

# Hazard Management Information for Service Providers / Contractors



BC Housing

## Contract Administrator Contact Information

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Phone #: \_\_\_\_\_

## Hazard Summary Guide

The following is a sample guide of procedures/practices within BC Housing to address hazards. Note that contractors/service providers may use their own methods for addressing hazards as long as they are in compliance with OHS guidelines. Contract administrators are available to consult on specific issues as required. This guide intends to provide additional information/guidance on particular hazards unique or significant in BC Housing. All service providers and contractors must know and strictly adhere to WorkSafe BC regulations. BC Housing reserves the right to terminate at any time a Contractor who does not comply with the Act and Regulations.

Workers are responsible for ensuring that they:

1. Know and comply with the requirements of the applicable health and safety program and Worksafe BC regulations.
2. Report all unsafe practices and conditions to their supervisor.
3. Take corrective action, when practicable, to eliminate potential hazards.
4. Do not operate machinery or equipment unless they are authorized and trained to do so.
5. Do not operate machinery or equipment unless all safeguards are in place and functioning and no person will be endangered.
6. Immediately report all work-related injuries and health problems to their supervisor and the first aid attendant. For all work-related injuries or health problems requiring off-site medical aid (treatment by a physician), the affected worker is to complete Worksafe BC Form 6A as soon as is reasonably practicable and submit it to the contractor.
7. Are not under the influence of alcohol or other drugs.
8. Do not engage in horseplay, scuffling, worker-to-worker violence, practical jokes or similar conduct that may endanger themselves or others.
9. Maintain good housekeeping in their work area.
10. Remove or otherwise secure jewelry and other loose fitting objects, such as clothing or hair that could become caught in machinery or equipment.
11. Wear and maintain personal protective equipment where required by Worksafe BC regulations, contractor or project policy.
12. Refuse to do work that would create a danger to the health or safety of themselves or others.
13. Set a good example for their peers.
14. Use WHMIS-controlled products and materials in accordance with WHMIS requirements
15. Adhere to Transportation of Dangerous Goods (TDG) requirements.
16. Attend all safety meetings and take an active role in accident prevention.
17. **INFORM YOUR CONSTRUCTION SAFETY OFFICER OF ANY ALLERGIC REACTIONS. I.E.: PENICILLIN, BEE STINGS, ASTHMATIC, OR ANY OTHER ISSUES THAT REQUIRE MEDICATION FOR ASSISTANCE BY A CONSTRUCTION SAFETY OFFICER OR OTHER FELLOW WORKERS.**



# MAIN TABLE OF CONTENTS

<b>CHAPTER 1 – ASBESTOS MANAGEMENT .....</b>	<b>5</b>
SECTION 1 – BACKGROUND .....	6
SECTION 2 – CONSTRUCTION PRODUCTS.....	9
SECTION 3 – BUILDING ASBESTOS INVENTORY .....	12
SECTION 4 – CONTRACTING / SUB-CONTRACTING SERVICES .....	15
SECTION 5 – TENANT AWARENESS AND SAFETY.....	17
SECTION 6 - MANAGEMENT PROGRAM .....	21
SECTION 7 - SAMPLE PROCEDURES .....	22
<b>CHAPTER 2 - MOULD MANAGEMENT .....</b>	<b>26</b>
SECTION 1 – BACKGROUND .....	26
SECTION 2 - MOULD MANAGEMENT.....	28
SECTION 3 - SAFE WORK PROCEDURES .....	31
SECTION 4 - TENANT AWARENESS AND SAFETY.....	32
<b>CHAPTER 3 - PEST CONTROL.....</b>	<b>33</b>
<b>CHAPTER 4 - PREVENTION OF VIOLENCE IN THE WORKPLACE .....</b>	<b>34</b>
SECTION 1 - VERBAL THREATS MADE IN PERSON AT RESIDENTIAL SITES.....	34
SECTION 2 - ATTEMPTED BODILY HARM, OR PHYSICAL ASSAULT, OR THREATS WITH A WEAPON AT RESIDENTIAL SITES.....	36
SECTION 3 - MENACING DOGS AT RESIDENTIAL SITES .....	38
<b>CHAPTER 5 - UNIVERSAL PRECAUTIONS: NEEDLES AND SHARPS .....</b>	<b>39</b>
SECTION 1 - PROCEDURES .....	39
SECTION 2 - WHAT TO DO WHEN AN EXPOSURE INCIDENT OCCURS .....	40
<b>CHAPTER 6 - PERSONAL SAFETY RULES.....</b>	<b>41</b>
FALL PROTECTION .....	42



SCAFFOLDS .....	43
LADDERS.....	43
MATERIAL HANDLING .....	43
HOUSEKEEPING.....	44
ELECTRICAL .....	44
HEAVY EQUIPMENT .....	44
ACETYLENE OR PROPANE FIRED DEVICES.....	45
EXCAVATION .....	46
CONCRETE GRINDING.....	46
ELECTRICAL EQUIPMENT LOCKOUT.....	46
POWDER ACTUATED TOOLS.....	47
WHMIS .....	47
ENTRY INTO CONFINED SPACES.....	47
HOISTING OVER WORK AREAS.....	49
RIGHT TO REFUSE UNSAFE WORK.....	50
SCISSOR LIFT, BOOMS AND GIRAFFES .....	50
<b>CHAPTER 7 – HAZARD ASSESSMENT .....</b>	<b>58</b>
SECTION 1 – HAZARD CHECKLIST.....	58
SECTION 2 – HAZARD ASSESSMENT – CONSTRUCTION .....	60
<b>RECEIPT OF SAFETY HANDBOOK (CONTRACTOR’S COPY) .....</b>	<b>62</b>
<b>RECEIPT OF SAFETY HANDBOOK (EMPLOYER’S COPY).....</b>	<b>63</b>
<b>DISCLAIMER.....</b>	<b>64</b>

## CHAPTER 1 – ASBESTOS MANAGEMENT

BC Housing wants to ensure that the safety of individuals and this includes ensuring potential exposure to asbestos containing materials is minimal or eliminated in all workplaces/residences. Because of the years that many of our buildings were built, there is likelihood that they contain some asbestos in the building materials.

Asbestos is a naturally-occurring mineral used for fireproofing and many other applications. It is mined from rock in the form of a fiber that can be spun or woven into fabric and other products. Its many qualities led to widespread use before its serious health effects were common knowledge. Asbestos doesn't burn. It's flexible, strong, resistant to chemical damage, an insulator against heat and inexpensive. Although asbestos has since been banned for many uses, it remains present in older construction, fireproofing and insulation products. It causes no harm as long as it is contained, but if it is disturbed or asbestos-containing products break apart, they release tiny fibers that can be breathed in and set off serious illness.

Work that you do in construction, maintenance, or demolition could potentially release asbestos fibers and place people at risk for exposure. Asbestos usually is mixed with other materials. For example, some floor tiles contain a small amount of asbestos. The mineral can be found in sprayed fireproofing, sprayed insulation, fire doors, pipe and boiler wrap, building insulation in walls and ceilings, cementing compounds used in plumbing, older shingles and siding.

This manual has been developed for service providers to provide guidance in ensuring compliance with WorkSafe BC Health and Safety Regulations. As the building owner, we want to ensure that service providers are aware of potential hazards of exposure and apply the required program to ensure safety practices to reduce risk.



## SECTION 1 – BACKGROUND

### WHAT IS ASBESTOS?

The public is often confused about the exact nature of asbestos. When questioned, most people will say that it is a manufactured product, probably made from chemicals. In fact it is a mineral rock mined from the earth in much the same ways as other minerals, such as iron, lead and copper. The major difference is that most forms of asbestos are ready for use almost immediately. Instead of having to crush it up into small pieces for smelting before it can be used in manufacturing, asbestos rock was simply graded into differing fiber types and sizes, and sent directly to the manufacturing plants.

The term "Asbestos" is a generic term for a group of naturally occurring fibrous silicate minerals found around the world in large surface deposits. Mining is usually an "open pit" type operation, where the miners literally scrape the ore from the surface for processing.

Asbestos fibers come in three common varieties: chrysotile, amosite and crocidolite (white, brown, blue). All three varieties exhibit substantial resistance to heat and chemicals, and thus have been used for a variety of commercial and industrial purposes. In fact, asbestos has been used in more than 3,000 manufactured products.

Asbestos can be divided into two very distinct groups, with a number of separate ores in the amphibole group, and a single ore in the serpentine category (Table 1).

**Table 1: Types of Asbestos**

<b>Serpentine Group</b>	<b>Amphibole Group</b>
Chrysotile (white)	Amosite (brown)
	Crocidolite (blue)
	Tremolite
	Anthophyllite
	Actinolite

The asbestos industry started during the 1870's when the first commercial chrysotile (white) asbestos mine opened in Quebec. The crocidolite (blue) asbestos variety was first mined in South Africa during the 1890's. Amosite (brown) also comes from Africa, and was actively mined beginning in 1916. Between 1964 and 1973, the two major asbestos producing countries were Canada and the USSR. In 1985, the annual world production of asbestos was about 4 million tons. Chrysotile asbestos is by far the most predominant type used in the construction industry accounting for about 95% of world asbestos construction with Canada the major producer up until the late 1980's (asbestos is still mined in Quebec and was mined in British Columbia until 1993).



## **ASBESTOS-RELATED DISEASES**

### **Asbestosis**

Asbestosis is a disease, similar to Silicosis, characterized by fibrotic scarring of the lung. It is a restrictive lung disease that reduces the capacity of the lung. The common symptom is shortness of breath. Asbestosis was prevalent among workers who have been exposed to large doses of asbestos fibers over a long period of time. Accordingly, there is a clear dose-response relationship between asbestos exposure and development of this disease. This means that the greater the asbestos exposure, the more likely asbestosis will develop. All forms of asbestos have demonstrated the ability to cause asbestosis. As with all diseases associated with asbestos exposure, it may take many years for the disease to develop. The typical latency period for asbestosis is 15-30 years.

Studies from the 1930's through to the 1960's clearly demonstrated that since the inception of dust control in the asbestos industry the incidence of asbestosis has been progressively reduced to very low levels. The likelihood of a worker in British Columbia contracting asbestosis today is very low; particularly since British Columbia's only asbestos mine was closed recently. In fact, the only real possibility of a worker contracting this disease would be if asbestos removal work took place in a completely uncontrolled manner over a long period of time.

### **Lung Cancer**

Unlike asbestosis, cancer is a cellular disorder that can be initiated by many factors. In many cases, asbestos may only be a contributory factor to lung cancer. While employees exposed to industrial concentrations of asbestos in years past have an increased risk of developing lung cancer (5 times), a cigarette smoker who also works with asbestos is more than 50 times as likely to contract lung cancer than the regular population. Medical research indicates that asbestos exposure predominantly leads to lung cancer only when considerable asbestosis is present, though there is also conflicting evidence that cancer may develop from asbestos exposure without the presence of asbestosis. Like asbestosis, there exists a long latency period between initial exposure and the onset of symptoms related to lung cancer, typically 15-30 years.

There is also growing evidence that asbestos is not a complete carcinogen. Asbestosis may "prepare the way" for the development of cancer, rather than cause it. In fact, if a lung cancer patient with asbestos exposure is also a smoker, and no fibrosis is present, some other cause for the cancer must be sought.

Although there appears to be a dose-response relationship between asbestos exposure and lung cancer, again research figures relate to past industrial situations where workers wore little or no protective equipment, in an environment of constant daily exposure. Research has shown that proper worker protection and work practices will substantially lessen the risk of workers developing lung cancer due to asbestos exposure.



## **Mesothelioma**

In terms of low level or episodic exposure, the asbestos-associated disease of greatest concern appears to be mesothelioma. This disease results in cancers of the chest cavity lining (pleural mesothelioma) and the lining of the abdominal cavity (peritoneal mesothelioma). This type of cancer spreads very rapidly and is always fatal (usually within 2 years of diagnosis). Fortunately, mesothelioma is rare; resulting in about 500 or so cases each year in the U.K. and 2 cases per 1,000,000 persons per year in the U.S. (in those not exposed to asbestos). Although exposure to asbestos has been strongly associated with most cases of mesothelioma, some cases (approximately 30%) may occur in the absence of asbestos exposure.

There is no scientific reason to assume that all mesotheliomas are caused by asbestos. As early as 1972, researchers have been able to induce mesothelioma in animals by applying fine glass fibers (as well as asbestos) directly to the inner lining of the chest cavity. Bacteria and viruses have also been implicated as the cause of some cases of mesothelioma.

