

U.S. DEPARTMENT OF COMMERCE
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FIPS PUB 195

**FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION
(Former Draft Federal Standard 1093)**

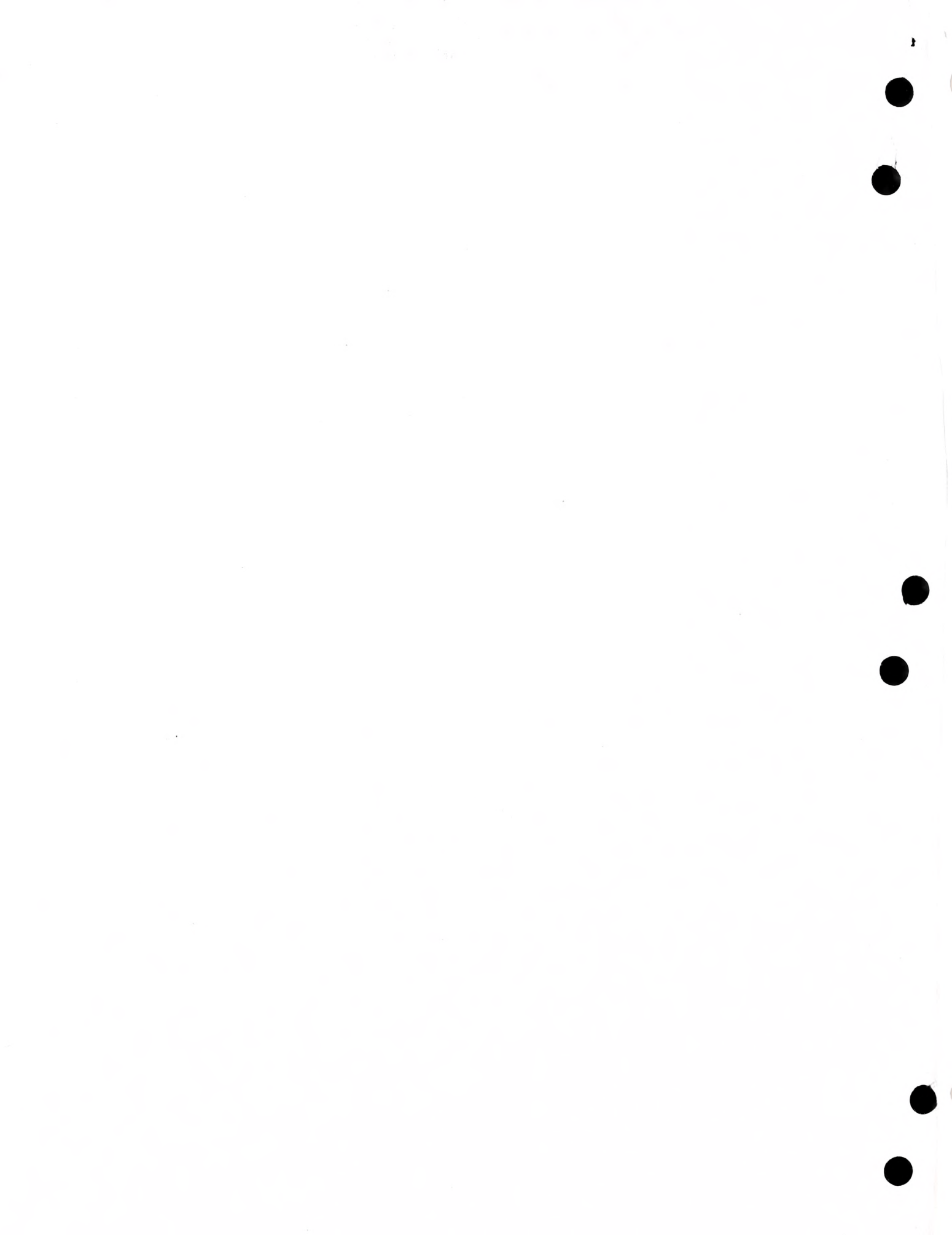
**FEDERAL BUILDING GROUNDING AND BONDING
REQUIREMENTS FOR TELECOMMUNICATIONS**

**CATEGORY: TELECOMMUNICATIONS STANDARD
SUBCATEGORY: GROUNDING AND BONDING**

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Computer Systems Laboratory
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Foreword

The Federal Information Processing Standards Publication Series of the National Institute of Standards and Technology (NIST) is the official publication relating to standards and guidelines adopted and promulgated under the provisions of Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235. These mandates have given the Secretary of Commerce and NIST important responsibilities for improving the utilization and management of computer and related telecommunications systems in the Federal Government. The NIST, through its Computer Systems Laboratory, provides leadership, technical guidance, and coordination of Government efforts in the development of standards and guidelines in these areas.

