

<u>1 MINIMUM STANDARDS</u>	.1	Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the National Building Code of Canada 2010 (NBCC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.
<u>2 TAXES</u>	.1	Pay all taxes properly levied by law (including Federal, Provincial and Municipal).
<u>3 FEES, PERMITS, AND CERTIFICATES</u>	.1	Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.
<u>4 FIRE SAFETY REQUIREMENTS</u>	.1	Comply with the National Building Code of Canada 2010 (NBCC) for fire safety in construction and the National Fire Code of Canada 2010 (NFCC) for fire prevention, fire fighting and life safety in building in use.
	.2	Comply with PSPC Standard on Construction Occupational Health and Safety, Fire Commissioner of Canada (FCC) standards: <ul style="list-style-type: none">.1 No. 301: Standard for Construction Operations.2 No. 302: Standard for Welding and Cutting.3 No. 374: Fire Protection Standard for General Storage (Indoor and Outdoor).4 available from Fire Protection Engineering Services, Labour Program, HRSDC or following internet site: http://info.load-otea.hrsdc-drhcc.gc.ca/fire_prevention/standards/commissioner.shtml.5 Retain all fire safety documents and standards on site.
<u>5 FIELD QUALITY CONTROL</u>	.1	Carry out Work using qualified licenced workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
	.2	Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licenced workers.
	.3	Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
<u>6 HAZARDOUS MATERIALS</u>	.1	Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources Development Canada, Labour Program.
<u>7 REMOVED MATERIALS</u>	.1	Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

<u>8 PROTECTION</u>	.1	Protect finished work against damage until take-over.
	.2	Protect adjacent work against the spread of dust and dirt beyond the work areas.
	.3	Protect operatives and other users of site from all hazards.
<u>9 USE OF SITE AND FACILITIES</u>	.1	Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
	.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	Where elevators, dumbwaiters, conveyors or escalators exist Contractor may use these at Departmental Representative 's discretion. Protect from damage, safety hazards and overloading of existing equipment.
	.5	Sanitary facilities will be assigned for Contractor's personnel. Others shall not be used. Keep facilities clean.
	.6	Closures: Protect work temporarily until permanent enclosures completed.
<u>10 SITE STORAGE</u>	.1	Do not unreasonably encumber site with materials or equipment.
	.2	Move stored products or equipment which interfere with operations of Departmental Representative or other contractors.
	.3	Obtain and pay for use of additional storage or work areas needed for operations.
<u>11 CUT, PATCH AND MAKE GOOD</u>	.1	Cut existing surfaces as required to accommodate new work.
	.2	Remove all items so shown or specified.
	.3	Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.
	.4	Install firestops and smoke seals in accordance with ULC-S115-11, around pipe, ductwork, cables, and other objects penetrating fire separations to provide fire resistance not less than the fire resistance rating of surrounding floor, ceiling, and wall assembly.
<u>12 SLEEVES, HANGERS AND INSERTS</u>	.1	Co-ordinate setting and packing of sleeves and supply and installation of hangers and inserts. Obtain Departmental Representative's approval before cutting into structure.

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| <u>13 EXAMINATION</u> | .1 | Examine site and conditions likely to affect work and be familiar and conversant with existing conditions. |
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| <u>14 SIGNS</u> | .1 | Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etc., in both official languages or by the use of commonly-understood graphic symbols to the Departmental Representative's approval. |
| | .2 | No advertising will be permitted on this project. |
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| <u>15 WASTE MANAGEMENT</u> | .1 | Comply with the Environmental Protection Act, Ontario Regulations O.Reg. 102/94 and O. Reg. 103/94 for waste management program on construction and demolition projects. |
| | .2 | Conduct "waste audit" to determine waste generated during demolition or construction operations, prepare written "waste reduction work plan" and implement procedures to reduce, reuse and recycle materials to the extent possible. |
| | .3 | Provide a "source separation program" to disassemble and collect in an orderly fashion the following "materials designated for alternative disposal" from the "general waste" stream. <ul style="list-style-type: none">.1 cardboard (corrugated)..2 steel..3 wood (not including treated or laminated wood). |
| | .4 | Submit complete records of all removals from site for both "materials designated for alternative disposal" and "general waste" including: <ul style="list-style-type: none">.1 Time and date of removal.2 Description of material and quantities..3 Proof that materials have been received at an Approved Waste Processing.4 Site or certified Waste Disposal Site as required. |
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| <u>16 GUARANTEES AND WARRANTIES</u> | .1 | Before completion of work collect all manufacturer's guarantees and warranties and deposit with Departmental Representative. |
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| <u>17 SECURITY ESCORT</u> | .1 | Personnel will be checked daily at start of work shift and given a pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out. |
| | .2 | All personnel must attend a mandatory 2 hour site specific safety training session. Provide minimum 72 hours notice to Departmental Representative requesting site training. |
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| <u>18 BUILDING SMOKING ENVIRONMENT</u> | .1 | Smoking is not permitted in the Building. Obey smoking restrictions on building property. |

