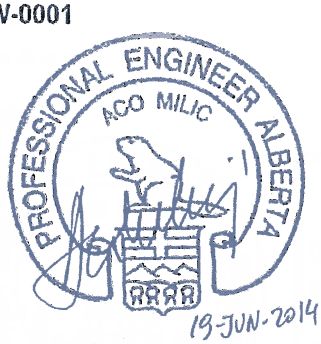
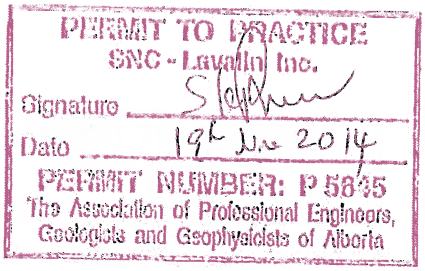
OWNER: Public Work and Government Services Canada **PROJECT NAME:** TC Hangar De-Construction

DESCRIPTION: Multi Discipline Construction Work Package

CWP Number 617352-0000-40EW-0001





REVISION INDEX

Revision								
Number	Prepared/ Date	Civil/Structural/ Architectural Checked/Date	Mechanical Checked/Date	Electrical Checked/Date	Project Approved/Date	Owner Approved/Date	Pages Revised	Remarks
0	Rhonda Hunter 23 May 2014	Aco Milic 23 May 2014	Anup Majumdar 23 May 2014	Wenzhi Chen 23 May 2014	Kelly Udell 23 May 2014			
1	Rhonda Hunter 17 June 2014	Aco Milic 17 June 2014	Anup Majumdar 17 June 2014	Wenzhi Chen 17 June 2014	Kelly Udell 17 June 2014			Revised based on client comments

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1.0 GENERAL SCOPE OF WORK

This Construction Work Package (CWP) covers the Work required to de-construct the existing Transport Canada Hangar at the Edmonton City Centre Airport. The following description is not intended to cover all of the detail, nor all of the work required to be done. The Work shall therefore not be considered to be limited by the given description. The description shall be read in conjunction with the existing Drawings, site photographs and attachments.

The Contractor's scope includes, but not be limited to, the supply of all required material and/or supplies, equipment, coordination, testing, supervision and labour necessary to complete the Work in accordance with this package. Perform all Work in accordance with the "Issued for De-Construction" Specifications and existing Drawings.

The project is located at Edmonton City Centre Airport which is no longer in operation. The project consists of the de-construction of the existing Transport Canada Hangar in a manner where it can be packaged and moved to its new location. The Hangar has been given to the Alberta Aviation Museum which has re-located to the Villeneuve Airport which is approximately 35km NW of Edmonton.

The project will deliver all movable portions of the existing Hangar to the new museum location at the Villeneuve Airport where it will be turned over to the New Owner.

The Contractor shall be responsible for all aspects of the de-construction and shall be required to carefully document all stages and label all pieces of the building. This documentation is required to be clear and detailed so the New Owner can re-construct the building with minimal difficulty when the time comes. The Contractor shall then be required to turn this documentation over to the New Owner as a re-construction manual. The Contractor shall provide all shipping/storage containers for the items to be stored until the building is re-constructed. Because there is no timeframe as to when the building will be re-constructed the shipping/storage containers will not be returned. The Contractor shall leave the site as Rough Grading with positive drainage.

Throughout the document the following meaning shall apply:

- "The New Owner" – The Alberta Aviation Museum,
- "Department Representative" – Public Works and Government Services Canada (PWGSC) representative
- "The Contractor" – The party that will perform the work outlined in this CWP, and
- "The Building" – The complete building including all items within.
- "Deconstruct" "Dissasemble" – To take apart components to a minimum amount required for ease of transport and storage.

2.0 DETAILED SCOPE OF WORK

2.1 General

- All local fees, permits and service of inspection from applicable authorities,
- Coordination with the Department Representative and the Engineer to perform the Work,
- Coordination with any other sub-Contractors to perform the Work,
- Clean up of the construction site during construction and final site clean-up required to return the site to pre-lease condition with rough grading and positive drainage,
- Provide shipping/storage containers as required, and
- Transporting all building pieces as well as shipping containers.

Codes and Standards

Adhere to the applicable sections of the following:

- Alberta Safety Codes Act
- Alberta Building code
- Alberta Fire Code
- CSA S350 – Code of Practice for Safety in Demolition of Structures

All work shall be performed in accordance with the Alberta Occupational Health and Safety Regulation (OHSA).

2.2 Preparation for Disassembly / De-Construction

Prior to work being done submit a De-Construction Plan to the Department Representative for approval. Coordinate with the Department Representative as work is being done for inspections and reviews at scheduled intervals and approved by the Department Representative. The Department Representative will be monitoring as work is being done.

Coordinate with the Department Representative to ensure that all energy sources have been properly disabled and locked out. These include all electrical sources / stores, the pressurized water system and the natural gas system.

Drain all general service water piping and firewater piping using the existing drain valves.

Drain the domestic hot water tank located in the South Offices Furnace Room.

Drain the glycol heating system in the North Expansion Area and dispose of the glycol in accordance with applicable local, provincial federal regulations.

Vent and drain the steam line between the humidifier and the S-1/R-1 HVAC Unit in the Aircraft Stores Room in the North Expansion Area.

Coordinate with the Department Representative to ensure all refrigerant has been removed from the refrigerant cooling system of the following equipment:

- Furnaces HF-1 and HF-2 and their refrigerant condensers in the South Office Area Furnace Room
- HVAC Unit S-1/R-1 and its refrigerant condenser in the North Expansion Area.

2.3 Survey

All required surveying to complete the work is the responsibility of the Contractor. This includes any line locating service required to locate and mark all underground lines that will need to be removed.

2.4 Civil / Structural

2.4.1 All members are to be stacked and wrapped in preparation for shipping and are to be protected in a fashion that will allow for long term storage if necessary. All items listed below are to be removed carefully to ensure it is not damaged. All items listed below are to be clearly labeled and the location they were removed from on the building are to be documented so they can be reconstructed in their intended location.

- Roof Decking
- Panels - See Appendix 3, Figure 1 and Figure 3
- Web Steel Joists - to be stored vertically with wood blocking between each one
- Joists - are not to be laid on their sides - See Appendix 3, Figure 2
- Pre-Cast Concrete Floor Panels – To be removed whole.
- Steel Columns and Beams
- Steel Trench Drain

Ensure that any temporary supports that are required to complete the work in a safe manner are in place as necessary.

2.4.2 The items listed below are to be removed after the remainder of the building is de-constructed. Proper supports are to be in place until items can be removed. All items are to be demolished and all debris to be removed and cleaned up in the appropriate manner.

- Concrete Block Walls - Contain contaminants. See "Appendix 1" for the necessary procedures for containing and cleaning up these hazards.
- Concrete Slabs - See Appendix 3, Figure 11
- Below Grade Foundations
- Existing Piles – To be cut off 1.0m below the lowest point of removable foundation and abandoned
- Miscellaneous Exterior Concrete - These items include but are not limited to sidewalks, curbs, parking stops and flag pole foundations. - See Appendix 3, Figure 14.

2.5 Architectural

All items listed below are to be removed carefully to ensure it is not damaged and clearly labeled and the location they were removed from on the building are to be documented so they can be reconstructed in their intended location. All items are to be stacked and wrapped in preparation for shipping and are to be protected in a fashion that will allow for long term storage if necessary. Should any pieces be damaged, the contractor shall provide a detailed list of these items and get approval from the Department Representative prior to discarding the items.

- Exterior Siding - All exterior metal siding - See Appendix 3, Figure 15
- Standing Seam Roof Panels - Should panels not be able to be salvaged for the reconstruction the Contractor will be responsible for documenting a detailed inventory of items not in a condition to be reused - See appendix 3, figure 16
- Building Glazing - Ensure all caps, trim and flashing are included - See Appendix 3, Figures 17 & 18
- Windows - both interior and exterior are to be carefully removed as complete units - See Appendix 3, Figures 19, 20, 21 & 22

2.5.1 All doors listed below are to be removed with frames, tracks and hardware as complete units and clearly labeled and the location they were removed from on the building are to be documented so they can be reconstructed in their intended location. All items are to be stacked and wrapped in preparation for shipping and are to be protected in a fashion that will allow for long term storage if necessary. Should any pieces be damaged, provide a detailed list of these items and get approval from the Department Representative prior to discarding the items.

- Doors – Exterior Glass Doors - See Appendix 3, Figure 23
- Exterior Steel Man Doors - See Appendix 3, Figures 24, 25 & 26
- Exterior Overhead Rolling Doors - See Appendix 3, Figure 27
- Interior Man Doors - See Appendix 3, Figures 28, 29 & 30
- Hangar Doors - See Appendix 3, Figure 31 & 32
- Roof Access Hatch Doors – including ladders - See Appendix 3, Figure 33 & 34

2.5.2 Insulation

Roof insulation is to be removed with plans to be re-used. Insulation is to be placed in shipping containers to protect it from the weather during shipping and while stored. (See Appendix 3, Figure 35).

All remaining building insulation is to be removed and re-used where possible. Provide documentation showing where the insulation was removed from as well as an indication of what if any was not able to be salvaged.

2.5.3 Cabinets

All cabinets are to be removed without damage. They are to be placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. (See Appendix 3, Figures 36, 37, 38, 39 & 40).

2.5.4 Countertops

All countertops are to be removed without damage. They are to be placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. (See Appendix 3, Figures 41, 42, 43 & 44).

2.5.5 T-Bar and Ceiling Tiles

T-bar ceiling tile tracks are to be salvaged and placed in shipping containers for storage and transporting. (See Appendix 3, Figures 45, 46 & 47).
Ceiling tiles have been identified as having contaminants in them. They are not to be salvaged. See Appendix 1 for a complete environmental report which will outline the process for removing and disposing of them.

2.5.6 Flooring

Carpet will not be re-useable. Remove all carpet and dispose of it in the appropriate manner. Provide documentation showing and area size of the removed carpet so it is know in prior to the reconstruction. (See Appendix 3, Figure 48, 49 & 50).

Floor tiles have been identified as having contaminants in them. They are not to be salvaged. See Appendix 1 for a complete environmental report which will outline the process for removing and disposing of them. (See Appendix 3, Figures 51, 52 & 53).

2.5.7 Wall Coverings

All wall paneling is to be removed without damage. They are to be placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. (See Appendix 3, Figures 54, 55 & 56).

Wall tiles have been identified as possibly having contaminants in them. They are not to be salvaged. See Appendix 1 for a complete environmental report which will outline the process for removing and disposing of them. (See Appendix 3, Figure 57).

2.5.8 Appliances

All appliances are to be removed without damage. They are to be placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. (See Appendix 3, Figure 58).

2.5.9 Mirrors

All mirrors are to be removed without damage. They are to be carefully packaged and placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. (See Appendix 3, Figure 59).

Should any be damaged provide a detailed inventory list of what needs to be replaced for the re-construction.

2.5.10 Miscellaneous Hardware

All miscellaneous hardware is to be salvaged, packaged and placed in shipping containers for storage and transporting. Provide documentation on where each piece was removed from the building to aid in re-construction. These items include but are not limited to stair handrails, washroom grab bars, washroom stall partitions, corridor railings etc. (See Appendix 3, Figures 60, 61, 62 & 63).

2.5.11 Fencing

All exterior fencing around the perimeter of the site is to be removed and packaged for shipping. (See Appendix 3, Figure 64).

2.5.12 Signage

The main stand, alone exterior building identification sign is to be removed. Interior skins are to be removed carefully and package for shipping. These skins will be shipped to a location provided by the Department Representative. (See Appendix 3, Figure 65).

All exterior building signage is to be removed and packaged for shipping. (See Appendix 3, Figure 66 & 67).

2.5.13 Trees

Trees are to be left in place. Care is to be taken to minimize any damage to them where possible. (See Appendix 3, Figure 68).

2.5.14 Decorative Pieces

Exterior decorative sculpture is to be removed and packaged for shipping. (See Appendix 3, Figure 69).

2.5.15 Flag Poles

All flag poles are to be removed and packaged together for shipping. (See Appendix 3, Figure 70).

2.6 Mechanical / Piping

2.6.1 General

Mechanical scope of the project consists of disassembling, packaging and storing for transportation of all mechanical equipment and their associated components (e.g. ducting).

The piping scope of the project consists of disassembling, packaging and storing for transportation all water, natural gas, glycol, compressed air, drain and vent piping along with their associated components, such as; fittings, valves, instruments, insulation and piping supports/Hangars. In addition, all sinks,

showers, toilets, eyewash stations, glycol heat registers and firewater sprinkler components shall also be included.

The Contractor is responsible for creating sketches, Drawings (e.g. piping isometrics), photos, or a combination of those, that provides the installed orientation, location, configuration, support points, support types, and any other details required such that all equipment, piping, and associated components can be reassembled to replicate the existing construction. A sample of the intended documentation shall be submitted to the Department Representative for approval prior to the work commencing.

The Contractor is responsible for properly tagging/stenciling, recording and documenting all equipment, piping, and associated components prior to or during disassembly. If the equipment, piping, and/or associated components are disassembled into sub-assemblies, the Contractor may furnish a single tag for the entire sub-assembly.

Ensure that the tagging/stencilling is sufficiently weatherproof.

Disassemble the equipment, piping, and associated components in a way that does not cause physical damage such that it can be reassembled in the future without any effect on operation or safety. If during disassembly, the Contractor needs to permanently modify the equipment or any other component to facilitate disassembly, the Contractor will notify the Department Representative and obtain written confirmation for performing such modifications. The Contractor must also supply a detailed report of the modifications made, this will be included in the final documentation submitted to the Department Representative.

All mounting hardware shall be collected, bagged, labelled and stored with the associated equipment.

Package and store for transportation, all equipment and associated components as per Section 2.6.16 Storage Requirements.

2.6.2 Items listed below shall be disconnected from the electrical and natural gas connections. Disassemble the flue gas ducting complete with (c/w) rain caps, outside air inlet ducting and supply air ducting. Dismount the complete Units.

- Unit Heaters (6) UH-1 thru UH-6 – Appendix 3, Figure 71, Appendix 5, Dwg. 617352-0000-45DX-0001
- Air Curtain Make-Up Air Units (2) MUA-1 and MUA-2 – Appendix 3, Figure 72, Appendix 5 Dwg. 617352-0000-45DX-0001

Disconnect the items listed below from the electrical connections. Disassemble the exhaust ducting and any other associated components. Disassemble the exhaust ducting, dampers, grilles and exhaust cowls and any other associated components for each exhaust fan. Dismount the exhaust fans.

- Exhaust Fans (2) EF-1 and EF-2 – Appendix 3, Figure 73, Appendix 5 Dwg. 617352-0000-45DX-0001

- Exhaust Fan EF-3 - Appendix 3, Figure 74, Appendix 5
- All Ducting
- Exhaust Fns (5) F-1 thru F-5 – Appendix 5 Dwg. 617352-0000-45DX-0002
- Electric Fan FF-1 – Appendix 5 Dwg. 617352-0000-45DX-0001

2.6.3 Air Compressor and Dryer

The air compressor and dryer located in the Main Hangar Area have already been disassembled. The Contractor shall consult with the Department Representative to ensure the air compressor and dryer are packaged and stored for transportation.

2.6.4 Disconnect the items listed below from electrical, drain and gas connections. Disconnect the electrical connection to the refrigerant condensers on the roof. Disassemble the interconnecting refrigerant tubing between the furnaces and the refrigerant condensers. Disassemble the common flue gas ducting from the two furnaces and the domestic hot water tank c/w raincap. Disassemble the common outside air intake c/w gooseneck and birdscreen for the two furnaces. Disassemble the return air ducting c/w dampers and grilles. Disassemble the supply air ducting c/w dampers and diffusers.

- Furnaces (2) HF-1 and HF-2 – Appendix 3, Figure 75

2.6.5 Domestic Hot Water Tank

Disconnect the electrical, hot water supply, cold water inlet, drain and gas connections to the domestic hot water tank, HW-1, in the Furnace Room. Refer to Figure 76 attached in Appendix 3. Dismount the hot water tank.

2.6.6 Disconnect items listed below from all of the electrical and gas connections. Disassemble any return air ducting. Disassemble the supply air ducting c/w dampers and diffusers. Disassemble the interconnecting refrigerant tubing between the HVAC Unit and the refrigerant condenser. Disassemble the outside air intake and return air exhaust ducting c/w goosenecks and bird screens. Care should be taken when disassembling the fire dampers so as to not damage any thermal elements that may be present.

- Roof-mounted HVAC Units (3) AS-1 thru AS-3 – Appendix 3, Figure 77, Appendix 5 Dwg. 617352-0000-45DX-0001
- Indoor HVAC Unit S-1/R-1 – Appendix 5 Dwg. 617352-0000-45DX-0002, Dwg. 617352-0000-45DX-0003, Dwg.

2.6.7 Humidifier

Disconnect the electrical, cold water inlet, drain and steam outlet connections to the Humidifier in the Aircraft Stores Room of the North Expansion Area. Refer to Figure 78 attached in Appendix 3 and SLI Drawing Number 617352-0000-45DX-0002 attached in Appendix 5. Dismount the humidifier.

2.6.8 Varsol Sprayer Unit

Disconnect all of the electrical connections to the Varsol Sprayer Unit in the Varsol Spray Room of the North Expansion Area. Disconnect the air regulator from the air supply line. Refer to Figure 79 attached in Appendix 3.

Disassemble the air regulator, air/varsol spray gun, and air piston pump c/w all compressed air and liquid varsol hoses.

Disassemble the exhaust fan ducting c/w gooseneck, birdscreen or raincap.

Disassemble the Varsol Sprayer chamber into pieces that will allow ease of handling. Ensure proper tagging/stencilling and documentation has been completed so that the chamber can be easily reassembled.

2.6.9 Glycol System

Disconnect all electrical and wiring connections to the three (3) glycol pumps P-1, P-2, and P-4, the boiler B-1, and the fiberglass glycol tank in the Boiler Room of the North Expansion Area. Disconnect all glycol piping, drain piping, and gas piping connections to the above equipment and the expansion tank. Refer to SLI Drawing Number 617352-0000-45DX-0003 attached in Appendix 5.

Note: Glycol pump P-3 was not found during the site visit. Check to determine whether this pump exists.

Disassemble the flue gas ducting from the boiler c/w rain cap. Refer to SLI Drawing Number 617352-0000-45DX-0003 attached in Appendix 5.

Dismount the three glycol pumps, the boiler, the expansion tank and the fiberglass glycol tank.

2.6.10 Relief and Combustion Air Ducting

Disassemble the relief air ducting c/w damper, gooseneck and birdscreen in the Boiler Room of the North Expansion Area. Refer to SLI Drawing Number 617352-0000-45DX-0003 attached in Appendix 5.

Disassemble the combustion air ducting c/w combustion air pot, gooseneck and bird screen in the Boiler Room of the North Expansion Area. Refer to SLI Drawing Number 617352-0000-45DX-0003 attached in Appendix 5.

Disassemble all relief air and combustion air ducting c/w any combustion air pots, insulation, goosenecks and birdscreens located in the Furnace Room of the South Office Area.

2.6.11 General Service Water Piping

Disconnect the general service water line from the building main water supply line. Refer to Figure 80 in Appendix 3.

Disassemble the general service water piping and associated components such as fittings, valves, instruments, insulation and piping supports/Hangars, throughout the Main Hangar Area, North Expansion Area and South Office Area.

2.6.12 Disassemble the items listed below from all piping, drain lines and associated components such as fittings, valves, instruments, insulation and piping supports/Hangars. Disassemble all compressed air piping and tubing and associated components. Disconnect the gas piping from the building main gas supply line.

- General Service Water Piping – Appendix 3, Figure 80
- Compressed Air Piping/Tubing
- Natural Gas Piping – Appendix 3, Figure 81
- Firewater Piping – Appendix 3, Figure 80, Figure 82
- Drain Vent Piping – Appendix 5 Dwg.

2.6.13 Glycol Piping

Disconnect all electrical and instrumentation wiring to all valves and instruments in the Boiler Room of the North Expansion Area.

Disassemble all of the glycol piping and associated components such as fittings, valves, instruments, strainers, filters, insulation and piping supports/Hangars, throughout the North Expansion Area. Refer to SLI Drawing Number 617352-0000-45DX-0003 in Appendix 5.

Disassemble all heat registers located throughout the North Expansion Area. Refer to SLI Drawing Number 617352-0000-45DX-0002 in Appendix 5.

2.6.14 Miscellaneous Piping Items

Disassemble the following items and all the components associated with them. Disconnect all electrical connection and piping connections:

- Eyewash station – Northwest Storage Room of North Expansion Area – Appendix 5, Dwg. 617352-0000-45DX-0002
- Eyewash station – Battery Room of North Expansion Area – Appendix 5, Dwg 617352-000-45DX-0002
- Sink in Northwest Storage Room of North Expansion Area – Appendix 3, Figure 83
- Toilets, urinals, sinks and shower from two washrooms on Main floor of South office area – Appendix 3, figure 84 and 85
- Toilet and sink from two washrooms on Second floor of South office area - Appendix 3, Figure 86
- Sinks from kitchen on Main floor of South office area – Appendix 3, Figure 87
- Sink from Boardroom on Second floor of South office area – Appendix 3, Figure 87
- Dishwasher and ice machine in kitchen on Main floor South office area – Appendix 3, Figure 88

- Refrigerator in Kitchen on Main floor of South office area Consult with the Department Representative to ensure the refrigerator is packaged and stored for transportation – Appendix 3, Figure 88.

2.6.15 Drain and Vent Piping

Disassemble the drain and vent piping for the following items and associated components:

- Roof drain piping throughout the Main Hangar Area, North Expansion Area, and South Office Area.
- Eyewash station and sink in the Storage Room of the North Expansion Area – Appendix 5, Dwg 617352-0000-45DX-0003
- Eyewash station in the Battery Room of the North Expansion Area – Appendix 5, Dwg 617352-000-45DX-0003
- HVAC Unit and Humidifier in Aircraft Stores Room of North Expansion Area – Appendix 3, Figure 89
- Piping in the four washrooms, the kitchen and boardroom in the South Office Area.
- Piping from the two Furnaces and Domestic Hot Water Tank in the Furnace Room of South Office Area – Appendix 3, Figure 90
- All floor and sewer drain piping located throughout the South Office Area, Main Hanger Area and North Expansion Area.

2.6.16 Storage Requirements

The Contractor is responsible for packaging and storing for transportation all mechanical equipment and their associated items, piping, piping components (i.e. fittings, valves, instruments, piping supports/Hangars, etc.), insulation and all other materials are to be stored in shipping containers that will be provided by the Contractor.

All packaging and storing must be done such that all materials and equipment will not be damaged during loading, transportation and unloading.

Any equipment or associated components, piping, or piping component with insulation shall be handled, packaged and stored for transportation such that the insulation does not get damaged. If required, the remove the insulation and package it separately so that it does not get damaged during disassembly or transportation.

Proper packing lists shall be affixed to each package of components to allow identification of all contents in that specific package. The packing list must be protected from the atmosphere but still remain visible.

2.7 Electrical

2.7.1 General

Ensure the complete de-energization of electrical circuits, isolation, permit approval by City of Edmonton, and provide locks wherever required as per City of Edmonton's safety procedures before executing any activity listed in the sections below. It is the Contractor's responsibility to coordinate all utility activities with appropriate utility companies and the Department Representative.

Identify all electrical equipment and material to be removed. It is intended that all equipment and material removed will be Re-Engineered and reassembled at Villeneuve Airport under a separate contract. Perform the work with this purpose in mind. This work shall include but shall not be limited to the following:

- Develop a tagging system such that all equipment and material are properly labelled such that they can be easily stored, transported, and retrieved.
- Record all nameplate information as well as a detail description of the equipment.
- Inspect the equipment to ensure that it is in working order and record any damage.
- Record all information in electronic format (word, excel etc.).
- All equipment shall be identified indicating the location where they were removed from by using marked up Drawings and sufficient photographs as necessary. Identical equipment shall be identified with the same tag number.
- All equipment shall be carefully packaged to prevent any damage due to shipping and long term storage. Any loose parts in the equipment shall be wedged or secured.
- All equipment which requires disassembly shall have the associated parts properly identified with instructions as to how they are to be reassembled.
- Bulk material shall be identified as to size, type, etc. and separated in storage containers.
- Upon removal, disassemble so each item can be easily stored without damage.
- Identify (make, model description, etc) to produce a table of materials to be logged into inventory.

2.7.2 Lighting

Disconnect, tag and remove the following items and all its components and record where it was located. Upon removal, disassemble so each item can be easily

stored without damage. Also, identify (make, model description, etc) to produce a table of materials to be logged into inventory.

- Hanger Lighting and fixtures such as reflectors, fluorescents, and casing – Appendix 3, Figures 91-93, Dwg. E1 (1993)
- Outdoor Lighting floodlights, outdoor doorway lights and parking lot light poles – Appendix 3, figure 94 and 95, Dwg E1 (1993)
- Room Office Lighting and fixtures such as reflectors, fluorescents, and casing - Appendix 3, figures 96-100, Dwgs. E1 (1993) and E2 (1993)
- All Receptacles - Appendix 3, Figure 101 and 102, Dwgs. E2 (1978) and E1 (1983)
- All Switches - Appendix 3, Figure 103, Dwgs. E2 (1993) and E1 (1993)
- All Ceiling Fans – Dwg. E2 (1978)
- Panel Boards Take note of each panel board circuit layout, to be used as reference upon rebuild of the building - Appendix 3, Figure 104, Dwg. E1 (1978)
- All Transformers and any supporting brackets - Appendix 3, Figure 104, Dwg. E1 (1978)
- Emergency Lights - Appendix 3, Figure 105 and 106, Dwg. E2 (1983)
- Fire Alarm system, pull stations, bells and Fire Alarm Panel and all components - Appendix 3, Figure 107 and108, Dwg. E1 (1983) and E2 (1983)

2.7.3 Communications

Disconnect and remove cables to each phone line, ethernet, radio, annunciation system, speakers and any other devices related to communications for the building. The radio system panel is located in the upstairs south mechanical room with antennas on the roof. Refer to Drawing E1 (1983) for communications layout.

(See Appendix 3, Figure 108-111).

2.7.4 Electrical Element Heaters in Offices

Disconnect and remove all electrical element heaters in offices.

