NFPA 73

Electrical Inspection Code for Existing Dwellings

2006 Edition



IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA DOCUMENTS

NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF NFPA DOCUMENTS

NFPA codes, standards, recommended practices, and guides, of which the document contained herein is one, are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on fire and other safety issues. While the NFPA administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in its codes and standards.

The NFPA disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making this document available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the NFPA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The NFPA has no power, nor does it undertake, to police or enforce compliance with the contents of this document. Nor does the NFPA list, certify, test or inspect products, designs, or installations for compliance with this document. Any certification or other statement of compliance with the requirements of this document shall not be attributable to the NFPA and is solely the responsibility of the certifier or maker of the statement.

ADDITIONAL NOTICES AND DISCLAIMERS

Updating of NFPA Documents

Users of NFPA codes, standards, recommended practices, and guides should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of Tentative Interim Amendments. An official NFPA document at any point in time consists of the current edition of the document together with any Tentative Interim Amendments and any Errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of Tentative Interim Amendments or corrected through the issuance of Errata, consult appropriate NFPA publications such as the National Fire Codes® Subscription Service, visit the NFPA website at www.nfpa.org, or contact the NFPA at the address listed below.

Interpretations of NFPA Documents

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing Committee Projects shall not be considered the official position of NFPA or any of its Committees and shall not be considered to be, nor be relied upon as, a Formal Interpretation.

Patents

The NFPA does not take any position with respect to the validity of any patent rights asserted in connection with any items which are mentioned in or are the subject of NFPA codes, standards, recommended practices, and guides, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on these documents. Users of these documents are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

NFPA adheres to applicable policies of the American National Standards Institute with respect to patents. For further information contact the NFPA at the address listed below.

Law and Regulations

Users of these documents should consult applicable federal, state, and local laws and regulations. NFPA does not, by the publication of its codes, standards, recommended practices, and guides, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

This document is copyrighted by the NFPA. It is made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of safe practices and methods. By making this document available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to this document.

Use of NFPA documents for regulatory purposes should be accomplished through adoption by reference. The term "adoption by reference" means the citing of title, edition, and publishing information only. Any deletions, additions, and changes desired by the adopting authority should be noted separately in the adopting instrument. In order to assist NFPA in following the uses made of its documents, adopting authorities are requested to notify the NFPA (Attention: Secretary, Standards Council) in writing of such use. For technical assistance and questions concerning adoption of NFPA documents, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA codes, standards, recommended practices, and guides and all requests for information on NFPA procedures governing its codes and standards development process, including information on the procedures for requesting Formal Interpretations, for proposing Tentative Interim Amendments, and for proposing revisions to NFPA documents during regular revision cycles, should be sent to NFPA headquarters, addressed to the attention of the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

For more information about NFPA, visit the NFPA website at www.nfpa.org.

Copyright © 2005, National Fire Protection Association, All Rights Reserved

NFPA 73

Electrical Inspection Code for

Existing Dwellings

2006 Edition

This edition of NFPA 73, *Electrical Inspection Code for Existing Dwellings*, was prepared by the Technical Committee on Electrical Systems Maintenance, released by the *National Electrical Code* Technical Correlating Committee, and acted on by NFPA at its June Association Technical Meeting held June 6–10, 2005, in Las Vegas, NV. It was issued by the Standards Council on July 29, 2005, with an effective date of August 18, 2005, and supersedes all previous editions.

This edition of NFPA 73 was approved as an American National Standard on August 18, 2005.

