



2011 Tamper-Resistant Electrical Receptacles *NEC*[®] Updates



The Opportunity for Continued
Child Safety



National Electrical Manufacturers Association — Setting Standards for Excellence

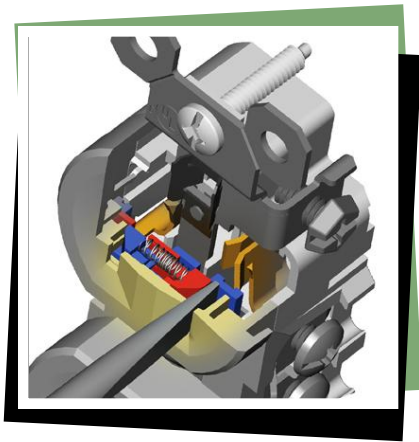


NEMA represents approximately 450 manufacturers and is responsible for:

- Developing technical standards in the best interests of the industry and its customers.
- Establishing and advocating industry policies on legislative and regulatory issues.
- Collecting, analyzing, and disseminating industry data.



What are Tamper-Resistant Receptacles?



- Tamper-Resistant receptacles prevent improper access to energized contacts.
- Most Tamper-Resistant receptacles use spring-loaded shutters that allow appliance plugs to be inserted normally.
- Shutter will not open when a single foreign object is inserted, such as a key or hairpin.



Why Tamper-Resistant Receptacles are Required



An analysis of U.S. Consumer Product Safety Commission (CPSC) data over a 10-year period found:

- 24,000+ children under 10 years old were treated in emergency rooms for receptacle-related incidents.
- 10% of those children suffered severe shock and burns.



Why Tamper-Resistant Receptacles are Required (cont.)



- An average of 7 children per day suffer some type of injury from electrical receptacles.
- 89% of those injured are under 6 years old.
- 50% of injured children are toddlers.
- The vast majority of incidents occur under adult supervision.



Alternative Solutions



Plastic outlet caps:

- Readily available.
- Typically effective for children younger than 2 years old.

But:

- 47% of 4-year-olds studied were able to remove one brand of cap.
- 100% of 2- and 4-year-olds could remove a second brand—in many cases within 10 seconds!
- Adults often forget to reinsert the caps.
- Children can easily pull out electrical plugs, leaving exposed receptacles.



Alternative Solutions



Tamper-Resistant Wall Plates:

- Offer better protection than outlet caps.

But:

- Most add material between the plug and receptacle, reducing contact surface and creating the risk of heat rise or arcing.
- Tamper-Resistant wall plates are no longer UL[®] listed.



Tamper-Resistant Receptacles Offer the Best, Most Reliable Solution



- Mandated in hospital pediatric wards for more than 2 decades; proven to effectively prevent electrical injuries.
- UL[®] listed—subjected to rigorous, documented testing.
- Permanent and automatic—once installed, they offer continuous protection, even if plug is removed.
- Reliable—no worries about inserting, losing, or breaking them.



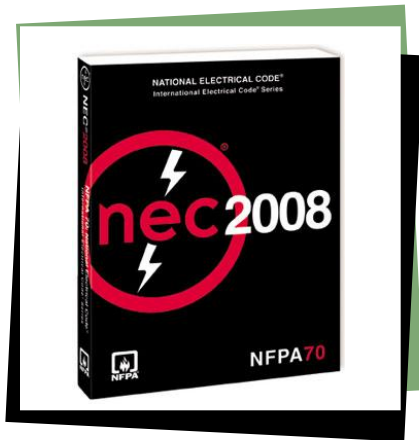
A Low Cost Per Application



- All major manufacturers have developed economical, lower cost residential products.
- Total increased cost per average home is less than \$70.



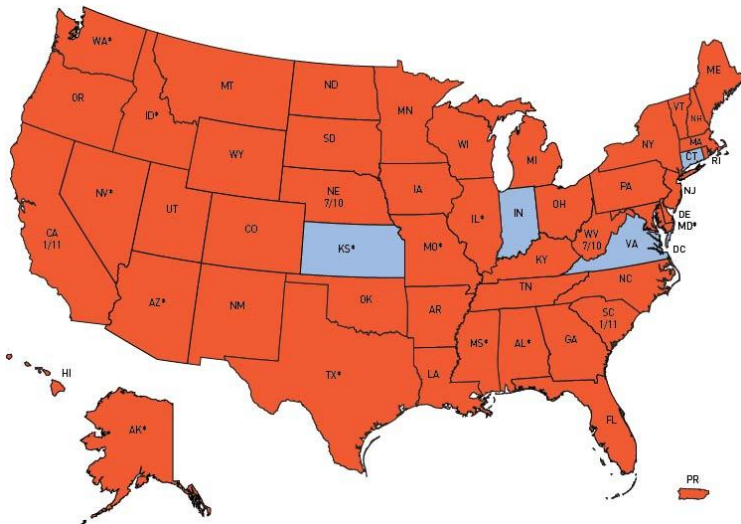
Adoption of Tamper-Resistant Receptacles



