

Visual Property Inspection

119 Craven Rd
Toronto, ON M4L 2Z4

Prepared for :

The Weir Team

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Inspected by :

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Report Commentary

Date: 04-Jan-2016

119 Craven Rd, Toronto, ON M4L 2Z4

This summary is not the entire report. The complete report may include additional information of concern to the client. It is recommended that the client read the entire report.

1.0 Exterior

1.1 **Window Exterior**

Further investigate extent of window frame rot and replace as required. Window frame at the rear of the house shows substantial rot/deterioration.

2.0 Roof Structure

2.1 **Covering**

Roof was recently recovered with a new membrane.

2.2 **Sec. Roof Life Expectancy**

Roof over porch was recently re-shingled.

3.0 Electrical Service

3.1 **Service Size**

200 amp service, copper wire.

3.2 **Circuit Wires/Receptacles**

Install GFCI receptacle on the exterior of the home to promote safety. The current receptacle is not GFCI and it also has the hot and neutral wires reversed.

4.0 Heating

4.1 **Heating System**

Mid efficiency furnace is 8 years old. Typical life expectancy is 20 years. Functioning as intended at time of inspection.

5.0 Plumbing Components

5.1 **Hot Water Tank**

Hot water on demand system is 5 years old. Functioning as intended at time of inspection. See additional information at the end of the report.

6.0 Interior Living Spaces

6.1 **Railing**

Install handrail to promote safety

Property and Site

Limitations

- Vegetation/Tree/Shrub Vines Debris/Obstruction
 Snow/Ice Cover
AGE OF HOME 75+

Conditions

- Sunny/Mostly Sunny Cloudy/Mostly Cloudy Rain/Wet Conditions
 Snow/Ice Conditions
Approx. Temperature -15 celsius

Building

- 2 Story Duplex Condo Townhome

Recommend CO detector installation as required by law within 15 feet of all bedrooms for occupant safety.

All smoke detectors over 10 years old should be replaced for safety as a precautionary measure. Some have a limited lifespan and older technology detectors are not as effective as newer ones.

Inspection limited by furnishings throughout the home including but not limited to furniture, blinds, curtains, wall & floor coverings, possibly fresh paint, boxes, appliances, clothes, items stored under some or all sinks, and storage items

This is not a building code inspection. Local codes, city and county, can vary significantly and change regularly over time, and are not a part of this home inspection.

Landscaping

- Bushes/Hedge/Flower Bed Vine Slopes To House

Front Porch

- Crack Wood/Composite Concrete Brick/Block/Paving Stone

Front Porch Light

- Unsecured Appears to be sensor activated Representative # Inspected/Tested

Operational

Deck(s)/Patio(s)

- Slopes to House Wood/Composite Paving Stone/Block/Brick
 Typical Cracking Concrete

Retaining Wall

- Wood Metal Concrete Leaning slightly - Typical

Monitor retaining wall movement and correct as required to reduce potential safety hazards

Exterior

Limitations

- Insulation Conceals Clearance Debris/Obstruction
 Obstructed/No or Partial Access Bushes/Vines/Tree Obstructions Snow/Ice Cover

Foundation Wall

- Stone/Flagstone Brick Concrete Block
 Preserved Wood Partially Concealed Hairline Cracking-typical
 Completely Concealed

Siding conceals the underside of the home. Not able to determine what the foundation is comprised of.

Exterior Walls

- Wood/Composite Stucco Vinyl/Aluminum Brick/Stone
 On Wood Framing

Ensure proper caulking and weather seal at all required locations and junctions such as windows, doors, dissimilar materials junctions, etc.

Repair siding to prevent water and pests penetrating and related damages.

Window Exterior

- Wood Metal Vinyl Wood Int/Vinyl or Metal Cla

Further investigate extent of window frame rot and replace as required. Window frame at the rear of the house shows substantial rot/deterioration.

Maintain wood windows/trim work to reduce deterioration

Garage Side or Back Door

- Dented/Minor Damage Binds - Adjust/repair

Operational

Exterior Lighting

- Not all lights tested Unsecured - repair Representative # Inspected/Tested

Operational

Roof Structure

Inspected By:

Binocular Roof Edge Walk On No Access

Limitations

Deck/Patio Solar Panels Gravel Cover Steep Slope Height
 Snow/Ice Cover Rain - Too Slippery Material Too Slippery

Main Roof

Flat Gable Hip/Valley Shed

Estimated Age 10 + years

Gutter/Downspout

Galvanized Plastic Aluminum Copper Below Ground Discharge
 Above Ground Discharge

Clean and maintain gutter system to promote drainage toward downspout.

Covering

Concrete/Clay Tile Wood Shingle/Wood Shake Asphalt/Composite Shingle
 Metal Other Flat Roof Membrane Tar & Grav

Roof was recently recovered with a new membrane.

Life Expectancy

Typical Middle End Exceeded

Accessory

Vent Stack Solar Panels Skylight(s) Vent Caps

Flashing

Not Checked/Concealed Chimney Drip Edge Flat Roof Skylight
 Roof to Wall Stack Valley Roll Roofing Replace When Re-roofing
 Aluminum/Galvanized Tarring/Concealed

Chimney/Vent

Wood Metal Furnace/Water Heater Fireplace
 Brick/Block/Stone Stone Corrosion

Sec. Roof Life Expectancy

Typical Middle End Exceeded

Roof over porch was recently re-shingled.

Electrical Service

Service Entrance

No Conduit Overhead Underground 120/240V

Entrance Cable

Concealed Aluminum Copper

Main Disconnect

Switch/Cartridge Fuse Breaker

Service Size

Have Electrician Evaluate

Amps 200

200 amp service, copper wire.