Refer to Drawing E2 (1978) for office heater locations.

2.7.5 Thermostats

Disconnect and remove all thermostats in Hangar and office area.

Refer to Drawing E1 (1983) for thermostat locations.

2.7.6 Security Camera(s)

Disconnect and remove all security cameras/security camera system in the offices. The security camera is located indoors facing the south main entrance.

Refer to Drawings E1 (1983 and E2 (1983) for security camera locations.

(See Appendix 3, Figure 112).

2.7.7 Electricals for Hangar Heaters, HVAC Units, Exhaust Fans

Disconnect and remove cables and control devices to each respective heater, HVAC unit and exhaust fan. (See Appendix 3, Figure 113).

2.7.8 Grounding

Disconnect and remove all ground connections to equipment, pipes, steel structures and any other points of ground connections in the building.

All materials such as, clamps, supports, connectors, used in the grounding layout are to be salvaged.
(See Appendix 3, Figure 114).

2.7.9 Bulk Material

Disconnect and remove all bulk material.

Bulk material shall include but not limited to: Junction boxes, conduits, cable, wire, connectors, and fittings, support fasteners, etc.

Conduit shall be identified as to various types and sizes and approximate quantity.

Wire and cable shall be stored on reels with type and sizes and approximate quantity. All other support items straps, clamps, fittings, connectors, unction boxes, lugs, screws etc. are to be stored in an organized manner so that it easily retrieved upon rebuild.
(See Appendix 3, Figure 104 and 115).

2.8 Environmental

See Appendix 1 for a complete environmental report.

2.9 Materials by Contractor

All materials, equipment, construction aids, storage containers and miscellaneous items shall be supplied by the Contractor.

Supply all equipment required for the deconstruction in sound mechanical condition for the intended use and suitable for the environment in which they are to be used.

Supply of storage / shipping containers required for all small and weather sensitive material that is to be relocated to the New Owners site. Containers to be in a clean and sanitary condition and will be required to be left with the building following the drop off.

2.10 Damaged or Un-usable Material

Should any material be damaged or deemed un-useable for the re-construction, the Contractor will provide a list of these items to the Department Representative

for review. The Department Representative will have the final say as to what is not re-useable.

Supply a detailed list of items deemed unusable that will be produced for the re-construction.

2.11 Site Security

The Contractor will be responsible for the site beginning at the start-up date as listed on the schedule. It will be the Contractor's responsibility to secure the site and install the appropriate temporary fencing to ensure no outside access to the site is possible. This will be required on both the public side access (street side) and the private side access (runway side).

The Contractor will ensure the appropriate access requirements are maintained during working hours to control access to the site to all personnel. The process used shall be submitted to the Department Representative by the Contactor prior to commencement of work and will need to be approved by the Department Representative prior to the site being turned over to the Contractor.

During non-working hours the Contractor will be required to secure the site to ensure no access is possible. If the Contractor is unable to secure the site adequately by mechanical means to the satisfaction of the Department Representative, then they will be required to provide security personnel.

2.12 Permitting

The Contractor will be responsible for all permitting required in order to execute the work. This will require advanced coordination and appropriate lead time in each case to ensure the schedule is not compromised due to delays in the permitting approval process.

2.13 Protection from the Environment

The Contractor will be responsible for ensuring all building materials are protected from the environment as necessary. This means all weather sensitive materials should be stored in water tight containers. All non weather sensitive material should be wrapped accordingly to minimize exposure and keep it protected from debris and small animal damage.

All items should also be blocked up off the ground to ensure they are protected from sinking into the mud / soil during high water times of the year.

2.14 Documentation for Re-Construction

It is the Contractors responsibility to ensure the building is de-constructed in a fashion where is can be assembled efficiently.

During the de-construction process, the Contractor needs to clearly label and document every single piece of the building. A complete parts inventory will be required along with a detailed package of Drawings and/or sketches that match

photos and a video record to provide all the information required in order to reconstruct the building.

While it is not in the scope to put the building back together it is imperative that this documentation be held in high priority to ensure the building can be re-constructed as intended.

2.15 Transportation and Off Loading

It is the responsibility of the Contractor to coordinate all required transportation to ship the building to its new location. This is to include any required equipment for the off loading and blocking required for the pieces to ensure that they are not in direct contact with the ground. The Contractor will be responsible for the off loading of all the building components at the new location. All containers and parts will be dropped neatly in the designated location and all required equipment to do the off load will be required.

2.16 Health and Safety

Health and Safety shall be of the utmost importance during this project. The Contractor will be responsible for setting up and maintaining a health and safety system appropriate for the type of work. All necessary precautions are to be taken at all times to ensure the de-construction is done in the safest possible manner.

The proper procedures need to be put in place to handle all high risk areas to ensure the temporary measures are in place to avoid any unforeseen safety issues. These would include but are not limited to temporary support for all portions of the building as it is being taken down.

2.17 Schedule

The Contractor will be responsible for ensuring the schedule is met. If for any reason the schedule slips, the Contractor will need to find ways to recover the delays to maintain the schedule. (See Appendix 4).

2.18 Site Clean-up

It is the responsibility of the Contractor to submit a plan for disposal to the Department Representative for approval prior to cleaning up. For cleaning up the site following the move of the building, the site needs to be returned to its pre-lease condition with rough grading and positive drainage for all remaining debris is cleared to the satisfaction of the Department Representative.

2.19 Refuse Disposal

The Contractor will be responsible disposing of all refuse. This includes all portions of the building that are unmovable, concrete foundations and parts that contain environmental contaminants (see Appendix 1).

The debris will need to be removed and disposed of in the appropriate manner considering the nature of the debris.

3.0 TECHNICAL DOCUMENTS AND ATTACHMENTS

3.1 General Requirements

Contractor to bid on the full scope of the Work as specified in this package.

If certain Specifications or Drawings are required by the Contractor in the performance of the Work, but have not been supplied by the Engineer, put forward for review and approval the Contactor's own Specification or standard Drawing.

The Engineer will review and approve, within seven (7) working days after receipt, the Specification or Drawing for use as part of the Work, or provide a suitable Specification or Drawing for use by the Contractor.

It is the responsibility of the Contractor to review of all the documents. Should the Contractor find discrepancies or errors in or omissions from the Drawings, Specifications or contract documents or be in doubt as to their meaning, then promptly notify the Engineer or the Department Representative in writing stating the nature of the discrepancy, error, omission or doubt. The Engineer or The Department Representative shall then send written instructions to the Contractor. If the Contractor fails to give such notice, or if the Contactor performs any portion of the Work without first receiving written instructions from the Engineer or The Department Representative, the Contractor will be solely responsible for the results of and cost of rectifying any such discrepancy, error or omission.

4.0 APPENDICIES

Appendix 1 - Environmental Information
Environmental report is by others. See attached.

Appendix 2 – Existing Drawings
Existing Drawings provided are 'AS-IS' and have not been field verified, and to be used only as reference. (See Appendix 2).

Structural
- S1 - Addition to Hangar 1A, Phase II
- S2 - Addition to Hangar 1A, Phase II
- S2.0 - Foundation Plan
- S3.0 - Framing Plan
- S4.0 - Roof Plan
- S4.1 - Building Section
- SK6 - Foundation Details
- 1355-L1 – 8" H.C. Slab Layout
- 76-146 – Foundation Reinforcement

Architectural
- A1 - Addition to Hangar 1A, Phase II
- A2 - Addition to Hangar 1A, Phase II
- A3 - Addition to Hangar 1A, Phase II
- A4 - Addition to Hangar 1A, Phase II
- A5 - Addition to Hangar 1A, Phase II
- A-2 – Main Floor Plan
- A-3 – Second Floor & Roof Plans

Electrical
- 619112-X1-E1 –Main Floor Modified Lighting
- 619112-X1-E2 –Second Floor Modified Lighting
- E1 of 1 – Site Plan & Single Line Diagram
- E2 of 2 – Electrical Layout
- W110W628A307 SHT. 1 – Addition to Hangar 1A, Phase II
- W110W628A307 SHT. 2 – Emergency Lighting, Exit Lighting, & Fire Alarm System Upgrading

Appendix 3 – Photos

Appendix 4 – Schedule

Appendix 5 – Mechanical Demolition Drawings

- EM716 – Main Floor Plan, Second Floor and Roof Plan
- M1 – Addition to Hangar 1A, Phase II, Edmonton Municipal Airport Heating, Air Conditioning and Plumbing Plan and Sections.
- M2 – Roof, Foundations Plans, Section, Boiler Plan and Piping Schematic

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following work:

.1 Removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square metres and are removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.

.2 Removing non-friable asbestos-containing materials, other than ceiling tiles, if the material is installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.

.3 Break, cut, grind, sand, drill, scrape, vibrate or abrade non-friable asbestos containing materials using non-powered hand-held tools, and the material is wetted to control the spread of dust or fibres.

.4 Removing less than one square metre of drywall in which joint-filling compounds that are asbestos containing materials have been used.

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of non-friable asbestos-containing materials, ceiling tile removal of less than 7.5 square metres, and less than one square metre of drywall with asbestos containing joint compound.

1.3 REFERENCES

.1 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.3 Alberta Human Services, Alberta Asbestos Abatement Manual (October, 2012)

.4 Alberta Occupational Health and Safety Act, Regulation and Code

.5 Alberta Building Code

.6 Transportation of Dangerous Goods Regulation and/or the Environmental Protection and Enhancement Act, Waste Control Regulation (Alberta Regulation 129/1996 with amendments up to and including Albert Regulation 62/2013)

.7 CSA Standard Z94.4-11 Selection, Care, and Use of Respirators

.8 CGSB 1-GP-205M Standard for: Sealer for Application to Asbestos-Fibre Releasing Materials

.9 ANSI 9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

1.4 DEFINITIONS

.1 Amended Water: water with nonionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.

.2 Asbestos-Containing Materials (ACMs): 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.

.3 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.

.4 Authorized Visitors: Departmental Representative(s) and representative(s) of regulatory agencies.

.5 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 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.

.6 Friable material: means material that:

.1 When dry, can be crumbled, pulverized or powdered by hand pressure, or

.2 is crumbled, pulverized or powdered.

.7 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 direction at 99.97% efficiency.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.

.10 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.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

1.5 SUBMITTALS

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

.2 Submit proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative(s) necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

.6 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.

.7 Submit proof satisfactory to Departmental Representative(s) that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial, 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 Perform construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with N-100, R-100 or 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 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, the worker can decontaminate his or her 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 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 work area, and removed from the work area frequently and at regular intervals.

.4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Separate for recycling and place in designated containers all waste in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 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 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.8 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative(s).

1.9 SCHEDULING

.1 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

.2 Abatement activities shall proceed upon acceptance of the Environmental Consultant, incorporating preparation, removal and clean-up procedures, visual inspection and air clearance.

.3 Allow sufficient time for inspection of the site by Departmental Representative(s) after site preparations and barriers are completed and before hazardous materials removal work commences. **The Hazardous Materials Abatement Contractor shall provide a minimum of twenty-four (24) hours notification for all pre-contamination and final visual inspection requests** to Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Authority Having Jurisdiction 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, following minimum requirements:

.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 a competent, qualified person.

Part 2 Products

2.1 MATERIALS

.1 Drop Sheets:

.1 Polyethylene: 0.15 mm thick.
.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene waste 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 thick sealable polyethylene bag.

.3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.

.4 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.

.5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

Part 3 Execution

3.1 PROCEDURES

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.

.1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.

.2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.

.3 Do not use compressed air to clean up or remove dust from any surface.

.3 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 Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.

.4 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.

.1 Use garden reservoir type low - velocity fine - mist sprayer.

.2 Perform Work to reduce dust creation to lowest levels practicable.

.3 Work will be subject to visual inspection and air monitoring.

.4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.5 Frequently and at regular intervals during Work and immediately on completion of work:

.1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container, and

.2 Drop sheets to be wetted and placed in a waste container as soon as practicable.

.6 Cleanup:

.1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.

.2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.

.3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed.

.4 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removing less than 9.0 square metres of asbestos containing suspended ceiling tiles, as indicated.

.2 Removal or disturbance of one square metre or less of friable asbestos containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment, or of a building.

.3 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.

.4 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.

.5 Removing more than one square metre of drywall in which joint-filling compounds that are asbestos containing materials have been used.

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of asbestos containing materials of the type described within.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos Fibre Releasing Materials.

.2 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 Underwriters' Laboratories of Canada (ULC)

.6 Alberta Human Services, Alberta Asbestos Abatement Manual (October, 2012)

.7 Alberta Occupational Health and Safety Act, Regulation and Code

.8 Alberta Building Code

.9 Transportation of Dangerous Goods Regulation and/or the Environmental Protection and Enhancement Act, Waste Control Regulation (Alberta Regulation 129/1996 with amendments up to and including Albert Regulation 62/2013)

.10 CSA Standard Z94.4-11 Selection, Care, and Use of Respirators

.11 CGSB 1-GP-205M Standard for: Sealer for Application to Asbestos-Fibre Releasing Materials

.12 ANSI 9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

1.4 DEFINITIONS

.1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.2 Asbestos Containing Materials (ACMs): materials that contain 0.1 per cent or more asbestos and are identified under Existing Conditions including fallen materials and settled dust.

.3 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.

.4 Authorized Visitors: Departmental Representative(s) and representative(s) of regulatory agencies.

.5 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 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.

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

.7 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.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.10 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.

.11 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 SUBMITTALS

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

.2 Submit proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative(s) necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.

.6 Submit proof satisfactory to Departmental Representative(s) that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

.7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Departmental Representative(s). Minimum of one supervisor for every ten workers.

.8 Submit Worker's Compensation Board status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:

.1 Encapsulants;

.2 Amended water;

.3 Slow drying sealer.

.10 Submit proof satisfactory to Departmental Representative(s) that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial 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 the time work is performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and 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 N-100, R-100 or 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 work area, and the protective clothing to 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. It includes suitable footwear, and it to be repaired or replaced if torn.

.3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.4 Before leaving Asbestos Work Area, the worker can decontaminate his or her 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 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 work area, and removed from the work area frequently and at regular intervals.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.7 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

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

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Separate for recycling and place in designated containers all waste in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 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 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.8 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.9 SCHEDULING

.1 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

.2 Abatement activities shall proceed upon acceptance of the Environmental Consultant, incorporating preparation, removal and clean-up procedures, visual inspection and air clearance.

.3 Allow sufficient time for inspection of the site by Departmental Representative(s) after site preparations and barriers are completed and before hazardous materials removal work commences. **The Hazardous Materials Abatement Contractor shall provide a minimum of twenty-four (24) hours notification for all pre-contamination and final visual inspection requests** to Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, in use of glove bag procedures, 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 thick.

.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm 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 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.

.4 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.5 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.

.1 Sealer: flame spread and smoke developed rating less than 50.

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 asbestos-containing materials.

3.2 PROCEDURES

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Before beginning Work, 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)'.

.3 Before beginning Work 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.

.4 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 When removing suspended ceilings and walls erect enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.

.5 Before removing suspended ceilings, remove friable material 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 Departmental Representative(s).

.6 Remove loose material by HEPA vacuum; thoroughly wet friable 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.

.7 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.

.8 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. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.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 the commencement of work until completion of cleaning operations, air monitoring as required will be the responsibility of Departmental Representative(s) and will be conducted adjacent to the work area in accordance with *Alberta Asbestos Abatement Manual* (October, 2012). Air sampling reports will be submitted to Departmental Representative(s) and the Hazardous Materials Abatement Contractor on a daily basis.

.1 Background area air samples will be collected prior to asbestos abatement activities to establish baseline airborne fibre levels. Area samples will be collected throughout the abatement process to monitor potential airborne fibre migration from within the asbestos abatement work areas into surrounding non-restricted work areas. Occupational samples will be collected throughout the abatement process to document that workers inside the asbestos abatement work areas are wearing adequate respiratory protection and that their work procedures minimize the generation of airborne fibre concentrations.

.2 If the fibre levels from area air samples outside the asbestos work areas exceed 10% of the Occupational Exposure Limit (0.01 fibres/cubic centimetres), work procedures will be reviewed. If the fibre levels exceed 50% of the Occupational Exposure Limit (0.05 f/cc), suspension of removal operations will result. The Hazardous Materials Abatement Contractor must bear all associated costs, including any cleaning required to the satisfaction of Departmental Representative(s).

.2 Air clearance samples within the moderate-risk containments shall be collected in accordance with the Provincial requirements. Aggressive air sampling techniques will be used to carry out air clearance sampling in all moderate-risk containments. If concentrations are below 0.01 f/cc, the Hazardous Materials Abatement Contractor will be given permission to remove the work area enclosures and decontamination facilities.

.3 During the course of Work, Departmental Representative(s) to measure fibre content of air outside and inside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).

3.4 INSPECTION

.1 Daily inspection services will be carried out by Departmental Representative(s) who will conduct a review of the Hazardous Materials Abatement Contractor's site specific asbestos work procedures to confirm that the identified asbestos-containing materials are included within the contractor's scope of work and to ascertain that the abatement methods proposed by the Hazardous Materials Abatement Contractor comply with applicable regulations and guidelines and this specification.

.2 Departmental Representative(s) will conduct daily site inspections during asbestos abatement activities as required. During the asbestos abatement process, Departmental Representative(s) will conduct pre-contamination inspections, daily site inspections, and final visual inspections to assess contractor compliance and to evaluate contractor performance. The pre-contamination inspections will be conducted to review proper work area set-up and execution of the scope of work. The daily site inspections will be conducted to document the Hazardous Materials Abatement Contractor's work procedures and the proper operation of the asbestos control systems in place. The final visual inspections will be conducted to document the removal of the asbestos-containing materials within the scope of work.

.3 Departmental Representative(s) 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.

.4 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative(s) 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

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal or disturbance as specified of more than one square metre of friable asbestos containing material during the repair, alteration, maintenance or demolition of a building or any machinery or equipment.

.2 Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters.

.3 Repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products.

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of asbestos containing materials of the type described within.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-94, Sealer for Application to Asbestos-Fibre-Releasing Materials.

.2 Canadian Standards Association (CSA International)

.3 Department of Justice Canada

.1 Canadian Environmental Protection Act (CEPA), 1999.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.6 Underwriters' Laboratories of Canada (ULC)

.7 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)

.1 NIOSH 94-113-August 1994, NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

.8 U.S. Department of Labour - Occupational Safety and Health Administration - Toxic and Hazardous Substances

.1 29 CFR 1910.1001-2001, Asbestos Regulations.

.9 Alberta Human Services, Alberta Asbestos Abatement Manual (October, 2012)

.10 Alberta Occupational Health and Safety Act, Regulation and Code

.11 Alberta Building Code

.12 Transportation of Dangerous Goods Regulation and/or the Environmental Protection and Enhancement Act, Waste Control Regulation (Alberta Regulation 129/1996 with amendments up to and including Albert Regulation 62/2013)

.13 CSA Standard Z94.4-11 Selection, Care, and Use of Respirators

.14 CGSB 1-GP-205M Standard for: Sealer for Application to Asbestos-Fibre Releasing Materials

.15 ANSI 9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

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 a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos Containing Materials (ACMs): materials that contain 0.1 per cent or more asbestos and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Areas: area where work takes place which will, or may disturb ACMs.

.5 Authorized Visitors: Departmental Representative(s) and representative(s) 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 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 DOP Test: testing method used to determine integrity of Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

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

.10 HEPA vacuum: High Efficiency Particulate Air 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.

.11 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.

.1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of 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 Materials: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.13 Occupied Areas: any area of building or work site that is outside Asbestos Work Area.

.14 Polyethylene sheeting sealed with tape: polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.

.15 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

1.5 SUBMITTALS

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

.2 Before beginning work:

.1 Obtain from appropriate agency and submit to Departmental Representative(s) necessary permits for transportation and disposal of asbestos waste. Ensure that dump operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to receive and properly dispose of asbestos waste.

.2 Submit proof satisfactory to Departmental Representative(s) that all asbestos workers have received appropriate training and education by a competent person on hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Submit proof of attendance in form of certificate.

.3 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Departmental Representative(s). Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers.

.4 Submit layout of proposed enclosures and decontamination facilities to Departmental Representative(s) for review.

.5 Submit Provincial/Territorial and/or local requirements for Notice of Project form.

.6 Submit proof of Contractor's Asbestos Liability Insurance.

.7 Submit proof satisfactory to Departmental Representative(s) that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

.8 Submit Worker's Compensation Board status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:

.1 Encapsulants.

.2 Amended water.

.3 Slow drying sealer.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:

.1 Powered air purifying respirator (PAPR) 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 work area, and the protective clothing to 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. It includes suitable footwear, and it to be repaired or replaced if torn. Requirements for each worker:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated work suits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering work area, follow procedures outlined in paragraphs above.

.4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.

.4 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.6 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

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

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Separate for recycling and place in designated containers all waste in accordance with Waste Management Plan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 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 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.8 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.8 EXISTING CONDITIONS

.1 Results of tests of asbestos containing materials to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of suspect asbestos containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.9 SCHEDULING

.1 Not later than ten (10) days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Regional Office of Labour Canada.

.3 Provincial/Territorial, Department of Labour.

.4 Disposal Authority.

.2 Inform sub-trades of presence of asbestos containing materials identified in Existing Conditions.

.3 Submit to Departmental Representative(s) copy of notifications prior to start of Work.

.4 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

.5 Abatement activities shall proceed upon acceptance of the Environmental Consultant, incorporating preparation, removal and clean-up procedures, visual inspection and air clearance.

.6 Allow sufficient time for inspection of the site by Departmental Representative(s) after site preparations and barriers are completed and before hazardous materials removal work commences. **The Hazardous Materials Abatement Contractor shall provide a minimum of twenty-four (24) hours notification for all pre-contamination and final visual inspection requests** to Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide to Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene including dress and showers, in entry and exit from Asbestos Work Area, in aspects of work procedures including glove bag procedures, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper 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.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

.1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

.4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other material approved by Departmental Representative(s), mixed with water in concentration to provide adequate penetration and wetting of asbestos containing material.

.5 Waste Containers: contain waste in two separate containers.

- .1 Inner container: 0.15 mm 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 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. Label containers in accordance with applicable legislation. Label in both official languages.

.6 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.7 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.

Part 3 Execution

3.1 PREPARATION

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Work Areas:

- .1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.
- .2 Preclean moveable furniture within proposed work area(s) using HEPA vacuum and remove from work area(s) to temporary location as identified by Departmental Representative(s).
- .3 Preclean fixed casework, plant, and equipment within proposed work area(s), using HEPA vacuum and cover with polyethylene sheeting sealed with tape.

.4 Clean proposed work area(s) using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.5 The spread of dust from the work area to be prevented by:

.1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.

.2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.

.6 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. Provide continuous monitoring of pressure difference using automatic recording instrument. The system to maintain a negative air pressure of 0.02 inches of water, relative to the area outside the enclosed area. The system to be inspected and maintained by a competent person prior each use to ensure that there is no air leakage, and if the filter is found to be damaged or defective, it to be replaced before the ventilation system is used.

.7 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.8 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Use two layer(s) of FR polyethylene on floors. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.9 Build airlocks at entrances to and exits from work area(s) so that work area(s) are always closed off by one curtained doorway when workers enter or exit.

.10 At each access to work areas 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)".

.11 After work area isolation, remove heating, ventilating, and air conditioning filters, pack in sealed plastic bags 0.15 mm minimum thick and treat as contaminated asbestos waste. Remove ceiling - mounted objects such as lights, partitions, other fixtures not previously sealed off, and other objects that interfere with asbestos removal, as directed by Departmental Representative(s). Use localized water spraying during fixture removal to reduce fibre dispersal.

.12 Maintain emergency and fire exits from work area(s), or establish alternative exits satisfactory to Fire Commissioner of Canada and Provincial/Territorial Fire Marshall.

.13 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.14 After preparation of work areas and Decontamination Enclosure Systems, remove designated asbestos containing ceiling tiles within work area(s) progressively and carefully, wrap panels in 0.10 mm minimum thick polyethylene, and dispose of as contaminated waste.

.15 After preparation of work area(s) and Decontamination Enclosure Systems, for the removal of all other asbestos containing materials, remove within work area and dispose of as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.

.3 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:

.1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area(s), with two curtained doorways, one to Shower Room and one to work area(s). Install portable toilet, waste receptor, and storage facilities for workers' shoes and protective clothing to be reworn in work area(s). Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.

.2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every ten workers. Provide constant supply of hot and cold or warm water. Cold water source is currently available on site. Provide piping and connect to water sources and drains. Pump waste water through 5 micrometre filter system acceptable to Departmental Representative(s) before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.4 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.

.1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

.2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding

Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.5 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape. Use two layer(s) of FR polyethylene on floors.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.6 Separation of Work Areas from Occupied Areas:

.1 Separate parts of building required to remain in use from parts of building used for asbestos abatement by means of airtight barrier system constructed as follows:

.1 Build suitable floor to ceiling lumber or metal stud framing, cover with polyethylene sheeting sealed with tape, and apply 9 mm minimum thick plywood. Seal joints between plywood sheets and between plywood and adjacent materials with surface film forming type sealer, to create airtight barrier.

.2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.

.7 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Departmental Representative(s).

.8 Do not begin Asbestos Abatement work until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area(s) and decontamination enclosures and parts of building required to remain in use are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs are displayed where access to contaminated areas is possible.

.7 Notifications have been completed and other preparatory steps have been taken.

3.2 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 asbestos containing materials.

3.3 ASBESTOS REMOVAL

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brushed and wet sponged surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.

.5 After wire brushing and wet sponging to remove visible asbestos, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Departmental Representative(s) apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

.6 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.

.7 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/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.4 FINAL CLEANUP

.1 Following cleaning specified above, and when air sampling shows that asbestos levels on both sides of seals do not exceed 0.01 fibres/cc as determined by membrane filter method at 400-500X magnification phase contrast illumination, as described in NIOSH Method 7400 or equivalent, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.

.5 Include in clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.6 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations and carry out air monitoring again to ensure that asbestos levels in building do not exceed 0.01 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this criteria.

.7 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

3.5 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 When cleanup is complete:

.1 Re-establish objects and furniture moved to temporary locations in course of Work, in their proper positions.

.2 Re-secure mounted objects removed in course of Work in their former positions.

.3 Re-establish mechanical and electrical systems in proper working order. Install new filters.

