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TIA STANDARD

Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises

TIA-607-D
(Revision of TIA-607-C)

July 2019

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Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises

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FOREWORD

(This foreword is not considered part of this Standard)

This Standard was developed by TIA Subcommittee TR-42.3.

Approval of this Standard

This Standard was approved by TIA Subcommittee TR-42.3, TIA Engineering Committee TR-42, and the American National Standards Institute (ANSI).

ANSI/TIA reviews standards every 5 years. At that time, standards are reaffirmed, withdrawn, or revised according to the submitted updates. Updates to be included in the next revision should be sent to the committee chair or to ANSI/TIA.

Contributing organizations

More than 60 organizations within the telecommunications industry (including manufacturers, consultants, end users, and other organizations) contributed their expertise to the development of this Standard.

Documents superseded

This Standard supersedes ANSI/TIA-607-C dated November, 2015, and its addendum.

Significant technical changes from the previous edition

Significant changes from the previous edition include:

- The contents of Addendum 1 (bonding in multi-tenant buildings) were incorporated.
- References were updated to conform with the 2019 edition of the *Telecommunications Industry Association (TIA) Standards Style Guide for Engineering Committees*.
- Definition of and requirements for secondary bonding conductor were added.

Annexes

There are seven annexes to this Standard. Annex A is normative and considered a part of this Standard. Annexes B through G are informative and not considered a part of this Standard.

Relationship to other TIA standards and documents

The following are related standards regarding various aspects of structured cabling that were developed and are maintained by Engineering Committee TIA TR-42. Figure 1 shows the schematic relationship between TIA telecommunications cabling standards.

- *Generic Telecommunications Cabling for Customer Premises* (ANSI/TIA-568.0)
- *Commercial Building Telecommunications Cabling Standard* (ANSI/TIA-568.1)
- *Balanced Twisted-Pair Telecommunications Cabling and Components Standard* (ANSI/TIA-568.2)
- *Optical Fiber Cabling and Components Standard* (ANSI/TIA-568.3)
- *Broadband Coaxial Cabling and Components Standard* (ANSI/TIA-568.4)
- *Telecommunications Pathways and Spaces* (ANSI/TIA-569)
- *Residential Telecommunications Infrastructure Standard* (ANSI/TIA-570)

- *Administration Standard for Telecommunications Infrastructure* (ANSI/TIA-606)
- *Customer-owned Outside Plant Telecommunications Infrastructure Standard* (ANSI/TIA-758)
- *Structured Cabling Infrastructure Standard for Intelligent Building Systems* (ANSI/TIA-862)
- *Telecommunications Infrastructure Standard for Data Centers* (ANSI/TIA-942)
- *Telecommunications Infrastructure Standard for Industrial Premises* (ANSI/TIA-1005)
- *Healthcare Facility Telecommunications Infrastructure Standard* (ANSI/TIA-1179)
- *Telecommunications Infrastructure Standard for Educational Facilities* (ANSI/TIA-4966)
- *Standard for Sustainable Information Communications Technology* (ANSI/TIA-4994)
- *Telecommunications Physical Network Security Standard* (ANSI/TIA-5017)
- *Automated Infrastructure Management (AIM) Systems- Requirements, Data Exchange and Applications* (ANSI/TIA-5048)