Distribution Panel

Not Opened Non Standard Installation Obstructed

Location Living room

Panel Rating

Room For Expansion

Amps 200

Fuse

Breaker GFCI Breaker AFCI Breaker Over-Fused Cartridge Glass

Circuit Wires/Receptacles

Aluminum Copper Representative # of Outlets Inspected/Tests Switched Outlets

Install GFCI receptacle on the exterior of the home to promote safety. The current receptacle is not GFCI and it also has the hot and neutral wires reversed.

Grounding

Concealed Ground Rod Water Main

Heating

Data Plate Not Legible Incomplete

Model: Gama

BTU Input: 50000

Estimated Age: 8 years

Limitations System Operating In AC Mode System Shut Down/Not Tested

Smoke Detectors Basement 1st Floor 2nd Floor 3rd Floor

Thermostat/Humidistat Unsecured Programmable Standard**Operational**

Heat Type Convector - Wall Unit Forced Air Radiator/Baseboard Radiant - In-Floor

Burner Type Conventional Mid Efficiency High Efficiency

Heating Fuel Source Gas Electric Propane

Fuel Source Shut Off Location Beside

Heating System Advise Service/Repair Contract Verify Service Hist w/Selle**Operational**

Mid efficiency furnace is 8 years old. Typical life expectancy is 20 years. Functioning as intended at time of inspection.

Fresh Air Supply Internal External

Venting Metal Corrosion Sidewall/Plastic Flue

Consult a qualified technician to determine if current vent material is rated for current application.

Life Expectancy Typical Middle Exceeded Middle/End

Gas Burner Not Checked**Operational**

Heating

Ignition

- Electronic Pilot & Thermocoupl

Heat Shield

- Missing Corrosion Soot None

Burn Chamber

- Advise Adjustment Soot

Motor/Blower

- Direct Drive Noisy Other

Operational

Filter

- Disposable Missing Inoperable Undersized Damaged

Duct/Joint/Housing

- Unsecured Corrosion

Cooling Fuel Source

- Electric

Plumbing Components

Limitation

- Finished Basement Private System

Public Supply

- Concealed Lead Galvanized Plastic Copper Metered
 Not Metered

Public Shut-Off Valve

- Not Tested Corrosion Tagged/Labeled for Convenience

Water Pressure

- Low Typical High

Water Quality

- Discoloration Debris Odor Advise Well Water Quality Tes Typical

Distribution Piping

- Concealed Plastic Galvanized Copper

Cross Connection

- Kitchen Laundry Hose Bibb None Visible

Waste Drainage

- Concealed Cast Iron Plastic Copper Pump/Inspect Septic System

Main Cleanout

- Concealed

Hot Water Tank

- With Heating System Gas Electric Some Corrosion Noted - Typical

Operational

Hot water on demand system is 5 years old. Functioning as intended at time of inspection. See additional information at the end of the report.

Life Expectancy

- Typical Exceeded Middle Middle/End

Fuel Shut-Off

- Concealed
Location beside

Discharge Tube

- Undersized Discharge

Plumbing Components

Venting

- Flue Sidewall Improper Rise Unsecured Corrosion Soot

Burn Chamber

- Not Checked Needs Adjustment

All Baths

Location

- Basement
 1st Floor
 2nd Floor
 3rd Floor

Water Flow

- Normal
 Suspect
 Low

Floor

- Worn
 Minor Cracking - Typical
 Stains/Minor Damage

RegROUT floor tiles to prevent water penetration and related damages.

Wall

- Uneven
 Patched - Typical
 Ceramic

Ceiling

- Uneven
 Minor Patching - Typical
 Minor Cracking - Typical

Door

- Binds - Adjust/Repair
 Damaged
 Representative # Inspected/Tested

Operational

Lighting

- None
 Unsecured

Operational

Exhaust Fan

- Advise Installation
 Dirty - Clean for best function
 Noisy - Service/Repair/Replace

Operational

Sink

- Worn
 Chip/Scratch
 Solid/Granite

Faucet

- No Shut-off
 Unsecured
 Corrosion
 Minor Leakage at Handle - Repair

Operational

Trap/Drain

- Drain stop disconnected/inoperable-Rep
 Slow Drain-Clean/Repair
 Corrosion - Monitor for leaks

Vanity

- Worn/Scratches
 Missing/Loose Hardware
 Prior Stains-No Leakage Now

Toilet

- No Shut-Off
 Unsecured
 Crooked - Monitor for leakage

Operational

Secure toilet to reduce secondary water damages

All Baths

Tub/Enclosure

- Ceramic/Tile Solid Surface/Marble Fiberglass Plastic Panels
 Minor Mildew Stains-Treat/Clean Worn - Scratches/Chips

Tub Faucet/Mixer

- Not Tested Unsecured Leaky-Secure/Repair/Replace

Operational

Shower Head

- Not Tested Unsecured Leaky-Secure/Repair/Replace

Operational

Heat Source

- None Thermostat Electric Air Register Radiant
 Radiator/Convactor

Kitchen

Floor

Worn Minor Cracking - Typica Stains/Minor Damage

Wall

Uneven Patched Minor Cracking - Typica

Ceiling

Uneven Patched- Typical Minor Cracking - Typica

Window

Binds - Adjust/Repair Not Tested Thermal Pane Single Pane
 Treat Wood To Preserve/Protect Representative # Inspected/Tested Storm Window

Operational

Lighting

None Unsecured Representative # Inspected/Tested

Operational

Sink

Worn Chip/Scratch

Faucet

No Shut-Off Valve Unsecured Corrosion Minor Leakage at Handle - Repair

Operational

Consult plumber to repair active leak under sink to prevent damages form water.

