

Part 1 General

1.1 NOTICE OF PROJECT

- .1 File and submit a Notice of Project with Provincial Authorities prior to commencement of Work.
- .2 Review Notice and receive approval from Departmental Representative prior to submitting to Provincial authorities.

1.2 CONSTRUCTION

- .1 Schedule and execute work with least possible interference or disturbance to the normal use of premises.
- .2 The premises will remain operational throughout the duration of the Work.
- .3 All required shutdowns of existing building services are to be proceeded by the specified advance notice and approval of the Departmental Representative.
- .4 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When the Departmental Representative has reviewed schedule, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.
- .5 Carry out work in all areas during "off hours", Monday to Thursday from 21:00 to 06:00 hours on weekends from 21:00 Friday to 6:00 Monday.
- .6 Thoroughly ventilate areas painted during "off hours".
- .7 Work NOT permitted when House of Commons is in session.
- .8 Account for 3 Work shutdowns during course of schedule owing to House of Commons activities.

1.3 REGULATORY REQUIREMENTS

- .1 Building Smoking Environment:
 - .1 Smoking is not permitted in the Building. Obey smoking restrictions on building property.
- .2 Hazardous Material Discovery:
 - .1 Stop work immediately when material resembling spray or trowel-applied asbestos, Polychlorinated Biphenyl (PCB), mould or other designated substance is encountered during demolition work.
 - .1 Take preventative measure and promptly notify Departmental Representative.
 - .2 Do not proceed until written instructions have been received from Departmental Representative.

1.4 FIRE SAFETY REQUIREMENTS

- .1 Comply with both the National Building Code of Canada 2015 and the National Fire Code of Canada 2010 for safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire, as follows:
 - .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
 - .2 The National Fire Code (NFC):
 - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
 - .2 The conduct of activities that might cause fire hazards in and around buildings.
 - .3 Limitations on hazardous contents in and around buildings.
 - .4 The establishment of fire safety plans including secondary exit routes.
 - .5 Fire safety at construction and demolition sites.
- .2 Welding and cutting:
 - .1 Before welding, soldering, drilling, grinding and/or cutting work, obtain a permit from the Fire Prevention Unit/Specialist at least 72 hours in advance and as directed by the Departmental Representative.
 - .2 Submit permit to Departmental Representative 48 hours in advance of welding, soldering, drilling, grinding and/or cutting work.
 - .3 Store flammable liquids in approved CSA containers inspected by the Fire Prevention Specialist. No open flame shall be used unless authorized by the Fire Prevention Specialist.
 - .4 “Fire Watchers” as described in FC 302 shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.
 - .5 Provide minimum one ‘fire watcher’ at basement level and minimum one fire watcher at sub-basement level.
- .3 Where work requires interruption or cause activation of fire alarms or fire suppression, extinguishing or protection systems:
 - .1 Notify Departmental Representative at least 72 hours in advance. Do not proceed with work until direction from Departmental Representative.
 - .2 Coordinate with Departmental Representative’s “Watchman Service” as described in NFC 2010; 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.
 - .3 Retain services of manufacturer for fire protection systems on daily basis or as approved by Departmental Representative to isolate and protect all devices relating to:
 - .1 Modification of fire alarms, fire suppression, extinguishing or protection systems; and/or
 - .2 Cutting, welding, soldering or other construction activities that might activate fire protection systems.
 - .3 Immediately upon completion of work, restore fire protection systems to normal operation and verify that all devices are fully operational.

- .4 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.
 - .5 Designated Contractor: shall hire the services of manufacturer to do all the work related to the fire alarm system. Contact Michel Grenon phone: 613-696-3923 at Tyco Simplex Grinnell for modifications to the fire alarm system.
 - .6 Estimated cost for the sole source manufacturer's bypasses and verification is \$5,000(excluding tax).
 - .7 Ensure a Site Specific Safety Plan is included with updated Fire Safety Plan in accordance with the National Fire Code.
- .4 Fire Watch Logs and NFPA Compliance Reports:
- .1 Submit weekly fire watch logs to Departmental Representative and to fire-feu@parl.gc.ca. Make clear project name, location and number in report.
 - .2 When work is completed provide compliance report to fire-feu@parl.gc.ca. Make clear project name, location and number in report.

1.5 PROJECT MEETINGS

- .1 Attend project meetings bi-weekly (if required) throughout the progress of the work or at the call of the Departmental Representative.

1.6 HAZARDOUS MATERIALS

- .1 Hazardous Materials: product, substance, or organism that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .2 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 and Skills Development Canada (HRSDC), Labour Program.
- .3 For work in occupied buildings, give the Department Representative 72 hours notice for work involving designated substances (Ontario Bill 208) hazardous substances (Canada Labour Code Part II Section 10), and before painting, caulking, installing carpet or using adhesives and other materials, that cause off gassing.

1.7 TEMPORARY UTILITIES

- .1 Existing services required for work may be used by the Contractor without charge. Ensure capacity is adequate prior to imposing additional loads. Connect and disconnect at own expense and responsibility.
- .2 Notify the Departmental Representative and utility companies of intended interruption of services and obtain requisite permission.
- .3 Give the Departmental Representative 2 weeks (14 days) notice related to each necessary interruption of any electrical service throughout the course of the work. Keep duration of

these interruptions to a minimum. Carry out all interruptions after normal working hours of the occupants, preferably on weekends.

- .4 Give the Departmental Representative 72 hours notice related to each necessary interruption of any mechanical service throughout the course of the work. Keep duration of these interruptions to a minimum. Carry out all interruptions after normal working hours of the occupants, preferably on weekends.
- .5 Existing water supply not available for drilling or coring.

1.8 CONSTRUCTION FACILITIES

- .1 Designated elevators: to be used by construction personnel and transporting of materials.
 - .1 Co-ordinate with Departmental Representative.
 - .2 Protect from damage, safety hazards and overloading of existing equipment.
- .2 Site Storage:
 - .1 The Departmental Representative will NOT assign storage space. Materials and equipment must be brought to site and removed from site daily.
 - .2 Do not unreasonably encumber site with materials or equipment.
 - .3 Adequate storage is not available for large equipment required for work, such as fork lifts. Contractor to arrange for delivery and removal of such equipment as required.
 - .4 Move stored products or equipment that interfere with operations of Departmental Representative or other contractors.
 - .5 Obtain and pay for use of additional storage or work areas needed for operations.
 - .6 Do not load or permit to load any part of work with weight or force that will endanger work.
- .3 Notify Departmental Representative prior to proceeding with both work that may reduce security and temporary means to maintain security.
- .4 Sanitary facilities: will be assigned for Contractor's personnel. Others shall not be used. Keep facilities clean.
- .5 Signage:
 - .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 and to approval of the Departmental Representative.
 - .2 No advertising will be permitted on this project.
 - .3 The Departmental Representative will provide a sign describing the project for the information of building users. Locate sign as directed by Departmental Representative.
 - .4 Maintain approved signs and notices in good condition for duration of project and dispose of off site, on completion of project or earlier, as directed by Departmental Representative.

1.9 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Maintain existing services to building and provide for personnel access.
- .2 Maintain access to and from loading dock and existing overhead doors during regular business hours (06:00 to 21:00).
- .3 Maintain access to and from loading dock and existing overhead doors during Work periods (21:00 to 6:00).
- .4 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .5 Protection:
 - .1 Protect operatives and other users of site from all hazards.
- .6 Protection of Data Centre, Computer Equipment:
 - .1 Prevent metal filing, dust and other debris resulting from Work from entering, covering or otherwise coming into contact with computers, racks, servers and other equipment.
 - .1 On award of contract, review dust protection with Departmental Representative.

1.10 COMMON PRODUCT REQUIREMENTS

- .1 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.
 - .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove packaging or bundling until required in work.
- .2 Manufacturer's Instructions: 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

1.11 EXAMINATION and PREPARATION

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.
- .2 Before commencing work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.

1.12 EXECUTION

- .1 Cut, Patch and Make Good:
 - .1 Cut existing surfaces as required to accommodate new work.

- .2 Fit several parts together to integrate with other work.
 - .3 Remove all items so shown or specified.
 - .4 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.
- .2 Firestop and smoke seal systems: in accordance with CAN-ULC-S115-05 – Standard Method of Fire Test of Firestop Systems. Install around conduit, 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.
- .3 Door hardware and Conduit: co-ordinate setting and placing of conduit and installation of hardware. Obtain Departmental Representative's approval before cutting into historical materials and structure.
- .4 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

1.13 CLOSEOUT SUBMITTALS

- .1 Operational and Maintenance Manuals:
- .1 Submit to Departmental Representative one (1) copies of approved Operations Data and Maintenance Manual in both official languages, compiled as follows:
 - .1 Bind data in vinyl hard cover 3 "D" ring type loose-leaf binders for 212 x 275mm size paper. Binders must not exceed 75mm thick or be more than 2/3 full.
 - .2 Enclose title sheet labelled "Operation Data and Maintenance Manual," project name, date and list of contents. Project name must appear on binder face and spine.
 - .3 Organize contents into applicable sections of work to parallel project specifications breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
 - .2 Include following information plus data specified:
 - .1 Maintenance instruction for finished surface and materials.
 - .2 Copy of hardware schedule.
 - .3 Maintenance: use clear drawings, diagrams or manufacturers' literature which specifically apply and detail the following:
 - .1 lubrication products and schedules;
 - .2 trouble shooting procedures;
 - .3 adjustment techniques; and
 - .4 operational checks.
 - .4 Suppliers' names, addresses and telephone numbers and components supplied by them must be included in this section. Components must be identified by a description and manufacturers part number.
 - .5 One (1) Compact Disc (CD) with electronic copies of all Shop Drawings.
 - .3 Spare parts: list all recommended spares to be maintained on site to ensure optimum efficiency. List all special tools appropriate to unique application. All parts/tools detailed must be identified as to manufacturer, manufacturer part number and supplier (including address).

- .2 Records:
 - .1 As work progresses, maintain accurate records to show deviations from contract drawings. Just prior to Departmental Representative's inspection for issuance of final certificate of completion, supply to the Departmental Representative one (1) set of white prints with all deviations neatly inked in. The Departmental Representative will provide two sets of clean white prints for this purpose.
- .3 Guarantees and Warranties:
 - .1 Before completion of work collect all manufacturer's guarantees or warranties and deposit with Departmental Representative.

1.14 CLEANING

- .1 Clean up as work progresses. At the end of each work period, and more often if ordered by the Departmental Representative, remove debris from site, neatly stack material for use, and clean up generally.
- .2 Upon completion remove temporary protection and surplus materials. Make good defects noted at this stage.
- .3 Clean and polish metal, plastic surfaces, and hardware. Clean manufactured articles in accordance with manufacturer's written instructions.
- .4 Clean areas under contract to approval of Departmental Representative.
- .5 Bins for recyclables and waste materials will NOT be provided by the Departmental Representative. Contractor to supply bins and to remove from site daily.

1.15 WASTE MANAGEMENT

- .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 drains.
- .3 Bins for recyclables and waste materials will NOT be provided by the Departmental Representative. Contractor to supply bins and to remove from site daily.
- .4 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility.

1.16 PARKING

- .1 Parking will not be provided on site.
- .2 Vehicles loading and unloading of equipment will have access to the loading dock for 30 minute periods and are to be parked at off-site public parking.

1.17 SECURITY ESCORT

- .1 All personnel employed on this project shall be escorted when executing work at all times.
- .2 Submit an escort request to Departmental Representative at least seven (7) days before the service is needed. For requests submitted within the time mentioned above, the Departmental Representative will pay for the costs of the security escort. The cost incurred by a late request will be charged to the Contractor.
- .3 Any escort request may be cancelled free of charge if notification of cancellation is given at least twelve (12) hours before the scheduled time of the escort. The cost incurred by a late cancellation will be charged to the Contractor.
- .4 The calculation of costs will be based on the average hourly rate of a security officer for a minimum of (8) hours per day for a late service request and (4) hours for late cancellations.