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

National Electrical Code® Technical Correlating Committee

James W. Carpenter, Chair International Association of Electrical Inspectors, TX [E]

> **Mark W. Earley,** (Staff-Nonvoting) Secretary National Fire Protection Association, MA

Jean A. O'Connor, (Staff-Nonvoting) Recording Secretary National Fire Protection Association, MA

James E. Brunssen, Telcordia, NJ [UT]

Rep. Alliance for Telecommunications Industry Solutions

Michael I. Callanan, National Joint Apprentice & Training Committee, MD [L]

Rep. International Brotherhood of Electrical Workers

William R. Drake, Marinco, CA [M]

John R. Kovacik, Underwriters Laboratories Inc., IL [RT]

Jim Pauley, Square D Company, KY [M]

Rep. National Electrical Manufacturers Association

Michael D. Toman, MEGA Power Electrical Services, Inc.,

MD [IM]

Rep. National Electrical Contractors Association

John W. Troglia, Edison Electric Institute, WI [UT]

Rep. Electric Light & Power Group/EEI

Alternates

Jeffrey Boksiner, Telcordia Technologies, Inc., NJ [UT]

(Alt. to J. E. Brunssen) **Philip H. Cox,** Bigelow, AR [E]

(Alt. to J. W. Carpenter)

James M. Daly, General Cable, NJ [M]

(Alt. to J. Pauley)

Stanley J. Folz, Morse Electric Company, WI [IM]

(Alt. to M. D. Toman)

Palmer L. Hickman, National Joint Apprentice

& Training Committee, MD [L]

(Alt. to M. I. Callanan)

Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid

Company, NY [UT] (Alt. to J. W. Troglia)

William M. Lewis, Eli Lilly & Company, IN [U]

(Voting Alt. to ACC Rep.)

Mark C. Ode, Underwriters Laboratories Inc., NC [RT]

(Alt. to J. R. Kovacik)

Nonvoting

Richard G. Biermann, Biermann Electric Company, Inc., IA [IM]

(Member Emeritus)

D. Harold Ware, Libra Electric Company, OK [IM] (Member Emeritus)

Mark W. Earley, NFPA Staff Liaison

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 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.

Technical Committee on Electrical Systems Maintenance

Merton W. Bunker, Jr., *Chair* U.S. Department of State, DC [U]

Stephen L. Dyrnes, Secretary
Dyrnes Engineering Company, OR [SE]
Rep. Institute of Electrical & Electronics Engineers, Inc.

William T. Black, Copper Development Association Inc., NY $\lceil M \rceil$

Rep. Copper Development Association Inc.

L. L. Buie, Jr., Pettit & Pettit Consulting Engineers, Inc.,

A. D. G. C.

Edward S. Charkey, New City, NY [SE]

David A. Dini, Underwriters Laboratories Inc., IL [RT] Rolland Leon Dover, City of Atlanta, GA [E]

Rep. International Association of Electrical Inspectors **Joseph N. Fiorello, Sr.,** New York Board of Fire Underwriters, NY [E]

Michael L. Savage, Sr., Middle Department Inspection Agency, Inc., MD [E]

D. Keith Schmidt, City of Plano, Texas, TX [E] **John W. Troglia,** Edison Electric Institute, WI [U]

Rep. Electric Light & Power Group/EEI

Jack Wells, Pass & Seymour/Legrand, NY [M]

Rep. National Electrical Manufacturers Association

John A. Worsham, Engineering Design & Testing Corporation, AL [SE]

Alternates

Alan Manche, Schneider Electric/Square D Company, KY [M] (Alt. to J. Wells)

Roger D. McDaniel, Georgia Power Company, GA [U] (Alt. to J. W. Troglia)

Nonvoting

Douglas A. Lee, U.S. Consumer Product Safety Commission, MD [C] **Andrew M. Trotta,** U.S. Consumer Product Safety Commission, MD [C]

(Alt. to NV Principal)

Jean A. O'Connor, NFPA Staff Liaison

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. This Committee shall have primary jurisdiction but shall report to the Association through the Technical Correlating Committee of the *National Electrical Code*.