Trap/Drain

Slow Drain - Clean/Repair Corrosion - Monitor for Leakage

Counter

Unsecured Caulk at Backsplash Minor Damage/Scratches/Worn

Cabinet

Worn/Scratches Missing/Loose Hardware Representative # Inspected/Tested

Range Hood

Cooktop Exhaust No Exhaust No Light Noisy

Operational

Exhaust vent

Unsecured Ductless Concealed To Exterior

Filter

Missing - Install for safety Unsecured Damaged Greasy

Major Appliances (Built-in)

Tested ON/OFF only. Did not Test All Functions/Cycles

Kitchen

All appliances were turned on using regular operating controls if they are connected or not shut down. All functions and different systems are not tested. The test simply comprises turning the appliances on to verify some basic functionality.

Stove/Cooktop

Operational

Brand Ikea # 1407470351348

Refrigerator

Operational

Brand Kenmore # 115658993GJ

Heat Source

- None Thermostat Electric Air Register Radiant
 Radiator/Convactor

Interior Living Spaces

Floor

- Worn Minor Cracking - Typica Staining/Minor Damage

Wall

- Uneven Patched - Typical Minor Cracking - Typica
 Wood Frame w/drywall/plaster

Ceiling

- Uneven Patched - Typical Minor Cracking - Typica
 Wood Frame w/drywall/plaster

Window

- Binds - Adjust/Repair Not Tested Fixed Pane Single Pane Thermal Pane
 Treat Wood To Preserve/Protect Representative # Inspected/Tested

Operational**Lighting**

- None Unsecured Representative # Inspected/Tested

Operational**Ceiling Fan**

- None Unsecured

Operational**Interior Doors**

- Binds - Adjust/Repair Hinged Closet door off track
 Floor guides missing Representative # Inspected/Tested

Operational**Stairway**

- Carpet Wood Worn Squeaks - Typical

Railing

- Wood/Metal Incomplete None

Install handrail to promote safety

Exterior Doors

- Binds - Adjust/Repair Weather Stripping Missing/Improper Dead Bolt
 Minor Damage - Dent/Split/Worn Sliding Hinged

Operational**Heat Source**

- Air Register Electric Radiator/Convactor None
 Radiant-Concealed



Date: 04-Jan-2016

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Additional Comments

General Comments

This is a Prelisting Inspection performed for the seller of the home in preparation for putting the home on the market for sale. This inspection is completed to ASHI and OAHl standards, is visual in nature, and does not address building code compliance issues which are the purview of municipal building inspectors.

Property and Site

Retaining Wall



Retaining wall leaning slightly

Exterior

Exterior Walls



Damaged siding

Exterior

Window Exterior



Paint wood trim



Rotted window frame

Electrical Service

Distribution Panel



200 Amp electrical panel

Heating

Heating System



Furnace

Plumbing Components

Hot Water Tank



Tank less hot water system

Interior Living Spaces

Railing



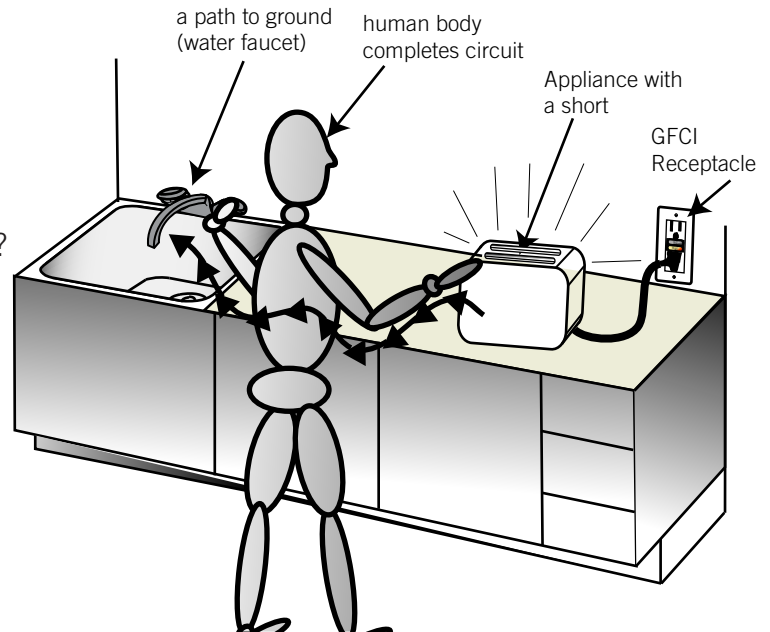
Missing handrail

Ground Fault Circuit Interrupter

A ground fault circuit interrupter, or GFCI, is an inexpensive electrical safety device that can protect you and your family members from a serious electric shock.

Have you ever had an electric shock? While it is an unpleasant experience, it is not usually fatal. However, given the right conditions, the same shock could be fatal! If your body makes a solid connection to the ground, the shock could easily kill you. Here are two examples of a solid ground connection:

- If you are physically standing or touching the ground outside
- If you touch something conductive, such as any part of the plumbing system in your house, that is also touching the ground outside



In other words, if you decide to operate your hedge trimmer in your bare feet and you get a shock, you may not survive it.

How Can a GFCI Help?

A GFCI is a special electrical outlet that prevents electric shocks in situations such as the ones described above. The GFCI monitors the electrical current leaving from and returning to the outlet. The current leaving the outlet should be the same amount as the returning current. If the current returning is less than that which leaves, the missing current could be passing through somebody's body to the ground. The GFCI detects the mismatch and shuts off the electrical outlet in a split second.

Where Should GFCI Outlets Be Located?

GFCI outlets should be installed in any area that presents a risk of an electric shock with a direct path to the ground. In other words, anywhere you might directly touch the ground outside or anywhere where you might touch a part of the plumbing system. Some smart GFCIs locations are:

- Exterior outlets
- Kitchen counter outlets (not common in Canada)
- Bathroom outlets
- Garage outlets
- Outlets in unfinished basements

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This is not a complete list. Areas near swimming pools, hot tubs, and so on should also include this type of outlet.