Occasional cases of mesothelioma that occur after minimal asbestos exposure have attracted considerable publicity (e.g. family members of factory or mine workers). Investigations have shown that many of these situations provided ample opportunity for significant exposure through contamination of a household with asbestos dust brought home on a worker's cloths, shoes etc. In fact, fiber levels, measured in these homes, were as high as in some areas of the factories. Chest X-rays taken on the wives and children of these workers revealed lung abnormalities (fibrosis and plaques) characteristically seen with chronic asbestos exposure.

Recent studies also indicate that only amphibole asbestos types (amosite, crocidolite etc.), not chrysotile, are implicated in the development of mesothelioma.

## **Other Diseases**

Although by no means conclusive, it would appear that several other less common diseases are found among persons exposed to asbestos more often than the general population. They include: cancer of the esophagus; stomach; colon; larynx; pancreas; pleural plaques; pleural thickening and pleural effusion. Most experts accept the suggestion that an increased incidence of cancer of the larynx is attributable to asbestos exposure, however the case for the other diseases is weak.





## SECTION 2 – CONSTRUCTION PRODUCTS

### USES OF ASBESTOS IN CONSTRUCTION, BUILDINGS AND MANUFACTURING

Asbestos has been widely used in the construction and manufacturing industry, with some uses continuing even to this day. As a construction material, the uses of asbestos were almost without limitation. It is resistant to all but the strongest chemicals, is an excellent electrical and thermal insulator, is stronger in tension and compression than steel, is a good binder, and has high heat and fire resistance.

The uses of asbestos are generally classed into two groups; friable and non-friable products:

**Friable Asbestos:** A friable asbestos material is defined as a material that when dry can be crumbled, pulverized or powdered by hand pressure, thus generating respirable dust.

**Non-Friable Asbestos:** A non-friable asbestos material is one that cannot be crumbled, pulverized, or powdered by hand pressure. In other words you need a power or hand tool to cut, abrade, or drill the material in order to generate respirable dust.

### NON-FRIABLE ASBESTOS PRODUCTS

#### **Asbestos-Cement (A/C) Products**

The largest use of asbestos, in terms of the tonnage of fibers employed, is as a reinforcing agent in cement products. Asbestos-reinforced cement is strong, durable, rigid and resistant to both fire and weather. Portland cement, water and asbestos are mixed to form slurry from which end products can be fabricated by a process similar to that used in paper making. Products include sheets, pipes and a wide variety of other shapes. The asbestos fiber content of A/C products is usually about 30 percent.

Asbestos-cement sheet is produced in four basis forms: flat sheet, corrugated sheet, siding shingles and roofing shingles. The main use of A/C sheet is for the roofing and cladding of buildings. Other uses are decorative paneling, electrical insulation and laboratory tabletops. Asbestos-cement pipe is used for water supply, sewage, irrigation, drainage applications, the transport of corrosive chemical fluids, and electric and telephone conduits, and lightweight concrete. Asbestos cement products are still in use and production, though they are slowly being eliminated.

#### **Gaskets and Packings**

The combination of long asbestos fibers and high temperature rubbers has provided some of the best gasket materials. The asbestos, in bulk fiber, woven, or plaited form,



provides strength and temperature resistance, while the rubber acts as a binder and sealing material. Asbestos yarns have been commonly used in the manufacture of braided and woven packing materials. Many of these uses, particularly in sheet forms are still in production and use.

### **Coatings and Sealants**

Asbestos has been used in roof coatings and cement and, to a lesser extent, in paints, sealants and caulks and electrical putty. Roof coatings consist of; asphalt liquefied with solvents with an asbestos fiber filler. Roof cements are similar, but they are formulated to a thicker consistency so that they can be used to seal openings through which a liquid coating would flow. Some of these are still in production.

### **Paper Products**

Asbestos paper products are used in a wide variety of applications. Among the most important in construction are roofing felt, linoleums, gaskets, pipeline wrap, water filters, millboard and electrical insulation. Some of these applications are discussed under the headings "Insulation" and "Gaskets and Packings". Some uses (particularly where impregnated with tar or asphalt for roofing and pipeline wrap) are still in production.

### **Plastics**

Asbestos has been used as a reinforcing agent in a wide range of asbestos/polymer composites. Applications include; brake and transmission components, electrical insulators, floor tiles, engine housings, bins and containers, chairs, and a variety of coatings, adhesives, caulks, sealants and patching compounds. Two areas have dominated asbestos use in plastics: phenolic molding compounds and vinyl-asbestos tile. Few of these products remain in production.

### **Asbestos Textiles**

Asbestos textile materials are predominantly manufactured from chrysotile fibers. Two types of yarn are produced: plain (possibly braced with organic fibers), and reinforced, which incorporates either wire or another yarn such as nylon, cotton or polyester. Major uses for asbestos textiles are gaskets, packings, friction materials, thermal and electrical insulation, and fire resistant applications, e.g. welding curtains, protective clothing, theater curtains, hot conveyor belts and ironing board covers. These products are considered to be friable as they may generate high asbestos fiber levels when used. Asbestos textiles are no longer in widespread production.

### **Friction Materials**

Asbestos has been used in the manufacture of brake and clutch linings and pads. The asbestos fibers may be embedded in a phenolic resin with various mixtures of fillers or a woven asbestos cloth may be impregnated with the resin. Friction products are primarily used in vehicles but may be used in any rotating machinery. They are still widely produced and used.



## **FRIABLE ASBESTOS MATERIALS**

These products are the main concern of regulatory agencies, the public and asbestos control programs due to the ease of fiber release. None of these products are in production today.

### **Sprayed or Trowelled Fireproofing or Sprayed Insulation**

Several types of fireproofing or insulation were used in the period from the mid 1930's to 1978 in Canada. Fibrous products were spray applied after being blown as a dry mix through an application gun to a nozzle where they were mixed with water and binders. These products may contain up to 90% asbestos and any of the three major types of asbestos (chrysotile, amosite or crocidolite). Fibrous products are the only products used in marine applications for fireproofing.

Cementitious products contained portland cement and were trowelled or sprayed as wet slurry onto the surface of the buildings. These were harder products that typically did not contain more than 15% asbestos and often only 1 to 2%. Chrysotile asbestos was the most common asbestos type used in the cementitious type materials.

### **Sprayed or Trowelled Texture or Acoustic Plasters**

The use of asbestos was widespread in trowelled or sprayed texture coats, stipple coats or acoustic plasters or decorative ceilings from the 1950's to the late 1970's (at least as late as 1979). These products usually contain less than 25% chrysotile. Some of these products may be considered non-friable in place and only become friable when disturbed by construction or demolition. Other products in this group can be very soft and extremely friable.

### **Mechanical Insulation**

This is the most widespread use of friable asbestos in buildings. Their use dates from the late 1800's to the late 1970's. The material can have a number of appearances and asbestos contents, including block, corrugated or layered paper and cement. It is possible to find all asbestos types in mechanical insulation although, as with other products, chrysotile is predominant.



## **SECTION 3 – BUILDING ASBESTOS INVENTORY**

### **INVENTORY**

A representative inventory of all asbestos containing materials has been produced and maintained by BC Housing. The information regarding all test results of sampled materials is available and any survey information can be attained through your contract administrator.

- The inventory provides details on the presence of any identified asbestos containing materials. The inventory is updated as a result of reno work done when materials are removed or when additional testing is conducted.
- For work being conducted on workplaces which are not currently inventoried, it is the responsibility of the Service Provider/Contractor to ensure testing is completed on suspected materials prior to the commencement of any work. A record of these tests is to be copied to your contract administrator for getting the inventory updated.

### **SUSPECTED ASBESTOS CONTAINING MATERIALS**

It is possible that the inventory does not have every material suspected of containing asbestos, therefore, in the absence of a formal report, you must assume all building materials contain asbestos until proven otherwise. Of particular concern are the “friable” suspect materials. When encountered, these unknown materials arrange for the analysis of the material.

To assist in identifying suspected asbestos-containing materials, the following items should be considered as containing asbestos until such time as laboratory analysis determines otherwise:

- Flooring – Flooring materials, especially older tiles sometimes located underneath newer flooring or carpets. Asbestos fibers in these materials may be encapsulated within a non-asbestos vinyl compound or enclosed behind a non-asbestos vinyl wear surface, and in an undisturbed condition do not pose a hazard to building occupants.
- Gypsum Board Filling Compound and Plaster Wall and Ceiling Systems – These compounds are considered friable material that may contain asbestos fibers, but when encapsulated behind a liberal coat of paint and in an undisturbed condition do not pose a hazard to occupants.
- Mechanical Insulations – Asbestos containing insulation and insulating cement may be located on the pipe lengths, fittings, valve bodies, storage tanks and associated controls of the mechanical piping system. In some situations non-asbestos containing insulation is used under a canvas textile, although these



materials may not contain asbestos, the cement used at the joints typically has asbestos fibers in it. When encapsulated in latex based lagging adhesive and in an undisturbed condition, these materials do not pose a hazard to occupants.

- Gasket and Packing Materials – The woven and compressed gasket/packing materials that may be found on tanks, vessels and equipment flanges can be described as a non-friable asbestos containing material and do not pose a hazard to building occupants. Although non-friable prior to use, many different woven and compressed gaskets and packing materials become friable after removed from their application.
- Roofing Materials – The fibrated roofing papers, felts, mastics, and tars may be described as non-friable asbestos containing materials that may be considered to be safely encapsulated within an asphalt matrix, and in an undisturbed condition do not present a hazard to building occupants or the environment.

**Prior to initiating renovations, maintenance, or service activities that could involve disturbing suspected asbestos containing materials, samples should be collected and analyzed to determine the presence or absence of asbestos.**

## **IDENTIFICATION SYSTEM**

An identification system has been implemented that will allow for the quick recognition of asbestos containing materials within service areas of most buildings. The labeling system identifies, in plain language that an asbestos-containing material exists. For further clarification workers are to review the asbestos inventory.

Service areas maintain an identification system to allow for quick recognition of asbestos containing materials. When planning for any work in service areas that may contain asbestos, check for the following notices and plan for the performance of work as per your asbestos control plan procedure as required.

***Note: The labelling process is currently in progress. For areas not yet identified with stamps, please contact your contract administrator to receive inventory information prior to starting destructive work.***

## **PIPE ELBOW AND FITTINGS STAMP**

This stamp will exist on elbows and fittings that have been identified as containing asbestos.






BC Housing

**BC HOUSING**

**ASBESTOS SIGNAGE**

This notice will be posted in service areas to ensure that materials are easily identified.

 Asbestos Identification Program

BC Housing


# CAUTION Asbestos

The following materials in this area contain asbestos:

Pipe Insulation	<input type="checkbox"/>
Pipe Elbows and Fittings	<input type="checkbox"/>
Tanks and Vessels	<input type="checkbox"/>
Duct Sealant	<input type="checkbox"/>
Exhaust Duct	<input type="checkbox"/>
Other (specify) _____	
_____	
_____	

**DO NOT DISTURB THESE MATERIALS**

- Report any damage to your Supervisor**
- See your Supervisor before working with these materials**
- Use appropriate asbestos work procedures when working with these materials**

 Pacific Environmental Consulting & Construction  
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## **SECTION 4 – CONTRACTING / SUB-CONTRACTING SERVICES**

Prior to arranging for services of a contractor, to conduct renovation or demolition of any building that may contain asbestos, a search must be conducted for any inventory of asbestos materials within the building materials.

Contractors should be made aware of any presence of asbestos and be informed of the requirement to follow safe work procedures. This would include:

- Ensure and verify that all staff are appropriately trained to perform their required duties particularly when performing work that involves the potential for disturbance of asbestos containing materials.
- Review the nature and scope of maintenance and renovation activities prior to the start of any such work, in order to determine if there is a potential for disturbance of asbestos containing materials.
- Ensure that all contractors have their own Health and Safety program, which includes their approach to the safe handling of asbestos and asbestos related issues.
- Ensure that procedures provided by a contractor meet, as a minimum, the procedures required by WorkSafe BC.
- Ensure that contract language clearly identifies responsibility for compliance with WorkSafe BC requirements.

Work orders generated for contractor work should include information for contractor's on the possible presence of asbestos ensuring that proper safety precautions are followed. Contractors must be made aware of the possible presence when they receive the work order as described in the attached sample.

Should a work order not be used to arrange work, or not received prior to the work starting, contractors should be told of the inventory and identification system.



