



National Electrical Code

Understanding the Code that Keeps Us Safe

Electricity is everywhere and it affects every aspect of our lives. However, it isn't until we lose power that we realize just how much we take electricity for granted. **Codes and Standards** help us use electricity in a **safe and efficient** manner.

What is an Electrical Standard?

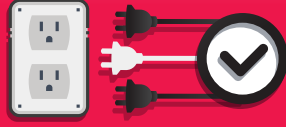
Standards serve as the foundation of our electrified lives and allow for:



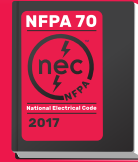
Safety



Efficiency



Interoperability



Standards are put into place through **safety codes** such as the National Electrical Code

What is the National Electrical Code?

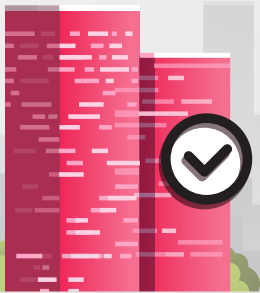


Sets the **minimum standards** for safe electrical installation

Is updated every **3 YEARS**



Ensures that **electrical systems** behind our walls are **safe**



Strict codes and standards keep public buildings safe through regular **inspections and upgrades**

15 Revisions



There have been **15 new editions of the NEC** since the year the average American home was built



WARNING

Homes not up to date with the latest safety codes:



May not be equipped to handle today's electrical needs



Are **not adequately protected** against fire and electrical hazards

Why upgrade?



In the last **40 years** NEC requirements **reduced home electrocutions** by:

83%



Average cost to **upgrade** from the 2011 NEC to the 2017 NEC:

Under \$200

ESFI strongly encourages states and jurisdictions to **adopt the most recent codes and standards** to protect residents with the latest advancements in safety technology.

Learn more about codes and how your state adopts the NEC at **ESFI.org**



www.facebook.com/ESFI.org

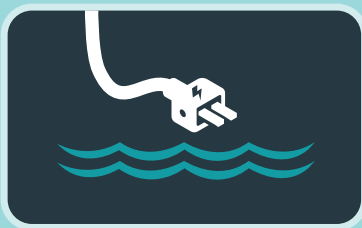
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ELECTRIC SHOCK DROWNING

WATER AND ELECTRICITY ⚡
DON'T MIX

Electric Shock Drowning severely injures and kills people every year. ESD occurs when faulty wiring sends **electric current into water**, which passes through the body and causes **paralysis**, which could ultimately result in **drowning**.



How to Avoid Electric Shock Drowning



Locate and label all power switches to pool, hot tub, and spa equipment and lighting.



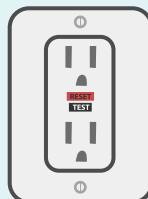
Make sure all pools, hot tubs, and spas are at least **25 feet** from power lines.



All wiring and repairs should be performed by a **qualified electrician**.



Have a qualified electrician **inspect your pool, spa, or hot tub annually**.



Install GFCIs, which can prevent electrocution, on all receptacles within **20 feet** of water's edge.

What To Do If You See Electric Shock Drowning

1 Do not enter the water



2 Turn off source of power



3 Call 911



4 Use an **insulated device** (such as fiberglass rescue crook) to attempt to **remove victim from water**



NATIONALLY RECOGNIZED TESTING LABORATORIES

Certifying Safety

Nationally Recognized Testing Laboratories (NRTL) test and certify electrical equipment, and other products, to ensure they meet current safety standards and are safe with proper use.

THE IMPORTANCE OF NRTL CERTIFICATION



NRTL certification means that electronics, when used as intended, are:

UP TO CODE



Electronics with NRTL certification undergo **independent testing** to ensure they meet safety standards

SAFE



Electronics with NRTL certification are tested to help confirm they are **free of recognized hazards** that could cause injury or death

GENUINE



Electronics with NRTL certifications can be **confirmed with the NRTL as genuine**. Avoid purchasing electronics without NRTL certification, as they may not be designed to meet applicable industry standards

CERTIFICATION PROCESS

To receive and maintain certification, NRTLs:



1 Evaluate and test products to safety standards



2 Address any standards compliance issues with manufacturers if necessary



3 Authorize manufacturers to apply certification marks to eligible products



4 Conduct **factory inspections** for all certified products



5 Provide **assurance** that products are **tested as safe** for their intended use in the U.S.



CE marks are not safety certification marks. CE labeled products may have not been tested by a 3rd party.

80%

of consumers are familiar with NRTLs

76%

of consumers know what NRTL certification means

33%

of consumers are more likely to purchase items with NRTL certification

50%

of consumers look for certification when purchasing electronics

73%

of consumers say that certification does not affect their purchasing decision

Only purchase NRTL certified electronics, it can save your life.



