

# Electrical Safety Illustrated

May 2016



**TEST BEFORE YOU TOUCH:**  
TREAT ALL CIRCUITS AS LIVE UNTIL TESTED



**YOUR LIFE DEPENDS ON IT**

**WE WANT YOU  
TO LOCKOUT/TAGOUT**

*Use Extension Cords Properly*

ARC-FAULT CIRCUIT INTERRUPTERS (AFCIs)

**PREVENT  
ELECTRICAL FIRES**

DON'T  
**OVERLOAD**  
YOUR HOME!

*At Home and at Work:  
Make Electrical Safety Everyone's Responsibility*



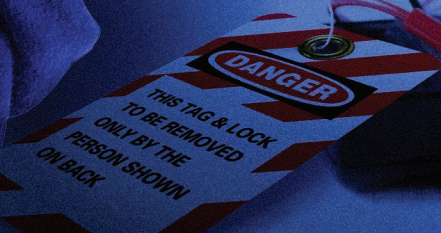
# TEST BEFORE YOU TOUCH:

## TREAT ALL CIRCUITS AS LIVE UNTIL TESTED

Every year, **thousands** of workers are **injured** or **killed** by circuits they thought were safely turned off. Simply shutting off the power is not enough. **Hazardous conditions** can still exist. Make sure to always

### **TEST BEFORE YOU TOUCH.**

- Ensure all participants are qualified for the job
- Identify potential hazards
- Wear correct PPE and use the proper tools
- De-energize the circuit
- Lockout/Tagout
- Test the circuit
- Verify the testing device



**MAY IS NATIONAL ELECTRICAL SAFETY MONTH**



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# LOCKOUT TAGOUT

YOUR LIFE DEPENDS ON IT

According to **OSHA**, following proper lockout/tagout procedures prevents an estimated **120 fatalities and 50,000 injuries** each year. Learn how to lockout/tagout and avoid unnecessary risk.

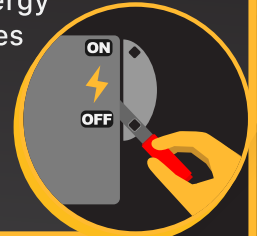
**1** Notify all employees about the required lockout



**2** Shut down equipment using normal stopping procedure

STOP

**3** Locate and isolate equipment from all energy sources



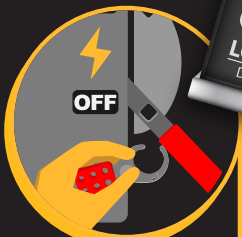
**9** Once work is completed, notify all employees



**4** Release any stored energy



**8** Remove the lockout device



**5** Lockout all switches and controls with assigned locks and tags



**7** Perform servicing



**6** After ensuring that no personnel are exposed, operate the normal operating controls to make sure equipment won't operate

RETURN EQUIPMENT TO 'OFF' STATE AFTER TEST

START?

# WE WANT YOU



## TO LOCKOUT/TAGOUT

According to OSHA, following proper lockout/tagout procedures prevents an estimated 120 fatalities and 50,000 injuries each year. Safeguard your workplace by complying with and enforcing proper Lockout/Tagout procedures.

**MAY IS NATIONAL ELECTRICAL SAFETY MONTH**

ESF1.org



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# REACHING TO SAFETY:

## Use Extension Cords Properly

Roughly **3,300 home fires** originate in extension cords each year, **killing 50 people and injuring 270 more**. Extension cords can overheat and cause fires when used improperly, so keep these important tips in mind to **protect your home and workplace**.

**DON'T** attempt to **plug extension cords into one another**.



Make sure extension cords are **properly rated** for their intended use, indoor or outdoor, and **meet or exceed the power needs** of the appliance or device being used.



Keep all **outdoor extension cords** clear of snow and standing water.



Do **NOT** overload extension cords.



A heavy reliance on **extension cords** is an indication that you have too few outlets to address your needs. Have **additional outlets installed** where you need them.



Inspect cords for **DAMAGE** before use. Check for **cracked or frayed sockets**, loose or bare wires, and loose connections.



Do **NOT** nail or staple **electrical cords** to walls or baseboards.



Do **NOT** run through **walls, doorways, ceilings or floors**. If cord is covered, heat cannot escape, which may result in a **FIRE HAZARD**.



**NEVER** use **three-prong plugs** with outlets that only have two slots. **Never cut off the ground pin to force a fit**, which could lead to electric shock.



Buy only cords that have been **approved by an independent testing laboratory**.



Do **NOT** substitute **extension cords** for permanent wiring.



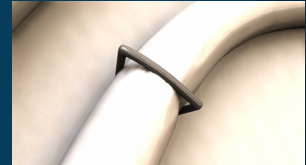
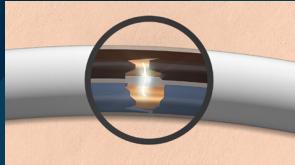
**DO NOT** use an **extension cord** or a **power strip** with heaters or fans, which could cause cords to overheat and result in a fire.