Comments concerning Federal Information Processing Standards Publications are welcomed and should be addressed to the Director, Computer Systems Laboratory, National Institute of Standards and Technology, Gaithersburg, MD 20899.

Shukri A. Wakid, Acting Director
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Abstract

This standard, by adoption of ANSI/TIA/EIA-607-1994, Commercial Building Grounding and Bonding Requirements for Telecommunications, specifies the requirements for a uniform telecommunications grounding and bonding infrastructure for Federal buildings where telecommunications equipment is installed. The standard provides the requirements for a ground reference for telecommunications systems within the telecommunications entrance facility, the telecommunications closet, and equipment room; it also provides the requirements for bonding and connecting pathways, cable shields, conductors, and hardware at telecommunications closets, equipment rooms, and entrance facilities.

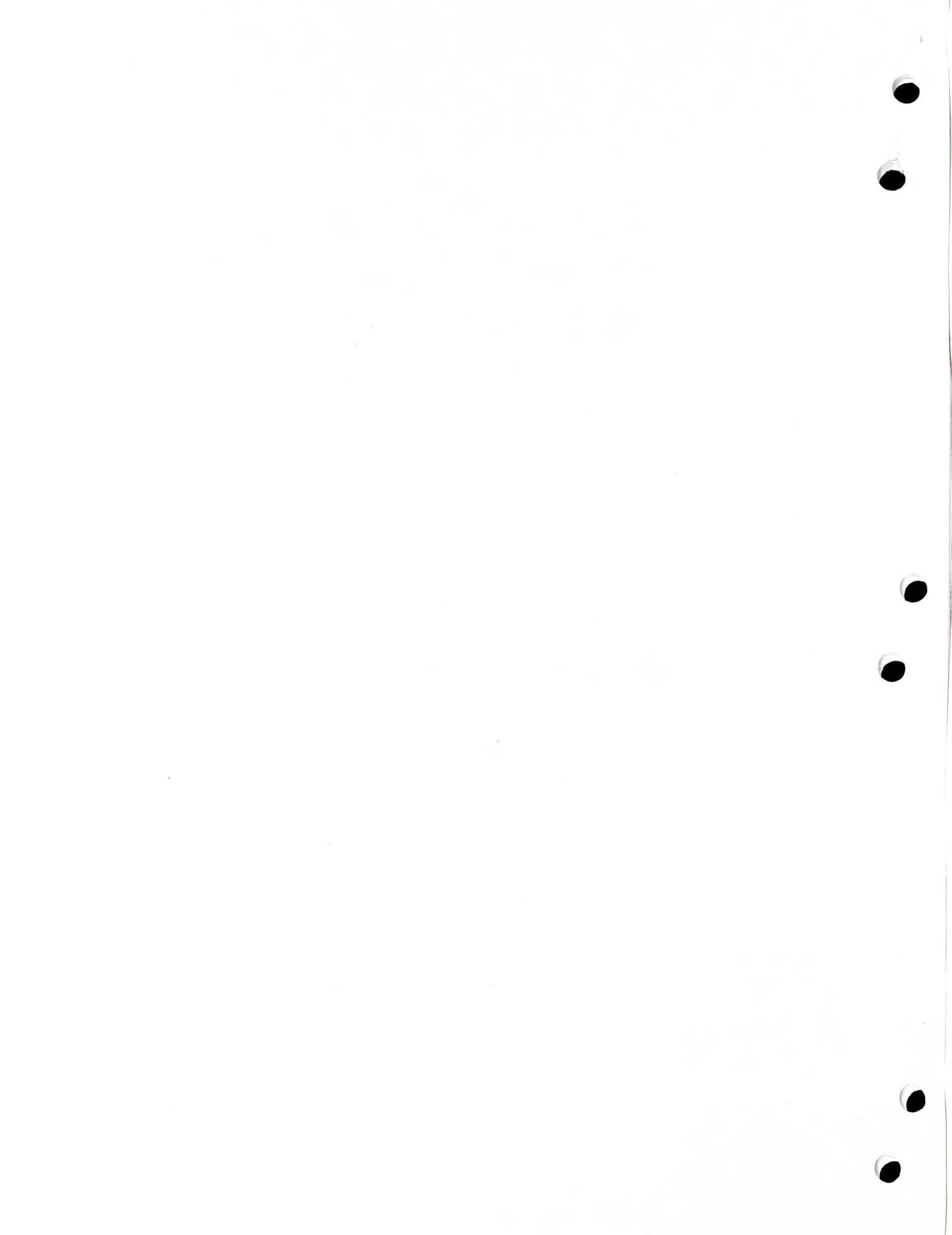
The grounding and bonding approach described in this standard is consistent with the cabling topology specified in FIPS PUB 174, Federal Building Telecommunications Wiring Standard (ANSI/EIA/TIA-568-1991), and installed in accordance with FIPS PUB 175, Federal Building Standard for Telecommunications Pathways and Spaces (ANSI/EIA/TIA-569-1990).

