

## MAINTENANCE RECOMMENDATIONS

### GENERAL INTERIOR:

- Windows should be inspected at least annually for general operation and damage from leakage or condensation.
- Fireplaces and chimneys should be cleaned and inspected annually.**

### ELECTRICAL:

- Each circuit should be labelled to identify which circuit it controls.
- Screw-in type fuses should be tightened semi-annually.
- A supply of correctly sized fuses should be kept on hand.
- Circuit breakers should be manually tripped and reset semi-annually. (Do this when you turn the clocks back/ahead.)
- Test buttons on ground fault circuit interrupters should be operated monthly.

### HOT WATER HEATER:

- The heating system should be serviced annually by a qualified technician.
- The circulating pump and motor should be lubricated as directed by a serviceman or the manufacturer.
- The chimney clean-out should be inspected and cleared at least semi-annually, (note: chimneys with liners usually have no clean-out).
- Air release bleeder valves at the top of the radiators should be bled as necessary. However, they should be checked every few months.
- Radiator control valves should be visually checked for leakage every few months, but do not operate.

### FORCED AIR HEATING:

- The heating system should be serviced annually by a qualified technician.
- The fan and motor should be lubricated as directed by a serviceman or the manufacturer.
- The chimney clean-out (if installed) should be inspected and cleared semi-annually.
- The filter(s) should be inspected monthly and cleaned as necessary during the heating season. (approximately every two months)
- The electronic air cleaner should be cleaned monthly according to the manufacturer's instructions.
- The humidifier should be inspected monthly and cleaned as necessary during the heating season.
- The water supply to the humidifier should be shut off at the end of the heating season. The humidifier should be drained, cleaned and a new sponge pad be added (if necessary).

## **AIR CONDITIONING AND HEAT PUMPS:**

- A qualified serviceman should inspect the system and recharge, if necessary, annually.
- Most systems require the power to be on for up to twenty-four hours before using the system.
- The condensate drain line emerging from the duct work above the furnace should be visually checked for leakage during the cooling season.
- The outdoor section should be level. If the supports settle or heave, adjustments should be made by a serviceman.

## **INSULATION:**

- The attic area should be inspected annually for condensation problems (e.g. mildew), blocked vents, roof leaks and pests.
- Door and window caulking and weatherstripping should be inspected every fall.

## **PLUMBING:**

- Every fall, the inside control valves for outdoor faucets should be closed. The outside pipes should be drained and the exterior faucets left open.
- The bathtub and/or shower stall caulking and grouting should be checked regularly. Gaps should be filled in as soon as they are noted, no matter how small.
- The main shut-off valve for the plumbing system should be operated semi-annually to ensure that it can be closed in an emergency.
- The sump pump should be tested at least monthly. It may be wise to keep an auxiliary pump on hand as a spare.
- Recommended maintenance of a septic tank includes an annual inspection. Cleaning is recommended when the bottom of the sum mat is within three inches of the bottom of the outlet, or the sludge depth is greater than two feet (typically every three to five years). This work should be undertaken by a septic tank cleaning firm and is not recommended for the home owner. A septic tank requires active bacteria to function satisfactorily. Chemicals such as lye, strong caustics, acids, disinfectants, and the like should not be introduced in large amounts or at regular intervals.



## 1. ROOFS

### Inspection

Seasonal inspection is recommended and after all heavy windstorms

### Repairs

It is common that isolated faults develop with the roof surface. Repair faults immediately. Plastic roofing cement is the best material to use for this purpose. Keep material in ready supply. Apply with paint brush or spatula.

### Roof drainage

Spring and fall cleaning of gutter/eavestroughs is essential if there are trees nearby. Any minor leak in the gutter can be patched with plastic roofing cement. Extension of downpipes or use of concrete splash pads prevents soil erosion and channels roof drainage away from foundations.

Do not allow vines or tree branches near eavestroughs.

### Ice damming

Ice damming can develop at the roof edge (eaves). If possible, shovel the snow off your roof carefully and remove any ice formations at the eaves. Should ice damming persist, the installation of electric heat cables is recommended.