# ARC-FAULT CIRCUIT INTERRUPTERS (AFCIs)

# PREVENT ELECTRICAL FIRES

## What is an Arc-Fault?

An arc-fault is a dangerous electrical problem **caused by damaged, overheated, or stressed electrical wiring or devices**. Arc-faults can occur when older wires become frayed or cracked, when a nail or screw damages a wire behind a wall, or when outlets or circuits are compromised.



## Why do I need Arc-Fault Protection?

The National Fire Protection Association reported **47,700 home fires** involved some type of electrical failure or malfunction in 2011. The Consumer Product Safety Commission estimates **more than 50% of electrical fires that occur every year can be prevented by Arc-Fault Circuit Interrupters (AFCIs)**.

Arc-Fault Circuit Interrupters are available as:

### Branch/Feeder AFCI Breaker

- First generation AFCI breaker protection. AFCI protection originally required by the 1999 NEC
- Moderate fire prevention
- Trips when a parallel arc between hot and neutral conductors is detected

### Combination Type AFCI Breaker

- Branch/Feeder AFCI breakers were phased out as of January 2008 and replaced with Combination Type AFCIs
- Enhanced fire protection
- Provides the **same protection as Branch/Feeder AFCIs and detects lower level series arcing** in both branch circuits and power cords

### AFCI Receptacle

- Provides protection from arc-faults beyond branch circuit wiring extending to appliances and cords plugged into the receptacle
- Enhanced Fire Protection
- Protects all downstream wire and appliances from both parallel and series arcs, and also protects from series arcs upstream in the wiring between the source of the circuit and the first outlet on the circuit.



AFCI breakers and receptacles should be tested **monthly**.



All electrical systems should have an electrical inspection if the home is older than **40 years** or has had a major addition, renovation, or large appliance added.



AFCIs should be installed by a **qualified electrician**.

#### Parallel Arc:

Arc between **hot and neutral conductor** or between the **hot and ground conductor**



#### Series Arc:

Arc along the **same conductor** or at **connections**

# DON'T OVERLOAD YOUR HOME!

**i** According to the National Fire Protection Association, **47,700 home fires** in the U.S. are caused by electrical failure or malfunction each year. These fires result in **418 deaths, 1,570 injuries, and \$1.4 billion in property damage**. Overloaded electrical circuits is a major cause of residential fires. Help lower your risk of electrical fires by not overloading your electrical system.

## OVERLOADED CIRCUIT WARNING SIGNS



Flickering, blinking, or dimming lights



Warm or discolored wall plates



Burning odor coming from receptacles or wall switches



Frequently tripped circuit breakers or blown fuses



Cracking, sizzling, or buzzing from receptacles



Mild shock or tingle from appliances, receptacles, or switches

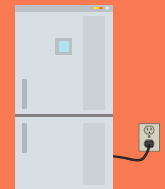


## HOW TO PREVENT ELECTRICAL OVERLOADS

Never use extension cords or multi-outlet converters for appliances.



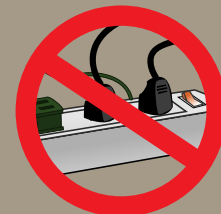
All major appliances should be plugged directly into a wall receptacle outlet. Only plug one heat-producing appliance into a receptacle outlet at a time.



A heavy reliance on extension cords is an indication that you have too few outlets to address your needs. Have a qualified electrician inspect your home and add new outlets.



Power strips only add additional outlets; they do not change the amount of power being received from the outlet.



# 50%

The CPSC estimates more than 50% of electrical fires that occur every year can be prevented by Arc Fault Circuit Interrupters (AFCIs). To learn more about AFCIs, visit [ESFI.org](http://ESFI.org).



Only use the appropriate watt bulb for any lighting fixture. Using a larger watt light bulb may cause a fire.



# Protect Your Community

If you're like most people and already use the internet and social media every day, ESFI has various ways you can engage with us and encourage your friends to do so as well. Education is the key to protecting your community from preventable electrical fires, injuries and fatalities. Knowledge IS power, but often people don't know the subjects in which they are lacking. Together we can help keep others safe.

- Learn new electrical safety tips and information through our status updates.



Like us:

[www.facebook.com/ESFI.org](http://www.facebook.com/ESFI.org)

- Share our statuses or something you've learned so friends in your network stay safe.



Follow us:

[www.twitter.com/ESFI.org](http://www.twitter.com/ESFI.org)

- Encourage your friends to connect with us.

- Engage with other safety-minded people.

- Share with us your electrical safety activities and successes.



Link with us:

[www.linkedin.com/company/esfi](http://www.linkedin.com/company/esfi)

Help kids learn about electrical safety:



<http://kids.esfi.org/>

- Watch entertaining, kid-friendly videos featuring ESFI's mascot, P.I. Plug.
- Send free e-cards with electrical safety reminders to loved ones.
- Encourage children to play free interactive games that teach electrical safety.
- Free activities for teachers and parents to reinforce electrical safety topics.



## Above and Beyond

Print out copies of this magazine and request permission to leave it in the waiting room of doctor's offices or hair salons in your area.

Encourage daycare providers to use our free teaching activities.

Contact your local newspaper and encourage them to devote a story to National Electrical Safety Month and its mission.

Include a post about National Electrical Safety Month in your town, neighborhood, community center or church newsletter.

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