Electrical Systems and Safety

ELECTRICAL SYSTEMS AND SAFETY: OVERVIEW

Your home has a master control panel to protect the wiring and electrical equipment in your home. The control panel includes a main shutoff that controls all incoming electrical power; it also contains circuit breakers that control separate circuits. The circuit breakers interrupt the flow of electricity in overload conditions and protect the wiring from overheating and causing fire.

Caution: Before digging in your yard, check the location of buried service leads by calling the local utility locating service. In most cases, wires run in a straight line from the service panel to the nearest public utility pad.

ARC FAULT CIRCUIT INTERRUPTER (AFCI)

AFCIs are sensitive circuit breakers that monitor the electrical outlets in the bedrooms for unwanted arcing conditions caused by erratic current flows. They are a safety feature that could protect against fires caused by, but not limited to, wiring in the walls that are punctured from nails when hanging pictures or when electrical cords are crimped by furniture and doors. AFCI circuit breakers are located in the panel box containing the conventional circuit breakers. Refer to the manufacturer's documentation for the model installed in your home. In the event that the recommendations in this guide conflict with the manufacturer, the manufacturer's recommendations prevail.

Important Information

- **Do Not Automatically Reset a Tripped AFCI.** AFCIs function by rapidly switching off the current when a potentially fire-causing arc is detected. When an AFCI is tripped, the source of the fault must be located and repaired before restoring service.
- **Test Your AFCIs.** Test the AFCI at least once a month. Refer to the manufacturer's documentation for the testing procedures for the model installed in your home. Should the AFCI fail the test, immediately consult a qualified electrician to replace the AFCI.

Recommended Maintenance Tasks	Frequency
Test all AFCIs.	Monthly

Effects of Deferred Maintenance

An AFCI that fails to switch off electrical current in the event of an unwanted arcing condition can result in a fire.

CIRCUIT BREAKERS AND PANELS

Circuit breakers are a safety feature designed to trip if there is an excessive load on a given circuit. Electrical failures are usually caused by overloading a circuit when using too many appliances at one time, a defective cord, or starting a large electric motor. Your circuit breaker box usually has a circuit directory installed on the inside cover of the box to show which appliances, outlets, or other services are connected to each breaker. If electricity fails in any part of your home, first determine if circuit breakers in the master control panel have tripped.

Exterior Circuit Breaker Panel

Interior Circuit Breaker Panel

Important Information

- **Use Professionals and Get Permits.** Never let anyone other than a licensed electrician repair or alter the wiring or electrical system in your home. Some changes may require a permit.
- **Keep Access to Panels Clear.** Do not block access to the panel, and be careful when concealing interior panels with wall hangings or pictures. The panel should always be easily accessible in the event power is lost to your home. Proper working clearances are required around and in front of electrical switches and circuit breakers.
- **Keep the Panel Cover Closed.** In order to maintain the waterproof protection of exterior control panels, keep the cover closed.
- **Check the Amperage Before Replacing.** Never install a circuit breaker with a greater amperage rating than the one being replaced.
- **Learn About Fire Prevention.** Obtain fire prevention guidelines from your local fire department and take precautions necessary to prevent electrical fires.

Quick Tip: Restoring a Tripped Circuit Breaker

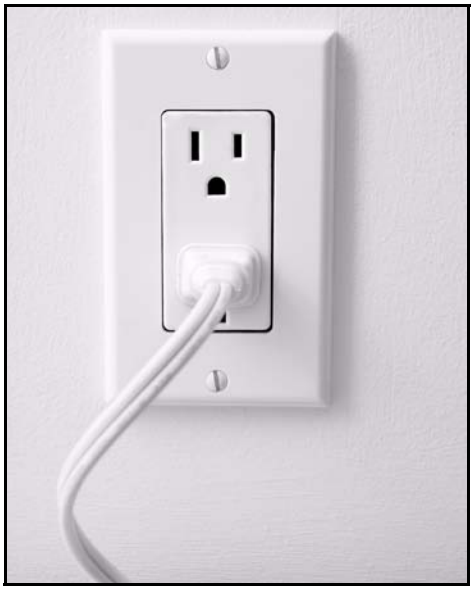
1. Before you restore the current, attempt to locate the cause of the failure. After locating the cause, disconnect it from the electrical source prior to resetting the breaker. If you cannot locate the cause of the failure, call a state-licensed electrician or GHO Homes Corporation.
2. Reset the circuit breaker. First flip the breaker switch to the OFF position and then to the ON position.
3. In the event of a total loss of electrical power, contact your neighbors to determine if the problem is limited to your home. If other homes are without power, contact the electric company.