Contents

Chapte	r 1 Administration	73–	5	4.4 Cables, Cable Assemblies, and	
1.1	Scope			Conductors	8
1.2	Purpose			4.5 Flexible Cords and Cables	
1.3	Application			4.6 Raceways	8
1.4	Enforcement			4.7 Permanently Connected Luminaires	
				(Lighting Fixtures)	8
Chapte	er 2 Referenced Publications			4.8 Boxes and Enclosures	
2.1	General	73–	5	4.9 General-Use Switches and Receptacles 73–	8
2.2	NFPA Publication	73–	5	•	
2.3	Other Publications	73–	5	Chapter 5 Appliances and Special Equipment 73–	9
2.4	References for Extracts in Mandatory			5.1 Ground-Fault Circuit Interrupters	9
	Sections	73–	5	5.2 Smoke Alarms	9
Chapte	er 3 Definitions	73-	5	5.3 Appliances and Utilization Equipment 73–	
3.1	General			5.4 Arc-Fault Circuit Interrupters	
3.2	NFPA Official Definitions			5.5 Ceiling-Suspended (Paddle) Fans	9
3.3	General Definitions			Annex A Explanatory Material 73–	9
Chapte	er 4 General Requirements	73–	7	Annex B Sample Ordinance Adopting NFPA 73 73–	9
4.1	Services, Outside Feeders, and Outside			15	
	Branch Circuits	73–	7	Annex C Informational References	0
4.2	Panelboards and Distribution Equipment	73–	7		
4.3	Overcurrent Protective Devices	73-	7	Index	1

DEFINITIONS 73–5

NFPA 73

Electrical Inspection Code for

Existing Dwellings

2006 Edition

IMPORTANT NOTE: This NFPA document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading "Important Notices and Disclaimers Concerning NFPA Documents." They can also be obtained on request from NFPA or viewed at www.nfpa.org/disclaimers.

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

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. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. 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.

- 1.1.1 This code provides criteria that enable the identification of the hazardous conditions that are evident during a visual inspection of the electrical systems in existing one-family, two-family, and multifamily dwellings, including mobile homes and manufactured homes.
- **1.1.2** This code does not define installation requirements that might be desired for convenience or utilitarian purposes.
- **1.2* Purpose.** The purpose of this code is to provide requirements for evaluating installed electrical systems within and associated with existing dwellings to identify safety hazards, fire hazards, shock hazards, overheating, physical deterioration, abuse, non-code-compliant installations, and so forth.

1.3 Application.

- **1.3.1** This code applies to 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 dwellings.
- **1.3.2** The removal of faceplates or other covers or luminaires (fixtures) to identify hazards shall be permitted.
- **1.3.3** These inspection procedures shall not damage the building structure, wiring, or equipment.

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

- **1.3.5** This code does not apply to the inspection of new construction, recreational vehicles, or the factory-installed internal wiring and construction of appliances and utilization equipment.
- **1.4 Enforcement.** This code shall be administered and enforced by the authority having jurisdiction designated by the governing authority. (See Annex B for sample wording for enabling legislation.)
- **1.4.1** 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.
- **1.4.1.1** Where remedial action is required by the authority having jurisdiction, it shall be performed in accordance with NFPA 70, *National Electrical Code.*
- **1.4.1.2** This code is intended to require only remedial action necessary to correct the identified hazards.
- **1.4.2** The authority having jurisdiction shall be permitted to waive specific requirements in this code or permit alternate methods where it is assured that equivalent objectives can be achieved by maintaining effective safety.

Chapter 2 Referenced Publications

- **2.1 General.** The documents or portions thereof listed in this chapter are referenced within this code and shall be considered part of the requirements of this document.
- **2.2 NFPA Publication.** National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 70, National Electrical Code®, 2005 edition.

- **2.3 Other Publication.** *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®, 2005 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this code. 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 requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

- **3.2.3* Code.** A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.
- **3.2.4* 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.

3.3 General Definitions.

3.3.1 Accessible.

- **3.3.1.1** 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. [70, 2005]
- **3.3.1.2** *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, 2005]
- **3.3.2 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, and so forth.
- **3.3.3** 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. [70, 2005]
- **3.3.4 Bonding (Bonded).** The permanent joining of metallic parts to form an electrically conductive path that ensures electrical continuity and the capacity to conduct safely any fault current likely to be imposed. [70, 2005]
- **3.3.5 Branch Circuit.** The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s). [**70**, 2005]
- **3.3.6 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. [**70**, 2005] [See 3.3.1.1, Accessible (as applied to wiring methods).]