.4 Repair or replace objects damaged in the course of Work, as directed by Departmental Representative(s).

3.6 AIR MONITORING

.1 From the commencement of work until completion of cleaning operations, air monitoring as required will be the responsibility of Departmental Representative(s) and will be conducted adjacent to the work area in accordance with *Alberta Asbestos Abatement Manual* (October, 2012). Air sampling reports will be submitted to Departmental Representative(s) and the Hazardous Materials Abatement Contractor on a daily basis.

.1 Background area air samples will be collected prior to asbestos abatement activities to establish baseline airborne fibre levels. Area samples will be collected throughout the abatement process to monitor potential airborne fibre migration from within the asbestos abatement work areas into surrounding non-restricted work areas. Occupational samples will be collected throughout the abatement process to document that workers inside the asbestos abatement work areas are wearing adequate respiratory protection and that their work procedures minimize the generation of airborne fibre concentrations.

.2 If the fibre levels from area air samples outside the asbestos work areas exceed 10% of the Occupational Exposure Limit (0.01 fibres/cubic centimetres), work procedures will be reviewed. If the fibre levels exceed 50% of the Occupational Exposure Limit (0.05 f/cc), suspension of removal operations will result. The Hazardous Materials Abatement Contractor must bear all associated costs, including any cleaning required to the satisfaction of Departmental Representative(s).

.2 Air clearance samples within the high-risk containments shall be collected in accordance with the Provincial requirements. Aggressive air sampling techniques will be used to carry out air clearance sampling in all high-risk containments. If concentrations are below 0.01 f/cc, the Hazardous Materials Abatement Contractor will be given permission to remove the work area enclosures and decontamination facilities.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean 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 During the course of Work, Departmental Representative(s) to measure fibre content of air outside and inside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).

3.7 INSPECTION

.1 Daily inspection services will be carried out by Departmental Representative(s) who will conduct a review of the Hazardous Materials Abatement Contractor's site specific asbestos work procedures to confirm that the identified asbestos-containing materials are included within the contractor's scope of work and to ascertain that the abatement methods proposed by the Hazardous Materials Abatement Contractor comply with applicable regulations and guidelines and this specification.

.2 Departmental Representative(s) will conduct daily site inspections during asbestos abatement activities as required. During the asbestos abatement process, Departmental Representative(s) will conduct pre-contamination inspections, daily site inspections, and final visual inspections to assess contractor compliance and to evaluate contractor performance. The pre-contamination inspections will be conducted to review proper work area set-up and execution of the scope of work. The daily site inspections will be conducted to document the Hazardous Materials Abatement Contractor's work procedures and the proper operation of the asbestos control systems in place. The final visual inspections will be conducted to document the removal of the asbestos-containing materials within the scope of work.

.3 Departmental Representative(s) 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.

.4 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative(s) 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

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal of lead-acid batteries located within emergency lighting.

1.2 REFERENCES

.1 Department of Justice Canada

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.3 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.4 Environmental Contaminants Act (Canada)

.5 Alberta Occupational Health and Safety Act, Regulation and Code, (2009)

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.7 U.S. Environmental Protection Agency (EPA)

.1 EPA 747-R-95-007-[1995], Sampling House Dust for Lead.

.8 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)

.1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

.9 U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances

.1 Lead in Construction Regulation - 29 CFR 1926.62-[1993].

.10 Underwriters' Laboratories of Canada (ULC)

1.3 DEFINITIONS

.1 Authorized Visitors: Departmental Representative(s) or designated representative(s).

.2 Competent person: individuals and/or Departmental Representative(s) capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.

.3 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.4 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.

.5 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

1.4 SUBMITTALS

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

.2 Provide proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of bulk lead materials in accordance with requirements of authority having jurisdiction.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:

.1 Provide Departmental Representative(s) necessary permits for transportation and disposal of bulk lead waste and proof that bulk lead waste has been received and properly disposed.

.2 Provide proof satisfactory to Departmental Representative(s) that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 The Hazardous Building Materials Contractor must co-ordinate all work, supply personal protective equipment and take full responsibility for the conduct of personnel working on the site.

.3 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers and visitors in work Area include:

.1 Protective clothing to cover hands and prevent ingestion of lead dust and particulate during and following work activities. This protection must be durable enough to withstand construction / demolition activities.

.2 Eating, drinking, chewing, and smoking are not permitted in work area.

.3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

.1 Provide approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.6 WASTE MANAGEMENT AND DISPOSAL

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

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.7 EXISTING CONDITIONS

.1 Reports and information pertaining to bulk lead materials to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of bulk lead materials discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.8 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial Ministry of Labour.

.3 Disposal Authority.

.2 Inform sub trades of presence of lead-containing materials identified in Existing Conditions.

.3 Provide Departmental Representative(s) copy of notifications prior to start of Work.

.4 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

1.9 OWNER'S INSTRUCTIONS

.1 Provide Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper 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.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

.1 Absorbent Material: Absorbent material which will create a quasi-solid product which can be swept or shovelled. Acceptable materials include:

.1 Sawdust
.2 Activated Charcoal
.3 Oclansorb
.4 Inbiber Beads
.5 Hy-Dry
.6 Diasorb
.7 Stay-Dry
.8 Oil-Dry
.9 Conwed
.10 3-M Matting
.11 Graboil

.2 Disposal Drums: refer to CAN/CGSB-43.150-97, steel drum (1A2), 205 litre capacity, minimum 1.2 millimetre thick sheet steel, fitted with removable steel lids, with lid gaskets meeting Transportation of Dangerous Goods Regulations and applicable provincial requirements.

Part 3 Execution

3.1 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of bulk lead materials.

3.2 PREPARATION

.1 Remove and store items to be salvaged or reused.

.1 Protect and wrap items and transport and store in area specified by Departmental Representative(s).

.2 Do not start work until:

.1 Arrangements have been made for disposal of waste.

.2 Tools, equipment, and materials waste containers are on site.

.3 Arrangements have been made for building security.

.4 Notifications have been completed and preparatory steps have been taken.

3.3 LEAD ABATEMENT

.1 Locate and classify all batteries.

.2 Remove entire light fixture from the wall/ceiling.

.3 Remove the lead-acid battery from the fixture.

.1 Dispose of non-lead materials as general construction debris.

.4 Place lead materials into plastic bags. Close bags securely using specified ties. Handle bags containing material to prevent bag puncture.

.5 Place minimum 75 millimeter of absorbent material in bottom of drum.

.6 Place plastic bags containing contaminated material into disposal drum.

.7 Package contaminated gloves, work clothes and rags in plastic bags and place in drums.

.8 Seal drums and store in a designated storage area pending transportation and disposal.

.9 Each container must be marked in accordance with the Dangerous Goods Transportation and Handling Act, showing the shipping name, the product identification number and the appropriate class label.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative(s) will result in work stoppage, at no cost to Departmental Representative(s).

.2 Departmental Representative(s) 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.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Procedures and materials required for the safe handling, management and storage of polychlorinated biphenyl (PCB) material.

1.2 REFERENCES

.1 American Board of Industrial Hygiene (ABIH)

.2 Canadian Council of Ministers of the Environment (CCME)

.1 PN1205-1995, PCB Transformer Decontamination: Standards and Protocols.

.3 Department of Justice Canada (Jus)/CEPA SOR/92-507, Storage of PCB Material Regulations

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 Environment Canada

.1 Manual for Spills of Hazardous Materials-1985.

.5 Alberta Occupational Health and Safety Act, Regulation, and Code (2009)

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.7 Chlorobiphenyls Regulations (SOR/91-152; Amended SOR/2000-102)

.1 Regulations Respecting Mobile System for the Destruction and Treatment of Chlorobiphenyls that are Operated by or Under Contract with Federal Institutions (SOR/90-5; amended SOR/93-231 and SOR/2000-105).

.2 Regulations Respecting the Storage of Material Containing Chlorobiphenyls (PCBs) SOR/92-507, Amended SOR/2000-102).

.3 Regulations Respecting the Import and Export of Hazardous Wastes (SOR/92-637; Amended 94-459; SOR 94-684; SOR/2000-103).

.4 Waste Management - PCBs, R.R.O. Regulation 362/90.

.5 Mobile PCB Destruction Facilities, R.R.O. Regulation 352/90.

.6 Regulation 347, General Waste Management, as Amended.

1.3 SUBMITTALS

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

.2 Prior to starting work, Contractor performing work of this section to provide:

.1 Workplace Safety and Insurance Board Clearance Certificate.

.2 Insurance certificates.

.3 Company Health and Safety Policy.

.4 Certificate of Approval for Transportation of PCB Waste and Location of Destruction Facility.

.5 WHMIS Training Certificates for Personnel.

.6 Material Safety Data Sheets for chemicals or material to be used.

.3 Submittals to Local Fire Department and Departmental Representative(s).

.1 2 copies of books and records listed under Record Keeping of Control Submittals Article in PART 1 of this Section.

.4 Waste location and description including:

.1 Building in which PCB waste is stored.

.2 Size of property used for storage site.

.3 Precise location of PCB waste at storage site.

.4 Container storage method used.

.5 Spill containment features in place at storage site.

.6 Security measures in place at storage site.

.7 Fire detection systems in place at storage site.

1.4 CONTROL SUBMITTALS

.1 Co-ordinate procedural requirements with Section 01 45 00 - Quality Control.

.2 Record keeping: maintain and make available for review by an environmental officer and/or Departmental Representative(s).

.1 Receipt of waste showing:

.1 Date of receipt of waste.

.2 Description of PCB waste including nameplate description, serial number, PCB registration number and quantity.

.3 Condition of PCB waste.

.4 Source of PCB waste.

.5 Name of carrier of PCB waste.

.6 Name of individual who accepted receipt of PCB waste.

.2 Removal of waste showing:

.1 Date of removal of PCB waste.

.2 Description of PCB waste including nameplate description, serial number, PCB registration number and quantity.

.3 Condition of PCB waste.

.4 Name of carrier of PCB waste.

.5 Destination of PCB waste.

.6 Name of individual authorizing transport of PCB waste.

.3 Monthly inspection, repair and replacement reports.

.4 Submit records to Departmental Representative(s) as requested.

1.5 QUALITY ASSURANCE

.1 Co-ordinate with Section 01 45 00 - Quality Control.

.2 Instruct personnel on dangers of PCB exposure, respirator use, decontamination and applicable Federal, Provincial/Territorial and Municipal Regulations.

.3 Complete work so that at no time do PCB's contaminate the site and/or environment.

1.6 SUPERVISION

.1 Provide on site, a supervisor, with authority to oversee health and safety, remediation methods, scheduling, labour and equipment requirements.

.2 One supervisor for every 10 workers is required.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Place materials defined as hazardous or toxic in designated containers.

.2 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.3 Owners or operators of storage sites.

.1 Provide method for determining concentration of PCBs in particular waste at request of environment officer or Departmental Representative(s).

.2 Ensure personnel are familiar with and understand current PCB waste management procedures and use of personal protection equipment and clean-up techniques.

.4 Disposal of PCB waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations.

.1 Dispose of PCB waste in leak proof drums.

.2 Containers must be labelled with appropriate warning labels.

.5 Create manifests describing and listing waste created and transport containers by approved means to licenced facility for storage.

.1 For each bulk load of PCBs: identity PCB waste, earliest date of removal from service for disposal, and weight in kilograms of the PCB waste.

.2 For each PCB Article Container or PCB Container: unique identifying number, type of PCB waste (i.e., soil, debris, small capacitors), earliest date of removal from service for disposal, and weight in kilograms of PCB waste contained.

.3 For each PCB Article not in PCB Container or PCB Article Container: serial number if available, or other identification if there is no serial number, date of removal from service for disposal, and weight in kilograms of PCB waste in each PCB Article.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to PCB materials to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of PCB materials discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

Part 2 Products

2.1 STORAGE GENERAL

.1 Storage of PCB materials in accordance with CEPA SOR/92-507.

2.2 STORAGE ENCLOSURE

.1 Isolate PCB control area by physical boundaries to prevent unauthorized entry of personnel.

.2 Food, drink and smoking materials are not permitted in areas where PCBs are handled or PCB items are stored.

.3 Room, building or structure with lockable entrance.

.4 Temporary storage facility to be a fully enclosed block wall room within building with appropriate warning signs.

.5 Woven mesh wire fence or other fence with similar characteristics at least 2.0 metres high, with lockable entrance.

.6 Smoking is not permitted within 15 m of PCB control area.

.1 Provide and post "No Smoking" signs as directed by the Departmental Representative(s).

2.3 STORAGE CONTAINERS

.1 Exterior containers:

.1 Structurally-sound and weather-sealed to hold PCB solids, PCB light ballasts, drained PCB containers or drained PCB equipment.

.2 PCB storage.

.1 Drums and containers:

.1 Designed with sufficient durability and strength to prevent PCB solids and liquids from being released into environment, affected by weather, or contaminated by external sources.

.2 Steel or other material approved by the Departmental Representative(s).

.2 Drums:

.1 Capacity no greater than 205 litres.

.2 Steel of minimum 1.52 mm thickness.

.3 Ensure removable steel lid securely attached and complete with PCB-resistant gasket.

.3 Drum Liners:

.1 6 mil clear polyethylene bag, 914 mm x 1524 mm, with opening at 914 mm end.

2.4 EMERGENCY RESPONSE EQUIPMENT AND SYSTEMS

.1 Safety requirements in storage area:

.1 Heat and smoke sensory controls:

.1 Stops ventilation fan and closes intake and exhaust dampers of fan in event of fire inside building.

.2 Indoor fire alarm system:

.1 Fully operative and maintained, inspected and tested to National Fire Code of Canada.

.2 Portable fire extinguishers to be selected, installed, maintained, inspected and tested to National Fire Code of Canada.

.3 Automatic fire suppression system, as and when required to National Fire Code of Canada.

.2 Storage site clean-up materials:

.1 Ensure availability at all time of sorbent or solvents, for clean-up of liquid or solids.

.2 Ensure availability at all times of inert absorbent in sufficient quantity to contain minor leakage.

.1 Place in bottom of each container holding PCB equipment or fluorescent lighting ballasts.

.3 Respirators: Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to Alberta Human Services, Workplace Health and Safety.

.1 Use approved full-face organic vapour cartridge respirator for exposure to hot PCB.

.2 Vapour concentration less than or equal to 5 mg/m^3.

.1 Supplied-air respirator with full face piece, helmet or hood.

.2 Self-contained breathing apparatus with full face piece.

.3 Vapour concentration greater than 5 mg/m^3 or unknown concentrations.

.1 Self-contained breathing apparatus with full face piece operated in positive pressure mode.

.2 Type C supplied-air respirator with full face piece operated in positive pressure of continuous flow mode and auxiliary self-contained breathing apparatus operated in positive pressure mode.

2.5 WARNING SIGNS AND LABELS

.1 Label drums containing chlorobiphenyls with black and white serialized label, measuring 76 x 76 mm, as approved by the Departmental Representative(s) in accordance with the Dangerous Goods Transportation and Handling Act.

.2 Label doors to storage sites, fencing and other security barriers enclosing storage sites with non-serialized, black and white, "ATTENTION PCB" label, measuring 150 x 150 mm as approved by the Departmental Representative(s) in accordance with Dangerous Goods Transportation and Handling Act.

.3 Maintain signs and labels in clear and legible condition.

Part 3 Execution

3.1 GENERAL

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Store PCB waste materials to CEPA SOR/92-507.

.3 Select PCB removal procedure to minimize contamination of work areas with PCB or other PCB-contaminated debris/waste. Handle PCBs such that no skin contact occurs.

.4 As feasible, do not carry out PCB handling operations in confined spaces. Confined space means space having limited means of egress and inadequate cross ventilation.

.5 Ensure that work operations or processes involving PCB or PCB-contaminated materials are conducted in accordance with Federal, Provincial/Territorial and Municipal Regulations and applicable requirements of this Section, including but not limited to:

.1 Obtaining advance approval of PCB storage sites.
.2 Notify Departmental Representative(s) prior to beginning operations.
.3 Report leaks and spills to Departmental Representative(s).
.4 Maintain access log of employees working in PCB control area and provide copy to Departmental Representative(s) upon completion of operations.
.5 Inspect PCB and PCB-contaminated items and waste containers for leaks and forward copies of inspection reports to Departmental Representative(s).
.6 Maintain spill kit for emergency spills entitled "PCB Spill Kit".
.7 Maintain inspection, inventory and spill records.

3.2 ACCESS TO STORAGE SITE

.1 Keep entrance to site locked or guarded.

.2 Maintain register at site containing name, address, telephone number and place of business of each person who enters, or is authorized to enter site.

.3 Permit only authorized personnel to enter site.

3.3 ACCESS TO STORED MATERIAL

.1 Store materials and equipment to permit easy access for inspection.

3.4 STORAGE PRACTICES

.1 Stack containers only if designed for stacking.

.2 Stack liquid containers or drums no higher than 2 containers.

.3 Separate stacked drums from each other with pallets.

.4 Store material to prevent it catching fire.

.5 Store material to prevent it being released.

.6 Store PCB material together, and away from other stored materials.

.7 Exterior:

.1 Cover PCB liquid containers with waterproof roof or cover extending beyond curbing or sides of container.

.2 Elevate PCB waste containers and PCB equipment on pallets or other suitable devices to reduce corrosion.

.3 Store transformers on skids.

.8 Interior:

.1 Place on skids or pallets PCB equipment and containers of PCB material not permanently secured to floor or surface.

3.5 EMERGENCY RESPONSES

.1 General:

.1 Immediately report to Departmental Representative(s) PCB spills on ground or in water, PCB spills in drip pans, or PCB leaks.

.2 Rope off area around edges of PCB leak or spill and post "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to drip pan or other container.

.3 Initiate cleanup of spills as soon as possible, but no later than 48 hours of its discovery. If misting, elevated temperatures or open flames are present, or if spill is situated in confined space, notify Departmental Representative(s). Mop up liquid with rags or other conventional absorbent. Properly contained and dispose of spent absorbent as solid PCB waste.

.4 Workers to evacuate site. When leaving, shut down water in use. Only personnel trained in use of, and wearing SCUBA apparatus, will be allowed to re-enter site.

.5 Do not return to site until Owner's representative and Ministry of the Environment representatives have declared the area safe for re-entry.

.2 Spill, leak, and disposal procedures:

.1 Permit access to only those wearing protective equipment and clothing.

.2 Issue poison warnings.

.3 Call local fire department or PCB Emergency Response Team.

.4 Avoid contact and inhalation.

.5 Remove ignition sources.

.6 Ventilate areas of spill or leak.

.7 Stop or reduce discharge if possible without risk.

.8 Collect spilled material for reclamation.

.9 Do not flush to sewer.

.10 Use only inert sawdust, vermiculite, or dry sand absorbents as approved by Departmental Representative(s).

.11 Wipe contaminated area with rags and kerosene or 1,1,1-trichloroethane chlorothene VG solvent. Do not use acetone or toluene.

.12 Notify environmental authorities to determine disposal and clean-up procedures.

.3 Fire protection and emergency procedures plan for storage sites.

.1 Ensure most recent revision of plan is in effect.

.2 Develop plan in consultation with local fire department.

.3 Ensure employees authorized to enter PCB storage site are familiar with contents of fire protection and emergency procedures plan.

.4 Send one copy to local fire department.

.5 Display one copy at storage site in area accessible in fire or spill situation.

.6 Display one copy at storage site owner's place of business.

.4 Respirators:

.1 Use when chlorobiphenyl concentrations are above permissible exposure levels.

.2 Use when entering tanks or closed vessels.

.3 Use in emergency situations.

.5 Permissible exposure limit.

.1 0.5 milligram of chlorobiphenyl (54% chlorine) per cubic metre of air, averaged over 8 hours.

.6 Fire protection:

.1 Wear totally encapsulated suit and self-contained breathing apparatus with full face piece operated in positive pressure mode

3.6 SANITATION

.1 Promptly wash liquid-contaminated skin with soap or mild detergent and water.

.2 Prohibit eating and smoking in areas where liquid chlorobiphenyl (54% chlorine) is handled, processed or stored.

.3 Wash hands thoroughly with soap or mild detergent and water after handling liquid chlorobiphenyl (54% chlorine).

3.7 FIELD QUALITY CONTROL

.1 Owners or Operators of Storage Sites:

.1 At request of inspector, measure concentration of PCBs in accordance with CEPA SOR/92-507 - Storage of PCB Material Regulations.

.2 Inspect storage site daily and repair or replace, if necessary, PCB equipment, floors, drains, drainage systems, waterproof roofs or barriers, fire prevention apparatus, personnel protection equipment, security fences and materials used for clean-up at site.

.3 Immediately repair or replace drum, container or equipment found to be leaking PCBs.

.4 Immediately clean up contaminated area.

.5 Ensure controlled access to storage site to prevent entry by unauthorized persons.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal of mercury-containing fluorescent light tubes and mercury-containing tile switch bulbs.

1.2 REFERENCES

.1 Alberta Occupational Health and Safety Act, Regulation and Code, (2009)

.2 Department of Justice Canada

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Environmental Contaminants Act (Canada)

.4 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.5 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.3 INSTRUCTION AND TRAINING

.1 Ensure that all workers likely to handle mercury-containing items are trained in the use of a Mercury Spill Kit and are trained in the handling of mercury.

1.4 DEFINITIONS

.1 Authorized Visitors: Departmental Representative(s) or designated representative(s).

.2 Competent person: individuals and/or Departmental Representative(s) capable of identifying existing mercury hazards in workplace taking corrective measures to eliminate them.

.3 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.4 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.

.5 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

1.5 SUBMITTALS

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

.2 Provide proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of mercury materials in accordance with requirements of authority having jurisdiction.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:

.1 Provide Departmental Representative(s) necessary permits for transportation and disposal of mercury waste and proof that mercury waste has been received and properly disposed.

.2 Provide proof satisfactory to Departmental Representative(s) that employees have had instruction on hazards of mercury exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to mercury, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 The Hazardous Building Materials Contractor must co-ordinate all work, supply personal protective equipment and take full responsibility for the conduct of personnel working on the site.

.3 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers and visitors in work Area include:

.1 Protective clothing to cover hands and prevent ingestion of mercury vapour and particulate during and following work activities. This protection must be durable enough to withstand construction / demolition activities.

.2 Eating, drinking, chewing, and smoking are not permitted in work area.

.3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

.1 Provide approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of mercury waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of mercury waste in sealed leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to mercury materials to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of mercury materials discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial Ministry of Labour.

.3 Disposal Authority.

.2 Inform sub trades of presence of mercury-containing materials identified in Existing Conditions.

.3 Provide Departmental Representative(s) copy of notifications prior to start of Work.

.4 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Provide Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of mercury exposure, in personal hygiene, in aspects of work procedures.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper 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.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

.1 Absorbent Material: Absorbent material which will create a quasi-solid product which can be swept or shovelled. Acceptable materials include:

.1 Calcium Poly-Sulphide; and

.2 Sulphur based absorbent materials.

.2 Disposal Drums: refer to CAN/CGSB-43.150-97, steel drum (1A2), 205 litre capacity, minimum 1.2 millimetre thick sheet steel, fitted with removable steel lids, with lid gaskets meeting Transportation of Dangerous Goods Regulations and applicable provincial requirements.

.1 Label containers with pre-printed bilingual cautionary Warning Mercury clearly visible when ready for removal to disposal site

.3 Plastic Bags: refer to CAN/CGSB-43.150-97, minimum 150 micrometer thick sheet polyethylene. Bag seams must be sufficiently strong to resist pressure and shocks that occur under normal conditions of transport. Designed and manufactured to contain a maximum net mass of 50 kg.

.4 Cardboard Containers: New or used cardboard boxes as approved by the Departmental Representative. Suitable for packaging of fluorescent light tubes to prevent breakage of tubes.

.5 Mercury Spill Response Kit consisting of:

.1 HEPA vacuum dedicated for use with mercury spills.

.2 Air-purifying cartridge respirators with mercury absorbing cartridges and an end-of-life service indicator.

.3 Surgical gloves to prevent skin exposure when handling droplets of mercury.

.4 Neutralizing compound to clean spilled surfaces.

Part 3 Execution

3.1 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of mercury materials.

3.2 PREPARATION

.1 Remove and store items to be salvaged or reused.

.1 Protect and wrap items and transport and store in area specified by Departmental Representative(s).

.2 Do not start work until:

.1 Arrangements have been made for disposal of waste.

.2 Tools, equipment, and materials waste containers are on site.

.3 Arrangements have been made for building security.

.4 Notifications have been completed and preparatory steps have been taken.

3.3 PACKAGING OF FLUORESCENT TUBES

.1 Carefully remove fluorescent light tubes from fixtures and place in cardboard containers.

.2 Place tubes in containers as they are removed from fixtures. Ensure that tubes are packaged in a manner to prevent breakage.

.3 Avoid rough handling of tubes to avoid breakage.

.4 Store full containers in a designated location on site as directed by Departmental Representative(s).

3.4 PACKAGING OF OTHER MERCURY MATERIALS

.1 Place polyethylene Drum Liner in Containment Drum. Pour a minimum of 100 mm layer of absorbent material. Place mercury items in Containment Drum in a manner to prevent breakage. When full or all items are placed in Drum, seal liner bag with duct tape and place label on outside of Containment Drum.

.2 Avoid rough handling of mercury items to avoid breakage.

.3 Store Containment Drums in a central location on site as directed by the Departmental Representative.

.4 Ensure mercury-based or contaminated materials removed during work is treated, packaged, transported and disposed of as mercury waste.

.5 Retain and dispose of all waste generated by this section, as hazardous waste, unless testing suitable to Departmental Representative shows otherwise. Obtain the Waste Generator Number from the Departmental Representative.

.6 Complete the manifests for waste shipping as appropriate for the waste as classified, and in compliance with the provincial regulations. The Contractor is responsible to ensure completion of manifest for each load leaving the site. Provide the Departmental Representative with originating copies of all manifests (both hazardous and non-hazardous waste).

3.5 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative(s) will result in work stoppage, at no cost to Departmental Representative(s).

.2 Departmental Representative(s) 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.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal/recovery of ozone depleting substances/halocarbons.

