

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this section in conjunction with all other sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 The site conditions identify the location and condition of all known asbestos-containing materials (ACM) to be disturbed by the work of this contract. The specification fulfils the requirements of the report required by O.Reg. 278/05.
- .3 The site conditions also identify the location of all mouldy materials that will be encountered on the project.
- .4 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the removal and disposal or decontamination of all ACM included in work of this section and all materials which have been contaminated by ACM either during or prior to work of this section.
- .5 Work of this section will remove all known mouldy materials and decontaminate the building structure where affected by past roof leaks.

1.2 Site Conditions

- .1 Refer to Drawing 1 for the location of confirmed and presumed asbestos-containing materials.
- .2 Vermiculite debris and asbestos-containing floor tile are concealed by mechanically fixed millwork and floor mounted HVAC equipment in Rooms 107 and 108 as shown on Drawing 1.
- .3 Asbestos-containing vinyl floor tiles are concealed by mechanically fixed millwork in Rooms 107 and 108 as shown on Drawing 1.
- .4 Asbestos-containing pipe insulation is concealed by millwork in Classroom 107 as shown by Drawing 1. Two linear feet of pipe insulation containing asbestos is present.
- .5 A transite chalkboard is present on the east wall of Room 108 as shown by Drawing 1.
- .6 Drywall with asbestos-containing drywall joint compound is present in Room 107 as shown by Drawing 1.
- .7 A portion of the ceiling in Room 107 is water damaged. The extent of the water damaged ceiling is shown on Drawing 1.
- .8 Two distinct patterns of non-asbestos wood fibre ceiling tiles are present in Rooms 107 and 108. Ceiling tiles are screwed to gypsum panels. Gypsum panels do not have drywall joint compound. Fibreglass insulation is present above gypsum panels.
- .9 Pipe insulation (except as identified by 1.2.4) is fibreglass jacketed with canvas, PVC or metal.

1.3 Outline of Work

- .1 The General Contractor will make safe all water and electrical connections to millwork and floor mounted HVAC scheduled for removal on drawings prepared by Snyder

- Architects and DEI & Associates. The necessary disconnects will be performed prior to work of this section.
- .2 The General Contractor will de-energize lights in Room 107 prior to work of this section.
 - .3 Removal of Millwork Adjacent to Interior Walls
 - .1 Remove sections of millwork to expose vinyl floor tile. Store onsite for disposal by the General Contractor.
 - .2 Using Type 1 procedures, remove and dispose of all vinyl floor tile previously concealed by millwork.
 - .4 Removal of Millwork and Floor Mounted HVAC Units
 - .1 Construct a polyethylene enclosure around millwork and HVAC Units. Enclosure to be a minimum 5' away from shelving/HVAC scheduled for removal.
 - .2 Within the enclosure, remove millwork and HVAC equipment to expose vermiculite and vinyl floor tile.
 - .3 Using Type 2 procedures, perform the following:
 - .1 HEPA vacuum millwork and HVAC equipment to remove all vermiculite adhered to millwork and HVAC equipment. Once cleaned, millwork and HVAC equipment can be stored onsite for disposal by others.
 - .2 Remove all previously concealed vinyl floor tile.
 - .3 HEPA vacuum vermiculite exposed by removal of millwork and HVAC equipment.
 - .4 Remove and dispose of all mudded drywall wall finishes.
 - .1 Remove a section of the ceiling if drywall extends up beyond the ceiling line.
 - .5 Remove and dispose of all asbestos-containing pipe insulation.
 - .6 Using Dow Corning CWS, seal all cracks in exterior wall finishes that have become exposed by removal of millwork and HVAC equipment.
 - .5 Using EACO Level 1 mould procedures, perform the following:
 - .1 Construct a dust tight polyethylene enclosure around the water damaged ceiling finish in Room 107.
 - .2 Remove and dispose of the following while workers are protected with disposal coveralls and half facepiece respirators equipped with P-100 filters:
 - .1 Water damaged wood fibre ceiling tile.
 - .2 Gypsum board above water damaged ceiling tile.
 - .3 Insulation above water damaged ceiling.
 - .3 Wire brush and HEPA vacuum water damaged wood structure.
 - .4 Apply two coats of Fosters 40/20 to wood structure.
 - .6 Using Type 1 procedures, remove and dispose of the transite chalkboard in Room 108.

