

NFPA® 73

Standard for Electrical Inspections for Existing Dwellings

2011 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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NFPA® 73

Standard for

Electrical Inspections for Existing Dwellings

2011 Edition

This edition of NFPA 73, *Standard for Electrical Inspections for Existing Dwellings*, was prepared by the Technical Committee on Electrical Systems Maintenance and released by the National Electrical Code Technical Correlating Committee. It was issued by the Standards Council on June 1, 2010, with an effective date of June 21, 2010, and supersedes all previous editions.

This edition of NFPA 73 was approved as an American National Standard on June 21, 2010.

Origin and Development of NFPA 73

NFPA began the development of NFPA 73, *Electrical Inspection Code for Existing Dwellings*, in 1990. The original document was developed as a result of the united efforts of various insurance, electrical, construction, inspection, utility, and other allied interests.

The document was initiated in response to data obtained from studies conducted on older homes by NFPA, the National Institute of Standards and Technology (NIST), the Consumer Product Safety Commission (CPSC), and other groups involved with fire investigations. The studies clearly indicated that fires and other hazards attributed to electrical causes would be significantly reduced if electrical systems were installed and maintained in accordance with the *NFPA 70, National Electrical Code (NEC)*.

The fact that only 5 percent of fires occurred in dwellings under 10 years of age is reported in one of the studies, which indicates the effectiveness of the *NEC* and electrical inspections at the time of construction. It also suggests that identification and correction of unsafe conditions in existing dwellings by means of appropriate inspections could effectively eliminate a significant portion of the residential fire occurrences and other associated hazards.

The first edition of NFPA 73, *Residential Electrical Maintenance Code for One- and Two-Family Dwellings*, was adopted in 1993. The second edition of the document was submitted for formal adoption at the 1996 NFPA Annual Meeting.

Significant changes to the 2000 edition of NFPA 73 included a new title and an expanded scope. The Standards Council and the *National Electrical Code* Technical Correlating Committee approved changing the scope of the document to include all dwelling units, including multifamily dwellings and mobile and manufactured homes. To support expanding the document scope, the NFPA Technical Committee on Electrical Systems Maintenance cited that deterioration of electrical systems could occur in existing multifamily dwellings and mobile and manufactured homes. The inspection community now had a code that could be used to improve the safety of electrical systems in all dwelling units. The change in the title from “maintenance” to “inspection” reflected the intended purpose of the document.

The 2006 edition reflected editorial revisions of the code to comply with the latest edition of the *Manual of Style for NFPA Technical Committee Documents*.

For the 2011 edition, the title of the document has been changed from *Electrical Inspection Code for Existing Dwellings* to *Standard for Electrical Inspections for Existing Dwellings* to facilitate its use within the home inspection community. This assists the inspectors, who are not code enforcement officials, by allowing them to utilize the standard for their inspections and thereby improve the electrical safety in dwelling units.

Several changes were made to the standard to address issues identified in the technical report issued by the Fire Protection Research Foundation's "Residential Electrical Systems Aging Research Project." The dismantling of 30 homes, originally constructed from 1892 to 1972, revealed several areas that required investigation, examination, or inspection. Potential fire hazards were identified, including incorrect conductor insulation for wiring of luminaires, multiple conductors terminated on a single terminal, and insulation in direct contact with luminaires not designed for the application. Shock hazards were also identified, such as conductors or cables used inappropriately, ground-fault circuit interrupter receptacles incorrectly wired, and the grounded conductor attached to normally non-current-carrying metal parts.

An annex table was added to assist users of the standard in determining when requirements for arc-fault circuit interrupters (AFCI) and ground-fault circuit interrupters (GFCI) were added to the *National Electrical Code*. With the knowledge of which *NEC* edition was in place at the time of the construction or renovation, the user of the standard can easily determine where AFCI and GFCI protection is necessary.

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Solutions

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Neil F. LaBrake, Jr., National Grid, NY [UT]

Rep. Electric Light & Power Group/EEI

Danny Liggett, DuPont Company, TX [U]

Rep. American Chemistry Council

Alternates

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(Alt. to Neil F. LaBrake, Jr.)

Lawrence S. Ayer, Biz Com Electric, Inc., OH [IM]
(Alt. to David L. Hittinger)

Larry D. Cogburn, Cogburn Bros, Inc., FL [IM]
(Alt. to Stanley J. Folz)

James T. Dollard, Jr., IBEW Local Union 98, PA [L]
(Alt. to Palmer L. Hickman)

Ernest J. Gallo, Telcordia Technologies, Inc., NJ [UT]
(Alt. to James E. Brunssen)

Daniel J. Kissane, Pass & Seymour/Legrand, NY [M]
(Alt. to James M. Daly)

Michael E. McNeil, FMC Bio Polymer, ME [U]
(Alt. to Danny Liggett)

Mark C. Ode, Underwriters Laboratories Inc., AZ [RT]
(Alt. to John R. Kovacik)

Richard P. Owen, Oakdale, MN [E]
(Alt. to James W. Carpenter)

Nonvoting

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Canada [RT]

Richard G. Biermann, Biermann Electric Company, Inc.,
IA [IM]
(Member Emeritus)

D. Harold Ware, Libra Electric Company, OK [IM]
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Committee Scope: This Committee shall have primary responsibility for documents on minimizing the risk of electricity as a source of electric shock and as a potential ignition source of fires and explosions. It shall also be responsible for text to minimize the propagation of fire and explosions due to electrical installations.