Key words: bonding and connecting pathways; cable shields; conductors; communications systems; Federal Information Processing Standard (FIPS); grounding; telecommunications; telecommunications equipment.

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Announcing the Standard for

**FEDERAL BUILDING GROUNDING AND BONDING REQUIREMENTS
FOR TELECOMMUNICATIONS**

Federal Information Processing Standards Publications (FIPS PUBS) are issued by the National Institute of Standards and Technology (NIST) after approval by the Secretary of Commerce pursuant to Section 111 (d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235.

1. Name of Standard. Federal Building Grounding and Bonding Requirements for Telecommunications. (Former Draft Federal Standard 1093).

2. Category of Standard. Telecommunications Standard; Grounding and Bonding.

3. Explanation. This standard, by adoption of ANSI/TIA/EIA-607-1994, Commercial Building Grounding and Bonding Requirements for Telecommunications, specifies the requirements for a uniform telecommunications grounding and bonding infrastructure for Federal buildings where telecommunications equipment is installed. The standard provides the requirements for a ground reference for telecommunications systems within the telecommunications entrance facility, the telecommunications closet, and equipment room; it also provides the requirements for bonding and connecting pathways, cable shields, conductors, and hardware at telecommunications closets, equipment rooms, and entrance facilities.

This standard supports the telecommunications infrastructure which encompasses telecommunications equipment spaces, cable pathways, grounding, wiring, termination hardware, and other devices, and which provides the basic support for the distribution of all forms of information within a building or campus.

The grounding and bonding approach described in this standard is consistent with the cabling topology specified in Federal Information Processing Standards Publication (FIPS PUB) 174, Federal Building Telecommunications Wiring Standard (ANSI/EIA/TIA-568-1991) and installed in accordance with Federal Information Processing Standards Publication (FIPS PUB) 175, Federal Building Standard for Telecommunications Pathways and Spaces (ANSI/EIA/TIA-569-1990).

4. Approving Authority. Secretary of Commerce.

5. Maintenance Agency. National Communications System, Office of Technology and Standards.

6. Related Documents.

a. Federal Information Resources Management Regulations subpart 201-20.303, Standards, and subpart 201-39.1002, Federal Standards.

b. Federal Standard 1037B, Glossary of Telecommunications Terms.

c. Federal Information Processing Standards Publication (FIPS PUB) 174, Federal Building Telecommunications Wiring Standard.

d. Federal Information Processing Standards Publication (FIPS PUB) 175, Federal Building Standard for Telecommunications Pathways and Spaces.

e. Federal Information Processing Standards Publication (FIPS PUB) 176, Residential and Light Commercial Telecommunications Wiring Standard.

f. Federal Information Processing Standards Publication (FIPS PUB) 187, Administration Standard for the Telecommunications Infrastructure of Federal Buildings.

At the time of publication of this standard, the editions indicated above were valid. All publications are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these publications.

7. Objectives. The purpose of this standard is to facilitate the planning, design, and installation of telecommunications grounding systems within a Federal government building with or without prior knowledge of the telecommunications systems that will subsequently be installed. This telecommunications grounding and bonding infrastructure supports a multivendor, multiproduct environment as well as the grounding practices for various systems that may be installed on customer premises.