### Roof covering replacement

Don't wait until severe leakage occurs. But you don't want to replace your roof prematurely either. It is best to get an impartial opinion on remaining life expectancy.

## 8. GARDENING/LANDSCAPING

### **Window wells.**

Keep window wells clear of debris. The well floor must be lower than the basement window sill. Window well covers are considered optional. The natural drainage patterns are not interfered with when the well is clear of debris. By not exercising this precaution, water could penetrate into your basement causing a leak.

### **Grading, Site Drainage.**

Ensure that the ground slopes away from the house, window wells and retaining walls. A one inch slope over one foot for the first six feet from the building element is most preferable. Any ground depressions which develop near foundations should be topped up with soil immediately. 80% of all basements leak and retaining wall failures result from improper grading or site drainage.

### **Trees/Shrubs.**

Trim tree branches away from walls and roof overhangs. Position small trees and shrubs so that a reasonable clearance from the exterior walls.

### **Garden Beds**

Install a separation barrier should you wish to place a garden bed against the house. You could use pressure treated lumber for this purpose. When soil is in contact with the brick, spalling or deterioration will occur. Accelerated wood rot will also occur when in contact with the soil. Shrubbery or tree branches too close to the house impedes air movement. The lack of ventilation could cause the brick to spall/deteriorate or the wood to rot.

### **Lawn Care**

The best time to plant grass seed or thicken your lawn is early spring or mid-fall. The same holds true for installing sod. To avoid winter kill, it is best to spread out snow/ice in shaded lawn areas.

### **Patio Stones/Interlocking Brick**

Maintain or even base support under the patio stones. Ensure that the stones slope gently away from foundation walls. The best base for patio stones, interlocking brick, etc. is limestone screening. Patio stones which are not evenly supported are subject to cracking and shifting.

### **Asphalt Driveways**

Cracks which develop in asphalt driveways should be repaired in the Spring or Fall. The driveway should be sealed every two years. Repairing cracks and sealing the asphalt keeps the driveway surface water resistant. This greatly reduces the likelihood of pot holes or other settlement defects.

### **Inspect/Rodent (vermin) inspection**

It is prudent to review your lot, fences and exterior walls and roof overhangs each Spring and Autumn.



Carbon monoxide is a colourless, odourless gas that is a by-product of combustion. Continued exposure of exposure to high levels of carbon monoxide can result in severe headaches, breathing problems, cardiac complications, dizziness, confusion and, ultimately, death.

The Canadian Safety Council has recently reported that 200 Canadians are killed each year by carbon monoxide poisoning and another 1,500 are exposed to high enough concentrations that they need medical attention.

#### **SOURCES OF CARBON MONOXIDE.**

1. The exhaust from an automobile.
2. Solid or fossil fuel burning appliances in your home such as a furnace, gas or oil hot water heater, a fireplace, wood stove or gas range.

#### **HOW IT CAN GET INTO YOUR HOUSE.**

1. A crack or other defect in the heat exchanger in your furnace or boiler will allow carbon monoxide to exit the combustion chamber and vent into the living space of your home.
2. A blockage in the chimney or flue of any fuel burning appliance will restrict the discharge of combustion gases (including carbon monoxide) to the exterior and cause spillage into the living space.
3. A defect in the house ventilation system may cause a negative pressure inside the house. This can actually draw carbon monoxide and other noxious gases from the flue back into the house.

#### **RECOMMENDED COURSE OF ACTION.**

- Have your furnace or boiler checked every year. Make sure the checkup includes an inspection of the heat exchanger and the condition of the flue interior.
- If you have a garage attached to your house, make sure the connecting door has a weatherproof gasket and a self-closing device. Seal any openings in the garage walls or ceilings common with the house. Do not operate your automobile for prolonged periods of time.
- Make sure there are no vents or inlets on the driveway side of the house that may inadvertently allow fumes from a running vehicle to enter the house.
- Install a carbon monoxide detector near the bedrooms. Some people may want to install one detector at each floor level.
- Install a cap at the top of on any flues that service a furnace, wood stove, fireplace, etc. in order to keep birds and other wildlife from nesting in the chimney flue.
- Your carbon monoxide detector(s) may be connected in series with your smoke alarms or your security system. If either detects a problem, the alarm will be activated. Remember, just as with a fire, when the alarm goes off you must exit the house immediately and call the fire department.