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Agency, Inc., MD [E]
James Van Den Heuvel, Village of Hobart, WI [E]
John A. Worsham, Engineering Design & Testing
Corporation, AL [SE]

Alternates

William T. Black, Copper Development Association Inc.,
OH [M]
(Alt. to C. D. Mercier)
Thomas A. Domitrovich, Eaton Corporation, PA [M]
(Alt. to A. Manche)

Mike O'Meara, Arizona Public Service Company, AZ [U]
(Alt. to R. D. McDaniel)

Nonvoting

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Commission, MD [C]

Andrew M. Trotta, U.S. Consumer Product Safety
Commission, MD [C]

Christopher Coache, NFPA Staff Liaison

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Committee Scope: This Committee shall have primary responsibility for documents on the maintenance of electrical systems in existing one-family, two-family, and multifamily dwellings. This Committee shall report to the Technical Correlating Committee of the National Electrical Code.

Contents

Chapter 1 Administration	73- 6	4.4 Cables, Cable Assemblies, and Conductors	73- 9
1.1 Scope	73- 6	4.5 Flexible Cords and Cables	73- 9
1.2 Purpose	73- 6	4.6 Raceways	73- 9
1.3 Application.	73- 6	4.7 Permanently Connected Luminaires (Lighting Fixtures)	73- 9
1.4 Equivalency.	73- 6	4.8 Boxes and Enclosures	73-10
Chapter 2 Referenced Publications	73- 6	4.9 General-Use Switches and Receptacles	73-10
2.1 General	73- 6	Chapter 5 Appliances and Special Equipment	73-10
2.2 NFPA Publications	73- 6	5.1 Ground-Fault Circuit Interrupters	73-10
2.3 Other Publications	73- 6	5.2 Smoke Alarms	73-10
2.4 References for Extracts in Mandatory Sections	73- 6	5.3 Appliances and Utilization Equipment	73-10
Chapter 3 Definitions	73- 6	5.4 Arc-Fault Circuit Interrupters	73-10
3.1 General	73- 6	5.5 Ceiling-Suspended (Paddle) Fans	73-10
3.2 NFPA Official Definitions	73- 6	Annex A Explanatory Material	73-10
3.3 General Definitions	73- 7	Annex B National Electrical Code References	73-11
Chapter 4 General Requirements	73- 8	Annex C Sample Ordinance Adopting NFPA 73	73-14
4.1 Services, Outside Feeders, and Outside Branch Circuits	73- 8	Annex D Informational References	73-14
4.2 Panelboards and Distribution Equipment	73- 8	Index	73-15
4.3 Overcurrent Protective Devices	73- 9		

NFPA 73**Standard for****Electrical Inspections for Existing Dwellings****2011 Edition**

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A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex C. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex C.

Chapter 1 Administration

1.1 Scope. This standard provides criteria for identification of hazardous conditions of electrical systems in existing one-family, two-family, and multifamily dwellings, including mobile homes and manufactured homes.

1.2* Purpose. The purpose of this standard is to provide inspection and testing procedures and practices for evaluating the safety of installed electrical systems within and associated with existing dwellings.

1.3 Application.

1.3.1 This standard shall apply to hazardous conditions of electrical systems including, but not limited to, the following:

- (1) Safety hazards
- (2) Fire hazards
- (3) Shock hazards
- (4) Overheating conditions
- (5) Physical deterioration
- (6) Abuse
- (7) Noncompliant installations

1.3.2 This standard applies to accessible electrical equipment.

1.3.3 The removal of faceplates or other covers or luminaires (fixtures) to identify hazards shall be permitted.

1.3.4 These inspection procedures shall not damage the building structure, wiring, or equipment.

1.3.5 Inspections in accordance with this standard do not necessarily identify future conditions such as failure of components or other portions of equipment or wiring.

1.3.6 This standard does not apply to the inspection of new construction, recreational vehicles, or the factory-installed internal wiring and construction of appliances and utilization equipment.

1.3.7 This standard does not define installation requirements that might be desired for convenience or utilitarian purposes.

1.3.8 This standard is intended to require only the remedial action necessary to correct identified hazards.

1.4 Equivalency.

1.4.1 Devices, systems, or methods that differ from those in this standard shall be permitted to be examined or tested according to the intent of this standard.

1.4.2 The authority having jurisdiction shall be permitted to approve devices, systems, or methods found to be in compliance with 1.4.1.

1.4.3 Technical documentation shall be submitted to the authority having jurisdiction to demonstrate compliance with 1.4.1.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.
NFPA 70[®], National Electrical Code[®], 2011 edition.

2.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 70[®], National Electrical Code[®], 2011 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the require-

ments of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.4 Standard. A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix or annex, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

3.3 General Definitions.

3.3.1 Accessible.

3.3.1.1 Accessible (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation, or other effective means. [70: Article 100]

3.3.1.2 Accessible (as applied to wiring methods). Capable of being removed or exposed without damaging the building structure or finish, or not permanently closed in by the structure or finish of the building. [70: Article 100]

3.3.1.3 Readily Accessible. Capable of being reached quickly for operation, renewal, or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth. [70: Article 100]

3.3.2 Appliance. Utilization equipment, generally other than industrial, that is normally built in standardized sizes or types, and is installed or connected as a unit to perform one or more functions such as clothes washing, air conditioning, food mixing, deep frying, and so forth. [70: Article 100]

3.3.3 Arc-Fault Circuit Interrupter (AFCI) A device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected. [70: Article 100]