1.2 REFERENCES

.1 Alberta Occupational Health and Safety Act, Regulation and Code, (2009)

.2 Department of Justice Canada

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Environment Canada Federal Halocarbon Regulations, 2003 (SOR/2003-289)

.4 Environment Canada's Ozone-Depleting Substances Regulation, 2000

.5 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.6 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.7 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.3 INSTRUCTION AND TRAINING

.1 Ensure that all workers likely to handle ozone depleting substances/halocarbons from within equipment such as water coolers and refrigerators are trained in the handling of ozone depleting materials.

1.4 DEFINITIONS

.1 Authorized Visitors: Departmental Representative(s) or designated representative(s).

.2 Competent person: individuals and/or Departmental Representative(s) capable of identifying existing ozone depleting substances/halocarbons hazards in workplace taking corrective measures to eliminate them.

.3 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.4 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or

adversely affect health of persons, animals, or plant life when released into the environment.

.5 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

1.5 SUBMITTALS

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

.2 Provide proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of ozone depleting substances/halocarbons in accordance with requirements of authority having jurisdiction.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:

.1 Provide Departmental Representative(s) necessary permits for transportation and disposal of ozone depleting substances/halocarbons and proof that ozone depleting substances/halocarbons has been received and properly disposed.

.2 Provide proof satisfactory to Departmental Representative(s) that employees have had instruction on hazards of ozone depleting substances/halocarbons exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to ozone depleting substances/halocarbons, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 The Hazardous Building Materials Contractor must co-ordinate all work, supply personal protective equipment and take full responsibility for the conduct of personnel working on the site.

.3 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers and visitors in work Area include:

.1 Protective clothing to cover hands and prevent ingestion of ozone depleting substances/halocarbons and particulate during and following work activities. This protection must be durable enough to withstand construction / demolition activities.

.2 Eating, drinking, chewing, and smoking are not permitted in work area.

.3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

.1 Provide approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of ozone depleting substances/halocarbons generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to ozone depleting substances/halocarbons to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of ozone depleting substances/halocarbons discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial Ministry of Labour.

.3 Disposal Authority.

.2 Inform sub trades of presence of ozone depleting substances/halocarbons identified in Existing Conditions.

.3 Provide Departmental Representative(s) copy of notifications prior to start of Work.

.4 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Provide Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of ozone depleting substances/halocarbons, in personal hygiene, in aspects of work procedures.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper 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.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

Not used.

Part 3 Execution

3.1 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of ozone depleting substances/halocarbons.

3.2 PREPARATION

.1 Remove and store items to be salvaged or reused.

.1 Protect and wrap items and transport and store in area specified by Departmental Representative(s).

.2 Do not start work until:

.1 Arrangements have been made for disposal of waste.
.2 Tools, equipment, and materials waste containers are on site.
.3 Arrangements have been made for building security.
.4 Notifications have been completed and preparatory steps have been taken.

3.3 RECOVERY OF OZONE DEPLETING SUBSTANCES/HALOCARBONS

.1 Prior to dismantling and disposing of ozone depleting substances/halocarbons, the refrigerant is to be recovered into an appropriate container in accordance with the applicable Federal and Provincial Regulations.

.2 A notice shall be placed on the equipment as per Federal Halocarbon Regulations, Item 1, Schedule 3, and a record of the information contained in the notice shall be made and submitted to Departmental Representative(s).

.3 A certified service technician, in possession of an Ozone Depletion Prevention Certificate, must recover the ozone depleting substances/halocarbons.

.4 No release of the refrigerant shall occur in accordance with the Federal Halocarbon Regulations, Section 3.

.5 Ozone depleting substances/halocarbons recycling and recovery initiatives must be undertaken for the ozone depleting substances/halocarbons

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative(s) will result in work stoppage, at no cost to Departmental Representative(s).

.2 Departmental Representative(s) 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.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal of radioactive components from within smoke detectors.

1.2 REFERENCES

.1 Alberta Occupational Health and Safety Act, Regulation and Code, (2009)

.2 Department of Justice Canada

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Environmental Contaminants Act (Canada)

.4 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.5 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.6 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.3 INSTRUCTION AND TRAINING

.1 Ensure that all workers likely to handle radioactive components from within smoke detectors are trained in the handling of radioactive materials.

1.4 DEFINITIONS

.1 Authorized Visitors: Departmental Representative(s) or designated representative(s).

.2 Competent person: individuals and/or Departmental Representative(s) capable of identifying existing radioactive hazards in workplace taking corrective measures to eliminate them.

.3 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.4 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.

.5 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

1.5 SUBMITTALS

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

.2 Provide proof satisfactory to Departmental Representative(s) that suitable arrangements have been made to dispose of radioactive components in accordance with requirements of authority having jurisdiction.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:

.1 Provide Departmental Representative(s) necessary permits for transportation and disposal of radioactive components and proof that radioactive components have been received and properly disposed.

.2 Provide proof satisfactory to Departmental Representative(s) that employees have had instruction on hazards of radioactive exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to radioactive components, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 The Hazardous Building Materials Contractor must co-ordinate all work, supply personal protective equipment and take full responsibility for the conduct of personnel working on the site.

.3 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers and visitors in work Area include:

.1 Protective clothing to cover hands and prevent ingestion of radioactive components during and following work activities. This protection must be durable enough to withstand construction / demolition activities.

.2 Eating, drinking, chewing, and smoking are not permitted in work area.

.3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

.1 Provide approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of radioactive components generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to radioactive components to be handled, removed, or otherwise disturbed and disposed of during this Project are appended into this specification.

.2 Notify Departmental Representative(s) of radioactive components discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative(s).

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial Ministry of Labour.

.3 Disposal Authority.

.2 Inform sub trades of presence of radioactive components identified in Existing Conditions.

.3 Provide Departmental Representative(s) copy of notifications prior to start of Work.

.4 Hours of Work: The hazardous materials abatement will commence at a date confirmed by Departmental Representative(s).

1.10 OWNER'S INSTRUCTIONS

.1 Provide Authority Having Jurisdiction satisfactory proof that every worker has had instruction and training in hazards of radioactive components, in personal hygiene, in aspects of work procedures.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper 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.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

Not used.

Part 3 Execution

3.1 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of ozone depleting substances/halocarbons.

3.2 PREPARATION

.1 Remove and store items to be salvaged or reused.

.1 Protect and wrap items and transport and store in area specified by Departmental Representative(s).

.2 Do not start work until:

.1 Arrangements have been made for disposal of waste.

.2 Tools, equipment, and materials waste containers are on site.

.3 Arrangements have been made for building security.

.4 Notifications have been completed and preparatory steps have been taken.

3.3 REMOVAL OF RADIOACTIVE COMPONENTS

.1 Locate and classify all smoke detectors.

.2 Disconnect smoke detectors from electrical supply using a qualified electrician.

.1 Dispose of non-radioactive materials as general construction debris.

.3 Place radioactive materials into plastic bags. Close bags securely using specified ties. Handle bags containing material to prevent bag puncture

.4 Store the radioactive components in a secure location for disposal/recycling.

.5 Each container must be marked in accordance with the Dangerous Goods Transportation and Handling Act, showing the shipping name, the product identification number and the appropriate class label.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative(s) will result in work stoppage, at no cost to Departmental Representative(s).

.2 Departmental Representative(s) 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.

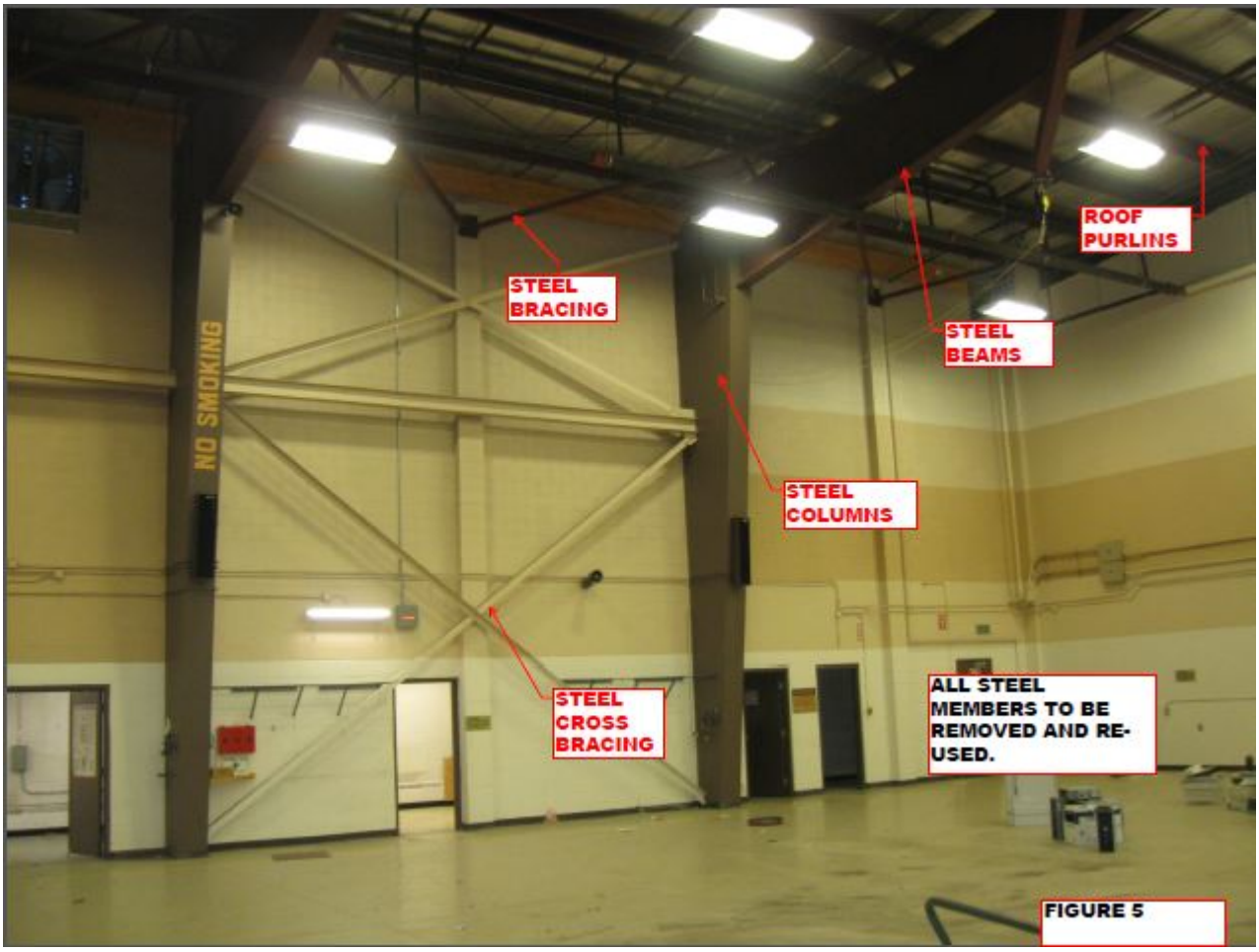
END OF SECTION

Appendix 3

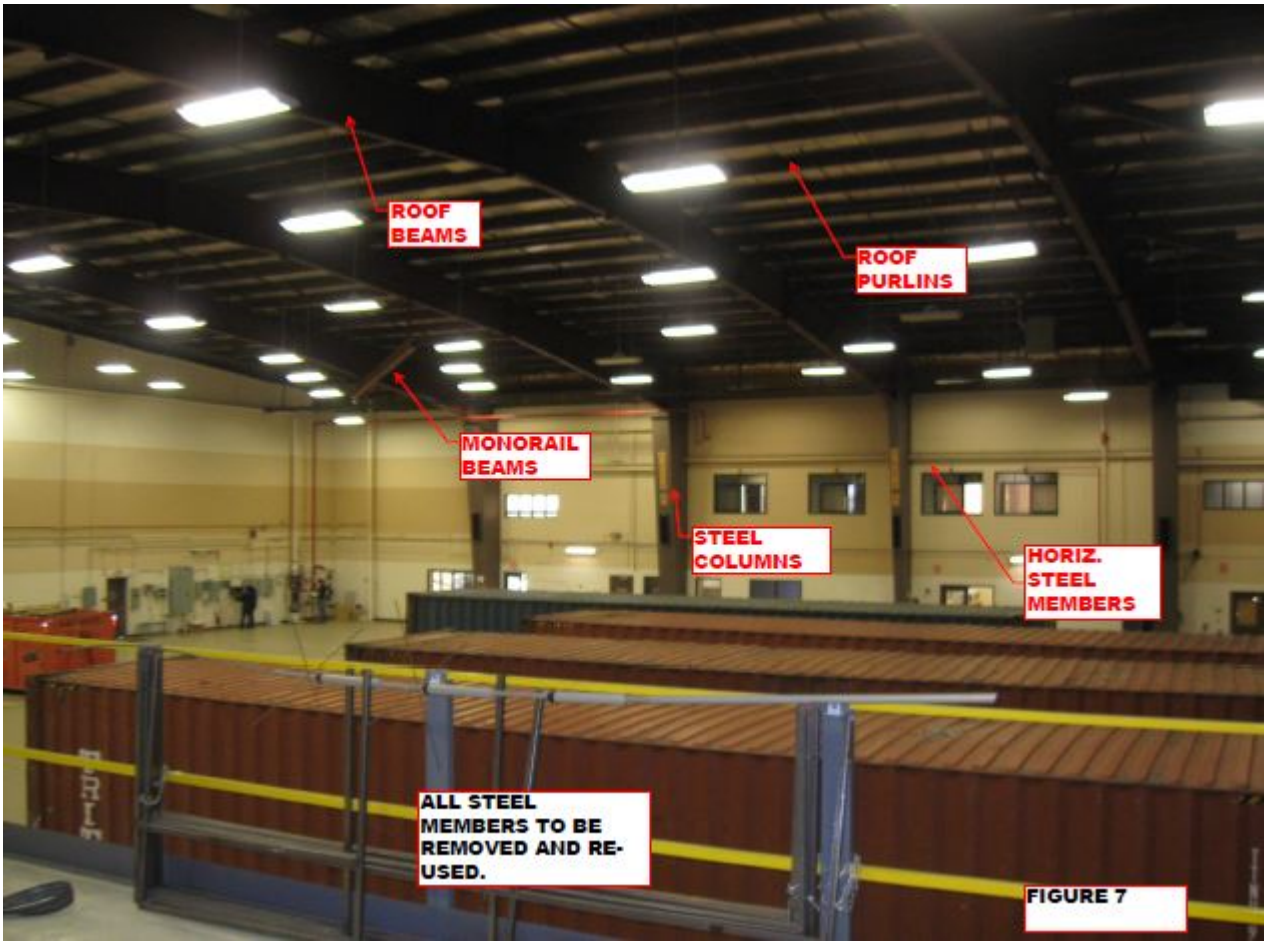

OPEN WEBBED STEEL JOISTS TO BE REMOVED AND RE-USED
FIGURE 2


PRECAST CONCRETE
FLOOR PANELS TO BE
REMOVED AND RE-USED
FIGURE 3


STEEL BEAMS
ROOF PURLINS
STEEL CROSS BRACING
STEEL COLUMNS
ALL STELL MEMBERS TO BE REMOVED AND RE-USED
FIGURE 4


NO SMOKING
STEEL BRACING
ROOF PURLINS
STEEL BEAMS
STEEL COLUMNS
STEEL CROSS BRACING
ALL STEEL MEMBERS TO BE REMOVED AND RE-USED.
FIGURE 5


NO SMOKING
NO SMOKING
ALL STEEL MEMBERS TO BE REMOVED AND RE-USED.
FIGURE 6


ROOF BEAMS
ROOF PURLINS
MONORAIL BEAMS
STEEL COLUMNS
HORIZ. STEEL MEMBERS
ALL STEEL MEMBERS TO BE REMOVED AND RE-USED.
FIGURE 7


NO SMOKING
CONCRETE BLOCK WALLS TO BE DEMOLISHED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS.
FIGURE 8


CONCRETE BLOCK WALLS TO BE DEMOLISHED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS.
FIGURE 9


CONCRETE BLOCK WALLS TO BE DEMOLISHED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS.
FIGURE 10


CONCRETE SLABS ARE TO BE DEMOLISHED AND CLEANED UP COMPLETELY.

FIGURE 11


INTERIOR MEZZANINE IS TO BE DISMANTLED AND CLEARLY LABELED FOR RE-CONSTRUCTION.
FIGURE 12


TRENCH DRAIN GRATING IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 13


MISCELLANEOUS EXTERIOR CONCRETE IS TO BE DEMOLISHED AND ALL MATERIAL REMOVED AND COMPLETELY CLEANED UP.
SMALL FOUNDATIONS.
CONCRETE CURBS.
FIGURE 14


ALL EXTERIOR SIDING TO TO BE REMOVED AND SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 15


STANDING SEAM ROOF PANELS ARE TO BE CAREFULLY REMOVED AND SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 16


ALL BUILDING GLAZING FRAMES AND GLASS IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 17


ALL BUILDING GLAZING FRAMES AND GLASS IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
11936-109 St
11936-109 ST.
FIGURE 18


ALL WINDOWS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 19


ALL WINDOWS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
NO SMOK
FIGURE 20


ALL WINDOWS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 21


ALL WINDOWS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 22


ALL EXTERIOR GLASS DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 23


ALL EXTERIOR STEEL MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 24


ALL EXTERIOR STEEL MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.

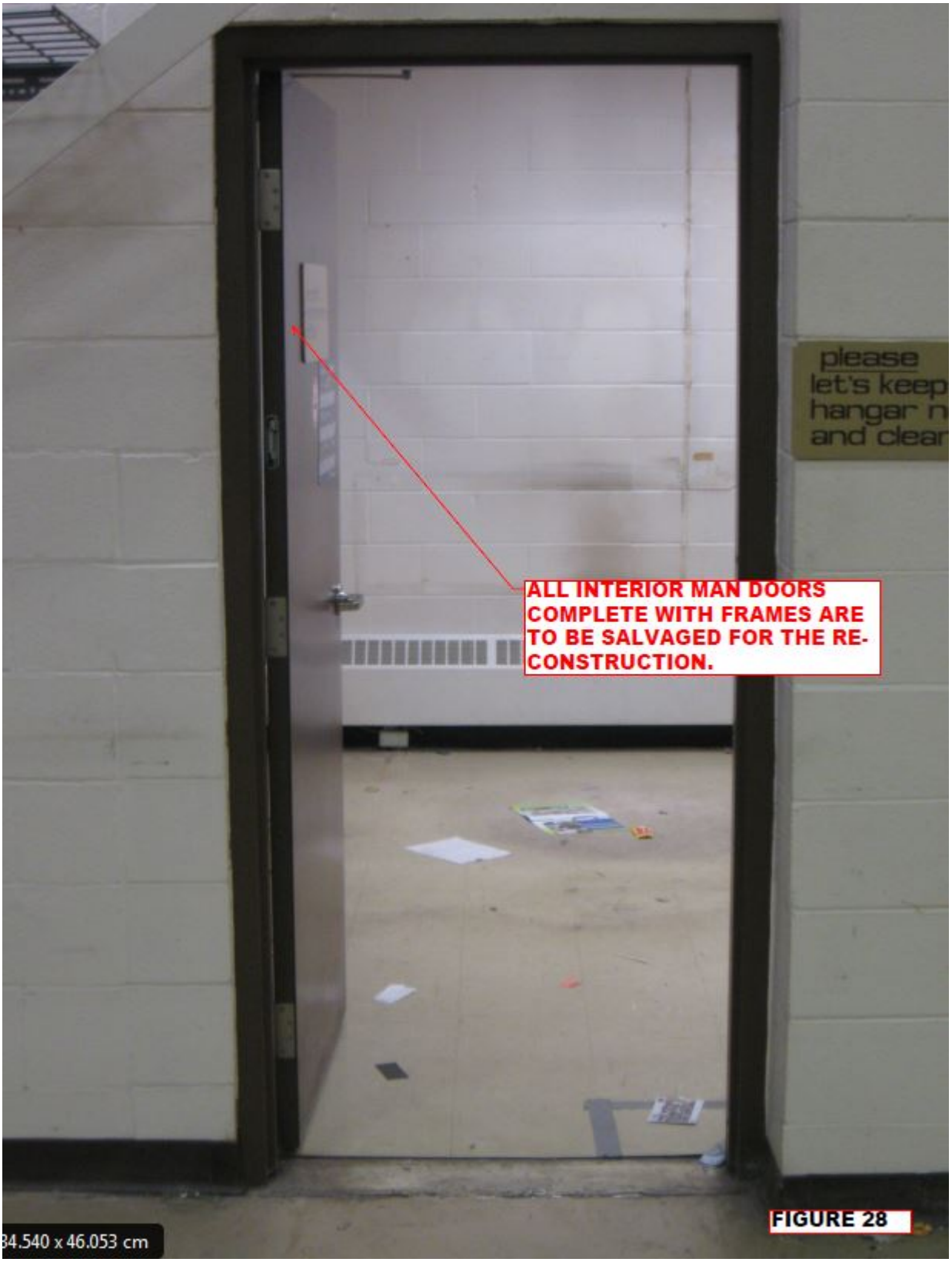
FIGURE 25


EXIT
ARM
DOOR RELEASE
ALL EXTERIOR STEEL MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
34.540 x 46.053 cm

FIGURE 26


ALL OVERHEAD ROLLING DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.

FIGURE 27


please
let's keep
hangar
and clear
ALL INTERIOR MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 28
34.540 x 46.053 cm


FIRE
ALARM
FIRE
ALL INTERIOR MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.

FIGURE 29


ALL INTERIOR MAN DOORS COMPLETE WITH FRAMES ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 30

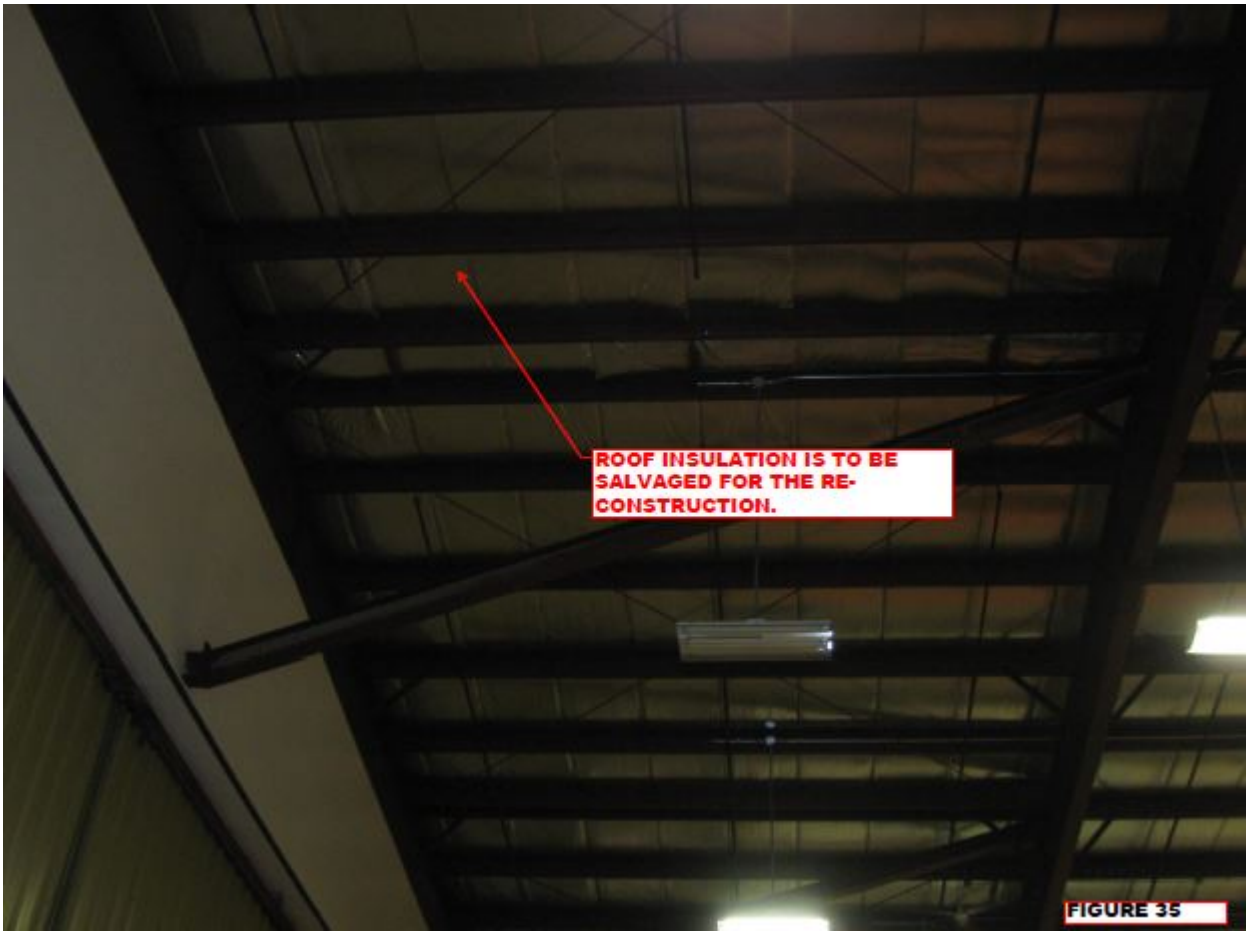
FIGURE 31


ALL HANGER DOORS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 32


ROOF HATCH COMPLETE WITH LADDER IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.

FIGURE 33


ROOF HATCH COMPLETE WITH LADDER IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 34


ROOF INSULATION IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 35


ALL CABINETS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 36


CAUTION
WEAR GOGGLES
ALL CABINETS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 37


ALL CABINETS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 38


ALL CABINETS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 39


ALL CABINETS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 40


ALL COUNTER TOPS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 41


ALL COUNTER TOPS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 42


ALL COUNTER TOPS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 43


please help keep this washroom clean
ALL COUNTER TOPS ARE TO BE SALVAGED FOR THE RE-CONSTRUCTION.
FIGURE 44


T-BAR TRACK IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
CEILING TILES ARE NOT TO BE SALVAGED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS AND CLEAN-UP.
FIGURE 45


T-BAR TRACK IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
CEILING TILES ARE NOT TO BE SALVAGED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS AND CLEAN-UP.
FIGURE 46


T-BAR TRACK IS TO BE SALVAGED FOR THE RE-CONSTRUCTION.
CEILING TILES ARE NOT TO BE SALVAGED. SEE APPENDIX 1 FOR ENVIRONMENTAL CONCERNS AND CLEAN-UP.
FIGURE 47


CARPET IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.
FIGURE 48


CARPET IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.
FIGURE 49


CARPET IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.