- Added to 2008 *National Electrical Code*[®] (*NEC*[®]) in response to numerous injuries and deaths.
- Mandated for new and renovated dwelling units.
- Originally required for all 125-volt, 15- and 20-ampere receptacles.



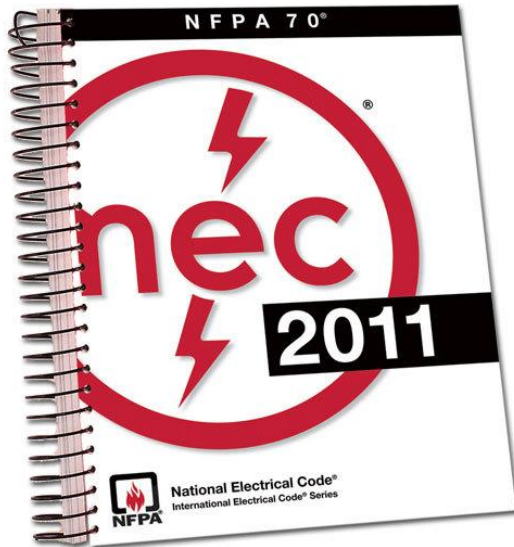
Tamper-Resistant Receptacles – A Successful Adoption



- 46 of 50 states have adopted this section of the *NEC*[®].
- The number of receptacle-related injuries to children should decline in coming years.
- Economical products readily available.



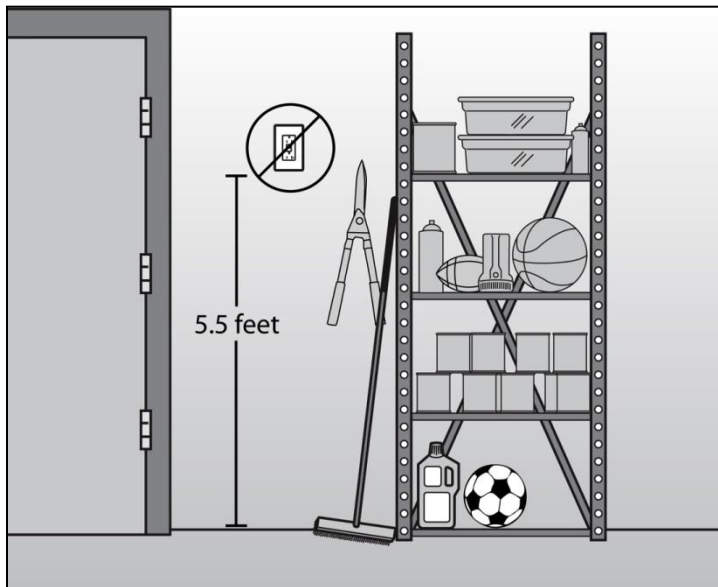
2011 National Electrical Code®



Feedback on 2008 NEC® changes has led to some minor, but important revisions for 2011.



Revisions to *NEC*[®] 2011, Section 406.12 Tamper-Resistant Receptacles in Dwelling Units*

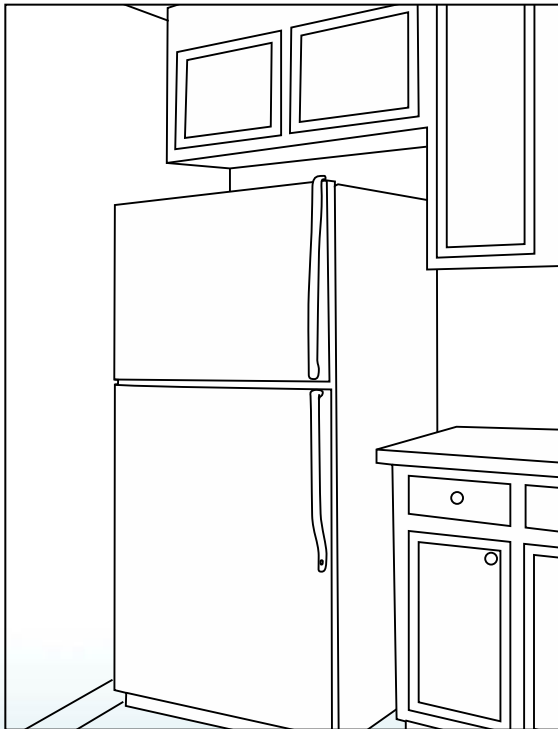


- Receptacles located higher than 5.5 ft. above the floor no longer have to be Tamper-Resistant.

