NFPA 73
Residential Electrical Maintenance Code for One- and Two-Family Dwellings

1996 Edition

National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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One- and Two-Family Dwellings

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This edition of NFPA 73, *Residential Electrical Maintenance Code for One- and Two-Family Dwellings*, was prepared by the Technical Committee on Electrical Systems Maintenance and acted on by the National Fire Protection Association, Inc., at its Annual Meeting held May 20–23, 1996, in Boston, MA. It was issued by the Standards Council on July 18, 1996, with an effective date of August 9, 1996, and supersedes all previous editions.

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.

This edition of NFPA 73 was approved as an American National Standard on July 26, 1996.

Origin and Development of NFPA 73

The National Fire Protection Association began the development of NFPA 73, *Residential Electrical Maintenance Code for One- and Two-Family 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 National Fire Protection Association (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 the fires occurred in dwellings under 10 years of age is reported in one of the studies, indicated 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 by the NFPA 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.

Technical Committee on Electrical Systems Maintenance

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This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

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- and two-family dwellings. The Committee reports to the Association through the National Electrical Code Correlating Committee.

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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 residential dwellings to identify safety, fire, and shock hazards such as improper installations, overheating, physical deterioration, abuse, and similar conditions.

It is the intent of this Code to provide criteria that will enable the identification of hazardous conditions that are evident during a visual inspection of an existing residential dwelling. It is not the intent of this Code to provide for the inspection of (1) that portion of the electrical system concealed by the building structure or finish, or (2) appliances or other utilization equipment. It is not the intent of this Code to define installation requirements that might be desired for convenience or utilitarian purposes.

1-2 Scope.

1-2.1 This Code covers the inspection of accessible electrical equipment and those portions of the electrical system of existing one- and two-family dwellings that are accessible without removing any permanent part of the building structure or finish.

1-2.2 It is not intended for this Code 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 may 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 utilization equipment, mobile homes, recreational vehicles, floating dwellings, buildings containing more than two dwelling units, buildings used for any other dwelling purposes, hotels, motels, or new construction.

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*.

It is the intent of this Code 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.

1-4.1 General. 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.

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 "Concealed" and "Exposed (as applied to live parts)."*]

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.

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, deep frying, etc.

Approved. Acceptable to the authority having jurisdiction.

NOTE: 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 concerned with product evaluations that is in a position to determine compliance with appropriate standards for the current production of listed items.

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

NOTE: 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.

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

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

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.

NOTE: 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.

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 "Accessible (as applied to wiring methods)."*]

Dwelling.

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.

One-Family Dwelling. A building consisting solely of one dwelling unit.

Two-Family Dwelling. A building consisting solely of two dwelling units.

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.

Exposed (as applied to live parts). Capable of being touched inadvertently or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated, or insulated. [*See "Accessible (as applied to wiring methods)" and "Concealed."*]

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

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.

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

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

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

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.

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.

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

Listed. Equipment, materials, or services included in a list published by an organization 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 either that the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

NOTE: 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.

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

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.

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

Raceway. An enclosed channel designed expressly for holding wires or cables.

Receptacle. A contact device installed at the outlet for the connection of a single attachment plug.

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

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

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

Chapter 2 General Requirements

2-1 Scope. This chapter provides requirements for electrical safety of existing one- and two-family dwellings.

2-2 Services, Outside Feeders, and Outside Branch Circuits.

2-2.1 Interior metal water supply piping shall be bonded to the electrical service grounding system.

2-2.2 The service shall be adequate to serve the connected load.

2-2.3 Weatherheads shall be securely fastened in place.

2-2.4 Service-entrance conductors shall not show evidence of excessive deterioration of conductor insulation or cable sheath.

2-2.5 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.

2-2.6 Service-entrance raceways or cables shall be securely fastened in place.

2-2.7 Service-entrance raceways and cables shall be terminated with fittings or connectors that are approved for the purpose.

2-2.8 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.

2-2.9 Service-entrance equipment, cables, raceways, or conductors shall not show evidence of excessive physical damage, corrosion, or other deterioration.

2-2.10 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 having sufficient current carrying capacity to prevent the buildup of voltages that might result in undue hazard to connected equipment or to persons.

2-3 Panelboards and Distribution Equipment.

2-3.1 Panelboards and distribution equipment shall be accessible. Sufficient access and working space shall be provided and maintained to permit safe operation and maintenance.

2-3.2 Panelboards and distribution equipment shall not show evidence of excessive physical damage, corrosion, or other deterioration.