1.18 COST BREAKDOWN

- .1 Before submitting first progress claim, submit breakdown of Contract Amount in detail as directed 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 Provide labour rates in addition to breakdown of Contract Amount.
- .3 Provide cost of work stoppage in case of House of Commons activities.

1.19 PRECEDENCE

- .1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual

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 REQUIREMENTS

- .1 Section 01 00 10 – General Instructions.

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.

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 Departmental Representative will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .5 Use only elevators existing in building for moving workers and material.
 - .1 Protect walls of passenger elevators, to approval of Departmental Representative prior to use.
 - .2 Accept liability for damage, safety of equipment and overloading of existing equipment.
- .6 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operation, 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 48 hours 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.

1.6 SPECIAL REQUIREMENTS

- .1 Carry out Work Monday to Thursday from 21:00 to 06:00 hours and on weekends from 21:00 Friday to 6:00 Monday.
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Ingress and egress of Contractor vehicles at site is limited to 30 minutes.

1.7 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.
- .2 Security clearances:
 - .1 Personnel employed on this project will be subject to security check. Obtain "Site Access" clearance for each individual who will require to enter premises.
 - .2 Obtain requisite clearance for each individual required to enter premises.
 - .3 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 Security escort:
 - .1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

1.8 BUILDING SMOKING ENVIRONMENT

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

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. Federal Legislation
 1. *Canada Labour Code, Part II, section 124 and 125. Canada Occupational Health and Safety Regulations*
 2. *Transportation of Dangerous Goods Act, 1992 (TDGA)*
 3. *Canada Consumer Product Safety Act*
 1. *Surface Coating Materials Regulations SOR/2005-109.*
 4. *Canadian Environmental Protection Act, 1999 (CEPA)*
 1. *PCB Regulations (SOR/2008-273)*
 2. *Federal Halocarbon Regulations, 2003 (SOR/2003-289)*
2. Provincial Legislation
 1. *Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.*
 1. *Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).*
 2. *Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).*
 3. *Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)*
 2. *Ontario Environmental Protection Act, R.R.O. 1990,*
 1. *Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).*
 2. *Ontario Regulations 362/90 – Waste Management, PCBs (O.Reg. 362/90)*
 3. *Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).*
3. *Canadian General Standards Board (CGSB).*
4. *Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 Respiratory Protection*
5. Underwriters' Laboratories of Canada (ULC).

1.2 DEFINITIONS

HEPA vacuum: High Efficiency Particulate Arrestor filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

Time-weighted average exposure limit (TWAEL): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by *O.Reg. 490/09 Designated Substances*, as amended.

1.3 RELATED SECTIONS

Not used

1.4 DESIGNATED SUBSTANCES

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Additional designated substances and hazardous materials may exist outside the accessible survey area but are beyond the scope of this project.

Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

1. ACRYLONITRILE: Not Identified
2. ARSENIC: Not Identified
3. ASBESTOS: Not Identified

Bulk sampling and subsequent laboratory analysis have determined that the following materials do not contain regulated amounts of asbestos:

- The ceiling tile in Room B137 in the basement within the project area at the Centre Block Building.
4. BENZENE: Not Identified
 5. COKE OVEN EMISSIONS: Not Identified
 6. ETHYLENE OXIDE: Not Identified
 7. ISOCYANATES: Not Identified
 8. LEAD: Not Identified

Laboratory analysis results indicate that the following paints do not contain detectable concentration of lead:

- Beige paint on the west wall in room B137,
- Grey paint on the AC unit in room B137, and
- Red paint on the sprinkler line in Room 242.

These paints are not considered to be lead-based paints.

9. MERCURY: Not Identified

10. SILICA: Identified

Free crystalline silica is present in concrete in the project area.

11. VINYL CHLORIDE MONOMER: Not Identified
12. POLYCHLORINATED BIPHENYLS (PCBS): *Not Identified*
13. OZONE DEPLETING SUBSTANCES (ODS): *Not Identified*

1.5 RECOMMENDATIONS

1. Silica

1. Comply with Ontario Regulations *O.Reg. 490/09* when performing works that may disturb silica-containing materials.

2. Follow recommendations provided in the Ontario Ministry of Labour Guideline entitled "*Guideline: Silica on Construction Projects*". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification.

2. Halocarbons

1. The handling, transport and disposal of halocarbons is governed by the following:
 - *Ozone-depleting Substances Regulations, 1998, as amended;*
 - *O.Reg. 463/10, Ozone Depleting Substances and Other Halocarbons;*
 - *O.Reg. 238/01, Refrigerants;* and
 - *Federal Halocarbon Regulations, 2003 (FHR).*
2. When suspected halocarbon-containing equipment is taken out of service, the halocarbon refrigerants must be captured and reclaimed by a licensed technician. The presence of halocarbon refrigerants within unit's no longer in service should be verified. If halocarbon refrigerants are found to be present, they must be captured and reclaimed by a licensed technician. Appropriate records of equipment decommissioning must be maintained in accordance with requirements of the FHR.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 45 00 – Quality Control.
- .2 Section 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 co-ordinated.
- .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 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario, Canada for each requirement requested in specification Sections.
- .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 co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .4 Allow 10 business 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, in duplicate, containing:
 - .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 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 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 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 electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 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.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 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.
- .20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that the Departmental Representative 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.

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 73 03 – Execution Requirements
- .2 Section 01 73 03.01 – ISO Data Centre Cleanliness Standards

1.2 GENERAL INSTRUCTIONS

- .1 This Specification is to be read in accordance with the Contract Documents.
- .2 Read and be governed by Conditions of the Contract and other Sections of Division 01.

1.3 SUMMARY

- .1 Purposes of the building alteration special project procedures are as follows:
- .2 Building alteration special project procedures shall be required for the full duration of the Work of this Contract for the replacement of the six (6) A/C units and leak detection system as indicated on the Drawings and specified in the Specifications, so that at the same time the existing building can be maintained safe and fully operational.
- .3 Building alteration special project procedures shall also ensure the Contractor provides full accessibility to the existing building under alteration or renovation forming the Work of the Contract to the visitors and the Public including support staff, maintenance and administration personnel, suppliers and other contractors.
- .4 Building alteration special project procedures shall apply to each part of the Work of the Contract related to the existing building performed by the trade persons specializing in such work.

1.4 DEFINITIONS

- .1 Occupied areas: “Occupied areas” or similar wording wherever it appears, for the purposes of building alteration special project procedures for the existing building shall herein be defined as areas of the existing building other than those under alteration or renovation and enclosed with temporary construction enclosures.
- .2 Construction personnel: Construction personnel for the purposes of building alteration special project procedures for existing building shall herein be defined as self-employed persons, personnel on the payroll of Contractors and/or subcontractors, suppliers and service companies, working on their own behalf and/or on the behalf of their employers on and/or within the existing building and/or on or within the properties of the existing building.
- .3 Making good: The term "making good" shall mean repairing or filling operations performed on existing floors, walls, ceilings or any other exposed surfaces. Making good also means repairing, restoring, refurbishing, rehabilitating, or performing filling operation on any existing components disturbed due to Work of this Contract, to at least the condition existing at the commencement of the Work. In terms of construction;

construction materials and finishes shall match existing adjacent materials and finishes, be alignment with existing adjoining surfaces, of compatible of materials. It is intended that finished surfaces match existing in every respect, compatible and line with existing adjoining surfaces.

1.5 RULES AND REGULATIONS FOR CONSTRUCTION PERSONNEL

- .1 Rules and regulations for construction personnel shall be construed as being general in nature and designed a guide for behavior of all construction personnel, including suppliers and their employees while performing the Work of this Contract in and/or on the properties of the Departmental Representative and the existing building(s). The rules and regulations for construction personnel of the Work of the Contract attempts as much as possible to foresee all circumstances which may affect the Work of this Contract carried out by the construction personnel.
- .2 Where a situation occurs or a decision is required regarding construction methods which would affect the operational procedures of the existing building the Departmental Representative will decide on the course of action and methods to be followed. The Departmental Representative's decisions and judgement are final.
- .3 Rules and regulations for construction personnel shall include, but not limited to the following:
 - .1 Where the Work of this Contract causes results which are detrimental to the operations of the building where the Departmental Presentative feels that such work should stop until conditions change, then such Work shall stop on order of the Departmental Representative.
 - .2 Hot Work Permit: Contractor shall comply with procedures and requirements in which open flame is used as part of the Work of this Contract, including any procedures which shall give off hazardous fumes and/or odours strong enough to harm and/or cause discomfort. All construction personnel shall strictly follow Hot Work Permit procedures, recommendations and written requirements. In addition to the aforementioned regulation, construction personnel shall limit the amounts of volatile mixtures, flame producing apparatus and the like, within the existing building to an amount no greater than that required for one (1) day's use. Items of volatile mixtures, flame producing apparatus and the like shall not be stored overnight in the building.
 - .3 Noisy behaviour and/or "horse play" of any type by the construction personnel is strictly forbidden.
 - .4 Operation of air compressors, drilling machines, tamping devices, tractors, tractor trailers, floats and other noise making equipment shall be limited to the time period as determined by the Departmental Representative.
 - .5 Construction personnel shall pay particular attention to the limiting features such as; doorways, stairwells and elevators. Under no circumstances will the existing elevators be overloaded, their governing mechanisms distorted, or be required to perform service unusual to their normal every day operation.
 - .6 Construction personnel shall not consume food or drink within the construction enclosures for hygienic reasons.
 - .7 Construction personnel shall not use washrooms at the existing building(s) unless permitted to do so by the Departmental Representative.

1.6 DAMAGE DOCUMENTATION

- .1 Prior to commencing active selective building demolition work in the existing building, Contractor shall examine existing work and items which are to remain or be re-used in the finished Work, and shall document damage to such work and items in writing to the Departmental Representative. Such items shall include but not limited to; floors, walls, ceilings and equipment on the designated access route to the construction enclosures.
- .2 Contractor's prepared damage documentation shall be reviewed by the Contractor with the Departmental Representative.
- .3 Contractor shall furnish the Departmental Representative with copies of the above mentioned damage documentation.
- .4 Contractor shall be responsible for the making good, at his own expense, of any damage sustained by work and items which are to be re-employed in the finished Work throughout the duration of construction operations in the existing building. Such making good shall be to the approval of the Departmental Representative.

1.7 RESTRICTIONS

- .1 Contractor shall assume responsibility for care, custody and control of the Project site and perform the Work to extent covered in Contract Documents. Contractor shall make good damage to the Project site and existing building (if any) due to the Work of this Contract.
- .2 Contractor shall bring the following restrictions to the attention of the construction personnel and workers on the Work of this Contract and enforce them:
 - .1 Contractor shall restrict construction personnel and workers to Place of the Work and necessary access routes to it. Restrict non - construction personnel from the Project site, except for Contractor-authorized visitors.

1.8 OCCUPANCY OF EXISTING BUILDING

- .1 The existing building will remain in full use and occupancy throughout the duration of construction of the Work of this Contract.
- .2 Before the Work of this Contract begins and on a routine basis, construction personnel shall be thoroughly informed of the necessity to exercise extreme caution in any of their activities which may interrupt an essential service serving the "occupied areas" for which an alternate supply, service or facility has not been provided.
- .3 The Departmental Representative and/or his separate contractors reserves the right to enter the area(s) of Work of this Contract for the purpose of placing and/or fitting equipment before completion of the Work of this Contract. Such entry shall not interfere with or prevent the Contractor from performing the Work of this Contract. Also, such entry shall not in any way be considered as acceptance of the Work of this Contract by the Departmental Representative, or in any way relieve the Contractor from responsibilities under Work of this Contract.
- .4 Any interruption(s) of mechanical and/or electrical services to "occupied areas" must be pre-arranged with the Departmental Representative. Where any such interruption(s) is impossible to avoid, it shall be of the shortest duration possible and restricted to times acceptable to the Departmental Representative in writing. Contractor shall apply in

writing to the Departmental Representative well in advance of any contemplated and/or intended interruption(s).