GFCIs are not perfect, however, and have been known to “nuisance trip” when connected to certain types of electrical equipment. For this reason, exceptions to the suggested (or required) locations for GFCIs exist. For example, a regular outlet would be a better choice for a freezer in your garage since the potential for nuisance tripping of the GFCI is high and might go undetected for days, leading to spoiled food in the shut-off freezer.

Remote GFCI

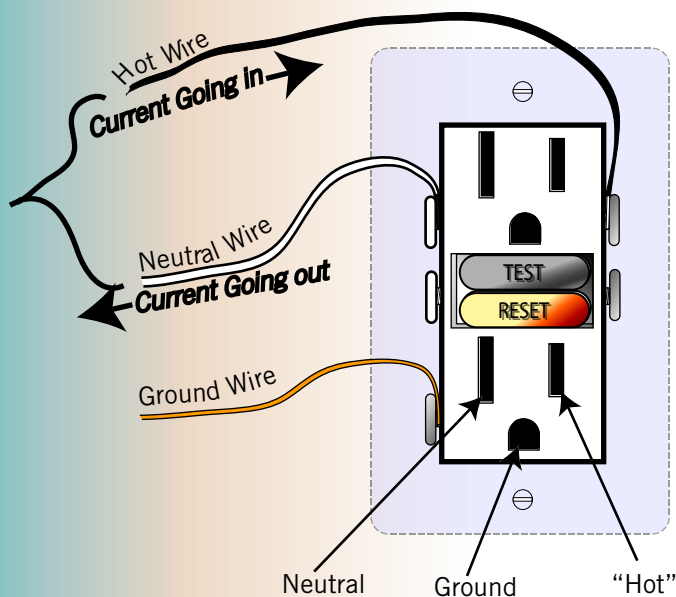
Several electrical outlets usually connect to a single circuit in an average home. A single GFCI outlet will protect all of the outlets in the circuit, even if the other outlets are not GFCIs. But the GFCI outlet must be the first outlet in the string in order for it to properly protect the other outlets, and, of course the connections have to be properly made.

Remote GFCIs sometimes cause confusion for home owners in the following ways:

- A home owner thinks the bathroom does not have a GFCI because the outlet looks like a standard one. The standard outlet under the protection of a remote GFCI should have a sticker indicating its GFCI protection. The problem is, the sticker does not stick forever. A Pillar To Post® inspector can test this for you.
- A standard outlet that does not appear to work in a bathroom or kitchen may actually be attached to a remote GFCI outlet that has nuisance tripped. Before calling an electrician, check the GFCI outlets in other bathrooms and in other locations around the house.

Testing

GFCIs are easy to test and should be tested every month. Simply press the test button on the outlet. You should hear a pop as the reset button pops out a little. To reset, just press the reset button. If the GFCI fails to trip, or if you are unable to reset it, it is time for an electrician to replace it.



Special breakers also provide GFCI protection to the entire circuit. These breakers can be installed instead of GFCI outlets. The GFCI breaker should also be tested monthly. You will recognize this breaker from the test and reset button.

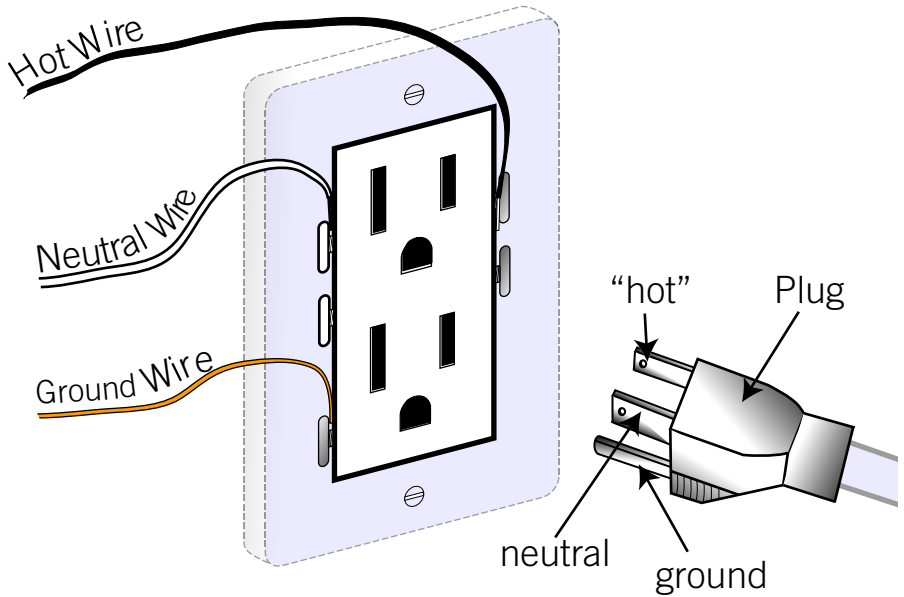
GFCIs can help prevent injury and death from electric shock. It is a small device worth having to ensure the safety of your family members.

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Electrical Outlet Problems

The electrical outlet not only provides vital access to the electrical current that makes your house hum, but it also warrants deeper consideration for reasons of comfort and safety. Our Pillar To Post® inspectors have seen it all when it comes to incorrect outlet wiring, a safety hazard if left unattended. But before we discuss safety measures, let's start with a quick tour of this component and its mate, the plug.



Have you ever wondered why your electrical outlets have holes of different sizes and shape? To accommodate the plug is the obvious answer. But there is more to this relationship than meets the eye. Hidden behind the outlet is a series of wires that must be properly connected for the outlet's safe functioning. On a modern electrical outlet that accommodates a three-pronged plug, each hole serves a specific purpose: the round hole is for the ground pin on the plug; the small slot takes the small blade on the plug and connects to the "hot" wire in the outlet (the wire that can cause a shock); the large slot takes the large blade and connects to the "neutral" wire in the outlet.

