

NFPA 73

Electrical Inspection Code for Existing Dwellings

2000 Edition



NFPA, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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NFPA 73

Electrical Inspection Code for Existing Dwellings

2000 Edition

This edition of NFPA 73, *Electrical Inspection Code for Existing Dwellings*, was prepared by the Technical Committee on Electrical Systems Maintenance and acted on by the National Fire Protection Association, Inc., at its World Fire Safety Congress and Exposition™ held May 14–17, 2000, in Denver, CO. It was issued by the Standards Council on July 20, 2000, with an effective date of August 18, 2000, and supersedes all previous editions.

This edition of NFPA 73 was approved as an American National Standard on August 18, 2000.

Origin and Development of NFPA 73

The 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 the NFPA, the National Institute of Standards and Technology (NIST), the Consumer Product Safety Commission (CPSC), and other groups involved with fire investigations. These 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 *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.

In accordance with the provisions of the NFPA Regulations Governing Committee Projects, an NFPA 73 Technical Committee Report containing proposed amendments to the first draft developed by the NFPA 73 committee was published in the Fall 1993 Technical Committee Report. This report recorded the actions of the committee and the correlating committee of the *National Electrical Code* on each proposal that had been made to revise the first draft.

Following the close of the public comment period, the committee met, acted on each comment, and reported their actions to the NEC correlating committee. The NFPA published the results in the Fall 1993 Technical Committee Documentation.

This permitted the study and evaluation by those interested, prior to formal action on the Committee Report by the 1993 NFPA Fall Meeting.

The second edition of this document was submitted for formal adoption at the 1996 NFPA Annual Meeting.

Significant changes to the 2000 edition of NFPA 73 include a new title and an expanded scope. The Standards Council and the National Electrical Code Correlating Committee approved changing the scope of the document to include all dwelling units, including 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 has a code that can be used to improve the safety of electrical systems in all dwelling units. The change in the title from “maintenance” to “inspection” reflects the intended purpose of the document.

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This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

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. The Committee reports to the Association through the National Electrical Code Technical Correlating Committee.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Appendix A.

Changes other than editorial are indicated by a vertical rule in the margin of the pages on which they appear. These lines are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraph(s) has been deleted, the deletion is indicated by a bullet in the margin between the paragraphs that remain.

Information on referenced publications can be found in Chapter 4.

Chapter 1 Introduction

1.1 Purpose. The purpose of this code is to provide requirements for evaluating installed electrical systems within and associated with existing dwellings to identify safety, fire, and shock hazards, such as improper installations, overheating, physical deterioration, abuse, and similar conditions.

This code provides criteria that enable the identification of the hazardous conditions that are evident during a visual inspection of an existing dwelling. This code does not define installation requirements that might be desired for convenience or utilitarian purposes.

1.2 Scope.

1.2.1 This code covers accessible electrical equipment and those portions of the electrical system that are accessible without removing any permanent part of the building structure or finish of existing one-family, two-family, and multifamily dwellings, including mobile homes and manufactured homes.

1.2.2 This code is not intended to prohibit the removal of faceplates or other covers or fixtures to identify hazards.

1.2.3 It is not intended that inspection procedures be performed that can damage the building structure, wiring, or equipment.

1.2.4 It is not intended that inspections in accordance with this code will identify future conditions such as failure of components or other portions of equipment or wiring.

1.2.5 This code does not cover the inspection of new construction, recreational vehicles, or the factory-installed internal wiring and construction of appliances and utilization equipment.

1.3 Enforcement.

1.3.1 This code is intended to be suitable for mandatory application by governmental bodies and other inspection agencies exercising legal jurisdiction over electrical installations. The authority having jurisdiction of enforcement of this code shall have the responsibility for making interpretations of the rules and for deciding on the approval of equipment and materials. Where remedial action is required by the authority having jurisdiction, it shall be performed in accordance with NFPA 70, *National Electrical Code*®.

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

1.3.2 The authority having jurisdiction may waive specific requirements in this code or permit alternate methods where it is assured that equivalent objectives can be achieved by maintaining effective safety.

1.4 Definitions. This section contains only definitions essential to the proper application of this code. It is not intended to include commonly defined general terms or commonly defined technical terms from related codes and standards.

