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a BICSI International Standard

ANSI/BICSI 007-2024

**Information Communication
Technology Design and
Implementation Practices for
Intelligent Buildings and Premises**



Bicsi[®]

ANSI/BICSI 007-2024

Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises

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Preface

Revision History

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May 13, 2020 Revision of ANSI/BICSI 007-2017 published as ANSI/BICSI 007-2020, *Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises*

Major Revisions include:

- Addition of Section 9, *Electronic Safety and Security Systems* (
- Addition of Section 10, *Audio and Visual Systems*
- Removal of former Appendix A, *Commissioning Fundamentals*
- Addition of Appendix A, *Reliability for ICT Infrastructure*, Appendix B, *Network Design and Security*, Appendix C, *Cloud Computing for Intelligent Building Systems* and Appendix E, *Light Fidelity Technology*

Minor Revisions include

- Revision of Section 5, *Communications Infrastructure* and Section 6, *Design Considerations for Building Systems* to reflect technological advancements and design methodology
- Restructuring of existing systems content not included within major revision actions
- Expansion of asset tracking
- Expansion of system integration
- Other content updates and editorial corrections

March 27, 2024 Revision of ANSI/BICSI 007-2020 published as ANSI//BICSI 007-2024, *Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises*

Major Revisions include:

- Expansion of single-pair Ethernet and power over digital line (PoDL)
- Addition of fault managed power
- Expansion of audio and video conferencing

Minor Revisions include

- Expansion of device mounting and enclosures
- Expansion of wireless system protocol
- Addition of extended cabling range considerations
- Other content updates and editorial corrections

Document Format (Usability Features)

This standard has the following usability features as aids to the user:

- Additions and changes, other than those for editorial purposes, are indicated with a vertical rule within the left page margin.
- Deletion of one or more sentences within unrevised content is indicated with a bullet (•) within the left page margin.

NOTE: The relocation of content within or between sections and the creation or modification of headings related to structure, readability, or content alignment is not indicated.

Translation Notice

This standard may have one or more translations available as a reference for the convenience of its readers. As the act of translation may introduce inconsistencies with the original text, where differences between the translation and the published English version exist, the English text shall be used as the official and authoritative version.

1 Introduction

1.1 General

An intelligent building, or premise, utilizes communication technology to integrate building systems, allowing intersystem connection and coordinated safeguard monitoring, access and control measures, to provide for a secure, safer, more comfortable, productive, and efficient space environment. As innovation occurs, systems and applications that have not been traditionally connected to a data or telecommunications network are now utilizing Ethernet and network infrastructure as a means to provide new or expanded functions or as an additional or alternative infrastructure solution. Also, given the increased use of information communication technology (ICT) transmission media (e.g., balanced twisted-pair, optical fiber, wireless) within these systems, the design and implementation methodology based on the historical practice of using legacy, proprietary or application specific cabling systems such as one or two pair solid copper conductor wire is now obsolete.

1.2 Purpose

This standard is intended to be used for any size building and can be applied to residential and other premises (e.g., commercial, industrial, healthcare, educational, etc.) in all markets. This standard is written for use in the design and implementation of the structured cabling systems used to support building or premise systems which can be integrated through the use of common infrastructure.

This standard may be used to determine design requirements in conjunction with the system owner, occupant, or other project consultants. This standard provides a reference of common technology and design practices but is not intended to be used by design professionals as their sole reference or as a step-by-step design guide.

1.3 Categories of Criteria

Two categories of criteria are specified—mandatory and advisory:

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

Mandatory requirements are designated by the word *shall*; advisory recommendations are designated by the words *should*, *may*, or *desirable*, which are used interchangeably in this standard. Where possible, requirements and recommendations are separated to aid in clarity.

Notes, cautions, and warnings found in the text, tables, or figures are used for emphasis or for offering informative suggestions.

Where equivalent local codes and standards exist, requirements from these local specifications shall apply. Where reference is made to a requirement that exceeds minimum code requirements, the specification requirement shall take precedence over any apparent conflict with applicable codes.

2 Scope

This standard applies to building systems that utilize information communication technology (ICT) components, systems, and infrastructure to interconnect and share information between building systems. Examples of these systems include, but are not limited to:

- Building automation and management
- Energy and electrical power management
- Lighting
- Audio/visual (A/V) systems (e.g., digital signage, notification, AV over IP)
- Electronic safety and security (ESS) systems

The performance specifications for building systems are not offered in this standard unless they relate to the structured cabling system or other supporting systems requirements and recommendations found within this standard.