



HOUSING QUALITY STANDARDS (HQS)

Series 5
Electrical Safety
And INSPECTIONS



Electricity is Dangerous

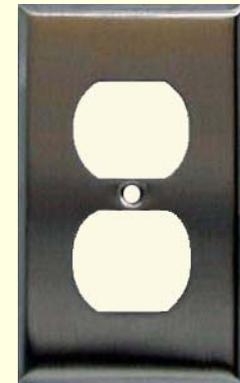
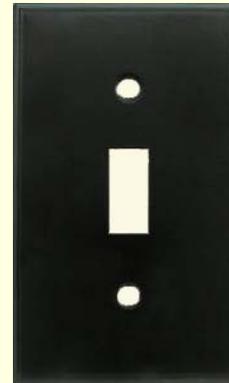


- ❑ All electrical repairs should be made by licensed professionals.
- ❑ Touching any exposed electrical wiring can cause serious injury or death.
- ❑ (see dead frog)



Term Definitions

- **Switch** – A mechanical control for connecting or disconnecting the flow of electrical current.
- **Duplex Outlet** – A location in the electrical system, where electric appliances can be connected to operate.
- **Cover Plates** – A plate designed to enclose an electrical box for safety.





Term Definitions – cont.

- **GFI plug** – (also GFCI) **Ground Fault Circuit Interrupter** – A very sensitive electrical outlet that protects against accidental short or overload by cutting off electrical current more quickly than a standard circuit breaker.
- **GFCI Breaker** – A circuit breaker that does the same thing as a GFCI plug, but located in the Main electrical panel.





Term Definitions – cont.

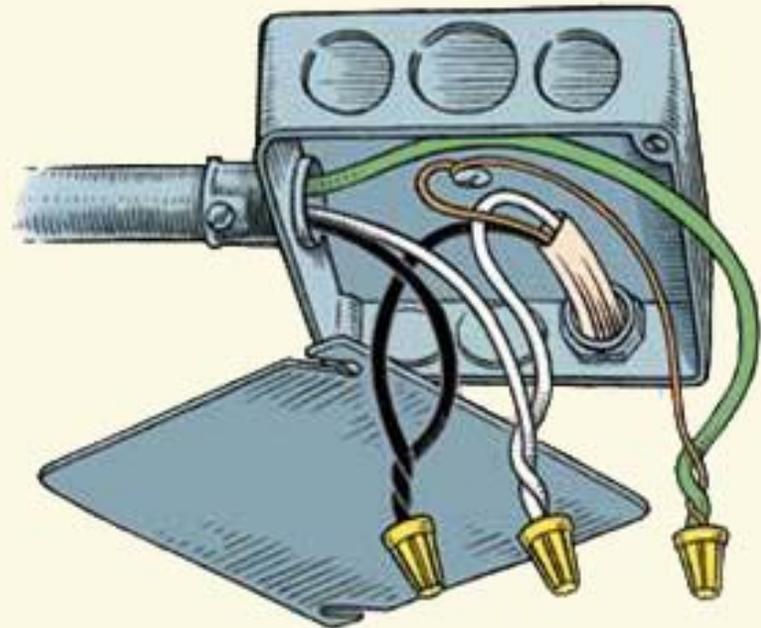
- **Open Circuit** - the flow of current (electricity) is interrupted.
- **Short Circuit** – the un-intended connection between two points that allow current (electricity) to flow.
- **Main Electrical Panel** – is the main distribution center of your house's electricity. It is filled with circuit breakers that protect your property from electrical *shorts* or overloads
- **Circuit Breaker** – A safety device used to *open* a circuit if that circuit is overloaded.





Term Definitions – cont.

- ❑ **Junction Box** – A metal or plastic box used to enclose the connections of electrical circuits, wires, splices and cables.
- ❑ **Junction Box Cover Plate** – A plate designed to enclose an electrical box for safety.





Term Definitions – cont.