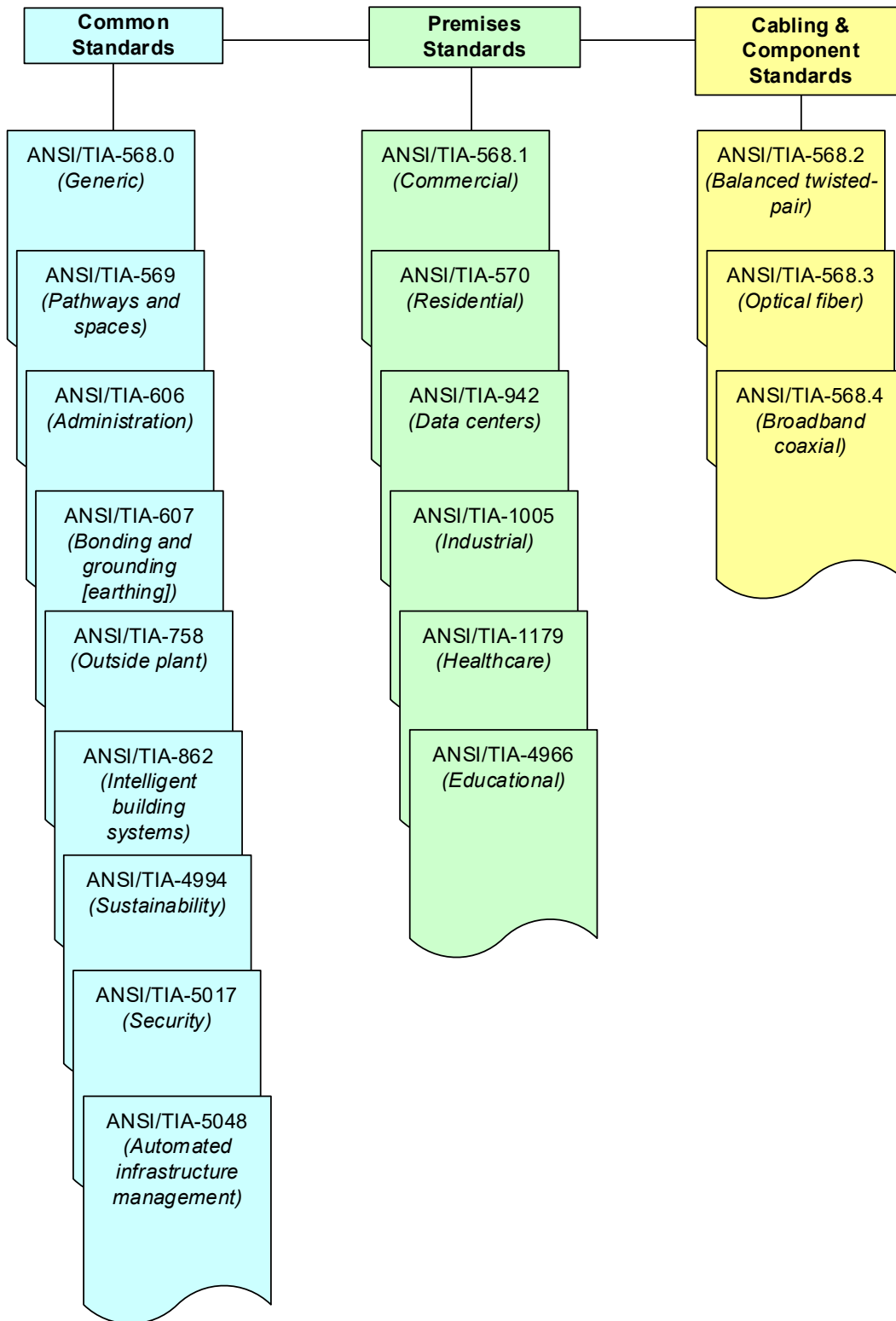


Figure 1 – Relationship between relevant TIA standards

Introduction

Telecommunications, as used in this Standard, refers to the transmission of all forms of information (e.g., voice, data, video, security, audio, industrial, building control, remote power delivery). Telecommunications equipment used to support these wide varieties of systems that rely on the electronic transport of information require an effective building infrastructure. This infrastructure encompasses spaces, pathways, cables, connecting hardware, and a bonding and grounding system. For reliable operation of any telecommunications equipment or system, bonding and grounding (earthing) is essential – regardless of the cabling technology or media. This Standard focuses on the bonding and grounding portion of this infrastructure.

NOTE – The North American term “grounding” that is used in this Standard is equivalent to the international term “earthing.”

The bonding and grounding approach in this Standard is intended to work in concert with premises cabling, equipment, spaces and pathways specified within the TIA Engineering Committee TR-42. The requirements specified in this Standard in conjunction with a basic understanding of bonding and grounding concepts and methodologies will aid in achieving a reliable solution when applied to telecommunications installations.

Several sources of bonding and grounding information exist within the telecommunications industry. For example, the *NEC*[®] specifies requirements regarding the safety aspects of bonding and grounding of equipment and systems. Yet another example is that of ATIS 0600318, *Electrical Protection Applied to Telecommunications Network Plant at Entrances to Customer Structures or Buildings*, which provides information on bonding and grounding to support electrical protection considerations.

Purpose

The purpose of this Standard is to enable and encourage the planning, design, and installation of generic telecommunications bonding and grounding systems within premises with or without prior knowledge of the telecommunications systems that will subsequently be installed. While primarily intended to provide direction for the design of new buildings, this Standard may be used for existing building renovations or retrofit treatment. Design requirements and choices are provided to enable the designer to make informed design decisions.

Stewardship

Telecommunications infrastructure affects raw material consumption. The infrastructure design and installation methods also influence product life and sustainability of electronic equipment life cycling. These aspects of telecommunications infrastructure impact our environment. Since building life cycles are typically planned for decades, technological electronic equipment upgrades are necessary. The telecommunications infrastructure design and installation process magnifies the need for sustainable infrastructures with respect to building life, electronic equipment life cycling and considerations of effects on environmental waste. Telecommunications designers are encouraged to research local building practices for a sustainable environment and conservation of fossil fuels as part of the design process. See TIA TSB-5046 for sustainable processes for manufacturers and ANSI/TIA-4994 for planning sustainable information communications technology systems.

Specification of criteria

Two categories of criteria are specified; mandatory and advisory. The mandatory requirements are designated by the word "shall;" advisory requirements are designated by the words "should," "may," or "desirable," which are used interchangeably in this Standard.

Mandatory criteria generally apply to protection, performance, administration and compatibility; they specify the minimally-compliant requirements. Advisory or desirable criteria are presented when their attainment will enhance the general performance of the cabling system in all its contemplated applications.

A note in the text, table, or figure is used for emphasis or offering informative suggestions, or providing additional information.

Metric equivalents of United States customary units

The dimensions in this Standard are metric or United States customary with approximate conversions to the other.

Life of this Standard

This Standard is a living document. The criteria contained in this Standard are subject to revisions and updating as warranted by advances in building construction techniques and telecommunications technology.

1 SCOPE

This Standard specifies requirements for a generic telecommunications bonding and grounding infrastructure and its interconnection to electrical systems and telecommunications systems. This Standard may also be used as a guide for the renovation or retrofit of existing systems.

2 NORMATIVE REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards 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 the standards indicated below. ANSI and TIA maintain registers of currently valid national standards published by them.

- ANSI/TIA-606, *Administration Standard for Telecommunications Infrastructure*
- ATIS 0600321, *Electrical Protection for Network Operator-Type Equipment Positions*
- ATIS 0600334, *Electrical Protection of Communications Towers And Associated Structures*
- IEEE C2, *National Electrical Safety Code® (NESC®)*
- NFPA 70, *National Electrical Code® (NEC®)*
- NFPA 780, *Standard for the Installation of Lightning Protection Systems*



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**Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
Addendum 1: Harmonization with ANSI/TIA-222**

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