1.4.1 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. [See 1.4.10, *Concealed*, and 1.4.14, *Exposed (as applied to live parts)*.]

1.4.2 Accessible, Readily. 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, chairs, etc.

1.4.3 Appliance. Utilization equipment, generally other than industrial, normally built in standardized sizes or types, that is installed or connected as a unit to perform one or more functions such as clothes washing, air conditioning, food mixing, or deep frying.

1.4.4* Approved. Acceptable to the authority having jurisdiction.

• **1.4.5 Arc-Fault Circuit Interrupter.** 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.

1.4.6* Authority Having Jurisdiction. The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.

• **1.4.7 Bonding.** The permanent joining of metallic parts to form an electrically conductive path that assures electrical continuity and the capacity to conduct safely any current likely to be imposed.

1.4.8 Branch Circuit. The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

1.4.9* Code. A standard that is an extensive compilation of provisions on a broad subject matter or that is suitable for adoption into law independently of other codes and standards.

• **1.4.10 Concealed.** Rendered inaccessible by the structure or finish of the building. Wires in concealed raceways are considered concealed, even though they may become accessible by withdrawing them. [See 1.4.1, *Accessible (as applied to wiring methods)*.]

1.4.11 Conductor.

1.4.11.1 Equipment Grounding Conductor. The conductor used to connect the non-current-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor, to the grounding electrode conductor, or to both, at the service equipment or at the source of a separately derived system.

1.4.11.2 Grounded Conductor. A system or circuit conductor that is intentionally grounded.

1.4.11.3 Grounding Conductor. A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

1.4.11.4 Grounding Electrode Conductor. The conductor used to connect the grounding electrode to the equipment grounding conductor, to the grounded conductor, or to both, of the circuit at the service equipment or at the source of a separately derived system.

1.4.12 Dwelling Unit. One or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living, and sleeping, and permanent provisions for cooking and sanitation.

1.4.12.1 Multifamily Dwelling. A building that contains three or more dwelling units.

1.4.12.2 One-Family Dwelling. A building that consists solely of one dwelling unit.

1.4.12.3 Two-Family Dwelling. A building that consist solely of two dwelling units.

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

1.4.14 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.

1.4.15 Grounded. Connected to earth or to some other conducting body that serves in place of the earth.

1.4.16 Grounded, Effectively. Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the buildup of voltages that may result in undue hazards to connected equipment or to persons.

1.4.17 Ground-Fault Circuit Interrupter. 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 some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

1.4.18 Lighting Outlet. See 1.4.20.1.

1.4.19* 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.

- **1.4.20 Outlet.** A point on the wiring system at which current is taken to supply utilization equipment.

1.4.20.1 Lighting Outlet. An outlet intended for the direct connection of a lampholder, a lighting fixture, or a pendant cord terminating in a lampholder.

1.4.20.2 Receptacle Outlet. An outlet where one or more receptacles are installed.

1.4.21 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 that is placed in or against a wall or partition and accessible only from the front.

1.4.22 Proper. An installation or part thereof that is made in a thorough manner to ensure a nonhazardous condition.

1.4.23 Raceway. An enclosed channel of metal or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in this code. 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.

1.4.24 Receptacle. 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.

1.4.25 Receptacle Outlet. See 1.4.20.2.

1.4.26 Service. The conductors and equipment for delivering energy from the electricity supply system to the wiring system of the premises served.

1.4.27 Utilization Equipment. Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes.

Chapter 2 General Requirements

2.1 Services, Outside Feeders, and Outside Branch Circuits.

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

2.1.2 The service shall be adequate to serve the connected load.

2.1.3 Weatherheads shall be securely fastened in place.

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

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

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

2.1.7 Service-entrance raceways and cables shall be terminated with fittings or connectors that are approved for the purpose.

2.1.8 Service-entrance equipment shall be readily accessible. Sufficient access and working space shall be provided and maintained to permit ready and safe operation and maintenance.

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

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

2.2 Panelboards and Distribution Equipment.

2.2.1 Panelboards and distribution equipment shall be accessible. Sufficient access and working space shall be provided and maintained to permit safe operation and maintenance.

2.2.2 Panelboards and distribution equipment shall not show evidence of excessive physical damage, corrosion, or other deterioration.