Specific wires have to be connected to the proper terminals for an outlet's safe function. Correct installation is so important that our Pillar To Post® inspectors spot-check outlets with an outlet tester during every inspection.

Reverse Polarity

The large slot and small slot on an electrical outlet, and the different-sized blades on a plug, designate their respective polarizations, and ensure that the plug goes in the outlet only one way, a safety feature that reduces the chances of shock. For instance, a light-bulb socket has exposed electrical connections, the threads being the most exposed part. But polarized socket threads are attached to the neutral wire to prevent someone from getting a shock when changing a light bulb.

If the electrical outlet itself is mis-wired with reverse polarity, the lamp socket threads described above will become "hot". If you touch the threads in the socket, or on the bulb as you screw it into the socket, you may get a shock.

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Outlet Not Grounded

Pillar To Post® inspectors have also discovered outlets with the circular ground holes but with no ground wire connected. In older homes, sometimes the cable leading to the outlet does not have a ground wire, yet the outlet has nonetheless been upgraded to a modern grounded type. Some plug-in electrical devices need this ground connection for their built-in safety features. If the outlet appears to be grounded but is not, the device's safety features will not work.

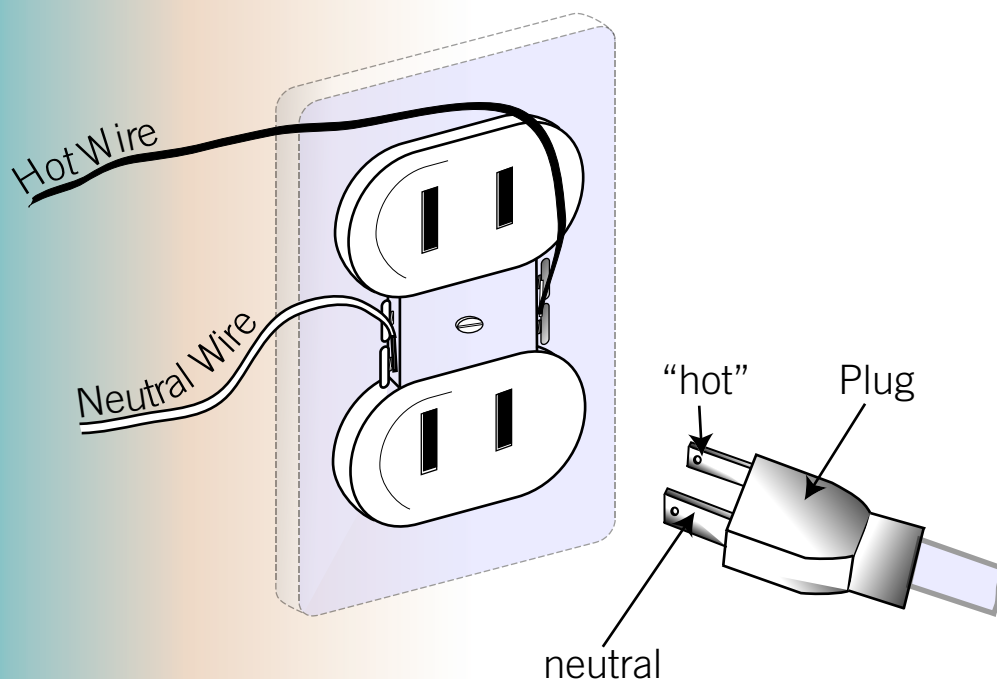
Old Outlets

In older homes some outlets may have no ground slot at all. This does not represent a defect or safety concern, but you will not be able to plug in an electrical appliance that has a ground pin on the plug. Today, most plug-in appliances are not the grounded style and, therefore, do not use or have a ground pin on the plug because they are a double insulated design. In these cases, the old ungrounded outlet will work fine.

If you think it might be a good idea to simply cut off the ground pin to accommodate an outlet without a ground hole, think again. This procedure is doubly unsafe because it not only bypasses the grounding safety feature, but also it bypasses the polarizing feature since a de-pinned plug can be inserted into the outlet either way.

Easy to Fix

An electrician can fix these outlet problems. Though your outlets may appear as minor considerations in the grand scheme of your home, your understanding and the safe installation of your outlets can prevent serious safety hazards.



Ungrounded Receptacle

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Railings and Guards

The CDC (Centers for Disease Control and Injury Prevention) estimates that 40% of all unintentional deaths around the home are due to falls. One in five injuries that require a visit to an emergency room is due to a fall. Over 50% of these are falls that happen at home and most of these are falls from stairs and steps.

Railings and guards are designed to keep people from falling and injuring themselves. There is no doubt that properly installed railings and guards could help to improve these statistics.

A railing is something to grip onto when you go up and down a staircase. A guard is something that keeps you from falling off a staircase, deck or balcony. On a staircase, sometimes the railing doubles as a guard.

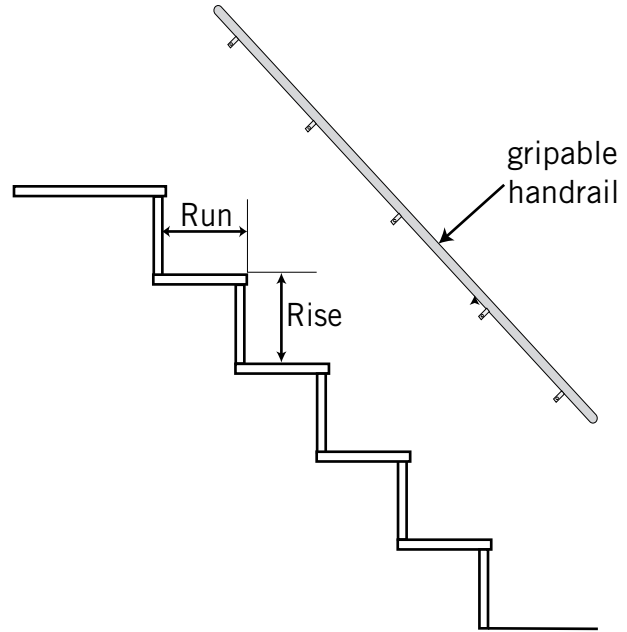
Many homes have missing or inappropriate railings and guards. One reason is that older homes did not have the same requirements as we do today. Home owners are not required to upgrade their homes to modern safety standards. If we had to upgrade, everybody would have to renovate their home every year just to keep up.