3.3.7 Conductor.

- **3.3.7.1** *Grounded Conductor.* A system or circuit conductor that is intentionally grounded. [70, 2005]
- **3.3.7.2** *Grounding Conductor.* A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes. [70, 2005]
- **3.3.7.3** *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 to both, at the service equipment or at the source of a separately derived system. [70, 2005]

- **3.3.7.4** *Grounding Electrode Conductor.* The conductor used to connect the grounding electrodes to the equipment grounding conductor, to the grounded conductor, or to both, at the service, at each building or structure where supplied from a common service, or at the source of a separately derived system.
- **3.3.8 Dwelling Unit.** One or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living, cooking, and sleeping, and permanent provisions for sanitation.
 - **3.3.8.1** *Dwelling, Multifamily.* A building that contains three or more dwelling units. [70, 2005]
 - **3.3.8.2** *Dwelling, One-Family.* A building that consists solely of one dwelling unit. [70, 2005]
 - **3.3.8.3** *Dwelling, Two-Family.* A building that consists solely of two dwelling units. [70, 2005]
- **3.3.9 Equipment.** A general term including material, fittings, devices, appliances, luminaires (fixtures), apparatus, and the like used as a part of, or in connection with, an electrical installation.
- **3.3.10 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, 2005]
- **3.3.11 Grounded.** Connected to earth or to some conducting body that serves in place of the earth. [70, 2005]
 - **3.3.11.1** *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. [70, 2005]
- **3.3.12*** Ground-Fault Circuit Interrupter (GFCI). A device intended for the protection of personnel that functions to deenergize 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.
- **3.3.13 Grounding Electrode.** A device that establishes an electrical connection to the earth.
- **3.3.14 Likely to Become Energized.** Failure of insulation on.
- **3.3.15 Outlet.** A point on the wiring system at which current is taken to supply utilization equipment. [70, 2005]
 - **3.3.15.1** *Lighting Outlet.* An outlet intended for the direct connection of a lampholder, a luminaire (lighting fixture), or a pendant cord terminating in a lampholder.
 - **3.3.15.2** *Receptacle Outlet.* An outlet where one or more receptacles are installed. [70, 2005]
- **3.3.16 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.
- **3.3.17 Raceway.** An enclosed channel of metal or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in NFPA 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, 2005]
- **3.3.18 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, 2005]
- **3.3.19 Receptacle Outlet.** See 3.3.15.2.
- **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, 2005]
- **3.3.21 Utilization Equipment.** Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes. [70, 2005]

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 shall be readily accessible. Required access and working space shall be provided and maintained to permit ready and safe operation and maintenance.
- **4.1.9** Service-entrance equipment, cables, raceways, or conductors shall not show evidence of physical damage, overheating, corrosion, or other deterioration.
- **4.1.10** 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 low impedance, and have current carrying capacity to prevent the buildup of voltages that result in undue hazard to connected equipment or to persons.

4.1.11 Grounding Electrode Conductors.

4.1.11.1 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.