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| <u>19 DUST CONTROL</u> | .1 | Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work and public. |
| | .2 | Maintain and relocate protection until such work is complete. |
| | .3 | Protect all furnishings within work area with 0.102 mm thick polyethylene film during construction. Remove film during non- construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function. |
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| <u>20 TESTING
LABORATORY
SERVICES</u> | .1 | Departmental Representative will appoint and pay for costs of inspection and testing services, unless indicated otherwise. |
| | .2 | Provide safe working areas and assist with testing procedures, including provisions for materials or services and co-ordination, as required by testing agency and as authorized by Departmental Representative. |
| | .3 | Where tests indicate non-compliance with specifications, contractor to pay for initial test and all subsequent testing of work to verify acceptability of corrected work. |
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| <u>21 SCHEDULING</u> | .1 | On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When schedule has been reviewed by the Departmental Representative, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative. |
| | .2 | Carry out work during "regular hour" Monday to Friday from 07:00 to 18:00 hours and on Saturdays, Sundays and statutory holidays. |
| | .3 | Work to be carried out in four (4) phases with a maximum of six (6) fume hoods to be replaced in each phase. Labs in each phase will be turned over to contractor Monday at 7:00. Fume hoods in each phase to be fully operational by Friday of the same week at 16:00. Room numbers of fume hoods to be included in each phase to be determined by Departmental Representative. Each phase will consist of fume hoods on multiple floors. |
| | .4 | Give the Departmental Representative 48 hours notice for work to be carried out during "off hours". |
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| <u>22 COST BREAKDOWN</u> | .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. |
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| <u>23 PRECEDENCE</u> | .1 | Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual. |

24 WORK PERMIT .1 Obtain applicable work and hot work permit forms from building operator.

25 STAGING PLAN .1 Submit to Departmental Representative for review and approval, a Staging Plan that outlines work stages in compliance with specified implementation restrictions and in accordance with submitted schedule. Once approved by the Departmental Representative, do not make changes to specified stages without prior written approval of Departmental Representative. Any changes to the Phasing Plan will require a minimum of 7 days advanced notice. Do not work in staging areas outside of indicated times.

END OF SECTION

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

Asbestos-Containing Materials (ACMs): means material that contains 0.5 per cent or more asbestos by dry weight as per Ontario Regulation 278/05.

Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

Time-weighted average exposure limit (TWAEEL): 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 *Ontario Regulation 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 areas 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: **Identified**

Bulk sampling and subsequent laboratory analysis, visual observations, or historical reports have determined that the following friable materials contain or are assumed to contain regulated amounts of asbestos:

- Previous reports indicate the presence of asbestos-containing pipe/elbow/fitting insulation in the Corridor pipe shafts/chases servicing the labs. "Magblock", "aircell", and layered cardboard wrap (anti-sweat) insulation, which is assumed asbestos-containing, were observed within all shafts surveyed. This insulation was generally in good condition, but less than one (1) square metre of asbestos-containing debris was noted on the ground in the shafts servicing the following labs.
 - 1001
 - 1010
 - 2037
 - 2038
 - 3044
 - 4038
 - 4048
 - 4013
 - 4046
 - 4047