The following potential causes or evidence of ice damming were noted during your inspection. Ice dams are a build-up of ice, generally at the roof's edge, which allows water to back-up under the roof coverings, causing leakage.

**Evidence of previous ice damming.**

- Roof covering/shingle damage caused by ice/snow removal.
- Excessive wear of roof coverings/shingles at the roof edge.
- Water stains or damage noted at soffits and exterior walls.
- Water stains or damage noted at interior ceilings/walls.
- Water stains or damage noted at roof sheathing/structure at roof edge, inside attic.
- Specialized roof components have been installed to attempt to prevent ice damming leakage.
- Heating cables have been installed at the roof.
- Ice dams present during inspection.

**Potential causes of ice damming.**

- Intricate roof design which may cause poor water drainage.
- 1 1/2 storey houses and townhouses are susceptible to ice damming.
- Lower sloped/long sloped roof, allowing water time to freeze on roof.
- Insufficient insulation/ventilation of attic/roof spaces can promote snow melt on roof.
- Cathedral ceiling designs can reduce insulation or ventilation levels.
- Inefficient window/door seals allow heat to escape, facilitating snow melt on the roof above those components.
- Location of roof components (plumbing vents, skylights) may block/slow water drainage.
- Changes in roof slope will slow water drainage promoting ice build-up.
- Eavestrough downspouts discharging to lower roof can cause water back-up/leakage.
- Dirty/clogged eavestrough gutters and downspouts will slow water drainage from roof.

**Recommended course of action.**

- Your roof should be monitored closely for ice damming after heavy snowfalls.
- Proper insulation, ventilation and good roof maintenance can help reduce the risk of ice dam build-up.
- It is recommended that roof snow and ice build-up be removed to prevent leakage. This type of work should only be done by qualified professionals.

**ROOF**

**ICE DAMMING**

**MAINTENANCE**



## **WHAT IS A GFCI?**

A **ground fault circuit interrupter** (GFCI) is an electrical device which is designed to protect people from electrical shock in a damp or wet environment. A GFCI can be a receptacle (wall plug outlet) or a circuit breaker (in the main electrical panel). Even though GFCI's have been around since the early "70's", many older homes, even after remodeling, and some newer homes, are constructed without the installation of these important safety devices.

## **WHAT IS A GROUND FAULT AND WHY IS IT DANGEROUS?**

A ground fault in an electrical circuit, extension cord, tool or appliance which permits electrical current to flow from the live wire to ground. Faults usually occur as a result of worn insulation, moisture, tools that have deteriorated from age or abuse and, in some cases, from the three-wire plugs that have been replaced and subsequently wired incorrectly.

Ground faults are very dangerous when a person becomes part of the electrical path or circuit to ground. When electrical current escapes through a faulty connection, it seeks a path to ground. The person touching that connection while standing in a wet or damp environment, or touching a sink or tap, becomes a good path to ground. The electrical current flowing through a person's body to ground can result in serious injury or death. Remember, as little as 25 milliamps can stop a person's heart.

## **HOW DOES THE GFCI WORK?**

When an appliance is plugged into a GFCI-protected circuit, the electrical current passing through the circuit is carefully monitored by the device. The GFCI almost instantly senses an electrical ground fault. If the current varies by so much as 5 milliamps, the GFCI interrupts the current, stopping the flow of electrical energy before someone can be harmed. It is commonly recommended that GFCI protection be provided at exterior outlets, bathrooms, garages, pools, spas and other areas where wet conditions may create a hazardous situation.