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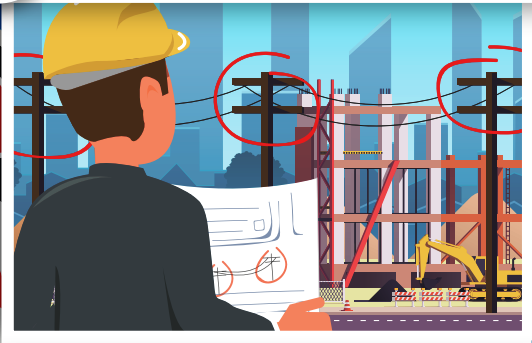
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OVERHEAD POWER LINE SAFETY



1 Locate all overhead power lines.



2 Keep self and equipment 10 feet away from all overhead power lines.



3 Do not touch anything that is in contact with the power line.



4 Beware of fencing near power lines.



5 Carry ladders and other equipment horizontally.



6 Lower equipment apparatus before driving.



7 Never spray water near power lines.



8 Stay at least 35 feet away from fallen power lines.



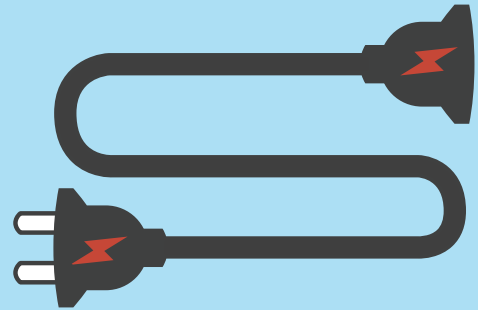
WORKPLACE ELECTRICAL SAFETY

Top Electrical OSHA Violations

Lockout / Tagout



Electrical Wiring Methods



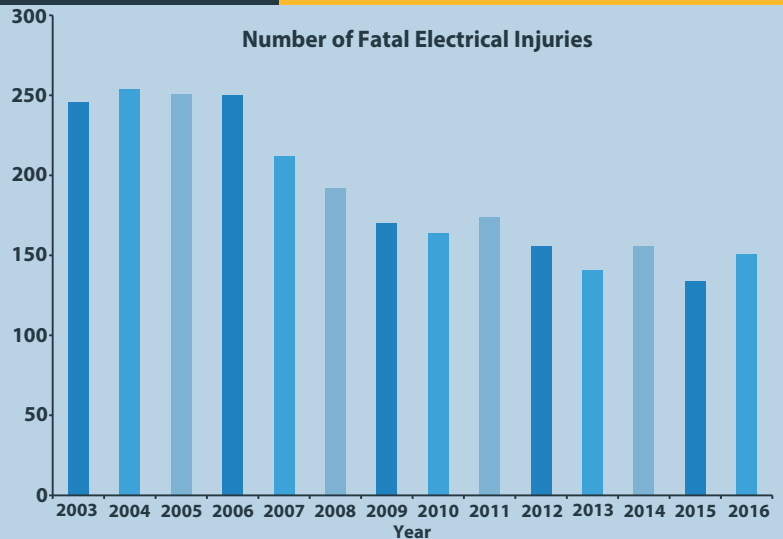
Electrical Fatalities

Electrical Fatalities: 2003 - 2016

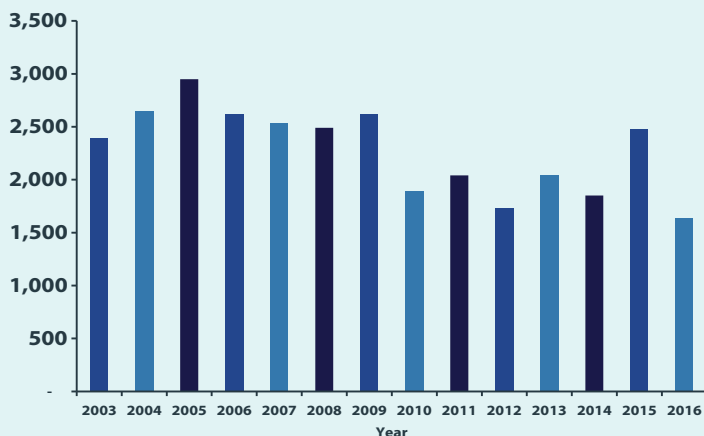
15% increase in electrical fatalities between 2015 and 2016

53% of electrical fatalities occurred in the construction industry

2.3x younger workers experience fatalities 2.3 times more than experienced workers



Electrical Injuries



Electrical Injuries: 2003 - 2016

1/3 drop in non-fatal electrical injuries in 2016 over 2015

420 electrical injuries occurred in construction industry in 2016

5 the median number of days away from work due to injury