- ❑ **Multi-plug Adaptors-** are used to plug multiple electrical devices into one outlet or power strip socket.
- ❑ **Piggy Backing** – Is the term commonly used to describe the use of a multi-plug adaptor to allow too many electrical devices to be plugged into an outlet. (This practice is very un-safe)





Electrical Safety Tips

- Do not use appliances with frayed or worn power cords or damaged extension cords.
- Do not "piggy back" multiple plugs in to a single outlet.
- Use plastic safety covers in all unused electrical outlets.
- Radios, hairdryers, shavers, portable lamps or radiators should not be used near showers, baths or sinks.
- Do not use extension cords outside or as permanent wiring.
- Avoid using any type of electricity around wet floors.
- Electrical appliances that blow fuses, smell hot, feel hot or spark, should be turned off and be inspected by a licensed electrician.
- Keep lamps/heaters at least 3 ft away from anything that can melt or catch fire.
- Use only bulbs that do not exceed lamp's recommended wattage.
- Do not run extension cords across doorways or under carpets.



Safety Hazards

- Exposed Electrical Connections -



- Electricity can Kill.
(a cover plate would have protected this squirrel)
- Electricity can cause fires too.
- Keep all electrical connections away from personal contact.
- Follow all electrical codes to keep people safe and avoid property from damage.



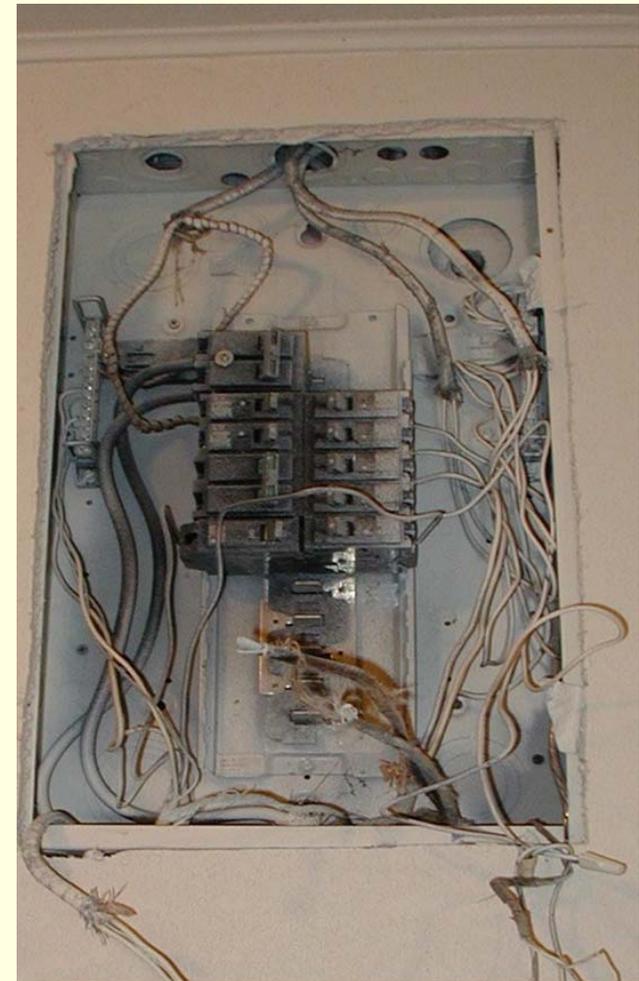
Electric Hazard

- Exposed Electrical Connections -



Exposed Wires - No Junction Box

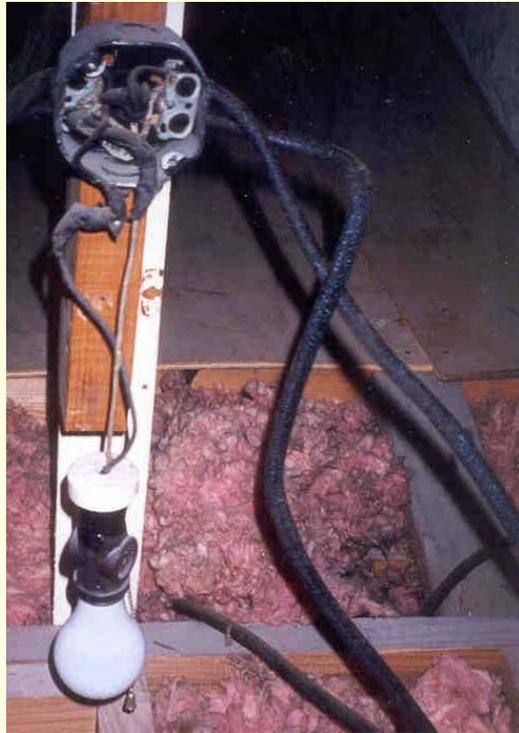
- ❑ The screws on this plug are exposed and will shock you if you touch them.
- ❑ All electrical components in a main electrical panel are dangerous to touch. A protective panel cover with no open spaces is required for safety.