- There is less than one (1) square metre of this debris in each case. These debris should be cleaned up if any work is being performed within the shafts/chases as part of the project.
- In some instances, pipe insulation on utilities servicing the fumehoods (i.e. domestic hot and cold water pipes) consisted of assumed asbestos-containing “magblock”, “aircell”, and elbow/fitting parging cement where these pipes could be viewed. It is suspected that other fumehoods utility pipes are also insulated with asbestos-containing pipe insulation including layered cardboard wrap. The majority of these pipes could not be viewed due to accessibility issues (i.e. the pipes were concealed behind solid fumehood cupboard walls).
 - Where pipe insulation on utilities servicing the fumehoods is encountered, this insulation should be removed as required to accommodate service tie-ins and/or pipe removal.
- A sample of fireproofing on structural beams in the shafts/chases contained 1% Tremolite Asbestos. The material appeared to contain vermiculite which is the likely source of the Tremolite asbestos. All visually similar material on structural beams in the shafts/chases should be considered asbestos-containing.
 - **This material was in good condition where observed. Although project activities are not anticipated to significantly impact this material, as a precaution, any required disturbance of this material specifically should consider the presence of asbestos.**

Bulk sampling and subsequent laboratory analysis, visual observations, or historical reports have determined that the following non-friable materials contain regulated amounts of asbestos:

- Asbestos-containing transite panels line the interior (sides, backside, and top and bottom (base) panels) of the fumehoods in the project area.
 - In some cases, the transite panels have been covered with metal sheathing but remain beneath.
- The fumehood exhaust ducting consists of asbestos-containing transite for following fumehoods:

Floor	Lab Room No.	Fume Hoods ID
1	1010	30-270-136
1	1001	30-270-105
2	2037	30-270-189
2	2039	30-270-205
3	3044	30-270-229
4	4038	30-270-199

Floor	Lab Room No.	Fume Hoods ID
4	4013	30-270-129
4	4046	30-270-238A & B
4	4047	30-270-258

- Transite debris is present on the ground in the shaft servicing Lab 4048.
 - These debris should be cleaned up if any work is being performed within this shaft/chase as part of the project.
- Asbestos-containing vinyl flooring (e.g. 9"x9", 12"x12", etc.) is assumed present beneath all fumehoods.

4. BENZENE: Not identified
5. COKE OVEN EMISSIONS: Not identified
6. ETHYLENE OXIDE: Not Identified
7. ISOCYANATES: Not Identified
8. LEAD: **Identified**

No paint was sampled and tested for lead content, as paints and surface coatings encountered in the project areas were in good condition and sampling without matrix interference (i.e. removing the paint without the substrate material) would have proved difficult.

The condition of the painted wall concealed behind the fumehoods could not be evaluated.

Given the vintage of the building, all paints and surface coatings, throughout the project areas shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise.

Lead is also suspected to be present in the following materials:

- Solder on the joints of copper piping; and,
- Drain pipe joint caulking.

9. MERCURY: **Identified**

Fluorescent light fixtures containing fluorescent light tubes were observed throughout the building. Fluorescent light tubes contain mercury in a vapour form and in the phosphor coating on the lamp tube.

Historic use/disposal of liquid mercury may be associated with fumehood drain pipe p-traps.

10. SILICA: **Identified**

Free crystalline silica shall be assumed to be present in the following materials:

- Concrete and cement materials;
- Terracotta;
- Mortar; and,
- Ceiling tiles.

11. VINYL CHLORIDE MONOMER: Not Identified

12. POLYCHLORINATED BIPHENYLS (PCBs): Not Identified

13. MOULD: Not Identified

14. HALOCARBONS: Not Identified

15. OTHER HAZARDOUS MATERIALS: **Identified**

The fumehoods have been used for exhausting acid/base/solvent chemicals. It is reported that the hoods were not used for Perchloric acid.

All surfaces of the fumehood and ducting servicing the fumehood shall be considered impacted by chemical residue. The cabinets and concealed flooring beneath fumehoods shall be considered impacted by chemical residue; the wooden base panels of fumehoods are assumed impacted by chemical residue.

1.5 RECOMMENDATIONS

1. ASBESTOS

All work must be done in accordance with *O.Reg 278/05* (as amended).