3.3.4 Bonded (Bonding). Connected to establish electrical continuity and conductivity. [70: Article 100]

3.3.5 Branch Circuit. The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s). [70: Article 100]

3.3.6 Conductor.

3.3.6.1 Grounded Conductor. A system or circuit conductor that is intentionally grounded. [70: Article 100]

3.3.6.2 Grounding Conductor, Equipment (EGC). The conductive path(s) installed to connect normally non-current-carrying metal parts of equipment together and to the system grounded conductor or to the grounding electrode conductor, or both. [70: Article 100]

3.3.6.3 Grounding Electrode Conductor (GEC). A conductor used to connect the system grounded conductor or the equipment to a grounding electrode or to a point on the grounding electrode system. [70: Article 100]

3.3.7 Dwelling Unit. A single unit, providing complete and independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking, and sanitation. [70: Article 100]

3.3.7.1 Dwelling, Multifamily. A building that contains three or more dwelling units. [70: Article 100]

3.3.7.2 Dwelling, One-Family. A building that consists solely of one dwelling unit. [70: Article 100]

3.3.7.3 Dwelling, Two-Family. A building that consists solely of two dwelling units. [70: Article 100]

3.3.8 Equipment. A general term including fittings, devices, appliances, luminaires, apparatus, machinery, and the like used as a part of, or in connection with, an electrical installation.

3.3.9 Exposed (as applied to live parts). Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts that are not suitably guarded, isolated, or insulated. [70: Article 100]

3.3.10 Feeder. All circuit conductors between the service equipment, the source of a separately derived system, or other power supply source and the final branch-circuit overcurrent device.

3.3.11 Grounded (Grounding). Connected (connecting) to ground or to a conductive body that extends the ground location. [70: Article 100]

3.3.11.1 Grounded, Solidly. Connected to ground without inserting any resistor or impedance device. [70: Article 100]

3.3.12* Ground-Fault Circuit Interrupter (GFCI). A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds the values established for a Class A device. [70: Article 100]

3.3.13 Grounding Electrode. A conducting object through which a direct connection to earth is established. [70: Article 100]

3.3.14 Luminaire. A complete lighting unit consisting of a light source such as a lamp or lamps, together with the parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source or the ballast or to distribute the light. A lampholder itself is not a luminaire. [70: Article 100]

3.3.15 Outlet. A point on the wiring system at which current is taken to supply utilization equipment. [70: Article 100]

3.3.16 Overcurrent Protective Device. A device that automatically interrupts the circuit when current in excess of a given rating flows through the circuit because of a short circuit, overload, or ground fault.

3.3.16.1* Circuit Breaker. A device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent without damage to itself when properly applied within its rating. [70: Article 100]

3.3.16.2 Fuse. An overcurrent protective device containing a conductor that melts when heated by an overcurrent condition, thus opening the circuit.

3.3.17 Panelboard. A single panel or group of panel units designed for assembly in the form of a single panel, including buses and automatic overcurrent devices, and equipped with or without switches for the control of light, heat, or power circuits; designed to be placed in a cabinet or cutout box placed in or against a wall, partition, or other support; and accessible only from the front. [70: Article 100]

3.3.18 Raceway. An enclosed channel of metal or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in *NEPA 70*. Raceways include, but are not limited to, rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, liquidtight flexible conduit, flexible metallic tubing, flexible metal conduit, electrical nonmetallic tubing, electrical metallic tubing, underfloor raceways, cellular concrete floor raceways, cellular metal floor raceways, surface raceways, wireways, and busways. [70: Article 100]

3.3.19 Receptacle. A receptacle is a contact device installed at the outlet for the connection of an attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is two or more contact devices on the same yoke. [70: Article 100]

3.3.20 Service. The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served. [70: Article 100]

3.3.21 Switch, General-Use. A switch intended for use in general distribution and branch circuits. It is rated in amperes, and it is capable of interrupting its rated current at its rated voltage. [70: Article 100]

3.3.22 Utilization Equipment. Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes. [70: Article 100]

Chapter 4 General Requirements

4.1 Services, Outside Feeders, and Outside Branch Circuits.

4.1.1 Interior metal water piping systems shall be bonded to the electrical service grounding system.

4.1.2 The service shall be sized or rated to serve the connected load.

4.1.3 Weatherheads shall be fastened in place.

4.1.4 Service-entrance conductors shall not show evidence of deterioration of conductor insulation or cable sheath.

4.1.5 Service conductors, outside feeders, and outside branch circuits shall have the required clearances above roofs, from ground, from building openings, and from swimming pools to prevent accidental contact.

4.1.6 Service-entrance raceways or cables shall be fastened in place.

4.1.7 Service-entrance raceways and cables shall be terminated with fittings or connectors that are approved for the type of raceways, cables, and environmental conditions.

4.1.8 Service-Entrance Equipment.

4.1.8.1 Service-entrance equipment shall be readily accessible.

4.1.8.2 Required access and working space shall be provided and maintained to permit ready and safe operation and maintenance.

4.1.8.3 Service-entrance equipment, cables, raceways, or conductors shall not show evidence of physical damage, overheating, corrosion, or other deterioration.

4.1.9 Service Equipment Grounding.

4.1.9.1 Service equipment shall be grounded.

4.1.9.2 The grounding electrode conductor shall be sized, terminated, and connected to one or more grounding electrode(s) to provide low impedance and have current carrying capacity to prevent the buildup of voltages that result in undue hazard to connected equipment or to persons.