FIGURE 50


FLOOR TILE IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.
FIGURE 51


FLOOR TILE IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.
FIGURE 52


FLOOR TILE IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.

FIGURE 53


WALL PANELING IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.

FIGURE 54


WALL PANELING IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 55


WALL PANELING IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 56


please help keep this washroom clean
WALL TILE IS NOT TO BE SALVAGED. REMOVE AND DISPOSE OF APPROPRIATELY.
FIGURE 57


APPLIANCES ARE TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.

FIGURE 58


MIRRORS ARE TO BE CAREFULLY REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 59


MISCELLANEOUS HARDWARE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 60


MISCELLANEOUS HARDWARE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
34.540 x 46.053 cm

FIGURE 61


MISCELLANEOUS HARDWARE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 62


MISCELLANEOUS HARDWARE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 63


FENCING IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 64


5
EDMONTON AIRPORTS
Transport Canada
Transports Canada
Western Aircraft Services
Services des Aéronefs de l'ouest
Canada
11936–109 Street
STAND ALONE SIGN IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION. INTERIOR SKINS ARE TO BE REMOVED AND SHIPPED AS PER THE OWNERS DIRECTION.
34.540 x 46.053 cm

FIGURE 65


5
BUILDING SIGNAGE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 66


5
BUILDING SIGNAGE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 67


TREES ARE TO BE LEFT IN PLACE AND PROTECTED FROM DAMAGE IF POSSIBLE.
FIGURE 68


EXTERIOR DECORATIVE SCULPTURE IS TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.

FIGURE 69


FLAG POLES ARE TO BE REMOVED AND SALVAGED FOR RE-CONSTRUCTION.
FIGURE 70


Disassemble 6x Main Hangar Space Heaters c/w flue gas ducting

Figure 71

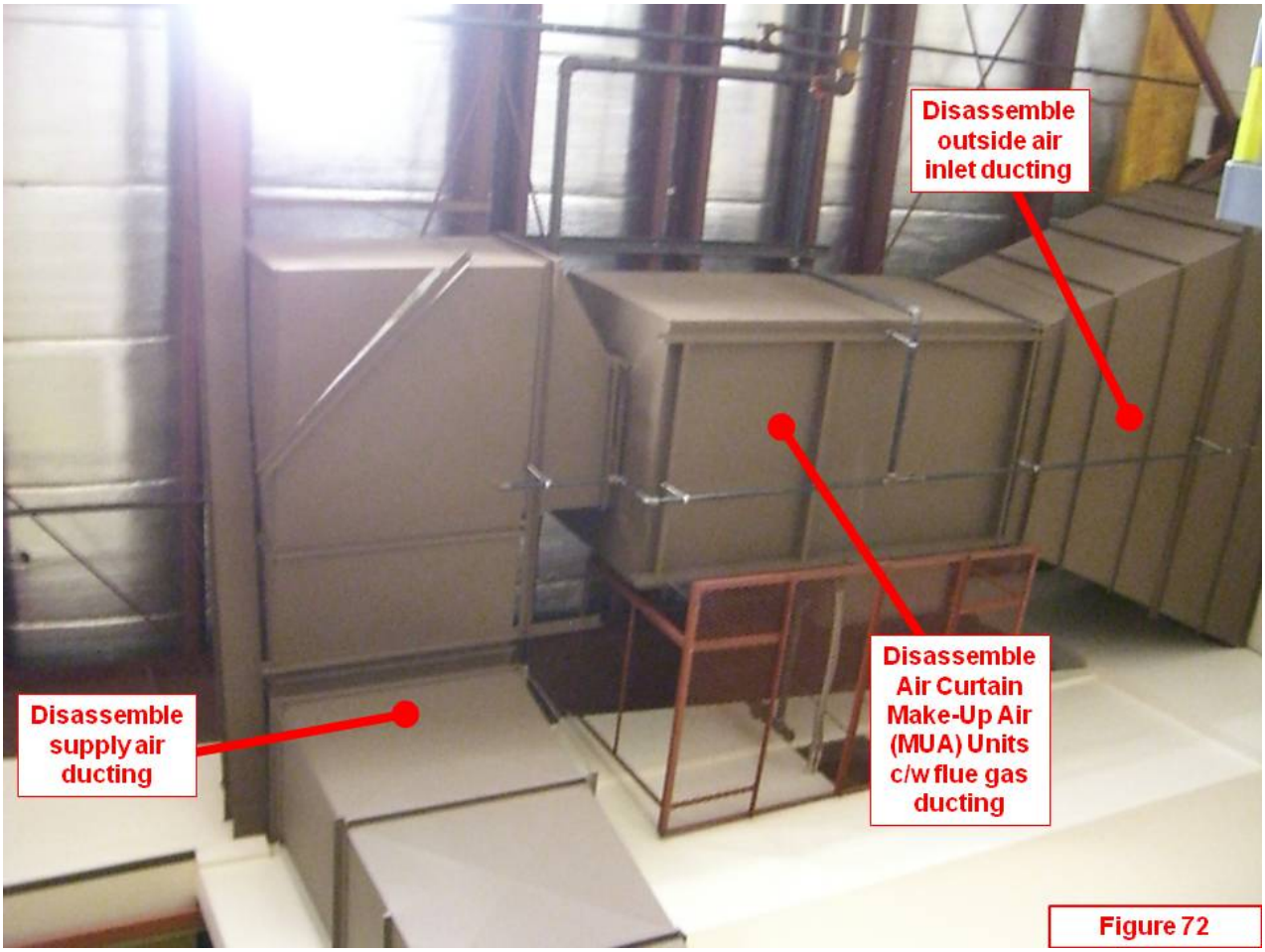
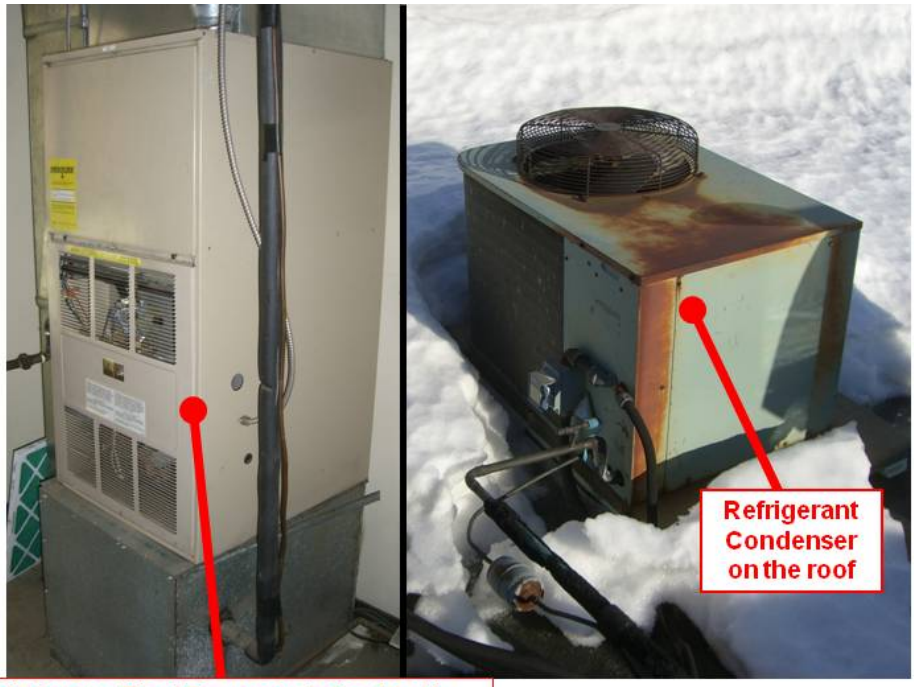

Disassemble outside air inlet ducting
Disassemble supply air ducting
Disassemble Air Curtain Make-Up Air (MUA) Units c/w flue gas ducting

Figure 72

Figure 73


Disassemble Exhaust Fan on the roof of the South Offices c/w exhaust air ducting including dampers and grilles

Figure 74



Disassemble 2x Gas Fired Furnaces in the South Office Area Furnace Room c/w:

- Return air ducting including dampers and grilles
- Supply air ducting including dampers and diffusers
- Outside air intake ducting with gooseneck and birdscreen
- Flue gas exhaust ducting
- Refrigerant tubing and insulation
- Refrigerant condenser (on roof)

Figure 75


Disassemble Domestic Hot Water Tank in the South Office Area Furnace Room c/w:
• Flue gas exhaust ducting

Figure 76

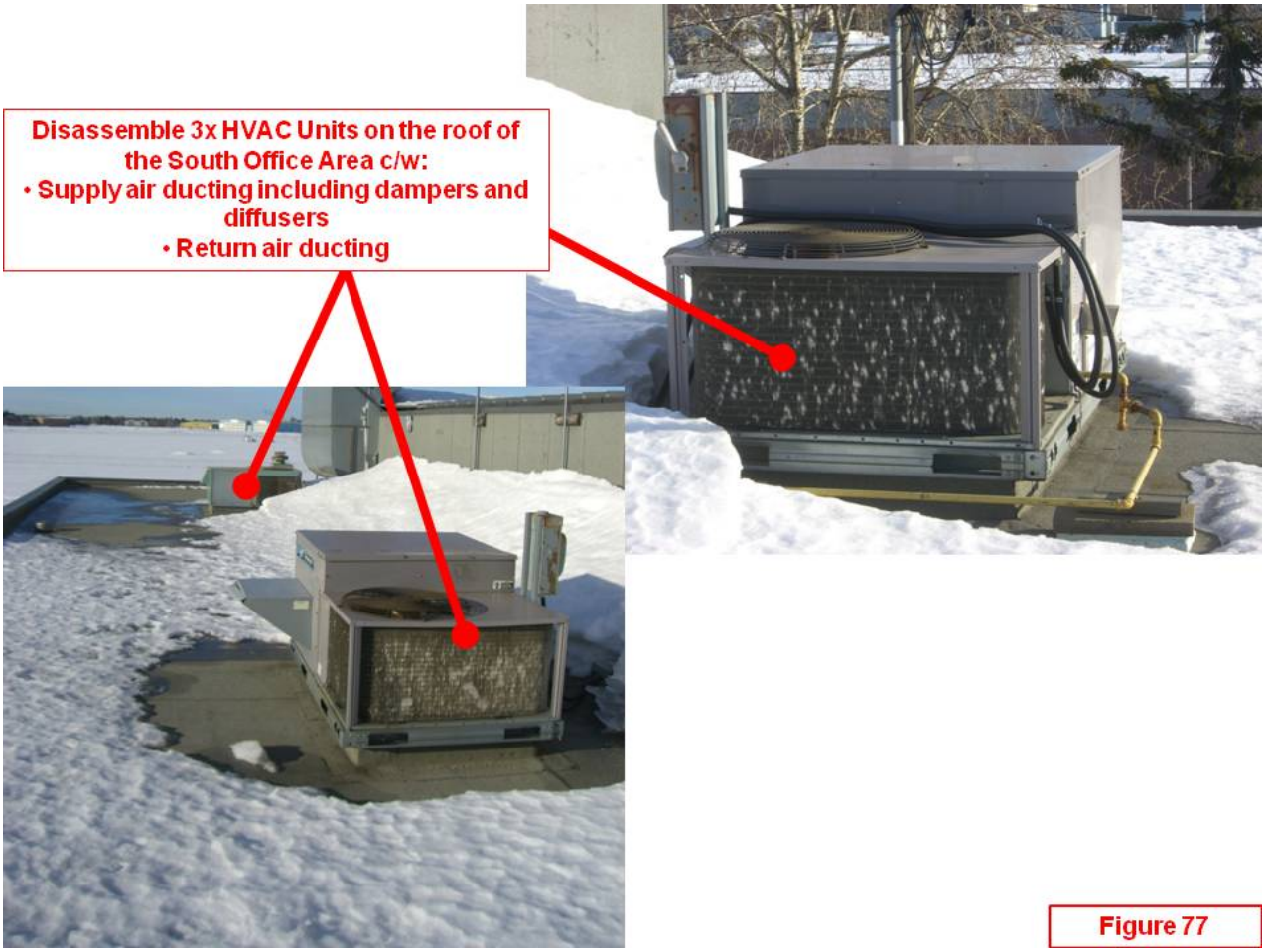
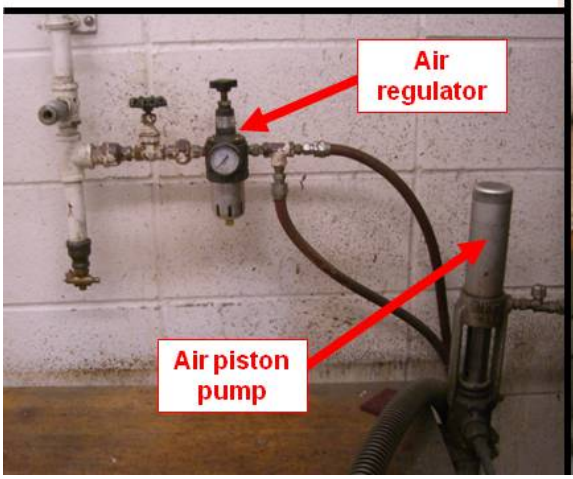

Disassemble 3x HVAC Units on the roof of the South Office Area c/w:
• Supply air ducting including dampers and diffusers
• Return air ducting

Figure 77

Figure 78

Dismantle Varsol Sprayer Unit in North Expansion Area Varsol Room c/w:
- Varsol/air spray gun
- Air piston pump
- Varsol drum supply hose
- Air regulator with air hoses
- Exhaust fan and ducting
- Varsol drain bin



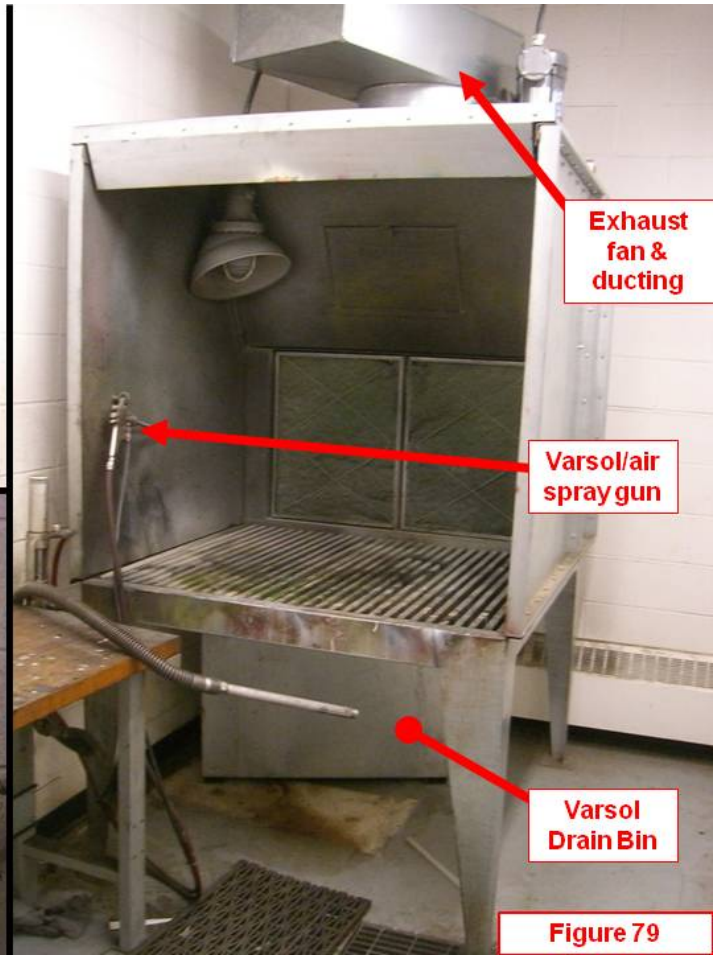


Figure 79

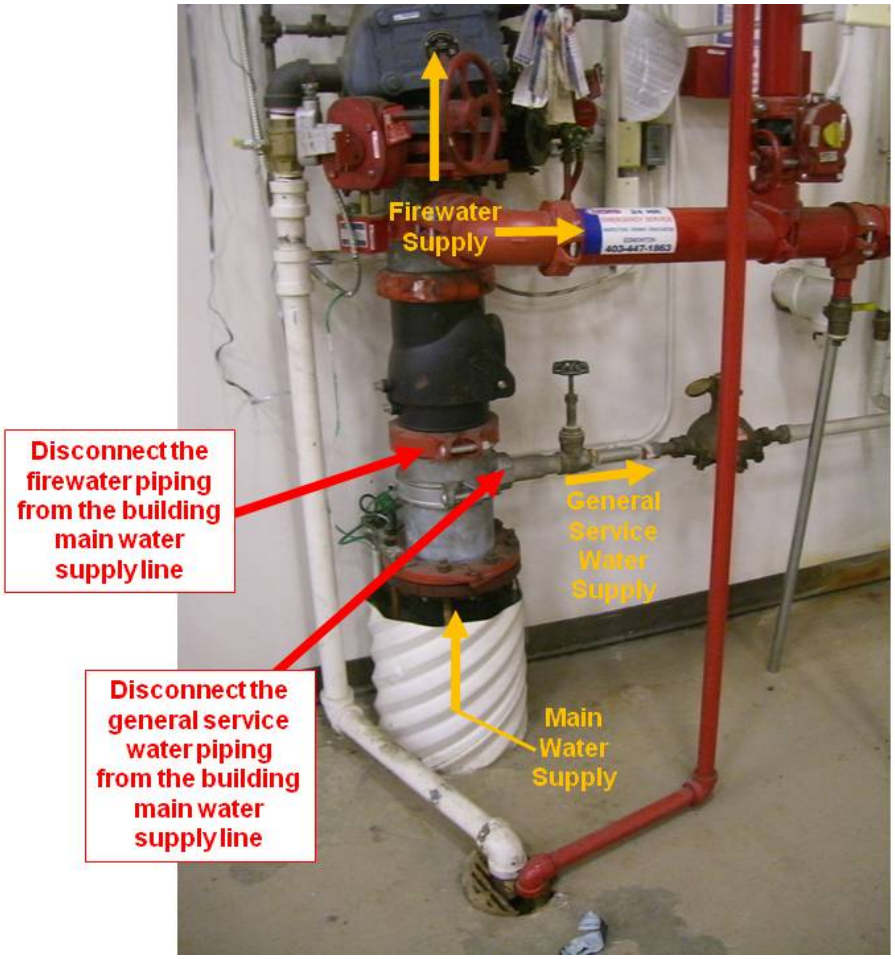

Firewater Supply
Disconnect the firewater piping from the building main water supply line
General Service Water Supply
Disconnect the general service water piping from the building main water supply line
Main Water Supply

Figure 80


Main Gas Supply
(from battery limit)
Disconnect the natural gas piping from the building main gas supply line

Figure 81


Disassemble firewater piping and sprinklers under the Mezzanine

Figure 82

Figure 83

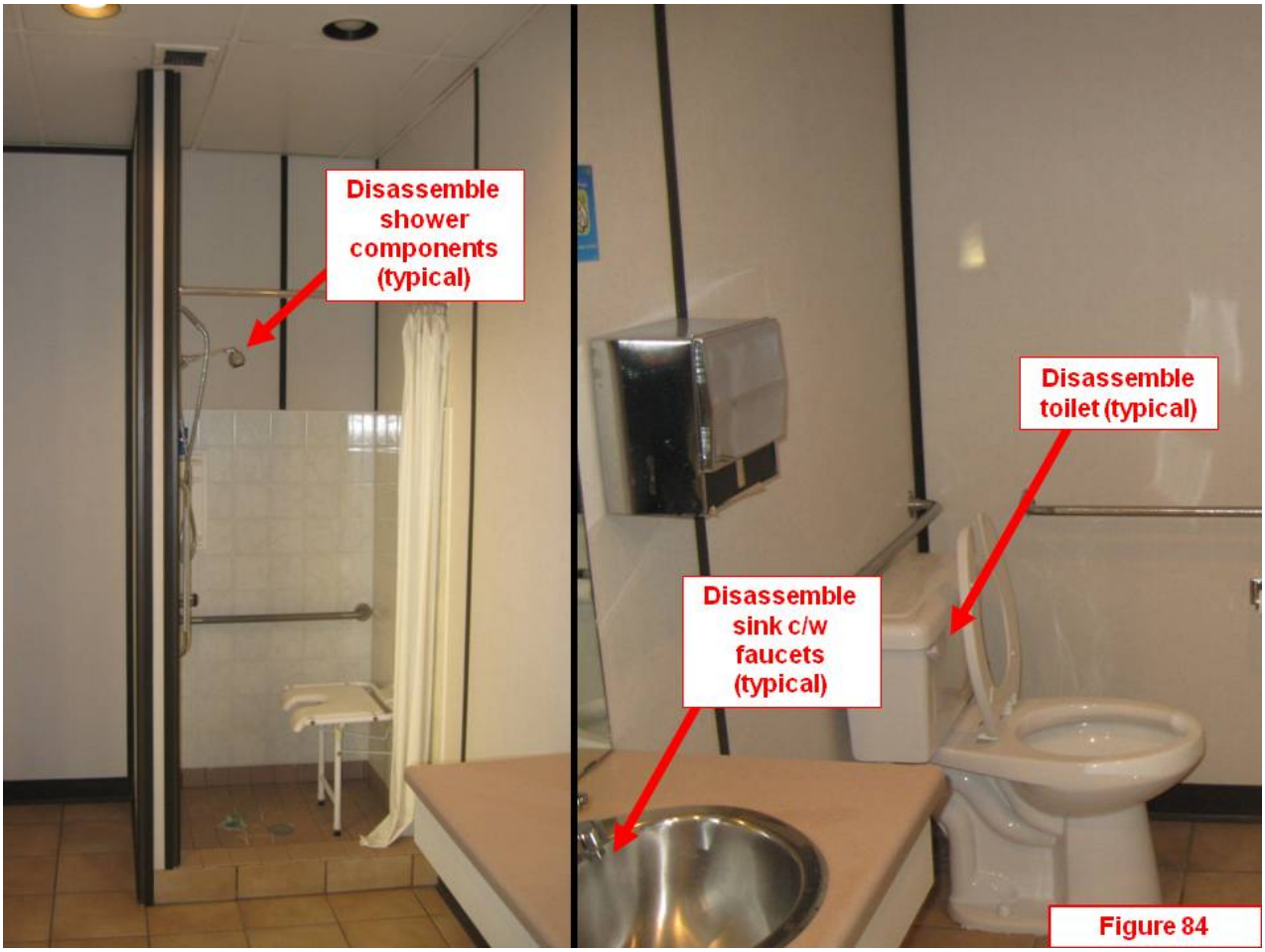

Disassemble shower components (typical)
Disassemble toilet (typical)
Disassemble sink c/w faucets (typical)

Figure 84

Figure 85

Figure 86


Disassemble sink c/w faucet
Disassemble sink c/w faucet
Figure 87

Figure 88


FIRE
EXTINGUISHER
Disassemble drain lines from humidifier and HVAC Unit

Figure 89


Disassemble drain piping from furnace (typical)
Disassemble drain piping from hot water tank
Figure 90