Electric Hazards

Exposed Electrical Connections



- No junction box cover & light dangerously connected.
- Broken or empty light sockets can shock if touched by hand or any conducting item such as a metal broom handle or ladder.



Electric Hazards

- Damaged Components -



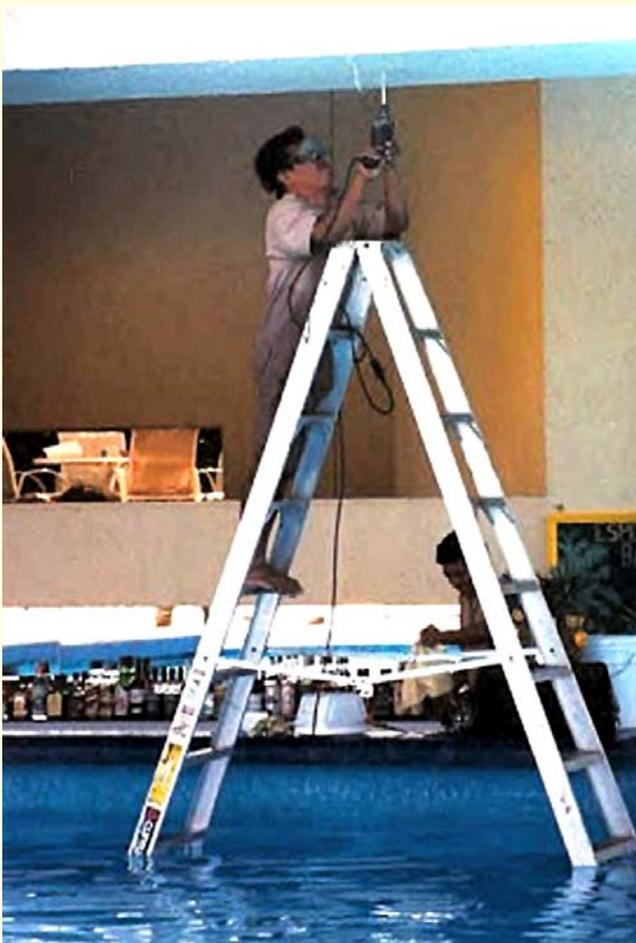
- ❑ Avoid using damaged plugs, switches and cover plates to avoid injury.
- ❑ Frayed, worn or chewed wiring can lead to injury or death by electrical shock or fire.





Electric Hazards

- Water Dangers -



- Water and Electricity do not mix!
- Standing water or even damp surfaces can conduct electricity and create a danger of severe shock or even death!
- Common conductors
 - Standing water
 - Metal ladder
 - Corded power tool.



Electric Hazards

- Water Dangers -



- Water splash danger!
- Outlet, Switch and TV/VCR should not be in tub area.



Electric Hazards

- Fragile Components -



- ❑ Danger! – exposed electronic parts.
- ❑ A thermostat does not have high voltage wires, but each of its components can be easily damaged or broken.



Electric Hazards

- Furnace Dangers -



- No cover on furnace!
- This is a city Code violation.
- Danger of electrocution.
- Danger of getting burned from exposed flames. (if gas furnace)



Electric Hazards

- Furnace Dangers -



- ❑ Water, gas and coolant lines are cut through supply vent.
- ❑ This is a city code violation too.
- ❑ Very hot air from the furnace could cause:
 - ❑ A fire or explosion from a gas leak
 - ❑ A leak in the water or coolant line.