4.1.10 Grounding Electrode Conductors.

4.1.10.1 The connection of a grounding electrode conductor or bonding jumper to a grounding electrode shall be made in a manner that will ensure a permanent and effective grounding path.

4.1.10.2 The grounding electrode conductor shall be connected to the grounding electrode.

4.1.10.3 The grounding electrode conductor and connector shall not show evidence of physical damage or deterioration.

4.1.10.4 The grounding electrode conductor shall be protected against physical damage as required.

4.1.10.5 Metal enclosures providing physical protection of the grounding electrode conductor shall be bonded at each end to the grounding electrode conductor.

4.1.10.6 The grounding electrode conductor shall be continuous in its length unless otherwise permitted to be spliced or joined.

4.1.10.7 Where tap conductors are connected to the grounding electrode conductor, they shall be connected in such a manner that the grounding electrode conductor remains without a splice.

4.1.10.8 The dwelling grounding electrode system and other grounding systems, such as those for communications, CATV, and satellite, shall be bonded together.

4.2 Panelboards and Distribution Equipment.

4.2.1 Panelboards and distribution equipment shall be readily accessible.

4.2.2 Required access and working space shall be provided and maintained to permit safe operation and maintenance.

4.2.3* Panelboards and distribution equipment shall not show evidence of physical damage, overheating, corrosion, or other deterioration.

4.2.4 All cables entering the equipment shall be fastened with approved connectors.

4.2.5 All unused openings shall be closed using a material that meets or exceeds the wall thickness or characteristic of the panelboard or distribution equipment.

4.2.6 All metal parts shall be effectively grounded or bonded using approved fittings.

4.2.7 Dead-front panels, partitions, or parts of the enclosure shall be installed to ensure protection from live parts.

4.2.8 Disconnecting means marking shall comply with 4.2.8.1 and 4.2.8.2.



4.2.8.1 Each disconnecting means for motors and appliances, and each service, feeder, or branch circuit at the point where it originates, shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident.

4.2.8.2 The marking shall be capable of withstanding the environment involved.

4.3 Overcurrent Protective Devices.

4.3.1 Overcurrent protective devices shall be rated for the conductor under the conditions of use.

4.3.2 Overcurrent protective devices shall not show evidence of physical damage or overheating.

4.3.3 Connections and terminations of overcurrent protective devices shall not be loose or corroded.

4.3.4 Listed overcurrent protective devices, including circuit breakers and fuses, shall be used or installed in accordance with any instructions included in the listing or labeling.

4.3.5 Where evidence of overfusing of or tampering with Edison-based-type fuses exists, Type S nontamperable adapters and fuses shall be installed.

4.4 Cables, Cable Assemblies, and Conductors.

4.4.1 Physical Support.

4.4.1.1 Exposed cables and cable assemblies, including exposed knob-and-tube wiring, shall be supported as required to prevent physical damage to the cable or cable assembly.

4.4.1.2 Cables and cable assemblies entering panelboards, boxes, and devices shall be fastened and supported as required to ensure that stress is not transmitted to the conductors and termination(s).

4.4.2 Conductors and Cables.

4.4.2.1 The conductor size shall be not less than the ampere rating of the circuit unless otherwise permitted for specific types of utilization equipment.

4.4.2.2 Except for older knob-and-tube wiring, single conductors that are not part of an approved cable or cable assembly shall be installed with an approved wiring method.

4.4.2.3 Type AC cable and Type NM cable shall not be used in damp or wet locations.

4.4.2.4 Conductors, cables, and cable assemblies shall not show evidence of overheating or deterioration.

4.4.2.5 Conductors, cables, and cable assemblies shall not show evidence of fraying, damage, or physical abuse.

4.4.3 Conductor Terminations and Splices.

4.4.3.1 Conductors shall be terminated as required at panelboards, devices, and boxes so as to ensure a tight connection without damage to the connection or the conductors.

4.4.3.2 More than one conductor shall not be installed in any terminal unless identified or approved for such use.

4.4.3.3 Splices and taps shall be made in an approved box or enclosure, or other approved manner.

4.4.4 Grounded Conductors.

4.4.4.1 An insulated grounded conductor of 6 AWG or smaller shall be identified by a continuous white or gray outer finish along its entire length.

4.4.4.2 No other conductors shall be identified by the color white or gray.

4.4.4.3 Except for frames of ranges, wall-mounted ovens, counter-mounted cooking units, and clothes dryers, grounded circuit conductors in branch circuits shall not be connected to non-current-carrying metal parts.

4.4.5 Grounding Conductors.

4.4.5.1 Equipment grounding conductors shall be permitted to be bare, covered, or insulated.

4.4.5.2 Individually covered or insulated equipment grounding conductors shall have a continuous outer finish that is either green or green with one or more yellow stripes.

4.4.5.3 No other conductors shall be identified by the color green or green with one or more yellow stripes.

4.5 Flexible Cords and Cables.

4.5.1 Flexible cords and cables shall not be used as follows:

- (1) As a substitute for the fixed wiring of a structure
- (2) Where run through holes in walls, ceilings, or floors
- (3) Where run through doorways or windows, under carpets, and so forth
- (4) Where attached to building surfaces

4.5.2 Flexible cords or cables used as a substitute for fixed wiring to supply outlets in rooms or areas shall be removed and, where required, shall be replaced with permanently installed receptacles using an approved wiring method.

4.6 Raceways.

4.6.1 Raceways shall be fastened in place.

4.6.2 Raceways shall be terminated in fittings or connectors that are designed for the specific wiring method with which they are used.

