate signs at access points and as required by legislation.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative. The contractor to hire his own flagman on a permanent basis.

- .4 Submit signage, locations for signage, and material composition of signage for review by the Departmental Representative 15 days in advance of work.
- .5 Signage shall be supplied and installed to appropriately manage occupants inside buildings, pedestrians on sidewalks, and vehicular traffic. Any changes to previously approved locations of signage and contents must be presented to the Departmental Representative for approval.

1.13 Protection and Maintenance of Traffic

- .1 Use of driveways in front of Centre Block, East Block, and West Block is not permitted.
- .2 Provide access and temporary relocated roads as necessary to maintain traffic.
- .3 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .4 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .5 Protect travelling public from damage to person and property.
- .6 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic. Limit access to areas indicated.
- .7 Verify adequacy of existing roads and allowable load limit on these roads. The Contractor is responsible for repair of damage to roads caused by construction operations.
- .8 Construct access and haul roads necessary.
- .9 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .10 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .11 Dust control: adequate to ensure safe operation at all times.
- .12 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .13 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .14 Provide snow removal during period of Work. Coordinate the Departmental Representative to avoid conflict with existing snow removal contractors responsible for general snow removal on Parliament Hill.
- .15 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.14 Clean-Up

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.

- .3 Stack stored new or salvaged material not in construction facilities.

1.15 Reinstatement

- .1 On completion of the Work, remove from the premises all temporary construction facilities, surplus material, dirt and debris.
- .2 Make good any damage caused by the Work and restore the site to the condition which existed prior to commencement of Work.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 51 00 - Temporary Utilities.
- .4 Section 01 52 00 - Construction Facilities.
- .5 Section 06 20 00 - Finish Carpentry.
- .6 Section 09 21 16 - Gypsum Board Assemblies.
- .7 Section 09 22 16 - Non-Structural Metal Framing.
- .8 Section 09 91 10 - Painting

1.2 References

- .1 Builders Hardware Manufacturers Association (BHMA):
 - .1 ANSI/BHMA-A156.1-2006, Butts and Hinges.
 - .2 ANSI/BHMA-A156.3-2008, Exit Devices.
 - .3 ANSI/BHMA-A156.4-2008, Door Controls - Closers.
- .2 Canadian Steel Door and Frame Manufacturing Association (CSDFMA)
- .3 Master Painters Institute (MPI):
 - .1 MPI Architectural Specification Manual, 2004 (referred to herein as "MPI Manual")
 - .2 MPI Approved Product List, January 2007 (Referred to herein as "MPI APL").

1.3 Installation and Removal

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

1.4 Hoarding

- .1 Provide and maintain temporary hoarding with accesses, around areas as indicated.
- .2 Maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.
- .3 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.
- .4 Provide barriers preventing access into the Centre Block via ductwork at the basement level of the Towers.

1.5 Temporary Doors

- .1 Provide flush steel swing type doors with wired glass vision panels and hollow steel door frames in temporary enclosures and barriers as indicated.
- .2 Fabricate doors and frames in accordance with CSDFMA specifications
- .3 Prepare doors and frames for hardware. Provide exterior grade hardware and as indicated. Provide panic hardware for doors used for emergency egress. Submit hardware list for Departmental Representative's approval.
- .4 Maintain doors, frames and hardware in working order, replace damaged parts as necessary with similar quality parts.

1.6 Guard Rails and Barricades

- .1 Provide secure, rigid guard rails and barricades around shafts, open edges of floors and roofs, and as required by governing authorities.

1.7 Exterior Wall Area Protection

- .1 Provide overhead protection and/or erect fencing in Protection Zones as indicated, to protect workers from falling materials, except where steel tower enclosure provides protection.
- .2 Overhead protection:
 - .1 Minimum unobstructed height: 2.4 m.
 - .2 Minimum unobstructed width: 1.1 m.
 - .3 Loading capacity: support any applied load or minimum load of 2.4kN/m², whichever is most restrictive.
 - .4 Submit design drawings in accordance with Section 01 33 00 - Submittal Procedures, stamped and signed by qualified professional engineer, registered in the Province of Ontario.
- .3 Fencing:
 - .1 Provide steel construction site fence with lockable gates and accesses, 2450mm high, of design suitable for construction use. Include necessary hardware, accessories and foundations. Provide precast concrete traffic barriers as indicated.
 - .2 Provide electronic access controls at all gates, including all wiring required to power and operate the system. Enclose wiring in steel conduit.