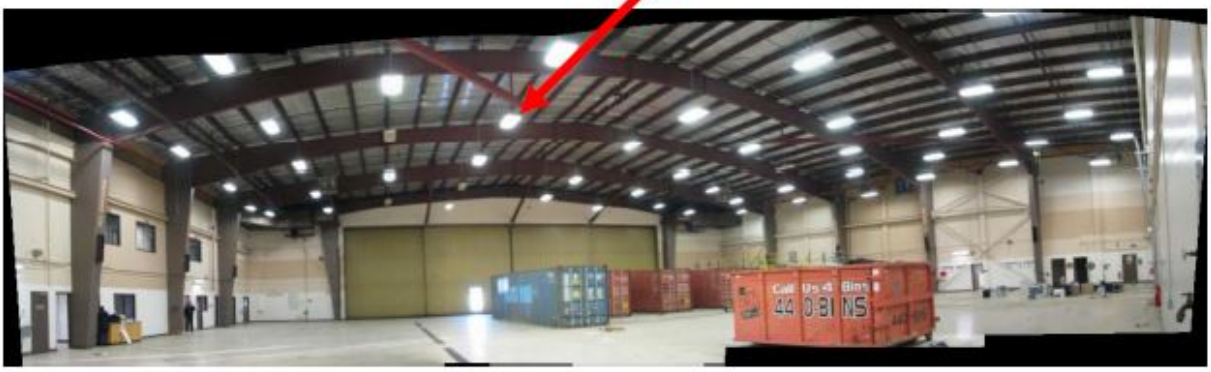

Typical hanger lighting
To be disassembled, disconnected
and removed

FIGURE 91

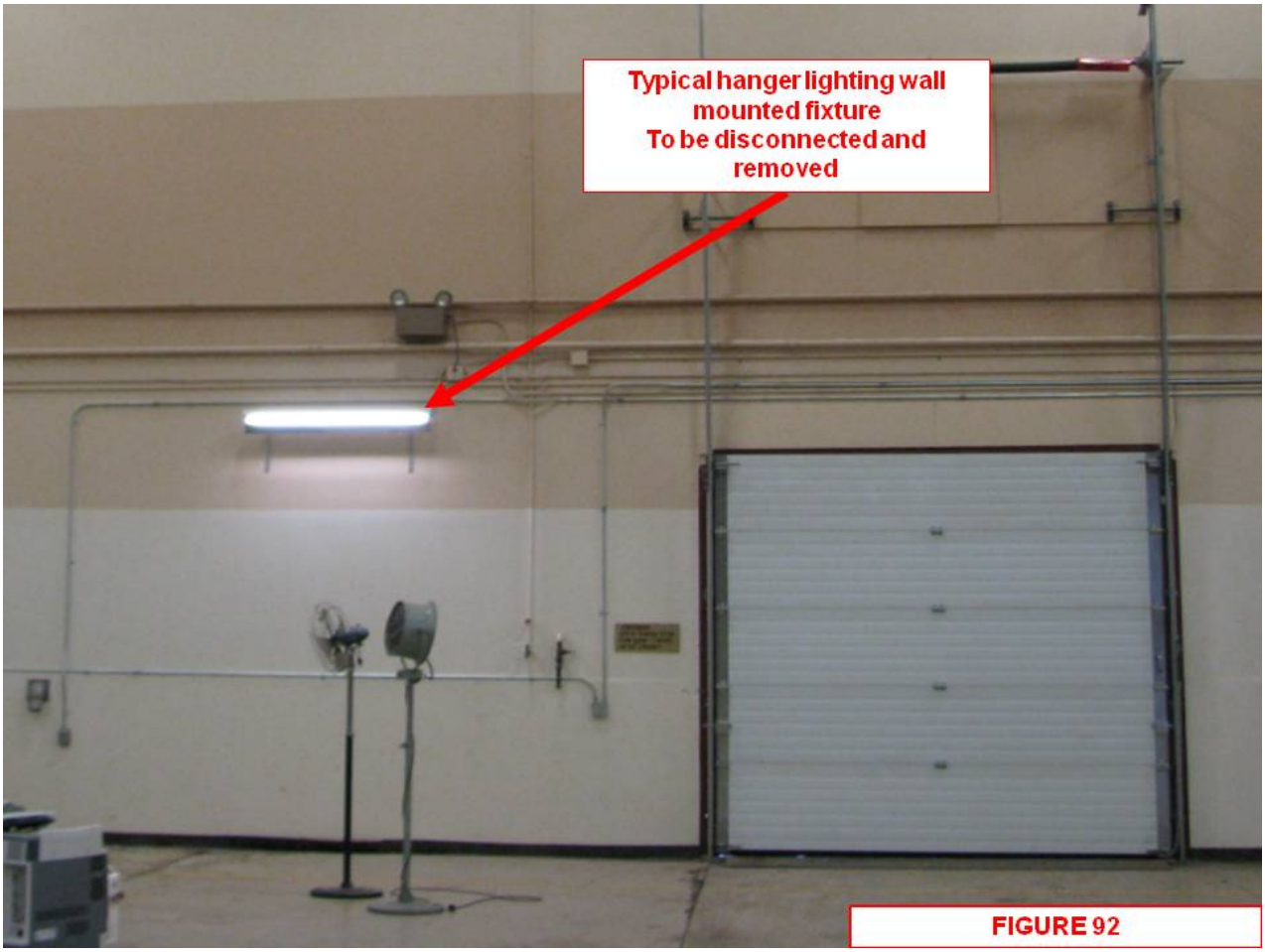

Typical hanger lighting wall mounted fixture
To be disconnected and removed

FIGURE 92

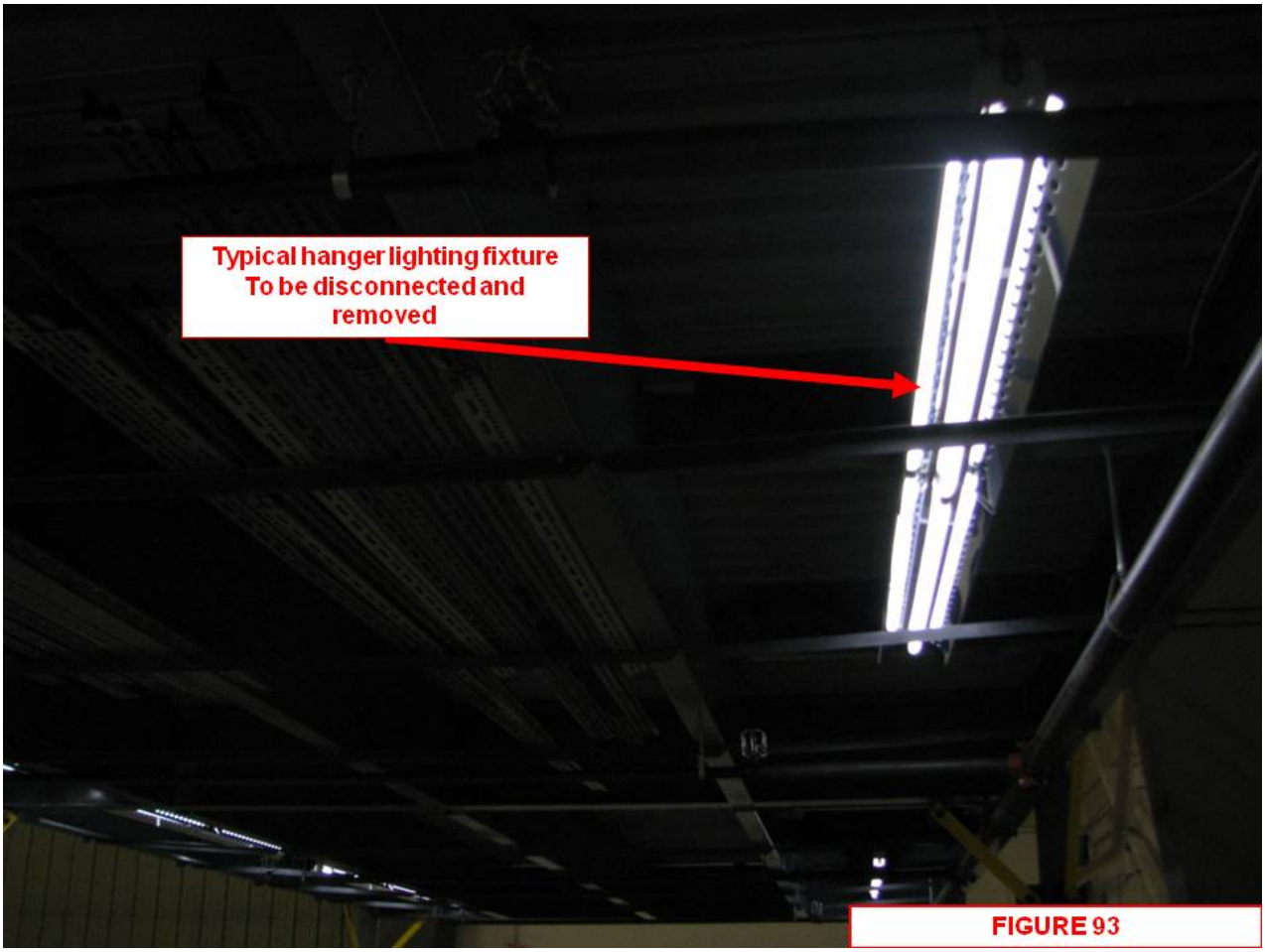

Typical hanger lighting fixture
To be disconnected and
removed

FIGURE 93


Typical outdoor floodlight
To be disconnected and
removed
5

FIGURE 94

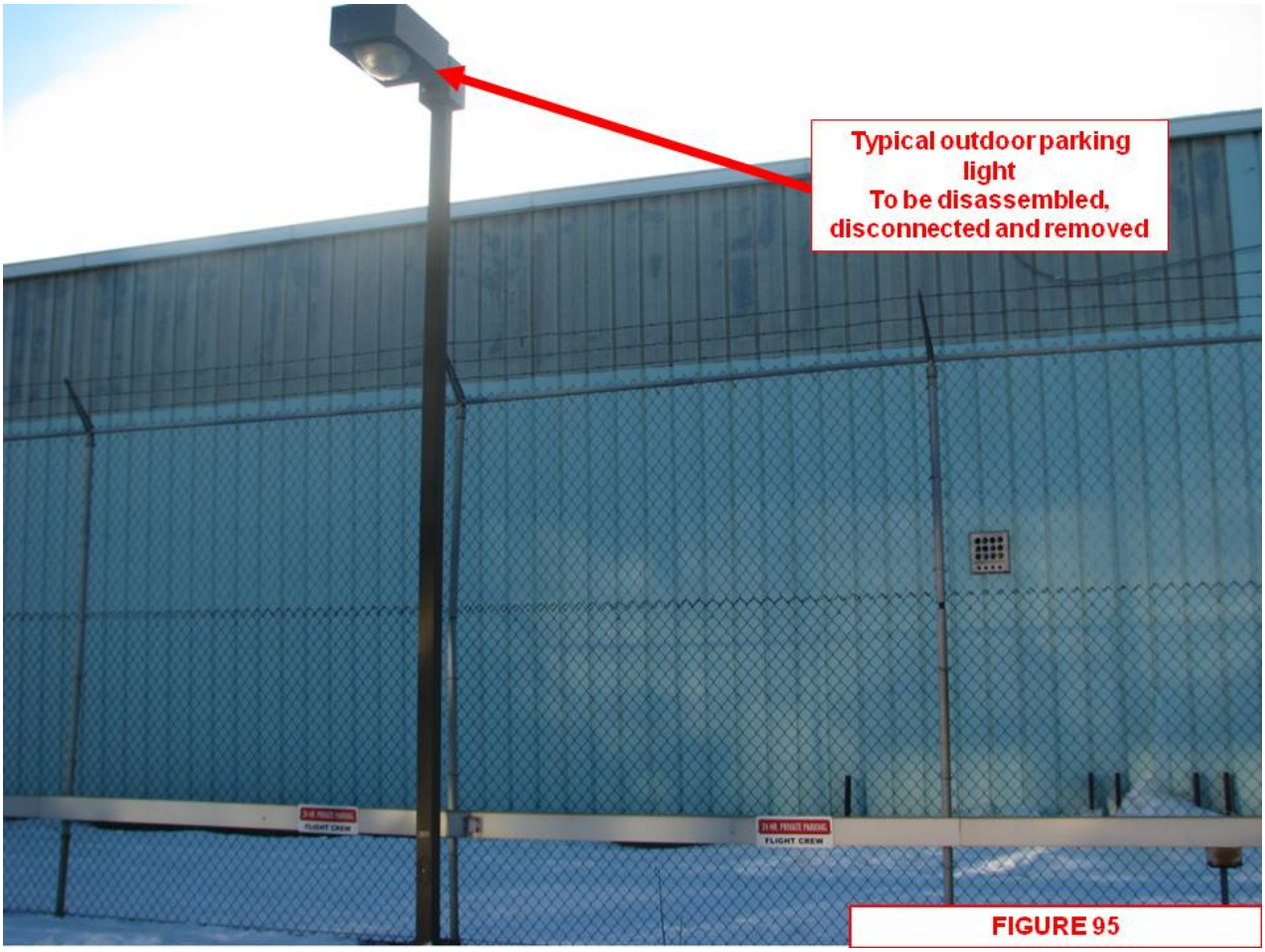

Typical outdoor parking light
To be disassembled, disconnected and removed

FIGURE 95

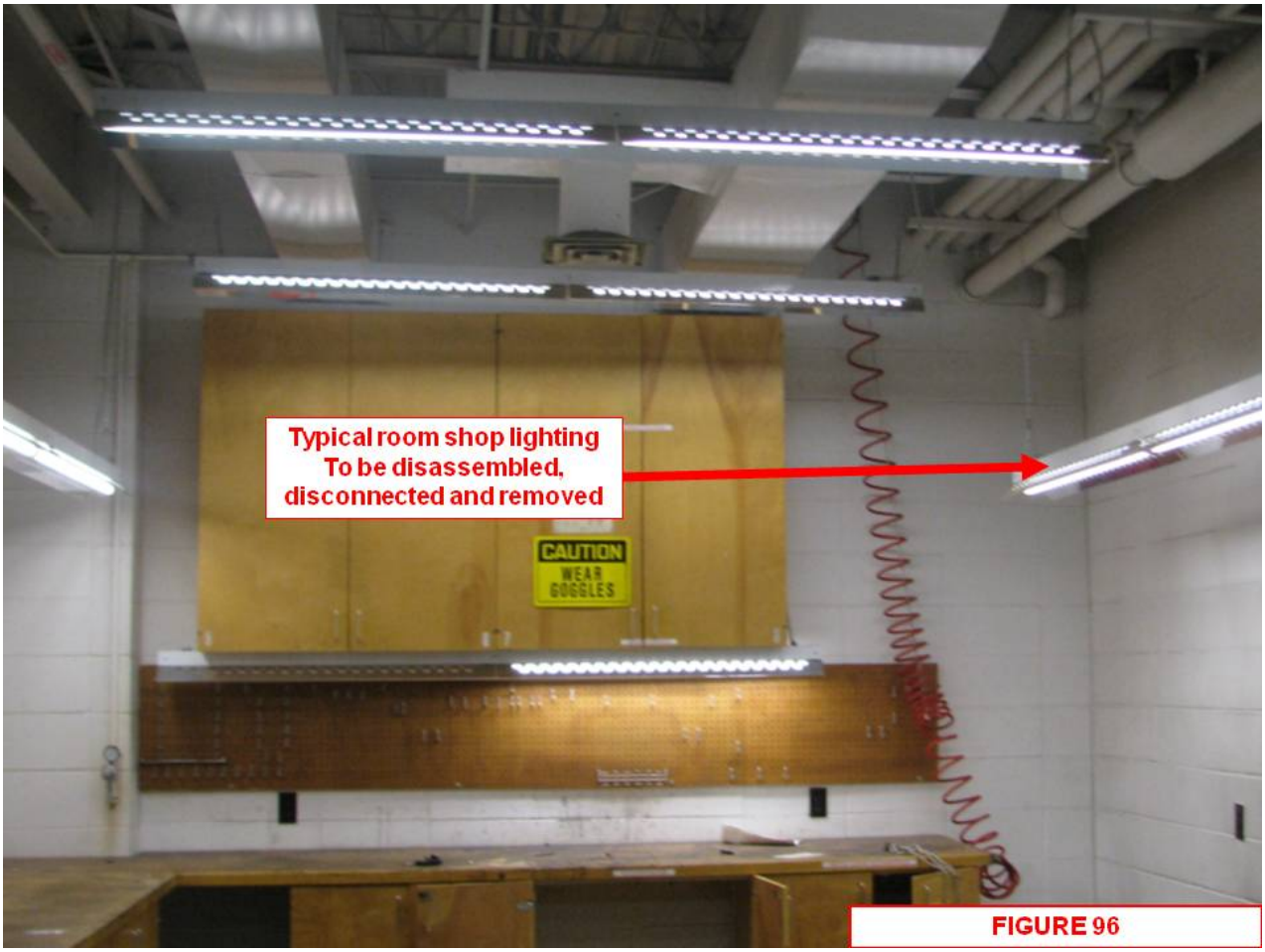

Typical room shop lighting
To be disassembled,
disconnected and removed
CAUTION
WEAR
GOGGLES