1. The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by *O.Reg 278/05*, as amended. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The Ontario Ministry of Labour (MoL) must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.
2. Identified friable ACMs (pipe/elbow/fitting insulation and debris, and fireproofing on structural beams if required to accommodate the scope of work for the project) require a minimum of Type 2 abatement procedures under Ontario Regulation 278/05, as amended, when disturbing/removing/repairing one (1) square metre or less of the

material. Should demolition, disturbance, or repair be required of more than one (1) square metre of friable ACM, Type 3 abatement procedures are required. It should be noted that the removal of an unlimited quantity of piping insulation can be completed using Type 2 glovebag procedures, provided that the application of the glovebag does not result in the release of asbestos fibres (e.g. from damaged fittings) and that the glovebag seal can be maintained throughout the removal process.

3. Transite panels within the fumehoods are to be dismantled using Type 2 precautions as a minimum.
4. Type 1 work procedures can be used for the removal of non-friable materials (floor tiles), provided that the material can be wetted and removed using only non-powered hand tools. If these conditions cannot be met, then more stringent (e.g., Type 2 or Type 3) procedures are necessary.
5. Disposal of asbestos waste must be done in accordance with "General – Waste Management" O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the Departmental Representative prior to transportation of waste.

2. LEAD

1. Follow recommendations provided in the Ontario Ministry of Labour (MoL) Guideline entitled "Guideline: Lead on Construction Projects". This guideline classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification.
2. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed the TWAEL of 0.05 milligram per cubic metre (mg/m³) prescribed by O.Reg 490/09.
3. Even at low concentrations, there may be a potential for exposure to high concentrations of lead depending on the activities performed that disturb the lead-containing materials. At low lead concentrations, conducting a risk assessment to assess the potential for exposure is required to determine the need to follow precautionary measures.
4. Disposal of construction waste containing lead must be done in accordance with O.Reg 347/90 – General Waste Management, as amended, under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The classification of the waste is dependent upon the result(s) of leachate test(s). The

waste can be classified as “hazardous, “non-hazardous” or “registerable solid waste” depending on the results of the leachate test.

3. MERCURY

1. All work involving disturbance of mercury-containing equipment must be done in accordance with O.Reg 490/09.
2. Follow recommendations provided in the MoL Guideline entitled “The Safe Handling of Mercury: A Guide for the Construction Industry”. This document provides advice on how to reduce the risk of mercury exposure, and outlines clean-up methods for spills.
3. When removal of fluorescent light tubes is required, the tubes should be removed intact from the fixtures. Other sources of liquid mercury should be removed intact to prevent worker exposure.
4. P-traps for fumehood sinks should be checked visually for liquid mercury prior to dismantling. Should any liquid mercury be present, this liquid shall be handled and disposed of accordingly.
5. Disposal of waste containing mercury must be done in accordance with “General – Waste Management” O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act.

4. SILICA

1. Comply with Ontario Regulations O.Reg 490/09 when performing works that may disturb silica-containing materials. The regulation provides requirements for allowable exposure levels.
2. Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in select materials within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.
3. Follow recommendations provided in the MoL 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. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

5. CHEMICALS (FUMEHOODS)

1. As a precaution, dermal protection such as chemical resistant gloves, coveralls, etc. should be used when working on internal fumehood/exhaust duct components.

2. PRODUCTS

Not used

3. EXECUTION

Not used

END OF SECTION

PART 1 - GENERAL**1.1 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.

**1.2 SHOP DRAWINGS
AND PRODUCT DATA**

- .1 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.

**1.2 SHOP DRAWINGS
AND PRODUCT DATA
(Cont'd)**

- .1 (Cont'd)
- .5 (Cont'd)
- .6 Standards.
- .7 Operating weight.
- .8 Wiring diagrams.
- .9 Single line and schematic diagrams.
- .10 Relationship to adjacent work.
- .2 After Departmental Representative's review, distribute copies.
- .3 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .4 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .5 Delete information not applicable to project.
- .6 Supplement standard information to provide details applicable to project.
- .7 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.
- .8 The review of shop drawings is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that 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.

