

U.S. DEPARTMENT OF COMMERCE  
Technology Administration  
National Institute of Standards and Technology



**FIPS PUB 176**

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**FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION**  
**(Former Draft Federal Standard 1092)**

**RESIDENTIAL AND LIGHT COMMERCIAL  
TELECOMMUNICATIONS WIRING STANDARD**

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**CATEGORY: TELECOMMUNICATIONS STANDARD      SUBCATEGORY: CABLES AND WIRING**

**1992 AUGUST 21**

**FIPS PUB 176**

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.A8 A3  
NO.176  
1992



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## RESIDENTIAL AND LIGHT COMMERCIAL TELECOMMUNICATIONS WIRING STANDARD

CATEGORY: TELECOMMUNICATIONS STANDARD      SUBCATEGORY: CABLES AND WIRING

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Issued August 21, 1992



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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.

James H. Burrows, Director  
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## Abstract

This standard, by adoption of ANSI/EIA/TIA-570-1991, Residential and Light Commercial Building Telecommunications Wiring Standard, gives an overview of premises wiring, and specifies installation requirements and component technical requirements. Appendices to the industry standard provide information on line assignments in selected network interface jacks, wiring installation guidelines, component description, and references to related standards and other documents.

Key words: computer-communications interface; customer premises equipment; data processing equipment; Federal Information Processing Standard; interoperability; premises wiring; telecommunications wiring.

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National Institute of Standards  
and Technology  
FIPS PUB 176  
7 pages (Aug. 21, 1992)  
CODEN: FIPPAT

U.S. Government Printing Office  
Washington: 1992

For sale by the National  
Technical Information  
Service  
U.S. Department of Commerce  
Springfield, VA 22161

**Federal Information  
Processing Standards Publication 176**

**1992 August 21**

**Announcing the Standard for**

**RESIDENTIAL AND LIGHT COMMERCIAL TELECOMMUNICATIONS  
WIRING STANDARD**

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.** Residential and Light Commercial Telecommunications Wiring Standard (FIPS PUB 176) (Former Draft Federal Standard 1092).
- 2. Category of Standard.** Telecommunications Standard; cables and wiring.
- 3. Explanation.** This standard, by adoption of ANSI/EIA/TIA-570-1991, Residential and Light Commercial Building Telecommunications Wiring Standard, gives an overview of premises wiring, and specifies installation requirements and component technical requirements. Appendices to the industry standard provide information on line assignments in selected network interface jacks, wiring installation guidelines, component description, and references to related standards and other documents.
- 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 (Former Draft Federal Standard 1090).
  - d. Federal Information Processing Standards Publication (FIPS PUB) 175, Federal Building Standard for Telecommunications Pathways and Spaces (Former Draft Federal Standard 1091).
  - e. Future Federal Information Processing Standards Publication (FIPS PUB), Grounding and Bonding Requirements for Telecommunications in Federal Buildings (Draft Federal Standard 1093).
  - f. Future Federal Information Processing Standards Publication (FIPS PUB), Administration Standard for the Telecommunications Infrastructure of Federal Buildings (Draft Federal Standard 1094).

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 interoperability and transportability among telecommunication facilities and systems of the Federal Government and compatibility of these facilities and systems at the computer-communications interface with data processing equipment (systems) of the Federal Government by specifying standard characteristics for telecommunications wiring for small buildings. This standard describes a premises-wiring system intended for connecting one to four exchange access lines to various types of customer-premises equipment. This standard defines a generic, functional

telecommunications wiring system for Federal buildings that will support a multiproduct, multivendor environment. Installation of wiring systems during building construction or major renovation is significantly less expensive and less disruptive than after the building is occupied.

**8. Applicability.** American National Standard/EIA/TIA-570-1991 shall be used by all departments and agencies of the Federal Government in the planning and design of premises-wiring systems intended for connecting one to four exchange access lines to various types of customer-premises equipment when FIPS 174 is not selected. Applications include both the wiring of new buildings and the upgrading of existing plant. This standard is not intended to hasten the obsolescence of building wiring currently existing in the Federal inventory; nor is it intended to provide systems engineering or applications guidelines.