***Dwelling units definition:** A Dwelling Unit is a single unit, providing complete and independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking, and sanitation.



Revisions to *NEC*[®] 2011, Section 406.12 Tamper-Resistant Receptacles in Dwelling Units*

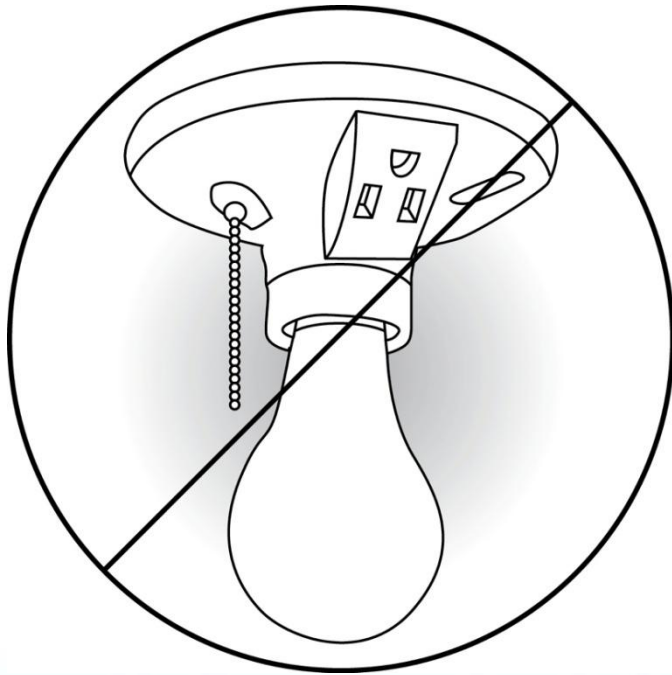


- Receptacles in a dedicated space for appliances that cannot be easily moved are now exempt.

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Revisions to *NEC*[®] 2011, Section 406.12 Tamper-Resistant Receptacles in Dwelling Units*

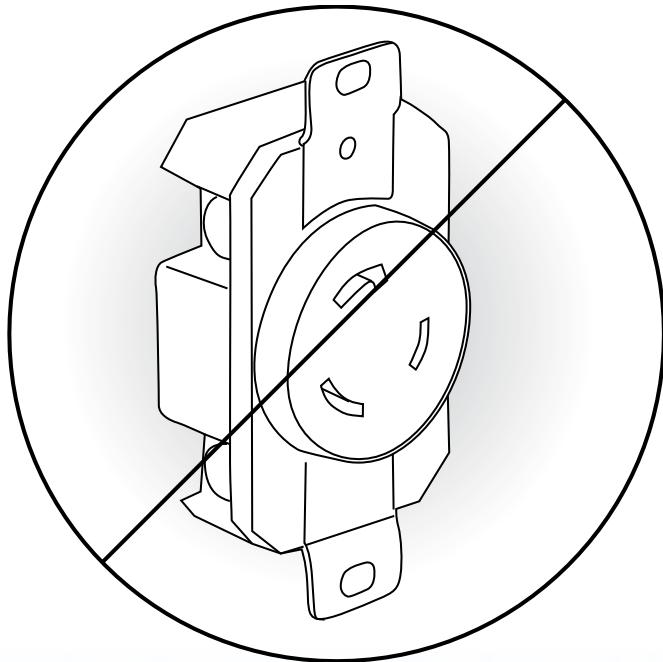


- Receptacles that are part of a luminaire or appliance are exempt.