FIGURE 96


Typical room shop lighting
To be disassembled,
disconnected and removed

FIGURE 97


Typical room shop lighting
To be disassembled,
disconnected and removed

FIGURE 98

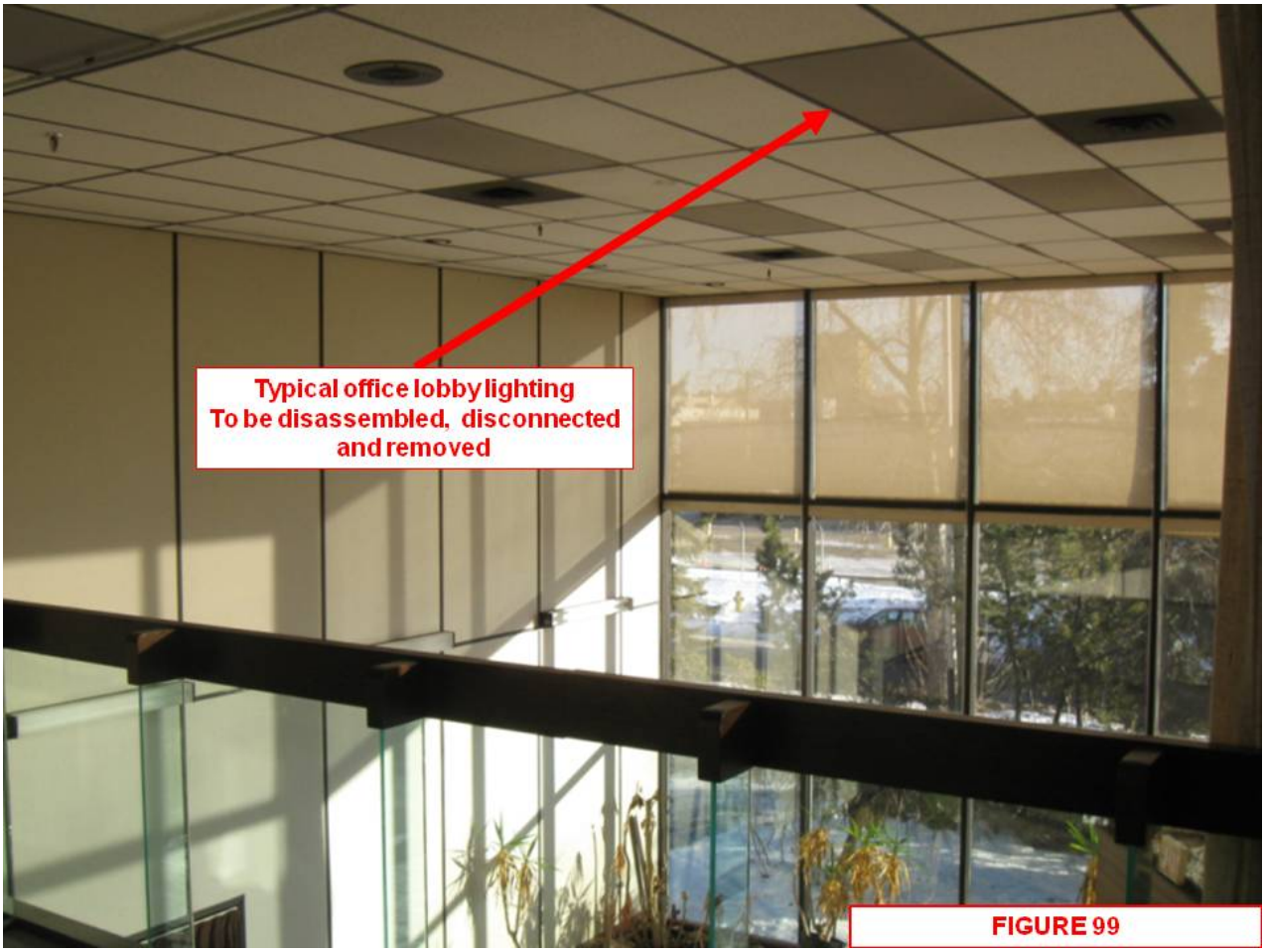

Typical office lobby lighting
To be disassembled, disconnected
and removed

FIGURE 99

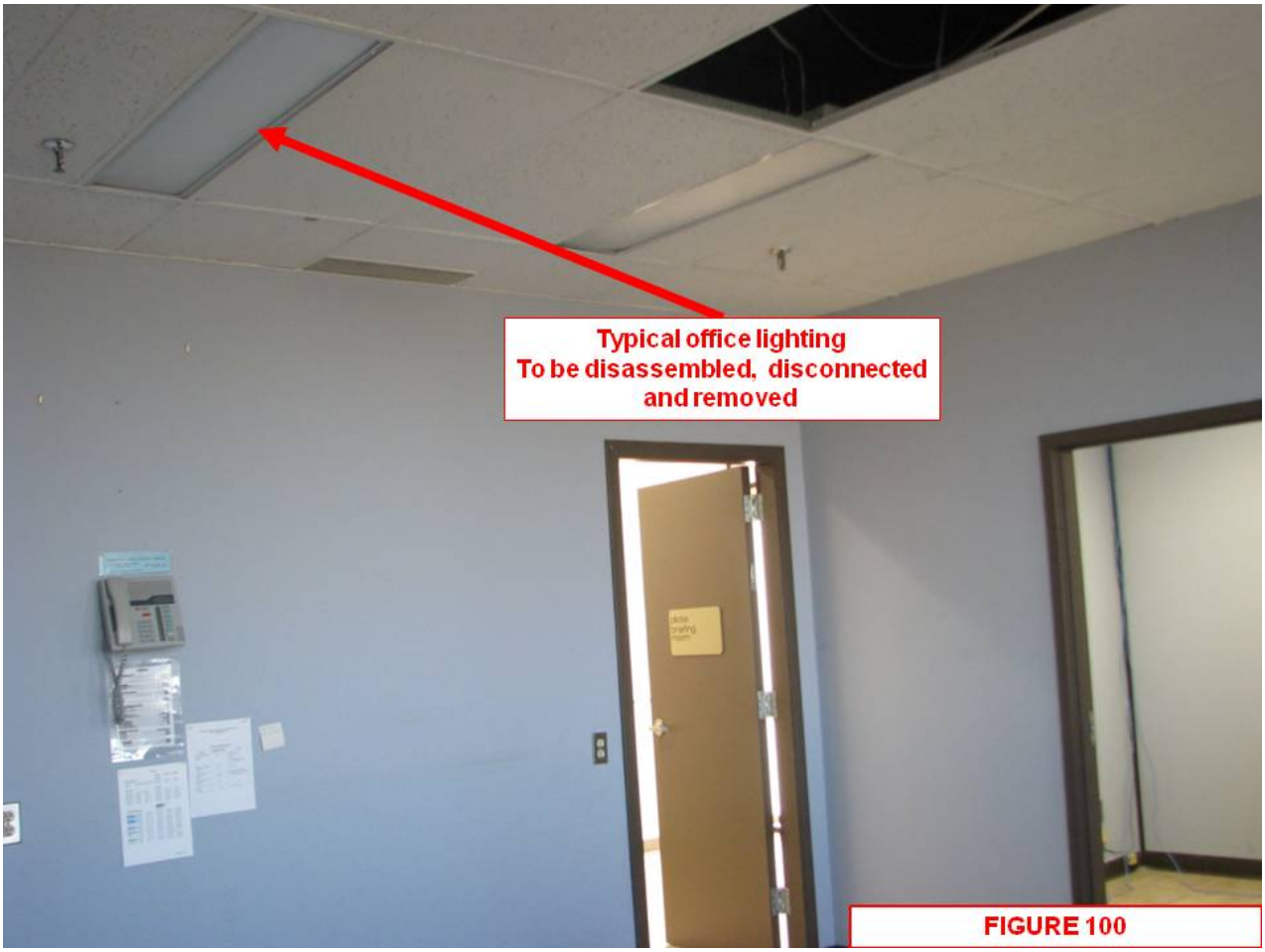

Typical office lighting
To be disassembled, disconnected
and removed

FIGURE 100

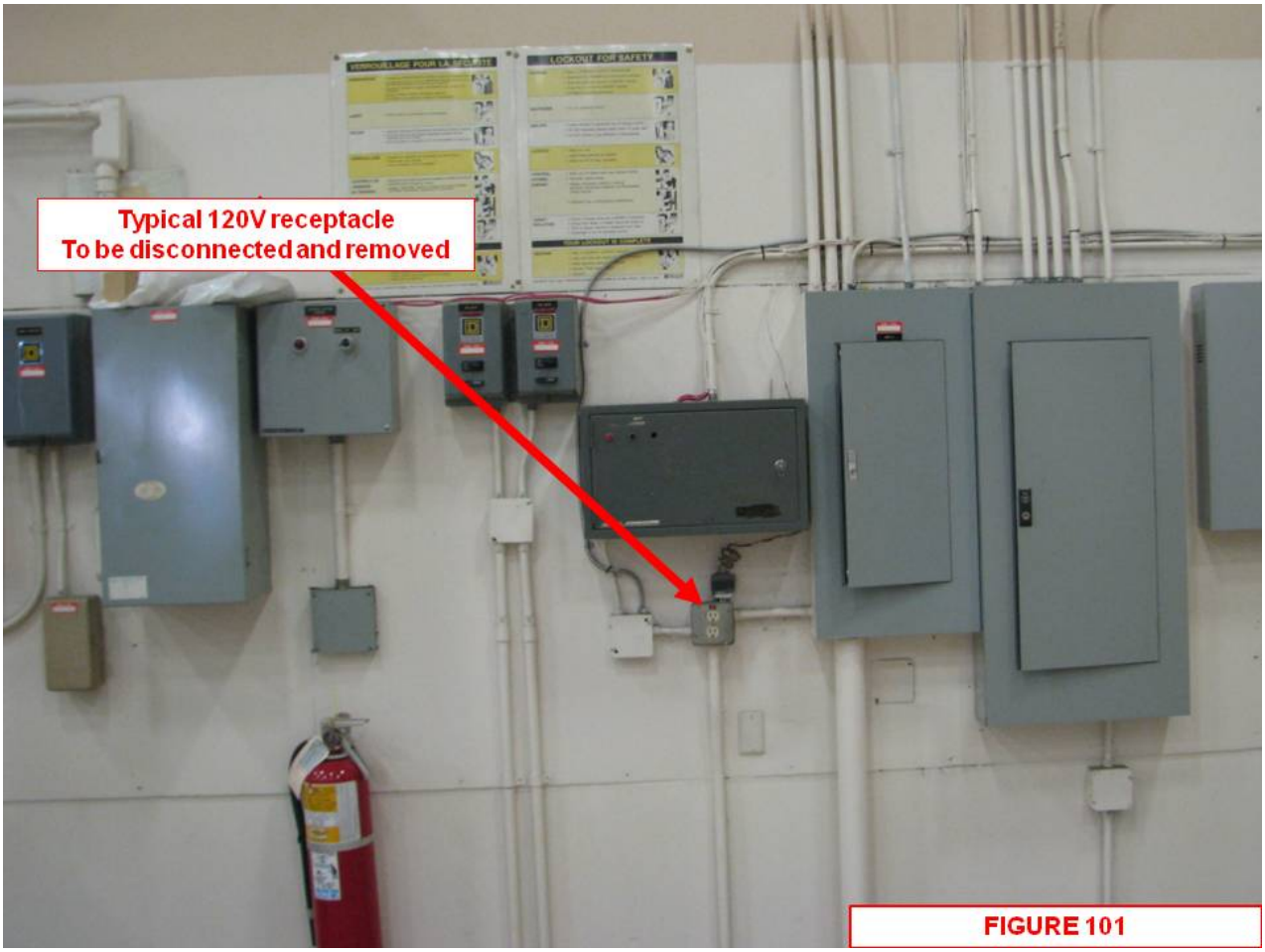


FIGURE 101

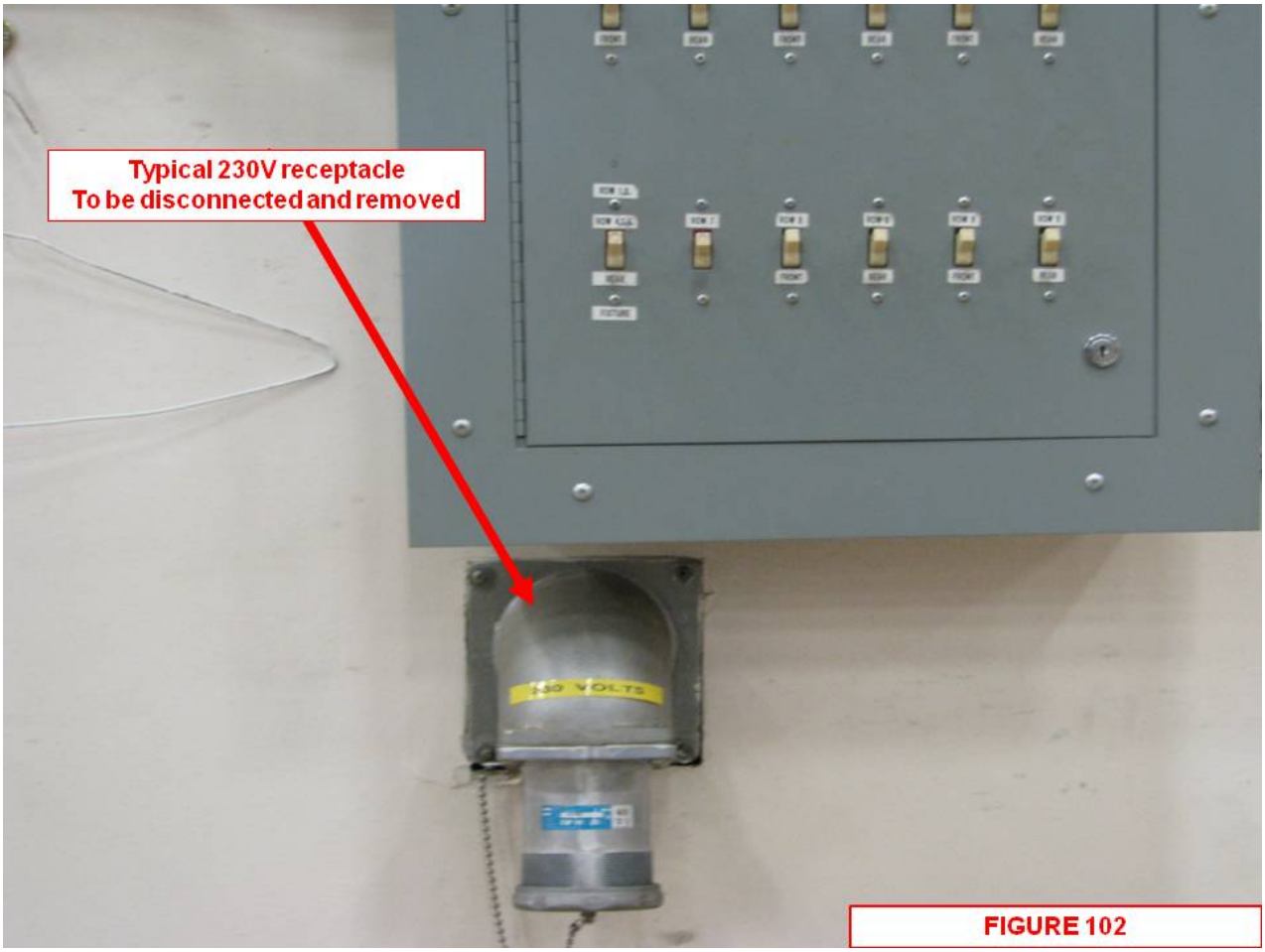

Typical 230V receptacle
To be disconnected and removed
230 VOLTS

FIGURE 102

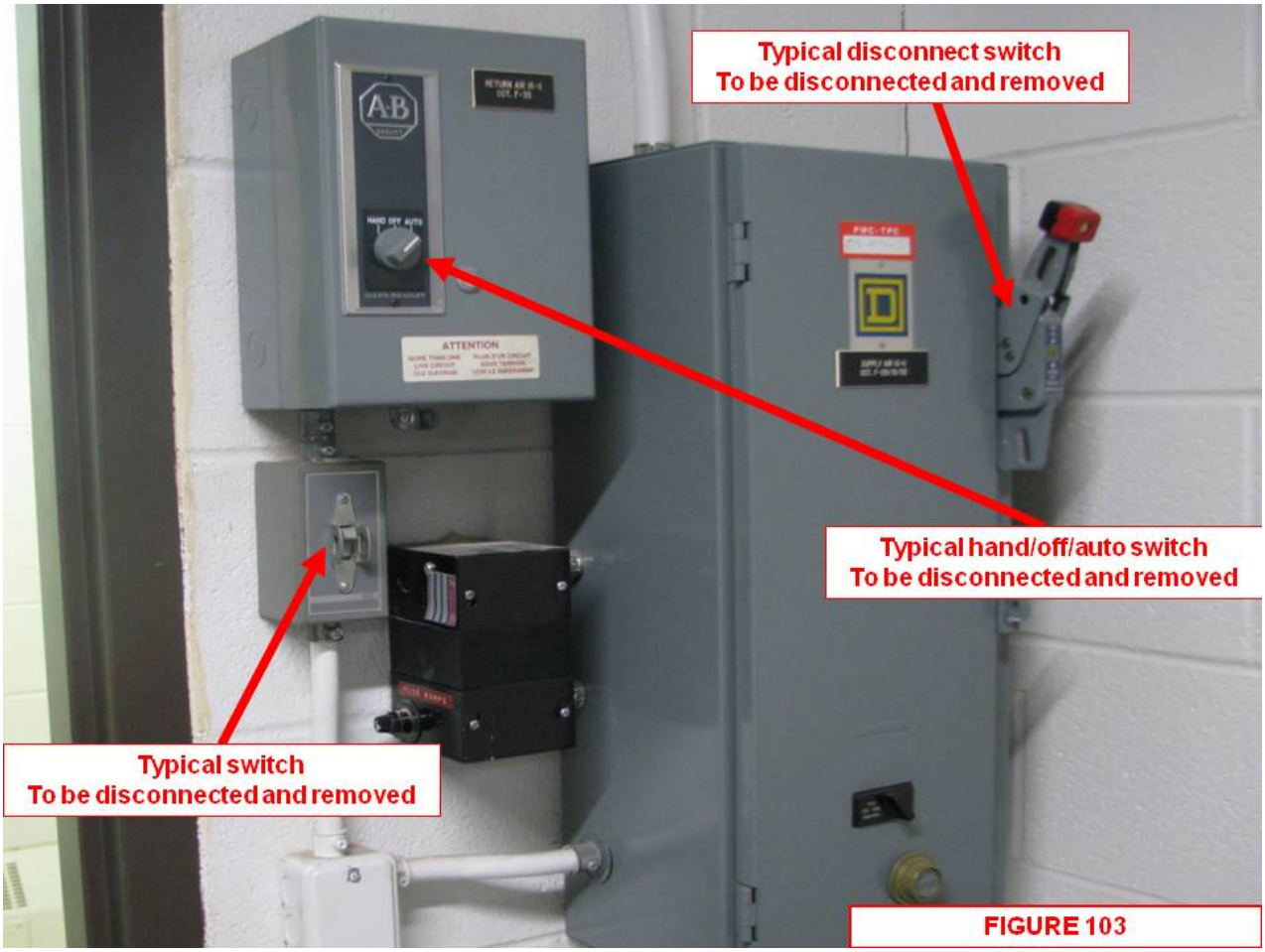

Typical disconnect switch
To be disconnected and removed
Typical hand/off/auto switch
To be disconnected and removed
Typical switch
To be disconnected and removed

FIGURE 103

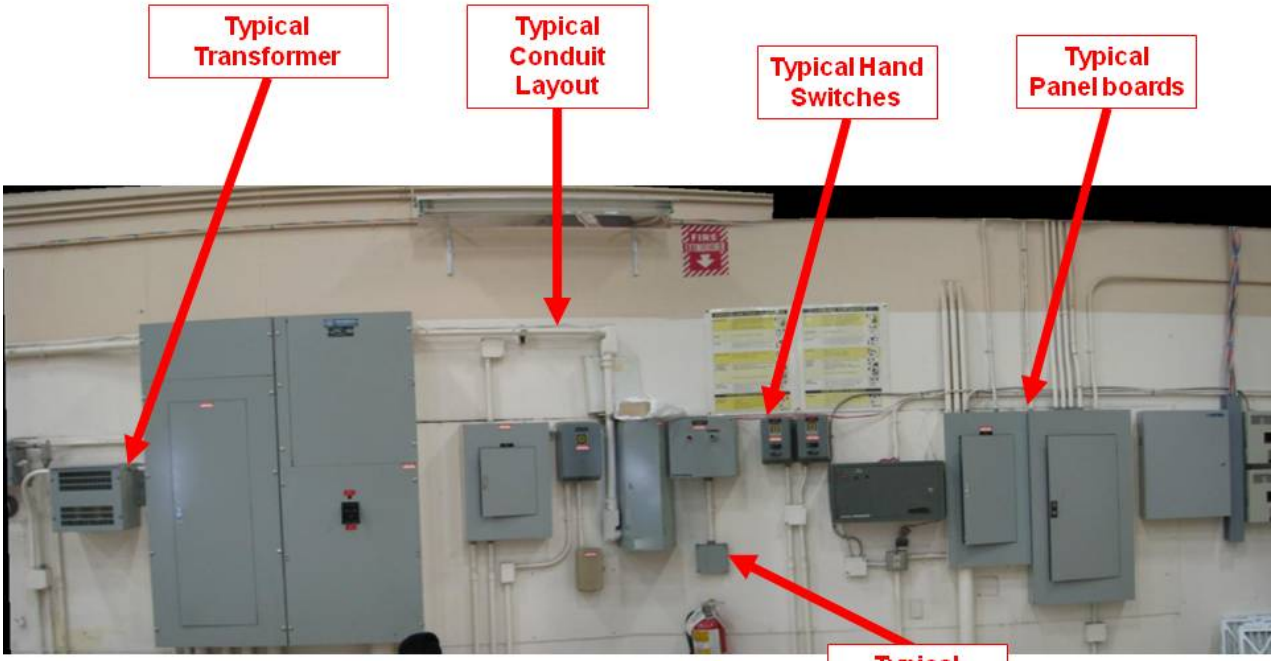

Typical Transformer
Typical Conduit Layout
Typical Hand Switches
Typical Panel boards
*All To be disconnected and removed
Typical Junction Boxes

FIGURE 104

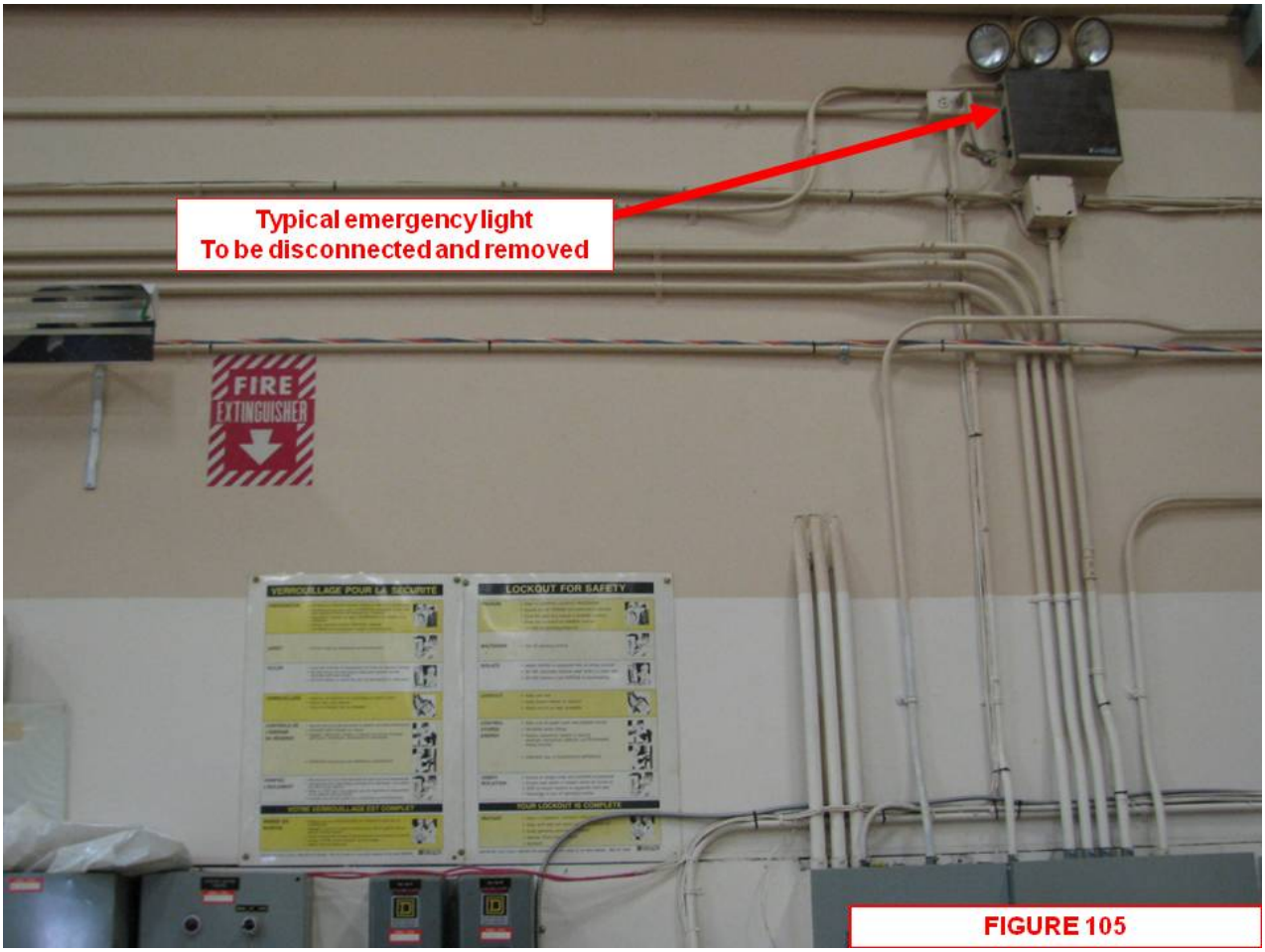

Typical emergency light
To be disconnected and removed
FIRE
EXTINGUISHER
LOCKOUT FOR SAFETY

FIGURE 105

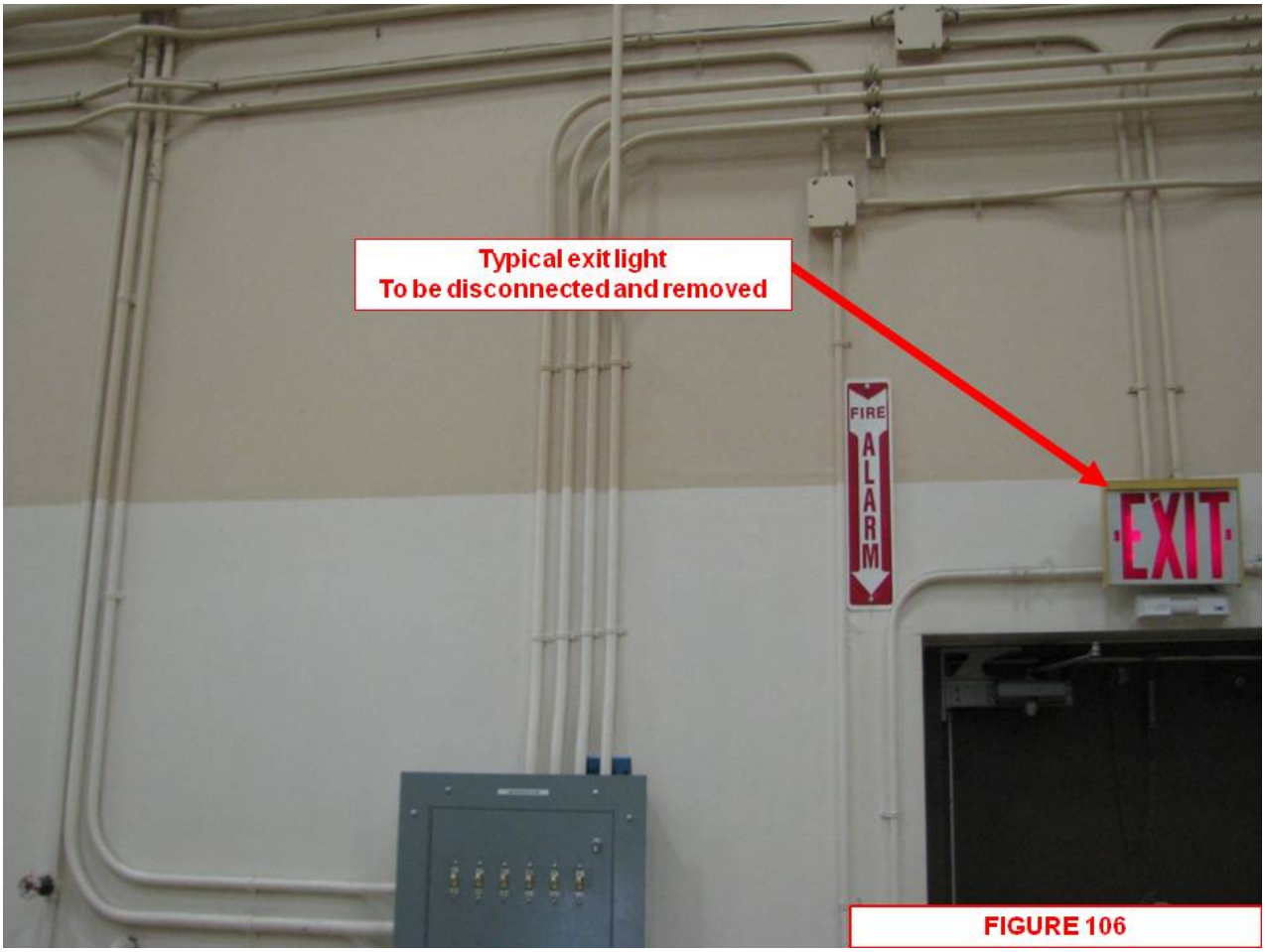

Typical exit light
To be disconnected and removed
FIRE
ALARM
EXIT

FIGURE 106

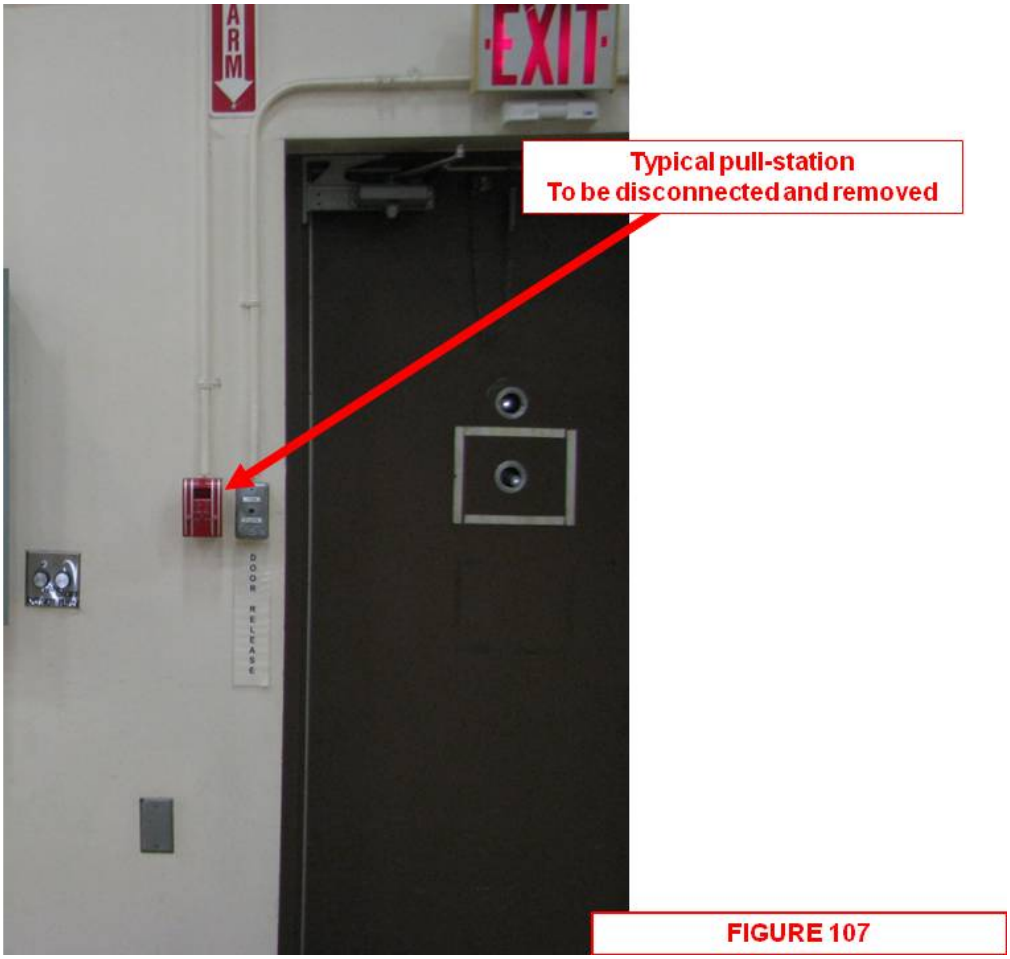

ARM
EXIT
Typical pull-station
To be disconnected and removed
DOOR RELEASE

FIGURE 107

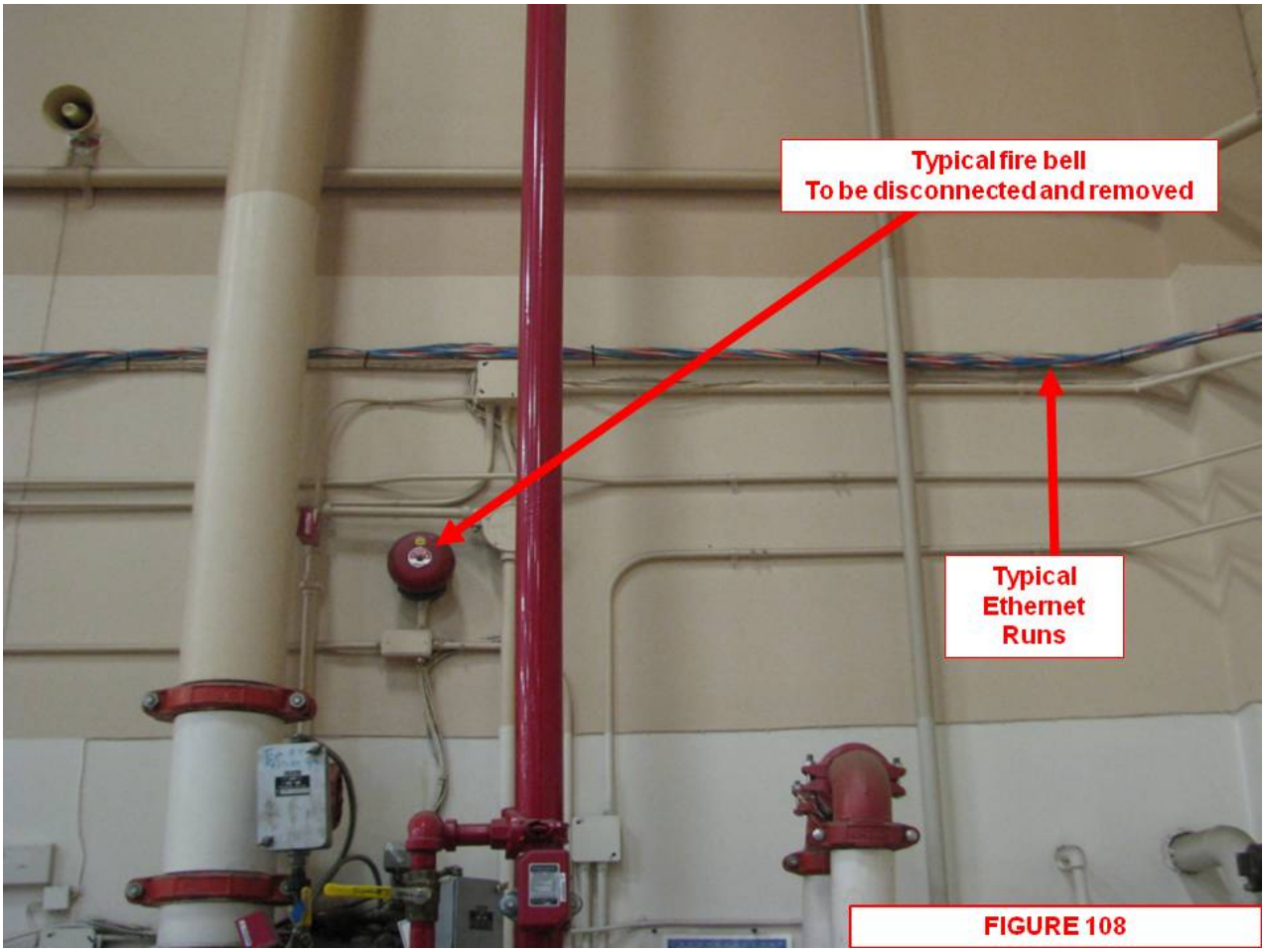

Typical fire bell
To be disconnected and removed
Typical
Ethernet
Runs

FIGURE 108

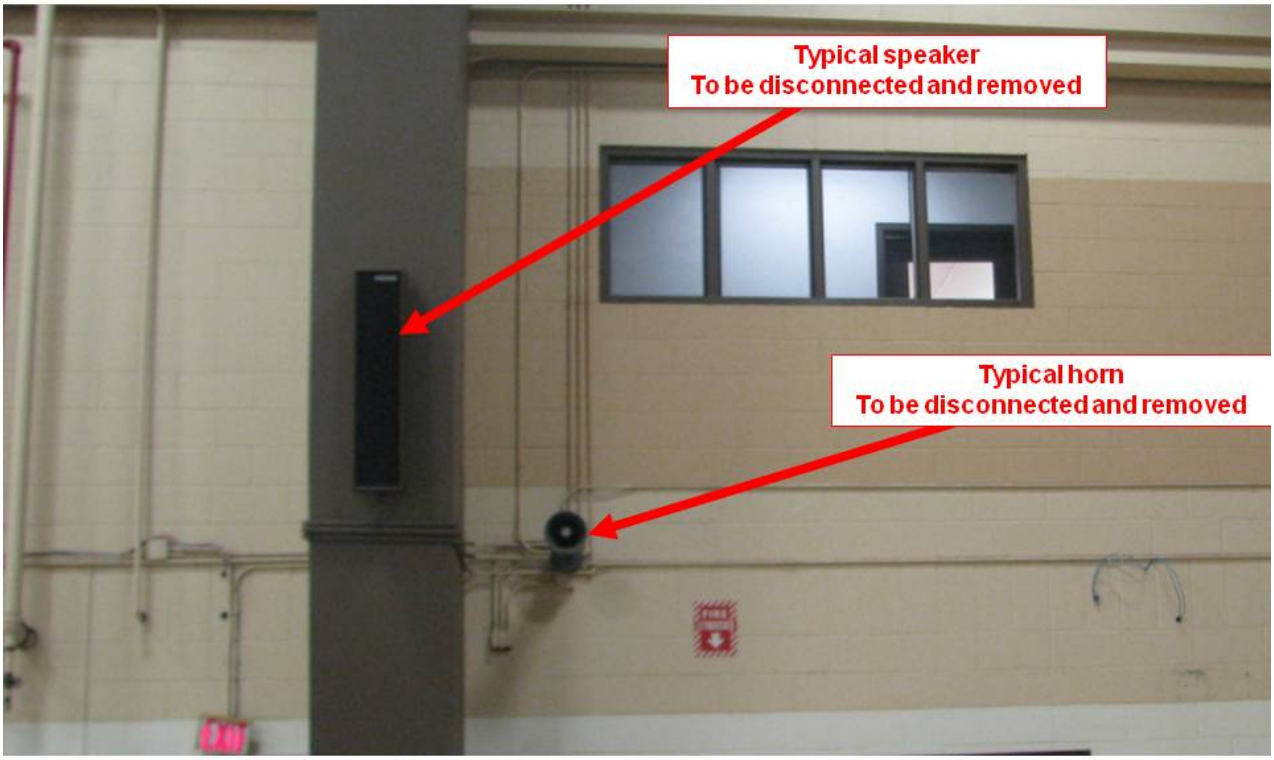

Typical speaker
To be disconnected and removed
Typical horn
To be disconnected and removed