4.6.3 Raceways shall not show evidence of deterioration or physical damage.

4.7 Permanently Connected Luminaires (Lighting Fixtures).

4.7.1 Luminaire taps and branch-circuit supply conductors shall not show evidence of damage or deterioration from overheating.

4.7.2 Luminaire canopies shall be fastened in place.

4.7.3 Where identified, luminaires shall be lamped in accordance with available instructions and shall not exceed marked maximum ratings.

4.7.4 Where luminaire tap conductors or terminals and branch-circuit conductors are identified for polarization, luminaire (lighting fixture) connections shall be correctly polarized.

4.7.5 Polarization of Luminaires.

4.7.5.1 Luminaires shall be wired so that the screw shells of lampholders are connected to the same luminaire or circuit conductor or terminal.

4.7.5.2 The grounded conductor, where connected to a screw-shell lampholder, shall be connected to the screw shell.

4.7.6 Open incandescent lamps installed in clothes closets shall have required clearance from combustible materials.

4.7.7 Luminaires marked with a minimum supply wire temperature rating shall not be installed with supply wiring having a lower temperature rating.

4.7.8 Recessed luminaires not intended for contact with insulation shall not be installed within 13 mm (½ in.) of combustible materials or within 75 mm (3 in.) of thermal insulation.

4.7.9 Luminaires installed in wet locations shall be identified for use in wet locations.

4.8 Boxes and Enclosures.

4.8.1 Boxes and covers shall be fastened in place.

4.8.2 Boxes, covers, and enclosures installed in wet locations shall be identified for use in wet locations. Where boxes, covers, or enclosures are equipped with a gasket or other means to seal an opening and prevent water from entering, the gasket or other means shall not have deteriorated to jeopardize the integrity of the seal.

4.8.3 Boxes and enclosures installed in damp locations shall be placed or equipped so as to prevent moisture from entering or accumulating.

4.8.4 All unused openings in boxes or enclosures shall be closed using a material that meets or exceeds the wall thickness or characteristic of the box or enclosure.

4.8.5 Where an equipment grounding conductor is provided, all non-current-carrying metal parts that are likely to become energized shall be effectively grounded.

4.8.6 In walls and ceilings constructed of wood or other combustible surface material, boxes shall be flush with the finished surface or project therefrom.

4.8.7 Plaster, drywall, or plasterboard surfaces that are broken or incomplete shall be repaired so there will be no gaps or open spaces greater than 3 mm (⅛ in.) at the edge of the box or fitting.

4.9 General-Use Switches and Receptacles.

4.9.1 Enclosures shall be fastened in place.

4.9.2 Faceplates shall not be damaged or missing.

4.9.3 Connection of conductors to termination points shall ensure tight connections without showing evidence of arcing or overheating.

4.9.4 Switches and receptacles shall be fastened in place and shall not show evidence of overheating or physical damage.

4.9.5 The function of switches and receptacles shall not be impaired by physical damage.

4.9.6 Switches and receptacles shall not be painted or have other coatings applied unless so listed for such use.

4.9.7* Receptacle wiring shall comply with 4.9.7.1 through 4.9.7.3.

4.9.7.1 Testing.

4.9.7.1.1 Receptacles shall have correct wiring when tested with a listed receptacle tester.

4.9.7.1.2 The tester shall provide indications when branch circuit conductors are not connected to the intended terminals on the receptacle.

4.9.7.2 Where receptacles and branch-circuit conductors are identified for polarization, receptacles shall be correctly polarized.

4.9.7.3 All grounding-type receptacles shall be grounded or shall have ground-fault circuit-interrupter protection where installed on a circuit that does not have an equipment grounding conductor.

4.9.8 Receptacles that fail a blade retention test, with a listed retention tester, shall be replaced.

4.9.9 Switches shall be rated for the connected load.

4.9.10 The grounded conductor of branch circuits shall not be switched unless both grounded and ungrounded conductors are simultaneously broken.

Chapter 5 Appliances and Special Equipment

5.1* Ground-Fault Circuit Interrupters.

5.1.1 Where ground-fault circuit interrupters are installed, they shall operate correctly when tested with their integral test function.

5.1.2 For a receptacle type ground-fault circuit interrupter, this shall include determining that the outlet is deenergized when the integral test function is performed and reenergized when the reset function is performed.

5.2 Smoke Alarms. Where smoke alarms are installed, they shall operate correctly when tested with their integral test function.

5.3 Appliances and Utilization Equipment.

5.3.1 Appliances and utilization equipment shall have a disconnecting means to disconnect all ungrounded conductors.

5.3.2 If a protective device rating is marked on an appliance, the branch circuit overcurrent device rating shall not exceed the protective device rating marked on the appliance.

5.3.3 All cables entering the equipment shall be fastened with approved connectors.

5.3.4 All non-current-carrying metal parts shall be effectively grounded.

5.4* Arc-Fault Circuit Interrupters. Where arc-fault circuit interrupters are installed, they shall operate correctly when tested with their integral test function.

5.5 Ceiling-Suspended (Paddle) Fans. Ceiling-suspended (paddle) fans shall be supported as required.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.2 This standard is intended to be suitable for mandatory application by governmental bodies and other inspection agencies exercising legal jurisdiction over electrical installations.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, proce-



dures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase “authority having jurisdiction,” or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.3 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.12 Ground-Fault Circuit Interrupter (GFCI). Class A ground-fault circuit interrupters trip when the current to ground is 6 mA or higher and do not trip when the current to ground is less than 4 mA. For further information, see

ANSI/UL 943, *Standard for Ground-Fault Circuit Interrupters*. [70: Article 100]

A.3.3.16.1 Circuit Breaker. The automatic opening means can be integral, direct acting with the circuit breaker, or remote from the circuit breaker. [70: Article 100]

A.4.2.3 When replacing a panelboard or distribution equipment that contains overcurrent protection devices for lighting and appliance branch circuits that supply 125-volt, single-phase, 15- and 20- ampere outlets, additional protection can be accomplished by providing arc-fault circuit interrupter protection for the circuits that existed prior to the replacement.