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Revisions to *NEC*[®] 2011, Section 406.12 Tamper-Resistant Receptacles in Dwelling Units*

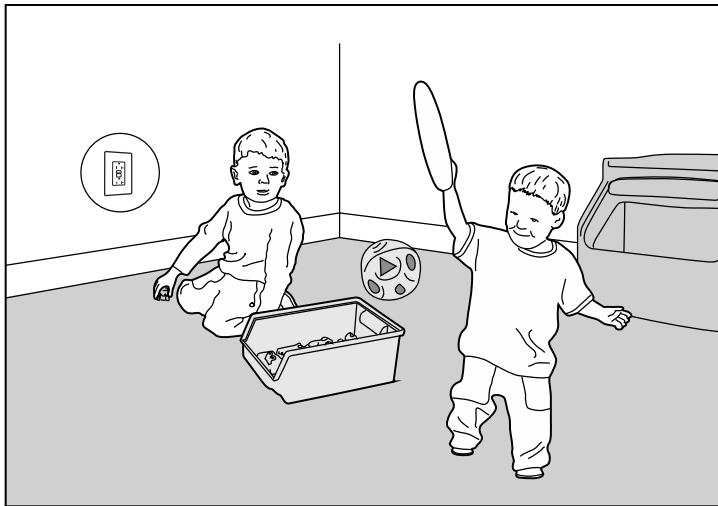


- Tamper-Resistant requirements are limited to non-locking receptacles.

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New Requirement for *NEC*[®] 2011



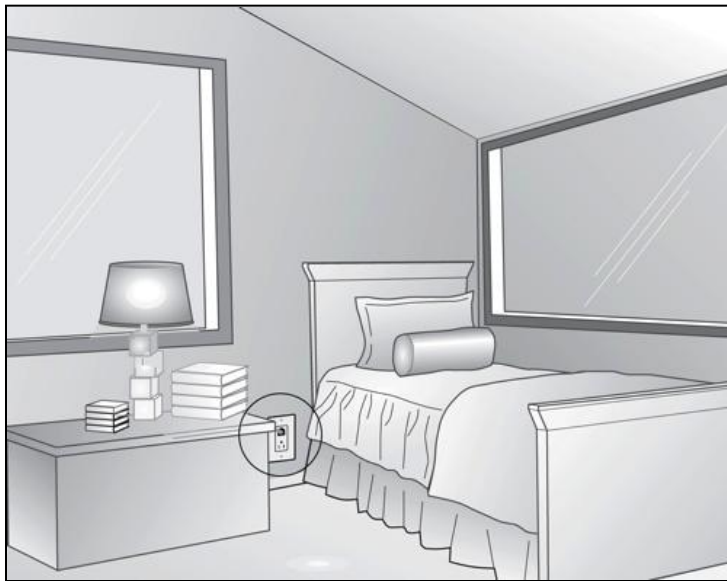
Section 406.14, Tamper-Resistant Receptacles in Child Care Facilities*

- Tamper-Resistant Receptacles are required in all child care facilities.

* Section 406.2 defines a childcare facility as a location where education, supervision or personal care services are provided for more than four children under the age of 7.



New Requirement for *NEC*[®] 2011



Section 406.4(D)(5), Tamper-Resistant Replacement Receptacles

- When a receptacle is replaced in child care facilities, guest rooms, guest suites, and specified areas of dwelling units, it must be tamper-resistant.



New Requirement for *NEC*[®] 2011



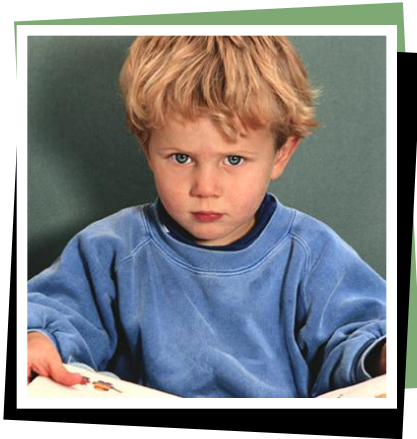
Section 406.13, Tamper-Resistant Receptacles in Guest Rooms and Guest Suites*

- All non-locking 125-volt, 15- and 20-amp receptacles installed in guest rooms and guest suites must be listed as tamper-resistant.