Effects of Deferred Maintenance

A circuit breaker panel that is not used properly and protected from water may fail prematurely, resulting in electrical failure in your home.

ELECTRICAL OUTLETS AND SWITCHES

Electrical outlets are located in each room and around the exterior of your home for your convenience. Switches are installed to control the permanently-installed lighting in your home. Switches are also installed to control at least one electrical outlet in each room; the switched outlet is installed upside down to help you quickly identify it.



Electrical Outlet

Important Information

- **Unplug Small Appliances.** Do not leave small appliances plugged in when they are not in use.
- **Childproof Your Outlets.** Where applicable, teach children that it is dangerous to touch or play with electrical outlets and wiring. As a further precaution for small children, childproof electrical outlets with covers that are available at local hardware or electrical supply stores.
- **Plug In Completely.** Insert plugs all the way into outlets. Partially plugged in electrical cords can cause overheating of the outlet, sparks, and fire.
- **Replace Damaged or Deteriorating Outlets.** The U.S. Consumer Product Safety Commission Document #524 advises homeowners to have a qualified electrician replace receptacles that are damaged or feel hot, emit smoke or sparks, have loose fitting plugs, or those where plugged-in lamps flicker or fail to light.

- **Outlet Capacity Limits.** Do not exceed the capacity of the outlets by plugging in adaptors that add more than two receptacles per outlet. Overloading the circuit, including the use of multiple extension cords, can cause a fire.
- **Selecting Decorative Outlet Coverplates.** Whenever possible, avoid decorating the outlet coverplates with paint or wallpaper. Purchase decorative coverplates for a designer look instead. If the coverplates must be painted or wallpapered, do not interfere with the system wiring.
- **Proper Use of Extension Cords.** Do not run extension cords in concealed spaces such as under rugs or furniture.

Note: For additional information on electrical outlet safety, visit the U.S. Consumer Product Safety Commission website at www.cpsc.gov.

Recommended Maintenance Tasks	Frequency
Inspect plugged in items to ensure they are completely plugged in.	Regularly
Check interior outlets to ensure they are not damaged or deteriorating. Replace damaged outlets immediately.	Twice per year

Effects of Deferred Maintenance

Faulty electrical outlets can result in overheating, sparks, fire, or electrical shock.

GROUND FAULT CIRCUIT INTERRUPTER (GFCI)

GFCIs are very sensitive circuit breakers that are installed in the bathrooms, kitchen, garage and patio. They are a safety feature that could protect against electrical shock in case of ground fault conditions or an electrical overload; GFCIs function by rapidly switching off the current. If the power fails in one of these areas, it will usually be the GFCI that has tripped.

Interior GFCI

Important Information

- **Test Your GFCI.** To test the GFCIs, press the Test Button briefly until the Reset Button "pops" (breaks the circuit). If the Reset Button does not respond to the testing, press the Reset Button and start the test over. If the GFCI is working properly, the Reset Button should "pop" each time the Test Button is pressed. After the testing procedure has been completed, be sure to depress the Reset Button and leave it in this position.
- **Not for Major Appliances.** *Do not* use GFCI receptacles for major appliances such as refrigerators and air conditioners. These appliances create electrical surges that trip the GFCI and break the circuits.
- **Use for Power Tools.** The U.S. Consumer Product Safety Commission (CPSC) recommends the use of a GFCI with every power tool to protect against electrical shock hazards.
- **Resetting a Tripped GFCI.** Push the Reset button on the GFCI outlet to restore power. If power is not restored, determine if there is a tripped circuit breaker.

Recommended Maintenance Tasks	Frequency
Test the GFCIs.	Monthly

Effects of Deferred Maintenance

A GFCI that fails to switch off electrical current in the event of an electrical overload or ground current condition can result in serious injury from electrical shock.

LIGHTING

Lighting fixtures are installed throughout the interior of your home, as well as outside exterior entrances, such as your patio or front door. When replacing light bulbs, make sure to select bulbs with the correct size and wattage for the fixture.

Interior Light Fixture

Interior Light Fixture

Recommended Maintenance Tasks	Frequency
Check for and replace burned out bulbs.	Monthly

Recommended Maintenance Tasks	Frequency
Clean the encasement of light fixtures so light can shine at full illumination. Ensure that mounting screws and plates are tight and wall plate is fully against the exterior wall or soffit.	Quarterly

Effects of Deferred Maintenance

Failure to maintain the lighting in your home will result in a diminished appearance as well as inconvenience.