2-3.3 All cables entering the equipment shall be secured with approved connectors. All unused openings shall be properly closed.

2-3.4 All metal parts shall be effectively grounded or bonded using approved fittings.

2-3.5 Dead-front panels, partitions, or parts of the enclosure shall be installed to assure protection from live parts.

2-3.6 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.

2-4 Overcurrent Protective Devices.

2-4.1 Overcurrent protective devices shall be rated for conductor ampacity.

2-4.2 Overcurrent protective devices shall not show evidence of physical damage or overheating.

2-4.3 Connections and terminations of overcurrent protective devices shall not be loose or corroded.

2-4.4 Listed overcurrent protective devices shall be used or installed in accordance with any instructions included in the listing or labeling.

2-4.5 Where evidence of overfusing of or tampering with Edison-based-type fuses exists, Type S nontamperable adapters shall be installed.

2-5 Conductors, Cables, and Cable Assemblies.

2-5.1 Conductors, cables, and cable assemblies shall be properly terminated and supported at panelboards, boxes, and devices.

2-5.2 Conductors shall be sized for the circuit rating.

2-5.3 Splices and taps shall be made in an approved manner.

2-5.4 Cables and cable assemblies shall be properly secured and supported.

2-5.5 Conductors, cables and cable assemblies shall not show evidence of overheating or deterioration.

2-5.6 Conductors, cables and cable assemblies shall not show evidence of fraying, damage, or physical abuse.

2-6 Flexible Cords and Cables. Flexible cords and cables shall not be used (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.

NOTE: See 2-11.

2-7 Raceways.

2-7.1 Raceways shall be securely fastened in place.

2-7.2 Raceways shall be terminated in fittings or connectors that are designed for the specific wiring method with which they are used.

2-7.3 Raceways shall not show evidence of excessive deterioration or physical damage.

2-8 Permanently Connected Lighting Fixtures.

2-8.1 Fixture taps and branch circuit supply conductors shall not show evidence of damage or deterioration from overheating.

2-8.2 Fixture canopies shall be in place and properly secured.

2-8.3 Where identified, fixtures shall be lamped in accordance with available instructions and shall not exceed marked maximum ratings.

2-8.4 Where fixture tap conductors or terminals and branch-circuit conductors are identified for polarization, fixture connections shall be properly polarized.

NOTE: Additional protection may be permitted to be provided by grounding metal non-current-carrying parts of lighting fixtures where a means of grounding is available.

2-8.5 Open incandescent lamps installed in clothes closets shall have proper clearance from combustible materials.

2-9 Boxes and Similar Enclosures.

2-9.1 Covers shall be in place and properly secured.

2-9.2 Boxes, covers, and similar enclosures installed in wet locations shall be identified for the purpose.

2-9.3 Boxes and similar enclosures installed in damp locations shall be so placed or equipped as to prevent moisture from entering or accumulating.

2-9.4 Unused openings in boxes shall be effectively closed to afford protection substantially equivalent to that of the wall of the box.

2-9.5 Where an equipment grounding conductor is provided, all conductive surfaces likely to become energized shall be effectively grounded.

2-10 General-Use Switches and Receptacles.

2-10.1 Enclosures shall be securely fastened in place.

2-10.2 Faceplates shall not be damaged or missing.

2-10.3 Connection of conductors to termination points shall ensure good connections without showing evidence of arcing or overheating.

2-10.4 Switches and receptacles shall be properly secured and shall not show evidence of overheating or physical damage.

2-10.5 The function of switches and receptacles shall not be impaired by physical damage.

2-10.6 All grounding-type receptacles shall be grounded. Where receptacles and branch-circuit conductors are identified for polarization, receptacles shall be properly polarized.

2-10.7 Receptacle contacts shall have acceptable blade retention when tested with a listed retention tester.

This requirement became effective January 1, 1996.

2-10.8 Switches shall be rated for the connected load.

2-11 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. Such flexible cords shall be removed and, where required, shall be replaced with permanently installed receptacles using an approved wiring method.

NOTE: See 2-6.

Chapter 3 Appliances and Special Equipment

3-1 Ground-Fault Circuit-Interrupter. 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. Where appliances or utilization equipment are present, they shall be properly installed and connected.

3-3.1 Appliances and utilization equipment shall have proper disconnecting means and overcurrent protection.

Chapter 4 Referenced Publications

4-1 The following documents or portions thereof are referenced within this Code and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

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*, 1996 edition.