FIGURE 109

FIGURE 110

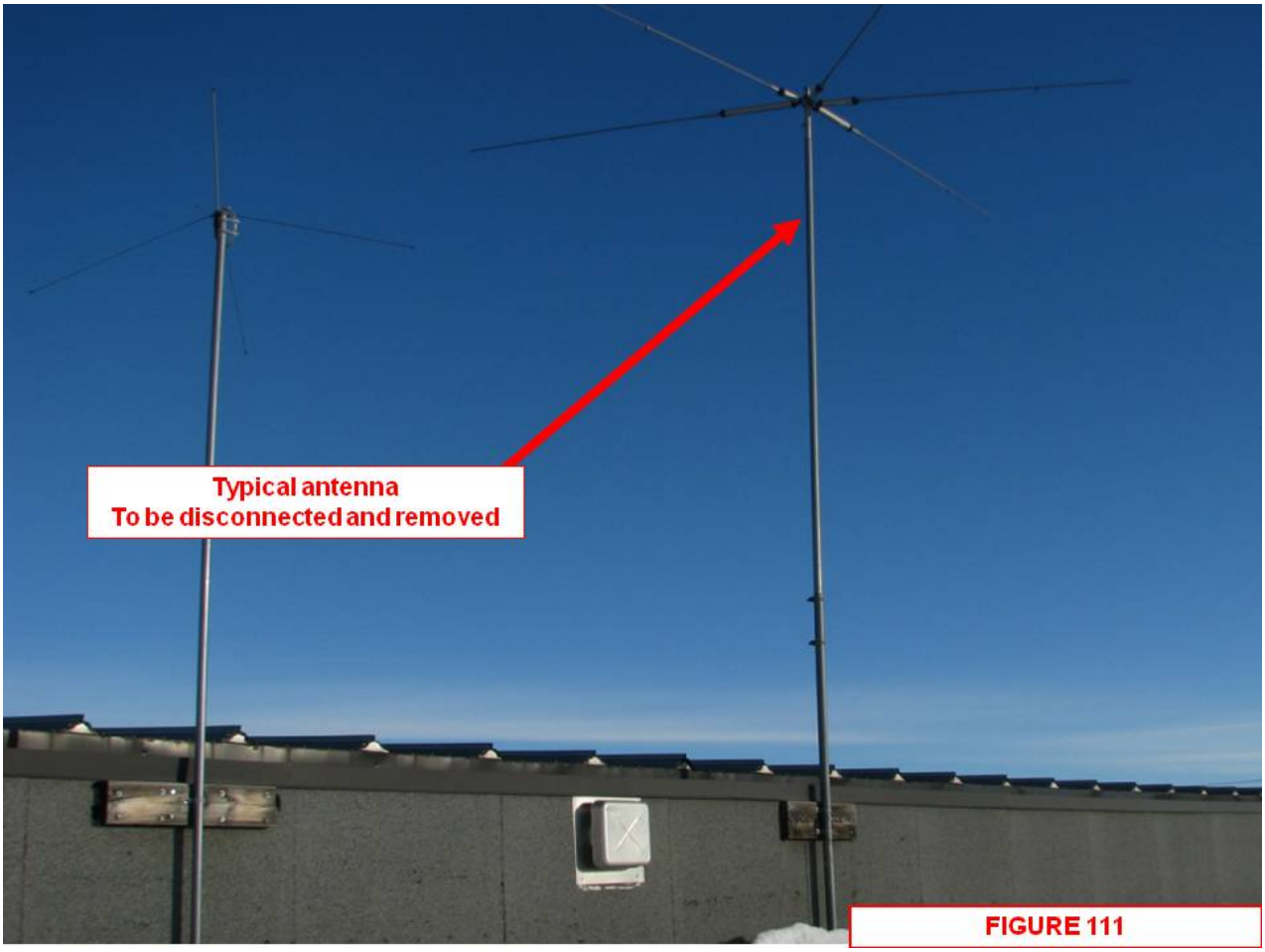


FIGURE 111

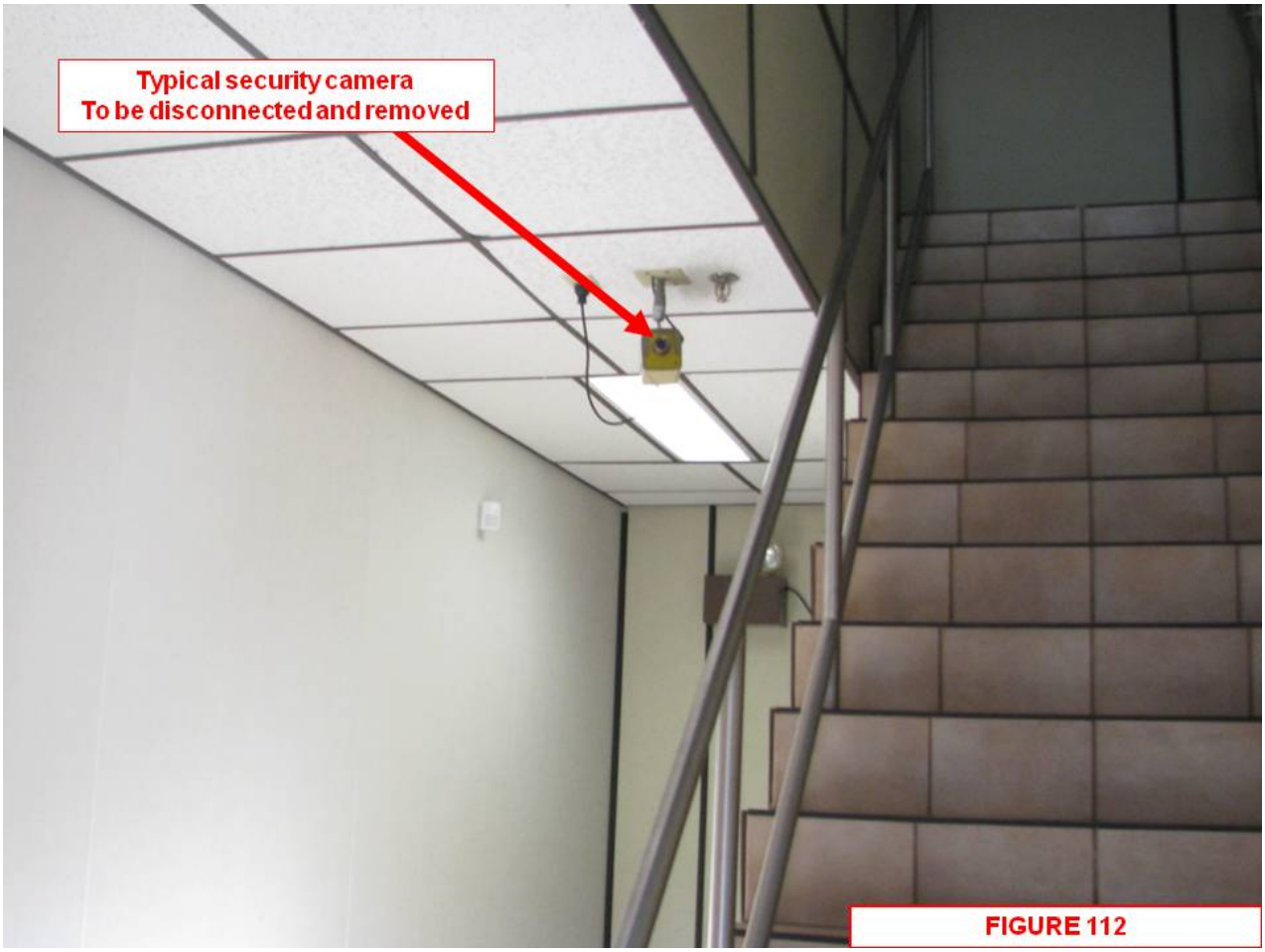


FIGURE 112

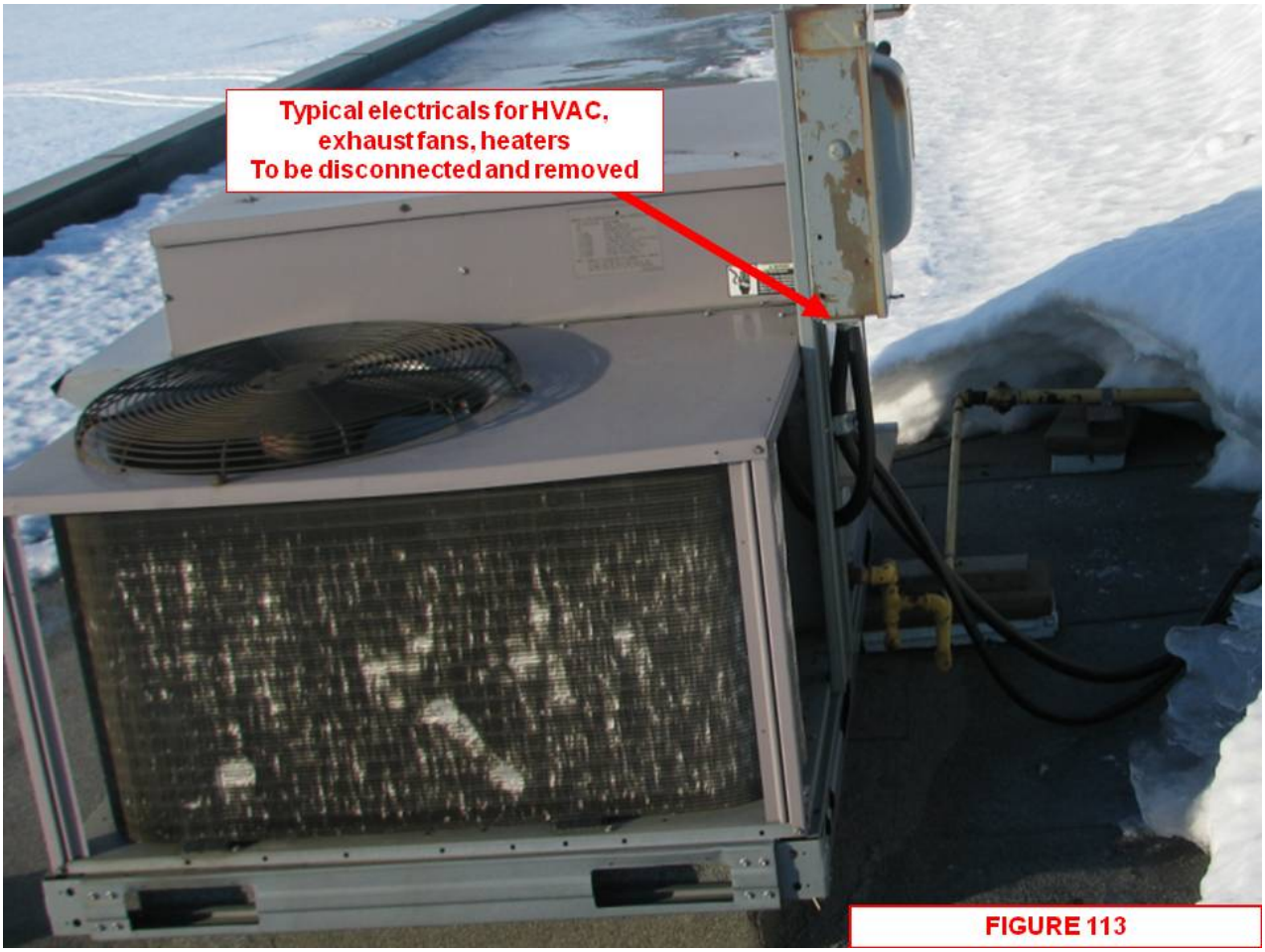

Typical electricals for HVAC, exhaust fans, heaters To be disconnected and removed

FIGURE 113

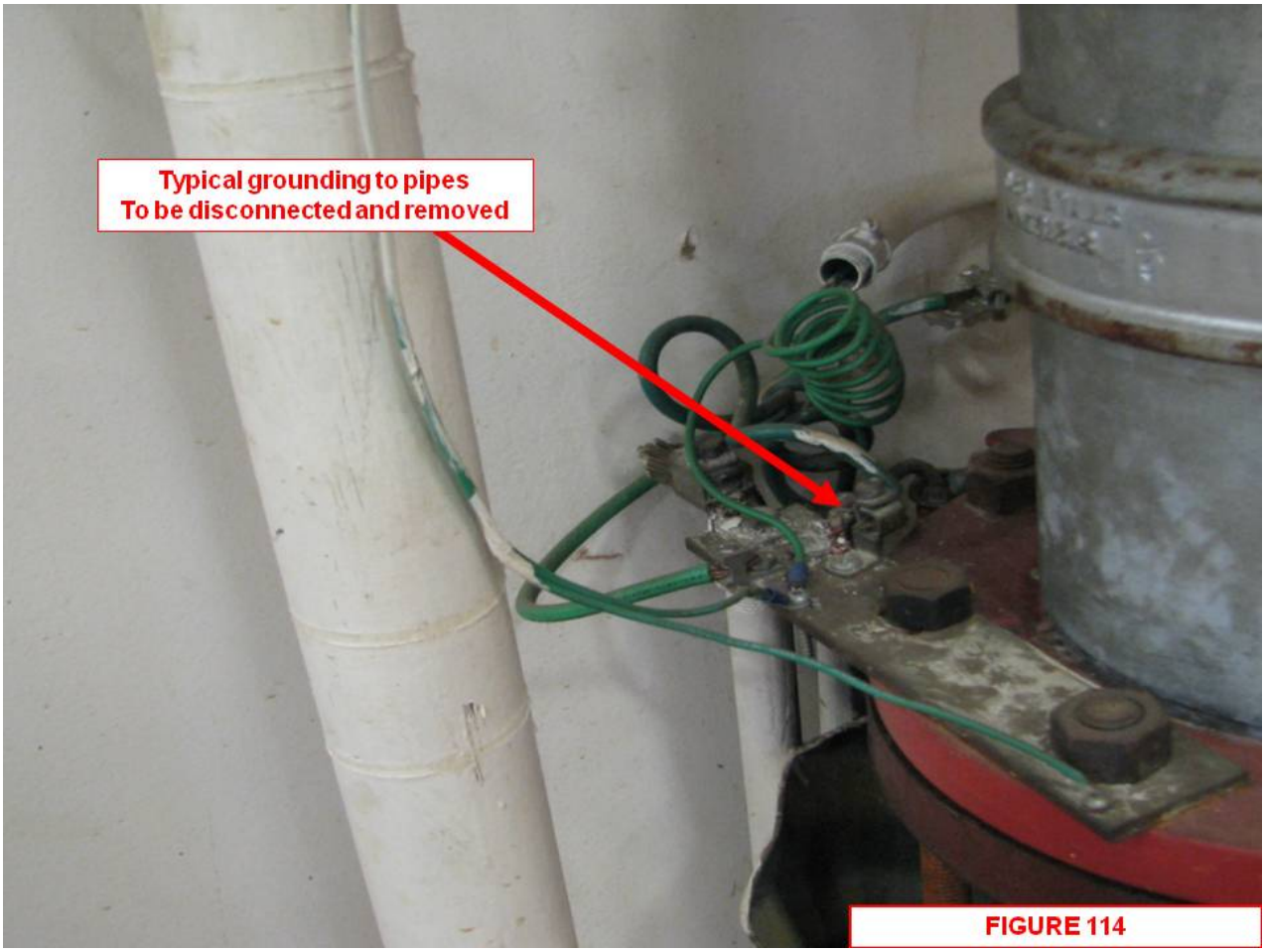


FIGURE 114

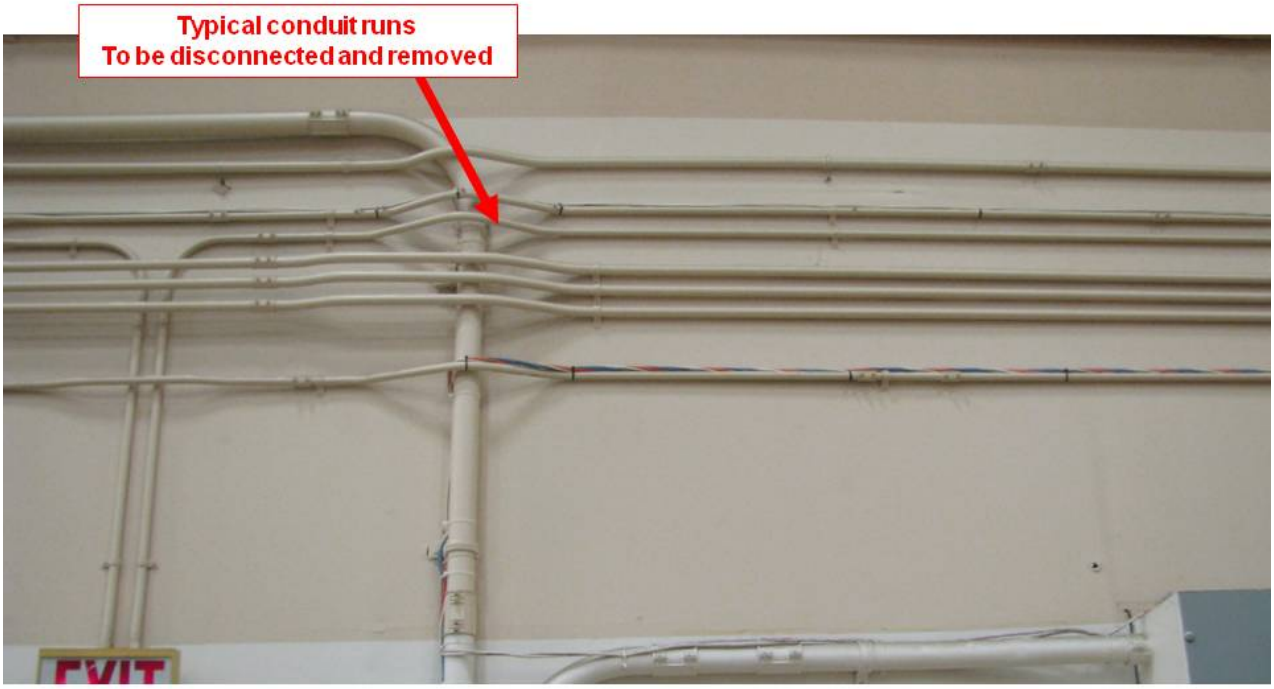
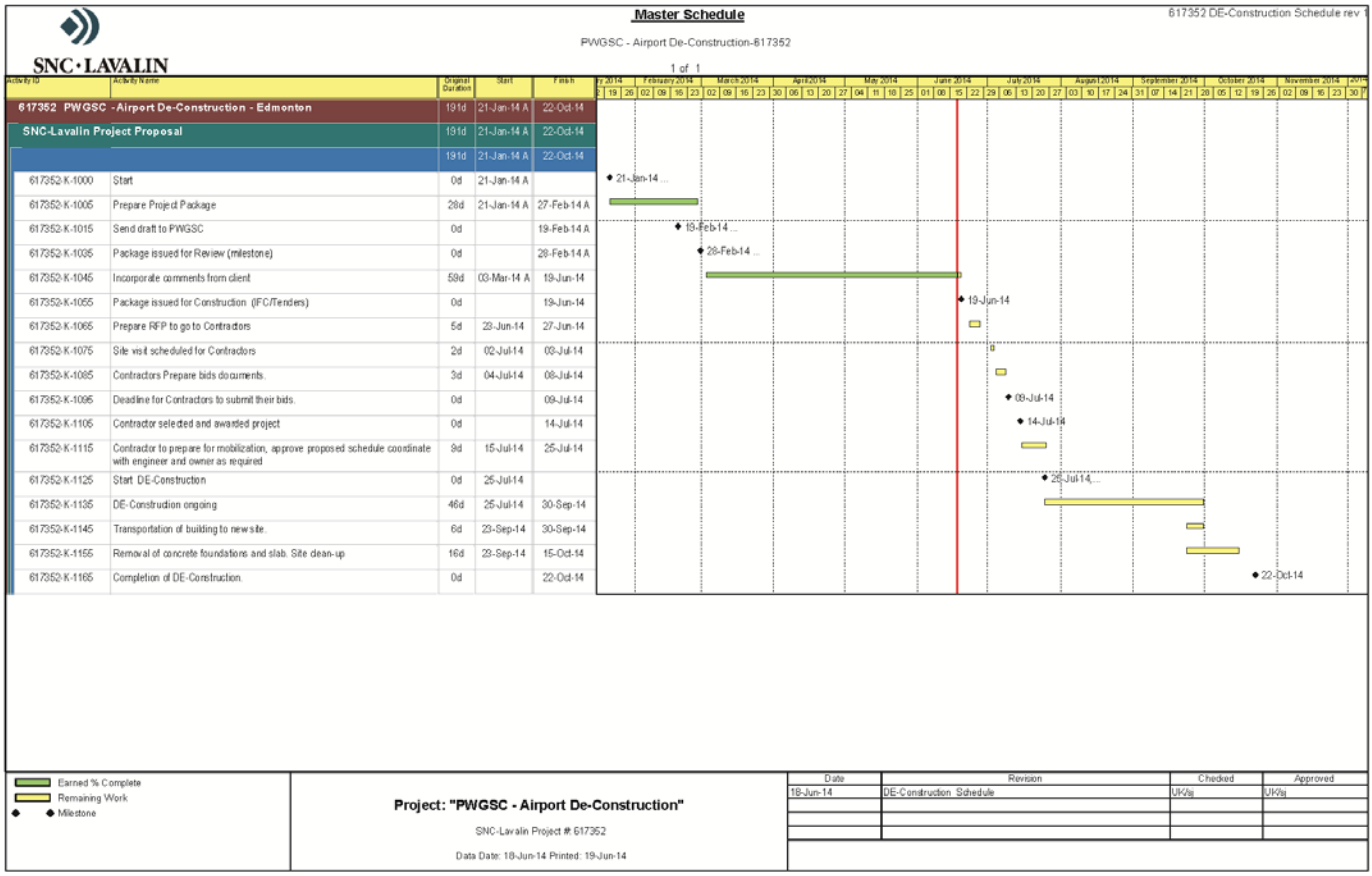


FIGURE 115

Appendix 4



SNC·LAVALIN

Master Schedule

617352 DE-Construction Schedule rev 1

PWGSC - Airport De-Construction-617352

1 of 1

Activity ID	Activity Name	Original Duration	Start	Finish
617352 PWGSC - Airport De-Construction - Edmonton		191d	21-Jan-14 A	22-Oct-14
SNC-Lavalin Project Proposal		191d	21-Jan-14 A	22-Oct-14
		191d	21-Jan-14 A	22-Oct-14
617352-K-1000	Start	0d	21-Jan-14 A	
617352-K-1005	Prepare Project Package	28d	21-Jan-14 A	27-Feb-14 A
617352-K-1015	Send draft to PWGSC	0d		19-Feb-14 A
617352-K-1035	Package issued for Review (milestone)	0d		28-Feb-14 A
617352-K-1045	Incorporate comments from client	58d	03-Mar-14 A	19-Jun-14
617352-K-1055	Package issued for Construction (IFC/Tenders)	0d		19-Jun-14
617352-K-1065	Prepare RFP to go to Contractors	5d	23-Jun-14	27-Jun-14
617352-K-1075	Site visit scheduled for Contractors	2d	02-Jul-14	03-Jul-14
617352-K-1085	Contractors Prepare bids documents.	3d	04-Jul-14	08-Jul-14
617352-K-1095	Deadline for Contractors to submit their bids.	0d		09-Jul-14
617352-K-1105	Contractor selected and awarded project	0d		14-Jul-14
617352-K-1115	Contractor to prepare for mobilization, approve proposed schedule coordinate with engineer and owner as required	9d	15-Jul-14	25-Jul-14
617352-K-1125	Start DE-Construction	0d	25-Jul-14	
617352-K-1135	DE-Construction ongoing	46d	25-Jul-14	30-Sep-14
617352-K-1145	Transportation of building to new site.	6d	29-Sep-14	30-Sep-14
617352-K-1155	Removal of concrete foundations and slab. Site clean-up	16d	29-Sep-14	15-Oct-14
617352-K-1165	Completion of DE-Construction.	0d		22-Oct-14

Earned % Complete
Remaining Work
Milestone

Project: "PWGSC - Airport De-Construction"

SNC-Lavalin Project # 617352

Data Date: 18-Jun-14 Printed: 19-Jun-14

Date	Revision	Checked	Approved
18-Jun-14	DE-Construction Schedule	UK/sj	UK/sj