Electric Hazards

- Space Heaters -



- Electric space heaters can be dangerous.
- Do not leave unattended.
- Use only while you are in the room.
- Keep 3 feet away from anything that can burn or melt, like plastic, fabric or wood.
- Space heaters are the leading cause of fires and fire fatalities during December, January & February. NFPA 2002, 2005
- Portable space heaters can not be used as sole source of heat in any room.
- Buy a model with an automatic tip over shut off feature.



Electric Hazards

- Overloading /Overheating -

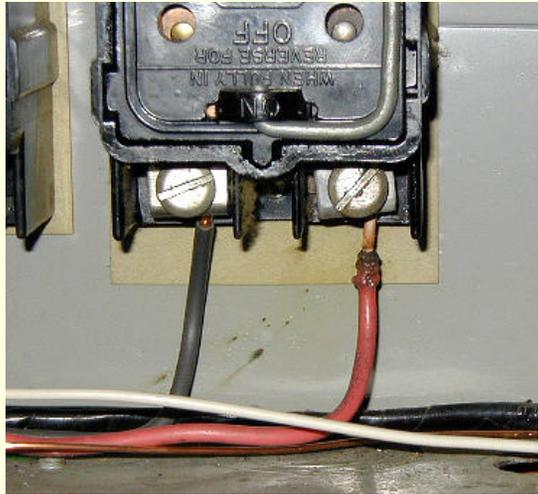


- ❑ Overheated electrical circuits are dangerous.
 - ❑ They can damage equipment.
 - ❑ They can cause a fire by melting or sparking.
- ❑ Note the brown color at the center of the duct tape. This is due to overheating.
- ❑ The motor is working harder than it is designed to.



Electric Hazards

- Overloading/Overheating -



Overheated electrical circuits are dangerous.

They can cause fire by melting or sparking.

Overheating can be caused by:

- Too many electrical items drawing power from a circuit will overload that circuit.
- Wiring is undersized and not designed to handle the power being used.

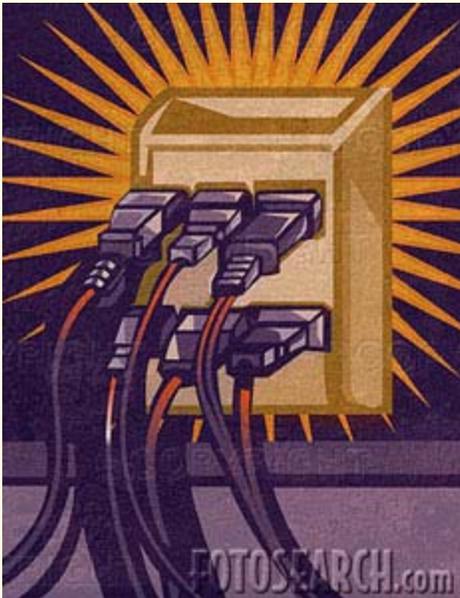
Signs of overloading are:

- Melted insulation wire.
- Blacked areas around outlets, switches or motors.



Electric Hazards

- Overloading/Misuse -



- About 4,000 injuries are associated with electric extension cords each year. CPSC (consumer product safety council)
- Piggy backing of plugs at electrical outlets is very dangerous.
- Overloading an outlet creates excessive heat that can cause a fire.





Electric Hazards

- Extension Cords -



- Worn, cut or otherwise damaged extension cords can also lead to electrical shock or house fires.
- Replace damaged extension cords as soon as you are aware of them.
- Use only new or well maintained extension cords.
- Make sure the rating on the extension cord or wiring can handle the load you are planning to place on it.



Extension Cord Ratings

Extension cord ratings are stamped or printed several times along each cord. This rating tells the maximum load in Amps the cord can safely use.

A typical label would be: 16AWG

The **16** refers to the gage size (wire diameter). The smaller the gage number the larger the power load the extension cord can carry. The **AWG** stands for American Wire Gauge rating system for electrical wiring.

The chart on the right shows the range of watts used by several commonly used household items. Smaller models will use less wattage than larger models.