*Guest room defined as an accommodation combining living, sleeping, sanitary, and storage facilities within a compartment; guest suite as defined as an accommodation of two or more contiguous rooms comprising a compartment, with or without doors between such rooms, that provides living, sleeping, sanitary, and storage facilities



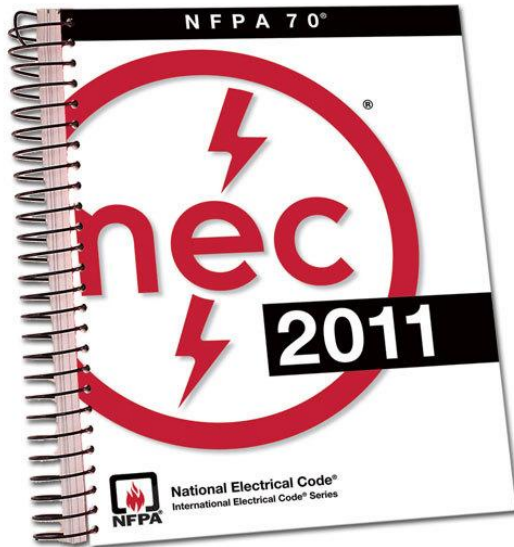
Summary



- Electrical injuries to children are physically devastating, emotionally traumatic, costly—and preventable.
- A safer environment provides better injury prevention than behavior modification.
- Tamper-Resistant Receptacles offer the best solution.



How You Can Help



Support adoption of new Tamper-Resistant requirements reflected in the 2011 *NEC*[®].

**Real
Safety**

with Tamper-Resistant Receptacles



NECA[®]

For additional information, visit
www.childoutletsafety.org



Appendix



Data Sources

- **Consumer Product Safety Commission**—The U.S. Consumer Product Safety Commission is charged with protecting the public from unreasonable risks of serious injury or death from thousands of types of consumer products.
- **National Electronic Injury Surveillance System**—Washington, DC—CPSC’s National Electronic Injury Surveillance System (NEISS) is a national probability sample of hospitals in the U.S. and its territories. Patient information is collected from each NEISS hospital for every emergency visit involving an injury associated with consumer products.
- **Temple University, Biokinetics Laboratory**—The mission of the Biokinetics Research Laboratory (BRL) is to conduct research pertaining to movement in and of the human organism.
- **National Electrical Manufacturers Association**—NEMA is the leading trade association in the United States representing the interests of electroindustry manufacturers. Founded in 1926 and headquartered near Washington, D.C., its approximately 450 member companies manufacture products used in the generation, transmission and distribution, control, and end-use of electricity.



Where the Data Came From

NEISS Data—NEISS collects data from a statistically valid sample of hospitals nationwide. NEISS calculates historic estimates based on these samples using statistical tools (weights, sampling error, trend data, adjustment for changes in sampling frame, etc.). NEISS provides at least 2 numbers for each query conducted on their website:

- The number of samples for monitored hospitals. These are actual cases that were communicated to NEISS.
- The historic estimate calculated by NEISS.



Where the Data Came From (cont.)

For example, the attached 2002 NEISS report shows a sample count of 129 and a historical estimate of 3277.

For the purpose of this analysis, we calculated a ratio, based on 10 years of data, between sample and historic estimate (we queried outlet-related incidents concerning children ages 1 month to 10 years old). We applied this ratio to our analysis. The intent is not to provide exact values but to attribute weight to major topics (i.e., age, type of injury, and objects used). These estimates have been calculated to identify the major issues associated with children tampering with electrical receptacles.



To learn more

- **Statistics of incidents in the USA:**
www.cpsc.igov/library/neiss.html
- **CPSC data-sheet of electrical safety:**
www.cpsc.gov/cpscpub/pubs/524.html
- **Consumers Union Report on Outlet Caps:**
www.consumersunion.org/products/childsafeny698.htm
- **State Farm report on home electrical safety:**
www.statefarm.com/learning/child_safety/learning_childsafety_elec.asp



2011 Code Appendix

Section 406.5 Tamper-Resistant Receptacles—Listed tamper-resistant receptacles shall be provided where replacements are made at receptacle outlets that are required to be tamper-resistance elsewhere in this *Code*.

Section 406.12 Tamper-Resistant Receptacles in Dwelling Units—In all areas specified in 210.52, all nonlocking type 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.

Exception No. 1: Receptacles located more than 1.7 m (5½ ft) above the floor.

Exception No. 2: Receptacles that are part of a luminaire or appliance.

Exception No. 3: A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that in normal use is not easily moved from one place to another and that is cord-and-plug connected in accordance with 400.7(A)(6), (A)(7), or (A)(8).

Exception No. 4: Nongrounding receptacles used for replacements as permitted in 406.4(D)(2)(a).

406.13 Tamper-Resistant Receptacles in Guest Rooms and Guest Suites—All nonlocking type, 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.

406.14 Tamper-Resistant Receptacles Child Care Facilities—In all child care facilities, all nonlocking type, 125-volt, 15- and 20- ampere receptacles shall be listed tamper-resistant receptacles.