

**Part 1 General**

**1.1 SUMMARY**

- .1 Microbial growth has been visually identified in Buildings 7, 10, 17 and 18 of the Agricultural and Agri-Food Canada (AAFC) Crops and Livestock Research Centre located at 440 University Avenue in Charlottetown, PEI. Comply with the requirements of this Section when working near mould impacted building materials and/or when mould-related removal is required during and/or prior to the demolition of Buildings 7, 10, 17 and 18
  - .1 Building 7 - visible mould observed on ceiling insulation and wooden roof trusses.
  - .2 Building 10 - visible mould observed on walls and ceilings throughout.
  - .3 Building 17 - visible mould observed on equipment, walls and ceilings throughout.
  - .4 Building 18 - visible mould observed on walls and ceilings throughout.

**1.2 RELATED REQUIREMENTS**

- .1 01 00 10 - General Instructions.
- .2 01 14 25 - Designated Substances.
- .3 01 35 29.06 - Health and Safety Requirements.
- .4 01 35 44 - Environmental Procedures.
- .5 02 41 16 - Structure Demolition.
- .6 02 82 00.01 - Asbestos Abatement - Minimum Precautions.
- .7 02 82 00.02- Asbestos Abatement - Intermediate Precautions.
- .8 02 82 00.03 - Asbestos Abatement - Maximum Precautions.
- .9 02 83 10 - Lead-Based Abatement - Minimum Precautions.

**1.3 REFERENCES**

- .1 American Conference of Governmental Industrial Hygienists (ACGIH), Bioaerosols Assessment and Control, 1999.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

- .3 New York City Department of Health - Bureau of Environmental and Occupational Disease Epidemiology's Guidelines on the Assessment and Remediation of Fungi in Indoor Environment, 2000.
- .4 United States Department of Labor Occupational Safety and Health Administration (OSHA)
  - .1 29 CFR 1910.134 - Respiratory Protection.
  - .2 29 CFR 1910.1200 - Hazard Communication.
- .5 United States Environmental Protection Agency (EPA), Mould Remediation in Schools and Commercial Buildings, 2001.
- .6 Canadian Construction Association (CCA), Mould Guidelines for the Canadian Construction Industry, 2004.
- .7 LVM Maritime Testing.
  - .1 Hazardous Building Materials Survey, AAFC Crops and Livestock Research Centre, 440 University Avenue, Charlottetown, PEI, Buildings 7, 10, 14, 17 and 18, March 6, 2013.
- .8 Stantec Consulting Limited.
  - .1 Lead-Based Paint Sampling - AAFC Crops and Livestock Research Centre (Buildings #7 and #18), Charlottetown, PEI, August 9, 2013.
  - .2 Summary of Hazardous Materials - Buildings 7, 10, 14, 17 and 18, August 2013.
- .9 AMEC (Available on Request).
  - .1 Soil Sampling Program, Buildings 7, 10, 14, 17, and 18 AAFC Crops and Livestock Research Centre (CLRC), 440 University Avenue, Charlottetown, Queens County, PEI, DFRP # 02024.
- .10 MGI Limited (Available on Request).
  - .1 Hazardous Building Materials Survey with Recommendations for Building Demolition and Petroleum Hydrocarbon Impact Assessment, AAFC Crops and Livestock Research Centre, Building 7 (5 Car Garage), Charlottetown, PEI, June 2004.
  - .2 Hazardous Building Materials Survey with Recommendations for Building Demolition and Petroleum Hydrocarbon Impact Assessment, AAFC Crops and Livestock Research Centre, Building 10 (Pea Viner Storage), Charlottetown, PEI, June 2004.

- .3 Hazardous Building Materials Survey with Recommendations for Building Demolition and Petroleum Hydrocarbon Impact Assessment, AAFC Crops and Livestock Research Centre, Building 14 (Small Equipment Storage), Charlottetown, PEI, June 2004.
- .4 Hazardous Building Materials Survey with Recommendations for Building Demolition and Petroleum Hydrocarbon Impact Assessment, AAFC Crops and Livestock Research Centre, Building 17 (Apple House), Charlottetown, PEI, January 2005.
- .5 Hazardous Building Materials Survey with Recommendations for Building Demolition and Petroleum Hydrocarbon Impact Assessment, AAFC Crops and Livestock Research Centre, Building 18 (Horticulture Building), Charlottetown, PEI, January 2005.