- .5 Contractor shall maintain continuation of fire protection in the existing building(s) as specified herein.
- .6 Contractor shall maintain existing exits and ensure that proper and safe means of egress from all parts of the existing building to open spaces are provided at all times to the approval of jurisdictional authorities. Locate and install exit lights, and illuminate temporary means of egress.
- .7 Contractor shall maintain access to service and delivery entrances as specified herein.
- .8 Contractor shall maintain security of the existing building during the Work of this Contract as specified herein.

1.9 CONTRACTOR'S USE OF THE EXISTING BUILDING

- .1 Contractor shall limit access of the construction personnel to the existing building only at the locations acceptable to the Departmental Representative.
- .2 Contractor shall ensure that the construction personnel perform work in the existing building only as required under the Contract.
- .3 Contractor's access to the work areas shall be through existing corridors and occupied areas of the existing building as directed by the Departmental Representative.
- .4 Contractor shall not store or place demolition waste, construction materials, products and other supplies in the corridors and 'occupied areas' of the existing building. The Departmental Representative shall not be responsible for, or pay for loss of construction materials, products, other supplies, tools and/or equipment left in such corridors and occupied areas. Contractor shall maintain the corridors and occupied areas of the existing building(s) clean and "free" of dust and debris from transportation of demolition waste, construction materials, products, equipment and other supplies.
- .5 Construction personnel shall occupy areas of the existing building for their purposes only as directed and only while the Work of the Contract is in progress. Contractor shall keep assigned areas clean under the Work of this Contract, and return them to an "as was" condition at completion of construction. Contractor shall replace, or make good as approved, damage to the existing building, fixtures and fittings caused during use by the construction personnel. Contractor shall include cost of installation and making good of other Work thereby affected in replacement.

1.10 MECHANICAL AND ELECTRICAL SERVICES IN THE EXISTING BUILDING

- .1 Contractor shall ensure that the Mechanical and Electrical services in the existing building(s) are not damaged during selective building demolition and construction. Contractor shall arrange with the mechanical and electrical Subcontractors to immediately cut off and cap concealed services uncovered during the Work.
- .2 Contractor shall not interrupt the Mechanical or Electrical services of the existing building(s), except for temporary close-downs to make connections to new work, and as approved by prior arrangements with the Departmental Representative. Should existing

Mechanical and/or Electrical services be accidentally uncovered and disrupted in the existing building(s), make complete restoration immediately, and ensure adequate protection to avoid further disruption until alternative means of providing permanent continuation of the services are made.

- .3 Contractor shall make payment for restoration work of uncovered or disrupted Mechanical and/or Electrical services as specified in the foregoing, at no additional cost to the Departmental Representative if, in the opinion of the Departmental Representative, that such Work could have been reasonably foreseen by examination at time of tendering, and/or which has been caused by lack of proper care and protection.
- .4 Unless specified otherwise, Contractor shall restore the Mechanical and/or Electrical services on which the Work is performed to original condition.

1.11 REMOVAL OF EXISTING WORK AND SALVAGE

- .1 Where existing items are designated for relocation or removal, relocate or remove these items unless specified elsewhere, or specified to be done by other contractors of the Departmental Representative.
- .2 Demolish only those portions of the existing building as indicated on the Drawings and necessary for incorporation of the Work of this Contract.
- .3 Remove building elements, components, materials, and equipment as required by the Work of this Contract. Contractor shall carefully remove items designated to be handed over to the Departmental Representative.
- .4 Limit removal of items to smallest areas possible, and "make good" the disturbed existing Work.
- .5 Relocate building elements, components, materials, and equipment as indicated on the Drawings.
- .6 Materials resulting from selective building demolition and not required to be retained shall be removed promptly from the Project site in accordance with requirements of authorities having jurisdiction and in safe manner to minimize danger at the Project site and during disposal. Contractor shall obtain the Departmental Representative approval prior to removal.
- .7 Unless specified otherwise or noted otherwise, or designated otherwise at the Project site, building components, manufactured specialties, miscellaneous metals and other items of the existing building which are noted to be moved but not relocated shall remain the property of the Departmental Representative. Contractor shall return such items to the Project Manager in an adequately preserved and usable condition on the date of handover, or other mutually agreed date.
- .8 Materials and products recovered from the existing Work in the existing building which are not relocated or required by the Departmental Representative shall become the property of the Contractor and shall be disposed of away from the Project site.
- .9 Contractor shall remove debris and accumulated dirt from the existing building immediately as it accumulates. Contractor shall ensure that during removal operations

through the existing building that existing Work is not damaged and dirt, debris and dust is not spread. Contractor shall repair of damages will be at the expense of the guilty party, and at no expense to the Departmental Representative.

- .10 Contractor shall maintain the access areas (corridors, loading dock, elevator cabs) in the existing building constantly broom clean to avoid tracking of dirt, debris and dust into adjacent areas. Contractor shall immediately clean up dirt, debris and dust resulting from the Work of Contract that is deposited in the existing building outside of the work areas. Contractor shall make a daily inspection to ensure that the work access areas and construction access areas are maintained clean and undamaged as specified herein.
- .11 Contractor shall make good existing materials, and prepare the surfaces and refinish all finished surfaces damaged, marred, replaced, or otherwise remedied in the existing building.
- .12 Contractor shall finish the new surfaces flush with existing surfaces. Contractor shall make junctions between the existing and new work, or at replaced or remedial work visually undetectable. Contractor shall make surfaces adjacent to one another of the same material, unit sizes, colour, and texture. If this is not possible or practical, make a proposal of intended method of "making good" for acceptance of the Departmental Representative prior to installation.

1.12 REPAIR TO EXISTING WORK

- .1 Contractor shall make good surfaces and finishes damaged or disturbed due to the Work under this Contract. Contractor shall ensure that materials used to repair damage is compatible with the existing work.
- .2 The term 'make good' shall mean as defined in Article 1.4 above.
- .3 Where existing openings are indicated as filled-in, blocked in, or new openings cut into walls, existing items removed or any form of alteration to the existing surface or material is made, the term "make good" shall be deemed to apply whether specifically noted or not.
- .4 Work of this Contract as shown or indicated on the Drawings, Schedules and Specifications may or may not be all the Work required to be done in the existing building. Contractor shall make good and perform all necessary work including incidentals to make a complete job of the alterations and renovations Work of this Contract.

1.13 RELOCATED COMPONENTS

- .1 Disconnect services on items for relocation forms part of the work of Divisions 21, 22, 23 and 26.
- .2 Disconnect fastening and anchorage of items to be relocated. Patch abandoned fastening and anchorage holes to be consistent, compatible and flush with adjacent surfaces.
- .3 Carefully relocate items indicated and repair any damage received as a result of relocation in accordance with the Departmental Representative written directions. Install relocated items level, plumb, square and in accordance with manufacturer's instructions. Re - fasten

and anchor securely in place. Services re-connection of relocated items shall form part of the work of Divisions 21, 22, 23, 26, 27 and 28 as applicable.

1.14 EXISTING AREAS AND WORK OF OTHER CONTRACTORS

- .1 Commencement of parts of the Work of this Contract, in existing areas and in areas provided by other contractors, will be deemed to signify the Contractor's acknowledgment and acceptance of those parts of the Work of the Contract.
- .2 Immediately report defects, which affect quality and performance of the Work of this Contract, in writing to the Departmental Representative.
- .3 The existing building will remain occupied during the Work of this Contract. Perform the Work of this Contract to cause minimum interference with activities in the existing building and maintain maximum safety to the Public and Building Personal. Contractor shall take reasonable measures to minimize and control noise, dirt and dust during the Work of this Contract.

1.15 DUST FREE ENVIRONMENT

- .1 It is imperative that the Data Centre's operational areas remain clean and dust free. It will be the Contractors responsibility to insure this. If the Contractor fails to maintain these conditions, the Departmental Representative reserves the right to retain the services of a professional maintenance company to fine clean the areas in question, and the invoiced costs for the cleaning services of the professional maintenance company shall be deducted from the Contractor's next progress payment.
- .2 Contractor shall be responsible to keep operational areas clean and dust free. Contractor shall prevent contamination of and nuisance to adjacent areas and properties near the Work from dust by taking appropriate dust control measures. Contractor shall take measures to prevent dust and dirt rising and migrating to occupied areas including return air systems and/or adjacent properties. Respond immediately to complaints of dust received from the Departmental Representative.
- .3 Before the Work proceeds, the Contractor shall provide temporary, dustproof partitions and screens, sealed at the floor, walls, ceilings, or intersecting members in a manner to prevent dust and dirt infiltration into adjacent areas of the existing building, notably server racks and computer equipment.
 - .1 Provide Dust Protection Plan to Departmental Representative before Work Proceeds.
- .4 Contractor shall vacuum clean dust above suspended ceilings including ductwork and piping, etc., prior to and after construction work with HEPA filtered vacuums.
- .5 Contractor shall establish traffic control patterns which prevent construction dust from being tracked into occupied areas of the existing building(s). Contractor shall install adhesive strips on floors to catch selective building demolition dust and construction dust on shoes.
- .6 Contractor shall ventilate construction areas with negative pressure with respect to adjacent occupied areas of the existing building(s) and monitor differential pressure at all

times be means of sensors wired to an alarm in the Contractor=s site office to warn of ventilation system breakdown. Where possible, exhaust air from construction areas directly outside the building. Where not possible, provide and maintain HEPA ventilation filters where construction ventilation enters the existing building(s). HEPA filters shall be capable of collecting and retaining airborne fungi and dust particles at 99.97% efficiency.

.1 Maintain ISO Data Centre Cleanliness standards applicable to data centre cleanliness:

.1 ISO standard 14644 (Class 8).

.7 Contractor shall leave the Work areas remaining in use clean and ready for use between each work period.

1.16 EMERGENCY EXITS AND FIRE ROUTES

.1 Contractor shall not in any way interfere or impede the use of emergency exits in occupied areas of the existing building(s).

.2 Contractor shall not block or in any way utilize vehicular fire routes in a manner which would adversely affect the usefulness of such routes for fire-fighting and fire safety purposes.

1.17 CONSTRUCTION, DELIVERY AND DISPOSAL VEHICLES

.1 Construction, delivery and disposal vehicles must not at any time block driveways, roadways or loading dock areas of the existing building(s).

.2 Such vehicles must not at any time be parked in driveways, in roadways or at the loading dock of the existing building(s) to await unloading of construction materials, supplies or equipment.

.3 Co-ordinate delivery and disposal times with the Departmental Representative so that vehicles do not cause traffic congestion. Such delivery and disposal times shall be during restricted hours as determined by the Departmental Representative.

1.18 CONTRACTOR'S ACCESS TO WORK AREAS

.1 Existing building loading dock and loading dock area may be made available for deliveries of construction materials and equipment and removal of selective building demolition materials, but only during restricted hours established by the Departmental Representative. At no time shall deliveries of construction materials and equipment or disposal of construction waste or selective building demolition waste materials interfere with or delay building personnel/staff, services deliveries of supplies or disposal of the existing building waste.

.2 Contractor shall ensure that responsible construction personnel are on hand to receive construction materials and equipment where delivered. The Departmental Representative personnel/staff shall not be responsible for receiving or storing construction materials and equipment, or removal of selective building demolition waste and equipment.

.3 Establish procedures to minimize tracking mud, dirt and waste construction materials onto and/or in to occupied areas of the existing building.

1.19 CONTRACTOR'S USE OF EXISTING ELEVATORS

- .1 Departmental Representative shall allow use of one (1) elevator near the area(s) of the Work of the Contract in the existing building for the Contractor to transport tools and limited to smaller construction materials which easily fit in the elevator and not overload the elevator, to and from the areas of Work during restricted hours of 21:00 to 06:00 Monday to Thursday, and from 21:00 Friday to 6:00 Monday on Weekends.
- .2 Contractor shall provide and ensure that the elevator cab interior and landing jamb protection are in place and secure all times. All damages to the elevator cab interior, doors, controls and landing jambs caused by Contractor shall be repaired and/or replaced to the satisfaction of the Departmental Representative at no extra costs to the Owner.