## ASBESTOS MANAGEMENT AT \_\_\_\_\_ SITE

An Asbestos Survey has been conducted at \_\_\_\_\_. There is a possibility that ACM containing materials may not have been identified or labeled as described below. It is policy to sample materials prior to any disturbance if they are in question.

Asbestos containing materials (ACM) are primarily found in:

- Cementitious texture coatings on ceilings and as overspray above ceilings.
- Fumehood linings and ductwork.
- Floor tiles.
- Building and underground piping systems.
- Insulation on pipes, pipe elbows and boilers.
- Gypsum board filling compound and plaster wall and ceiling systems.

### ACM IDENTIFICATION



In **service areas** asbestos are identified with a red stylized “A” with a red circular border. Potentially, ACM areas, missed by the survey may not show the symbol. To prevent accidental disturbance of ACM, ensure that an area does not contain asbestos.

Contractors/supervisors shall ensure that all workers under their direction have taken appropriate training in asbestos identification and, where possible, when work is assigned have been made aware of the possible presence of asbestos. When working in the vicinity of asbestos, workers must follow safe work procedures to ensure that ACM is not disturbed.

**Common areas and residential suites** have been inventoried by a representative sampling and have not been labeled. Please ensure that you check the asbestos inventory yellow binder, available in \_\_\_\_\_, to determine if asbestos is present or if further testing is required.

If anyone discovers asbestos containing material, which has been disturbed, they must immediately leave the area and notify their supervisor. The Management must be notified of the disturbance and access to the area should be restricted until proper cleanup has occurred.

ASBESTOS IN IT'S PRESENT CONDITION POSES NO HEALTH THREAT TO ANYONE AS LONG AS IT IS NOT DISTURBED (I.E. DRILLED INTO, CUT OR SANDED).



## **SECTION 5 – TENANT AWARENESS AND SAFETY**

WorkSafe BC's Occupational Health and Safety Regulation pertaining to Asbestos Management has been written for worker protection and is not directed at tenants. However, there is a responsibility to appropriately advise tenants on the precautions that should be taken when asbestos containing materials are present in a living space. The following precautions should be taken when reviewing tenant safety:

- Tenants must not be present in the suite/room while asbestos work is being performed nor shall they be allowed to return to that suite/room until the area has been cleaned in accordance with the requirements of the WCB Occupational Health and Safety Regulation.
- If there are "friable" asbestos containing materials located in areas easily accessible to tenants, then tenants must be advised about the need to maintain these materials in good repair and to promptly report any damages.

The extent to which a tenant is advised about potential asbestos containing materials within their building must be reviewed and should be based on the potential exposure risk to that tenant. Care must be taken to not create undue stress and anxiety among tenants.

Instruct tenants to report damage and to not carry out any renovation work without prior authorization. Sample tenant information is included for reference.

Communication plans in this area should be coordinated in consultation with your contract administrator.



## BC Housing

Dear Tenant:

\_\_\_\_\_ is committed to providing well-managed and affordable housing for its tenants. As part of preventative maintenance, staff and contractors may need to conduct repairs around the building and in your suite to maintain a healthy and safe living environment. On occasion, workers may encounter materials and carry out work activities that require special precautions. These could include high level work, floor/railing repairs, mould management, airborne dust particles, low-levels of asbestos, insects, rodents and lead products.

During regular activities and while following common precautions, these activities and materials should not pose any significant risk to staff or residents. In compliance with the WorkSafe BC (WCB) requirements and other workplace safety practices, takes precautionary measures to protect persons in and around the work site while maintenance or repair activities occur.

As such, you may see staff or contractors utilize tools and wear special clothing to protect themselves from workplace hazards they may encounter as part of their work activities. You may also see the posting of warning or caution signs. For your safety and the safety of others, please respect these signs.

In order to conduct repairs and to ensure your safety, there may also be occasions when you will need to be absent from your suite while repairs are underway. We recognize that this may cause you some difficulties, and we will make every effort to minimize the disruption.

Please be assured that we have provided staff with the necessary training, tools and equipment to carry out their jobs in safe manner, and to maintain the healthy living environment for tenants.

If there are any outstanding repairs or if you have any concerns regarding the safety of your suite, please contact \_\_\_\_\_.

Sincerely,

---

## Questions & Answers - Asbestos in Buildings

Response to Tenants at \_\_\_\_\_ :

### **Is there asbestos in \_\_\_\_\_?**

Most buildings built between 1960 and 1985 were constructed using some building materials which contained asbestos fibers. \_\_\_\_\_ is typical of buildings constructed during that era. BC Housing recently conducted some tests and confirmed there are very low-levels of asbestos in some of the drywall joint compound and ceiling texture coatings.

### **Does the asbestos at \_\_\_\_\_ pose a health risk to tenants?**

While covered in paint or intact on the wall or ceiling, the asbestos containing materials do not pose a health risk to you or your family. Asbestos is only a health risk when the fibers are inhaled as a result of physically disturbing asbestos containing materials. As a tenant, your risk of disturbing these material is low.

### **What should I do if the walls/ceiling in my suite have a hole or are damaged?**

Notify your Building Manager who will arrange for the necessary repairs. Do not vacuum up any debris or disturb the wall/ceiling further. Staff have been trained and have the necessary tools and equipment to carry out the repairs in a safe manner, and to maintain the healthy living environment for tenants.

### **We have a hole in our wall, is my health at risk?**

Not necessarily, there is only a health risk when materials which contain asbestos are airborne and then inhaled. In addition, health conditions related to asbestos exposure usually only occur in cases of routine, high levels of exposure over extended periods of time. The drywall joint compound and ceiling texture contain very low levels of asbestos fibers which are from a type of asbestos (chrysotile) that is considered to be a lower risk.

### **Will the asbestos be removed?**

As there is very little risk to tenants, there are no current plans to remove the asbestos containing materials from your building. However, during the course of routine maintenance and upgrades these materials may be replaced. This has already happened during upgrades to the piping and boiler systems.

### **How long have you known about asbestos?**

As with most buildings constructed during the 1970's, it has always been likely that your building was constructed with some materials containing asbestos. Over the last few years, we have implemented policies and procedures that are in line with provincial Occupational Health and Safety Regulations to safeguard our tenants and staff. This includes the training of staff on how to handle materials containing asbestos.

### **I have asthma, am I at higher risk?**



Since there is no general health risk to people living in homes with covered (encapsulated) or undisturbed asbestos containing building materials, such as at your building, there would be no reason to believe that a person with asthma would be at higher risk. However, if any building materials are disturbed in your home that generates excessive dust or fibers appropriate precautions should be taken. Always report any damage to your Manager so that appropriate repairs can be arranged.

**My kids are sick; could the asbestos be contributing to their illness?**

Since there is no general health risk to people living in homes with covered (encapsulated) or undisturbed asbestos containing building materials, such as at your building, there would be no reason to believe that the illness of your children would be contributed to the asbestos.

**Asbestos in General**

**What is asbestos?**

Asbestos is naturally occurring mineral silicate that separate into fibres. In the past, asbestos was a very popular ingredient or component in a wide variety building materials, and was used extensively in the construction of public and commercial buildings. Negligible levels of asbestos fibers occur in the soil, water and air, both naturally and from man-made sources.

**What building materials may contain asbestos?**

Asbestos was commonly used in thermal and electrical insulation, fireproofing, acoustic plaster, cement pipe, cement sheeting, insulation on boilers, pipes and ducts, fire-door liners, roofing materials, flooring products, textiles, filling compounds, coatings and mastics.

**What are the health risks associated with exposure to asbestos?**

Respiratory diseases, such as asbestosis, lung cancer, and mesothelioma have been associated with exposure to asbestos fibres in industries where asbestos products were manufactured or used. Most of the medical knowledge concerning the adverse health effects from the inhalation of asbestos fibres has been obtained from the study of workers that were exposed to high levels of airborne asbestos fibres over extended periods of time.



## **SECTION 6 - MANAGEMENT PROGRAM**

An asbestos management program includes components that address the proper procedures for maintaining your building through safe work procedures.

For information on establishing a management program, visit <https://www.worksafebc.com> for assistance in developing the program.

A few sample procedures are attached for reference purposes.

## SECTION 7 - SAMPLE PROCEDURES

### BC Housing Management Commission General Requirements for all Work Procedures concerning Asbestos-Containing Materials

#### Introduction

Minor maintenance work is occasionally required in BC Housing owned or managed buildings which involves the cutting, drilling, patching or removal of small areas of asbestos-containing materials, including drywall, flooring, pipe insulation, ceiling tiles, textured coat walls and texture coat ceilings. These General Requirements are intended to give an overview of the requirements typically needed to ensure that the generation of airborne fibres is kept to a minimum during all these types of work and must be read in conjunction with the BC Housing Work Procedure applicable to the specific job.

#### Please Note:

Prior to **any** work where the cutting and removal of asbestos-containing materials is required, the BC Housing Exposure Control Plan Manager **must** be informed of the specific nature of the work in order to ensure that all appropriate Notices and Work Procedures are in place.

#### Risk Assessment, Notice of Project (NOPA) and Worker Training

A Notice of Project (NOP) for work involving asbestos, complete with a site specific Risk Assessment and project specific Work Procedures will be sent to the applicable Occupational Hygiene Officer at WorkSafe BC. A copy of the Notice of Project Asbestos, the Risk Assessment and site specific Work Procedures will be maintained on site at all times while asbestos abatement activities are in progress.

Prior to the commencement of asbestos related work activities all personnel, including foreman and supervisors, must have received adequate instruction and training in the hazards of asbestos exposure; in the use and maintenance of respiratory protection and protective clothing; in the safe handling of asbestos materials; work area isolation and in the use of these specific work procedures. This work is considered Moderate Risk.

#### Personal Protective Equipment (PPE)

##### Respiratory Protection:

- Workers shall be provided with personally issued, individually identified, half-mask, air purifying respirators, fitted with approved HEPA filter cartridges.
- All personnel will be trained in the maintenance, use and limitations of their respirators.
- Personnel will also be fit tested on their respirators, using a protocol acceptable to the
- WorkSafe BC (irritant smoke testing in accordance with CSA Standard Z94.4-M1 1982). Fit-testing results will be documented and maintained on site with all other pertinent project information for the duration of the project. A copy of each fit-test form must be submitted to the Manager of the Asbestos Exposure Control Plan.
- All personnel must perform positive and negative field fit-tests each time a respirator is worn, prior to its use.
- No supervisors, authorized visitors, or workers shall wear facial hair that affects the respirator to face seal. (All personnel will be clean shaven prior to the start of their regular work shift).

#### Protective Clothing

- Workers will wear full body, impermeable, disposable coveralls complete with integral head and foot covering, designed to fit snugly at the neck, wrists, and ankles. Disposable coveralls will be provided to all personnel.

#### Materials, Equipment & Tools

- Disposable Polyethylene drop sheeting (minimum thickness 6-mil, [0.15mm]) will be used to cover stationary objects and any other fixtures that are to remain in the work area.

- Acceptable asbestos waste receptors: Must consist of two separate, impermeable containers (e.g. two 6-mil (0.15mm) thick polyethylene disposal bags). The outer container will bear a pre-printed “Asbestos Waste” label and will otherwise be acceptable to the disposal site, Provincial Ministry of the Environment - Waste Management Branch and WorkSafe BC
- “Caution – Asbestos”, signs will be posted, warning unauthorized personnel not to enter the work area.
- A sufficient supply of scaffolding, ladders and non-powered hand tools (e.g. scrapers, wire cutters, brushes, utility knives, wire saws, mops, rags and sponges, etc.) shall be provided as required. These tools will be thoroughly decontaminated with soap and water or disposed of as contaminated waste at the completion of a Moderate Risk work procedure.
- Encapsulating Sealer: Bakelite 120-19 or other approved asbestos encapsulant.
- Suitable spray equipment shall be provided for the application of amended water and sealer as required. A low velocity, garden type sprayer will be used.
- A HEPA filtered vacuum cleaner will be available in the work area for the duration of the project.

### **Preparation of the Work Area**

- Prior to the start of any work involving asbestos, any persons in the immediate area must be informed of the nature of the work and suitable precautions will be used to ensure that they are not exposed to asbestos fibres.