1.4 Schedule

- .1 Removal of asbestos or water damaged building materials can only be performed while teachers and students aren't present in the building.
- .2 Start work on:
 - .1 Within one week of receipt of Purchase Order from General Contractor.
- .3 Complete work as directed by General Contractor.

1.5 Definitions

- .1 Asbestos: Any of the fibrous silicates defined in Regulation 278/05 including actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.
- .2 Asbestos Abatement Consultant: Owner's Representative providing inspection and air monitoring.
- .3 Asbestos Abatement Contractor: Contractor or sub-contractor performing work of this section.
- .4 Asbestos-Containing Material(s) (ACM): Material(s) identified under Site Conditions including debris, fallen material and settled dust.
- .5 Asbestos Work Area: Area where work takes place which will, or may, disturb ACM.
- .6 Authorized Visitors: Prime Contractor, Building Owner or Representatives, Asbestos Abatement Consultant, and persons representing regulatory agencies.
- .7 Competent Worker: A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act, and has knowledge of the potential or actual danger to health and safety in the work.
- .8 DOP Testing (or HEPA Integrity Test): Testing performed on HEPA Filtered Negative Pressure Machines and HEPA vacuums using DOP or equivalent. Testing shall ensure that total penetration from the unit does not exceed 0.03%, or 99.97% efficient of airborne particulate removal. DOP Testing must be in compliance with ASME N510-1989 (1995) and must be performed using a Temporary Mixing Chamber with installed baffles to allow uniform mixing of challenge aerosol.
- .9 Fitting: Section of pipe other than straight uninterrupted sections including elbows, valves, tees, hangers, nipples, union or ends.
- .10 Friable Material: means a material when dry can be crumbled, pulverized or powdered by hand pressure or is crumbled, pulverized or powdered.
- .11 HEPA Filter: High Efficiency Particulate Arresting filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.
- .12 PCM: Phase Contrast Microscopy.
- .13 Polyethylene: Either polyethylene sheeting or rip-proof polyethylene sheeting (as specified) with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide a continuous polyethylene membrane to protect

underlying surfaces from damage, and to prevent escape of asbestos fibres through sheeting into Occupied Areas.

- .14 **Occupied Area:** Any area of the building outside the Asbestos Work Area.
- .15 **Personnel:** All contractors employees, sub-contractors employees, supervisors.
- .16 **Remove:** Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).
- .17 **TEM:** Transmission Electron Microscopy.

1.6 Submittals

- .1 Submit the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:
 - .1 Performance data on HEPA filtered vacuums including DOP tests performed onsite.
 - .2 Performance data on negative air units including DOP tests performed onsite.
 - .3 DOP tests to be performed by an independent testing company.
 - .1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-1989 (1995).
 - .2 DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.
 - .3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.
 - .4 Proof of calibration of DOP testing equipment.

1.7 Regulations

- .1 Comply with Federal, provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed. Regulations include but are not limited to the following:
 - .2 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.
 - .3 Ministry of Transportation Regulations for the transport of asbestos waste, including the Transportation of Dangerous Goods Act.
 - .4 Ministry of the Environment Regulations for the disposal of asbestos waste, including R.R.O. 1990, Reg. 347 as amended.

1.8 Supervision

- .1 Provide on site, a supervisor, with authority to oversee all aspects of the work, including but not limited to, health and safety, methods, scheduling, labour and equipment requirements.
- .2 The supervisor must be on site at all times during work at risk of disturbing ACM. Failure to comply with this requirement may result in a stoppage of work, at no cost to the Owner.
- .3 Replace supervisory personnel, with approved replacements, within 3 working days of a written request from the Asbestos Abatement Consultant. Asbestos Abatement Consultant reserves the right to request replacement of supervisory personnel without explanation.
- .4 Do not replace supervisory personnel without written approval from the Asbestos Abatement Consultant.