- **4.1.11.2** The grounding electrode conductor shall be connected to the grounding electrode. The grounding electrode conductor and connector shall not show evidence of physical damage or deterioration.
- **4.1.11.3** The grounding electrode conductor shall be protected against physical damage as required. Metal enclosures providing physical protection of the grounding electrode conductor shall be bonded at each end to the grounding electrode conductor.
- **4.1.11.4** The grounding electrode conductor shall be continuous in its length unless otherwise permitted to be spliced or joined.
- **4.1.11.5** 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. 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 accessible. Required access and working space shall be provided and maintained to permit safe operation and maintenance.
- **4.2.2*** Panelboards and distribution equipment shall not show evidence of physical damage, overheating, corrosion, or other deterioration.
- **4.2.3** All cables entering the equipment shall be fastened with approved connectors.
- **4.2.4** All unused openings shall be closed using a material that meets or exceeds the wall thickness or characteristic of the panelboard or distribution equipment.
- **4.2.5** All metal parts shall be effectively grounded or bonded using approved fittings.
- **4.2.6** Dead-front panels, partitions, or parts of the enclosure shall be installed to ensure protection from live parts.
- **4.2.7** Disconnecting means marking shall comply with the following:
- (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.
- (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 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** Exposed cables and cable assemblies shall be supported as required to prevent physical damage to the cable or cable assembly.
- **4.4.2** 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).
- **4.4.3** Conductors shall be terminated as required at panel-boards, devices, and boxes so as to ensure a tight connection without damage to the connection or the conductors.
- **4.4.4** The conductor size shall be not less than the ampere rating of the circuit unless otherwise permitted for specific types of utilization equipment.
- **4.4.5** Splices and taps shall be made in an approved manner.
- **4.4.6** Conductors, cables, and cable assemblies shall not show evidence of overheating or deterioration.
- **4.4.7** Conductors, cables, and cable assemblies shall not show evidence of fraying, damage, or physical abuse.

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 (lighting fixture) taps and branch-circuit supply conductors shall not show evidence of damage or deterioration from overheating.
- **4.7.2** Luminaire (lighting fixture) canopies shall be fastened in place.
- **4.7.3** Where identified, luminaires (lighting fixtures) shall be lamped in accordance with available instructions and shall not exceed marked maximum ratings.
- **4.7.4** Where luminaire (lighting fixture) 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 (Fixtures).** Luminaires (fixtures) shall be wired so that the screw shells of lampholders are connected to the same luminaire (fixture) or circuit conductor

- or terminal. 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.

4.8 Boxes and Enclosures.

- **4.8.1** 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.
- **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 (1/8 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 the following:
- (1) Receptacles shall have correct 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.
- (2) Where receptacles and branch-circuit conductors are identified for polarization, receptacles shall be correctly polarized.
- (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.

ANNEX B **73–**9

Chapter 5 Appliances and Special Equipment

- **5.1* Ground-Fault Circuit Interrupters.** Where ground-fault circuit interrupters are installed, they shall operate correctly when tested with their integral test function.
- **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 code 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, 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.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** 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.3.2.4 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 has a value in the range of 4 mA to 6 mA. For further information, see UL 943, *Standard for Ground-Fault Circuit Interrupters*.
- **A.4.2.2** 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 nongrounding 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 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.

B.1 ORDINANCE NO.

An ordinance of the [jurisdiction] adopting the 2006 edition of NFPA 73, Electrical Inspection Code 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 the *Electrical Inspection Code 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 __ nor more tĥan \$_ than \$_ or by imprisondays nor more ment for not less 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 2006 edition of NFPA 73, *Electrical Inspection Code for Existing Dwellings*, 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 C Informational References

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

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

NFPA 70, National Electrical Code®, 2005 edition.

C.1.2 Other Publications.

C.1.2.1 UL Publication. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 943, Standard for Ground-Fault Circuit Interrupters, 2003.

C.2 Informational References. (Reserved)

C.3 References for Extracts in Informational Sections. (Reserved)

INDEX **73–11**

Index

© 2005 National Fire Protection Association. All Rights Reserved.

The copyright in this index is separate and distinct from the copyright in the document that it indexes. The licensing provisions set forth for the document are not applicable to this index. This index may not be reproduced in whole or in part by any means without the express written permission of NFPA.