A.4.9.7 Additional protection can be provided for non-grounding type receptacles by replacing the devices with a ground-fault circuit interrupter-type receptacle or a grounding-type receptacle in accordance with 406.3(D) (3) (b) or (c) of *NFPA 70*.

A.5.1 Additional protection can be accomplished by providing ground-fault circuit interrupter protection in accordance with 210.8(A) and 406.3(D) (2) of *NFPA 70*.

A.5.4 Additional protection can be accomplished by providing arc-fault circuit interrupter protection in accordance with 210.12 of *NFPA 70*.

Annex B National Electrical Code References

This annex is not part of the requirements of this NFPA document but is included for informational purposes only.

B.1 The age of the dwelling unit plays a role in when electrical safety items were required by *NFPA 70, National Electrical Code*. Table B.1(a) through Table B.1(c) permit the home inspector to easily share, with anyone questioning cited safety concerns, the safety requirements that should be in place in accordance with the age of the dwelling unit. [Information regarding GFCI protection requirements prior to the 1975 edition of the *NEC* is located in the footnotes to Table B.1(a).]

Table B.1(a) NEC GFCI Protection Requirements (for dwelling units), 1962*†–1993 editions

Area and Description	1975	1978	1981	1987	1990	1993
Bathroom						
Receptacles	210-8(a)	210-8(a) (1)				
Garage						
Receptacles		210-8(a) (1)	210-8(a) (2)	210-8(a) (2)	210-8(a) (2)	210-8(a) (2)
Outdoors						
Receptacles	210-8(a)	210-8(a) (2)	210-8(a) (3)	210-8(a) (3)	210-8(a) (3)	210-8(a) (3)
Basement						
Receptacles				210-8(a) (4)	210-8(a) (4)	210-8(a) (4)
Crawl spaces						
Receptacles at or below grade level					210-8(a) (4)	210-8(a) (4)
Unfinished basements						
Receptacles					210-8(a) (4)	210-8(a) (4)

(continues)

Table B.1(a) *Continued*

Area and Description	1975	1978	1981	1987	1990	1993
Kitchen sinks						
Receptacles near kitchen sinks				210-8(a)(5)	210-8(a)(5)	210-8(a)(5)
Wet bar sinks						
Receptacles near wet bar sinks						210-8(a)(5)
Boathouses						
Receptacles installed in boathouses				210-8(a)(6)	210-8(a)(6)	210-8(a)(6)
Temporary wiring						
Receptacles not a part of the permanent wiring	210-8(b)	210-8(b)	210-8(b)	305-6	305-6	305-6
Swimming pools						
Underwater lighting*	680-20(a)(1)	680-20(a)(1)	680-20(a)(1)	680-20(a)(1)	680-20(a)(1)	680-20(a)(1)
Receptacles near swimming pools†	680-6(a)	680-6(a)(2)	680-6(a)(3)	680-6(a)(3)	680-6(a)(3)	680-6(a)(3)
Lighting fixtures and lighting outlets near a swimming pool	680-6(b)(1)	680-6(b)(2)	680-6(b)(2)	680-6(b)(2)	680-6(b)(2)	680-6(b)(2)
All electric equipment, including power supply cords, used with storable swimming pools	680-31	680-31	680-31	680-31	680-31	680-31
Cord-connected pool filter pumps						
Outlets supplying pool pump motors						
Fountains						
Branch circuits supplying fountain equipment	680-41(a)	680-41(a)	680-51(a)	680-51(a)	680-51(a)	680-51(a)
Spas and hot tubs — outdoor installations						
Receptacles near the inside walls of a spa or hot tub			680-6(a)(3)	680-6(a)(3)	680-6(a)(3)	680-6(a)(3)
Nearby lighting fixtures and lighting outlets			680-6(b)(2)	680-6(b)(2)	680-6(b)(2)	680-6(b)(2)
Spas and hot tubs — indoor installations						
Receptacles located near the inside walls of a spa or hot tub			680-40(a)(2)	680-41(a)(2)	680-41(a)(2)	680-41(a)(2)
Receptacles that provide power for a spa or hot tub			680-41(a)(3)	680-41(a)(3)	680-41(a)(3)	680-41(a)(3)

* Addressed in 680-4(g) in 1962, 1965, and 1968 editions; 680-20(a)(2) in 1971 edition.

† Addressed in 680-6 in 1971 edition.