## **DOESN'T A CIRCUIT BREAKER PROVIDE THAT PROTECTION?**

No. Fuses or circuit breakers are primarily designed to protect the electrical system wiring and equipment. They will not protect anyone from serious electrical injury during a ground fault. Be cautioned also that GFCI protection is not over-current protection. GFCI's only protect against ground faults - not electrical overloads.

## **TEST REGULARLY.**

As with any other safety device, the GFCI should be tested periodically. Some manufacturers even include a check sheet for you to keep track of the date when you last tested your GFCI. A test is simple. Just plug in an appliance such as a light or radio into the GFCI-protected circuit. Next, push the "test" button on the receptacle or circuit breaker. If the button pops out and the appliance stops working (there is no electrical power to the receptacle) the GFCI is working properly. If the button does not pop out, or if it does but the appliance keeps functioning, then you should call a licensed electrician to check your GFCI.

## **WARNING.**

The Canadian Building Consulting Group Inc. **strongly** advises against touching or testing any electrical device before careful visual inspection to make sure there are no exposed wires or broken components. Also, you should ensure that you are standing on a safe, dry location. **NEVER TOUCH THE WIRES THAT LEAD FROM THE HOUSE WIRING TO THE RECEPTACLE.** If you are in any doubt about the serviceability of any electrical system, on your house, you should call a qualified, licensed electrician.

**ELECTRICAL**

**GFCI**

**MAINTENANCE**

- Clean or replace the filter in your forced-air furnace every two months or clean the electronic air-cleaner coil at least six times a year.
- Inspect/service your furnace/boiler annually.
- Provide adequate engineered outside air to your gas/oil furnace/boiler room.
- Clean the humidifier at least twice during the heating season.

During the cooling season (Summer):

- a) Switch off the humidifier at the humidistat
- b) Shut off the water to the humidifier
- c) Close off the damper on the humidifier-duct to the furnace (supply plenum).

During the heating season (Winter) these steps are reversed. Maintain humidity levels according to your personal comfort. Do not allow abnormally high levels of condensation to develop inside your house

- Fireplaces/chimneys should be inspected/cleaned at least once a year.
- Air-condition condensation drain pipes should be provided with "P" traps to prevent sewer gases being sucked into the air distribution system.
- Keep the basement and crawlspaces well ventilated.
- Treat basement floor drains with a light solution of laundry bleach to prevent drain-flies and other insects nesting there.
- Remove asbestos products (this should be done by trained professionals).
- Install wire cages over all exterior exhaust ports from the laundry dryer, the kitchen and bathroom to prevent birds nesting in them.
- A sheet of laundry static-guard, e.g. Bounce, makes a great dust-filter when placed inside every air supply grill in each room.
- Provide mechanical exhaust to the outside from your bathrooms and kitchen hood. This prevents excessive build-up of condensation on your windows, ceilings and walls.
- Keep pet litter boxes away from ventilation return grills.
- Clean out the bathroom, kitchen and laundry sinks, bathtub and stand-up shower drains at least twice a year.
- Use proper firewood to burn in your fireplace. Do not use pressure-treated wood or wood with any type of finish on it.
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The following strategies should be adopted to provide reasonable occupant safety and household security.

**Fire/smoke protection.**

- Install at least one smoke detector on each floor level.
- Store one hand operated fire extinguisher in/near the kitchen area and/or in the garage.
- Install a carbon monoxide (C.O.) detector at/near the sleeping quarters. Additional C.O. detectors can be installed at each floor level; the basement level being the least important.
- Exposed foam plastic insulation should be covered with 1/2" drywall.
- All openings in the garage walls and ceilings, common with the home, must be gas proofed.
- Any door leading from an attached garage into the dwelling must be equipped with a self-closing device.
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**Security.**

- Front entrance doors should have a window or be equipped with a door viewer.
- Have all locks/keyed cylinders changed upon taking possession of a new house. All doors should be equipped with a deadbolt.
- Basement windows should be protected with security bars.
- Install motion activated lighting at secondary exits and access points of your property.
- Ensure that all basement and main floor windows have operable locking mechanisms.
- The digital combination on automatic garage door openers and remotes can be changed.
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**General safety.**