#### 1.4 DEFINITIONS

- .1 Authorized Visitors: Public Works and Government Services Canada (PWGSC), Agriculture and Agri-Food Canada (AAFC), Environmental Consultant, representatives of regulatory agencies and any visitor approved by PWGSC and/or AAFC.
- .2 PEIELJ: Prince Edward Island Department of Environment, Labour and Justice.
- .3 Cleaning solution: detergent solution.
- .4 Competent person: Individuals who can demonstrate that mould remediation training has been obtained, is capable of identifying existing microbial hazards in workplace and selecting appropriate control strategy for microbial exposure.
- .5 Contractor: remediation contractor providing demolition and removal services as defined in specification.
- .6 Fibre Reinforced Polyethylene Sheet: rip-proof fibre reinforced polyethylene sheeting with added fibre reinforced adhesive tape along edges.
- .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 HVAC: heating ventilating and air-conditioning systems which serve occupied areas. Includes but is not limited to air handling units, duct work, terminal boxes and vents.

- .9 Mould contaminated work area: specific area or location where actual work is being performed or other areas of facility where it has been determined that it may be hazardous to public health as result of mould remediation.
- .10 Occupied Area: areas of building or work site that is outside mould contaminated work area.
- .11 PPE: Personnel Protection Equipment.
- .12 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have a minimum of six litres capacity for work.

#### **1.5 REGULATORY REQUIREMENTS**

- .1 Comply with regulations in effect at time work is performed. In case of conflict among these requirements or with these specifications the more stringent requirement applies. If no regulations exist, follow guidelines most widely accepted by recognized professional organizations such as occupational hygienists, health professionals or environmental engineers as listed in paragraph 1.3 References.

#### **1.6 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit Provincial and/or local requirements for Notice of Project form.
- .2 Submit proof of Contractors Liability Insurance for dealing with hazardous materials.
- .3 Submit Workers Compensation Board status and transcription of insurance.
- .4 Submit proof of attendance in form of certificate that supervisory personnel have trained in mould remediation course, approved by Departmental Representative. Minimum of one supervisor for every ten trained workers.

#### **1.7 CLOSEOUT SUBMITTALS**

- .1 Maintain general log to provide permanent record of project. Maintain logs and other required documentation as part of permanent project file.
- .2 Daily log must be available for inspection upon request by Departmental Representative.
- .3 Visitor log must be available for inspection upon request by Departmental Representative.

## **1.8 INSTRUCTION AND TRAINING**

- .1 Before commencing work, provide Departmental Representative proof that worker had instruction and training in potential health hazards of mould exposure, handling of hazardous materials, in personal hygiene including protective clothing, in entry and exit from Mould Contaminated Work Area, and in use of disposal procedures including building materials.
- .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 designated construction safety advisor.

## **1.9 WORKER PROTECTION**

- .1 Respirators suitable for protection against mould and acceptable to PEIELJ. Non-powered disposable filter-type respirator of type N95 half-face equipped with replaceable HEPA filter cartridges or full-face air purifying respirators (APR) equipped with replaceable HEPA filter cartridges, personally issued to worker and marked as to efficiency and purpose.
- .2 Gloves and eye protection.
- .3 Disposable paper coveralls including head covering.
- .4 Ensure that no person required to enter Mould Contaminated Work Area has facial hair that affects seal between respirator and face.
- .5 Eating, drinking and chewing are not permitted in Mould Contaminated Work Area.
- .6 Before leaving Mould Contaminated Work Area, dispose of protective clothing as waste as specified.
- .7 Ensure workers wash hands and face after leaving Mould Contaminated Work Area.

## **1.10 VISITOR PROTECTION**

- .1 Protective clothing and approved respirators Non-powered disposable filter-type respirator of type N95 half face

with eye protection to be worn by Authorized Visitors to Mould Contaminated Work Area.