1.8 Dust Tight Screens

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.
- .3 Construct dust-tight partitions between the construction zone and occupied parts of building as indicated on the drawings. Refer to Section 09 21 16 - Gypsum Board Assemblies and Section 09 22 16 - Non-Structural Metal Framing.

1.9 Access to Site

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.10 Public Traffic Flow

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.
- .2 Provide and maintain painted traffic markings as indicated.

- .1 Alkyd paint markings to MPI APL #32, white or yellow to match colour on project site unless otherwise directed by Departmental Representative.
- .2 Apply markings with uniform colour, sharp edges and true to line.
- .3 Remove markings at end of Work, using approved methods, without damage to surfaces.

1.11 Fire Routes

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.12 Protection for Off-Site and Public Property

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Clean deposited mud and debris from surfaces of roadways around Parliament Hill within one (1) hour after deposition and immediately wash roadways free of soiling, to approval of Departmental Representative.
- .3 Prevent damage to and protect landscaping features and vegetation including those at site trailers and laydown storage areas.
- .4 Be responsible for damage incurred.

1.13 Protection of Building Finishes

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work, to approval of Departmental Representative. Take into account additional protection required to prevent damage due to historic nature of material.
- .2 Provide necessary screens, covers, and hoardings and seals to protect existing wall openings, as specified. Remove and reinstall as required. Use materials and methods to prevent contact with adjacent masonry, to approval of Departmental Representative.
- .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.
- .5 Unless otherwise indicated protect building openings with 16 mm thickness Douglas Fir plywood sheathing grade on 38 x 89 wood studs.

1.14 Waste Management and Disposal

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

PART 2 PRODUCTS

2.1 Paint

- .1 Latex paint to MPI INT 6.4R.
- .2 Allow for 2 colours at each barrier location, for a total of 10 different colours. Final colour selection to be determined by Departmental Representative.

PART 3 EXECUTION

- 3.1 Not Used
 - .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 01 73 00 - Execution Requirements.

1.2 References

- .1 Within text of each specifications section, reference may be made to reference standards. Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .2 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.3 Quality

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative 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 Storage, Handling and Protection

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 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.

- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 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.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 Transportation

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Pay transportation cost of products supplied by Departmental Representative. Unload, handle and store such products.

1.6 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 Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 Co-ordination

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

1.8 Concealment

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.9 Remedial Work

- .1 Refer to Section 01 73 00 - Execution Requirements.
- .2 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .3 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.10 Location of Fixtures

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.
- .3 Be responsible for coordinating the installation of fixtures by different trades. In finished areas, provide additional blocking or framing as required to enable groupings of switches, panels, alarms, and like devices to be symmetrical and orderly. Align centres of devices, typically.

1.11 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.
- .7 Submit to Departmental Representative product data of all proposed fasteners prior to commencing Work.

1.12 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.

1.13 Protection of Work in Progress

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically

indicated without written approval of Departmental Representative.

1.14 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 and pedestrian 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.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 33 00 - Submittal Procedures.

1.2 Submittals

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which may affect:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Departmental Representative or separate contractor.
- .3 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 Effect on Work of Departmental Representative or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.
- .4 Submit samples of proposed patch materials to Departmental Representative, for review, prior to undertaking work.

1.3 Submittals - Existing Conditions

- .1 Submit documents in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

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 are to be exposed by uncovering work; maintain excavations free of water.
- .6 Excavations will be monitored by Departmental Representative. Obtain approval of Departmental Representative for excavations 10 days in advance of work.

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 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Core drill openings in structural or masonry elements of Work for penetrations of mechanical and electrical Work indicated. Prior to coring, ensure by means of X-ray inspection the existing services are not present within the wall.
- .8 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .9 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .10 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .11 Restore work with new products in accordance with requirements of Contract Documents.
- .12 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .13 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 01 00 10 - General Instructions, full thickness of the construction element.
- .14 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .15 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.
- .16 Install pipes, ducts and wiring in areas where they are indicated to be left exposed as close to ceilings or slabs as practicable. Avoid blocking of access doors, windows, door swing path, light fixtures.
- .17 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish, and texture.