- Do not store flammable materials in the furnace room or next to your hot water tank.
- Ensure that adequate ventilation is provided to rooms containing gas/oil fired furnaces/boilers and gas/oil fired hot water tanks.
- Handrails must be installed alongside all staircases containing more than two steps.
- Eliminate/repair any trip hazards or flooring defects.
- Do not overload electrical circuits. Do not install screw-in fuses over 15 amps. for general purposes.
- Avoid permanent electrical extension cord use.
- Clear access must be maintained in front of the electrical panel, the furnace/boiler access panels and the main water shut-off valve.
- Emergency and family contact telephone numbers should be displayed permanently at/near the kitchen telephone.
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**To seasonally disconnect your humidifier, perform the following steps:**

1. Stop motor by turning humidstat to "OFF".
2. Turn off the water supply.
3. Slide float block off the float arm, loosen orifice nut, and raise float assembly to top of adjustment slot in cabinet.
4. Lift drum shaft out of support bearing and move drum away from motor to disengage shaft from motor coupling. Remove drum assembly from humidifier. Slide retainer clip from drum shaft. Remove shaft from drum shaft. Remove shaft from drum assembly and pull drum ends apart to remove evaporator sleeve. The evaporator sleeve may be cleaned and softened in a solution of 1/2 vinegar and 1/2 water or mild detergent and water. Reassemble drum end with evaporator sleeve. Replace drum shaft and retainer clip. A new replacement evaporator sleeve is recommended at least once during the heating season.
5. Lift small plastic shield from float orifice. Remove and clean neoprene valve seat (81-12D). Valve seat may be reversed if it shows wear. Should valve parts show excessive mineral deposits, disconnect the 1/4" water supply and remove orifice washer. The complete float assembly may then be removed for thorough cleaning.

**To activate your humidifier for the heating season, perform the following steps:**

1. Reassemble humidifier and check water level. Check operation of unit by turning humidstat to "ON".
2. Cleaning will be required every (2) months. However, in hard water areas more frequent cleaning may be necessary.
3. Humidity should be controlled so that very little condensation appears on the inside surface of the windows. This will still permit reasonable relative humidity except during cold weather as indicated in the following chart, and displays the maximum relative humidity that can be tolerated if condensation is to be curtailed.

Outside Air Temperature (Fahrenheit)	(Celsius)	Desirable Maximum Inside Relative Humidity (%) at an Indoor Temperature of 70 F (21 C)
-20	29	20%
-10	-24	25%
0	-18	30%
10	-12	35%
20	- 7	40%

**HEATING**

**DRUM HUMIDIFIER**

**MAINTENANCE**



The following upgrades are recommended to be implemented to reduce the risk of occupant injury and property damage in the event of a fire.

**CAUTION: This list includes, but is not limited to, all fire code requirements which may be deemed necessary by the Fire Marshall or other authorities. This form should not be deemed as a substitute for a compliance inspection covering fire code retrofit requirements.**

**FIRE ALARM AND DETECTION.**

- Smoke alarms are recommended to be installed in hallways, storage/facility rooms and common areas.
- Smoke alarms are required in all dwelling units/suites.  Heat detectors are required in utility rooms.
- An interconnected fire/smoke alarm system is recommended.  C.O. detectors required at: \_\_\_\_\_
- \_\_\_\_\_

**CONTAINMENT.**

- Outside combustion air must be provided to the furnace/boiler room.
- Doors leading into dwelling units, exits and service areas must be fire doors with self-closing devices.
- Self-closing devices are required to be installed to all existing fire doors.
- Vertical fire separations are required to be improved at: \_\_\_\_\_
- Horizontal fire separations are required to be improved at: \_\_\_\_\_
- Fire dampers and/or plenum smoke detector recommended at common heating equipment/duct system.
- \_\_\_\_\_