Pillar To Post home inspectors inspect your home with this in mind. We don't believe people should have to renovate their homes every year. Your railings and guards may be perfectly adequate for the time they were installed. At the same time we are concerned for your safety. We believe the solution is to provide you with information on common safety issues and let you decide if you would like to address the issue as a discretionary upgrade.

Here are a few common issues:

Missing railings: Sometimes a staircase has no railing at all, either because the previous owner removed it to make more room to move furniture up the stairs or because it was never installed in the first place. Ideally there should be a railing on any staircase that has more than two or three risers. The actual requirement depends on your area and when the home was built.

Missing guard: A common scenario is there is no guard on an open staircase to a



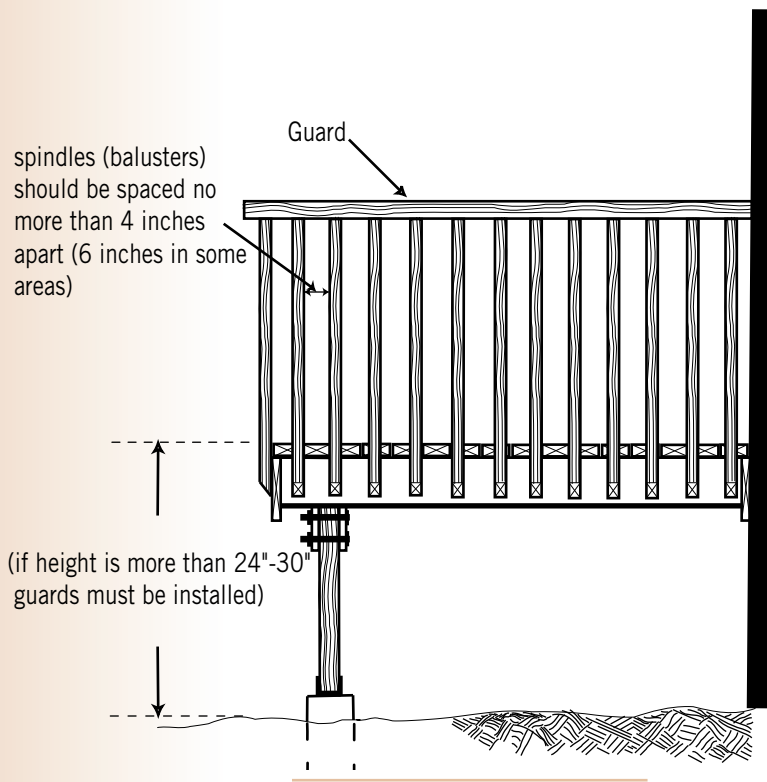
basement. In many areas, a guard was not required as long as there was a wall on one side and the basement unfinished. Today, many home owners have turned their basement into a recreation area or a playroom for children. The open staircase is now a danger. Ideally, a railing and guard should be added.

Guard too low: In some cases, an old home will have very low guards on staircases or balconies. This was the design at the time the home was built. Ideally, a guard should be 36 inches high, unless it's part of a staircase handrail in which case 34 inches would be ideal. In many areas, if the drop is six feet or more, a guard of 42 inches is required.

Railing or guard has large openings: Railings and guards may have vertical spindles (called balusters). These keep people from falling through. In some cases, the spacing between the spindles is so wide that a child could fall through. The requirements have changed over the years and also vary from area to area but most authorities believe that a maximum opening of four inches offers the best protection.

Other things to look for:

- Guards that incorporate climbable elements are not ideal. An example is a bench built into a guard or horizontal slats between the spindles on the guard. The concern is that children can climb them and fall over.
- Appropriate lighting for a staircase is a must. A dark stairwell is dangerous. That's all there is to it.
- Uneven stairs and stairs with non-uniform riser height are dangerous.



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Carbon Monoxide

Carbon monoxide, or CO, a byproduct of incomplete combustion of fossil fuels, is a colorless, odorless gas. Breathing CO reduces the blood's ability to carry oxygen. In severe cases, CO can cause death.

Defective or malfunctioning fossil fuel appliances, or inappropriate use of appliances that burn fossil fuel close to or inside the home can pose a serious health hazard. Here are a few examples of dangerous operations:

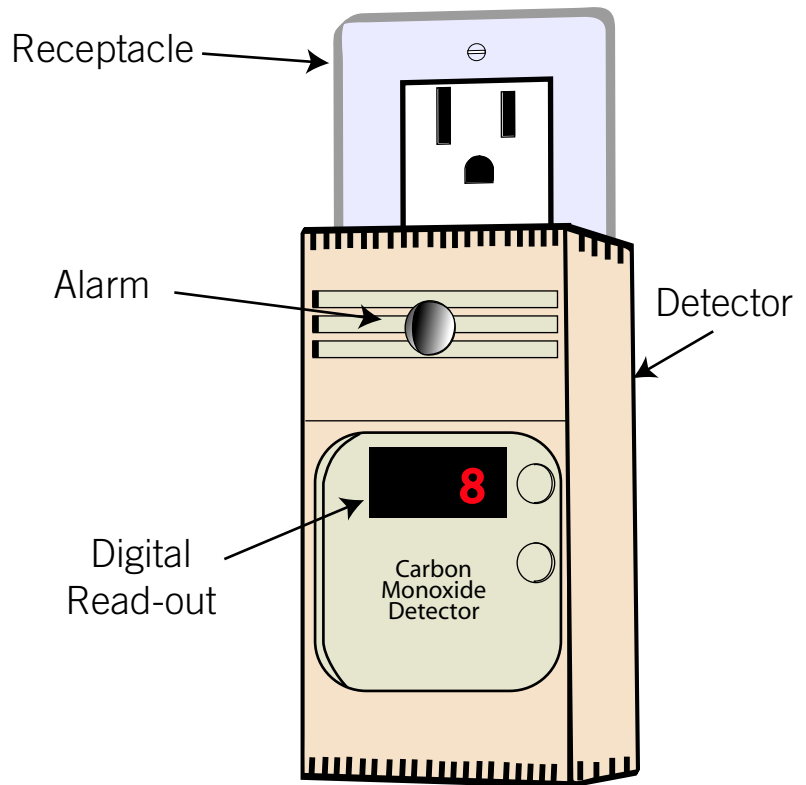
- Running an automobile or gas lawn mower inside the garage
- Operating a barbeque inside the home
- A gas or oil burning furnace with a blockage in the chimney
- Kerosene space heaters
- Operating a generator in the home during a power failure