- .2 Instruct Authorized Visitors in use of protective clothing, respirators, and procedures.
- .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Mould contaminated work area.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Drop Sheets: fibre reinforced polyethylene 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Disposal bags: dust-tight 0.15 mm clear polyethylene waste bags.
- .3 Wetting Agent: water to mist mould-containing material.
- .4 Cleaning solution: detergent solution for damp wipe and/or mop.
- .5 Fibre reinforced adhesive tape: used in sealing joints of fibre reinforced polyethylene sheets and for attachment of fibre reinforced polyethylene sheet to finished and unfinished surfaces. Fibre reinforced adhesive tape must be capable of adhering under both dry and wet conditions.
- .6 Materials: provide materials such as fibre reinforced polyethylene sheeting, lumber, nails and hardware necessary to construct and dismantle barriers that isolate Mould Contaminated Work Area.

### **2.2 TOOLS AND EQUIPMENT**

- .1 Tools and equipment: suitable for use with microbial contamination and must be able to withstand decontamination.
- .2 Personnel protective equipment (protective clothing, personal respiratory filter cartridges, HEPA air filters, etc.): to be provided in sufficient quantities for duration of project.
- .3 Vacuum cleaners: equipped with HEPA filters.
- .4 Ladders and/or scaffolds: adequate length, strength and sufficient quantity to support work schedule.

- .5 Exhaust air fan systems: equipped with HEPA filters and be capable of providing sufficient exhaust air to create a minimum pressure differential of 5 to 7 Pa and to allow sufficient flow of air through area.

### **Part 3 Execution**

#### **3.1 PREPARATION OF MOULD CONTAMINATED WORK AREA**

- .1 Mould Contaminated Work Area and areas adjacent and around area to be unoccupied. Vacating is recommended in case of infants (less than 12 months old), elderly people, persons having undergone recent surgery, immune suppressed people or people with chronic inflammatory lung diseases.
- .2 One supervisor for every ten trained workers is required.
- .3 Approved supervisor must remain within Mould Contaminated Work Area at all times during disturbance, removal or other handling of mould-contaminated materials.
- .4 Clean movable objects that are to be salvaged within proposed Mould Contaminated Work Area using HEPA filtered vacuum equipment, damp wipe surfaces and remove such objects from Mould Contaminated Work Area to a secure and clean area.
- .5 Do not use compressed air to clean up or remove dust from any surface.
- .6 Before beginning work, at each access to contaminated 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 MOULD HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING MOULD DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.

#### **3.2 MICROBIAL REMEDIATION**

- .1 Use sprayer (low-velocity, fine-mist) to mist (not wet) materials containing mould during removal/demolition activities.
- .2 Perform work as to reduce dust creation to lowest levels practicable.
- .3 Dispose of contaminated building materials as specified.

- .1 Mould contaminated wastes and building materials may be disposed of at any C&D disposal facility unless:
  - .1 Mould contaminated materials contain asbestos.
  - .2 Mould contaminated materials contain lead containing paint (lead concentration greater than 1,000 mg/kg) or lead leachate toxic paint. These materials would require more stringent disposal procedures (Refer to Section 02 83 10).
  - .3 Mould contaminated materials contain other wastes or contaminants that are not accepted at a C&D disposal facility.

### **3.3 WASTE DISPOSAL**

- .1 Place debris and mould-containing waste in doubled-bagged dust-tight 0.15 mm fibre reinforced clear polyethylene waste bags. Treat drop sheets and disposable protective clothing as waste; fold these items to contain dust, and place in plastic bags. Securely seal bags.
- .2 Cover large items that have heavy mould growth with fibre reinforced polyethylene sheeting and sealed with fibre reinforced adhesive tape before they are removed from enclosure.
- .3 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum prior to removal from Mould Contaminated Work Area.
- .4 Remove waste bags from site and dispose as per **Section 3.2.3.**

### **3.4 FINAL CLEARANCE**

- .1 Departmental Representative or Consultant to conduct visual assessment of work during and following abatement activities and to perform air testing if deemed necessary.