



# Mechanical Systems

Part III – Electrical

## Electrical System Information

### Ground Fault Interrupters (GFI)

- GFIs are ultra-sensitive and designed to shut off all electrical current to an outlet or group of outlets to prevent electrical shock. Your home is protected by a minimum of four GFI receptacles. GFIs are used in bathrooms, kitchens, exterior outlets, garage outlets, unfinished basement areas, and "wet areas". One of the GFI outlets in the circuit contains a small reset button that controls all outlets in the circuit.
- If any one of these GFI devices trips, unplug everything on the circuit that the GFI device protects and attempt to reset.
- The kitchen usually has two GFI circuits that control countertop and island outlets.
- Typically, bathrooms are on one GFI circuit meaning only one bathroom will have a reset.
- All garage wall and exterior outlets are typically on one circuit controlled by a reset located either in the garage or an unfinished area of the basement.
- **Caution: Freezers or refrigerators may cause GFIs to trip.**

### Switched Outlets

- Switched outlets are outlets that are controlled by a wall switch. Typically, the switch only controls ½ of the outlet.
- As a standard, all bedrooms, studies, living rooms, and family rooms include a switched outlet.

### Circuit Breaker Box

- The circuit breaker box houses the circuit breakers for the electrical system. Circuit breakers are devices that look like a switch and are designed to:
  - (1) shut off the power to portions or the entire house.
  - (2) limit the amount of power flowing through a circuit (measured in amperes).
- 110-volt household circuits require a circuit breaker with a rating of 14 amps or a maximum of 20 amps. 220-volt circuits may be designed for higher amperage loads, e.g., a hot water heater may be designed for a 30-amp load and would therefore need a 30-amp breaker.

### AFI Breakers

- All bedroom power consuming devices (lights, receptacles, smoke detectors, etc.) are protected by ARC Fault technology. The ARC Fault Breakers are located in your electric panel.
- If an ARC Fault Breaker trips, unplug everything from that circuit and attempt to reset.
- If the breaker holds, plug in the items one at a time and if the breaker trips, the problem is in the item that caused the trip.
- If the breaker will not reset with all items unplugged, call for service.

### Three-Way Switch

- A three-way switch typically operates a light fixture. Three-way switches can control the power from multiple locations.
- Typically, a three-way switch will operate hallway, stairway, foyer and/or other entryway lights to allow you to turn the lights on and off from various locations.

### HVAC System

- The starting of your air conditioner may cause a flicker or dimming of lights. This is normal and not a cause for alarm.
- Should you lose heating or air conditioning, be sure to contact your HVAC contractor first.

### Paddle Fan Prewire

- The ceiling outlet supplied will separately control a light and a fan.
- There are many paddle fan manufacturers and models; refer to installation instructions.

## Troubleshooting

- A light fixture doesn't work:
  - a) If the fixture is on a three-way switch, check all switches to make sure they are completely on or off
  - b) Check the circuit breakers in the circuit breaker box
  - c) Change the light bulb with a known working light bulb
  - d) If it still does not work, call the electrician provided in home vendor information
  
- An outlet or portion of an outlet does not work:
  - a) If the fixture is on a three-way switch, check all switches to make sure they are completely on or off
  - b) If the outlet is on a GFI circuit, check the reset, reset as necessary
  - c) Check the circuit breakers in the circuit breaker box
  - d) If it still does not work, call the electrician provided in home vendor information
  
- A GFI will not reset or trips regularly:
  - a) Unplug any appliances plugged into the circuit, reset the GFI
  - b) If the outlet may have been exposed to water, allow time to dry, reset the GFI
  - c) If the problem continues, call the electrician provided in home vendor information
  
- A circuit breaker will not reset or trips regularly:
  - a) The circuit may have become overloaded if you have recently introduced a new appliance. Unplug the appliance.
  - b) If the problem continues, call the electrician provided in home vendor information
  
- The smoke alarm "chirps":
  - a) Replace the battery
  - b) Lightly vacuum the surface of the detector
  - c) If the problem continues, call the electrician provided in home vendor information
  
- Loss of power to half of the house:
  - a) Check the main breaker in the circuit breaker box
  - b) If it still does not work, call your local utility company