Symptoms of Carbon Monoxide Poisoning

Symptoms of carbon monoxide poisoning include headache, dizziness, nausea, vomiting, weakness, chest pain, confusion, and loss of consciousness. Carbon monoxide poisoning can lead to death. Low level poisoning may go unnoticed because it may be mistaken for the flu.

Carbon Monoxide Detector

You should have at least one carbon monoxide detector in your home. In some geographic areas, a CO detector is required by law. The CO detector should be placed where you can hear it if it goes off when you are asleep. A CO detector does not have to be placed on the ceiling, since unlike smoke, CO has approximately the same weight as air so it mixes



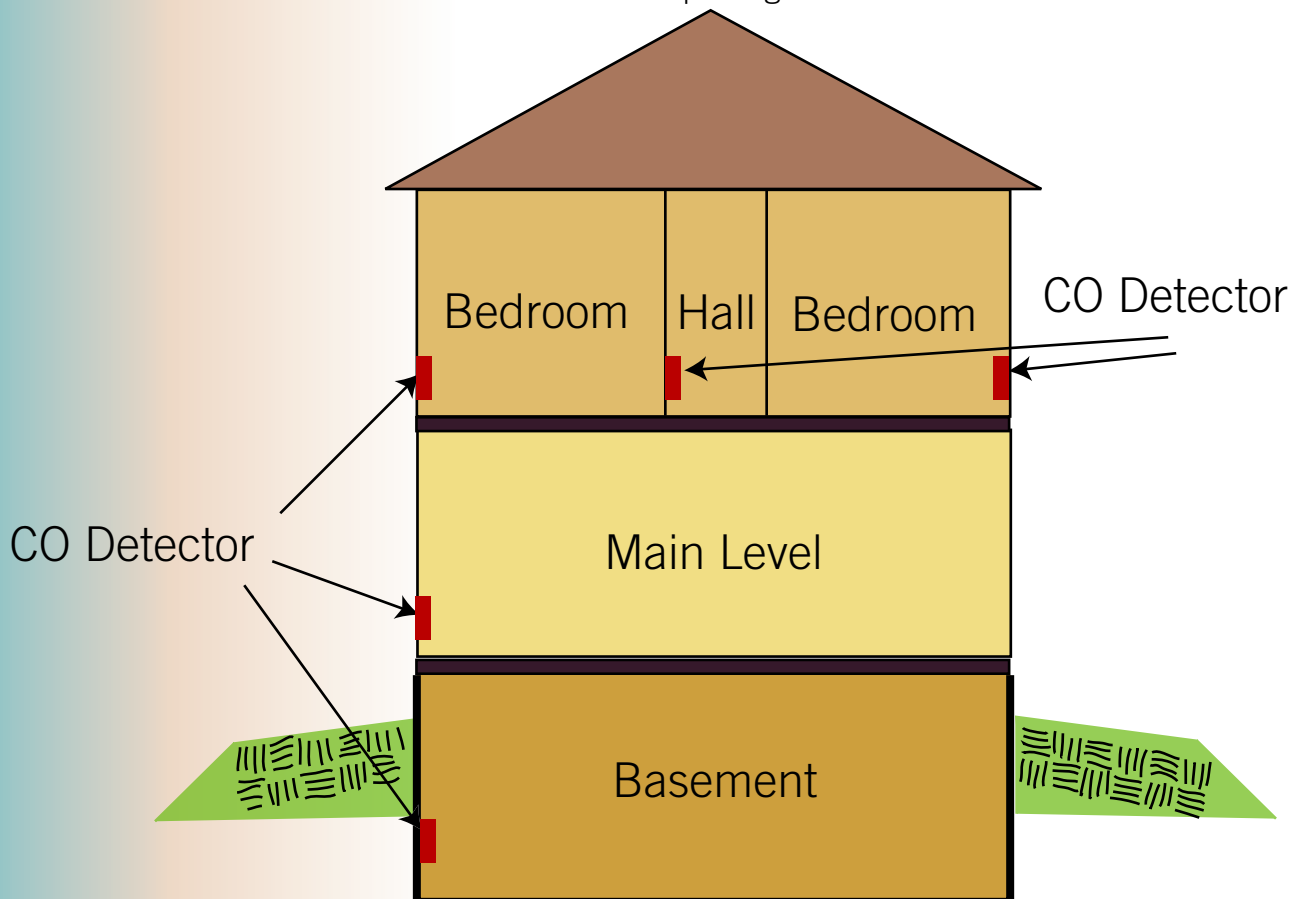
uniformly throughout the room rather than floating up to the ceiling. To avoid false alarms, do not install the detector next to heating and cooking appliances, vents, flues, or chimneys. Make sure you read and follow the operating, placement, and testing instructions that come with the detector.

