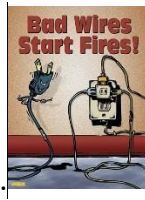
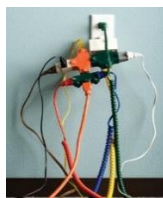
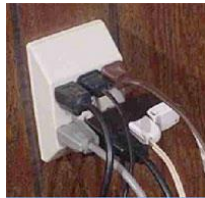


1| Pesach is Coming: Are We Ready?

We clean our homes and rid them of all chometz as we prepare to have a simchas Yom Tov. Have we prepared our homes for a safe environment enabling a simchas hachaim? The same as we look for any chometz, have we checked for any unsafe conditions? In this article we hope to address some of the issues



Do we have anything that looks like these in our homes?



2| Pesach is Coming: Are We Ready?



Let us start with the basics of appliances. Are the appliances we use over Shabbos, Yom Tov or Chol Hamoed safe, and are they designed for continuous use, 12, 24, 24 or 72 hours? Appliances are tested and/or listed by a lab that is part of OSHA's Nationally Recognized Testing Laboratory (NRTL) Program. OSHA recognizes private sector organizations to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards. Each NRTL has a scope of test standards that they are recognized for, and each NRTL uses its own unique registered certification mark(s) to designate product conformance to the applicable product safety test standards. After certifying a product, the NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the NRTL tested and certified the product, and that the product complies with the requirements of one or more

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appropriate product safety test standards. Some of these NRTL's are UL[®], CSA [®] and ETL [®]. A more extensive list can be found at <https://www.osha.gov/dts/otpc/nrtl/nrtllist.html>. This goes without stating, the appliance label and instructions manual must be approved by these agencies. The appliance is safe to use if it undamaged used in accordance with the instruction manual.

Buyer beware, that some of the biggest distributors either online stores or others sell both listed and unlisted products. Some products may have a European or Chinese marking. These do not meet OSHA standards.

These appliances are considered safe when connected to premise [building] wiring that meets the National Electric Code [NEC]. A little background about the NEC: The first NEC by name was published in 1897. Over the years, the NEC is revised and updated. Currently, the NEC is revised every three years. We are using the most current NEC 2017 edition. The purpose of the NEC: "...is the practical safeguarding of persons and property from hazards arising from the use of electricity"

Now that we have an understanding of the NEC, let us look at how to identify these potential home electrical hazards. The power supply enters the home at the electric meter and is connected to a panel. Depending on when the home was built or updated, this panel may or not be a main breaker [shut off]. There may be fuses, breakers or a combination of both. Breakers or fuses are overcurrent protection [OCP] devices. The OCP protects the house wiring [branch circuit feeds], appliances, equipment and the people operating these appliances and equipment. Are the OCP sized properly? Only a qualified electrician should make a determination. What are the potential problems with an oversized OCP? The premise wiring can burn up and cause the home to burn or the appliance will burn up. A properly installed OCP should blow or trip if overloaded. Newer OCP with more updated technology will trip with an imbalance between the hot and neutral [GFCI] or detect a potential of arcing [AFCI]. And will trip the breaker or blow the fuse.

What is Grounding? Grounding is a method of giving electricity the most effect way to return to ground via the service panel. You see current flows from the panel to the outlet or device to power it up. The neutral wire is the return path for unused current. The ground wire is an additional path for electrical current to return safely to ground without danger to anyone in the event of a short circuit. In that instant, the short would cause the current to flow through the ground wire, causing a fuse to blow or a circuit breaker to trip.

Why is proper grounding important? With a properly grounded circuit, wall boxes, devices [switches / receptacles], and service panel grounds that give the electrical current the easiest path to ground and that reduces the chances of someone getting a shock or getting electrocuted.

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What is a false ground, a bootleg ground, or a cheated ground receptacle? One of the problems with owning an older home is that the three prong cords on many modern electric appliances and electronic devices will not plug into a pre-1960 two slot receptacle. One way to deal with it



is to use an “adapter” that allows you to plug into the three prong cord, but does not provide the required safety of a connection to ground that is the purpose of the third prong.

Unfortunately there are those who are unscrupulous that will bootleg or cheat the ground by using a short jumper to connect the ground terminal to the neutral terminal. This may fool the common tester used by many housing inspectors. This wiring configuration can cause electrical shock, or damage equipment that utilizes a ground. The electrical shock potential is due to the fact that the ground prong in the cord is connected to the metal frame of the appliance. With this false ground, the frame becomes connected to the neutral instead, and any connection of the frame to a grounded object will result in current flow. If that connection is a person, there is the possibility of a fatal shock.

What are Arc-Faults? An arc-fault is an unintentional arcing condition in a circuit. Arcing creates high intensity heating at the point of arc resulting in burning and may over time ignite surrounding material such as wood framing, insulation, or any other combustibles.

If the appliance or equipment connects loosely to the receptacle, the receptacle needs to be replaced by a professional to avoid reverse polarity wiring. If a receptacle is painted over or the face is broken, have the receptacle replaced. Loose fitting connections are potentials fires waiting to happen.



What is a glow connection?