1.6 Waste Management and Disposal

- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

 .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 Project Cleanliness

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative or other contractors.
- .2 Clean up work area as work progresses, at end of each workday, and when directed by Departmental Representative, remove debris from site. Neatly stack material for use and clean up area.
- .3 During specified cleaning and waste removal times advise Departmental Representative in writing of defects noted. Make good.
- .4 Clear snow and ice from access to building and from construction areas. Remove off site. Do not allow to accumulate in banks or piles.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site containers with removable covers for collection of waste materials and debris. Maintain covers tightly closed. Immediately clean up in event of over-spills of waste and debris.
- .7 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .8 Remove waste material and debris from site and deposit in waste container at end of each working day.
- .9 Dispose of waste materials and debris at designated dumping areas off site.
- .10 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .11 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .12 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .13 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .14 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 Final Cleaning

- .1 Complete final cleaning prior to application for Interim Certificate of Completion, and when directed by Departmental Representative:

- .1 Remove surplus products, tools, construction machinery, scaffolding, temporary protection and equipment not required for performance of remaining Work. Make good defects noted at this stage.
- .2 Clean existing and new elements and surfaces contained within the Project site. Obtain Departmental Representative's written approval on completion of cleaning.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass and metals.
- .8 Remove stains, spots, marks and dirt from sight exposed finished surfaces.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .12 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .13 Remove dirt and other disfiguration from exterior surfaces.
- .14 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .15 Sweep and wash clean paved areas.
- .16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .17 Clean roofs, downspouts, and drainage systems.
- .18 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .19 Remove snow and ice from access to building.
- .20 Clean areas under contract to a condition at least equal to that previously existing and to approval of Departmental Representative.

1.4 Waste Management and Disposal

- .1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 02 41 21 - Selective Deconstruction of Structures.

1.2 Definitions

- .1 Waste Summary Report (WSR): Relates to actual waste generated from project as per weigh bills, and is developed after demolition is complete.
- .2 Materials Source Separation Program (MSSP): Consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .3 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
- .4 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .5 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste
- .6 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .7 Salvage: Removal of structural and non- structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .8 Separate Condition: Refers to waste sorted into individual types.
- .9 Source Separation: Acts of keeping different types of waste materials separate beginning from first time they became waste.
- .10 Waste Audit (WA): Detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .11 Waste Management Coordinator (WMC): Contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

1.3 Documents

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Audit.
 - .2 Waste Reduction Workplan.
 - .3 Material Source Separation Plan.

.4 Schedules A, B and C completed for project.

1.4 Submittals

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 2 copies of completed Waste Audit (WA): Schedule A.
 - .2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
 - .3 Submit 2 copies of Materials Source Separation Program (MSSP) description.
- .3 Submit before final payment WSR Schedule C summarizing waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Failure to submit could result in holdback of final payment.
 - .2 Submit 2 copies of completed Waste Summary Report (WSR).
 - .1 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off- site, or disposed of.
 - .2 For each material reused, sold or recycled from project, include amount in tonnes or quantities by number, type and size of items and the destination.
 - .3 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.5 Quality Assurance - Compliance Requirements

- .1 Comply with the Environmental Protection Act, Ontario Regulations O. Reg. 102/94 and O.Reg. 103/94 for waste management program on construction and demolition projects.

1.6 Waste Audit (WA)

- .1 Conduct WA prior to project start-up.
- .2 Prepare WA: Schedule A.
- .3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

1.7 Waste Reduction Workplan (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not be limited to:
 - .1 Destination of materials listed.
 - .2 Deconstruction/disassembly techniques and sequencing.
 - .3 Schedule for deconstruction/disassembly.
 - .4 Location.
 - .5 Security.
 - .6 Protection.
 - .7 Clear labelling of storage areas.
 - .8 Details on materials handling and removal procedures.

- .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
 - .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
 - .4 Describe management of waste.
 - .5 Identify opportunities for reduction, reuse, and recycling of materials, based on information acquired from WA.
 - .6 Post WRW or summary where workers at site are able to review content.
 - .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
 - .8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.
- 1.8 Waste Summary Report (WSR)
- .1 Prepare WSR after project completion.
 - .2 Complete WSR: Schedule C.
 - .3 Provide details of quantities of materials to be salvaged for reuse, recycling, or disposal.
- 1.9 Materials Source Separation Program (MSSP)
- .1 Prepare MSSP and have ready for use prior to project start-up.
 - .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
 - .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
 - .4 Provide containers to deposit reusable and recyclable materials.
 - .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
 - .6 Locate separated materials in areas which minimize material damage.
 - .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility or to users of material for recycling.
 - .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.
 - .1 Ship materials to site operating under Certificate of Approval.
 - .2 Materials must be immediately separated into required categories for reuse or recycling.
- 1.10 Storage, Handling and Protection
- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
 - .2 Unless specified or directed otherwise, materials for removal become Contractor's property.
 - .3 Protect, stockpile, store and catalogue salvaged items.
 - .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off- site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.11 Disposal of Wastes

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, or paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.12 Use of Site and Facilities

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility.