-A-	Grounding electrode
Accessible	Definition
As applied to wiring methods	Insulation
Definition	Service
Panelboards	Connections and connectors
Readily 4.1.8	Appliances and utilization equipment
Definition	Grounding electrode conductor
Adoption of code, sample ordinance for Annex B	Overcurrent protective devices
Appliances	Panelboards and distribution equipment
Definition	Raceways
Disconnecting means	Termination points
Overcurrent protection devices, branch circuit	Covers 4.6.1, 4.6.2
Application of code	
Approved (definition) 3.2.1, A.3.2.1 Arc-fault circuit interrupters 5.4, A.4.2.2, A.5.4	-D-
Definition	Damp locations
Authority having jurisdiction (definition)	Dead-front panels
Authority having jurisdiction (definition) 3.2.2, A.3.2.2	Definitions
	Disconnecting means, motors and appliances 4.2.7(1), 5.3.1
-B-	Distribution equipment
_	Dwelling units
Bonding	Definition
Definition	Multifamily dwellings (definition)
Grounding electrode conductor enclosure	One-family dwellings (definition)
Grounding electrode system	Two-family dwellings (definition)
Bonding jumper	
Boxes	-E-
Branch circuits	Edison-based type fuses
Appliance	Effectively groundedsee Grounded, Effectively
Definition	Enclosures
Disconnecting methods	Grounding electrode conductor
Lighting fixtures	Receptacles 4.9.1
Outside 4.1	Enforcement of code
Receptacles 4.9.7(2)	Equipment (definition)
Supply conductors 4.7.1	Equipment grounding conductors
Switches, general-use	Definition
	Exposed (as applied to live parts) (definition)
-C-	-F-
Cable assemblies	Fans, ceiling-suspended (paddle)
Cables	Feeders
Appliances and utilization equipment 5.3.3	Outside
Flexible	Fixtures, lightingsee Lighting fixtures
Panelboards and distribution equipment	Flexible cords and cables
Service-entrance	Fuses
Sheath	
Ceiling-suspended (paddle) fans	-G-
Closets, open incandescent lamps in	_
Adoption Approx P	General requirements
Adoption Annex B Definition 3.2.3, A.3.2.3	Grounded 4.9, A.4.9.7
Enforcement	Definition
Concealed (definition) 3.3.6	Effectively
Conductors	Appliances and utilization equipment 5.3.4
Branch circuit supply	Boxes and enclosures
Connections to termination points	Definition
Equipment grounding 4.8.5, 4.9.7(3)	Panelboards and distribution equipment
Definition	Service equipment
Grounded	Grounded conductors
Definition	Definition
Lighting fixtures	Lighting fixtures
Crosseding (definition)	Switches, branch circuits
Grounding (definition)	Switches, Dranch Circuits 4.9.10

Ground-fault circuit interrupters (GFCIs) 5.1, A.5.1	-P-
Definition	Panelboards
Receptacles	Definition
Grounding conductors (definition) 3.3.7.2; see also Grounding	Polarization
electrode conductors	Lighting fixtures
Grounding electrode conductors	Receptacles
Definition	Purpose of code
Grounding electrodes	
Definition	-R-
Grounding systems	Raceways
Bonding	Definition
Electrical service	Service-entrance
	Receptacle outlet (definition)
-I-	Receptacles
-	Definition
Incandescent lamps, open	Grounding-type
Insulation, conductor	Nongrounding type
	Polarization
-L-	Tester 4.9.7(1)
Lamps, open incandescent	References
Lighting fixtures	
Closets, open incandescent lamps in	-S-
Overcurrent protection devices, branch circuit	Scope of code
Permanently connected	Service circuits
Polarization of	Services
Lighting outlets (definition) 3.3.15.1	Definition 3.3.20
Likely to become energized (definition)	Smoke alarms
Listed (definition)	Special equipment
Listed (definition)	Splices
	Supports
-M-	Cables and cable assemblies
Marking of equipment4.2.7	Ceiling suspended (paddle) fans
Motors, disconnecting means	Switches, general-use
Multifamily dwellings (definition)	
, g. (-T-
0	Taps/tap conductors
-0-	Two-family dwellings (definition) 4.1.11.3, 4.4.3, 4.7.1, 4.7.4
One-family dwellings (definition)	Type S nontamperable adapters and fuses
Openings, sealing of	Type 5 nontamperable adapters and ruses
Boxes and enclosures	-U-
Panelboards	_
Outlets	Utilization equipment
Definition	Definition
Lighting (definition)	
Receptacle (definition)	-W-
Outside branch circuits and feeders	Weatherheads
Overcurrent protection devices	Wet locations