1.9 Quality Assurance

- .1 Ensure the removal and handling of ACM or asbestos contaminated materials is performed by persons experienced in the methods, procedures and industry practices of asbestos abatement.
- .2 Complete work so that at no time airborne asbestos, visible solid residue, or water runoff contaminates areas outside Asbestos Work Area. Asbestos Abatement Consultant is empowered to order a shutdown of work when a leak has occurred or is likely to occur. Cost of additional work by Asbestos Abatement Contractor and/or Asbestos Abatement Consultant to rectify unsatisfactory conditions shall be charged to the Asbestos Abatement Contractor.
- .3 Perform all work involving other trades such as electrical, mechanical, carpentry, glazing etc. using licensed persons experienced and qualified for the work required.
- .4 The Asbestos Abatement Consultant will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs required for the Work in accordance with the applicable construction safety legislation, other regulations or general construction practice. The Asbestos Abatement Consultant will not be responsible for or have control or charge over the acts or omissions of the Asbestos Abatement Contractor, his Subcontractors or their agents, employees or other persons performing any of the Work.

1.10 Notification

- .1 Notify Sanitary Landfill site as per Ontario Regulation 347 as amended.
- .2 Inform all sub trades of the presence of ACM identified in the contract documents.
- .3 Notify the Owner or Owners Representative, the Joint Occupational Health and Safety Committee and the Ontario Ministry of Labour, as required by Regulation 278/05, if friable materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.

1.11 Instruction and Training

- .1 Provide instruction and training to all workers including the following:
 - .1 Hazards of asbestos and mould.
 - .2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during abatement work, including:
 - .1 Limitations of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Proper fitting of equipment.
 - .4 Disinfecting and cleaning of equipment.
 - .3 Personal hygiene to be observed when performing the work.
 - .4 The measures and procedures prescribed by this section including decontamination of the worker.
 - .5 Instruction and training must be provided by a competent person.

1.12 Personal Protection

- .1 Protect all personnel at all times when possibility of disturbance of ACM or mould exists.
- .2 Provide workers with non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters for all asbestos and mould removal work of this section. Use of respirators for Type 1 work is optional.
- .3 Respirators shall be:
 - .1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
 - .2 Fitted so that there is an effective seal between the respirator and the worker's face. Ensure that no person required to enter an Asbestos Work Area has facial hair which affects the seal between respirator and face.
 - .3 Assigned to a worker for their exclusive use.
 - .4 Maintained in accordance with manufacturer's specifications.
 - .5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.
 - .6 Repaired or have damaged or deteriorated parts replaced.
 - .7 Stored in a clean and sanitary location.
 - .8 Provided with new filters as necessary, according to manufacturer's instructions.
 - .1 Replace cartridge filters for negative pressure respirator every 16 hours of wear unless tested on site.
 - .2 Mark filters for rotation and regular replacement.
 - .9 Worn by personnel who have been fit checked by qualitative or quantitative fit-testing. Instruction must be provided by a competent person as defined by the Occupational Health and Safety Act.
- .4 Provide protective clothing, to all personnel which:

- .1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or mould spores.
- .2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
- .3 Is replaced or repaired if torn or ripped.
- .4 Is disposed of as ACM.
- .5 Decontaminate clothing or protective clothing by using a HEPA Vacuum, or by damp wiping prior to leaving the Asbestos Work Area:
- .6 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.
- .7 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Asbestos Work Area.
- .8 Prohibit smoking, eating, drinking, chewing in the Asbestos Work Area.

1.13 Authorized Visitor Protection

- .1 Provide clean protective clothing and equipment, and approved respirators to Authorized Visitors.
- .2 Ensure Authorized Visitors have received required training prior to granting entry into Asbestos Work Area.

1.14 Air Monitoring

- .1 Air monitoring will be performed following the National Institute for Occupational Safety and Health method 7400, Asbestos and other fibres by PCM (Phase Contrast Microscopy).
- .2 Co-operate with the Asbestos Abatement Consultant in collection of air samples, including providing workers to wear sampling pumps for up to full-shift periods. Asbestos Abatement Contractor to exercise care with Asbestos Abatement Consultant's equipment. The Owner reserves the right to back-charge the Asbestos Abatement Contractor for further collection of samples damaged by tampering or abuse. In addition, the Asbestos Abatement Contractor will be responsible for the cost of testing equipment repairs resulting from the actions of the Asbestos Abatement Contractor's forces.
- .3 Results of air monitoring of 0.05 fibres per millilitre of air (fibre/mL) or greater, outside of Asbestos Work Area, will indicate asbestos contamination of these areas and result in the following actions:
 - .1 Suspend Work within the adjoining Asbestos Work Area until written authorization to resume Work has been received from the Asbestos Abatement Consultant.
 - .2 Isolate and clean area in the same manner applicable to the Asbestos Work Area.
 - .3 Maintain Work area isolation, and repeat clean-up operations until visual inspection and air monitoring results are at a level equal to that specified.