Note: # Amps x 125 Volts = # Watts
 10 Amps x 125 Volts = 1250 Watts

Common household electrical devices and their range of power usage

■ Coffee maker	900-1200 watts
■ Toaster	800-1400 watts
■ Electric griddle	1500 watts
■ Microwave	750-1500 watts
■ Clothes iron	1000-1800 watts
■ Vacuum cleaner	1000-1560 watts
■ Hair Dryer	1200-1875 watts
■ Curling Iron	350-1500 watts
■ Electric blanket	60-100 watts
■ Window A/C	750-1500 watts
■ Dehumidifier	786 watts
■ Portable Fans	65-250 watts
■ Portable Heater	750-1500 watts
■ Computer/Printer	270-375 watts
■ <i>Stereo system</i>	70-425 watts
■ Televisions	65-200 watts
■ VCR/DVD player	17-25 watts
■ Satellite system	360 watts
■ Power Tools	1000-1800 watts
■ Water bed	120-380 watts



Extension Cord Ratings- cont.

To pick the right extension cord for the right job, decide what appliance(s) you want to plug into the extension cord, then pick the extension cord that will handle the power load.

Extension Cords Ratings				
two current wire cords - with or without ground - single extension cord 50 feet or less				
Cord Size	Safe load	Max load	Safe Usage	Max Usage
18guage	7 amps	10 amp	875 watts	1250 watts
16guage	10 amps	13 amp	1250 watts	1625 watts
14guage	15 amps	18 amp	1875 watts	2250 watts
12guage	20 amps	25 amp	1875 watts	2250 watts

Underwriters Laboratories Inc.

Note: Smaller Gage numbers can handle larger power loads.



Choosing the Right Extension Cord

Example: You want to plug a dehumidifier into the same extension cord that your stereo is plugged into.

The dehumidifier uses 786 Watts and your stereo system uses 425 watts; for a total of 1211 watts.

Looking at the Extension Cord Rating chart, you can use an 18AWG cord.

If you plug anything else into the cord, you will need to use a higher rated cord, like a 16AWG or 14AWG, depending on the new power load total.

For any nicks in the cord, loose ends or serious worn areas, the cord should be discarded and replaced with a new one.



Electrical Danger Notations on the Deficiency List

- Example 1:** If the GFI (gfc) outlet does not work, or the test/reset buttons do not work in the kitchen, the deficiency item will look something like this:
 - Kitchen
 - 2.3 - Repair or replace GFI outlet to work properly. (o)



Electrical Danger Notations on the Deficiency List

- Example 2:** If a 110/220 volt wiring connection is not in a proper junction box in the basement, the deficiency item will look something like this:
 - Basement**
 - 4.3 - Place high voltage wiring connection in proper junction box with cover. (O)



Electrical Danger Notations on the Deficiency List

- Example 3:** If the insulation on 110/220 electrical cable is damaged (cut, broken, severely worn) in the garage, the deficiency item will look like this:

- Garage
5.3 - Replace damaged high voltage wire with undamaged wiring. (O)



Electrical Danger Notations on the Deficiency List

- Example 4:** If the power line coming into the house is too low, the deficiency item will look like this:

- Building Exterior**

6.8 - Raise power line to 8 ft or more above ground. (O)

Note: 8 ft above the ground or any normal walking or standing surface such as a deck or patio.



HAKC Staff Responsibilities

- Conduct HQS inspections.
 - Initial move in inspections
 - Annual (yearly) inspections
 - Complaint inspections.
 - Critical (tenant safety) inspections
- Type & send deficiency list to owner & tenant.
- Reschedule failed inspections for 25 to 30 days
- Conduct a follow up HQS inspection to verify that the cited deficiencies have been properly corrected.



Failed Inspections

- ❑ Any deficiency found in a unit during an inspection, will cause that unit to fail the inspection.
- ❑ If the deficiency is not corrected by the 2nd inspection, or within the HUD specified 30 days, the unit will fail again and be abated.
- ❑ If a request for a 3rd inspection is not made within 10 calendar days of 2nd inspection the HAP contract will be terminated.
- ❑ A property taken off the program for failed inspections is not eligible for future contracts with Section 8 for a period of 12 months, even if the property is sold or the current tenant moves out.



Summary

- Repair any deficiencies cited by an HQS inspection before re-inspection.
- To prevent future failed inspections, perform regular maintenance on the unit to maintain HQS standards.