**9. Specifications.** This FIPS adopts ANSI/EIA/TIA-570-1991, Residential and Light Commercial Building Telecommunications Wiring Standard.

**10. Implementation.** The use of this standard by Federal departments and agencies is compulsory and binding for the acquisition of new equipment and services, effective March 1, 1993.

Adherence to a standard that specifies standardized building wiring contributes to the economic and efficient use of resources by avoiding proliferation of local or vendor-unique standards, and is necessary to facilitate development of interoperable inter- and intrabuilding telecommunications systems.

**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 Government 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. Special Information.** This standard has been reviewed by the Metrication Operating Committee of the Interagency Committee on Metric Practice, for consistency with accepted metric practice only, and is designated an *accepted metric standard*. Use of this standard in its area of applicability complies with the

provision of the Omnibus Trade and Competitiveness Act of 1988 (Pub. L. 100-418, section 5164) that requires Federal agencies, with certain limitations and exceptions, to use the metric system of measurement in procurements, grants, and other business-related activities. (See also 15 CFR Part 19 as amended February 1, 1991).

**Metric Data.** Where this standard contains dual dimensions, the metric data shall be controlling, and the inch-pound data shall be understood to be for information only. Nothing in this standard shall be interpreted, however, as requiring any departure from standard trade sizes, as for conduit and electrical conductors, in common use in the United States.

**Exception.** The following is substituted for the similar clause in lines 4 and 5 of Section 6.2.1.1, *Physical Requirements*, of the industry standard:

When measured in accordance with ASTM D 4565 (Ref. 19), the ultimate breaking strength of the completed cable shall be 400 newtons (41 kgf) minimum, . . .

**13. 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 176 (FIPSPUB176), and the title. Payment may be made by check, money order, purchase order, credit card, or deposit account.

## APPENDIX

By adoption of ANSI/EIA/TIA-570-1991, this document provides Federal departments and agencies with a generic, standardized premises-wiring system intended for connecting one to four exchange access lines to various types of customer-premises equipment. This standard may be considered complementary to Federal Information Processing Standard 174 (Former Draft FED-STD-1090), Federal Building Telecommunications Wiring Standard, which addresses building sites with a geographical extent up to 3,000 m (9,840 ft), up to 1,000,000 square meters (approximately 10,000,000 square feet) of office space, and with a population of as many as 50,000 individual users.

This standard has also a special relationship to ANSI/EIA/TIA-569-1990, Commercial Building Standard for Telecommunications Pathways and Spaces (adopted as Federal Information Processing Standard 175 (Former Draft FED-STD-1091)), the result of a joint Canadian and United States effort by the Canadian Standards Association (CSA) and the Telecommunications Industry Association (TIA).<sup>1</sup> This latter standard addresses the reality that building wiring cannot be standardized without standardizing also the architecture of the building itself into which building wiring systems are to be installed.

During the development of this family of building telecommunications standards, significant concern was raised, by both Government and industry, about the need for specification of electronic system grounding. This concern resulted in proposed ANSI/TIA/EIA-607, Grounding and Bonding Requirements for Telecommunications in Commercial Buildings (to be adopted as a future Federal Information Processing Standard, Draft FED-STD-1093).

The complex telecommunications building infrastructure addressed by this family of standards requires continuing documentation of all building wiring and the related pathways and spaces containing that wiring. Recognizing the need for a standardized method of telecommunications administration, TIA has developed proposed ANSI/TIA/EIA-606, Administration Standard for the Telecommunications Infrastructure of Commercial Buildings, to expedite collection and updating of such information. This standard is to be adopted as a future Federal Information Processing Standard (Draft FED-STD-1094).

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<sup>1</sup> In 1988, the Telecommunications sector (specifically, the TR- and FO- Technical Committees, Subcommittees, and Working Groups) of the Electronic Industries Association (EIA) became a part of the Telecommunications Industry Association (TIA). TIA conducts the standard-developing activities, and EIA continues to publish the resultant standards, which bear the prefix "EIA/TIA," as well as "ANSI" for those documents adopted by the American National Standards Institute. Beginning in 1992, the prefix reads "TIA/EIA."









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