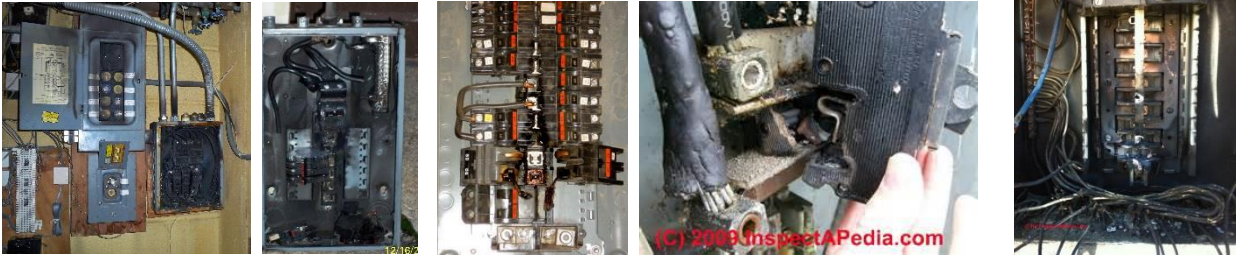
A glow connection is where the branch circuit wiring is loosely connected to the receptacle. While contained in a box, the potential of a fire exists. As this glow connection arc and creates heat, it will transmit this heat to plug end and in time will burn up the plug and ignite any combustible around it. This glow connection will hold true with light fixtures or wall switches. As the connection overheats, it may melt the wire nut connection and transmit the heat to the branch circuit wiring in the ceiling or wall.

You should also be concerned about trusting an appliance or piece of equipment that use high energy and are connected to old premise wiring. Examples of these are high energy use appliances such as a toaster, toaster oven, microwave, hot water kettle, hair dryer or space heater. Aside from the electrical safety component, combustibles should be kept away from these appliances when in use and from any plug / receptacle connections.

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Other safety concerns are using bare incandescent lamps in a clothes closet. This is a potential fire hazard.

There two brands of panel boxes that have a known history of causing fires, Federal Pacific [FPE] and Zinsco.



This is substantiated by actual statistics and lab studies.

Having a good system ground that is properly installed will help prevent human injury and worse. This should be verified by a qualified electrician.



What is a Ground Fault Circuit Interrupter [GFCI]?

A GFCI device protects us from serious injury from electrical shocks received from faults in the electrical device or appliance we use in our home. The GFCI works by comparing the input current on the hot side to the output current on the neutral side. If there is the slightest imbalance in current, 6 milliamps, then there is electric current leaking out somewhere, possibly through somebody's body. To protect us in this situation, the GFCI trips, and cuts off power at 1/40th of a second, greatly reducing any possible

human tissue damage from the errant current. Where GFCI's should be used?

At a minimum at any electrical device within 6' of water or appliance used within 6' of water. Or anywhere there is a receptacle installed in an area subject to moisture, as the presence of moisture increases the danger of accidental shock.



From the **National Fire Protection Association [NFPA]**

The 2015 U.S. fire loss clock a fire department responded to a fire every 23 seconds. One structure fire was reported every 63 seconds.

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- One home structure fire was reported every 86 seconds.
- One civilian fire injury was reported every 34 minutes.
- One civilian fire death occurred every 2 hours and 40 minutes

From the **Electrical Safety Foundation International (ESFI)** 2/4/2015

Home Electrical Fires - Facts and Statistics

- Home electrical fires account for an estimated 51,000 fires each year, nearly than 500 deaths, more than 1,400 injuries, and \$1.3 billion in property damage.
- Electrical distribution systems are the third leading cause of home structure fires.
- Each year in the United States, arcing faults are responsible for starting more than 28,000 home fires, killing and injuring hundreds of people, and causing over \$700 million in property damage.
- The U.S. Consumer Product Safety Commission (CPSC) reports that electrical receptacles are involved in 5,300 fires every year, causing forty deaths and more than 100 consumer injuries.
- Sixty-five percent of home fire deaths result from fires in homes with no working smoke detectors.

Electrical and Fire Safety Tips

- Have your home electrical system thoroughly inspected by qualified electricians to ensure that all electrical work in the home meets the safety provisions in the NEC.
- Install smoke detectors on every level of the home, inside each bedroom, and outside each sleeping area.
- Ask a qualified electrician if your home would benefit from AFCI protection, especially during inspections of older homes or upgrades to electrical systems. These advanced new safety devices recognize dangerous conditions that are not detected by standard breakers.
- Test smoke detectors and AFCIs monthly to ensure that they are working properly.
- Establish an evacuation plan that can be used in case of an emergency, and practice with your family.
- Use light bulbs that match the recommended wattage on the light fixture.
- In homes with young children, install tamper resistant receptacles to prevent electrical shocks and burns.
- Conduct a basic assessment of your home electrical system, electrical cords, extension cords, power plugs, and outlets.
- Look for telltale signs of electrical problems such as dim and flickering lights, unusual sizzling and buzzing sounds from your electrical system, insulation and circuit breakers that trip repeatedly. Contact a qualified electrician immediately.
- Use extension cords only temporarily, and never with space heaters or air conditioners.
- Avoid overloading outlets. Consider having additional circuits or outlets added by a qualified electrician as needed

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What should you do if you smell what appears as a burnt smell or a hot plastic smell, an electrical fire? Call 911 and wait outside. The fire department has the experience to locate the source of the smell. They have the equipment that can locate high temperatures concealed behind the walls. And they will secure the home's safety.



May is National Electric Safety Month, let us do our part. This article presents a tall order for the lay person. If you feel that the electrical system in your home is compromised and possibly unsafe, contact a trained professional to inspect the electrical system.

Wishing all a **חג כשר ושמח**

david neuman

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