Table B.1(b) *NEC* GFCI Protection Requirements (for dwelling units), 1996–2008 editions

Area and Description	1996	1999	2002	2005	2008
Bathroom					
Receptacles	210-8(a)(1)	210-8(a)(1)	210.8(A)(1)	210.8(A)(1)	210.8(A)(1)
Garage					
Receptacles	210-8(a)(2)	210-8(a)(2)	210.8(A)(2)	210.8(A)(2)	210.8(A)(2)
Outdoors					
Receptacles	210-8(a)(3)	210-8(a)(3)	210.8(A)(3)	210.8(A)(3)	210.8(A)(3)
Basement					
Receptacles	210-8(a)(4)	210-8(a)(4)	210.8(A)(4)	210.8(A)(4)	210.8(A)(4)
Crawl spaces					
Receptacles at or below grade level	210-8(a)(4)	210-8(a)(4)	210.8(A)(4)	210.8(A)(4)	210.8(A)(4)
Unfinished basements					
Receptacles	210-8(a)(5)	210-8(a)(5)	210.8(A)(5)	210.8(A)(5)	210.8(A)(5)
Kitchen sinks					
Receptacles near kitchen sinks	210-8(a)(6)	210-8(a)(6)	210.8(A)(6)	210.8(A)(6)	210.8(A)(6)
Wet bar sinks					
Receptacles near wet bar sinks	210-8(a)(7)	210-8(a)(7)	210.8(A)(7)	210.8(A)(7)	210.8(A)(7)
Laundry and utility sinks					
Receptacles near laundry and utility sinks				210.8(A)(7)	210.8(A)(7)
Boathouses					
Receptacles installed in boathouses	555-3	555-3	210.8(A)(8) 555.19(B)(1)	210.8(A)(8) 555.19(B)(1)	210.8(A)(8) 555.19(B)(1)
Temporary wiring					
Receptacles not a part of the permanent wiring	305-6(a) 305-6(b)	305-6(a) 305-6(b)	527.6(A) 527.6(B)	590.6(A) 590.6(B)	590.6(A) 590.6(B)
Swimming pools					
Underwater lighting	680-20(a)(1)	680-20(a)(1)	680.23(A)(3)	680.23(A)(3)	680.23(A)(3)
Receptacles near swimming pools	680-6(a)(3)	680-6(a)(3)	680.22(A)(5)	680.22(A)(5)	680.22(A)(4)
Lighting fixtures and lighting outlets near a swimming pool	680-6(b)(2)	680-6(b)(2)	680.22(B)(4)	680.22(B)(4)	680.22(C)(4)
All electric equipment, including power supply cords, used with storable swimming pools	680-31	680-31	680.32	680.32	680.32
Cord-connected pool filter pumps					680.31
Outlets supplying pool pump motors					680.22(B)
Fountains					
Branch circuits supplying fountain equipment	680-51(a)	680-51(a)	680.51(A)	680.51(A)	680.51(A)
Spas and hot tubs — outdoor installations					
Receptacles near the inside walls of a spa or hot tub	680-6(a)(3)	680-6(a)(3)	680.22(A)(5)	680.22(A)(5)	680.22(A)(4)
Nearby lighting fixtures and lighting outlets	680-6(b)(2)	680-6(b)(2)	680.22(B)(4)	680.22(B)(4)	680.22(C)(4)
Spas and hot tubs — indoor installations					
Receptacles located near the inside walls of a spa or hot tub	680-41(a)(2)	680-41(a)(2)	680.43(A)(2)	680.43(A)(2)	680.43(A)(2)
Receptacles that provide power for a spa or hot tub	680-41(a)(3)	680-41(a)(3)	680.43(A)(3)	680.43(A)(3)	680.43(A)(3)
Appliances					
Cord- and plug-connected appliances subject to immersion			422.41	422.41	422.41
Vending machines				422.51	422.51
Electric drinking fountains					422.52

Table B.1(c) NEC AFCI Protection Requirements for Outlets (for dwelling units), 1999–2008 editions

Area and Description	1999	2002	2005	2008
Bedrooms	210-12*	210.12	210.12	210.12
Family Rooms				210.12
Dining Rooms				210.12
Living Rooms				210.12
Parlors				210.12
Libraries				210.12
Dens				210.12
Sunrooms				210.12
Recreation Rooms				210.12
Closets				210.12
Hallways				210.12

*1999 NEC required AFCI protection for circuits with bedroom receptacle outlets effective 1/1/02.

Annex C Sample Ordinance Adopting NFPA 73

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1 ORDINANCE NO. _____

An ordinance of the [jurisdiction] adopting the 2011 edition of NFPA 73, *Standard for Electrical Inspections for Existing Dwellings*, and documents listed in Chapter 2 of that code; prescribing regulations governing conditions hazardous to life and property from fire or explosion; providing for the issuance of permits and collection of fees; repealing Ordinance No. _____ of the [jurisdiction] and all other ordinances and parts of ordinances in conflict therewith; providing a penalty; providing a severability clause; and providing for publication; and providing an effective date.

BE IT ORDAINED BY THE [governing body] OF THE [jurisdiction]:

SECTION 1 That NFPA 73, *Standard for Electrical Inspections for Existing Dwellings*, and documents adopted by Chapter 2, three (3) copies of which are on file and are open to inspection by the public in the office of the [jurisdiction's keeper of records] of the [jurisdiction], are hereby adopted and incorporated into this ordinance as fully as if set out at length herein, and from the date on which this ordinance shall take effect, the provisions thereof shall be controlling within the limits of the [jurisdiction]. The same are hereby adopted as the code of the [jurisdiction] for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion and providing for issuance of permits and collection of fees.

SECTION 2 Any person who shall violate any provision of this code or standard hereby adopted or fail to comply therewith; or who shall violate or fail to comply with any order made thereunder; and from which no appeal has been taken; or who shall fail to comply with such an order as affirmed or modified by or by a court of competent jurisdiction, within the time fixed herein, shall severally for each and every such violation and noncompliance, respectively, be guilty of a misdemeanor, punishable by a fine of not less than \$ _____ nor more

than \$ _____ or by imprisonment for not less than _____ days nor more than _____ days or by both such fine and imprisonment. The imposition of one penalty for any violation shall not excuse the violation or permit it to continue; and all such persons shall be required to correct or remedy such violations or defects within a reasonable time; and when not otherwise specified the application of the above penalty shall not be held to prevent the enforced removal of prohibited conditions. Each day that prohibited conditions are maintained shall constitute a separate offense.