- .4 Install additional negative air units at locations specified in response to elevated fibre levels being detected in the Clean Change Room or Occupied Areas at the discretion of the Asbestos Abatement Consultant.
- .4 Perform the following when results of PCM monitoring within the Asbestos Work Area show airborne fibre levels have exceeded the respirator protection factor:
 - .1 Immediately stop Work within the Asbestos Work Area.
 - .2 Instruct workers to exit the Asbestos Work Area via the Worker Decontamination Facility while observing specified personal decontamination procedures.
 - .3 Contractor's forces shall not re-enter the Asbestos Work Area until authorized by the Asbestos Abatement Consultant.
 - .4 Upon re-entry to the Asbestos Work Area, mist any fallen debris or exposed surfaces with amended water using an airless sprayer.
 - .5 If PCM monitoring shows repeated failure, change respiratory protection to suitable alternative and change unsatisfactory methods used.
- .5 Cost of additional inspection and sampling performed as a result of elevated fibre levels may be charged to the Asbestos Abatement Contractor at the Owner's discretion.

1.15 Inspection

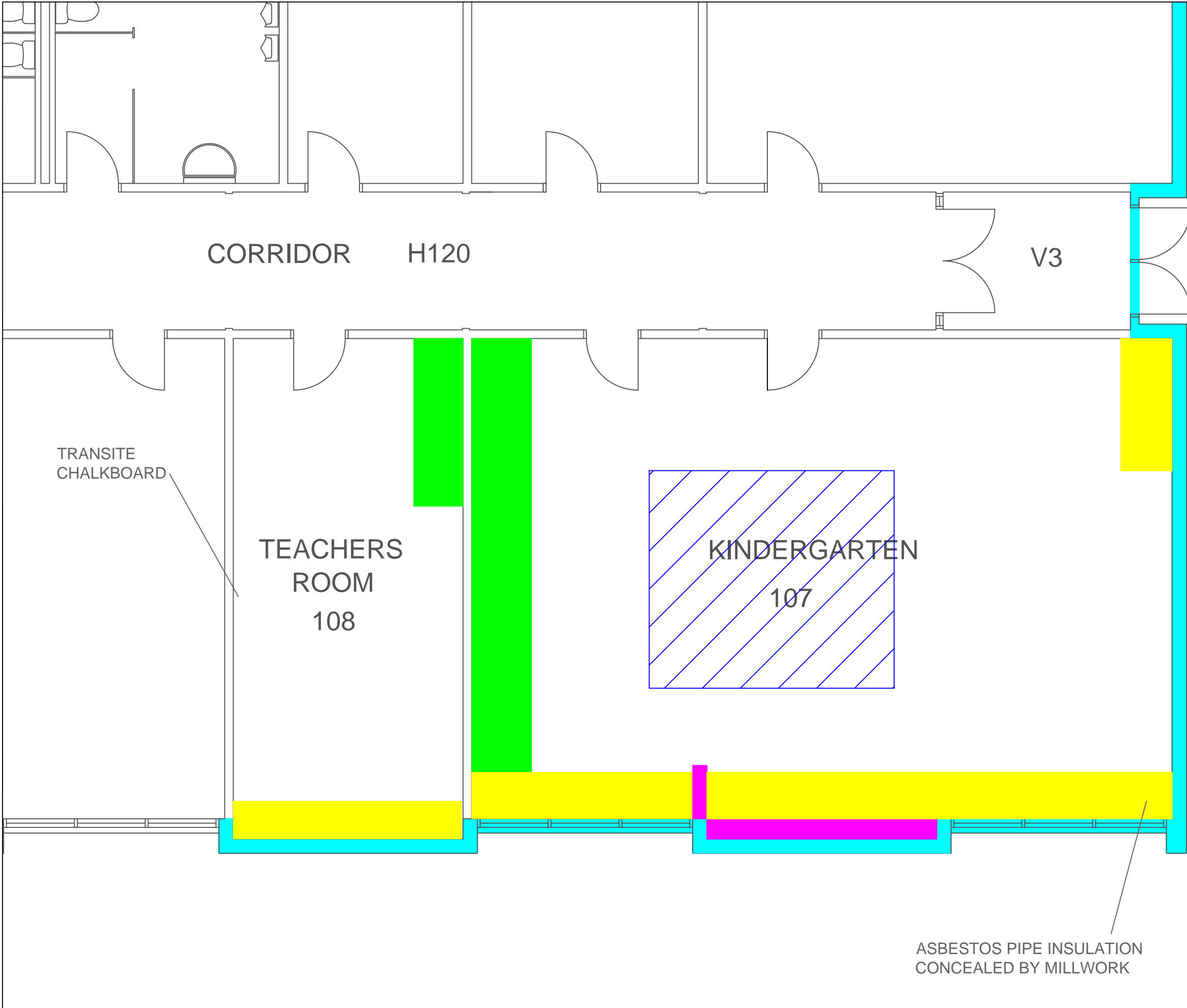
- .1 From commencement of work until completion of clean-up operations, the Asbestos Abatement Consultant may be present periodically on site both inside and outside the Asbestos Work Area.
- .2 The following Milestone Inspections will take place, at the Owner's cost:
 - .1 Clean Site Preparation
 - .1 Inspection of preparations and set-up prior to contaminated work in the Asbestos Work Area.
 - .2 Visual Clearance
 - .1 Inspection of Asbestos Work Area after removal of all asbestos, but prior to application of lock-down agent.
 - .3 Air Monitoring Clearance
 - .1 Inspection and air monitoring after the application of lock-down agent, but prior to removal of Polyethylene from within the Asbestos Work Area.
- .3 Do not proceed with next phase of Work until written approval of each milestone is received from the Asbestos Abatement Consultant.
- .4 In addition to the Milestone Inspections, inspection of the Asbestos Work Area may be performed to confirm the Asbestos Abatement Contractor's compliance with the requirements of the contract documents and governing authorities. Any deviations from these requirements that have not been approved in writing, may result in a stoppage of work, at no additional cost to the Owner.
- .5 The Asbestos Abatement Consultant is empowered by the Owner to inspect for final cleanliness at completion. Additional labour or materials expended by the Asbestos

Abatement Contractor to provide satisfactory performance to the level specified shall be at no additional cost.

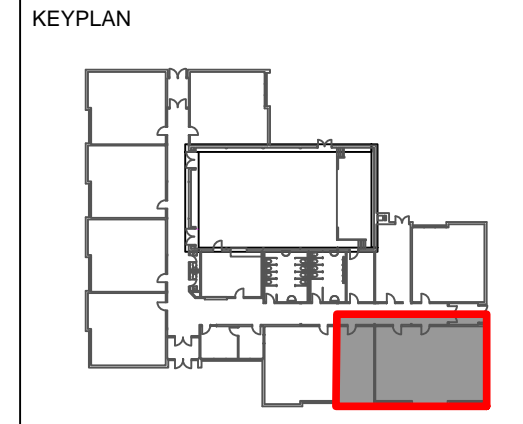
- .6 Inspection and air monitoring performed as a result of Asbestos Abatement Contractor's failure to perform satisfactorily regarding quality, safety, or schedule may be charged to the Asbestos Abatement Contractor at the Owner's discretion.

END OF SECTION

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- LEGEND:**
- MILLWORK COVERING VERMICULITE AND ASBESTOS FLOOR TILE
 - MILLWORK COVERING ASBESTOS FLOOR TILE
 - DRYWALL WALLS
 - WALLS PRESUMED TO CONTAIN VERMICULITE
 - EXTENT OF WATER DAMAGED CEILING



CLIENT:
KAWARTH PINE RIDGE
DISTRICT SCHOOL BOARD

LOCATION:
KIRBY CENTENNIAL PUBLIC SCHOOL
3875 CONCESSION ROAD 7
ORONO, ONTARIO

TITLE:
HAZEROUS MATERIALS
LOCATIONS
GROUND FLOOR

DATE: 2015/03/06	PROJECT #: 102810
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DRAWN BY: RLN	1 OF 1
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CHECKED BY: MW	
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SCALE: NTS	
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ASBESTOS PIPE INSULATION
CONCEALED BY MILLWORK