



Healthcare Facility

ANSI/TIA 1179-A
Telecommunications Infrastructure



A photograph of a hospital building with a large sign that reads "EMERGENCY" in white on a red background, with an arrow pointing left. Below it, "Main Entrance" is written in blue. Further down, "Entrance A | B" is visible. The building has large glass windows and a blue "H" logo.

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ANSI/TIA-1179-A Healthcare Facility Telecommunications Infrastructure Standard

First published in 2010, the TIA-1179 standard addressed the telecommunications and connectivity requirements of healthcare environments. The Telecommunications Industry Association's (TIA) TR-42 Telecommunications Cabling Systems committee approved the publication of the first revision to the standard in June 2017. It is now called ANSI/ TIA-1179-A. Like its predecessor, it is based on the ANSI/TIA-568 standards.

The initial standard was created to address the unique connectivity needs of healthcare facilities. It was initiated by a group of healthcare facility end users who suggested that while the then current standard 568-B was good, it did not address particular design, installation, and construction considerations of healthcare facilities.

The 1179-A standard goes further than the 568 standard and specifies the infrastructure requirements, including cabling, topology, pathways, work areas, and more for a wide range of healthcare facilities. It also references other TIA documents, including:

- ANSI/TIA-862-B Structured Cabling Infrastructure Standard for Intelligent Building Systems
- ANSI/TIA-5017 Telecommunications Physical Network Security Standard
- ANSI/TIA-606-C Administration Standard for Telecommunications Infrastructure
- ANSI/TIA-607-C Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
- ANSI/TIA-942-B Telecommunications Infrastructure Standard for Data Centers
- ANSI/TIA-1005-A Telecommunications Infrastructure Standard for Industrial Premises
- Telecommunications Systems Bulletin TSB-162-A Telecommunications Cabling Guidelines for Wireless Access Points
- Telecommunications Systems Bulletin TSB-5018 Structured Cabling Infrastructure Guidelines To Support Distributed Antenna Systems

The revised standard will also include requirements for wireless access points, distributed antenna systems, security systems, and more. There are other changes involving transmission media.

What's New?

Significant changes from the previous edition include the following:

- Balanced twisted-pair backbone cabling is now Category 6A minimum
- Balanced twisted-pair horizontal cabling is now Category 6A minimum
- OM4 is the recommended minimum for multimode optical fiber cabling
- A minimum of two fibers are now required for optical fiber backbone cabling
- Array connectors are now permitted for optical fiber cabling in the work area
- MUTOA and consolidation points may be used as additional network elements
- Requirements were added for: telecommunications pathways and spaces (additional requirements to those in ANSI/TIA-569-D); bonding and grounding; firestopping; broadband coaxial cabling; multi-tenant building spaces
- Recommendations were added for cabling for wireless access points and distributed antenna systems

What's in the Standard?

Cabling pathways

ANSI/TIA 1179-A specifies a minimum of two diverse pathways from each entrance facility or equipment room to each telecommunications room or telecommunications enclosure for critical care areas. This enables the network designer to separate traditional data and voice applications from critical healthcare applications, such as imaging and diagnostic communications.

Equipment room size

Compared to the 568 series of standards, 1179-A recommends larger equipment and telecommunications rooms allowing for 100% growth. This is to prevent significant disruption of rooms, hallways, and other areas when expansion is needed. The standard specifies rooms of 12 meters square (130 square feet) or larger.

Security and segregation

The standard recommends segregated networks to ensure adequate support of life and safety protocols. The standard also recommends using color-coded cables, colored jacks, and keyed connectors. It does not specify certain colors for particular services or applications.

Infection control

Infection Control Requirements (ICR) have an impact on how much or little access cabling techs have to cabling pathways. The standard first recommends labeling spaces subject to ICR measures. It also advises using enclosed pathways, especially in air-handling spaces. In contrast to traditional commercial spaces, with healthcare space, system designers will very often find that they can't use open plenum spaces for routing cable. The standard also suggests that telecommunications enclosures might be better for ICR areas and should be of a suitable material when installed in surgical and other sterile environments. In addition, ICR procedures could involve restricting the number of ceiling tiles that can be removed, how long they are removed, etc.