1.20 SECURITY SCANNING OF CONSTRUCTION MATERIALS AND EQUIPMENT

- .1 Contractor shall be responsible for security scanning of construction material(s) and equipment at Departmental Representative's facility.
- .2 Contractor to coordinate and schedule delivery of material(s) and equipment to Scanning Facility with consideration for scanning procedure requirements, including hours of operation of scanning facility and the amount and number of material(s) to be scanned.
- .3 Scanning Procedure;
 - .1 Contractor to contact facility to pre-arrange for time of delivery.
 - .2 Contractor to arrive at facility with material(s) in delivery vehicle(s).
 - .3 Contractor's delivery vehicle(s) to contain only material(s) destined for delivery to site of Work.
 - .4 Scanning occurs within the vehicle under normal circumstances.
 - .5 Seals are placed on material(s) destined for delivery to site of Work.
 - .6 Contractor must drive vehicle(s) directly to site of Work following scanning and sealing of material(s).
 - .7 Material(s) seals to be validated by House of Commons Security upon arrival.
 - .8 Only sealed material(s) validated by Security are permitted to enter site of Work.
- .4 Contractor's failure to comply with scanning procedure will result in material(s) being prohibited from entering site of Work.
- .5 Contractor is responsible for any and all costs associated with failure to adhere to scanning procedure.
- .6 Coordinate access to scanning facility with contact information below.
- .7 All construction material(s) and equipment must be scanned prior to delivery to site.
- .8 Security Scanning Facility Location:
 - .1 2303 Stevenage Drive
Ottawa, Ontario, K1G 3W1
Phone: 613-738-9118 ext. 8549
Hours of Operation: Monday to Friday, 07:00 to 15:00.

1.21 PROTECTION OF EXISTING ACCESS FLOORING

- .1 It is structurally acceptable to use the raised access floor for moving the AC units into place.
- .2 19 mm thick plywood should be placed along the path of the AC units (1.22 m or 4 feet wide) in order to protect the flooring and distribute the weight evenly.
- .3 Numerous rollers (moving carts) should be used along the length of the units in order to distribute the weight of the units.
- .4 Minimum of 900mm x 900mm carts (5 along the length) be used for the larger AC (32 ton) unit in tight contact with one another. This will ensure the load is distributed evenly along the length of the unit over the access flooring.

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 Requirements
- .2 Section 01 14 25 – Designated Substances

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects O. Reg. 213/91, current edition.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 – Submittal Procedures
- .2 Submit site-specific Health and Safety Plan to Departmental Representative: Within three (3) days after date of Contract Award and 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 List of known possible hazards including restricted work spaces, dusty work areas, working around exposed electrical conduits, and sprinkler piping.
 - .4 On-site Contingency and Emergency Response Plan.
 - .5 Refer to attached 'Pre-Construction Site Specific Safety Plan Requirements for Complete' list of information to be included.
- .3 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets.
- .6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within two (2) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within two (2) days after receipt of comments from Departmental Representative.

- .7 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.

1.4 SAFETY ASSESSMENT

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

1.5 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 00 10 - Regulatory Requirements.

1.6 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 Work will involve contact with designated substances per Section 01 14 25 – Designated Substance Report.

1.7 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Health and Safety Act and Regulations for Construction Projects, current edition.

1.8 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 Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.9 POSTING OF DOCUMENTS

- .1 Establish a safety board on site at an agreed location with the Departmental Representative to post pertinent and prescribed information.
 - .1 Ensure applicable items, articles, notices and orders are posted in accordance with Acts and Regulations of Province having jurisdiction.

1.10 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.

1.11 BLASTING

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

1.12 POWER ACTUATED DEVICES

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

- .1 Powder actuated devices may be used to fasten tracks to the floor and ceiling slab.

- .2 Powder actuated devices may not be used to hang ceiling grids, sprinklers, conduit and mechanical equipment and devices. These items must be screwed with anchors.

1.13 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

THIS IS TO ATTEST THAT THE UNDERSIGNED IS A COMPETENT CONTRACTOR AS DEFINED IN THE OCCUPATIONAL HEALTH AND SAFETY ACT OF ONTARIO;

OHSA - Section 1 “competent person”;

OHSA - Regulation 213 (Construction) Section 1 “competent person”

THE UNDERSIGNED ALSO ACKNOWLEDGES THAT ALL EMPLOYEES WILL FOLLOW _____ (CONSTRUCTOR) HEALTH AND SAFETY SITE SPECIFIC PROGRAM;

AND

THE UNDERSIGNED WILL PERSONALLY ENSURE THE FULL COMPLIANCE OF THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL ITS PERTINENT REGULATIONS.

CONTRACTORS NAME: _____

ADDRESS: _____

DATE: _____

JOB LOCATION: _____

JOB NUMBER: _____

PRE-CONSTRUCTION SITE SPECIFIC SAFETY PLAN REQUIREMENTS

Note: There should be two parts to a Site Specific Safety Plan.

Part 1) The Constructor's General Safety Plan including, but not limited to the following:

- Health and Safety Policy;
- Health and Safety Program that supports the Health & Safety Policy;
- Roles and Responsibilities; and
- General rules and procedures for all tasks that the Constructor performs.

Part 2) The Site Specific Safety Plan including, but not limited to the following:

Note: This part must only contain information specific to this project.

- Floor Plan/Site Plan identifying emergency evacuation plan/procedures, routes, meeting areas, safety board location, site office, etc. (refer to CSAO website for additional information) (PWGSC to provide floor plan of building);
- Health and Safety Representative/Committee/Workers Trade Committee;
- Applicable permits from the authorities having jurisdiction (i.e. building, electrical, etc.);
- Applicable building requirements (i.e. isolation procedures, lock-out/tag-out procedures, systems by-pass procedures, hot work procedures, security, etc);
- Hazard Assessment/Analysis (Task - Hazard - Control);
- Designated Substances Report (DSR - provided by PWGSC);, identify location and provide written procedures on how they will be addressed;
- Emergency phone numbers, personnel & written procedures to address site specific accidents/emergencies (must incorporate existing building emergency procedures);
- Copy of Trade Qualifications and Apprenticeship Certificates;
- Copy of mandatory Training Certificates (i.e. WHMIS, Fall Protection, First Aid, Confined Space, Fork Lift Truck Certificate, JPO, etc.);
- List of all Sub Contractors, Contact Names & Address;
- Copy of all Sub Contractors "Competency and Health and Safety Acknowledgment Statement" (refer to sample provided on page 2);
- Worker Orientation for this Project;
- Communication Plan (PWGSC to provide template);
- Copy of all applicable contractor licenses;
- Additional requirements including, but not limited to the following:
 - Notice of Project
 - Registration Form
 - Liability Insurance
 - WSIB Clearance Certificates from all companies (CSST in Quebec)
 - Controlled Products, WHMIS/MSDS

Health and Safety is not an extra, it is part of doing the job!

SUBCONTRACTOR'S COMPETENCY
AND
HEALTH AND SAFETY ACKNOWLEDGMENT

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative. Refer to Section 01 14 25 – Designated Substance Report and 01 35 30 - Health and Safety Requirements.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.3 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions and municipal by-laws. Smoking is not permitted.

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 01 – General Instructions.
- .2 Section 01 14 00 – Work Restrictions
- .3 Section 01 33 00 – Submittal Procedures.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

1.3 SUBMITTALS

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

1.4 INSTALLATION AND REMOVAL

- .1 Prepare plan indicating proposed location and dimensions of area to be used by Contractor.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, temporary stairs.

1.6 HOISTING

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

1.7 ELEVATORS

- .1 Designated existing and permanent elevator to be used by construction personnel and transporting of materials. Co-ordinate use with Departmental Representative.
- .2 Provide protective coverings for finish surfaces of cars and entrances.

1.8 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9 CONSTRUCTION PARKING

- .1 Parking will not be permitted on site.
- .2 Provide and maintain adequate access to project site during loading and unloading of equipment and materials required to undertake the Work.

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 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.

1.12 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 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

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 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 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.
- .4 Cost for such testing will be born by Departmental Representative, in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 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.

1.3 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.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.5 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.

1.6 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 Do not employ anyone unskilled in their required duties. Departmental Representative] reserves right to require dismissal from site, workers deemed incompetent or careless.

- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

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

1.10 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.

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.

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.
- .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

The accepted standard for cleanliness in data centres is ISO standard 14644 (Class 8) which replaces Federal Standard 209E (class 100,000). The new standard (CLASS 8) uses a metric equivalent to the old standard. Class 100,000 referred to the particle count, in parts per million (ppm) for each cubic foot of air in the data centre (i.e. 100,000 ppm of particles 0.5 micron or larger). The new standard uses the cubic meter as the basis for volumetric calculation. Thus 3,520,000 ppm per cubic meter is the same measurement as the old standard.

HEPA/ULPA rated equipment is required to clean inside the computer room and under the raised floor. Typically, cleaning is performed on a yearly basis. However, cleaning may be required more often if there are extenuating circumstances.

The following table shows the various classes that are available under the standard. Class 8 (>0.5 micron particle size) is considered to be the appropriate level for data centres. Companies that specialize in computer room cleaning should be able to provide particle count measurements before cleaning is performed, and then a comparative reading after the cleaning is completed. The readings are normally taken above the raised floor, but samples should be taken below the raised floor and above the t-bar ceiling system as well.

Table 1: ISO Cleaning Standard Levels

| Maximum Number of Particles in Air (particles in each cubic meter equal to or greater than the specified size) | | | | |
|---|----------------------|--------------------|------------------|------------------|
| ISO Class | Particle size | | | |
| | > 0.1 µm | > 0.5 µm | > 1 µm | > 5 µm |
| ISO Class 1 | 10 | | | |
| ISO Class 2 | 100 | 4 | | |
| ISO Class 3 | 1000 | 35 | 8 | |
| ISO Class 4 | 10,000 | 352 | 83 | |
| ISO Class 5 | 100,000 | 3,520 | 832 | 29 |
| ISO Class 6 | 1,000,000 | 35,200 | 8,320 | 293 |
| ISO Class 7 | | 352,000 | 83,200 | 2930 |
| ISO Class 8 | | 3,520,000 | 832,000 | 29,300 |
| ISO Class 9 | | 35,200,000 | 8,320,000 | 293,000 |

Cleaning equipment should be equipped with HEPA/ULPA filters that will perform to the desired level of cleanliness. Industrial versions of these vacuum cleaners will have filters on both the vacuum intake and the exhaust.



Part 1 General

1.1 GENERAL INSTRUCTIONS

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

1.2 SECTION INCLUDES

- .1 Requirements and limitations for cutting and patching the Work and Data Centre Cleanliness Standards.

1.3 RELATED SECTIONS

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Individual product Sections: cutting and patching incidental to work of section. Advance notification to other sections required.

1.4 SUBMITTALS

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

1.5 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.6 PREPARATION

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

1.7 EXECUTION

- .1 Execute cutting, fitting, and patching 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 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.8 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.

1.9 ISO DATA CENTRE CLEANING STANDARDS

- .1 Refer to attached document ISO Data Centre Cleanliness for standards applicable to Data Centre cleanliness.

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

1.2 REFERENCES

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.3 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 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris. Remove debris and bins at the end of each working shift.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
- .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 lighting reflectors, lenses, and other lighting surfaces.
- .8 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from surfaces.
- .11 Sweep and wash clean paved areas.
- .12 Clean equipment and fixtures to sanitary condition.
- .13 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .14 Remove snow and ice from access to building.

1.5 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 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Departmental Representative review PSPC's Waste Management Plan and Goals.
- .2 Waste Management: Goal 75% of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and environment damage.

1.2 RELATED SECTIONS

- .1 01 35 16 Special Project Procedures.

1.3 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 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.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 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.
- .9 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.

- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.
- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 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.
- .14 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.4 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.