1.13 Scheduling

- .1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Application

- .1 Do Work in compliance with WRW.

- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 Cleaning

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

3.3 Diversion of Materials

- .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.
 - .1 Mark containers or stockpile areas.
 - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged, recovered, reusable, recyclable, materials is not permitted.
- .3 Demolition Waste: Material Category and Recommended Approximate Diversion Percentages/Quantities:

Material Type	Recommended Diversion %	Actual Diversion %
Acoustic Tile	50	
Acoustical Insulation	100	
Carpet	100	
De-mountable Partitions	80	
Doors and Frames	100	
Electrical Equipment	80	
Furnishings	80	
Marble Base	100	
Mechanical Equipment	100	
Metals	100	
Rubble	100	
Wood (uncontaminated)	100	
Other		

- .4 Demolition Waste: Material Category and Recommended Approximate Diversion Percentages/Quantities:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	
Plastic Packaging	100	
Rubble	100	
Steel	100	
Wood (uncontaminated)	100	
Other		

3.4 Waste Audit (WA)

.1 Schedule A - Waste Audit (WA):

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Material Category	Material Quantity (unit)	Estimate of Waste (%)	Total Quantity of Waste (Unit)	Generation Point	% Recycled	% Reused
Wood and Plastics:						
Off-cuts						
Warped						
Pallet						
Forms						
Plastic Packaging						
Cardboard Packaging						
Other						
Doors and Windows:						
Painted Frames						
Glass						
Wood						
Metal						
Other						

3.5 Waste Reduction Workplan (WRW)

.1 Schedule B - Waste Reduction Workplan (WRW):

(1)	(2)	(3)	(4)	(5)	(6)
Material Category	Person(s) responsible	Total quantity of waste	Reused amount projected	Actual Recycled amount	Actual Material Destination
Wood and Plastics:					
Off-cuts					
Warped					
Pallet					
Forms					
Plastic Packaging					
Cardboard Packaging					
Other					
Doors and Windows:					
Painted Frames					
Glass					
Wood					

Metal					
Other					

3.6 Waste Summary Report (WSR)

.1 Schedule C - Waste Summary Report (WSR):

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Material Description	Quantity %	Quantity (Cu.m)	Total Volume	Total Weight	Remarks and Assumptions	Reused
Wood and Plastics:						
Off-cuts						
Warped						
Pallet						
Forms						
Plastic Packaging						
Cardboard Packaging						
Other						
Doors and Windows:						
Painted Frames						
Glass						
Wood						
Metal						
Other						

3.7 Canadian Governmental Departments Chiefly Responsible for the Environment

.1 Schedule E - Government Chiefly Responsible for the Environment:

.1 Ministry of Environment and Energy
135 St. Clair Avenue West
Toronto ON M4V 1P5
Tel:(416) 323-4321, (800) 565-4923

.2 Environment Canada
Toronto ON
Tel:(416) 734-4494

END OF SECTION

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.

1.2 Submittals

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 2 weeks prior to Interim Inspection of the Work, submit to the Departmental Representative, 4 final copies of operating and maintenance manuals in English and French.
- .6 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.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

1.3 Format

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf, 219 x 279 mm 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'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled AutoCAD drawing files in .dwg format on CD.

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 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 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 01 33 00 - Submittal Procedures.

1.5 As-Builts and Samples

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and 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 Departmental Representative.

1.6 Recording Actual Site Conditions

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .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 depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Field changes of dimension and detail.
 - .4 Changes made by change orders.
 - .5 Details not on original Contract Drawings.
 - .6 References to related shop drawings and modifications.

-
- .5 Specifications: 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.
 - .2 Changes made by Addenda and change orders.
 - .6 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.

1.7 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 Contractor's 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 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

1.8 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.

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- .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.

1.9 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 location as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 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 location as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.11 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 location as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.12 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 Departmental Representative.

1.13 Warranties and Bonds

-
- .1 Separate each warranty or bond with index tab 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 Departmental Representative's permission, leave date of beginning of time of warranty until the Date of Interim Completion 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.

1.14 Pre-Warranty Conference

- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.
- .2 Departmental Representative will establish communication procedures for:
 - .1 Notification of construction warranty defects.
 - .2 Determination of priorities for type of defect.
 - .3 Determination of a reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not Used.

END OF SECTION