SECTION 3 Additions, insertions, and changes — that the 2011 edition of NFPA 73 is amended and changed in the following respects:

List Amendments

SECTION 4 That ordinance No. _____ of [jurisdiction] entitled [fill in the title of the ordinance or ordinances in effect at the present time] and all other ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 5 That if any section, subsection, sentence, clause, or phrase of this ordinance is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The [governing body] hereby declares that it would have passed this ordinance, and each section, subsection, clause, or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

SECTION 6 That the [jurisdiction's keeper of records] is hereby ordered and directed to cause this ordinance to be published.

[NOTE: An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.]

SECTION 7 That this ordinance and the rules, regulations, provisions, requirements, orders, and matters established and adopted hereby shall take effect and be in full force and effect [time period] from and after the date of its final passage and adoption.

Annex D Informational References

D.1 Referenced Publications. The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

D.1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 70[®], *National Electrical Code*[®], 2011 edition.

D.1.2 Other Publications.

D.1.2.1 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 943, *Standard for Ground-Fault Circuit Interrupters*, 2006, revised 2008.

D.2 Informational References. (Reserved)

D.3 References for Extracts in Informational Sections.

NFPA 70[®], *National Electrical Code*[®], 2011 edition.

Index

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	-A-	
Accessible		
Accessible (as applied to equipment)		
Definition.....	3.3.1.1	
Accessible (as applied to wiring methods)		
Definition.....	3.3.1.2	
Definition.....	3.3.1	
Readily Accessible		
Definition.....	3.3.1.3	
Administration	Chap. 1	
Application.....	1.3	
Equivalency.....	1.4	
Purpose.....	1.2, A.1.2	
Scope.....	1.1	
Appliance		
Definition.....	3.3.2	
Appliances and Special Equipment	Chap. 5	
Appliances and Utilization Equipment.....	5.3	
Arc-Fault Circuit Interrupters.....	5.4, A.5.4	
Ceiling-Suspended (Paddle) Fans.....	5.5	
Ground-Fault Circuit Interrupters.....	5.1, A.5.1	
Smoke Alarms.....	5.2	
Approved		
Definition.....	3.2.1, A.3.2.1	
Arc-Fault Circuit Interrupter (AFCI)		
Definition.....	3.3.3	
Authority Having Jurisdiction (AHJ)		
Definition.....	3.2.2, A.3.2.2	
	-B-	
Bonded (Bonding)		
Definition.....	3.3.4	
Branch Circuit		
Definition.....	3.3.5	
	-C-	
Conductor		
Definition.....	3.3.6	
Grounded Conductor		
Definition.....	3.3.6.1	
Grounding Conductor, Equipment (EGC)		
Definition.....	3.3.6.2	
Grounding Electrode Conductor (GEC)		
Definition.....	3.3.6.3	
	-D-	
Definitions	Chap. 3	
Dwelling Unit		
Definition.....	3.3.7	
Dwelling, Multifamily		
Definition.....	3.3.7.1	
Dwelling, One-Family		
Definition.....	3.3.7.2	
Dwelling, Two-Family		
Definition.....	3.3.7.3	
	-E-	
Equipment		
Definition.....	3.3.8	
Explanatory Material	Annex A	
		Exposed (as applied to live parts)
		Definition.....
		3.3.9
	-F-	
Feeder		
Definition.....	3.3.10	
	-G-	
General Requirements	Chap. 4	
Boxes and Enclosures.....	4.8	
Cables, Cable Assemblies, and Conductors.....	4.4	
Conductor Terminations and Splices.....	4.4.3	
Conductors and Cables.....	4.4.2	
Grounded Conductors.....	4.4.4	
Grounding Conductors.....	4.4.5	
Physical Support.....	4.4.1	
Flexible Cords and Cables.....	4.5	
General-Use Switches and Receptacles.....	4.9	
Overcurrent Protective Devices.....	4.3	
Panelboards and Distribution Equipment.....	4.2	
Permanently Connected Luminaires (Lighting Fixtures).....	4.7	
Polarization of Luminaires.....	4.7.5	
Raceways.....	4.6	
Services, Outside Feeders, and Outside Branch Circuits.....	4.1	
Grounding Electrode Conductors.....	4.1.10	
Service Equipment Grounding.....	4.1.9	
Service-Entrance Equipment.....	4.1.8	
Ground-Fault Circuit Interrupter (GFCI)		
Definition.....	3.3.12, A.3.3.12	
Grounded (Grounding)		
Definition.....	3.3.11	
Grounded, Solidly		
Definition.....	3.3.11.1	
Grounding Electrode		
Definition.....	3.3.13	
	-I-	
Informational References	Annex D	
	-L-	
Listed		
Definition.....	3.2.3, A.3.2.3	
Luminaire		
Definition.....	3.3.14	
	-N-	
National Electrical Code References	Annex B	
	-O-	
Outlet		
Definition.....	3.3.15	
Overcurrent Protective Device		
Circuit Breaker		
Definition.....	3.3.16.1, A.3.3.16.1	
Definition.....	3.3.16	
Fuse		
Definition.....	3.3.16.2	