**SUPPRESSION.**

- Portable fire extinguishers are recommended to be installed at each exit on all floor levels.
- A sprinkler system is recommended at:  basement  storage rooms  service rooms  all floor areas
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**MEANS OF EGRESS.**

- Emergency lighting is recommended to be installed in all exit stairwells and/or public corridors.
- Illuminated exit signs are recommended to be installed at/near all exit doors.
- A fire escape plan is recommended to be displayed at all access to exits.
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**GENERAL.**

- A general electrical safety inspection by the Hydro Authority is recommended.
- The annual inspection is required on fire suppression systems and interconnected alarm/detection systems.
- Fire code compliance inspection by Fire Department/Fire Code specialist is recommended.
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## WHAT IS A CRAWLSPACE?

A crawlspace is an enclosed space between the underside of a floor assembly and the ground with a vertical clearance of less than 5' - 11", but more than 12"; an 18" minimum clearance is recommended in termite areas.

By insulating and heating the enclosed space, the floor temperature of **the room above** will be more comfortable. Proper ventilation or air circulation and a sound ground cover will reduce dampness, improve air quality, and ensure against dryrot.

## RECOMMENDED DETAILS TO IMPROVE THE CRAWLSPACE.

### Insulation

- Perimeter walls - preferred material is rigid board type - use at least R-12.
- Floor cavities - (recommended only if crawlspace is unheated) - use fibreglass batts (R-25).
- Air ducts - use fibreglass pipe wrapping (R-5).
- 6 mil vapour barrier should be installed to the warm side of the floors and walls and should also wrap air ducts.
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### Heating (options)

- Modify existing air duct system to install heat supply outlet in crawlspace.
- Modify existing hot water system to install a radiator in crawlspace.
- Install an independently controlled electric baseboard heater in crawlspace.

### Access

- At least one access opening (20" x 28") should be provided (could use an existing basement window)
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### Ventilation

- Ventilation should be provided to adjacent basement spaces via an existing window opening.
- Vents should be uniformly distributed on opposite wall sides (open in summer and closed in winter).

### Ground Cover

- Install overlapping sheets of 10 mil polyethylene plastic weighed down with fine granular material.
- Install 2" of concrete.
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STRUCTURE

CRAWLSPACES

IMPROVEMENTS



All basements are subject to high humidity and moisture levels, especially between Spring and Autumn. Typically, basements are mostly below the ground level. Therefore, basement foundations and floors are in constant contact with damp soil. Moisture will typically transmit through these surfaces by way of capillary action, commonly referred to as moisture migration.

This condition is indeed expected and can be controlled by exercising some simple remedies. However, if low relative humidity and/or moisture content in the basement space is required for specific or special purposes, remedial action can be very expensive.

**The following recommendations will assist to reduce high humidity and dampness levels in basements:**

- Cold storage rooms must be naturally ventilated either with an operating window or a wall vent.
- Install an exhaust fan in the basement bathroom or shower.
- Avoid storage of materials directly against unfinished foundation walls or unfinished basement floors.
- Too much storage of material in a basement, or overfilled closets, will impede air circulation.
- A small room fan could be operated to encourage proper air circulation.
- Ensure that all spaces in the basement are ventilated. Undercutting of closet doors, cabinet doors and installing wall grilles may be required in the storage areas.
- Seasonally disconnect your central humidifier (in April, if attached to your furnace).
- Position a dehumidifier in a central basement location and operate continuously.
- Open basement windows whenever possible to allow for a natural air change.
- Leave the furnace fan on continuous operation in houses with a forced-air heating system. Ideally, return-air inlet grilles should be installed low on the wall in a central location.
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- \_\_\_\_\_
- \_\_\_\_\_
- Degree of difficulty in determining previous/present evidence of leaking/dampness in the basement:**  
 High     Medium to High     Medium     Medium to Low     Low

<b>STRUCTURE</b>	<b>BASEMENT MOISTURE AND HUMIDITY</b>	<b>MAINTENANCE</b>
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