This standard should be useful to anyone engaged in the design, maintenance, renovation, or retrofit of new or existing buildings. This standard will also be useful to manufacturers of telecommunications equipment and to those responsible for purchasing, installing, or operating such equipment and devices.

8. Applicability. This standard shall be used by all departments and agencies of the Federal Government in the planning, design, and installation of telecommunications grounding systems in new Federal buildings. Use of this standard is recommended in the maintenance, renovation, or retrofit of telecommunications grounding systems in existing Federal buildings. Existing building wiring systems, especially those installed prior to the emergence of digital communications and voice/data integration, may not readily accept application of this standard. Modernization of the existing pathway, space, and wiring systems to meet the FIPS 174, FIPS 175, FIPS 176, and FIPS 187 infrastructure standards may require a significant monetary expenditure. Agencies should conduct a thorough facility analysis of existing and renovated buildings to determine the cost of applying the standards, and develop a migration plan where cost savings can be achieved. This plan will help to ensure timely and efficient completion of the conversion process. The result of following this standard will be a telecommunications infrastructure that supports advanced technology and is compatible with modern telecommunications equipment. This standard is not intended to hasten the obsolescence of telecommunications grounding systems currently in use in Federal facilities; nor is it intended to provide systems engineering or applications guidelines.

9. Specifications. This FIPS adopts ANSI/TIA/EIA-607-1994, Commercial Building Grounding and Bonding Requirements for Telecommunications, The American National Standard specifies the requirements for a uniform telecommunications grounding and bonding infrastructure for a building where telecommunications equipment is to be installed. Areas of the infrastructure include:

- (a) a ground reference for telecommunications systems within the telecommunications entrance facility, the telecommunications closet, and equipment room.
- (b) bonding and connecting pathways, cable shields, conductors and hardware at telecommunications closets, equipment rooms, and entrance facilities.
- (c) interconnectivity to other building grounding systems.

10. Implementation. The use of this standard by Federal departments and agencies is compulsory and binding for the planning, design, and installation of telecommunications grounding systems within new Federal buildings, effective February 12, 1996.

Use of the standard is recommended in the maintenance, renovation, or retrofit of the telecommunications grounding systems within existing buildings.

11. Waivers. Under certain exceptional circumstances, the heads of Federal departments and agencies may approve waivers to Federal Information Processing Standards (FIPS). The head of such agency may redelegate such authority only to a senior official designated pursuant to Section 3506(b) of Title 44, U.S. Code. Waivers shall be granted only when:

- a. Compliance with a standard would adversely affect the accomplishment of the mission of an operator of a Federal computer system or related telecommunications system, or
- b. Cause a major adverse financial impact on the operator which is not offset by Governmentwide savings.

Agency heads may act upon a written waiver request containing the information detailed above. Agency heads may also act without a written waiver request when they determine that conditions for meeting the standard cannot be met. Agency heads may approve waivers only by a written decision which explains the basis on which the agency head made the required finding(s). A copy of each such decision, with procurement sensitive or classified portions clearly identified, shall be sent to: National Institute of Standards and Technology; Attn: FIPS Waiver Decisions, Technology Building, Room B-154; Gaithersburg, MD 20899.

In addition, notice of each waiver granted and each delegation of authority to approve waivers shall be sent promptly to the Committee on Government Operations of the House of Representatives and the Committee on Governmental Affairs of the Senate and shall be published promptly in the *Federal Register*.

When the determination on a waiver applies to the procurement of equipment and/or services, a notice of the waiver determination must be published in the *Commerce Business Daily* as a part of the notice of solicitation for offers of an acquisition or, if the waiver determination is made after the notice is published, by amendment to such notice.

A copy of the waiver, any supporting documents, the document approving the waiver and any supporting and accompanying documents, with such deletions as the agency is authorized and decides to make under 5 U.S.C. Sec. 552(b), shall be part of the procurement documentation and retained by the agency.

12. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the Electronic Industries Association.) When ordering, refer to Federal Information Processing Standards Publication 195 (FIPSPUB195), and the title. Payment may be made by check, money order, purchase order, credit card, or deposit account.

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