2.2.3 All cables entering the equipment shall be secured with approved connectors. All unused openings shall be properly closed.

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

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

2.2.6 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. The marking shall be of sufficient durability to withstand the environment involved.

2.3 Overcurrent Protective Devices.

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

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

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

2.3.4 Listed overcurrent protective devices shall be used or installed in accordance with any instructions included in the listing or labeling.

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

2.4 Conductors, Cables, and Cable Assemblies.

2.4.1 Conductors, cables, and cable assemblies shall be properly terminated and supported at panelboards, boxes, and devices.

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

2.4.3 Splices and taps shall be made in an approved manner.

2.4.4 Cables and cable assemblies shall be properly secured and supported.

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

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

2.5 Flexible Cords and Cables. 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, windows, or similar openings
- (4) Where attached to building surfaces (*See Section 2.10.*)

2.6 Raceways.

2.6.1 Raceways shall be securely fastened in place.

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

2.6.3 Raceways shall not show evidence of excessive deterioration or physical damage.

2.7 Permanently Connected Lighting Fixtures.

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

2.7.2 Fixture canopies shall be in place and properly secured.

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

2.7.4* Where fixture tap conductors or terminals and branch-circuit conductors are identified for polarization, fixture connections shall be properly polarized.

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2.7.5 Open incandescent lamps installed in clothes closets shall have proper clearance from combustible materials.

2.8 Boxes and Similar Enclosures.

2.8.1 Covers shall be in place and properly secured.

2.8.2 Boxes, covers, and similar enclosures installed in wet locations shall be identified for the purpose.

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

2.8.4 Unused openings in boxes shall be effectively closed to afford protection that is substantially equivalent to that of the wall of the box.

2.8.5 Where an equipment grounding conductor is provided, all conductive surfaces that are likely to become energized shall be effectively grounded.

2.9 General-Use Switches and Receptacles.

2.9.1 Enclosures shall be securely fastened in place.

2.9.2 Faceplates shall not be damaged or missing.

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

2.9.4 Switches and receptacles shall be properly secured and shall not show evidence of overheating or physical damage.

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

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

2.9.7 Receptacles shall have proper wiring when tested with a listed receptacle tester. The tester shall provide indications when branch circuit conductors are not connected to the intended terminals on the receptacle. 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. Where receptacles and branch-circuit conductors are identified for polarization, receptacles shall be properly polarized.

2.9.8 Receptacles not having acceptable blade retention when tested with a listed retention tester shall be replaced.

2.9.9 Switches shall be rated for the connected load.

2.10 Flexible Cord Removal. Where flexible cords or cables are used as a substitute for fixed wiring to supply outlets in rooms or areas, such rooms or areas shall be considered to have inadequate outlets. (See Section 2.5.) Such flexible cords shall be removed and, where required, shall be replaced with permanently installed receptacles using an approved wiring method.

Chapter 3 Appliances and Special Equipment

3.1 Ground-Fault Circuit Interrupters. Where ground-fault circuit-interrupters are installed, they shall operate properly.

3.2 Smoke Detectors. Where smoke detectors are installed, they shall operate properly.

3.3 Appliances and Utilization Equipment.

3.3.1 Where appliances or utilization equipment are present, they shall be properly installed and connected.

3.3.2 Appliances and utilization equipment shall have proper disconnecting means and overcurrent protection.

3.4 Arc-Fault Circuit Interrupters. Where arc-fault circuit interrupters are installed, they shall operate properly.

Chapter 4 Referenced Publications

4.1 The following documents or portions thereof are referenced within this code as mandatory requirements and shall be considered part of the requirements of this code. The edition indicated for each referenced mandatory document is the current edition as of the date of the NFPA issuance of this code.

4.1.1 NFPA Publication. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 70, *National Electrical Code*®, 1999 edition.

Appendix A Explanatory Material

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

A.1.4.4 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, 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.1.4.6 Authority Having Jurisdiction. The phrase “authority having jurisdiction” 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.1.4.9 Code. The decision to designate a standard as a “code” is based on such factors as the size and scope of the document, its intended use and form of adoption, and whether it contains substantial enforcement and administrative provisions.

A.1.4.19 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation, some of which 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.2.7.4 Additional protection can be provided by grounding metal non-current-carrying parts of lighting fixtures where a means of grounding is available.