

Prepared for:

School District 85 - Vancouver Island North

PO Box 90

Port Hardy, British Columbia

V0N 2P0

## Asbestos Inventory and Condition Assessment

**Seaview Carpentry Shop - Port Alice, B.C.**

**NWest Project Number: 30711 V.1.0**



Prepared by:



201 - 415 Gorge Road East  
Victoria, BC V8T 2W1

Tel: (250) 384-9695

Fax: (250) 384-9865

e-mail: [northwest@nwest.bc.ca](mailto:northwest@nwest.bc.ca)

## Executive Summary

North West Environmental Group Ltd. (NWest) was retained by School District 85 - Vancouver Island North to conduct an asbestos inventory and condition assessment at Seaview Carpentry Shop located at Port Alice, B.C..

The non-destructive assessment was conducted on September 5, 2016 by Julie Scott-Moncrieff, B.Sc. (Chem), Senior Occupational Hygienist.

The purpose of this assessment is to provide information regarding the presence and condition of asbestos-containing materials (ACMs) in the building to facilitate compliance with the requirements outlined in BC Occupational Health and Safety Regulations (BC OH&S R) specifically Section 6.4, Inventory. This inventory assessment supports the building owner/manager's regular monitoring of ACM conditions so that materials in good condition may be safely managed in place until they are removed, and damaged materials can be repaired or otherwise addressed in a timely manner. Regular inspections of ACMs are required to mitigate the potential for occupant exposure and for day to day building maintenance activities involving minor disturbance of materials.

### Hidden Suspect ACMS

Based on the age of the facility, asbestos materials may be present but have not been identified. In the event that suspected asbestos materials are encountered that have not been previously identified, engage in the services of a qualified professional to assess them.

Potential ACMS can include:

- Internal parts of appliances and white goods
- Tar/building paper
- Buried cement pipes, and bell and spigot piping seals
- Gaskets and packing in pipe flanges, valves or furnaces
- Old duct tape that is concealed beneath newer layers of tape
- Flooring materials concealed below new flooring, wood subfloors, carpet or ceramic flooring
- Pipe insulation materials (old elbow insulation may remain beneath new elbows)
- Window putties, glazing, mastics or caulks
- Fire doors and frames
- Incandescent light fixtures and backing
- Concrete block walls may contain vermiculite insulation
- Roofing felts, membranes, shingles, mastics and caulks
- Mechanical vibration dampeners, expansion joints and equipment
- Fibreboard Ceiling tiles, glues and adhesives
- Drywall joint compounds
- Ceramic tile levelers, grouts, mortar
- Sink Mastics - Black, White, Gray, Gold, Brown, etc.

**\*Note: Hidden/concealed materials and materials that were not damaged were not assessed. Based on**



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

**the age of construction, potentially asbestos-containing materials may also be present in building finishes and systems. A pre-renovation/demolition hazardous materials assessment must be conducted prior to disturbance as per BC OH&S Regulation Section 20.112.**

General Recommendations with Reference to Applicable Legislation

- In the event that renovation or demolition activities are scheduled for this facility, conduct a project specific hazardous materials assessment as per BC Occupational Health and Safety Regulation (OH&S Regulation) 20.112.
- Inaccessible and suspected asbestos-containing materials must be treated as asbestos-containing until assessed by a qualified person (BC OH&S Regulation 6.4.2)
- Keep this inventory report at the workplace (BC OH&S Regulation 6.4.3 (b))
- Ensure that this report is kept current by recording any changes to the material condition, adding analytical results and regularly assessing material condition (BC OH&S Regulation 6.4.3 (c))
- All asbestos-containing materials must be identified using labelling or other effective means of communicating asbestos status to those who may disturb the materials (BC OH&S Regulation 6.5)
- Ensure a qualified person conducts a risk assessment of on-site materials and again prior to disturbance of materials (BC OH&S Regulation 6.6)

The following table summarises the condition and management action for

1. Materials confirmed to be asbestos-containing through sampling and analysis,
2. Materials visually similar to materials confirmed to be asbestos-containing through sampling and analysis, and
3. Materials suspected to be asbestos-containing based on building age, but not sampled.

**Table 0-2: Condition and Management for Suspected and Confirmed ACMs on Site**

Room Location	Material	Asbestos Status	Condition	Recommended Action
Dark Room (Other)	Penetration Insulation Type 1 - White, cementitious	Suspect	Good	Proactive ACM Removal or Routine Surveillance
Dark Room (Ceiling)	Drywall Joint Compound Type 1 - White, cementitious	Suspect	Fair	Proactive ACM Removal or ACM Repair
Boiler Room (Ceiling)	Drywall Joint Compound Type 1 - White, cementitious	Suspect	Good	Proactive ACM Removal or Routine Surveillance
Exterior (Window)	Caulking Type 1 - Gray	Suspect	Good	Proactive ACM Removal or Routine Surveillance



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

<b>Room Location</b>	<b>Material</b>	<b>Asbestos Status</b>	<b>Condition</b>	<b>Recommended Action</b>
Dark Room (Other)	Gasket Type 1 - Light Gasket	Suspect	Good	Proactive ACM Removal or Routine Surveillance
Boiler Room Dark Room Office Storage Room Storage Room "B" Washroom Welding Room Work Shop (Other, Wall)	Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

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## **1.0 - Introduction**

North West Environmental Group Ltd. (NWest) was retained by School District 85 - Vancouver Island North to conduct an asbestos inventory and condition assessment at Seaview Carpentry Shop located at Port Alice, B.C..

The non-destructive assessment was conducted on September 5, 2016 by Julie Scott-Moncrieff, B.Sc. (Chem), Senior Occupational Hygienist.

The purpose of this assessment is to provide information regarding the presence and condition of asbestos-containing materials (ACMs) in the building to facilitate compliance with the requirements outlined in BC Occupational Health and Safety Regulations (BC OH&S R) specifically Section 6.4, Inventory. This inventory assessment supports the building owner/manager's regular monitoring of ACM conditions so that materials in good condition may be safely managed in place until they are removed, and damaged materials can be repaired or otherwise addressed in a timely manner. Regular inspections of ACMs are required to mitigate the potential for occupant exposure and for day to day building maintenance activities involving minor disturbance of materials.

If renovation or demolition is to be performed, a detailed hazardous material assessment is required as per BC Occupational Health and Safety Regulation (OHSR) 20.112.

## **2.0 - Scope of Work**

The assessment did not include an intrusive investigation to access hidden conditions in wall and ceiling cavities or layers of materials. It is possible that hazardous materials are present in these areas but were not identified. Locations and building materials that have not been assessed should be considered potentially hazardous materials-containing until they can be evaluated by a qualified person.

The following was undertaken as part of this project:

- A non-destructive, room-by-room assessment of all interior building areas, identifying the location, type of material (e.g. vinyl floor tiles, ceiling tiles, etc.) and condition of identified asbestos-containing materials.
- A non-destructive assessment of exterior concrete block to investigate the presence of vermiculite insulation.
- Sampling and analysis of suspected asbestos-containing building materials by an accredited laboratory.
- Identification of all sampling locations and materials on a floor plan.
- Preparation of this inventory and condition report including a summary of remedial recommendations regarding known ACMs was made based on damage and accessibility to occupants and maintenance staff during typical daily activities.



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

### 3.0 - Limitations

1. Ongoing repairs, maintenance, and scheduled renovations may have resulted in some changes to the building after this report was printed.
2. This inventory does not replace the requirement to carry out a project-specific hazardous materials assessment as per WorkSafeBC and British Columbia's Occupational Health and Safety Regulation 20.112.
3. Non-destructive sampling and investigative techniques were not used (i.e. floor core samples were not collected to assess concealed layers of flooring).
4. Wall cavities and ceiling voids were not opened to determine the presence of insulation or other materials. Where possible, existing holes were used to aid in assessment of concealed materials.
5. Materials integral to the building envelope were not sampled (i.e. roofing, window caulking – unless observed damaged, exterior cladding).
6. An assessment of other suspect hazardous materials was not undertaken as it was beyond the scope of this work.
7. Only those buildings or areas known, suspected or reported by the Client to have been constructed prior to 1990 were included in this assessment.

### 4.0 - Building Description

Construction / Renovation Era	1966
Number of Storeys	1
Foundation and Framing	Concrete with Block Walls
Insulation	Not observed.
Roof Membrane	Tar and Gravel with membrane. and mastics.
Exterior Finishes	Caulking
Interior Finishes	Concrete, Concrete Block Walls May Contain Vermiculite, Drywall Joint Compound, Gasket, Metal , Metal Q Deck, Penetration Insulation, Pipe Insulation, Wood
Heating, Ventilation and Air Conditioning	Radiant Heat
Lighting	Fluorescent and Incandescent.
Fire Protection	Fire extinguishers.

### 5.0 - Site Work and Analysis Methodology



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

### *Visual Assessment*

The NWest technologist conducted a visual assessment of each room to identify, assess and record the condition, accessibility and friability of suspect ACMs. Representative photographs were taken of each material. Analytical results were extrapolated for rooms and areas with similar finishes to those where samples were collected.

The assessment was non-destructive. Where holes and penetrations were present, they were used to assess buildings for the presence of concealed asbestos-suspect materials.

### *Sample Collection*

Samples were collected in general accordance with WorkSafeBC requirements for bulk sampling for asbestos and NWest standard procedures.

Whenever practicable, sampled materials were cut down to the base substrate to ensure that a representative sample was collected. In order to reduce visible damage, samples were collected in discreet locations or from damaged materials. Sample locations were enclosed/encapsulated with caulking or putty.

Samples were submitted with a chain of custody to an accredited laboratory for analysis using EPA 600/R-93/116 method using Polarized Light Microscopy with Dispersion Staining.

## **6.0 - Results and Condition Assessment**

Room by room results and condition assessment can be found in Appendix A.

### Hidden Suspect ACMS

Based on the age of the facility, asbestos materials may be present but have not been identified. In the event that suspected asbestos materials are encountered that have not been previously identified, engage in the services of a qualified professional to assess them.

Potential ACMS can include:

- Internal parts of appliances and white goods
- Tar/building paper
- Buried cement pipes, and bell and spigot piping seals
- Gaskets and packing in pipe flanges, valves or furnaces
- Old duct tape that is concealed beneath newer layers of tape
- Flooring materials concealed below new flooring, wood subfloors, carpet or ceramic flooring
- Pipe insulation materials (old elbow insulation may remain beneath new elbows)
- Window putties, glazing, mastics or caulks
- Fire doors and frames



**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

- Incandescent light fixtures and backing
- Concrete block walls may contain vermiculite insulation
- Roofing felts, membranes, shingles, mastics and caulks
- Mechanical vibration dampeners, expansion joints and equipment
- Fibreboard Ceiling tiles, glues and adhesives
- Drywall joint compounds
- Ceramic tile levelers, grouts, mortar
- Sink Mastics - Black, White, Gray, Gold, Brown, etc.

## **7.0 - Recommendations and Actions**

### **GENERAL RECOMMENDATIONS with Reference to Legislation:**

- In the event that renovation or demolition activities are scheduled for this facility, conduct a project specific hazardous materials assessment as per BC Occupational Health and Safety Regulation (OH&S Regulation) 20.112.
- Inaccessible and suspected asbestos-containing materials must be treated as asbestos-containing until assessed by a qualified person (BC OH&S Regulation 6.4.2)
- Keep this inventory report at the workplace (BC OH&S Regulation 6.4.3 (b))
- Ensure that this report is kept current by recording any changes to the material condition or adding analytical results (BC OH&S Regulation 6.4.3 (c))
- All asbestos-containing materials must be identified using labelling or other effective means of communicating asbestos status to those who may disturb the materials (BC OH&S Regulation 6.5)
- Ensure a qualified person conducts a risk assessment of on-site materials and again prior to disturbance of materials (BC OH&S Regulation 6.6)

## 8.0 - Closure

North West Environmental Group Ltd. (NWest) conducted this asbestos inventory assessment for the client in accordance with the agreed upon scope of work for the project.

The report may not be relied upon by any other person or entity without the express written consent of NWest. Any use a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. NWest accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Some of the information presented in this report was provided through existing documents and interviews. NWest has been required to assume that the information provided is accurate. NWest accepts no responsibility for any deficiency, misstatement, or inaccuracy in this report resulting from the information provided by others. Further, NWest shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the assessment was conducted.

The conclusions presented represent the best judgment of our firm based on current standards and on the site conditions observed during the assessment. The assessment of the current conditions at this site has been based on field observations, sampling and laboratory analytical results. The information presented in this report concerning asbestos within the study area investigated is descriptive of conditions at those locations only. Asbestos containing materials not represented by these analytical results may be present on the subject property.

### North West Environmental Group Ltd.



Bill Sullivan, B.Sc.  
Senior Project Manager  
Qualified person as per OHS Reg 6.1  
*Report Reviewer*



Julie Scott-Moncrieff, B.Sc. (Chem)  
Senior Occupational Hygienist  
Qualified person as per OHS Reg 6.1  
*Report Author*

## Appendix A - Room by Room Survey

Following is a room-by-room review of the building, including sampling and analysis. This section is to be read in conjunction with the General Notes.

### Exterior

Exterior

Window: Caulking Type1 - Gray, Caulking Type1 - Gray

### Sample Results:

Sample 30711-1 - Caulking Type 1 (no asbestos detected)  
Sample 30711-4 - Caulking Type 1 (no asbestos detected)



## Boiler Room

### Interior


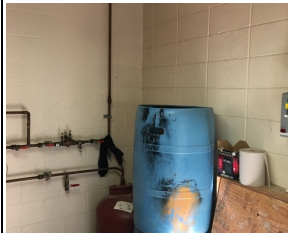
Ceiling: Drywall Joint Compound Type1 - White, cementitious  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete

### Sample Results:

(None Collected)



### Condition and Management for Suspected and Confirmed asbestos containing materials observed:

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Drywall Joint Compound Type 1 - White, cementitious	Suspect	Good	Proactive ACM Removal or Routine Surveillance
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Dark Room

### Interior

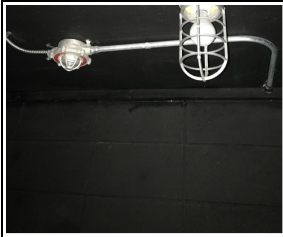

Ceiling: Drywall Joint Compound Type1 - White, cementitious  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete  
 Other: Gasket Type1 - Light Gasket, Penetration Insulation Type1 - White, cementitious



### Sample Results:

Sample 30711-2 - Drywall Joint Compound Type 1 (no asbestos detected)  
 Sample 30711-3 - Penetration Insulation Type 1 (no asbestos detected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance
		Gasket Type 1 - Light Gasket	Suspect	Good	Proactive ACM Removal or Routine Surveillance

**Office**

Interior


Ceiling: Wood  
 Floor: Concrete  
 Other: Concrete Block Walls May Contain Vermiculite



**Sample Results:**

(None Collected)

**Condition and Management for Suspected and Confirmed asbestos containing materials observed:**

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Storage Room

### Interior


Ceiling: Wood  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete  
 Other: Pipe Insulation Type1 - Fibreglass



### Sample Results:

(None Collected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Storage Room "B"

### Interior


Ceiling: Wood  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete

### Sample Results:

(None Collected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:



Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Washroom

### Interior


Ceiling: Wood  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete

### Sample Results:

(None Collected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:



Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Welding Room

### Interior


Ceiling: Metal  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete



### Sample Results:

(None Collected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance

## Work Shop

### Interior


Ceiling: Metal Q Deck  
 Wall: Concrete Block Walls May Contain Vermiculite  
 Floor: Concrete



### Sample Results:

(None Collected)

### Condition and Management for Suspected and Confirmed asbestos containing materials observed:

Photograph	Sample Number	Material	Asbestos Status	Condition	Action
		Concrete Block Walls May Contain Vermiculite	Suspect	Good	Proactive ACM Removal or Routine Surveillance



## Appendix C – Sample Locations

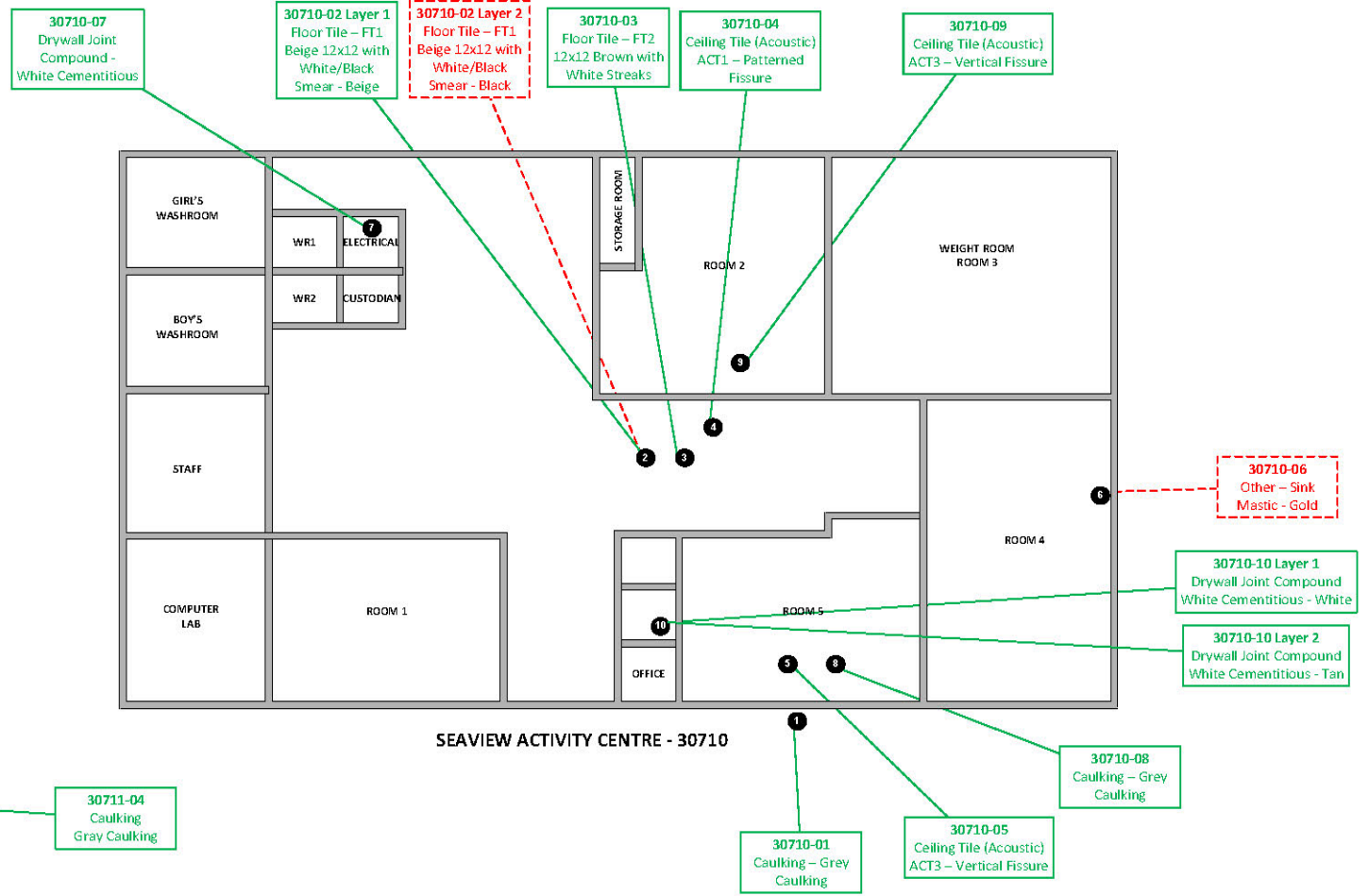


**North West**  
Environmental Group Ltd.

**Refer to Section 6.0**

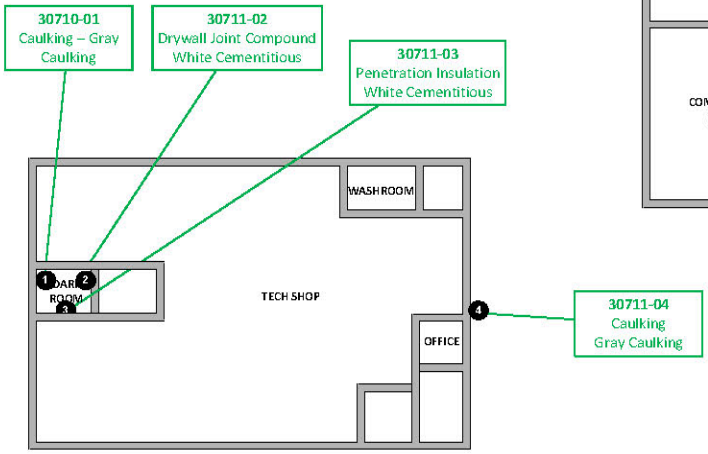
**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

# #30710




SEAVIEW ACTIVITY CENTRE - 30710

# #30711



SEAVIEW CARPENTRY - 30711

Drawing Not to Scale

<p><b>Sample Result Key</b></p> <p><span style="border: 1px solid green; padding: 2px;">123</span> No Asbestos Detected</p> <p><span style="border: 1px dashed red; padding: 2px;">123</span> Material Contains Asbestos</p> <p><span style="border: 1px solid blue; padding: 2px;">123</span> Lead (Pb) Sample</p>		<p><b>ADDRESS/LOCATION:</b> Sea View Activity Centre &amp; Carpentry 1120 Nigei Street, Port Alice, BC V0N 2N0</p> <p><b>DRAWING TITLE:</b> School District 85</p>	<p><b>PROJECT NO.:</b> 30710 &amp; 30711</p> <p><b>DATE:</b> 09/02/2016</p> <p><b>SURVEYED BY:</b> Julie Scott/Moncrieff/ Bill Sullivan</p> <p><b>DRAWING NO.:</b> 007</p>	 <p><b>North West Environmental Group Ltd.</b></p> <p>#201-415 Gorge Road East Victoria B.C. V8T 2W1</p>
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## Appendix D - Evaluation of Asbestos Containing Materials (ACMs)

Evaluation of asbestos containing materials is based on the condition of the material and its accessibility. Following are the guidelines used to evaluate ACMs and the action, if any, required to safely manage them.

### Spray Applied Fireproofing, Insulation and Texture Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes, the following criteria apply:

<b>GOOD</b>	Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes un-encapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.
<b>POOR</b>	Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

### Mechanical Insulation

In evaluating the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

<b>GOOD</b>	Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.
<b>FAIR</b>	Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.
<b>POOR</b>	Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

### Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos Concrete products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

### Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

<b>Access (A)</b>	Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.
<b>Access (B)</b>	Frequently entered maintenance areas within reach of maintenance staff, without need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.
<b>Access (C) Exposed</b>	Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.
<b>Access (C) Concealed</b>	Areas of the building which require removal of a building component including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces etc. Observations are limited to the extent visible from the access points.
<b>Access (D)</b>	Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition or the ceiling, wall or equipment etc., is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the assessor's ability to visually examine the materials in Access D.

### Action Matrix

The Action Matrix determines what, if any, action is required to safely manage ACMs:

Access	Condition			
	Good	Fair	Poor	Debris
(A)	ACTION 5/7	ACTION 5/6	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5	ACTION 3	ACTION 1
(C) Exposed	ACTION 7	ACTION 6	ACTION 4	ACTION 2
(C) Concealed	ACTION 7	ACTION 7	ACTION 4	ACTION 2
(D)	ACTION 7	ACTION 7	ACTION 7	ACTION 7

### Action Table

Following is a description of the action required to manage ACMs, based on the outcome of the evaluation:

Action 1	<b>Immediate Clean Up of Debris That is Likely to be Disturbed</b>
	Restrict access that is likely to cause a disturbance of the ACM DEBRIS and clean up ACM DEBRIS immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements.
Action 2	<b>Entry Into Areas with ACM Debris</b>
	At locations where ACM DEBRIS can be isolated in lieu of removal or clean up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos-work precautions. The precautions will be required until the ACM DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed.
Action 3	<b>ACM Removal Required for Compliance</b>
	Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

<b>Action 4</b>	<b>Access into Areas Where ACM is Present and Likely to be Disturbed by Access</b>
	Use asbestos precautions when entry or access into an area likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if DEBRIS is present).
<b>Action 5</b>	<b>Proactive ACM Removal</b>
	Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable.
<b>Action 6</b>	<b>ACM Repair</b>
	Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed during normal use of the area or room, implement ACTION 5.
<b>Action 7</b>	<b>Routine Surveillance</b>
	Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precaution during disturbance of the remaining ACM.

## Appendix E – Asbestos and Management Programme Basics

### Background Information - Asbestos

The term 'asbestos' refers to a group of mineral fibres that share the properties of thermal and chemical resistance flexibility, and high tensile strength. The name is derived from the Greek word meaning 'indestructible' or 'inextinguishable'. 'Asbestos' is actually a common name rather than a mineralogic one.

Asbestos is made up of long, thin fibres that appear somewhat similar, though smaller than fibreglass. They are flexible, strong and soft enough to be woven into cloth but can withstand fire, friction, and most chemicals.

WorkSafeBC's Occupational Health and Safety Regulation defines an asbestos-containing material as

- a) any manufactured article or other material, other than vermiculite insulation, that would be determined to contain at least 0.5% or more asbestos if tested in accordance with one of the following methods:
  - i. Asbestos, Chrysotile by XRD, Method 9000 (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Centre for Disease Control;
  - ii. Asbestos (bulk) by PLM, Method 9002 (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Centre for Disease Control;
  - iii. Test Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116, dated July 1993) published by the United States Environmental Protection Agency;
- b) vermiculite insulation that would be determined to contain any asbestos if tested in accordance with the Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation (EPA/600/R-04/004, dated January 2004) published by the United States Environmental Protection Agency;

The asbestos-containing material can also be characterized as friable and non-friable. Friable asbestos 'means any material which, when dry, can be easily crumbled or powdered by hand pressure, or a material that is crumbled or powdered' as defined under the BC Occupational Health and Safety Regulation. Worker exposure to asbestos fibres is also regulated by the BC Occupational Health and Safety Regulation. The WorkSafeBC eight-hour time-weighted average (TWA) for asbestos fibres (all forms) is 0.1 fibre/cm<sup>3</sup>. Asbestos is designated as an ALARA substance; worker exposure to this product must be kept 'as low as reasonably achievable' (ALARA). Employers are required to develop an exposure control plan (ECP).

### Asbestos Management Programme

The WorkSafeBC Occupational Health and Safety Regulation Section 6 – General Requirements, requires that an asbestos management programme be implemented and regularly reviewed when asbestos containing materials are present in the work place.



**Refer to Section 6.0**

**Warning:** in the event any additional suspect materials are encountered during renovation/repair activities, work on those materials should stop immediately and remain undisturbed until testing confirms the presence or absence of asbestos or other hazardous material

Components of an asbestos management programme include:

- statement of purpose and responsibilities for management programme,
- identification of asbestos-containing materials (this document),
- labelling or other means of identification of ACMs
- worker asbestos-awareness training,
- written safe work procedures,
- health monitoring where required,
- minimum annual review of ACM inventory and condition

### Risk Assessments

Projects that will result in the disturbance of asbestos-containing materials (ACMs) must satisfy WorkSafeBC's regulations and conform to the guidance document Safe Work Practices for Handling of Asbestos.

A hazardous materials risk assessment by qualified personnel must be completed prior to any removal and/or alteration work within the building as per BC OHS&R Section 20.112. Protective personal equipment is required during any work or major alteration that may disturb hazardous materials including synthetic or asbestos insulation and/or dust that may be present. Safe work procedures must be implemented prior to exposing or disturbing any of these areas/materials by trained personnel.

End of report.