If the carbon monoxide detector alarms, take it seriously.

Avoiding CO Poisoning

- Have your heating systems serviced every year by a qualified technician.
- Have your fireplace chimney cleaned and inspected every year.
- Install at least one CO detector in your home and replace the batteries twice per year.
- Open the garage door prior to starting your car; drive the car out promptly. Do not leave it idling in the garage. Do not use a remote car starter when the car is in the garage.
- Do not use a charcoal or propane barbeque in the home.

If you are installing only one carbon monoxide (CO) detector, it should be located where you can hear it if it goes off when you are sleeping. For greater safety, multiple CO detectors can be installed throughout the home. Follow the instructions packaged with the detector.



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HOT WATER ON DEMAND

Imagine a touch-screen pad next to your tub. Enter a desired temperature and the tub fills with water at exactly that temperature. Imagine never running out of hot water again. Welcome to hot water on demand water heaters. There is more to hot water on demand water heaters than endless hot water. They save energy too.



The concept is not new. In fact, these systems have been around for over 40 years and are common where the cost of energy is high such as Europe and Japan.

How It Works

A standard hot water heater heats a large reservoir of water over a long period of time. When you need hot water, it's there waiting for you. Once you use it up, you have to wait if you want more. A hot water on demand system heats water as you need it using gas or electricity. When you turn on a hot water tap:

1. Cold water flows into the system triggering the flow sensor
2. Powerful burners ignite and heat the water as it flows through the heat exchanger
3. The water comes out at the required temperature.

There is no tank or reservoir of water to heat up. For this reason, a hot water on demand system is commonly called a “tankless water heater”.

Tank Versus Tankless

When your hot water heater gets old should you replace it with another standard system or should you install a hot water on demand system?

There are three key benefits of a hot water on demand system:

- All the hot water you want.
- More energy efficient because there are no standby heat losses. Standard systems use energy to maintain the water temperature.
- A hot water on demand system is a small box mounted on the wall. Find some extra floor space by removing your old hot water tank.

The main down sides are:

- The up-front costs are much higher, including purchase price and installation costs.

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- It takes an experienced technician to select and install a system properly. There are lots of ways to go wrong with a hot water on demand system.
- If your power goes out, you don't get any hot water. With a tank system, at least you have a tank full of hot water.

Saving Energy

A hot water on demand system is energy efficient because there is no reservoir of water to keep hot. The **operating efficiency** is not a good measure when comparing a standard system and a tankless system because it does not account for the standby losses. A better point of comparison is the **energy factor**. The energy factor is an estimate of the total energy cost for hot water. For example, the energy factor for a typical tank style hot water heater is about 0.55. This means that on average, for every dollar you spend on gas you get about 55 cents worth of hot water. A modern gas fired tankless system has an energy factor of about 0.84.

Saving Money

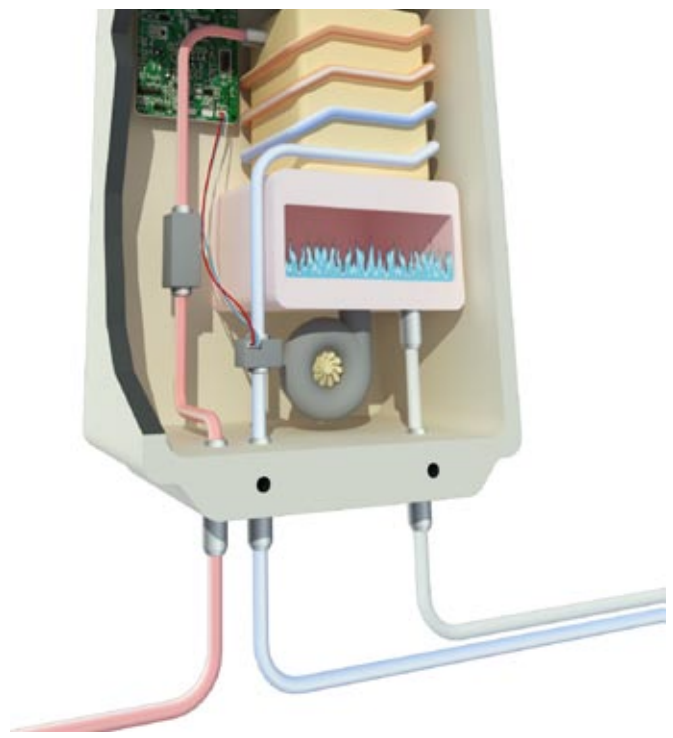
You can save energy with a hot water on demand system but can you save money? Is the higher up-front cost justified by the energy savings. Most product literature is misleading. A 20% energy saving is a realistic comparison of a modern tank system and a modern tankless system. Depending on your energy cost and the amount of hot water you use in a year, the payback may be 4 to 9 years. This is not bad when you consider that these systems last about 20 years compared to about 10 years for a standard tank hot water heater. If you are planning to live in your house for a while, you will eventually benefit from a lower life-cycle cost and from lower energy costs.

Skilled Technician

Thinking of installing a hot water on demand system? A skilled and experience technician is a must!

A hot water on demand system requires a powerful burner to heat the water as it flows past the flame. The burner has to be powerful enough to heat the water even if several hot water taps are running at the same time. A skilled technician will know how to size the unit to supply the needs of the home. Many less skilled installers get this wrong. You have to consider how cold the water is to start with. For example, consider two identical houses, one located in Florida and the other located in Ohio. The home in Ohio will need a much more powerful burner because the water entering the system may be only 45 degrees in the winter!

A skilled installer will be able to anticipate problems such as an inadequate gas line. The burner in a tankless water heater is so powerful it needs a large gas flow rate to feed it. If the existing gas line is not large enough, a new line will have to be installed.



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We welcome your comments and suggestions for future Information Series topics

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