### **Work Area Entry and Exit Procedures**

- All workers and authorized visitors must, prior to entering the work area, put on half-face air purifying respirators, clean disposable coveralls with integral head covering and foot covering. Hard hats, eye protection and gloves shall also be utilized if required. Clean respirators and protective clothing shall be provided and utilized for each person, for each separate entry into the work area.
- Eating, drinking, chewing, and smoking, are not permitted in the work area.
- Prior to the commencement of any work, a wash-up station will be established at the perimeter of the work area. The wash-up station will consist of a receptacle of water, soap, sponges and towels, to allow workers to decontaminate upon exit from the work area.
- Before leaving the work area workers shall decontaminate their protective clothing using a HEPA vacuum or by damp wiping. All disposable clothing must be left in the work area and subsequently will be disposed of as contaminated waste, upon completion of the work.
- Before removing their respirator, workers will immediately wash hands, exposed portions of their face, and the exterior of their respirator, taking care not to wet the HEPA filter medium. After decontaminating properly, workers will then exit the work area. When the respirator is removed the rest of their face will be washed.
- Duct tape will be used to completely seal the inlet side of the respirator HEPA filters, or if the filters are clogged or wet they will be disposed of as asbestos contaminated waste.

### **Work Area Clean-up:**

- Frequently during the work and immediately after completion of the work, the workers will clean up dust and debris using a HEPA filter equipped vacuum or by damp wiping.
- All materials contaminated with asbestos will be placed in sealed, impermeable, labelled disposal bags. Drop sheets and disposable protective clothing will be treated as asbestos waste and will be wetted and folded to contain dust and then placed in disposal bags.
- Personnel will then remove double-bagged and sealed waste from the work area and transfer to the designated asbestos holding area for eventual transport and disposal at an approved hazardous materials landfill site.
- The transfer of asbestos waste to the designated holding area will be accompanied by the completion of an appropriate waste transfer form.

### **PLEASE NOTE**

These General Requirements are intended to give an overview of the requirements typically needed to ensure that maintenance workers are adequately protected against the generation of airborne fibres during all types of minor maintenance work and **must** accompany and be read in conjunction with the BC Housing Work Procedure applicable to the specific job.



## **BC Housing Management Commission Work Procedures for the Patching of Asbestos- Containing Drywall**

### **Introduction**

Minor maintenance work is occasionally required in BC Housing owned or managed buildings which involves the patching or minor repair of walls or ceilings which are identified as asbestos-containing.

This Work Procedure is intended to give an overview of the general requirements typically needed to ensure that the generation of airborne fibres is kept to a minimum during work of this type.

### **Please Note:**

Prior to **any** work where the patching or minor repair of asbestos-containing materials is required, the BC Housing Exposure Control Plan Manager **must** be informed of the specific nature of the work in order to ensure that all appropriate Notices and Work Procedures are in place.

**BC Housing Management Commissions “General Requirements for all Work Procedures” must accompany and be read in conjunction with this Work Procedure.**

### **Patching Asbestos Containing Drywall:**

- The asbestos-containing drywall surface must be handled with extreme caution (power tools are not to be utilized unless they have been fitted with a HEPA filtered dust collector).
- The location of areas where patching is required must be thoroughly wetted with amended water prior to and during the procedure, by performing misting, to control airborne fibre concentration.
- It is recommended that the hose of the HEPA equipped vacuum cleaner be taped to the surface to be repaired, as close as possible to the location of the patch. In this manner, the release of airborne asbestos fibres will be minimized or eliminated.
- Carefully patch small areas at a time using hand tools only. Once repairs are complete, seal the disturbed wall or ceiling area with encapsulating sealant.

### **Work Area Clean-up:**

- Frequently during the work and immediately after completion of the work, the workers will clean up dust and debris using a HEPA filter equipped vacuum or by damp wiping.
- Any loose materials left after the repair and contaminated with asbestos will be placed in sealed, impermeable, labelled disposal bags. Drop sheets and any disposable protective clothing will be treated as asbestos waste and will be wetted and folded to contain dust and then placed in disposal bags.
- Personnel will then remove double-bagged and sealed waste from the work area and transfer to the designated asbestos holding area for eventual transport and disposal at an approved hazardous materials landfill site.
- The transfer of any asbestos waste to the designated holding area will be accompanied by the completion of an appropriate internal waste transfer form as supplied by the BC Housing Exposure Control Plan Manager.





## **BC Housing Management Commission Work Procedures for the Removal of Asbestos- Containing Floor Tiles**

### **Introduction**

The removal of asbestos-containing floor tiles must be performed very carefully in order to avoid causing asbestos fibres to become airborne. Asbestos floor tiles should only be removed when the affected room or area is unoccupied. These work procedures are intended to provide direction for the safe handling and removal of asbestos-containing floor tiles.

### **Please Note:**

Prior to **any** work where the patching or minor repair of asbestos-containing materials is required, the BC Housing Exposure Control Plan Manager **must** be informed of the specific nature of the work in order to ensure that all appropriate Notices and Work Procedures are in place.

**BC Housing Management Commissions “General Requirements for all Work Procedures” must accompany and be read in conjunction with this Work Procedure.**

### **Asbestos-containing Floor Tile Removal**

- Asbestos-containing floor tiles are easiest to remove when they are wetted and allowed to sit in a wet condition for a considerable period of time. Floor tiles will often release from the substrate on their own if allowed to soak for a day or two. If time does not permit an extended soaking period, the floor tiles will be pried loose or removed utilizing hand tools only, (no power tools shall be utilized). Ensure the use of wetting, and misting during the removal procedure to control possible airborne fibres.
- Try to avoid breaking tiles during the removal process because fibres can be released when tiles are broken.
- Where floor tiles are present under carpeting, the removal of the carpeting may also pull up the tiles. In this instance, the carpet should be cut into strips, using a carpet knife, and rolled up with the tiles. Both the carpeting and tiles should be disposed of as asbestos waste.
- Once tiles have been removed place them directly in a labelled disposal bag that will be sealed and then place the now sealed asbestos waste bag into a second asbestos waste bag and seal the second bag.

### **Work Area Cleanup**

- Frequently during the work and immediately after completion of the work, workers will clean up dust and debris using a HEPA vacuum or by damp wiping.
- All materials contaminated with asbestos will be placed in sealed, impermeable, labelled disposal bags. Drop sheets and disposable protective clothing will be treated as asbestos waste and will be wetted and folded to contain dust and then placed in disposal bags.
- Workers will then remove double-bagged and sealed waste from the work area and transfer it to the designated asbestos holding area for eventual disposal at an approved hazardous materials landfill site.
- The transfer of asbestos waste to the designated holding area will be accompanied by the completion of an appropriate internal waste transfer form as supplied by the BC Housing Exposure Control Plan Manager



## **CHAPTER 2 - MOULD MANAGEMENT**

The principal purpose of this chapter is to incorporate a program of education, training, identification, prevention and safe work practices for all who may come in contact with mould or other fungi.

### **SECTION 1 – BACKGROUND**

#### **WHAT IS MOULD?**

Mould is a fact of life. Moulds will grow practically everywhere people live and work. Mould is recognized as an occupational hazard for indoor workers as well as outdoor workers who work in warm and humid environments. All moulds are not harmful. However, certain types of moulds can cause adverse health effects.

Moulds, mushrooms and yeast are three types of fungi. They are found everywhere indoors and outdoors and originate on plants and foodstuff. Everyone is familiar with moulds in our daily lives. Generally, we notice mould as:

- fuzzy patches on the top of bread and other old food products;
- dark stains on paper or clothing which have been stored in damp places; and
- stains on rotted wood, paper and other organic materials.

Moulds are important agents in nature. They break down and recycle organic materials. Moulds break down dead plants and other organic materials by producing enzymes which digest organic substances, using digested materials for food to grow and multiply.

There are approximately 100,000 different types of mould. We are exposed to airborne mould on a daily basis in our homes, outdoors and at work.

Not all moulds are harmful. Health effects experienced by exposed persons depend on:

- individual sensitivity;
- age;
- previous exposures; and/or
- existing predispositions.

## **CAUSES OF MOULD**

Mould needs two factors to flourish and grow – moisture and food (nutrient). Mould growth can start in any building where the following events have occurred:

- flooding,
- water leaks,
- inadequate air exchange,
- excess humidity, or
- condensation, especially in winter, on poorly insulated surfaces.

### Sources of Indoor Moisture that Can Cause Mould Problems

- floods,
- backed-up sewers,
- leaky roofs,
- humidifier which is not regularly cleaned and disinfected,
- damp basements or crawl spaces,
- plumbing leaks,
- house plants and their debris,
- steam from cooking and showers, and
- wet clothes hung to dry indoors.

Mould can use a wide variety of material as food (nutrient). These can be organic materials such as wood, paper, leather, fabric, etc., or inorganic materials such as grout, painted walls, cement, plaster, etc., where moulds can get nutrients from dust and soil particles.

Since these materials are often part of the structures in which we work, we cannot effectively remove them to prevent mould growth. Our first line of defense against mould growth is to prevent excessive moisture and dampness.

## **HOW MOULDS GROW**

Most moulds grow as thread-like masses. Mould growths can often be seen in the form of discoloration ranging from white to orange, green, brown and black.

Moulds reproduce and spread by releasing tiny spores. The spores are extremely small and cannot be seen without using a microscope. The lightweight spores travel through the air, or are carried on dust particles, insects and animals.

When mould spores land on a damp spot with a suitable food supply, they may begin growing. It takes a few days for a mould colony to become established. If spills or leaks are cleaned up immediately, mould will normally not be a problem.



## **WHERE MOULDS GROW**

Moulds will grow wherever suitable conditions occur:

- a source of food,
- a source of moisture, and
- access to air (oxygen).

Moulds can live on many of the organic materials commonly found in buildings, such as:

- paper, wallpaper, fiberboard and dry wall;
- wood, including construction materials and furniture;
- fabrics (cotton, wool) and carpets;
- cellulose insulation materials;
- fibre glass;
- paint, and
- discarded and spilled food products.

The critical requirement for mould growth is moisture. Moulds grow best under conditions of high humidity or in places where water accumulates.

Mould contamination can affect building components such as walls, floor coverings, windows, ventilation systems and support beams that are likely to be moist or water damaged. Mould may grow in warm and wet areas such as bathroom tubs, between the tiles and window frames.

Short-term effects of mould exposure include allergy-type symptoms such as runny nose, cough and sore throats. This guide provides an overview that will help you recognize, evaluate and control mould exposure in the workplace. Topics covered include: a description of moulds; health effects of mould; what to do when mould is found; how to clean up mould; and how to prevent mould growth.

## **SECTION 2 - MOULD MANAGEMENT**

A Mould Management Program contains descriptions about who is responsible for dealing with mould, and instructions on safe work procedures.

Building Management would normally be responsible for:

1. Providing mould management information to tenants.
2. Conducting mould prevention measures in common and work/service areas of the building.
3. Performing “Low Risk”, surface cleaning of mould contaminated materials, as per Safe Work Procedures.
4. Inspecting work areas/residences for mould.
5. Ensuring contractors follow safe work procedures for mould containment.



## **MOULD INSPECTIONS**

Investigate for mould contamination whenever you:

- receive a complaint from a tenant;
- notice or receive reports of adverse health effects that might be related to mould or water damage;
- observe water stained material or water damage.

Please be aware of the following:

- Review Tenant/Staff Concerns – In cases where a staff or tenants report adverse health effects, the situation must be acted upon promptly. In addition to identifying known health concerns, building staff should be consulted for feedback on potential causes.
- Review Building History – The building history should be reviewed to identify any precursors to mould growth. These could include known water leaks, roof problems, floods, and plumbing problems.
- Inspections – Inspections must consider all areas of potential mould growth. Areas more commonly found to contain mould growth include: Bathrooms, around windows and doors, closets, cold sections of wall or floor assemblies, foundation walls, crawlspaces and tunnels, and cooling coil sections of air handling units and associated ducts work – especially where the equipment is internally lined with porous insulation. The investigator should be alert to obvious signs of mould growth (black, gray, green or white) and also to musty or dank odors and areas of humidity.
- Laboratory Testing – In most situations laboratory testing is not required, as all indications of mould, regardless of type, should be dealt with. Testing may be necessary when health effects are present yet no presence of mould is observed. Testing may also be necessary to confirm a previously contaminated area is clear of potentially harmful mould spores or to further inspect areas that can not be visually inspected. Test samples could include: air samples, wall cavity samples, material samples, and surface samples (tape or swap). Maintenance management should be consulted prior to any testing.

A sample checklist is included to help with this review.



# Visual Mould Inspection Checklist

Date: _____	Location: _____	Inspected by: _____ and _____		
INSPECT	LOOK FOR	OBSERVATION Needs Further Action		RECOMMENDATIONS
		No	Yes	
Ventilation System	Damp filters/insulation Damp conditions Overall Cleanliness	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Ceiling tiles, exposed insulated pipes	Signs of leaks Dampness Unusual patches/stains	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Gypsum wallboard surfaces	Dampness Unusual patches/soiling Mould under wall paper and wall coverings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Cardboard surfaces	Dampness/stains Unusual patches	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
Floors	Wet areas Unusual patches Mould growth under carpet	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Possible hidden mold behind the walls, ceilings and floors	Odours Stains	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	
Potential for mould growth and continuing moisture penetration	Relative humidity greater than 60% Condensation	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	

## **WHEN MOULD IS FOUND**

The purpose of cleaning up mould is to remove mould contamination. It is important to use proper work practices and isolation techniques to prevent spreading of spores or mould fragments.

Caution must be taken in removing and cleaning up the mould. Use personal protective equipment including gloves, eye and respiratory protection. There are actually very few moulds that would produce enough poison (mycotoxins) to be harmful to humans in the average workplace. But it is possible that people cleaning up may have an allergic response or be exposed to high levels.

## **SECTION 3 - SAFE WORK PROCEDURES**

Work involving mould has been broken down into three risk levels related to area of contamination and overall risk.

- Low Risk: Surface cleaning on hard surfaces where no penetration of the mould is observed. (i.e., window frames, shower enclosures...) and removal of small amounts of contaminated materials with less than 0.3 m<sup>2</sup> (< 3.2 sq ft) of visible mould.
- Moderate Risk: Removal of materials with 0.3 m<sup>2</sup> to 3.0 m<sup>2</sup> (3.2 sq ft - 32 sq ft) of visible mould.
- High Risk: Removal of materials with more than 3.0 m<sup>2</sup> (> 32 sq ft) of visible mould.

Moderate risk work and all high risk work activities will be completed by an external contractor.

## **LOW RISK GUIDELINES**

Cleaning should only be carried out by tenants/building staff when the mould is surface in nature and less than 0.3 m<sup>2</sup> (< 3.2 sq ft). This is usually as a result of high humidity in bathrooms, kitchens or around windows. If the mould has penetrated the building materials it must be referred to higher trained workers.

### **Focus on the following:**

- Respiratory protection recommended (eg. N95 disposable respirator), in accordance with the OSHA respiratory protection standard.
- Hand and eye protection should also be worn (rubber gloves and goggles).
- The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old).

### **Materials:**

- Decontamination solution - detergent solution in water or for extensive mould growth a 5% household bleach solution should be used (1 part bleach/20 parts water).
- Appropriate sponges/rags for wiping. Additional clean water for rinsing and clean-up.
- As needed, 6-mil (0.15mm) polyethylene drop sheeting.
- Polyethylene disposal bag for sponges/rags/drop sheet.

#### **Clean-up of Surface Mould:**

- If the contamination has not penetrated the surface, and the material is not porous or semi-porous, the surface decontamination should proceed as follows:
  - Wear appropriate personal protective equipment.
  - As needed, place a drop sheet below the mouldy material to catch any debris that might fall.
  - Clean the hard surface or wood with the decontamination solution.
  - Rinse surfaces using clean water. Wipe with a sponge/cloth that is rinsed in a separate container. Do not put a dirty sponge or cloth back into the clean rinse water. Rinse water must be replaced frequently
  - Once properly wiped, the surfaces shall be sufficiently dry that no surface residue exists.
  - Rags, sponges, cloths and disposable respirators used shall be disposed of after use as mould growth can occur on them.
  - Workers must wash hands before leaving the work area.
  - Re-inspect after three (3) months.

## **SECTION 4 - TENANT AWARENESS AND SAFETY**

The following items should be followed to improve tenant safety:

- Tenants should not be present in the affected room while mould abatement work, beyond surface cleaning, is being performed.
- Tenants experiencing problems with mould should be provided with the Mould Management - Guide for Residents publication which is available from the Regional office or from BC Housing's website under Publications.
- Tenants should be encouraged to report signs of dampness or mould to their Building Manager as soon as possible.





## **CHAPTER 3 - PEST CONTROL**

BC Housing currently maintains pest control contracts with various pest control firms that provide pest control services to regions throughout the province.

All Contractors are required to follow all WorkSafe BC legislation and Health and Safety regulations, when providing services on our sites.

Should you become aware of pest issues within their complex or as part of a renovation / construction project you are to contact the pest control contractor for immediate attention to the matter. Contract administrators are responsible for ensuring that pest control contractors comply with all aspects of the agreement, which include compliance with all Health & Safety guidelines.

Specific contracts and procedures for accessing Pest Control are available through the contract administrator.

### **SAFE EMPLOYEE PROCEDURES:**

Where Maintenance or Building Management staff are required to safely enter or clean areas where pests have been, the following are procedures are to be followed:

- During clean-up, wear an appropriate, well fitting filter mask, rubber gloves and goggles. These masks include NAOSH-approved 100 series filters, such as N100, P100, and R100 (formerly called HEPA filters), or a respirator with P100 cartridges. An N95 mask may also be used. A dust mask for insulating or painting is not the same as these specialized masks. Specialized masks are available at safety supply stores and some hardware and home building outlets.
- Prevent stirring up dust when you are cleaning up areas where mice have lived. This includes ventilating any enclosed area for 30 minutes and wetting down the area with household disinfectant before you start. Most general purpose disinfectants and household detergents are effective. Diluted bleach (one part bleach to 10 parts water) can also be used.
- Pour solution carefully onto debris to avoid disturbing any virus present – do not use a sprayer.
- Wipe up droppings, nesting materials and other debris with a paper towel and place in a plastic garbage bag. Avoid sweeping dry floors. Do not vacuum.
- Double bag the contents, seal the bags and bury, burn or place in the trash, according to local bylaws.
- Clean floors, carpets, clothing and bedding, and disinfect counter-tops, cabinets and drawers that have been in contact with mice.
- Wash rubber gloves with disinfectant or soap and water before removing them. Wash your hands with soap and water after removing gloves.



## CHAPTER 4 - PREVENTION OF VIOLENCE IN THE WORKPLACE

### SECTION 1 - VERBAL THREATS MADE IN PERSON AT RESIDENTIAL SITES

This can take the form of shouting, swearing, intimidation, etc., but is not physical assault. A threat generally occurs when a person communicates their intent to injure someone, or damage that person's property or property belonging to BC Housing. All threats to a person or property must be reported immediately to your supervisor.

A wide range of behaviours is covered by the phrase "verbally threatening". The following guidelines are meant to be followed when dealing with an individual who is agitated, raising their voice, etc. ***In dealing with someone who is truly threatening, with actual verbal threats of imminent danger, the guidelines governing attempted physical assault should be followed.***

1. If feasible, try to de-escalate the situation. Politely ask the person to tell you what is bothering them; this may diffuse their anger. Adopt a confident, but not aggressive, demeanour. Use a calm, steady, clear voice. Do not shout. Try not to show fear. Do not challenge the person.
2. If possible, attempt to alert co-workers or your supervisor by whatever means are available. (For example, cellular telephone, talking, shouting, etc.)
3. Mentally seek an escape route and try to put a physical object (car, fence, desk, etc.) between you and the threatening person. Try to get to a safer place.
4. Do not turn your back on the person; maintain visual contact until you are safe.
5. Other staff, once aware of the situation:
  - Move into visual range to be available to assist if required.
  - Avoid a challenge as it may inflame the situation.
6. If their behaviour continues, politely but firmly tell the person to leave.
7. If the person refuses to leave, politely but firmly tell them that the police will be called if they do not leave.
8. Call the police and explain the situation.
9. Do not block exits or stop the person from leaving, even if the police have been called. Do not attempt to follow the person.



10. At any point, and at your discretion, remove yourself from the situation. If you feel an assault is imminent, leave immediately. If you do not feel an assault is imminent, then give a reason for having to leave (such as an urgent problem in another part of the building) and do so.
11. After the person has left, or when you are in a safe place, immediately alert all other staff on site if you have not already done so.
12. If the person made a reference to your personal life or family or if you are a Building Manager and live “on-site”, then contact your personal household members to advise them of the incident.
13. As soon as practicable, report the incident to your supervisor and provide a copy of the report to the contract administrator.
14. Appropriate action will be taken. Refer to the main section of this policy for the steps that must be taken to report, investigate and document this incident.

***In these situations, please inform your contract administrator of the incident as soon as it is safe to do so.***



## SECTION 2 - ATTEMPTED BODILY HARM, OR PHYSICAL ASSAULT, OR THREATS WITH A WEAPON AT RESIDENTIAL SITES

Assaults generally occur when a person attempts to apply force to another person, whether or not an injury occurs.

Employees working on site are, for the most part, dealing with tenants who are known to them, and any associated risks are also known. The main purpose of these procedures is to educate and advise. Knowledge is safety.

- If you know the tenants on site and attempt to establish a rapport with them, you will be more likely to receive assistance.
  - Familiarize yourself with the site (exits, escape routes, etc.).
1. Treat the situation as very serious; do not be a hero; do not challenge the person.
  2. Try to remain calm and be observant. Don't argue, the person may be irrational. If you cannot safely remove yourself from the danger, attempt to keep a barrier between you and the other person while you try to de-escalate the situation, if appropriate.
  3. Attempt to leave immediately, depending on clear opportunity and other circumstances.
  4. If you cannot immediately leave the scene, attempt to alert/warn your co-workers or your supervisor by whatever means are available, such as by phone or cellular phone, yelling, gesturing, etc.
  5. Whether or not you can escape, try to put a physical object (car, fence, desk, etc.) between you and the threatening person. Try to get to a safer place where you are less likely to be hurt. This may be another tenant's suite, the site office, or another room when you can lock the door behind you; or depending on the situation, it may be a common area where there are other people around to help.
  6. Do not turn your back on the person; maintain visual contact until you are safe.
  7. If you are unable to alert co-workers or escape, treat the person with respect and portray yourself as a human being first and foremost. Wherever possible, keep behind a barrier of some kind.
  8. Other staff, once aware of the situation, and without placing themselves in danger:
    - If appropriate, call the police.
    - At any time, if the person has a weapon or says they have one, call the police and do not approach.



9. Do not block exits or stop the person from leaving, even if the police have been called. Do not attempt to follow the person.
10. After the person has left, or when you are in a safe place, immediately alert co-workers and your supervisor (if you have not already done so).
11. If appropriate, call the police and go to a safe location.
12. If the person made a reference to your personal life or family, or if you are a Building Manager and live “on-site”, then contact your personal household members to advise them of the incident.
13. As soon as practicable, fill out and record the appearance and mannerisms of the offender on a.
14. As soon as practicable, report the incident to your supervisor and provide a copy of the report to the contract administrator.
15. Appropriate action will be taken. When the police are called in response to an assault and there are reasonable grounds to press charges; BC Housing’s policy is to support staff in attempting to ensure charges are laid and the violent person is arrested.

***In these situations, please inform your contract administrator of the incident as soon as it is safe to do so.***



## SECTION 3 - MENACING DOGS AT RESIDENTIAL SITES

When an employee encounters a menacing dog anywhere on the property, the risk must be assessed. If the dog is in a yard or housing unit, do not enter or move into range where the dog can reach you. If the dog is loose or can reach you, the following procedures apply.

1. Walk away slowly. Walk backwards or sideways; do not turn your back and run.
2. Avoid eye contact: dogs view this as aggressive behaviour. Instead, keep the dog in view through the corner of your eye.
3. Maintain a calm, confident attitude but do not try to discipline or come in physical contact with the dog. Speak in a low, clear voice.
4. Try to get out of reach, but do not turn your back on the dog.
5. If you are unable to get away, try to establish a barrier between yourself and the dog.
6. Alert co-workers, neighbours, or passers-by if you are trapped, ask them to call the police.
7. If the dog bites or jumps on you, lie face down and cover the back of your neck. Be as still and quiet as possible until help arrives.
8. As soon as practicable, report the incident to your supervisor and provide a copy of the report to the contract administrator.
9. If the owner of the dog is known, appropriate action will be taken, in accordance with the Pet Ownership Terms that form part of the Residential Tenancy Agreement.

***If you encounter this, please inform your contract administrator of the incident as soon as it is safe to do so.***



## CHAPTER 5 - UNIVERSAL PRECAUTIONS: NEEDLES AND SHARPS

Follow the universal precautions required to maintain personal safety in situations where blood and other bodily fluids are present:

### SECTION 1 - PROCEDURES

To prevent the transmission of communicable disease in situations where bodily fluids are present:

1. Use latex rubber gloves as a precaution for the skin when touching blood or other bodily fluids, mucous membranes, or non-intact skin; and for handling items or surfaces soiled with bodily fluids. Discard gloves after contact with each situation. Wash hands immediately after gloves are removed.
2. Use disposable coveralls and masks in situations where splashes of blood or other bodily fluids may be generated. If clothing is contaminated, use the proper concentration of industrial laundry detergent for cleaning.
3. Wash hands and other skin surfaces immediately with warm water and antibacterial soap if contaminated with blood or other bodily fluids. Note: Staff who have open wounds/cuts, lesions, eczema or weeping dermatitis should refrain from direct skin contact with blood or other bodily fluids.
4. **Do not reach into building cavities or drains with unprotected hands before first ensuring there are not hidden needles or sharp items.**
5. **If intravenous needles are encountered, pick them up using tongs, and dispose of them in puncture resistant containers with lids such as metal cans. Where available, arrange for disposal by a local hazardous waste control service, which will provide containers, or connect with local medical facility on disposal procedures in your community.**
6. Dispose of any contaminated garbage in double plastic bags and tie securely. Do not compact garbage or press down on it with feet or hands. Hold garbage bags at the top and carry away from the body. Carry the garbage bag in a container, if practicable.
7. Clean areas soiled with bodily fluids with germicidal detergent and/or bleach, which renders viruses and bacteria inactive. Walls, floors, and other surfaces are not associated with transmission of infections unless they are visibly soiled with bodily fluids.
8. Use latex rubber gloves when handling mop heads and cloths, which have been used to clean up bodily fluids. Transport soiled cloths in plastic bags to prevent leakage. Wash using the proper concentration of industrial laundry detergent and/or bleach.
9. Clean equipment used in areas soiled with bodily fluids using a bleach solution (1 part bleach, 10 parts water) or germicidal detergent.



## SECTION 2 - WHAT TO DO WHEN AN EXPOSURE INCIDENT OCCURS

Potentially harmful exposure occurs when:

- skin is punctured with a contaminated "sharp" (needle, scissors, broken glass, etc.), or
  - non-intact (broken) skin is splashed with blood or certain body fluids, or
  - mucous membranes (eyes, nose, mouth) are splashed with blood or certain body fluids.
  - If any of these occur, the following steps must be taken:
1. Get first aid immediately:
    - If there is a "sharps" injury, allow the wound to bleed freely. Then wash the area thoroughly with non-abrasive soap and water.
    - If an area of non-intact skin is affected, wash the area thoroughly with non-abrasive soap and water.
    - If mucous membranes are affected, flush with lots of clean water.
  2. Report the incident. The incident should be reported as soon as possible to your supervisor and first aid attendant (where available). This should not cause significant delay in seeking medical attention.
  3. Seek medical attention immediately. Seek medical attention immediately - preferably within two hours - at the closest hospital emergency room, or at a health care facility if there's no hospital in the vicinity. Immunizations or medications may be necessary. These may prevent infection or favourably alter the course of the disease if you do become infected. Blood tests should also be done at that time.
  4. Complete WCB claim forms. If the exposure incident occurred at work, the employer and worker must complete and submit the appropriate WCB claim forms.

### **IMPORTANT NOTE:**

Blood and body fluid contact with intact skin is not considered to be a risk for the spread of blood-borne pathogens. You should, however, thoroughly wash your hands and other affected areas immediately. If you have any further concerns, contact your family physician or nearest health unit office.

***Exposures must be reported to the contract administrator when safe to do so.***





## CHAPTER 6 - PERSONAL SAFETY RULES

### KNOW THIS SAFETY POLICY

1. C.S.A. approved Class “B” hard hats must be worn at all times on all worksites, unless exempted by the principal contractor.
2. Eye protection must be worn when required by the job being performed (grinding, chipping, blowing, burning, drilling, welding, concrete placing, dusty/windy conditions, etc.).
3. Hearing protection devices must be worn when noise levels exceed Worksafe BC acceptable limits.
4. CSA approved footwear with protection and above the ankle support must be worn at all times in general construction work areas, Sandals, sneakers, etc. will not be permitted.
5. High visibility vests to be worn at all times.
6. Gloves must be worn when handling tools or materials which may cause injuries to the hands.
7. If you have any doubt regarding the safety of a job procedure, consult your immediate supervisor before proceeding with the task
8. Each Contractor must ensure fall arrest measures are in place. When there is no form of protection from falling, Contractors shall wear approved equipment (harness).
9. Every Contractor must wear clothing appropriate for work to prevent injury from the elements and harmful substances. Minimum clothing is a full T-shirt and long pants. Loose apparel and jewelry must be secured or removed in general construction areas. Long hair must be secured.
10. Maintain good housekeeping in your immediate work area.
11. Report all injuries regardless of how minor to your immediate supervisor. Superintendents must in turn report all injuries to the Main Office. Failure to do this may jeopardize your access to Workers’ Compensation.
12. The use of drugs or alcoholic beverages on project sites may result in immediate dismissal. Prescription drugs taken under a doctor’s prescription and direction, and which do not impair the worker’s ability to do the work assigned, do not apply to this policy. Any Contractor reporting for work in the possession of; or under the influence of drugs or alcohol will be refused work and is liable to be terminated.
13. Never work aloft if you are afraid to do so, or are subject to dizzy spells. Tell your foreman, he/she will respect you for doing so and you will be assigned alternate work wherever feasible.
14. Never work in a trench or excavation which is more than 4 feet deep without a 45 degree cutback slope or proper shoring, or a trench box.
15. Fighting and/or horseplay on the job will not be tolerated.
16. Immediately correct and/or report all hazards to your immediate supervisor.
17. Vehicles, equipment and tools must be operated by competent, authorized personnel only.
18. Personal vehicles must be parked in designated areas only.
19. Heed all safety guards, barriers, signs and tags. Never render safety devices inoperable.



20. Do not commence operation of any machinery or equipment without checking to ensure that no person will be injured by the operation.
21. Transportation, handling and use of hazardous materials must comply with Workplace Hazardous Materials Information System (WHMIS) and/or Transportation of Dangerous Goods (TDG) requirements.
22. Never work alone in isolated areas unless arrangements have been made for periodic checks with another person.
23. Always walk on the left side of the road facing oncoming traffic.
24. Obey all flagpersons, watchpersons and signage.
25. Be safety smart. Your participation in the safety program is encouraged and is to your benefit. Some methods of getting involved include:
  - attending first aid or health & safety training;
  - participating in toolbox talk discussions;
  - writing the contractor or superintendent with suggestions for improving job safety; and,
  - working safely and encouraging fellow workers to do the same.

## **FALL PROTECTION**

1. Guardrails - Never work on an elevated floor or platform of any kind where you may fall 10 feet or more without the protection of a guardrail at its perimeter or around any openings.  
The guardrail shall consist of a minimum 2 x 4 top rail 42 inches high, with an intermediate rail at 21 inches high and a 4 inch high toe board. The use of approved prefabricated steel guardrail sections is also permissible.
2. Safety Belts - Where work cannot be carried out with a guardrail in place, and where you may fall 10 feet or more you must wear a safety harness secured to the project by means of a minimum 5/8" diameter nylon lanyard.  
The safety harness must be worn with the D-ring rope attachment in the middle of your back and the lanyard arranged so that you can fall a maximum of 4 feet.

Some important locations where safety harness must be used are:

- a) On swing-stages or bosun's chairs.
- b) By workers engaged in the flying of slab forms.
- c) By any worker who may come within 6 feet of the edge of a floor, or other elevated platform where the guardrail has of necessity been temporarily removed.

NOTE: The use of safety harness is not limited to the above locations. Do not take unnecessary chances, check with your foreman if in doubt.

3. A written Fall Protection Plan must be in effect where workers are not protected by guardrails and from which a fall of 25 feet may occur. Ask to see this plan before you enter this area.



## SCAFFOLDS

1. Inspect the scaffold before use. Be sure it is in good condition and designed for the safe working load.
2. Be sure the scaffold is on solid footing. Use proper mud sills, etc.
3. Use only sound full 2 x 10 structural grade scaffold planking created to prevent slipping.
4. Access to scaffolds must be by proper ladder secured to frames.
5. Guardrail, intermediate rail and toe boards must be installed on all scaffolds and/or working platforms over 10'-0" high.
6. All braces must be installed.
7. Scaffold towers must be secured at vertical intervals not more than 15 feet, and horizontally not more than 20 feet.
8. Scaffold platform must be minimum 20 inches wide, but where more than 8'-0" from the ground or floor the platform must be full width of the scaffold.
9. All components of a rolling scaffold must be properly secured or locked together.
10. All scaffold wheels must have proper braking devices locked when scaffold is not being moved.
11. Rolling scaffolds over 10' high are not to be moved with workers on top.
12. No rolling scaffold shall be higher than three times its least lateral dimension including outriggers when used.

## LADDERS

1. Select the right ladder; it should extend three feet above the top landing.
2. Never splice two ladders together.
3. Inspect ladders for split side rails, missing or defective rungs and/or missing rungs spacers, or any other weaknesses. Take it out of service if you find it defective in any way.
4. Use both hands when going up and down ladders. Carrying materials up or down a ladder is not permitted.
5. Do not work from a ladder beyond the second rung from the top.
6. Tie off all ladders at top to keep them secure.
7. Job built ladders must be first grade lumber and have 2 x 4 minimum rails, 1 x 4 minimum rungs spaced at 12 inches o.c. with 1 x 2 filler pieces between rungs. Ladders over 16 feet in length require 2 x 6 rails.

## MATERIAL HANDLING

1. Lifting - Use your legs, not your back. Use powered lifting equipment wherever possible.
2. Do not try to handle heavy material alone, ask for help.
3. Store or stack material and equipment so that it will not be in someone else's way and create falling or tripping hazards.
4. Palletize and band or tie all loads for easy movement with cranes or forklifts. **Use your head! Save your back!**
5. Trained and authorized persons only may rig or signal craned loads using "standard hand signals for crane operation", or two-way radio control.



6. When materials are being hoisted never walk under the lift or place yourself unnecessarily in a position where the load may strike you or pin you against any object.
7. Use tag lines to guide loads and prevent swinging.
8. Flammable materials and liquids must be handled and stored safely. Read the labels. Use approved containers and avoid spills. No smoking or open flames within 10 feet of volatile materials or liquids. Mount a 20 lb. class ABC fire extinguisher at each flammable storage area.

## **HOUSEKEEPING**

1. A neat orderly job is essential to efficient accident free performance.
2. Keep your own area clean and free of loose materials and debris. Your work day will be easier, safer and more productive when you do.
3. Materials not in use must be stacked neatly out of the way on the project
4. Rubbish and waste materials must be put in scrap containers and removed from the site daily.
5. All protruding nails in form lumber suitable for reuse must be withdrawn before the material is transported or stacked for re-use. Further, all protruding nails in scrap lumber must be bent over and/or the materials placed in scrap containers for disposal.
6. Co-operate in keeping lunch and storage trailers, toilets and drinking water facilities clean and sanitary. They are provided for your convenience and health. Use them as if they were your own.

## **ELECTRICAL**

1. Electrical equipment must be installed, repaired or removed by trained, authorized personnel only.
2. All electrical tools and equipment must be effectively grounded or double insulated.
3. Power cords must be minimum 3 wire, effectively grounded with U-ground or twist-lock plug caps and receptacles intact and in good condition. Ensure the tools and cords you use stay this way. Notify your foreman early if maintenance is required.
4. Temporary Distribution Panels must be fitted with weather tight covers and be located in a clear area where water will not accumulate.

## **HEAVY EQUIPMENT**

1. Only qualified operators may operate equipment.
2. Operators may be required to take a company paid medical examination yearly.
3. Operators must inspect their equipment daily before using and report any defects for immediate repair.
4. Operators must respect the load capacities of cranes and other hoisting equipment and prevent overloading. Special attention must be paid to wind load restriction. You are responsible for the safety of your machine and the workers around you.
5. Operators will not permit any one to ride on hook or load of cranes, forklifts, front end loaders, wagons, etc.



- Heavy equipment must not be operated within 10 feet of electrical power lines carrying more than 750 volts. Never operate at a lesser distance than that required by provincial regulation.

### **General Limits of Approach**

<b>Voltage</b>	<b>Minimum Distance</b>	
	<b>Meters</b>	<b>Feet</b>
<b>Phase to Phase- Over 750 V to 75 kV</b>	<b>3</b>	<b>10</b>
<b>Over 75 kV to 250 kV</b>	<b>4.5</b>	<b>15</b>
<b>Over 250 kV to 550 kV</b>	<b>6</b>	<b>20</b>

- Whenever your vision is obstructed, including during the backing of vehicles, the use of a competent signal person is required. Back up alarms or beepers on vehicles are required as per individual provincial regulation.
- Wear a high - visibility vest at all times where heavy equipment is in your area.

### **ACETYLENE OR PROPANE FIRED DEVICES**

- Only qualified persons are authorized to do flame cutting.
- Always wear proper shaded goggles.
- Inspect equipment. Be sure it is in good condition and keep it that way.
- Keep all compressed gas cylinders full or empty standing upright and tied off with the valve protection caps in place except when in direct use.
- Keep intense heat away from all acetylene or propane cylinders.
- Use a cylinder cart wherever possible.
- A class ABC fire extinguisher of adequate size must be kept ready for use near all acetylene or propane fire equipment in use.
- Keep flame cutter operations and open fire heaters away from combustible materials and debris.
- Protect all enclosed shafts, etc., in buildings from entry sparks with flameproof barriers.
- Only qualified persons are authorized to connect or service propane heaters or equipment.
- Propane heaters must be a minimum of 50 feet apart when in use. A maximum of 3- 100 lb. cylinders may be connected to each heater. Cylinders must be at least 10 feet away from the heater.
- No spare cylinders, full or empty, may be stored in a building or heated space.
- Use natural gas or remote bulk propane tanks piped in wherever feasible.
- Avoid improper combustion and carbon monoxide or dioxide. All propane fire devices require one square inch of ducted fresh air for each 1,000 B.T.U.'s. When in doubt have your foreman perform a test for carbon monoxide presence.
- "Tiger" or hand propane torches must be attended by a competent worker at all times, never use a liquid torch inside a building.



## EXCAVATION

1. Do not enter any excavation over 4 feet (1.22m) in depth unless:
  - a) the sides of the excavation are sloped to a safe angle, or
  - b) the sides have been supported by the use of sheet piling, or shoring and bracing meeting the minimum standards, or
  - c) there is protection by other effective means.
2. In no case shall such a slope be steeper than 3/4 horizontal to one vertical; unless certified by a Professional Engineer.
3. Before commencing any drilling or excavation work, in any area likely to have underground utility services, the location of such service facilities shall be accurately determined. Check with your Supervisor.
4. When working in excavations over 4 feet (1,22m) in depth, a ladder shall be used in the immediate area where working. The ladder shall extend from the bottom of the excavation to at least 3 feet (0.91m) above ground level.

## CONCRETE GRINDING

1. Proper fitting goggles designed to keep concrete dust out of eye contact shall be worn when grinding.
2. Ensure that the proper grinding tool is used in accordance with the manufacturers' recommendations - particularly with respect to the speed of the grinding wheel, read instruction manual prior to use. No grinding shall be done on the sides of abrasive wheels unless they are designed for such use.
3. Where concrete dust and/or clouds in the atmosphere, the following measures are to be taken:
  - a) All workers not required to carry out the work shall be removed from the area.
  - b) Workers shall use air purifying full-facepiece or goggles and nose/mouthpiece respirators with the appropriate filter at all times during grinding. These respirators shall be properly fitted; fitting instructions to be given by trained personnel.
  - c) All respirators shall be cleaned prior to each use. Canisters shall be cleaned as required and renewed in accordance with the manufacturer's instructions.
4. Each worker employed in the concrete grinding shall be monitored for hours engaged in grinding operations. No Contractor shall be subjected to more hours than allowed by Worksafe BC regulations.

## ELECTRICAL EQUIPMENT LOCKOUT

1. Prior to repairing any electrical hand tools ensure that all power to the tool has been disconnected.
2. When repairing or maintaining equipment which is 'permanently connected to an electrical supply the following measures shall be taken:
  - The control device shall be secured in **the inoperative position** by the use of locks.
  - Locks issued to a worker shall be operable by that worker's key only and a



- master key for emergencies.
  - Ensure that the equipment cannot be operated once locked-out
  - The lock shall be removed by the worker conducting maintenance upon completion of the work.
3. Ensure that the site supervisor and site electrician are aware of the maintenance operation.

### **POWDER ACTUATED TOOLS**

1. Ensure all powder actuated tools are CSA approved and are in proper working order prior to use. Each tool shall be serviced after each use and properly stored to ensure proper functioning.
2. Suitable personal protective equipment shall be worn by tool operators, helpers and other workers in hazardous proximity when a tool is in use.
3. Prior to use, consult the chart showing the relative power level, and the code identification of all loads recommended for use in the tool. **Ensure that the proper load for the job is used.**
4. Do not operate any powder actuated tool unless properly instructed by a trained person in possession of a valid Qualified Operator's Certificate.
5. Do not drive fasteners into very hard, brittle materials or easily penetrated materials; consult your supervisor to ensure that the material is compatible with powder actuated tools.

### **WHMIS**

1. Become fully informed about all hazard information concerning that controlled product before handling the product. Review the Material Safe Data Sheet (MSDS) prior to using any controlled substance.
2. Ensure that the label on the container is completely legible and understandable and corresponds to the MSDS for that product.
3. Do not decant any controlled substance without ensuring that a proper label is placed on the new container.
4. Inform your supervisor prior to using any controlled substance.
5. All controlled substances shall be properly contained and stored.
6. Clean up and dispose of harmful substances using the method described in the appropriate MSDS.
7. BC Housing maintains an inventory of controlled products used on sites. If you require WHMIS information, call your contract administrator.

### **ENTRY INTO CONFINED SPACES**

Confined space means an area, other than underground working, that:

- a) is enclosed or partially enclosed
- b) is not designed or intended for continuous human occupancy
- c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation or rescue
- d) is large enough and so configured that a worker could enter to perform assigned work.



1. Do not enter any confined spaces unless you have received the site specific instruction and training in:
  - a) the hazards of the space
  - b) the precautions identified in written procedures to properly perform your duties.
2. The written procedures must be in accordance with the Worksafe BC regulations complete with the hazard assessment by a qualified person.
3. Generally:
  - a) The confined space atmosphere must be monitored prior to and during the work.
  - b) The location must be labeled as a hazardous location. An entry permit must be completed and signed by the supervisor, before entry.
  - c) The confined space must be purged and ventilated. (Where this is impracticable, other procedures must be employed as defined in the Worksafe BC regulations.)
  - d) If a worker is downed, do not attempt a rescue without proper protective equipment, procedures and assistance!
  - e) It is imperative that Worksafe BC regulations for confined space entry be reviewed and complied with prior to commencing the work.
  - f) Pre-testing and work procedures are as follows:  
 No worker shall enter a tank, vessel, tunnel, sewer, or other confined space in which a harmful atmosphere exists or may develop until:
    - i) tests to determine the nature and quantity of harmful vapors, gases, fumes, mists, dusts, and oxygen deficiency have been made and recorded, and,
    - ii) written work procedures have been established to ensure a safe environment for the worker.
4. Corrective precautions:  
 Where tests made indicate unsafe conditions, the confined space shall be ventilated or cleaned or both and retested to ensure that the harmful substances are at or below acceptable levels, and that the oxygen content is greater than 19.5% before a worker enters the confined space.
5. Control precautions:  
 Where tests made indicate the presence of harmful or explosive substances and it is not practicable to provide a safe, respiratory atmosphere:
  - c) the worker entering the confined space shall wear respiratory and personal protective equipment, and
  - d) the concentrations of flammable substances shall be maintained below 20% of the lower explosive limit of that substance or substances as determined by repeated testing, and
  - e) where flammable or explosive gases or liquids are present all sources of ignition shall be eliminated or controlled.
6. Rescue from confined space:





A worker who is required or permitted to enter a confined space in which a harmful atmosphere exists or may develop or where the worker may become entrapped by material shall:

- a) wear a safety belt or harness of a type which will keep the worker in a position to permit rescue; a wrist harness alone is not acceptable for this purpose, and
- b) a life-line attached to the belt or harness which is tended at all times by another person, stationed outside the entrance to the confined space, who shall be equipped for and capable of effecting rescue.

7. Life-line entanglement

Where one or more workers enter the confined space, provision shall be made to prevent the entanglement of life-lines and other equipment.

8. Provision of assistance:

A worker entering a confined space shall be:

- a) Attended by and in communication with another person stationed at or near the entrance, or
- b) Provided with a means of continuous communication with a person outside, and
- c) Visually checked by a designated person at intervals as often as may be required by the nature of the work to be performed.

9. Ventilation and testing during work:

Where work is carried out in any confined space:

- a) The confined space shall be ventilated continuously, and
- b) Tests for harmful or explosive substances and oxygen deficiency shall be made and recorded immediately prior to entry, after any interruptions in the work procedure, and at intervals to ensure the continuing safety of workers in the confined space.
- c) Blanking requirements: Piping containing hazardous substances or substances under pressure or so located as to allow hazardous substances to enter such space shall be disconnected blanked or blinded off.

## **HOISTING OVER WORK AREAS**

1. When working in the area, ensure that no loads are passed overhead without the operator sounding the horn; report any instances to your supervisor.
2. Do not work in any area where overhead erection of temporary or permanent materials is ongoing.
3. Ensure your supervisor and the hoisting spotter knows of your whereabouts at all times.
4. When you are involved in the hoisting and erection crew ensure that the following set of procedures is followed:
  - i) A spotter will be used who can ensure no one is in the work area before crane swigs load.



- ii) Barricades will be used in the area of erection to keep workers out.
- iii) A regular notification is established to inform trades where erection is taking place.
- iv) Regular inspection of rigging is done prior to each day's hoisting.
- v) The erection foreman and crane operator are in contact with radios.

## **RIGHT TO REFUSE UNSAFE WORK**

1. No worker shall carry out or cause to be carried out, any work process, or operate or cause to be operated any tool, appliance or equipment, which would create an undue hazard to the worker's health or safety or to the health or safety of any other worker. (Undue hazard means: a danger that is not normal for that occupation, or a danger under which a person engaged in that occupation would normally carry out the work.)
2. A worker shall not be disciplined for exercising this right.
3. Workers who exercise their right to refuse unsafe work must immediately report the problem to their crew leader or immediate supervisor.
4. The crew leader or supervisor must investigate and either correct the problem or inform the worker that the report is not valid.
5. If there is no resolution, the supervisor and the worker or the worker's representative must notify Worksafe BC who will then investigate. Worksafe BC will issue orders if deemed necessary.
6. Workers may be temporarily assigned alternative work at no loss in pay until the matter is resolved.

## **SCISSOR LIFT, BOOMS AND GIRAFFES**

Scissor lift, boom and giraffes operators must follow all applicable **Vehicles and Mobile Equipment Safety Rules**. In addition, the following rules apply specifically to their operation:

1. Equipment must be used and maintained in accordance with applicable Worksafe BC regulations.
2. Guardrails and safety chains must be in place.
3. Toe boards must be in place.
4. Safety belts or harnesses and lifelines must be in place and used.
5. The base of the unit may only be repositioned with the platform in the fully lowered or stowed position unless the operator has confirmed the supporting surface is firm, level, clear of depressions or obstructions, and that wheels/outriggers are contacting the ground.
6. If a unit is fitted with outriggers, it must be equipped with notices indicating the circumstances under which the outriggers must be used.
7. Carrier vehicles of elevated work platforms must be immobilized against inadvertent motion before workers occupy the platform.
8. Scissor lifts must be guarded where there is a possibility of workers inadvertently coming into contact with any hazardous moving parts of the lifting mechanism.



9. All vehicle-mounted giraffes or self-propelled boom-supported elevated work platforms must be subject to non-destructive testing at least every 24 months.
10. Every elevation work platform must be provided with an emergency stop button on the platform and an emergency lowering control.
11. Every elevating work platform must be fitted with a warning system for forward, reverse, up and down motions.
12. All self-propelled elevating work platforms (except truck-mounted platforms) must be fitted with tilt angle indicators or warning devices as described in Worksafe BC regulations.



## **APPENDIX C - RESPIRATORS**

Respiratory protective equipment shall be selected in accordance with the following schedule:

<b>Hazard</b>	<b>Respirator</b>
Oxygen Deficiency	<ul style="list-style-type: none"> <li>. Self-contained breathing apparatus.</li> <li>. House mask with blower.</li> <li>. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.</li> </ul>
Gas and Vapor Contaminants (Immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Self-contained breathing apparatus.</li> <li>. Hose mask with blower.</li> <li>. Air-purifying, full facepiece respirator with chemical canister (gas mask).</li> <li>. Self-rescue mouthpiece respirator (for escape only).</li> <li>. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.</li> </ul>
(Not immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Air-line respirator.</li> <li>. Hose mask without blower.</li> <li>. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge.</li> </ul>
Particulate Contaminants (Immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Self-contained breathing apparatus.</li> <li>. Hose mask with blower.</li> <li>. Air-purifying, full facepiece respirator with appropriate filter</li> <li>. Self-rescue mouthpiece respirator (for escape only).</li> <li>. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.</li> </ul>
(Not immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Air-purifying, half-mask or mouthpiece respirator with filter pad or cartridge.</li> <li>. Air-line respirator.</li> <li>. Air-line abrasive-blasting respirator.</li> <li>. Hose mask without blower.</li> </ul>
Combination gas, vapor, and particulate contaminants (Immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Self-contained breathing apparatus.</li> <li>. Hose mask with blower.</li> <li>. Air-purifying, full facepiece respirator with chemical canister and appropriate filter (gas mask with filter).</li> <li>. Self-rescue mouthpiece respirator (for escape only).</li> <li>. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.</li> </ul>
(Not immediately dangerous to life or health)	<ul style="list-style-type: none"> <li>. Air-line respirator.</li> <li>. Hose mask without blower.</li> <li>. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge and appropriate filter.</li> </ul>





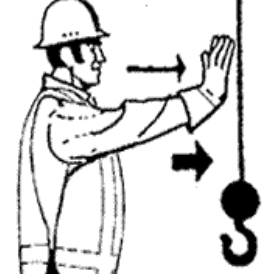





**APPENDIX D - STANDARD HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS**

**Crawler, locomotive and truck crane:**

<p>HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.</p>	<p>LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	<p>USE MAIN HOIST. Tap fist on head; then use regular signals.</p>
<p>USE WHIPLINE. (Auxiliary Hoist). Tap elbow with one hand; then use regular signals.</p>	<p>RAISE BOOM. Arm extended, fingers closed, thumb pointing upward.</p>	<p>LOWER BOOM. Arm extended, fingers closed, thumb pointing downward.</p>
<p>MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example).</p>	<p>RAISE THE BOOM AND LOWER THE LOAD. Arm extended, fingers closed, thumb pointing upward, other arm bent slightly with forefinger pointing down and rotate hand in horizontal circles.</p>	<p>LOWER THE BOOM AND RAISE THE LOAD. Arm extended, fingers closed, thumb pointing downward, other arm with forearm vertical, forefinger pointing upward and rotate hand in horizontal circles.</p>

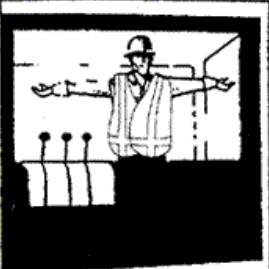


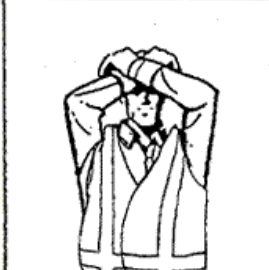
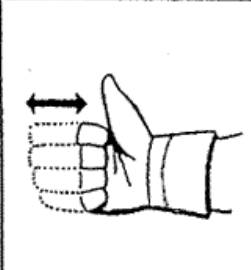
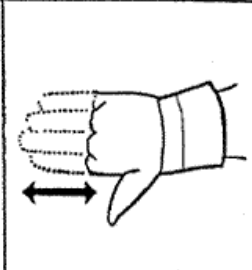
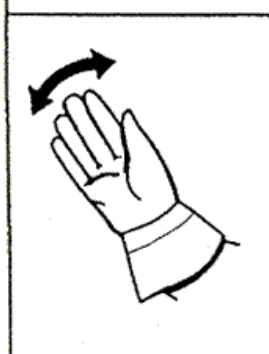



## APPENDIX D (continued):

		
<p>SWING. Arm extended, point with finger in direction of swing of boom.</p>	<p>STOP. Both arms outstretched at the sides horizontally, fingers outstretched.</p>	
		
<p>TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>	<p>DOG EVERYTHING. Clasp hands in front of body.</p>	<p>TRAVEL. (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel; forward or backward. (For crawler cranes only.)</p>
		
<p>TRAVEL. (One Track). Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body. (For crawler cranes only.)</p>	<p>EXTEND BOOM. (Telescoping Booms). Both fists in front of body with thumbs pointing outward. One hand signal may be used.</p>	<p>RETRACT BOOM. (Telescoping Booms). Both fists in front of body with thumbs pointing toward each other. One hand signal may be used.</p>



APPENDIX D (continued):

		
<p>MAGNET IS DISCONNECTED. Crane operator spreads both hands apart – palms up.</p>	<p>OPEN CLAM SHELL BUCKET. Arm extended, palm down, open hand.</p>	<p>CLOSE CLAM SHELL BUCKET. Arm extended, palm down, close hand.</p>
		
<p>HOIST SLOWLY TO CLEAR FOULED LINE. Hands crossed in front, above shoulders, fingers relaxed.</p>	<p>BOOM UP AND LOWER THE LOAD. One hand.</p>	<p>BOOM DOWN AND RAISE THE LOAD. One hand.</p>
		
<p>STOP. One hand.</p>	<p>WHIP LINE. One hand.</p>	

APPENDIX D (continued):

<p>HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.</p>	<p>LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	<p>BRIDGE TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>
<p>TROLLEY TRAVEL. Palm up, fingers closed, thumb pointing in direction of motion, jerk hand horizontally.</p>	<p>STOP. Both arms outstretched at the sides horizontally, fingers outstretched.</p>	
<p>MULTIPLE TROLLEYS. Hold up one finger for block marked "1" and two fingers for block marked "2". Regular signals follow.</p>	<p>MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist Slowly shown as example.)</p>	<p>MAGNET IS DISCONNECTED. Crane operator spreads both hands apart — palms up.</p>



We expect all Contractors employed on BC Housing projects to follow the safety rules described in this booklet as well as any additional rules which we may bring to your attention during your employment. Any Contractor who does not strictly obey these safety rules is liable to immediate termination.

**It is your responsibility to help us make this job a safe one.**



## **CHAPTER 7 – HAZARD ASSESSMENT**

### **SECTION 1 – HAZARD CHECKLIST**

This checklist on the following page is a tool for Service Providers/Contractors to assist in ensuring that hazards are considered in the workplace.

Use this checklist regularly when starting a project and when there have been significant changes or alterations to the work environment or procedures.



## Workplace Inspection Checklist

- Adapt this checklist for regular safety inspections at your workplace.
- Go over every aspect of your workplace to identify possible hazards.
- Add or delete items as necessary for your particular workplace.

<b>Floors and walkways</b>	<b>Yes</b>	<b>No</b>
Are aisles clear of materials or equipment?		
Are main aisles at least 1 m (36 in) wide?		
Are doorways clear of materials or equipment?		
Are carpets or tiles in good condition, free of loose or lifting carpeting or tile?		
Are floors clean and free of oil or grease?		
Are floors kept dry?		
If supplies or materials are stored on the floor, are they away from doors and aisles and stacked no more than three boxes high?		
<b>Fire safety and security</b>	<b>Yes</b>	<b>No</b>
Are fire extinguishers clearly marked?		
Are fire extinguishers properly installed?		
Have fire extinguishers been inspected within the last year?		
Are workers trained to use fire extinguishers?		
Are flammable liquids properly stored?		
Will space heaters shut off automatically when tipped over?		
Are emergency phone numbers close to phones?		
Are smoke, fire, and burglar alarms in place?		

<b>Stairs, ladders, and platforms</b>	<b>Yes</b>	<b>No</b>
Are ladders safe and in good condition?		
Are stair handrails fastened to the wall securely?		
Are stairwells clear of materials and equipment?		
Are stairs and handrails in good condition?		
Are ladders and stairs provided with anti-slip treads?		
<b>Walls</b>	<b>Yes</b>	<b>No</b>
Are signs and fixtures securely fastened to the wall?		
<b>Lighting</b>	<b>Yes</b>	<b>No</b>
Are lighting levels in work areas adequate?		
Are work areas free of glare or excessive lighting contrast?		
Is task lighting provided in areas of low light or high glare?		
Are windows covered with blinds, drapes, or other means of controlling light?		
Does emergency lighting work?		

## SECTION 2 – HAZARD ASSESSMENT – CONSTRUCTION

Project Name	Project Number
Address	Date
Contractor	Superintendent

### Emergency Procedures Required

Medical, Fire, Evacuation – Include phone numbers		
Clinic / Hospital		
Fire Protection	Demolition	Construction

### Utility Hazards

Utility Hazards (Electrical, Gas, Sewer, Storm locates hand/expose etc.)	
Within Site: Below Ground Utilities	
Adjacent to Site: Below Ground Utilities	
Adjacent to Site: Above Ground Utilities	
Excavations (Government regulation known, engineering required, sloping, shoring required)	
First Aid Requirements (Attendant, nurse, level)	First Aid Station, Room etc.
Supplies	
Transportation Requirements	
Emergency Procedures Developed	
Cranes (mobile equipment, JLG, Genie lifts, etc. ENG certification)	

### Electrical

Temporary Installations (Meets Code)
Permanent: Lockout Procedures Required

### Fencing / Hoarding Requirements: Engineering

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**Personal Protective Equipment Requirements**

(Hard hats, safety boots, safety glasses, side shields, hearing protection, respiratory protection, fire resistant coveralls)

Traffic Control Plan Developed and Posted?  Yes  No

**WHMIS Requirements**

Fall Protection Plan  Yes  No

Equipment Training, Guardrails, Tie off Points, Debris Nets, etc.

Environmental Hazard Assessment Complete?  Yes  No

Air Quality: Gas Testing Required

Cold/Heat Stress

**Temporary Lighting**

Established and maintained by:

**Procedures Required**

(Confined Space, Electrical/Mechanical Lockout, Hydro/Pneumatic Test, etc.)

Working Inside Existing Client's Facility?  Yes  No Please attach any client requirements.

**Security Requirements**

**Construction Signage**

**Blasting**

Qualified Personnel, Blast Procedure Complete, Magazine Location

Blasting Contractor has adequate insurance

**Agencies Requiring Notification** (Environmental, Local Government, Fire, etc.)



## RECEIPT OF SAFETY HANDBOOK (Contractor's Copy)

Each worker must read and understand this booklet, as well as the applicable sections of the governing Provincial Legislation and use it as a guide in fulfilling his/her personal responsibility toward safety.

I, \_\_\_\_\_ SUPERVISOR  
(Please Print)

of \_\_\_\_\_ hereby certify that I have presented

\_\_\_\_\_  
(Please Print Worker's Name)

with a copy of the BC Housing Safety Handbook and that I have instructed him/her to read it and use it as a guide to safety on the job.

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**SUPERVISOR  
SIGNATURE**

\_\_\_\_\_  
**CONTRACTOR  
SIGNATURE**

**RECEIPT OF SAFETY HANDBOOK (Employer's Copy)**

**Forward to Head Office**

Each worker must read and understand this booklet, as well as the applicable sections of the governing Provincial Legislation and use it as a guide in fulfilling his/her personal responsibility toward safety on BC Housing projects.

I, \_\_\_\_\_ SUPERVISOR  
(Please Print)

of BC Housing hereby certify that I have presented

\_\_\_\_\_  
(Please Print Worker's Name)

with a copy of the BC Housing Safety Handbook and that I have instructed him/her to read it and use it as a guide to safety on the job.

\_\_\_\_\_  
**DATE**

\_\_\_\_\_

**SUPERVISOR  
SIGNATURE**

\_\_\_\_\_

**CONTRACTOR  
SIGNATURE**

## **Disclaimer**

The information presented here is to the best of our knowledge, current at time of printing and is intended for general application. This publication is not a definitive guide to government regulations or to practices and procedures wholly applicable under every circumstance. The appropriate regulations and statutes should be consulted. Although BC Housing cannot guarantee the accuracy of, nor assume liability for, the information presented here, we would be pleased to answer individual requests for counseling and advice at any time in regards to the contents of this safety handbook.