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 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended - Updated 2005.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed 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 Submit one (1) copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 2 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 2 days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

<u>1.4 SAFETY ASSESSMENT</u>	.1	Perform site specific safety hazard assessment related to project.
<u>1.5 MEETINGS</u>	.1	Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
<u>1.6 GENERAL REQUIREMENTS</u>	.1	Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
	.2	Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
<u>1.7 RESPONSIBILITY</u>	.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	Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
	.3	Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
<u>1.8 COMPLIANCE REQUIREMENTS</u>	.1	Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1, Ontario Regulations for Construction Projects, O. Reg. 213/91 and PSPC Standard on Construction Occupational Health and Safety.
<u>1.9 UNFORSEEN HAZARDS</u>	.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.
<u>1.10 POSTING OF DOCUMENTS</u>	.1	Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.
<u>1.11 CORRECTION OF NON-COMPLIANCE</u>	.1	Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

<u>1.11 CORRECTION OF NON-COMPLIANCE (Cont'd)</u>	.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.
<u>1.12 POWDER ACTUATED DEVICES</u>	.1	Use powder actuated devices only after receipt of written permission from Departmental Representative.
<u>1.13 WORK STOPPAGE</u>	.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

<u>2.1 NOT USED</u>	.1	Not used.
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PART 3 - EXECUTION

<u>3.1 NOT USED</u>	.1	Not used.
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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.

<u>1.3 STORAGE, HANDLING AND PROTECTION (Cont'd)</u>	.4	Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
<u>1.4 TRANSPORTATION</u>	.1	Pay costs of transportation of products required in performance of Work.
<u>1.5 MANUFACTURER'S INSTRUCTIONS</u>	.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.
<u>1.6 QUALITY OF WORK</u>	.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	Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
<u>1.7 CO-ORDINATION</u>	.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.
<u>1.8 CONCEALMENT</u>	.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.
<u>1.9 PROTECTION OF WORK IN PROGRESS</u>	.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.

1.10 EXISTING
UTILITIES

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

PART 2 - PRODUCTS2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION3.1 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 - GENERAL

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| <u>1.1 PROJECT CLEANLINESS</u> | <p>.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.</p> <p>.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, unless approved by Departmental Representative.</p> <p>.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.</p> <p>.4 Provide on-site containers for collection of waste materials and debris.</p> <p>.5 Provide and use marked separate bins for recycling.</p> <p>.6 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.</p> <p>.7 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.</p> <p>.8 Schedule cleaning operations so that resulting dust, debris and other contaminants will not contaminate building systems.</p> |
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| <u>1.2 WASTE MANAGEMENT AND DISPOSAL</u> | <p>.1 Separate waste materials for reuse and recycling.</p> |
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PART 2 - PRODUCTS

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| <u>2.1 NOT USED</u> | <p>.1 Not Used.</p> |
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PART 3 - EXECUTION

- | | |
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| <u>3.1 NOT USED</u> | <p>.1 Not Used.</p> |
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END OF SECTION

PART 1 - GENERAL

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|---|---|
| <u>1.1 ACTION AND INFORMATIONAL SUBMITTALS</u> | <ul style="list-style-type: none">.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, electronic final copy of operating and maintenance manuals in English..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. |
| <u>1.2 FORMAT</u> | <ul style="list-style-type: none">.1 Organize data as instructional manual. |
| <u>1.3 CONTENTS - PROJECT RECORD DOCUMENTS</u> | <ul style="list-style-type: none">.1 Table of Contents for Each Volume: provide title of project;<ul style="list-style-type: none">.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:<ul style="list-style-type: none">.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. |
| <u>1.4 AS -BUILT DOCUMENTS AND SAMPLES</u> | <ul style="list-style-type: none">.1 Maintain, at site for Departmental Representative one record copy of:<ul style="list-style-type: none">.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.<ul style="list-style-type: none">.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. |

1.4 AS -BUILT
DOCUMENTS AND
SAMPLES
(Cont'd)

- .3 (Cont'd)
 - .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.

1.5 RECORDING
INFORMATION ON
PROJECT RECORD
DOCUMENTS

- .1 Record information on set of drawings, provided by Departmental Representative D.
- .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.

1.6 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 Include installed colour coded wiring diagrams.
- .3 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .4 Provide servicing and lubrication schedule, and list of lubricants required.
- .5 Include manufacturer's printed operation and maintenance instructions.

**1.6 EQUIPMENT AND
SYSTEMS**
(Cont'd)

- .6 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .7 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .8 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .9 Additional requirements: as specified in individual specification sections.

**1.7 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.

**1.8 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 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 Respond in timely manner to oral or written notification of required construction warranty repair work.

PART 2 - PRODUCTS**2.1 NOT USED**

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION