



Addendum / Addenda

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Project Description / Description de projet Halifax Roofing Replacement/ Remplacement de la toiture à Halifax		
Solicitation No./ No de sollicitation 20-58044	Project No./N ^o de projet HFX01-5848	W.O. No./N ^o d'ordre de travail A1-011344-10
Project Engineer / Ingénieur de projet Barry O'Brien		Date August 25, 2020
<p>Notice: This addendum shall form part of the tender documents and all conditions shall apply and be read in conjunction with the original plans and specifications.</p>		<p>Nota: Cet addenda fait partie intégrale des dossiers d'appel d'offres; toutes les conditions énoncées doivent être lues et appliquées en conjonction avec les plans et les devis originaux.</p>

Please see below items pertaining to the tender package for the planned renovations at the National Research Council Canada at 1411 Oxford St., Halifax. These items shall be considered as a (Change, Addition, Deletion, or Clarification) to the tender documents and shall form part of the tender.

This Addendum shall be attached to the tender documents at the time of submission and shall be signed by the same person who is signing for the proponent's tender

1. General Clarifications - Reference: Additional Tender Specifications

- a. These specifications are to be followed in their entirety when dealing with any plaster ceilings encountered under the roof in Phase 2, in order to access roof drains. Some of these ceiling are exposed and some are above t-bar ceilings.
- b. A copy of the testing for Hazardous Substances will be posted as an attachment.

Part 1 General

1.1 SUMMARY

- .1 Comply with requirements of this Section when performing following Work:
 - .1 Removing all or part of a false ceiling to obtain access to a Work Area, if friable asbestos-containing material is likely lying on the surface of the false ceiling.
 - .2 Removing non-friable asbestos-containing materials by breaking, cutting, drilling, abrading, grounding, sanding or vibrating if:
 - .1 The material is not wetted to control the spread of dust or fibres, and
 - .2 The work is done only by means of non-powered hand-held tools.
 - .3 Removing non-friable asbestos-containing materials by breaking, cutting, drilling, abrading, grounding, sanding or vibrating if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.

1.2 RELATED REQUIREMENTS

- .1 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions.
- .2 Section 02 83 10 Lead-Containing Paint Abatement - Minimum Precautions.

1.3 REFERENCE STANDARDS

- .1 Province of Nova Scotia
 - .1 Occupational Health and Safety Act - NS Reg 52/2013.
 - .2 Nova Scotia Dangerous Goods Management Regulations N.S. Reg. 57/2016.
 - .3 Municipal Solid Waste Landfill Guidelines.
 - .4 A Guide to Removal of Friable Asbestos Containing Material (Nov 2013).
 - .5 Nova Scotia Environmental Act, 1995, Asbestos Waste Management Regulations, N.S. Reg. 53/95.
- .2 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .3 Health Canada
 - .1 Workplace Hazardous Materials Information System (WHMIS), Safety Data Sheets (SDS).
- .4 Government of Canada
 - .1 Canada Labour Code (R.S.C., 1985, c. L-2).
 - .2 Canada Occupational Health and Safety Regulations (SOR/86-304).

1.4 DEFINITIONS

- .1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two Curtained Doorways at least 2 m apart.
- .2 Amended Water: water with non-ionic surfactant Wetting Agent added to reduce water tension to allow wetting of fibres.
- .3 Asbestos-Containing Materials (ACM): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .4 Asbestos Work Area: area where Work takes place which will, or may disturb ACM.
- .5 Authorized Visitors: Engineers, Consultants or Consultant and/or Owners, and representatives of regulatory agencies.
- .6 Competent Worker: in relation to specific work, means a worker who:
 - .1 Is qualified because of knowledge, training and experience to perform the work.
 - .2 Is familiar with the provincial / federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .7 Curtained Doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:
 - .1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.
 - .2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.
 - .3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side
- .8 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.
- .9 HEPA Integrity Test: testing method used to determine integrity of negative pressure unit using dioctyl phthalate (DOP), or suitable alternative, HEPA-filter leak test.
- .10 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency. HEPA vacuum must have passed a HEPA Integrity Test in the past 12 months prior to use.
- .11 Negative pressure: system that extracts air directly from Asbestos Work Area, filters such extracted air through HEPA filtering system, and discharges this air directly outside Asbestos Work Area to exterior of building.

- .1 System to maintain minimum negative pressure differential of 5 Pa relative to adjacent areas outside of Asbestos Work Areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.
- .12 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .13 Occupied Area: any area of building or work site that is outside Asbestos Work Area.
- .14 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .15 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit proof satisfactory to the Owner that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.
- .2 Submit proof of Contractor's Asbestos Liability Insurance.
- .3 Submit Worker's Compensation Board status.
- .4 Submit to Owner necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.
- .5 Submit proof that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.
- .6 Submit proof satisfactory to the Owner that employees have respirator fitting and testing. Workers must be fit tested (minimum qualitative test) with respirator that is personally issued.
- .7 Submit documentation including test results, fire and flammability data, and SDS for chemicals or materials including:
 - .1 Amended water (Wetting Agent); and,
 - .2 Slow-drying sealer.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed.
- .2 Health and Safety:
 - .1 Safety Requirements: worker and Authorized Visitor protection.
 - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

- .1 Air purifying half-mask respirator with P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.
- .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the Asbestos Work Area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.
- .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .3 Before leaving Asbestos Work Area, remove gross contamination from protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container is to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the Asbestos Work Area, and removed from the Asbestos Work Area frequently and at regular intervals.
- .4 Ensure workers wash hands and face when leaving Asbestos Work Area.
- .5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
- .6 Authorized Visitor protection:
 - i. Provide protective clothing and approved respirators to Authorized Visitors to Asbestos Work Areas.
 - ii. Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

- iii. Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .2 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness, 0.15 mm (6-mil) bags or leak proof drums. Label containers with appropriate warning labels.
- .3 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

- .1 Refer to the REVISED Limited Hazardous Buildings Materials Assessment Report, 1411 Oxford Street, Halifax, Nova Scotia prepared by Pinchin Ltd., dated August 18, 2020 for details on ACM present in the building.
- .2 Notify Owner of ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Owner.

1.9 SCHEDULING

- .1 Hours of Work: perform work during normal working hours.

1.10 PERSONNEL TRAINING

- .1 Before beginning Work, provide Owner satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, at minimum:
 - .1 Fitting of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Disinfecting of equipment.
 - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.

Part 2 Products

2.1 MATERIALS

- .1 Drop and Enclosure Sheets:
 - .1 Polyethylene: 0.15 mm (6-mil) thick.
 - .2 FR polyethylene: 0.15 mm (6-mil) thick woven fibre reinforced fabric bonded both sides with polyethylene.

- .2 Slow-drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
- .3 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .4 Waste Containers: contain waste in two separate containers.
 - .1 Inner container: 0.15 mm (6-mil) thick sealable polyethylene bag.
 - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm (6-mil) thick sealable polyethylene bag.
 - .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .5 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.

Part 3 Execution

3.1 SUPERVISION

- .1 Minimum of one Supervisor for every ten workers is required.
- .2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of ACM.

3.2 PROCEDURES

- .1 Before beginning Work:
 - .1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Seal any entrances to ductwork with rigid coverings. Make airtight with polyethylene sheeting sealed with tape.
 - .2 Remove visible dust from surfaces in Work Area where dust is likely to be disturbed during course of work.
 - .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
 - .2 Do not use compressed air to clean up or remove dust from any surface.
 - .3 Build Airlocks at entrances to and exits from Asbestos Work Area so that Asbestos Work Area is always closed off by one Curtained Doorway when workers enter or exit.
 - .4 At each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used:

CAUTION ASBESTOS HAZARD AREA (25 mm)

NO UNAUTHORIZED ENTRY (19 mm)

WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm)

BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM
(7 mm)

- .5 Seal off openings such as corridors, doorways, windows, and skylights with polyethylene sheeting sealed with tape.
- .6 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
 - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Work Areas where dust or contamination cannot otherwise be safely contained.
 - .2 Erect enclosure of polyethylene sheeting around Work Area. Where applicable, seal enclosure walls to floor sheeting.
- .2 Before removing suspended ceilings, remove ACM on upper surfaces using HEPA vacuum equipment.
 - .1 Remove and clean surfaces of ceiling panels using HEPA vacuum, wrap clean panels in 0.10 mm thick polyethylene, and store in building as directed by Owner.
 - .2 Clean "T" grid suspension system, disconnect, wrap in 0.10 mm thick polyethylene, and store in building as directed by Owner.
- .3 Remove loose material by HEPA vacuum; thoroughly wet material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
 - .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
 - .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
- .4 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .5 Cleanup:
 - .1 Frequently during work and immediately after completion of work, clean up dust and asbestos-containing waste using HEPA vacuum or by damp mopping.
 - .2 Place dust and asbestos-containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
 - .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
 - .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial and Federal authority having jurisdiction.
 - .5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by work using HEPA vacuum.

3.3 AIR MONITORING

- .1 From beginning of Work until completion of cleaning operations, Consultant to take air samples on daily basis outside of Asbestos Work Area enclosures in accordance with Provincial Occupational Health and Safety Regulations.
 - .1 Consultant to measure fibre content of air outside Asbestos Work Areas by means air samples analyzed by Phase Contrast Microscopy (PCM).
 - .2 Consultant to measure fibre content of air in Airlock by means air samples analyzed by PCM.
 - .3 Stop Work when PCM measurements exceed 0.01 f/cc and correct procedures.
 - .4 If air monitoring shows that areas outside Asbestos Work Area are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to Asbestos Work Area.
- .2 Contractor will be responsible for inspecting inside enclosure in accordance with applicable Provincial Occupational Health and Safety Regulations.
 - .1 Use results of air monitoring inside Asbestos Work Area to confirm fibre levels are below the protection factor of the respirators used. Workers may be required to wear sample pumps for up to full-shift periods.
 - .2 If fibre levels are above safety factor of respirators in use, stop abatement, apply means of dust suppression, and use higher safety factor in respiratory protection for persons inside enclosure.
- .3 Final air monitoring to be conducted as follows:
 - .1 After Asbestos Work Area has passed visual inspection and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period has passed, Consultant will perform air monitoring within Asbestos Work Area by aggressive methods, following all requirements in provincial regulations (e.g. number of samples, duration of aggressive disturbance)..
 - .1 Final air monitoring results of all samples must show fibre levels of less than 0.01 f/cc.
 - .2 If any air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean Asbestos Work Area and apply another acceptable coat of lock-down agent to surfaces.
 - .3 Repeat as necessary until fibre levels are less than 0.01 f/cc.

3.4 INSPECTION

- .1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviations from these requirements that have not been approved in writing by Consultant may result in Work stoppage, at no cost to Owner.
- .2 Consultant will inspect Work for:
 - .1 Adherence to specific procedures and materials.
 - .2 Final cleanliness and completion.

- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.
- .3 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Consultant may order Work shutdown.
 - .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

END OF SECTION