1.5 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 1 digital copy in .PDF format of completed waste audit of completed Waste Audit (WA): Schedule A.
 - .2 Submit 1 digital copy in .PDF format completed Waste Reduction Workplan (WRW): Schedule B.
 - .3 Submit 1 digital copy in .PDF format of completed Demolition Waste Audit (DWA): Schedule C.
- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Failure to submit could result in hold back of final payment.
 - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
 - .3 For each material reused, sold or recycled from project, include amount in tonnes] quantities by number, type and size of items and the destination.
 - .4 For each material land filled or incinerated from project, include amount in kilograms of material and identity of landfill, incinerator or transfer station.

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 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 DEMOLITION WASTE AUDIT (DWA)

- .1 Prepare DWA prior to project start-up.
- .2 Complete DWA: Schedule C.
- .3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.9 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified 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.

1.10 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste 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.

1.11 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.

1.12 SCHEDULING

- .1 Co-ordinate 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 SELECTIVE DEMOLITION

- .1 Reuse of Building Elements: this project has been designed to result in end of project rates for reuse of building elements as follows: do not demolish building elements beyond what is indicated on Drawings without approval by Departmental Representative.

3.2 APPLICATION

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.3 CLEANING

- .1 Remove tools and waste materials on completion of each night's or shift's 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.

3.4 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 consistent with applicable fire regulations.
 - .1 Mark containers or stockpile areas.
 - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged is not permitted.
- .3 Demolition Waste:

| Material Type | Recommended Diversion % | Actual Diversion % |
|-----------------------|-------------------------|--------------------|
| Acoustic Tile | 50 | [] |
| Acoustical Insulation | 100 | [] |
| Electrical Equipment | 80 | [] |
| Mechanical Equipment | 100 | [] |

| Material Type | Recommended Diversion % | Actual Diversion % |
|---------------|-------------------------|--------------------|
| Metals | 100 | [] |
| Rubble | 100 | [] |

.4 Construction Waste:

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

3.5 WASTE AUDIT (WA)

.1 Schedule A - Waste Audit (WA):

| (1) Material Category | (2) Material Quantity Unit | (3) Estimated Waste % | (4) Total Quantity of Waste (unit) | (5) Generation Point | (6) % Recycled | (7) % Reused |
|-----------------------|----------------------------|-----------------------|------------------------------------|----------------------|----------------|--------------|
|-----------------------|----------------------------|-----------------------|------------------------------------|----------------------|----------------|--------------|

Wood and
Plastics
Material
Description
Off-cuts
Warped
Pallet Forms
Plastic
Packaging
Cardboard
Packaging
Other

Doors and
Windows
Material
Description
Painted
Frames
Glass
Wood
Metal
Other

3.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

| (1) Material Category | (2) Person(s) Responsible | (3) Total Quantity of Waste (unit) | (4) Reused Amount Projected | Actual | (5) Recycled Amount Projected | Actual | (6) Material(s) Destination |
|-----------------------|---------------------------|------------------------------------|-----------------------------|--------|-------------------------------|--------|-----------------------------|
|-----------------------|---------------------------|------------------------------------|-----------------------------|--------|-------------------------------|--------|-----------------------------|

| (1) Material Category | (2) Person(s) Respon- sible | (3) Total Quantity of Waste (unit) | (4) Reused Amount (units) Projected | Actual | (5) Recycled Amount (unit) Projected | Actual | (6) Material(s)) Destina- tion |
|--|--------------------------------------|---|---|--------|--|--------|--|
| Wood and Plastics Material Descriptio n Chutes Warped Pallet Forms Plastic Packag ing Card- board Packag ing Other | | | | | | | |
| Doors and Windows Material Descriptio n Painted Frames Glass Wood Metal Other | | | | | | | |

3.7 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule C - Demolition Waste Audit (DWA):

| (1) Material Description | (2) Quantity | (3) Unit | (4) Total | (5) Volume (cum) | (6) Weight (cum) | (7) Remarks and Assumption s |
|--|-----------------|----------|-----------|---------------------|---------------------|--|
| Wood Wood Stud Plywood Baseboard- Wood Door Trim - Wood Cabinet | | | | | | |

| (1) Material Description | (2) Quantity | (3) Unit | (4) Total | (5) Volume (cum) | (6) Weight (cum) | (7) Remarks and Assumptions |
|--|--------------|----------|-----------|------------------|------------------|-----------------------------|
| Doors and Windows Panel Regular Slab Regular Wood Laminate Byfold - Closet Glazing | | | | | | |

3.8 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment:

| Province | Address | General Inquires | Fax |
|----------|--|---------------------------|--------------|
| Ontario | Ministry of Environment and Energy, 135 St. Clair Avenue West Toronto ON M4V 1P5 | 416-323-4321 800-565-4923 | 416-323-4682 |
| | Environment Canada | 416-734-4494 | |
| | Toronto ON | | |

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

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

1.2 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for 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.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.

- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.5 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 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, process flow, 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.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide scaled CAD files in dwg format on CD.

1.6 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: 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.

- .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.7 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at 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.
 - .1 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.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: 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 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 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, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.9 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 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.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 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 co-ordination 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 and] 01 91 13 - General Commissioning (Cx) Requirements.
- .15 Additional requirements: as specified in individual specification sections.

1.10 MATERIALS AND FINISHES

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

1.11 MAINTENANCE MATERIALS

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

- .3 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 by Departmental Representative; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to Departmental Representative.
 - .2 Include approved listings in Maintenance Manual.

1.12 DELIVERY, STORAGE AND HANDLING

- .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 for review by Departmental Representative.

1.13 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative for approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .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 applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.

- .7 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .3 Contractor's plans for attendance at 9 month post-construction warranty inspections.
 - .4 Procedure and status of tagging of equipment covered by extended warranties.
 - .5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.14 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.

- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

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 REQUIREMENTS

- .1 Division 21, 22, 23 26 and 28 specifications.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate operation and maintenance of equipment and systems to Departmental Representative's personnel two weeks prior to date of substantial performance.
- .2 Departmental Representative: provide list of personnel to receive instructions, and coordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into.
 - .4 Ensure testing, adjusting, and balancing has been performed and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.
- .5 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment or system as follows:
 - .1 DIVISION 23 - Cooling and Ventilation System (New AC units): 4 hours of instruction.
 - .2 DIVISION 26 - Control System (Leak Detection System): 2 hours of instruction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.

- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.4 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Departmental Representative's personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

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 REQUIREMENTS

- .1 Section 01 00 10 – General Instructions.

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.

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 Departmental Representative will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .5 Use only elevators existing in building for moving workers and material.
 - .1 Protect walls of passenger elevators, to approval of Departmental Representative prior to use.
 - .2 Accept liability for damage, safety of equipment and overloading of existing equipment.
- .6 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operation, 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 48 hours 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.

1.6 SPECIAL REQUIREMENTS

- .1 Carry out Work Monday to Thursday from 21:00 to 06:00 hours and on weekends from 21:00 Friday to 6:00 Monday.
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Ingress and egress of Contractor vehicles at site is limited to 30 minutes.

1.7 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.
- .2 Security clearances:
 - .1 Personnel employed on this project will be subject to security check. Obtain "Site Access" clearance for each individual who will require to enter premises.
 - .2 Obtain requisite clearance for each individual required to enter premises.
 - .3 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 Security escort:
 - .1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

1.8 BUILDING SMOKING ENVIRONMENT

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

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. Federal Legislation
 1. *Canada Labour Code, Part II, section 124 and 125. Canada Occupational Health and Safety Regulations*
 2. *Transportation of Dangerous Goods Act, 1992 (TDGA)*
 3. *Canada Consumer Product Safety Act*
 1. *Surface Coating Materials Regulations SOR/2005-109.*
 4. *Canadian Environmental Protection Act, 1999 (CEPA)*
 1. *PCB Regulations (SOR/2008-273)*
 2. *Federal Halocarbon Regulations, 2003 (SOR/2003-289)*
2. Provincial Legislation
 1. *Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.*
 1. *Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).*
 2. *Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).*
 3. *Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)*
 2. *Ontario Environmental Protection Act, R.R.O. 1990,*
 1. *Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).*
 2. *Ontario Regulations 362/90 – Waste Management, PCBs (O.Reg. 362/90)*
 3. *Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).*
3. *Canadian General Standards Board (CGSB).*
4. *Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 Respiratory Protection*
5. Underwriters' Laboratories of Canada (ULC).

1.2 DEFINITIONS

HEPA vacuum: High Efficiency Particulate Arrestor filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

Time-weighted average exposure limit (TWAEL): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by *O.Reg. 490/09 Designated Substances*, as amended.

1.3 RELATED SECTIONS

Not used

1.4 DESIGNATED SUBSTANCES

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Additional designated substances and hazardous materials may exist outside the accessible survey area but are beyond the scope of this project.

Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

1. ACRYLONITRILE: Not Identified
2. ARSENIC: Not Identified
3. ASBESTOS: Not Identified

Bulk sampling and subsequent laboratory analysis have determined that the following materials do not contain regulated amounts of asbestos:

- The ceiling tile in Room B137 in the basement within the project area at the Centre Block Building.
4. BENZENE: Not Identified
 5. COKE OVEN EMISSIONS: Not Identified
 6. ETHYLENE OXIDE: Not Identified
 7. ISOCYANATES: Not Identified
 8. LEAD: Not Identified

Laboratory analysis results indicate that the following paints do not contain detectable concentration of lead:

- Beige paint on the west wall in room B137,
- Grey paint on the AC unit in room B137, and
- Red paint on the sprinkler line in Room 242.

These paints are not considered to be lead-based paints.

9. MERCURY: Not Identified

10. SILICA: Identified

Free crystalline silica is present in concrete in the project area.

11. VINYL CHLORIDE MONOMER: Not Identified
12. POLYCHLORINATED BIPHENYLS (PCBS): *Not Identified*
13. OZONE DEPLETING SUBSTANCES (ODS): *Not Identified*

1.5 RECOMMENDATIONS

1. Silica

1. Comply with Ontario Regulations *O.Reg. 490/09* when performing works that may disturb silica-containing materials.

2. Follow recommendations provided in the Ontario Ministry of Labour Guideline entitled "*Guideline: Silica on Construction Projects*". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification.

2. Halocarbons

1. The handling, transport and disposal of halocarbons is governed by the following:
 - *Ozone-depleting Substances Regulations, 1998, as amended;*
 - *O.Reg. 463/10, Ozone Depleting Substances and Other Halocarbons;*
 - *O.Reg. 238/01, Refrigerants;* and
 - *Federal Halocarbon Regulations, 2003 (FHR).*
2. When suspected halocarbon-containing equipment is taken out of service, the halocarbon refrigerants must be captured and reclaimed by a licensed technician. The presence of halocarbon refrigerants within unit's no longer in service should be verified. If halocarbon refrigerants are found to be present, they must be captured and reclaimed by a licensed technician. Appropriate records of equipment decommissioning must be maintained in accordance with requirements of the FHR.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 45 00 – Quality Control.
- .2 Section 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 co-ordinated.
- .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 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario, Canada for each requirement requested in specification Sections.
- .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 co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .4 Allow 10 business 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, in duplicate, containing:
 - .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 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 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 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 electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 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.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 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.
- .20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that the Departmental Representative 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.

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 73 03 – Execution Requirements
- .2 Section 01 73 03.01 – ISO Data Centre Cleanliness Standards

1.2 GENERAL INSTRUCTIONS

- .1 This Specification is to be read in accordance with the Contract Documents.
- .2 Read and be governed by Conditions of the Contract and other Sections of Division 01.

1.3 SUMMARY

- .1 Purposes of the building alteration special project procedures are as follows:
- .2 Building alteration special project procedures shall be required for the full duration of the Work of this Contract for the replacement of the six (6) A/C units and leak detection system as indicated on the Drawings and specified in the Specifications, so that at the same time the existing building can be maintained safe and fully operational.
- .3 Building alteration special project procedures shall also ensure the Contractor provides full accessibility to the existing building under alteration or renovation forming the Work of the Contract to the visitors and the Public including support staff, maintenance and administration personnel, suppliers and other contractors.
- .4 Building alteration special project procedures shall apply to each part of the Work of the Contract related to the existing building performed by the trade persons specializing in such work.

1.4 DEFINITIONS

- .1 Occupied areas: “Occupied areas” or similar wording wherever it appears, for the purposes of building alteration special project procedures for the existing building shall herein be defined as areas of the existing building other than those under alteration or renovation and enclosed with temporary construction enclosures.
- .2 Construction personnel: Construction personnel for the purposes of building alteration special project procedures for existing building shall herein be defined as self-employed persons, personnel on the payroll of Contractors and/or subcontractors, suppliers and service companies, working on their own behalf and/or on the behalf of their employers on and/or within the existing building and/or on or within the properties of the existing building.
- .3 Making good: The term "making good" shall mean repairing or filling operations performed on existing floors, walls, ceilings or any other exposed surfaces. Making good also means repairing, restoring, refurbishing, rehabilitating, or performing filling operation on any existing components disturbed due to Work of this Contract, to at least the condition existing at the commencement of the Work. In terms of construction;

construction materials and finishes shall match existing adjacent materials and finishes, be alignment with existing adjoining surfaces, of compatible of materials. It is intended that finished surfaces match existing in every respect, compatible and line with existing adjoining surfaces.

1.5 RULES AND REGULATIONS FOR CONSTRUCTION PERSONNEL

- .1 Rules and regulations for construction personnel shall be construed as being general in nature and designed a guide for behavior of all construction personnel, including suppliers and their employees while performing the Work of this Contract in and/or on the properties of the Departmental Representative and the existing building(s). The rules and regulations for construction personnel of the Work of the Contract attempts as much as possible to foresee all circumstances which may affect the Work of this Contract carried out by the construction personnel.
- .2 Where a situation occurs or a decision is required regarding construction methods which would affect the operational procedures of the existing building the Departmental Representative will decide on the course of action and methods to be followed. The Departmental Representative's decisions and judgement are final.
- .3 Rules and regulations for construction personnel shall include, but not limited to the following:
 - .1 Where the Work of this Contract causes results which are detrimental to the operations of the building where the Departmental Presentative feels that such work should stop until conditions change, then such Work shall stop on order of the Departmental Representative.
 - .2 Hot Work Permit: Contractor shall comply with procedures and requirements in which open flame is used as part of the Work of this Contract, including any procedures which shall give off hazardous fumes and/or odours strong enough to harm and/or cause discomfort. All construction personnel shall strictly follow Hot Work Permit procedures, recommendations and written requirements. In addition to the aforementioned regulation, construction personnel shall limit the amounts of volatile mixtures, flame producing apparatus and the like, within the existing building to an amount no greater than that required for one (1) day's use. Items of volatile mixtures, flame producing apparatus and the like shall not be stored overnight in the building.
 - .3 Noisy behaviour and/or "horse play" of any type by the construction personnel is strictly forbidden.
 - .4 Operation of air compressors, drilling machines, tamping devices, tractors, tractor trailers, floats and other noise making equipment shall be limited to the time period as determined by the Departmental Representative.
 - .5 Construction personnel shall pay particular attention to the limiting features such as; doorways, stairwells and elevators. Under no circumstances will the existing elevators be overloaded, their governing mechanisms distorted, or be required to perform service unusual to their normal every day operation.
 - .6 Construction personnel shall not consume food or drink within the construction enclosures for hygienic reasons.
 - .7 Construction personnel shall not use washrooms at the existing building(s) unless permitted to do so by the Departmental Representative.

1.6 DAMAGE DOCUMENTATION

- .1 Prior to commencing active selective building demolition work in the existing building, Contractor shall examine existing work and items which are to remain or be re-used in the finished Work, and shall document damage to such work and items in writing to the Departmental Representative. Such items shall include but not limited to; floors, walls, ceilings and equipment on the designated access route to the construction enclosures.
- .2 Contractor's prepared damage documentation shall be reviewed by the Contractor with the Departmental Representative.
- .3 Contractor shall furnish the Departmental Representative with copies of the above mentioned damage documentation.
- .4 Contractor shall be responsible for the making good, at his own expense, of any damage sustained by work and items which are to be re-employed in the finished Work throughout the duration of construction operations in the existing building. Such making good shall be to the approval of the Departmental Representative.

1.7 RESTRICTIONS

- .1 Contractor shall assume responsibility for care, custody and control of the Project site and perform the Work to extent covered in Contract Documents. Contractor shall make good damage to the Project site and existing building (if any) due to the Work of this Contract.
- .2 Contractor shall bring the following restrictions to the attention of the construction personnel and workers on the Work of this Contract and enforce them:
 - .1 Contractor shall restrict construction personnel and workers to Place of the Work and necessary access routes to it. Restrict non - construction personnel from the Project site, except for Contractor-authorized visitors.

1.8 OCCUPANCY OF EXISTING BUILDING

- .1 The existing building will remain in full use and occupancy throughout the duration of construction of the Work of this Contract.
- .2 Before the Work of this Contract begins and on a routine basis, construction personnel shall be thoroughly informed of the necessity to exercise extreme caution in any of their activities which may interrupt an essential service serving the "occupied areas" for which an alternate supply, service or facility has not been provided.
- .3 The Departmental Representative and/or his separate contractors reserves the right to enter the area(s) of Work of this Contract for the purpose of placing and/or fitting equipment before completion of the Work of this Contract. Such entry shall not interfere with or prevent the Contractor from performing the Work of this Contract. Also, such entry shall not in any way be considered as acceptance of the Work of this Contract by the Departmental Representative, or in any way relieve the Contractor from responsibilities under Work of this Contract.
- .4 Any interruption(s) of mechanical and/or electrical services to "occupied areas" must be pre-arranged with the Departmental Representative. Where any such interruption(s) is impossible to avoid, it shall be of the shortest duration possible and restricted to times acceptable to the Departmental Representative in writing. Contractor shall apply in

writing to the Departmental Representative well in advance of any contemplated and/or intended interruption(s).

- .5 Contractor shall maintain continuation of fire protection in the existing building(s) as specified herein.
- .6 Contractor shall maintain existing exits and ensure that proper and safe means of egress from all parts of the existing building to open spaces are provided at all times to the approval of jurisdictional authorities. Locate and install exit lights, and illuminate temporary means of egress.
- .7 Contractor shall maintain access to service and delivery entrances as specified herein.
- .8 Contractor shall maintain security of the existing building during the Work of this Contract as specified herein.

1.9 CONTRACTOR'S USE OF THE EXISTING BUILDING

- .1 Contractor shall limit access of the construction personnel to the existing building only at the locations acceptable to the Departmental Representative.
- .2 Contractor shall ensure that the construction personnel perform work in the existing building only as required under the Contract.
- .3 Contractor's access to the work areas shall be through existing corridors and occupied areas of the existing building as directed by the Departmental Representative.
- .4 Contractor shall not store or place demolition waste, construction materials, products and other supplies in the corridors and 'occupied areas' of the existing building. The Departmental Representative shall not be responsible for, or pay for loss of construction materials, products, other supplies, tools and/or equipment left in such corridors and occupied areas. Contractor shall maintain the corridors and occupied areas of the existing building(s) clean and "free" of dust and debris from transportation of demolition waste, construction materials, products, equipment and other supplies.
- .5 Construction personnel shall occupy areas of the existing building for their purposes only as directed and only while the Work of the Contract is in progress. Contractor shall keep assigned areas clean under the Work of this Contract, and return them to an "as was" condition at completion of construction. Contractor shall replace, or make good as approved, damage to the existing building, fixtures and fittings caused during use by the construction personnel. Contractor shall include cost of installation and making good of other Work thereby affected in replacement.

1.10 MECHANICAL AND ELECTRICAL SERVICES IN THE EXISTING BUILDING

- .1 Contractor shall ensure that the Mechanical and Electrical services in the existing building(s) are not damaged during selective building demolition and construction. Contractor shall arrange with the mechanical and electrical Subcontractors to immediately cut off and cap concealed services uncovered during the Work.
- .2 Contractor shall not interrupt the Mechanical or Electrical services of the existing building(s), except for temporary close-downs to make connections to new work, and as approved by prior arrangements with the Departmental Representative. Should existing

Mechanical and/or Electrical services be accidentally uncovered and disrupted in the existing building(s), make complete restoration immediately, and ensure adequate protection to avoid further disruption until alternative means of providing permanent continuation of the services are made.

- .3 Contractor shall make payment for restoration work of uncovered or disrupted Mechanical and/or Electrical services as specified in the foregoing, at no additional cost to the Departmental Representative if, in the opinion of the Departmental Representative, that such Work could have been reasonably foreseen by examination at time of tendering, and/or which has been caused by lack of proper care and protection.
- .4 Unless specified otherwise, Contractor shall restore the Mechanical and/or Electrical services on which the Work is performed to original condition.

1.11 REMOVAL OF EXISTING WORK AND SALVAGE

- .1 Where existing items are designated for relocation or removal, relocate or remove these items unless specified elsewhere, or specified to be done by other contractors of the Departmental Representative.
- .2 Demolish only those portions of the existing building as indicated on the Drawings and necessary for incorporation of the Work of this Contract.
- .3 Remove building elements, components, materials, and equipment as required by the Work of this Contract. Contractor shall carefully remove items designated to be handed over to the Departmental Representative.
- .4 Limit removal of items to smallest areas possible, and “make good” the disturbed existing Work.
- .5 Relocate building elements, components, materials, and equipment as indicated on the Drawings.
- .6 Materials resulting from selective building demolition and not required to be retained shall be removed promptly from the Project site in accordance with requirements of authorities having jurisdiction and in safe manner to minimize danger at the Project site and during disposal. Contractor shall obtain the Departmental Representative approval prior to removal.
- .7 Unless specified otherwise or noted otherwise, or designated otherwise at the Project site, building components, manufactured specialties, miscellaneous metals and other items of the existing building which are noted to be moved but not relocated shall remain the property of the Departmental Representative. Contractor shall return such items to the Project Manager in an adequately preserved and usable condition on the date of handover, or other mutually agreed date.
- .8 Materials and products recovered from the existing Work in the existing building which are not relocated or required by the Departmental Representative shall become the property of the Contractor and shall be disposed of away from the Project site.
- .9 Contractor shall remove debris and accumulated dirt from the existing building immediately as it accumulates. Contractor shall ensure that during removal operations

through the existing building that existing Work is not damaged and dirt, debris and dust is not spread. Contractor shall repair of damages will be at the expense of the guilty party, and at no expense to the Departmental Representative.

- .10 Contractor shall maintain the access areas (corridors, loading dock, elevator cabs) in the existing building constantly broom clean to avoid tracking of dirt, debris and dust into adjacent areas. Contractor shall immediately clean up dirt, debris and dust resulting from the Work of Contract that is deposited in the existing building outside of the work areas. Contractor shall make a daily inspection to ensure that the work access areas and construction access areas are maintained clean and undamaged as specified herein.
- .11 Contractor shall make good existing materials, and prepare the surfaces and refinish all finished surfaces damaged, marred, replaced, or otherwise remedied in the existing building.
- .12 Contractor shall finish the new surfaces flush with existing surfaces. Contractor shall make junctions between the existing and new work, or at replaced or remedial work visually undetectable. Contractor shall make surfaces adjacent to one another of the same material, unit sizes, colour, and texture. If this is not possible or practical, make a proposal of intended method of "making good" for acceptance of the Departmental Representative prior to installation.

1.12 REPAIR TO EXISTING WORK

- .1 Contractor shall make good surfaces and finishes damaged or disturbed due to the Work under this Contract. Contractor shall ensure that materials used to repair damage is compatible with the existing work.
- .2 The term 'make good' shall mean as defined in Article 1.4 above.
- .3 Where existing openings are indicated as filled-in, blocked in, or new openings cut into walls, existing items removed or any form of alteration to the existing surface or material is made, the term "make good" shall be deemed to apply whether specifically noted or not.
- .4 Work of this Contract as shown or indicated on the Drawings, Schedules and Specifications may or may not be all the Work required to be done in the existing building. Contractor shall make good and perform all necessary work including incidentals to make a complete job of the alterations and renovations Work of this Contract.

1.13 RELOCATED COMPONENTS

- .1 Disconnect services on items for relocation forms part of the work of Divisions 21, 22, 23 and 26.
- .2 Disconnect fastening and anchorage of items to be relocated. Patch abandoned fastening and anchorage holes to be consistent, compatible and flush with adjacent surfaces.
- .3 Carefully relocate items indicated and repair any damage received as a result of relocation in accordance with the Departmental Representative written directions. Install relocated items level, plumb, square and in accordance with manufacturer's instructions. Re - fasten

and anchor securely in place. Services re-connection of relocated items shall form part of the work of Divisions 21, 22, 23, 26, 27 and 28 as applicable.

1.14 EXISTING AREAS AND WORK OF OTHER CONTRACTORS

- .1 Commencement of parts of the Work of this Contract, in existing areas and in areas provided by other contractors, will be deemed to signify the Contractor's acknowledgment and acceptance of those parts of the Work of the Contract.
- .2 Immediately report defects, which affect quality and performance of the Work of this Contract, in writing to the Departmental Representative.
- .3 The existing building will remain occupied during the Work of this Contract. Perform the Work of this Contract to cause minimum interference with activities in the existing building and maintain maximum safety to the Public and Building Personal. Contractor shall take reasonable measures to minimize and control noise, dirt and dust during the Work of this Contract.

1.15 DUST FREE ENVIRONMENT

- .1 It is imperative that the Data Centre's operational areas remain clean and dust free. It will be the Contractors responsibility to insure this. If the Contractor fails to maintain these conditions, the Departmental Representative reserves the right to retain the services of a professional maintenance company to fine clean the areas in question, and the invoiced costs for the cleaning services of the professional maintenance company shall be deducted from the Contractor's next progress payment.
- .2 Contractor shall be responsible to keep operational areas clean and dust free. Contractor shall prevent contamination of and nuisance to adjacent areas and properties near the Work from dust by taking appropriate dust control measures. Contractor shall take measures to prevent dust and dirt rising and migrating to occupied areas including return air systems and/or adjacent properties. Respond immediately to complaints of dust received from the Departmental Representative.
- .3 Before the Work proceeds, the Contractor shall provide temporary, dustproof partitions and screens, sealed at the floor, walls, ceilings, or intersecting members in a manner to prevent dust and dirt infiltration into adjacent areas of the existing building, notably server racks and computer equipment.
 - .1 Provide Dust Protection Plan to Departmental Representative before Work Proceeds.
- .4 Contractor shall vacuum clean dust above suspended ceilings including ductwork and piping, etc., prior to and after construction work with HEPA filtered vacuums.
- .5 Contractor shall establish traffic control patterns which prevent construction dust from being tracked into occupied areas of the existing building(s). Contractor shall install adhesive strips on floors to catch selective building demolition dust and construction dust on shoes.
- .6 Contractor shall ventilate construction areas with negative pressure with respect to adjacent occupied areas of the existing building(s) and monitor differential pressure at all

times be means of sensors wired to an alarm in the Contractor=s site office to warn of ventilation system breakdown. Where possible, exhaust air from construction areas directly outside the building. Where not possible, provide and maintain HEPA ventilation filters where construction ventilation enters the existing building(s). HEPA filters shall be capable of collecting and retaining airborne fungi and dust particles at 99.97% efficiency.

.1 Maintain ISO Data Centre Cleanliness standards applicable to data centre cleanliness:

.1 ISO standard 14644 (Class 8).

.7 Contractor shall leave the Work areas remaining in use clean and ready for use between each work period.

1.16 EMERGENCY EXITS AND FIRE ROUTES

.1 Contractor shall not in any way interfere or impede the use of emergency exits in occupied areas of the existing building(s).

.2 Contractor shall not block or in any way utilize vehicular fire routes in a manner which would adversely affect the usefulness of such routes for fire-fighting and fire safety purposes.

1.17 CONSTRUCTION, DELIVERY AND DISPOSAL VEHICLES

.1 Construction, delivery and disposal vehicles must not at any time block driveways, roadways or loading dock areas of the existing building(s).

.2 Such vehicles must not at any time be parked in driveways, in roadways or at the loading dock of the existing building(s) to await unloading of construction materials, supplies or equipment.

.3 Co-ordinate delivery and disposal times with the Departmental Representative so that vehicles do not cause traffic congestion. Such delivery and disposal times shall be during restricted hours as determined by the Departmental Representative.

1.18 CONTRACTOR'S ACCESS TO WORK AREAS

.1 Existing building loading dock and loading dock area may be made available for deliveries of construction materials and equipment and removal of selective building demolition materials, but only during restricted hours established by the Departmental Representative. At no time shall deliveries of construction materials and equipment or disposal of construction waste or selective building demolition waste materials interfere with or delay building personnel/staff, services deliveries of supplies or disposal of the existing building waste.

.2 Contractor shall ensure that responsible construction personnel are on hand to receive construction materials and equipment where delivered. The Departmental Representative personnel/staff shall not be responsible for receiving or storing construction materials and equipment, or removal of selective building demolition waste and equipment.

.3 Establish procedures to minimize tracking mud, dirt and waste construction materials onto and/or in to occupied areas of the existing building.

1.19 CONTRACTOR'S USE OF EXISTING ELEVATORS

- .1 Departmental Representative shall allow use of one (1) elevator near the area(s) of the Work of the Contract in the existing building for the Contractor to transport tools and limited to smaller construction materials which easily fit in the elevator and not overload the elevator, to and from the areas of Work during restricted hours of 21:00 to 06:00 Monday to Thursday, and from 21:00 Friday to 6:00 Monday on Weekends.
- .2 Contractor shall provide and ensure that the elevator cab interior and landing jamb protection are in place and secure all times. All damages to the elevator cab interior, doors, controls and landing jambs caused by Contractor shall be repaired and/or replaced to the satisfaction of the Departmental Representative at no extra costs to the Owner.

1.20 SECURITY SCANNING OF CONSTRUCTION MATERIALS AND EQUIPMENT

- .1 Contractor shall be responsible for security scanning of construction material(s) and equipment at Departmental Representative's facility.
- .2 Contractor to coordinate and schedule delivery of material(s) and equipment to Scanning Facility with consideration for scanning procedure requirements, including hours of operation of scanning facility and the amount and number of material(s) to be scanned.
- .3 Scanning Procedure;
 - .1 Contractor to contact facility to pre-arrange for time of delivery.
 - .2 Contractor to arrive at facility with material(s) in delivery vehicle(s).
 - .3 Contractor's delivery vehicle(s) to contain only material(s) destined for delivery to site of Work.
 - .4 Scanning occurs within the vehicle under normal circumstances.
 - .5 Seals are placed on material(s) destined for delivery to site of Work.
 - .6 Contractor must drive vehicle(s) directly to site of Work following scanning and sealing of material(s).
 - .7 Material(s) seals to be validated by House of Commons Security upon arrival.
 - .8 Only sealed material(s) validated by Security are permitted to enter site of Work.
- .4 Contractor's failure to comply with scanning procedure will result in material(s) being prohibited from entering site of Work.
- .5 Contractor is responsible for any and all costs associated with failure to adhere to scanning procedure.
- .6 Coordinate access to scanning facility with contact information below.
- .7 All construction material(s) and equipment must be scanned prior to delivery to site.
- .8 Security Scanning Facility Location:
 - .1 2303 Stevenage Drive
Ottawa, Ontario, K1G 3W1
Phone: 613-738-9118 ext. 8549
Hours of Operation: Monday to Friday, 07:00 to 15:00.

1.21 PROTECTION OF EXISTING ACCESS FLOORING

- .1 It is structurally acceptable to use the raised access floor for moving the AC units into place.
- .2 19 mm thick plywood should be placed along the path of the AC units (1.22 m or 4 feet wide) in order to protect the flooring and distribute the weight evenly.
- .3 Numerous rollers (moving carts) should be used along the length of the units in order to distribute the weight of the units.
- .4 Minimum of 900mm x 900mm carts (5 along the length) be used for the larger AC (32 ton) unit in tight contact with one another. This will ensure the load is distributed evenly along the length of the unit over the access flooring.

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 Requirements
- .2 Section 01 14 25 – Designated Substances

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects O. Reg. 213/91, current edition.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 – Submittal Procedures
- .2 Submit site-specific Health and Safety Plan to Departmental Representative: Within three (3) days after date of Contract Award and 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 List of known possible hazards including restricted work spaces, dusty work areas, working around exposed electrical conduits, and sprinkler piping.
 - .4 On-site Contingency and Emergency Response Plan.
 - .5 Refer to attached 'Pre-Construction Site Specific Safety Plan Requirements for Complete' list of information to be included.
- .3 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets.
- .6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within two (2) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within two (2) days after receipt of comments from Departmental Representative.

- .7 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.

1.4 SAFETY ASSESSMENT

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

1.5 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 00 10 - Regulatory Requirements.

1.6 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 Work will involve contact with designated substances per Section 01 14 25 – Designated Substance Report.

1.7 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Health and Safety Act and Regulations for Construction Projects, current edition.

1.8 UNFORESCEEN 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 Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.9 POSTING OF DOCUMENTS

- .1 Establish a safety board on site at an agreed location with the Departmental Representative to post pertinent and prescribed information.
 - .1 Ensure applicable items, articles, notices and orders are posted in accordance with Acts and Regulations of Province having jurisdiction.

1.10 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.

1.11 BLASTING

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

1.12 POWER ACTUATED DEVICES

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

- .1 Powder actuated devices may be used to fasten tracks to the floor and ceiling slab.

- .2 Powder actuated devices may not be used to hang ceiling grids, sprinklers, conduit and mechanical equipment and devices. These items must be screwed with anchors.

1.13 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

THIS IS TO ATTEST THAT THE UNDERSIGNED IS A COMPETENT CONTRACTOR AS DEFINED IN THE OCCUPATIONAL HEALTH AND SAFETY ACT OF ONTARIO;

OHSa - Section 1 "competent person";

OHSa - Regulation 213 (Construction) Section 1 "competent person"

THE UNDERSIGNED ALSO ACKNOWLEDGES THAT ALL EMPLOYEES WILL FOLLOW _____ (CONSTRUCTOR) HEALTH AND SAFETY SITE SPECIFIC PROGRAM;

AND

THE UNDERSIGNED WILL PERSONALLY ENSURE THE FULL COMPLIANCE OF THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL ITS PERTINENT REGULATIONS.

CONTRACTORS NAME: _____

ADDRESS: _____

DATE: _____

JOB LOCATION: _____

JOB NUMBER: _____

PRE-CONSTRUCTION SITE SPECIFIC SAFETY PLAN REQUIREMENTS

Note: There should be two parts to a Site Specific Safety Plan.

Part 1) The Constructor's General Safety Plan including, but not limited to the following:

- Health and Safety Policy;
- Health and Safety Program that supports the Health & Safety Policy;
- Roles and Responsibilities; and
- General rules and procedures for all tasks that the Constructor performs.

Part 2) The Site Specific Safety Plan including, but not limited to the following:

Note: This part must only contain information specific to this project.

- Floor Plan/Site Plan identifying emergency evacuation plan/procedures, routes, meeting areas, safety board location, site office, etc. (refer to CSAO website for additional information) (PWGSC to provide floor plan of building);
- Health and Safety Representative/Committee/Workers Trade Committee;
- Applicable permits from the authorities having jurisdiction (i.e. building, electrical, etc.);
- Applicable building requirements (i.e. isolation procedures, lock-out/tag-out procedures, systems by-pass procedures, hot work procedures, security, etc);
- Hazard Assessment/Analysis (Task - Hazard - Control);
- Designated Substances Report (DSR - provided by PWGSC);, identify location and provide written procedures on how they will be addressed;
- Emergency phone numbers, personnel & written procedures to address site specific accidents/emergencies (must incorporate existing building emergency procedures);
- Copy of Trade Qualifications and Apprenticeship Certificates;
- Copy of mandatory Training Certificates (i.e. WHMIS, Fall Protection, First Aid, Confined Space, Fork Lift Truck Certificate, JPO, etc.);
- List of all Sub Contractors, Contact Names & Address;
- Copy of all Sub Contractors "Competency and Health and Safety Acknowledgment Statement" (refer to sample provided on page 2);
- Worker Orientation for this Project;
- Communication Plan (PWGSC to provide template);
- Copy of all applicable contractor licenses;
- Additional requirements including, but not limited to the following:
 - Notice of Project
 - Registration Form
 - Liability Insurance
 - WSIB Clearance Certificates from all companies (CSST in Quebec)
 - Controlled Products, WHMIS/MSDS

Health and Safety is not an extra, it is part of doing the job!

SUBCONTRACTOR'S COMPETENCY
AND
HEALTH AND SAFETY ACKNOWLEDGMENT

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative. Refer to Section 01 14 25 – Designated Substance Report and 01 35 30 - Health and Safety Requirements.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.3 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions and municipal by-laws. Smoking is not permitted.

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 01 – General Instructions.
- .2 Section 01 14 00 – Work Restrictions
- .3 Section 01 33 00 – Submittal Procedures.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

1.3 SUBMITTALS

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

1.4 INSTALLATION AND REMOVAL

- .1 Prepare plan indicating proposed location and dimensions of area to be used by Contractor.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, temporary stairs.

1.6 HOISTING

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

1.7 ELEVATORS

- .1 Designated existing and permanent elevator to be used by construction personnel and transporting of materials. Co-ordinate use with Departmental Representative.
- .2 Provide protective coverings for finish surfaces of cars and entrances.

1.8 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9 CONSTRUCTION PARKING

- .1 Parking will not be permitted on site.
- .2 Provide and maintain adequate access to project site during loading and unloading of equipment and materials required to undertake the Work.

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 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.

1.12 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 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

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 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 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.
- .4 Cost for such testing will be born by Departmental Representative, in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 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.

1.3 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.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.5 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.

1.6 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 Do not employ anyone unskilled in their required duties. Departmental Representative] reserves right to require dismissal from site, workers deemed incompetent or careless.

- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

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

1.10 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.

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.

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.
- .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

The accepted standard for cleanliness in data centres is ISO standard 14644 (Class 8) which replaces Federal Standard 209E (class 100,000). The new standard (CLASS 8) uses a metric equivalent to the old standard. Class 100,000 referred to the particle count, in parts per million (ppm) for each cubic foot of air in the data centre (i.e. 100,000 ppm of particles 0.5 micron or larger). The new standard uses the cubic meter as the basis for volumetric calculation. Thus 3,520,000 ppm per cubic meter is the same measurement as the old standard.

HEPA/ULPA rated equipment is required to clean inside the computer room and under the raised floor. Typically, cleaning is performed on a yearly basis. However, cleaning may be required more often if there are extenuating circumstances.

The following table shows the various classes that are available under the standard. Class 8 (>0.5 micron particle size) is considered to be the appropriate level for data centres. Companies that specialize in computer room cleaning should be able to provide particle count measurements before cleaning is performed, and then a comparative reading after the cleaning is completed. The readings are normally taken above the raised floor, but samples should be taken below the raised floor and above the t-bar ceiling system as well.

Table 1: ISO Cleaning Standard Levels

| Maximum Number of Particles in Air (particles in each cubic meter equal to or greater than the specified size) | | | | |
|---|----------------------|--------------------|------------------|------------------|
| ISO Class | Particle size | | | |
| | > 0.1 µm | > 0.5 µm | > 1 µm | > 5 µm |
| ISO Class 1 | 10 | | | |
| ISO Class 2 | 100 | 4 | | |
| ISO Class 3 | 1000 | 35 | 8 | |
| ISO Class 4 | 10,000 | 352 | 83 | |
| ISO Class 5 | 100,000 | 3,520 | 832 | 29 |
| ISO Class 6 | 1,000,000 | 35,200 | 8,320 | 293 |
| ISO Class 7 | | 352,000 | 83,200 | 2930 |
| ISO Class 8 | | 3,520,000 | 832,000 | 29,300 |
| ISO Class 9 | | 35,200,000 | 8,320,000 | 293,000 |

Cleaning equipment should be equipped with HEPA/ULPA filters that will perform to the desired level of cleanliness. Industrial versions of these vacuum cleaners will have filters on both the vacuum intake and the exhaust.



Part 1 General

1.1 GENERAL INSTRUCTIONS

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

1.2 SECTION INCLUDES

- .1 Requirements and limitations for cutting and patching the Work and Data Centre Cleanliness Standards.

1.3 RELATED SECTIONS

- .1 Section 01 00 10 - General Instructions.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Individual product Sections: cutting and patching incidental to work of section. Advance notification to other sections required.

1.4 SUBMITTALS

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

1.5 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.6 PREPARATION

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

1.7 EXECUTION

- .1 Execute cutting, fitting, and patching 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 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.8 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.

1.9 ISO DATA CENTRE CLEANING STANDARDS

- .1 Refer to attached document ISO Data Centre Cleanliness for standards applicable to Data Centre cleanliness.

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

1.2 REFERENCES

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.3 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 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris. Remove debris and bins at the end of each working shift.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
- .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 lighting reflectors, lenses, and other lighting surfaces.
- .8 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from surfaces.
- .11 Sweep and wash clean paved areas.
- .12 Clean equipment and fixtures to sanitary condition.
- .13 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .14 Remove snow and ice from access to building.

1.5 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 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Departmental Representative review PSPC's Waste Management Plan and Goals.
- .2 Waste Management: Goal 75% of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and environment damage.

1.2 RELATED SECTIONS

- .1 01 35 16 Special Project Procedures.

1.3 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 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.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 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.
- .9 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.

- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.
- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 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.
- .14 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.4 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.

1.5 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 1 digital copy in .PDF format of completed waste audit of completed Waste Audit (WA): Schedule A.
 - .2 Submit 1 digital copy in .PDF format completed Waste Reduction Workplan (WRW): Schedule B.
 - .3 Submit 1 digital copy in .PDF format of completed Demolition Waste Audit (DWA): Schedule C.
- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Failure to submit could result in hold back of final payment.
 - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
 - .3 For each material reused, sold or recycled from project, include amount in tonnes] quantities by number, type and size of items and the destination.
 - .4 For each material land filled or incinerated from project, include amount in kilograms of material and identity of landfill, incinerator or transfer station.

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 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 DEMOLITION WASTE AUDIT (DWA)

- .1 Prepare DWA prior to project start-up.
- .2 Complete DWA: Schedule C.
- .3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.9 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified 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.

1.10 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste 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.

1.11 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.

1.12 SCHEDULING

- .1 Co-ordinate 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 SELECTIVE DEMOLITION

- .1 Reuse of Building Elements: this project has been designed to result in end of project rates for reuse of building elements as follows: do not demolish building elements beyond what is indicated on Drawings without approval by Departmental Representative.

3.2 APPLICATION

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.3 CLEANING

- .1 Remove tools and waste materials on completion of each night's or shift's 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.

3.4 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 consistent with applicable fire regulations.
 - .1 Mark containers or stockpile areas.
 - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged is not permitted.
- .3 Demolition Waste:

| Material Type | Recommended Diversion % | Actual Diversion % |
|-----------------------|-------------------------|--------------------|
| Acoustic Tile | 50 | [] |
| Acoustical Insulation | 100 | [] |
| Electrical Equipment | 80 | [] |
| Mechanical Equipment | 100 | [] |

| Material Type | Recommended Diversion % | Actual Diversion % |
|---------------|-------------------------|--------------------|
| Metals | 100 | [] |
| Rubble | 100 | [] |

.4 Construction Waste:

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

3.5 WASTE AUDIT (WA)

.1 Schedule A - Waste Audit (WA):

| (1) Material Category | (2) Material Quantity Unit | (3) Estimated Waste % | (4) Total Quantity of Waste (unit) | (5) Generation Point | (6) % Recycled | (7) % Reused |
|-----------------------|----------------------------|-----------------------|------------------------------------|----------------------|----------------|--------------|
|-----------------------|----------------------------|-----------------------|------------------------------------|----------------------|----------------|--------------|

Wood and
Plastics
Material
Description
Off-cuts
Warped
Pallet Forms
Plastic
Packaging
Cardboard
Packaging
Other

Doors and
Windows
Material
Description
Painted
Frames
Glass
Wood
Metal
Other

3.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

| (1) Material Category | (2) Person(s) Responsible | (3) Total Quantity of Waste (unit) | (4) Reused Amount Projected | Actual | (5) Recycled Amount (unit) Projected | Actual | (6) Material(s) Destination |
|-----------------------|---------------------------|------------------------------------|-----------------------------|--------|--------------------------------------|--------|-----------------------------|
|-----------------------|---------------------------|------------------------------------|-----------------------------|--------|--------------------------------------|--------|-----------------------------|

| (1) Material Category | (2) Person(s) Respon- sible | (3) Total Quantity of Waste (unit) | (4) Reused Amount (units) Projected | Actual | (5) Recycled Amount (unit) Projected | Actual | (6) Material(s)) Destina- tion |
|--|--------------------------------------|---|---|--------|--|--------|--|
| Wood and Plastics Material Descriptio n Chutes Warped Pallet Forms Plastic Packag ing Card- board Packag ing Other | | | | | | | |
| Doors and Windows Material Descriptio n Painted Frames Glass Wood Metal Other | | | | | | | |

3.7 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule C - Demolition Waste Audit (DWA):

| (1) Material Description | (2) Quantity | (3) Unit | (4) Total | (5) Volume (cum) | (6) Weight (cum) | (7) Remarks and Assumption s |
|--|-----------------|----------|-----------|---------------------|---------------------|--|
| Wood Wood Stud Plywood Baseboard- Wood Door Trim - Wood Cabinet | | | | | | |

| (1) Material Description | (2) Quantity | (3) Unit | (4) Total | (5) Volume (cum) | (6) Weight (cum) | (7) Remarks and Assumptions |
|--|--------------|----------|-----------|------------------|------------------|-----------------------------|
| Doors and Windows Panel Regular Slab Regular Wood Laminate Byfold - Closet Glazing | | | | | | |

3.8 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment:

| Province | Address | General Inquires | Fax |
|----------|--|---------------------------|--------------|
| Ontario | Ministry of Environment and Energy, 135 St. Clair Avenue West Toronto ON M4V 1P5 | 416-323-4321 800-565-4923 | 416-323-4682 |
| | Environment Canada Toronto ON | 416-734-4494 | |

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

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

1.2 REFERENCES

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for 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.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.

- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.5 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 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, process flow, 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.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide scaled CAD files in dwg format on CD.

1.6 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: 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.

- .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.7 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at 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.
 - .1 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.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: 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 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 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, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.9 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 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.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 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 co-ordination 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 and] 01 91 13 - General Commissioning (Cx) Requirements.
- .15 Additional requirements: as specified in individual specification sections.

1.10 MATERIALS AND FINISHES

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

1.11 MAINTENANCE MATERIALS

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

- .3 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 by Departmental Representative; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to Departmental Representative.
 - .2 Include approved listings in Maintenance Manual.

1.12 DELIVERY, STORAGE AND HANDLING

- .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 for review by Departmental Representative.

1.13 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative for approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .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 applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.

- .7 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .3 Contractor's plans for attendance at 9 month post-construction warranty inspections.
 - .4 Procedure and status of tagging of equipment covered by extended warranties.
 - .5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.14 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.

- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

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 REQUIREMENTS

- .1 Division 21, 22, 23 26 and 28 specifications.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate operation and maintenance of equipment and systems to Departmental Representative's personnel two weeks prior to date of substantial performance.
- .2 Departmental Representative: provide list of personnel to receive instructions, and coordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into.
 - .4 Ensure testing, adjusting, and balancing has been performed and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.
- .5 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment or system as follows:
 - .1 DIVISION 23 - Cooling and Ventilation System (New AC units): 4 hours of instruction.
 - .2 DIVISION 26 - Control System (Leak Detection System): 2 hours of instruction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.

- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.4 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Departmental Representative's personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION