

Potentially significant expenses over the short term are identified below.

This page must not be considered as the complete report. The inspector will be going over some of the highlights of the inspection, not the entire report. Please read the entire report including the text linked to the highlighted items carefully before you make any decisions.

Should you have any questions about the home in the future, we would be happy to answer these. There is no fee for this telephone consulting.

## STRUCTURE

### JOISTS \ 5.4

**Condition:** • Water staining and rot noted under bathroom in crawl space .

**Location:** Crawl Space / Bathroom

**Task:** Further evaluate & repair

**Time:** Immediate

### ADDITIONAL \ Comments

**Condition:** • We recommend that verification be obtained that all additions and significant modifications have been inspected and approved by the authorities having jurisdiction.

Various additions noted. If no permits for renovations- recommend further evaluation by license contractor.

**Location:** Various

**Task:** Further evaluate

**Time:** Immediate

## PLUMBING

### SUPPLY PIPING IN HOUSE \ 1.4

**Condition:** • Old copper piping is unpredictable and may need to be replaced.

**Location:** Throughout

**Task:** Monitor / replace

**Time:** Unpredictable / As necessary

### SHOWER STALL \ 3.9

**Condition:** • Moisture meter indicated water infiltration behind tiles. Probable hidden damage to substrate (likely gypsum wallboard) and possible damage to wood framing members. Replacement of shower stall is recommended.

Water damage noted under bathroom floor in crawl- space all so .

**Location:** Back Bathroom

**Task:** Further evaluate & repair

**Time:** Immediate



**ADDITIONAL \ Comments**

**Condition:** • Some replaced waste piping noted in crawl/ space. Obtain repair history. Old piping is unpredictable and may need to be replaced

**Location:** Various Crawl Space

**Task:** Further evaluate

**Time:** Immediate

The subject property is an approximately 44 year old, wood frame detached house on crawlspace and slab .Refer to the body of the report for improvement recommendations.

Please read The Standards of Practice by clicking on the link [http://jamesdobney.com/standards\\_house.html](http://jamesdobney.com/standards_house.html)

The following rating reflects both the original quality of construction and the current condition of the home, based on a comparison to similar homes.

( ) ( ) ( ) ( ) (X) ( ) ( ) ( ) ( )  
Below Average Typical Above Average

James Dobney Inspections' Client Questionnaire:

Receiving both constructive criticism and positive feedback from our clients helps us to constantly improve our services. Thank you for taking a few minutes to complete our questionnaire - it means a lot to us. Please fill out an online questionnaire by clicking on the link below.

[James Dobney Inspections' Client Questionnaire](#)

# ROOFING

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

- THE BOTTOM
- ROOFING
- EXTERIOR
- STRUCTURE
- ELECTRICAL
- HEATING
- INSULATION
- PLUMBING
- INTERIOR
- APPENDIX

## Description

- Sloped roofing material:** • [Asphalt shingles](#)
- Probability of Leakage:** • [Moderate](#)
- Chimneys:** • [Masonry](#) • [Metal](#) • [Metal - masonry covered](#)

## Limitations

**Roof inspection method:** • Finding and identifying an environmental issue such as asbestos is outside the scope of a home inspection. Asbestos is present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern.

**Roof inspection method:** • Binoculars from the ground • Ladder at the edge of the roof

**Roof inspection limited/prevented by:**

- Snow/ice



*Ice on roof at time of inspection*

## Recommendations

### **SLOPED ROOF(S) \ 1.0**

**Condition:** • Regular maintenance and inspections by a certified roofing contractor recommended  
Some moss noted on roof. Recommend treatment. Obtain any leak history from vendors.

**Location:** Various

**Task:** Monitor / Improve

**Time:** Ongoing / As necessary

# ROOFING

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

THE BOTTOM

ROOFING

EXTERIOR

STRUCTURE

ELECTRICAL

HEATING

INSULATION

PLUMBING

INTERIOR

APPENDIX



*Moss noted on some areas of roof*

# EXTERIOR

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

THE BOTTOM

ROOFING

EXTERIOR

STRUCTURE

ELECTRICAL

HEATING

INSULATION

PLUMBING

INTERIOR

APPENDIX

## Description

**Gutters and Downspouts (1.0):** • [Aluminum](#)

**Gutter and Downspout Discharge (1.0):** • [Discharge below grade](#)

**Retaining Walls (8.0):**

- [Concrete](#)

Into crawl space

**Wall Surfaces (3.0):**

- [Wood siding](#)



East side



South side / front



North side



West side

## Limitations

**Exterior inspection method:** • The exterior was inspected from ground level. • The exterior sump was not opened for inspection. We recommend periodic inspection and removal of all solids from the bottom of the sump.

**Limitations:** • Fences, outbuildings (other than garages) and landscaping features are not included as part of a home inspection. • Heating systems to melt snow on driveways, walkways and steps are not included in a home inspection. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern.

**Limitations:**

- Wall - storage restricted access



*Wood storage against back wall noted*

## Recommendations

### GUTTERS \ 1.0

**Condition:** • [Leak](#)

Various leaks noted in gutter corners.

**Location:** Various

**Task:** Repair

**Time:** As necessary



*Various leaks noted*

### **DOWNSPOUTS \ 1.0**

**Condition:** • Old concrete perimeter drain tiles noted. Unpredictable. Obtain any back up history from vendors. Cleaning and replacement may be needed if obstructed.

**Location:** Throughout

**Task:** Further evaluate

**Time:** Immediate

### **WINDOWS - EXTERIOR SIDE \ 4.0**

**Condition:** • [Paint/caulking](#)

**Location:** Throughout

**Task:** Monitor / Improve

**Time:** Ongoing / As necessary

### **DOORS - EXTERIOR SIDE \ 4.0**

**Condition:** • [Paint/caulking](#)

**Location:** Throughout

**Task:** Monitor / Improve

**Time:** Ongoing / As necessary

### **SOFFIT, FASCIA AND TRIM \ 4.0**

**Condition:** • [Rot](#)

Some rot noted in facial board. Possible gutter leakage.

**Location:** North East

**Task:** Further evaluate & repair

**Time:** Immediate



Face board rot noted

### **WALL SURFACES \ 3.0**

**Condition:** • Wood storage against back wall . No access to wall. Recommend removing wood and inspecting for any rot damage.

**Location:** Rear Exterior

**Task:** Further evaluate / repair

**Time:** Immediate / if necessary

**Condition:** • This type of building will require on-going maintenance due to the high exposure to the weather of the exterior walls. Wood siding must be adequately protected by the use of stain or paint and on-going caulking.

**Location:** Throughout

**Task:** Monitor / Improve

**Time:** Ongoing / As necessary

### **EXTERIOR STRUCTURE \ General (5.0)**

**Condition:** • Some rot noted in front steps. No protection from water damage.

**Location:** Front

**Task:** Repair / Replace

**Time:** As necessary



# EXTERIOR

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

THE BOTTOM

ROOFING

EXTERIOR

STRUCTURE

ELECTRICAL

HEATING

INSULATION

PLUMBING

INTERIOR

APPENDIX



*Rot noted. No weather protection.*

## Description

**Foundations (4.0):** • [Poured concrete](#)

**Configuration (4.1):** • [Crawl space](#) • [Slab-on-grade](#)

**Floor Construction (5.0):** • [Joists - wood](#) • [Not visible](#)

**Exterior Wall Construction (6.0):** • [Wood frame](#)

**Roof and Ceiling Framing (7.0):**

• [Rafters/Roof joists](#)



*Attic space*

## Limitations

**Structure inspection method:**

- Attic inspected from access hatch
- Limited access
- Crawlspace entered but access was limited

**Limitations:** • Finishes, insulation, furnishings and storage conceal structural components, preventing/restricting inspection. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern.

## Recommendations

**JOISTS \ 5.4**

**Condition:** • Water staining and rot noted under bathroom in crawl space .

**Location:** Crawl Space / Bathroom

**Task:** Further evaluate & repair

**Time:** Immediate



*Water damage and rot noted*

### **SUB-FLOORING \ 5.5**

**Condition:** • Sub- flooring noted over floor of converted garage. No access under. Refer to vendors for history.

**Location:** Rear

**Task:** Further evaluate

**Time:** Immediate

### **ADDITIONAL \ Comments**

**Condition:** • We recommend that verification be obtained that all additions and significant modifications have been inspected and approved by the authorities having jurisdiction.

Various additions noted. If no permits for renovations- recommend further evaluation by license contractor.

**Location:** Various

**Task:** Further evaluate

**Time:** Immediate

## Description

**Service Entrance Cable (2.2):** • [Overhead - The wire material was not determined](#)

**Service Size (2.3):**

• [100 amps \(240 Volts\)](#)

As per breaker.



*Inside panel*

**System Grounding (2.5):** • [Not visible](#)

**Distribution Panel Rating (3.1):** • [100 amps](#)

**Distribution Panel Type & Location:** • West wall of back storage room

**Distribution Wire (4.1):** • [Copper - non-metallic sheathed](#)

**Outlet Type & Number (5.1):** • [Grounded - typical number](#)

**Ground Fault Circuit Interrupters (3.4):** • [Bathrooms](#)

**Arc Fault Circuit Interrupters (3.5):** • None found

## Limitations

**Limitations:** • Concealed electrical components are not inspected. • Main disconnect cover not removed - unsafe to do so. • The continuity and quality of the system ground are not verified as part of a home inspection. • The following low voltage systems are not included in a home inspection: intercom, alarm/security, low voltage light control, central vacuum, telephone, television, Internet, and Smart Home wiring systems.

## Recommendations

### HOUSE WIRING - GENERAL \ 4.0

**Condition:** • [Exposed](#)

All wiring connections need to be in appropriate electrical box

**Location:** Crawl Space

**Task:** Further evaluate & repair

**Time:** Immediate



*Exposed wiring connection*

**Condition:** • [Exposed](#)

Exposed live wires noted

**Location:** North and west Exterior walls

**Task:** Improve

**Time:** Immediate



*Live wires noted*



*Live wires noted*

## COVER PLATES \ 5.1

**Condition:** • [Damage](#)

**Location:** Laundry Area

**Task:** Replace

**Time:** Immediate



*Damaged cover plate noted*

**Condition:** • [Missing](#)

**Location:** Various

**Task:** Provide

**Time:** Immediate



*No cover plate noted*

## Description

**Main Heating System - Fuel/Energy Source:** • Electricity • Oil • Wood (For wood stoves, see Interior 8.0)

**Main Fuel Shut-off at:** • At furnace

**Main Heating System - Type:** • Wood stove

**Main Heating System - Type:** • [Furnace](#)

**Chimney Liner (2.5.4.2):** • [Cement](#) • [Metal](#)

**Efficiency (5.9):** • [Conventional efficiency](#)

**Approximate Input Capacity :** • [Not determined](#)

**Approximate Age:** • [11 years](#)

**Auxiliary Heating:** • Wood stove

**Auxiliary Heating:** • Electric baseboard

## Limitations

**Heating inspection method:** • Summer Test Procedure: During the portion of the year when the heating system is not normally operating, the heater, furnace or boiler is tested by turning up the thermostat. This will result in a partial test of the heating unit; however, the adequacy of the distribution system and amount of heat cannot be ascertained. Problems which may only show up during long term operation of the heating system may go undetected.

**Limitations:** • Heat loss calculations are not performed as part of a home inspection. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern. • Safety devices are not tested as part of a home inspection. • The heat exchanger is substantially concealed and could not be inspected. • Radiator valves on a hot water heating system are not tested as part of a home inspection.

**Limitations:**

- System shut off/inoperative
- Oil furnace shut- off

## Recommendations

### OIL TANK AND BURNER \ 14.0

**Condition:** • Oil tank noted on outside of house . Recommend further evaluation for any leakage and condition of oil tank

**Location:** Exterior

**Task:** Further evaluate

**Time:** Immediate

# HEATING

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

THE BOTTOM

ROOFING

EXTERIOR

STRUCTURE

ELECTRICAL

HEATING

INSULATION

PLUMBING

INTERIOR

APPENDIX



*Oil tank*

## FURNACE \ 5.0

**Condition:** • Oil furnace has not been used in over two years. Further evaluation and servicing is needed

**Location:** Crawl Space

**Task:** Further evaluate & repair

**Time:** Immediate / If necessary



*Oil furnace*



## SUPPLY/RETURN DUCTWORK, GRILLES AND REGISTERS \ 5.8

**Condition:** • Duct tape for heating ducts may contain asbestos . Testing and improvements recommended if this is a concern for you.

**Location:** Various Crawl Space

**Task:** Improve

**Time:** Discretionary



*Tape may contain asbestos*

**Condition:** • Disconnected heating ducting noted in crawl- space

**Location:** Crawl Space

**Task:** Repair

**Time:** Immediate

**Condition:** • No heat source noted.

Some rooms have only portable electric heating.

**Location:** Various

**Task:** Provide

**Time:** As necessary

## Description

**Attic insulation - value (2.0) & material (A) :**

- [Fiberglass](#)



*Attic insulation*

**Wood frame wall insulation - value (2.0) & material (F):** • Not determined

**Crawlspace wall insulation - value (2.0) & material (K) :** • None

**Crawlspace floor insulation - value (2.0) & material (K/L):** • None

**Air/vapour barrier (5.0):** • [Kraft paper](#)

**Roof ventilation (6.1):** • [Roof vents](#) • [Soffit vents](#)

**Crawlspace ventilation (6.2):** • Wall vents

## Limitations

**Insulation inspection method:** • Attic inspected from access hatch • Crawlspace entered but access was limited

**Limitations:** • Concealed wall insulation is not inspected. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern. • The continuity of air/vapour barriers and the performance of roof and attic ventilation are not verified as part of a home inspection.

## Recommendations

### **ATTIC \ Insulation (3.1)**

**Condition:** • Some evidence of vermin activity was noted in the attic. Recommend further evaluation by a specialist.

Attic and crawl space

**Location:** Crawl Space Attic

**Task:** Further evaluate

**Time:** Immediate

**ATTIC \ Ventilation (6.1)**

**Condition:** • Roof vents - number suspect - may be too little ventilation

No roof vents noted for back attic space

**Location:** Various

**Task:** Further evaluate / provide

**Time:** Immediate / as necessary

**FLOOR ABOVE UNHEATED AREA \ L**

**Condition:** • No insulation noted for floor above crawl- space. This is typical for a house of this age.

**Location:** Crawl Space

**Task:** Provide

**Time:** Discretionary

## Description

**Water Piping to the Building:** • [Not determined](#)

**Supply Piping in the Building:** • [Copper](#)

**Main Shut-off Valve Location:** • Not found

**Water Flow (Pressure) (1.4):** • [Functional](#)

**Water Heater Type and Energy Source (1.6):** • [Electric](#)

**Water Heater Age (Estimated) (1.6):**

• 9 years



*Hot water tank*

**Water Heater Tank Capacity (1.6):** • 165 L

**Waste Piping Material:** • Brass

**Waste Piping Material:** • Copper • Plastic

**Floor Drain Location:** • [Not found](#)

## Limitations

**Limitations:** • Concealed plumbing is not inspected. This includes supply and waste piping under floors and under the yard. • Isolating valves, relief valves and main shut-off valves are not tested as part of a home inspection. • Tub and basin overflows are not tested as part of a home inspection. Leakage at the overflows is a common problem. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Water treatment equipment is not included as part of a home inspection. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern. • Swimming pools, hot tubs, saunas, steam rooms, fountains, ponds and other water features are not included as part of a home inspection. • Indoor swimming pool, steam room, and hot tub enclosures are special building systems. An evaluation of these enclosures and the associated mechanical equipment is beyond the scope of a home inspection. We strongly recommend further evaluation by a specialist in this area. • An evaluation of fire protection sprinkler systems is not included as part of a

home inspection. • Supply piping in building not visible in some areas

**Limitations:** • Main shut off valve not located

## Recommendations

### General

• Property suspected to have old soap- box drainage system for gray- water. Refer to vendor for location. Cleaning or replacement may be needed. Not inspected.

**Location:** West Exterior

**Task:** Further evaluate & repair

**Time:** Immediate / as necessary

### WATER HEATER \ 1.6

**Condition:** • [Discharge tube - too short](#)

**Location:** Crawl Space

**Task:** Replace

**Time:** Immediate



*Discharge tube to short*

**Condition:** • Old

**Location:** Crawl Space

**Task:** Monitor

**Time:** Unpredictable

## SUPPLY PIPING IN HOUSE \ 1.4

**Condition:** • Old copper piping is unpredictable and may need to be replaced.

**Location:** Throughout

**Task:** Monitor / replace

**Time:** Unpredictable / As necessary

**Condition:** • We recommend replacing rubber/plastic supply lines with steel braided types to the washing machine, and other fixtures.

**Location:** Laundry Area

**Task:** Replace

**Time:** Immediate

## WASTE PIPING \ 2.3

**Condition:** • [Rust](#)

Some rust noted on piping under back bathroom in crawl/ space

**Location:** Crawl Space

**Task:** Further evaluate & repair

**Time:** Immediate



*Rust noted on trap*

## EXHAUST FAN \ 3.12 & 3.13

**Condition:** • [Desirable](#)

**Location:** Bathroom

**Task:** Provide

**Time:** Discretionary

## SINK \ 3.1

**Condition:** • Old metal p- traps are prone to leaks.

**Location:** Throughout

**Task:** Replace

**Time:** As necessary

# PLUMBING

Job #50800 -- 10 Brunswick Beach Road, Lions Bay, BC January 31, 2014

- THE BOTTOM
- ROOFING
- EXTERIOR
- STRUCTURE
- ELECTRICAL
- HEATING
- INSULATION
- PLUMBING**
- INTERIOR
- APPENDIX

**Condition:** • [Drain slow](#)

**Location:** Back Bathroom

**Task:** Further evaluate & repair

**Time:** Immediate

**Condition:** • [Trap - rust](#)

Recommend replacing old rusty trap under sink in main bathroom

**Location:** Bathroom

**Task:** Replace

**Time:** Immediate



*Rusty trap noted*

## TOILET \ 3.6

**Condition:** • [Tank lid cracked](#)

**Location:** Back Bathroom

**Task:** Replace

**Time:** As necessary



*Cracked lid noted*

## **BATHTUB \ 3.7/3.8**

**Condition:** • Caulking and grout should be checked every six months and improved as necessary to prevent leakage and damage behind wall surfaces.

**Location:** Bathroom

**Task:** Monitor / Improve

**Time:** Ongoing / As necessary

## **SHOWER STALL \ 3.9**

**Condition:** • Moisture meter indicated water infiltration behind tiles. Probable hidden damage to substrate (likely gypsum wallboard) and possible damage to wood framing members. Replacement of shower stall is recommended. Water damage noted under bathroom floor in crawl- space all so .

**Location:** Back Bathroom

**Task:** Further evaluate & repair

**Time:** Immediate



*Shower stall*

## **ADDITIONAL \ Comments**

**Condition:** • Some replaced waste piping noted in crawl/ space. Obtain repair history. Old piping is unpredictable and may need to be replaced

**Location:** Various Crawl Space

**Task:** Further evaluate

**Time:** Immediate



## Description

**Major Floor Finishes (1.0):** • [Carpet](#) • [Hardwood](#) • Laminate

**Major Wall Finishes (2.0):** • [Drywall](#)

**Major Ceiling Finishes (3.0):** • [Drywall](#)

**Windows (6.0):** • [Casement](#) • [Fixed \( 6.1.5\)](#)

**Glazing (6.1):** • [Single](#)

**Exterior Doors (7.0):** • [Conventional - hinged](#) • [Sliding glass](#)

**Fireplaces and Stoves (9.0):** • [Wood stove – insert](#)

## Limitations

**Limitations:** • Security systems, intercoms, central vacuum systems, chimney flues and elevators are not included as part of a home inspection. Smoke detectors and carbon monoxide detectors are not tested as part of a home inspection. • Finding and identifying environmental issues such as asbestos is outside the scope of a home inspection. Asbestos may be present in many building products and materials. An Environmental Consultant can assist if this is a concern. • Moisture problems may result in visible or concealed mould growth. An Environmental Consultant can assist if this is a concern. • Limited access to cabinets and closets • No comment is made on cosmetic finishes during a home inspection. • Appliances not inspected

**Limitations:**

• Storage/furnishings in some areas limited inspection



*Excessive storage in some areas*

**% of interior foundation wall not visible:** • 95

## Recommendations

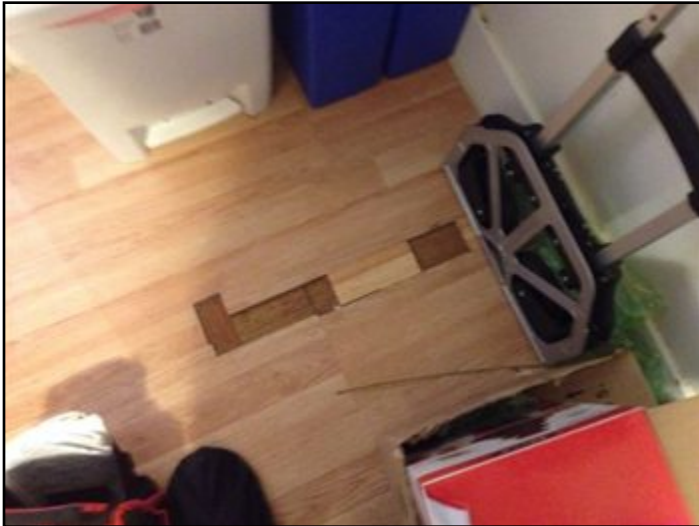
### FLOORS \ 1.0

**Condition:** • Some unfinished floor areas noted

**Location:** Various

**Task:** Repair

**Time:** As necessary



*Missing flooring*



*Unfinished flooring*

### CEILING \ 3.0

**Condition:** • Patched

Obtain history of ceiling patch in kitchen

**Location:** Kitchen

**Task:** Further evaluate

**Time:** Immediate



*Ceiling patch noted*

## WINDOWS \ 6.0

**Condition:** • Most windows covered with plastic film. Openers not tested

**Location:** Throughout

**Task:** Further evaluate

**Time:** Immediate



*Plastic covering windows*

**Condition:** • [Glass broken](#)

**Location:** Rear Exterior

**Task:** Replace



*Broken window noted*

## DOORS - EXTERIOR \ 7.0

**Condition:** • [Damage](#)

**Location:** Front Exterior

**Task:** Repair

**Time:** Immediate



*Door hardware damaged*

## FIREPLACE OR WOOD STOVE \ 9.0

**Condition:** • Wood stove or wood insert, flue and chimney should be inspected and swept as needed by a WETT certified technician and any recommended repairs completed before the unit is used. (WETT - Wood Energy Technology Transfer Inc. is a non-profit training and education association.) See [www.wettinc.ca](http://www.wettinc.ca).

Many insurance companies are reluctant to offer insurance on homes with wood stoves.

Insure wood stove was installed under permit.

**Location:** Living Room

**Task:** Further evaluate

**Time:** Immediate



*Wood stove noted*

THE BOTTOM

ROOFING

EXTERIOR

STRUCTURE

ELECTRICAL

HEATING

INSULATION

PLUMBING

**INTERIOR**

APPENDIX

**END OF REPORT**

SUPPLEMENTARY

THIS SECTION DEALS WITH SOME ISSUES THAT ARE BEYOND THE SCOPE OF A PROFESSIONAL HOME INSPECTION. THIS INFORMATION IS PROVIDED AS A COURTESY OVERVIEW ONLY, AND IS GENERAL IN NATURE. MORE INFORMATION IS AVAILABLE FROM SPECIALISTS IN THESE AREAS. COURTESY OF THE HOME REFERENCE BOOK® & JAMES DOBNEY INSPECTIONS

## 1.0 Asbestos

**DESCRIPTION** Asbestos is a fibrous material that was used in many building materials as an acoustic insulator, a fire resistant material, a binder, and a thermal insulator. It is present in hundreds of building products including pipe and duct insulation on heating systems, in sealers on heating boilers, in roofing products, siding, stucco, plaster, drywall compound (spackle), paneling, ceiling tiles, floor tiles and sheet goods, wall and attic insulation, and in asbestos-cement (Transite) pipe. This list is by no means complete.

**THE CONCERN** The very small asbestos fibers can cause cancer and other types of lung disease if inhaled. The fibers are so small and light that if released into the air, they may float for several days. They are not collected by furnace filters or conventional vacuum cleaners.

Asbestos is considered dangerous only when “friable”. This means that the material containing asbestos is broken, has ragged edges, or is otherwise in a state where the fibers may be released into the air. In most building products, asbestos isn’t normally friable. However, demolition or renovation work can disturb asbestos-containing materials, causing the asbestos fibers to be released into the air.

**IDENTIFICATION** Asbestos can only be identified by laboratory analysis. Therefore its identification is beyond the scope of a home inspection. The vast majority of homes contain some asbestos. As discussed, this is not a problem unless it is friable. There are firms in most centers that specialize in identification of asbestos, and in taking corrective action where necessary.

**WHAT CAN BE DONE** In the majority of cases, doing nothing is the best approach. Where there is a risk of fibers being released into the air, the asbestos-containing material can be isolated from the rest of the house through enclosure or encapsulation. Alternatively, the material can be removed. The latter is the most expensive, since care must be taken not to release fibers into the home, and because disposal of asbestos-containing materials is controlled in many areas.

**HOME IMPROVEMENT COSTS** Since most home improvements involve some demolition, additional costs may be incurred where asbestos containing materials are suspected. This would apply to such things as boiler replacement, re-roofing, re-siding, flooring replacement, and gutting of interiors, for example.

**NOT FOR THE DO-IT-YOUR-SELFER** Corrective actions related to asbestos should not be undertaken by the homeowner, as a general rule. Guidance is available from the Environmental Protection Agency in the U.S. and from Provincial Ministries of Labour, Occupational Health and Safety Divisions in Canada.

SUPPLEMENTARY

**2.0 Radon**

**DESCRIPTION** Radon is an invisible, odorless, tasteless gas that occurs naturally in the earth’s crust. Radon is a product of the decay of uranium. The decay of uranium to lead is a 14-step process. Radon is formed at the sixth step. It is unique because it is the first decay product that is a gas, not a solid.

**THE CONCERN** The radon gas itself is not a problem but its decay products are. The radioactive decay products are particles that can attach themselves to lung tissue when radon gas is inhaled. It is primarily the alpha radiation that causes lung cancer. In the United States, it is estimated that over 20,000 deaths are caused every year by radon gas. As with cigarette smoking, the risk is higher with greater exposure. The effects are long term rather than immediate.

**WHERE IT IS FOUND** Uranium is present in many parts of the earth’s crust. Areas subject to high radon gas levels have appreciable concentrations of uranium in the earth and cracks or porous soils through which the gas can migrate up to the surface.

**HOW IT GETS INTO HOUSES** Radon escaping into the air is not a problem, since it is diluted quickly. In buildings, however, radon gas can be trapped, particularly during winter months when doors and windows are kept closed and ventilation is at a minimum. It is difficult to predict which buildings will have a problem.

Radon enters the building through cracks in basement floors and walls, openings around pipes and electrical services into the basement, through water supplies, and through basement floor drains, for example. Even in areas with high concentrations in the earth, one building may have very high radon levels and a similar building across the street may have very low levels.

**TESTING** There are several types of detectors available for testing radon levels in buildings. A charcoal canister can be used to absorb radon from the air. There are etch detectors that use a sensitive plastic surface. The radon will leave tracks or etchings on the plastic, which can be measured. There are filtering systems where air is pumped through a filter. There are also grab-sample testers that allow for short term testing by simply taking an air sample. Some of the test procedures require laboratory analysis.

The identification of radon gas in a home is not part of a standard home inspection.

In the U.S., any radon levels above 4 pCi/liter bring a recommendation for remedial action. In Canada, the action level is 200 Bq/m<sup>3</sup> (5.4 pCi/liter). Since radon levels in a building can vary at different times of the day and seasons of the year, longer testing times are better. Winter testing is generally considered more reliable than summer testing.

There are several techniques used to lower radon levels in houses. They include sealing holes to prevent radon gas getting into houses, pressurizing basements or crawl spaces to keep the gas out, and adding pipes below basement floors to carry radon away from the home. Guidance is available from the Environmental Protection Agency in the U.S. and from Health and Welfare Canada, Environmental Radiation Hazards Division, Canada.

## SUPPLEMENTARY

### 3.0 Urea Formaldehyde Foam Insulation (UFFI)

**DESCRIPTION** Urea formaldehyde foam insulation (UFFI) became popular as a residential retrofit insulation in the mid-1970s. UFFI was banned in Canada in December 1980 because of the suspected health hazards. In the United States it was banned in 1982, then the ban was lifted.

Different colors and textures of UFFI are variable; however, it can be distinguished from other insulating foams by its frail, crumbly structure and powdery residue. Positive identification can only be made through laboratory testing. Because UFFI is a highly expandable foam, it was used to insulate hard to reach areas. Holes were typically drilled in exterior walls or ceilings and the material injected from the outside. Although it is sometimes possible to see plugged application holes on the exterior, a new siding material, ivy, or even paint can hide evidence of application. Occasionally, UFFI was injected from inside the building, in which case its application is typically disguised by interior finishes.

**INSPECTION** Some specialists look for UFFI by drilling holes in wall cavities and performing air quality testing. This is not always conclusive. Some maintain that only with the removal of all interior finishes can one say that there is no foam in the building. For this reason, the identification of UFFI is beyond the scope of a professional home inspection.

The U.S. Consumer Product Safety Commission (1-800-638-CPSC or [www.cpsc.gov](http://www.cpsc.gov)) can provide additional information. A UFFI information booklet can be obtained by contacting Canada Mortgage and Housing Corporation at 1-613-748-2000 or on the web at [www.cmhc.ca](http://www.cmhc.ca).

### 4.0 Lead

**DESCRIPTION** Lead is a naturally occurring element in the soil. Soil also collects lead from the air and other sources.

**IN WATER** Lead is also a natural constituent of drinking water. Lead pipe was used in many houses up to the 1950s as the water service line from the street. Lead was also a component of solder for copper pipes until the 1980s. To a lesser extent, lead can also be found in some plumbing fixtures.

Although initially there may be relatively high concentrations of lead in supply piping containing lead solder or in lead service lines, over the years, a build-up of lead oxide on the inside pipe surface reduces contamination. In December 1992, the U.S. EPA (Environmental Protection Agency) action level for lead in drinking water was changed to 15 parts per billion from a first draw off a fixture. As a precautionary measure, residents can run the plumbing fixtures for two to three minutes before drinking the water in order to clear out water that was in contact with the pipes for a long period of time.

In Canada, the action level is 10 parts per billion, but from a fully flushed fixture. In older houses that may have lead in the pipes, flushing the pipes may be desirable, if the water has been at rest for more than 5 to 8 hours. Hot tap water should not be used for drinking or cooking because hot water leaches lead from the pipes or solder joints.



## SUPPLEMENTARY

**IN PAINT** For the typical homeowner, the highest risk of exposure to lead is from paint. Lead was used extensively for pigmentation and as a drying agent in oil-based paints until the early 1950s. Except for a small number of cases, lead was not added to latex paints. Most manufacturers used other substances for pigmentation after the early 1950s; however, lead was still used as a drying agent. Exterior paints contained the highest levels: up to 60 or 70 percent lead by weight.

Currently, the majority of paints on the market conform to U.S. standards, which do not allow lead to be added. The U.S. government banned indoor leaded paint in the 1970s. It wasn't until the mid-1970s that the Canadian government set a limit of 5,000 parts per million of lead for interior paints. No limit was set on exterior paints.

Some estimates suggest that lead is present in roughly 75% of American homes.

**THE CONCERN** Young children, especially those under the age of four, often play on the floor, touching things that may contain lead particles. Children tend to put their hands in their mouths, which may mean they are ingesting lead. Children absorb lead more easily than adults because their metabolism is faster. Children are particularly vulnerable up to the age of six. Lead affects the child's nervous system by slowing development. These effects may be irreversible and include hearing impairment, behavioral problems and reduced intelligence.

The signs of lead poisoning are difficult to distinguish from normal child-like complaints and children may show no symptoms at all. When they do, the symptoms can be flu-like: stomach cramps, irritability, loss of appetite and general fatigue. Since these symptoms are so general, it's best not to rely solely on them as indicators of lead.

Pregnant women should not be exposed to lead, as it can interfere with development of the fetus.

For other adults, short term exposure to lead may cause temporary illness (upset stomach, headaches, etc), but the effects are not permanent. However, long term or acute exposure can cause serious health problems for adults, such as permanent kidney, nerve, hearing and vision damage.

**LEAD DETECTION** The guideline is if the house was built before 1980, there could be some lead paint on the interior or exterior of the house. If the house was built before 1950, it almost certainly will.

In order to verify whether or not lead-based paint is present in the house, relatively inexpensive testing kits are available. Studies have shown that these kits are not always accurate.

More reliable detection of lead paint can be undertaken by properly trained professionals.

Testing for lead paint in the house prior to remodeling need only be done if the work is to include the removal of paint, or if there are considerable amounts of peeling and flaking paint.

SUPPLEMENTARY

**STRATEGIES FOR REMOVAL OF LEAD PAINT** All methods of removing lead paint can be dangerous. This includes heat stripping, sanding, scraping and the use of chemical strippers. Any time you remove lead paint, there is a risk of creating lead dust. The finer the lead dust, the more easily it is absorbed into your system. Removal of lead paint is not a job for the homeowner. Hiring a contractor to do the work is strongly recommended. The contractor should ensure:

1. Family members are protected from lead dust during the removal process.
2. Family members' belongings are protected so they are not contaminated with lead dust.
3. The contractor should conduct a thorough clean-up following the work. This clean-up should include vacuuming with a high efficiency particle accumulator (HEPA) vacuum.

**ENCAPSULATION** If the condition of the interior plaster or drywall is poor, covering or enclosing the lead paint can be considered. This involves covering the original surfaces with drywall, heavy wallpaper (such as vinyl) or paneling. Liquid epoxy encapsulants that can be painted over lead paint are available. Some of these contain a bitter tasting additive to discourage children putting their mouths on the surfaces.

If the existing surface is in good shape, then repainting with a lead-free paint can be considered. However, some modern paints may not adhere well to old lead-based paints without wall preparation. If the surface is one that may be chewed by children (lead tastes sweet), repainting may not be sufficient.

**5.0 Carbon Monoxide**

**DESCRIPTION** Carbon monoxide is a colorless, odorless gas. It is a by-product of combustion of gas, propane and oil burning appliances. (It is actually a by-product of incomplete combustion, but combustion is rarely complete.)

**THE CONCERN** When you inhale carbon monoxide, it is absorbed into your body the same way as oxygen. It replaces the oxygen on the hemoglobin in your blood, depriving your body of oxygen. The result is an increased heart rate as your heart tries to get more oxygen to your brain and other vital organs.

The symptoms of long term exposure to low concentrations are slight headaches, fatigue and shortness of breath with only moderate exertion. Continued exposure or high concentrations can result in severe headaches, breathing difficulties, dizziness, confusion, cardiac trauma, brain damage and ultimately, death.

**ACTION** If you sense any of the above symptoms, move immediately to fresh air. Unconscious victims should be moved outdoors. Call for medical assistance and until it arrives, keep those exposed lying down and keep them warm by wrapping them in blankets. Rest is absolutely necessary. Those exposed should not be allowed to walk for several hours after regaining consciousness. If breathing has ceased, artificial respiration should be undertaken immediately.

**RISK REDUCTION** To help reduce the risk of exposure to carbon monoxide, fuel burning appliances should be inspected annually by a qualified technician. Gas burning equipment that is not properly adjusted often has a flickering yellow flame as opposed to a steady blue flame. If you see this, call a qualified service person.

SUPPLEMENTARY

---

One of the major causes of carbon monoxide build up in the home is poor draft from fuel burning appliances. This means that the products of combustion are not being safely carried outside through a chimney or vent, and are backing up into the house.

A simple test such as holding a match to the edge of the draft hood on a water heater or a furnace will give an indication of draft. It is common for some products of combustion to leak into the basement when a piece of equipment starts. Good draft should be established after a minute or so and a lit match will be drawn into the exhaust flue rather than being blown downwards or out into the room.

When products of combustion cannot escape from the house, moisture builds up in the exhaust flue and ultimately in the house itself. Look for rusting on flue pipes, furnaces and water heaters, and for water leaking from the base of the chimney. Look for moisture condensing on windows and in extreme cases, on walls near the furnace.

**DETECTION** In addition to having your fuel burning appliances inspected once a year, carbon monoxide (CO) detectors can be installed in each room where there is a fuel burning appliance. In addition, CO detectors can be installed near sleeping areas. Much like smoke detectors, carbon monoxide detectors can be wired directly into the home's electrical system or they can be battery operated. Also, like smoke detectors, carbon monoxide detectors should be tested monthly.

If a CO detector does go off, immediately open doors and windows to ventilate the house. If anyone is experiencing flu-like symptoms, seek medical attention immediately. Turn off the appliance if you know the source. Reset the alarm. Don't go back into the home until the alarm indicates there is no longer a problem. Never ignore an alarm even if you feel no symptoms.

## 6.0 Household Pests, Termites and Carpenter Ants

---

**DESCRIPTION** Household pests can range from insects to mice, bats and raccoons. Pests are often not identified during a professional home inspection.

**INSECTS** Some insect infestations are chronic and long-term. Other insects may infest an area for a single season and never be seen again.

**RODENTS** Rodents can be very destructive and can pose a threat to human health. Rodents will chew or gnaw on almost anything, particularly at night. Many fires have been caused by rodents chewing on electrical wiring. Food and food supplies can become contaminated when rodents come into contact with them. Flea infested rodents can introduce fleas to a pet or a dwelling. Once a population is established, it may be hard to control.

**IDENTIFICATION** Rodents can be detected by visual sightings, droppings, and noise or by chewing damage to wooden structures, pipes, clothes and food. Insects are generally detected by visual sightings, or damaged wood, for example.

## SUPPLEMENTARY

### 6.1 Subterranean Termites

**DESCRIPTION** Termites are by far the most serious insect that can attack the home, since they are the only insects that actually consume the wood. Subterranean termites are found throughout the U.S. and in the southern parts of some Canadian provinces.

**COLONIES** Subterranean termites live in a sophisticated social colony in the soil, not in the wood. In colder climates, their colonies are usually located below the level of frost penetration, and are typically close to some moisture source. When termites travel, they do so by moving through wood, soil or shelter tubes that they construct. Termites will not expose themselves to the open air, as their bodies can dry out very quickly.

**SHELTER TUBES** Shelter tubes are very small tunnels that the termites build across any open surface they want to travel. The shelter tubes are made of earth, debris, and a material they excrete that acts as a binder to hold the tubes together. These tubes are typically sandy in color and can readily be broken open by hand. An initial tube may be less than one 1/4 inch in width, although several tubes can be built together over time, and the entire grouping may be one or two inches wide.

**COLONY MEMBERS** A colony is usually made up of the larvae nymphs, reproductives, soldiers, and workers. As their names suggest, the soldiers' function is to protect the colony. The workers build the shelter tubes, tunnel through the earth, and collect the food. The workers are the ones that damage houses.

**WORKERS** The workers are whitish and usually about 1/8 to 1/4 inch long. They resemble small ants, although this is somewhat academic, since one will never see a termite roaming about a house. The workers enter the wood and consume it, in very small quantities of course. The wood is partially digested, taken back to the colony and regurgitated to feed the other members.

Since termites do not like to be exposed to the air, they will typically eat through the inside of a piece of wood, often following the grain. They tend to eat in parallel galleries, and leave a smooth honey-combed appearance on the inside of the wood. Termites will eat any kind of wood, although damp or rotted wood is slightly easier for them to break down. Termites need a regular supply of moisture, and workers return to the colony every 24 to 48 hours.

**FRASS** A small amount of frass is usually found inside the damaged wood. These are small gray flecks, and are different than the powdery wood (sawdust) generated by carpenter ants. Carpenter ants will tend to push the wood debris out of the tunnels, while termites consume this material.

**NEW COLONIES** New colonies can be started by less than 50 insects, and termites are typically moved by the relocation of infested wood or soil. Moving firewood or relocating a shrub or tree can carry a termite infestation to a new area. The natural movement of a colony is very slow, although splinter colonies can break off from the main colony and establish themselves anew.

Barrier type chemical treatments are deterrents, and very few insects are killed during a chemical treatment. The colony simply finds a new source of food and may remain where it is or relocate slightly.

SUPPLEMENTARY

---

**SIGNS** The mud-like shelter tubes are usually the first indication. The second indication is usually damaged wood, although damage may remain concealed for some time.

**RISK REDUCTION** Minimizing the risk of termites includes breaking wood/soil contact and avoiding accumulation of wood scraps around the outside of the house. The dryer the soil is, the less likely a termite colony will become established. Wet areas should be dried out to prevent this from happening. Good control of rainwater running off roofs and good drainage of surface water are important. Crawl spaces and areas under porches can be kept dry with good ventilation.

**TERMITE TREATMENT** Termite treatment should be performed by a licensed pest control professional. There are two main approaches, baiting and barriers. In a barrier system, a chemical pesticide is injected around the foundation. Termites are either killed or repelled by the barrier. In a bait system, the pesticide is placed in bait stations. Termites bring the slow-acting pesticide back to the colony, where it can kill many more of the insects.

**BREAK WOOD/ SOIL CONTACT** It is important to remove any wood/soil contact in termite prone areas, even if chemical treatment is undertaken. There should be at least six inches between any wood and soil, both inside the building and out.

Areas of typical wood/soil contact include crawlspaces, porches, stoops, decks, steps, basement windows, window wells, posts, walls, and basement staircases.

**CONCEALED WOOD DAMAGE** Wherever termite activity or termite treatment is found, there is the possibility of damage to the home. If none is visible, it may be difficult to know whether damage is concealed or has been repaired. Without disassembling the house, this is impossible to verify. The building should be monitored for sagging structural components, floor springiness or other signs of structural weakness. It is not unusual for termites to attack a house, moving through the floor and wall systems up into the attic. Wood damage may occur a considerable distance from the point of attack in the basement. It is not usually possible to see the extent of termite damage, since termites move through the center of wood members, trying not to go through the outer edges.

## 6.2 Drywood Termites

Drywood termites inhabit the southern United States and the coastal areas of California. Drywood termites are occasionally introduced into other areas through wooden furniture or other wooden objects brought from the southern U.S., Caribbean and even Asia, Africa and Australia. These termites infest utility poles, fence posts, trees, and structures (primarily around perimeter areas and where wood joins other wood).

**CHARACTERISTICS** Unlike subterranean termites, drywood termites;

- a) Do not require soil to build their nests, and do not bring soil into the chambers.
- b) Do not construct shelter tubes out of soil (although some species will cement fecal pellets together to bridge a gap in the wood).
- c) Cut across the grain of un-decayed, dry wood to excavate large chambers.

## SUPPLEMENTARY

**DETECTION** Fecal matter and other debris (called frass) is stored in unused chambers or pushed out of small kick holes. These holes are often protected by the soldier caste or blocked off by hardened debris. The fecal pellets are hard, six-sided and concave. Piles of these pellets may be found on window sills or beneath other infested surfaces. Other detection methods include

- a) Sounding the wood for cavities.
- b) Looking for evidence of shed wings.
- c) Looking for blistered wood on surfaces where galleries are close to the top.
- d) Probing wood to discover live termites.
- e) Using a stethoscope to hear activity within the galleries.

Damage is often not as extensive as subterranean termites due to smaller colony sizes.

**CONTROL** Control is achieved by removal of the damaged wood, and the addition of heat, electrical current, or insecticide injected into the nest and galleries. Tenting and fumigation is used where the infestation is large or the nest is difficult to isolate.

### 6.3 Dampwood Termites

Most dampwood termites are found tropically worldwide, however, some inhabit deserts. In the United States, they are primarily west of the Rocky Mountains, extending down into California. One species is found in British Columbia.

**CHARACTERISTICS** Dampwood termites prefer nesting in decayed wood or wood with a high moisture content and will sometimes infest tree roots. They do not require soil to live. The galleries are not kept clean, containing numerous six-sided, concave fecal pellets. A few pellets are discarded from openings in the wood. Some species infest structures, primarily in areas that are poorly maintained as a result of water exposure or wood/soil contact. Moisture control is the primary key to preventing and eliminating dampwood termite infestations.

### 6.4 Carpenter Ants

Carpenter ants are typically 1/4 to 1/2 inch long, often black or dark brown. Carpenter ants and the other insects mentioned do not actually consume the wood, but make their nests in it.

The amount of structural damage these pests do is very limited, although elimination can be tricky.

Conventional pesticides are used and, with carpenter ants, the nest has to be treated. In cases where the nest cannot be located, the entire building is treated. Carpenter ants like kitchen areas, because of the food. They also are frequently found in damp areas. Rotting wood or wood below leaky windows, roofs, or plumbing fixtures are favored nesting spots. The nest may be in floors, cupboards, doors or frames, window sills, porches, etc., out of sight.

Carpenter ants are not always active, and may not be noted on a one-time inspection. Seeing one or two ants does not necessarily mean an infestation, but this should be watched.

## SUPPLEMENTARY

## 7.0 Mold

**DESCRIPTION** Mold is a common term for a large family of fungi that have a cottony or woolly appearance. There are nearly a million species of mold. Mold is a naturally occurring organism that has been around far longer than humans. Mold grows in buildings where there is moisture, air, a food source, and when the temperature is between 40 and 140 degrees F. When conditions for growth are not met, mold becomes dormant; it does not die. Mold spreads by dispersing spores through the air as well as by growth on or within building materials.

**MOLD SPORES ARE EVERYWHERE** People sometimes tell us that they don't have mold in their home. We ask what happens if they leave bread in a drawer for a month or don't take out the garbage for two weeks. This helps them understand that no matter how clean they keep their home, mold spores are always there ready to grow on any favorable host. There are always mold spores in the air and there is always some mold in buildings, so having an objective of a "mold-free home" is not realistic.

**CONCERN** Mold spores are present in the air in every building, but this is not necessarily a reason for alarm. If indoor air mold levels are higher than in outdoor air, or if a significant mold colony is growing on building surfaces or in building walls or ceilings, there may be a cause for concern.

Mold risk falls into three broad categories:

1. Some mold is harmless, a cosmetic nuisance.
2. Some mold is allergenic to some people, in much the same way some people are allergic to peanut butter or shellfish.
3. Toxic mold is dangerous for everyone, although young people, old people, and people with respiratory problems or compromised immune systems are most vulnerable.

Media articles about "black mold," especially *Stachybotrys*, have terrified some people. Actually it is common to find black *Stachybotrys chartarum* in small amounts in houses where there has been leakage or water entry. It is a toxic mold and it should be removed. But don't assume that anything black on the wall or ceiling is highly toxic mold. Other common black species may be of low or no toxicity.

People may react to mold spores alone. There does not always have to be a visible growth to cause problems for sensitive people.

**YOU CAN'T TELL BY LOOKING** You cannot tell what kind of mold you are dealing with by looking at it. Competent identification is important. An expert, trained in microscopic identification of a cultured sample of mold, can usually determine its identity. It is not reliable to judge with the naked eye, or on mold color.

Home test kits are not reliable. The swab, culture, settlement dish, or air sample methods from these kits are fundamentally inaccurate: for example, the spores collected and "grown" in culture using these methods could be dead, fail to grow on the culture medium, and still be toxic if inhaled.

SUPPLEMENTARY

---

**KEEPING MOLD IN ITS PLACE** Although mold is needed and always with us, we want to keep mold in its place, preferably outdoors. While we will always have some spores in our homes, the goal is to keep the spores from growing to problem levels.

**PREVENTION IS THE KEY** Four things have to be present to have a mold growth:

1. Mold spores
2. A food source. This is wood or gypsum board, or that old bread in your bread box.
3. Temperatures between 40° and 140°F
4. A moisture source.

So, how do we control mold growth?

1. We have said that mold spores are everywhere.
2. Food sources are present in every home.
3. People are not comfortable in their homes at temperatures below 40° or above 140° F, so this is no help.
4. The only thing left is moisture. The best way to prevent mold from growing is to control moisture. We want to control moisture levels in homes for other reasons anyway.

**MOISTURE SOURCES** Sources of moisture in homes include:

1. Leaks into or through roofs, walls, door, windows, basements, etc. The leaks that come through usually get corrected quickly. Slow or intermittent leaks that are concealed in walls, for example, often don't get corrected because they are not noticed.
2. Leaks from plumbing or heating systems.
3. High humidity from cooking, bathing, etc., resulting in condensation.
4. Air conditioning systems, humidifiers, dehumidifiers, sump pits and other places where moisture is commonly present.

**GETTING RID OF A MOLD PROBLEM** The first step in dealing with a mold problem is identification. If the mold is determined to be harmless, it's time to get out the soap and water. If you or any other member of the household is sensitive to mold, or if the mold is determined to be harmful, a specialist should be engaged to clean up the mold.

Once we get rid of the mold, the next step is to remove the moisture source that allowed the mold to grow. Curing leaks, improving drainage and drying things up are important steps in controlling mold.

**MAINTENANCE IS IMPORTANT** Don't forget to clean your refrigerator, including gaskets, coils, and evaporator tray. Regular furnace and air conditioning service will help ensure that standing water or chronic moisture is not an issue. Gutters and downspouts should be kept clear and leaks should be corrected.

**FINDING MOLD** Mold comes in many colors and may be visible and distinct. It can also be very subtle. Mold on a surface may be the tip of an iceberg, with considerable mold concealed behind the wall, for example. In other cases, the mold is only on the surface. The toughest situation is when the mold is entirely out of sight. The best clues to look for are areas susceptible to mold, such as high moisture areas.

**BEYOND SCOPE OF A HOME INSPECTION** As with other environmental issues, finding and identifying mold is outside the scope of a home inspection.



## SUPPLEMENTARY

## 8.0 Wood Roofing Repairs and Cleaning

**WOOD ROOFING “TUNE-UP”** As wood roofing ages the shakes or shingles may deteriorate at different rates. It is often possible to extend the useful life of the roofing by several years by carrying out a roofing “tune-up”. This typically involves spot replacement of significantly damaged shakes or shingles (often located on the hip and ridge caps) as well as the addition of metal “shims” under any split shakes or shingles where the split is located directly over an adjacent keyway (the vertical joint between individual shakes or shingles). The “tune-up” should also include a professional roof cleaning if there are areas of the roofing covered by moss and/or algae growth. The practicality of having a roofing “tune-up” carried out should be determined by comparing its cost and potential advantages against the cost of roofing replacement. It is often not a clear-cut decision.

**WOOD ROOFING CLEANING** Keeping wood roofing clear of organic debris, moss and algae buildup is important in extending its useful life. High pressure washing is not recommended as it can result in mechanical damage to the roofing. Pressure washing should be the minimum required to remove loose material without causing damage. The roofing can then be sprayed with a combination moss killer and non-toxic detergent to kill any moss, algae or fungus. When these growths have died a heavy rain will usually be enough to remove them. The majority of wood roofing is western red cedar which contains natural oils which resist decay. There are various treatments available which purport to significantly increase this natural decay resistance. Their claims and their cost should be carefully evaluated prior to their application.

## 9.0 Woodburning Stoves & Fireplace Inserts

**OBTAIN VERIFICATION OF APPROVAL** We do not inspect wood burning stoves or fireplace inserts for proper installation or code compliance. We recommend that verification be obtained from the home owner that the appliance and its installation have been inspected and approved by the authority having jurisdiction. This type of verification may be required by the insurance company before they issue a house insurance policy.

## 10.0 Perimeter Foundation Drainage Systems

**PERIMETER FOUNDATION DRAINS CAN’T BE VISUALLY INSPECTED** Because the perimeter foundation drainage system is underground it can’t be visually inspected. We do not artificially introduce water into the “risers” or downspout connections of the system with a garden hose or any other mechanism. Our inspections of the drainage system and all other systems in the house are carried out by using the normal operating controls of the systems and are non-invasive in nature. Consult a specialist if invasive testing is required.

SUPPLEMENTARY

**11.0 Polybutylene Piping in Hot Water Heating Systems**

- OXYGEN PERMEATION** When non-oxygen barrier polybutylene tubing is used in a hot water heating system the system is susceptible to oxygen permeation through the tubing and into the boiler water.
- CAUSES** This can cause the boiler to rust and fail prematurely. The condition of the interior of the boiler cannot be determined by a visual inspection. It is recommended that a qualified heating specialist be engaged to further evaluate the system and recommend possible mitigation methods. These could include the addition a chemical treatment to the system to discourage oxygen induced corrosion or the installation of a separate heat exchanger system to separate the boiler water from the water circulating circulating through the system. The heat exchanger option would be more costly but would require less on-going maintenance.
- RUSTING**
- PRONE TO LEAKAGE** The use of polybutylene (PB) piping for hot water heating in a baseboard convector configuration is not considered good practice. The connections are very prone to leakage due to the cycling of pressure and water temperature. The piping is rated for 180 degrees Fahrenheit while the water temperature can exceed that.

**12.0 Polybutylene Plumbing Supply Lines**

There has been a great deal of publicity in various parts of North America regarding leak problems with polybutylene plumbing supply lines. There has been a legal judgment in the United States to partially compensate consumers who have experienced leak problems with their polybutylene piping. There is a pending settlement in Canada that could provide compensation for some homeowners who have experienced problems. Further information on the possible Canadian settlement can be obtained on the internet at [HTTP://WWW.PBSETTLEMENT.CA](http://www.pbsettlement.ca).

- MAJORITY OF LEAKS INVOLVE PLASTIC FITTINGS** The majority of leak problems with polybutylene supply lines in British Columbia seem to involve failure of plastic (acetal) fittings. Fitting failure may lead to the need for system replacement. This type fitting was commonly used from the late 1970's until the late 1980's. Copper fittings were used in most installations from the late 1980's until the late 1990's. Failure of copper fittings is rare. Failure of the actual polybutylene piping also seems relatively uncommon.

**13.0 Concrete Tile Roofing**

Concrete tile roofing is often installed consistent with the prevailing industry practice at the time of installation but this may not be in compliance with the applicable CSA Standard or the manufacturer's recommendations. A typical home inspection is carried out to identify visible signs of system non-performance not to examine compliance with any published standard.

SUPPLEMENTARY

### 14.0 Inspecting Condominium Units

**“LEAKY CONDO SYNDROME”** Many three and four storey wood frame multi-family buildings in the Lower Mainland of British Columbia suffer what has come to be known as the “leaky condo syndrome”. This syndrome is characterized by rot damage to wooden components of the building as a result of water infiltration. The cost to correct the damage and repair the building to a point where such damage is unlikely to re-occur can be very high. There have been many cases where owners of condominium units have received assessments in the tens of thousands of dollars as their share of the repair costs.

**WHAT WE DO** Our typical pre-purchase inspection of condominium unit includes a detailed inspection of the interior of the unit to the CAHPI Standards of Practice and a general “walk-through” of selected accessible common areas of the complex. These include the underground parking area, the general exterior and the roof (if access is provided). The common area “walk-through” is not designed to generate an all-inclusive list of building flaws, but is meant to enable the inspector to comment on building design features which tend to result in problems as well as on the general level of building maintenance. Our report may suggest follow-up questions for clients to ask the vendor of the property, the strata council or the property manager.

**LEAKY PROBLEMS IN “HIGH RISE” BUILDINGS** Until relatively recently it was generally believed that most “high-rise” condominium apartment buildings were at low risk of damage by water infiltration. As more invasive testing is being carried out on such buildings it is being discovered that many have leak problems resulting in significant damage. Their exposure to wind-driven rain makes all exterior components vulnerable to leaks if not adequately constructed. As with low rise wood frame condominiums the cost of correction can be significant.

**DAMAGE MAY GO UNDETECTED** A typical home inspection is a visual inspection and does not involve disassembling building components or carrying out invasive testing such as drilling holes to allow the use of moisture meters to check for building leaks. Because there is often no visual evidence of the type of leaking which causes the “leaky condo syndrome”, this type of leaking and its attendant damage may go undetected during a home inspection.

### 15.0 House Insurance Issues

Over the past couple of years there have been more house insurers charging increased premiums, or requiring upgrading to houses that contain certain components that they consider represent an increased risk. Some companies may even refuse to offer coverage.

A partial list of their concerns is as follows:

- less than 100 amp electrical service
- “knob and tube” wiring
- electrical fuse panels
- aluminum branch circuit wiring
- galvanized steel plumbing supply lines
- underground oil storage tanks
- uncertified wood burning stoves and fireplace inserts
- polybutylene plumbing supply lines with plastic (acetal) fittings
- previous use as a marijuana “grow-op”

## SUPPLEMENTARY

Homebuyers should consider contacting an insurance broker in advance of making an offer for a house to obtain a complete list of issues that could affect their ability to purchase insurance or to purchase it without an increased premium.

Homebuyers should be aware that a typical pre-purchase inspection is visual and that the items listed above may be present but not detected during the inspection.

## 16.0 “Grow-Op” Houses

It is common in B.C.’s lower mainland to find indications in a house that it may have been used for the cultivation of marijuana. These indicators should lead to further investigation into whether or not the house has been used for this illegal and often damaging practice.

Modifications to the mechanical systems may have been carried out for ventilation and lighting purposes. Sometimes there have been structural changes. In some cases there is evidence of excessive condensation which can cause damage to components and may also result in mould growth. The presence of mould is believed to result in health problems for some people.

Sometimes houses that have been used as “grow-ops” come to the attention of the authorities. In these cases most jurisdictions have a process in place involving the issuance of a permit and the inspection of the house by the appropriate building officials (electrical, plumbing, building inspectors etc.). Any deficiencies discovered must then be corrected.

There are probably more houses where marijuana cultivation has taken place that have not been reported to the authorities than ones that have. If signs of a previous “grow-op” are found, further investigation should be carried out to determine if there are any hidden problems. The previous use of a house as a “grow-op” may affect its insurability.