The work area

The work area receives the most attention and is subject to the most changes when compared to the 568 set of standards. Unlike traditional work areas in commercial buildings, which consist of a computer, phone, printer, etc., there are 11 definitions for work areas in a healthcare facility. They are: Patient Services, Surgery/ Procedure/Operation Rooms, Emergency, Ambulatory Care, Women's Health, Diagnostic and Treatment, Caregiver, Service/Support, Facilities, Operations and Critical Care.

The standard goes on to recommend work area outlet densities based on the function at each location. The standard breaks each classification into one of three subgroups: a low-, medium-, or high-density work area. It then specifies the number of outlets for each, depending on the function: Low-density: 2–6 outlets; medium-density: 6–12 outlets, high-density: 14+ outlets. For example, inpatient Services, patient rooms and nurse's stations are high-density work areas, whereas the family lounge and waiting room are low-density work areas.

ANSI/TIA 1179-A Recommended Work-Area Outlets

	LOW: 2 TO 6	MEDIUM: 6 TO 14 OUTLETS	HIGH: >14 OUTLETS
PATIENT SERVICES	Consultation Family Lounge Waiting Room	Administration Registration Library	Nurse's Station Patient Room
SURGERY, PROCEDURES, OPERATING ROOMS	Sterile Zone Sub-sterile Zone	Anesthesia Offices Patient Prep Patient Hold Patient Recovery	Intensive Care Operating Room
EMERGENCY	Ambulance Bay	Evaluation Exam Room	Observation Procedure Rooms
AMBULATORY CARE	Biopsy Patient Holding X-Ray	Exam Room Mammography Procedure Room	Outpatient Surgery Room
WOMEN'S HEALTH	Lactation Ultrasound	Nursery	Labor/Delivery Room Infant Bay
DIAGNOSTIC/ TREATMENT	Fluoroscopy Radiation Processing Radiography X-Ray	Lab	CT Scanner Linear Accelerator MRI Operating Rooms Procedure Rooms Simulator
CAREGIVER	Exam Room Galley Soiled Utility	Charting Clean Utility Nourishment Reading Room Workroom	Nurse's Station
SERVICE/SUPPORT		Blood Bank Pharmacy	
FACILITIES	Building Utility Room Communications/Technology Room Electrical Room Elevator Machine Room Janitor Closet Mechanical Room Specialty Storage	Fire Command	Security Office Command
OPERATIONS	Cafeteria General Storage General Office Laundry Locker Rooms Lounge On-Call Suite Retail Areas	Administration Central Sterile Conference Room	
CRITICAL CARE			ICU Neonatal ICU Recovery

In addition, 1179-A does not require outlets to be located together. The location of the outlet can also vary depending on the use. While commercial building outlets are 18" above the floor, outlets in healthcare facilities may be at bed height to accommodate temporary and permanent equipment connections, such as nurse call systems, patient monitors, test equipment, etc. The revised standard now permits MPO-style connectors in the work area.

Transmission media

The revised standard specifies using CAT6A cable (minimum) for backbone cabling. It now also specifies CAT6A (minimum) for horizontal cabling. OM4 is the recommended minimum for multimode fiber cabling. A minimum of two fibers are now required for fiber optic backbone cabling. MPO connectors are now also permitted in the work area.

MUTOAs

Although the standard does not recommend the use of multiuser telecommunications outlet assemblies (MUTOAs) in new construction, it does allow for the addition of up to 24 additional outlets to a work area in an existing facility. The revised standard says MUTOAs (multiuser telecommunications outlet assemblies) and consolidation points may be used as additional network elements.

Environmental considerations

The standard also recognizes that some areas in healthcare facilities may be subject to different environmental factors, such as high EMI, atmospheric contamination, high temperatures, chemicals, etc. These considerations may affect your choice in cabling and how it is installed. Solutions and installation should be compatible with the surrounding environment. The standard does not specifically address what components to use in harsh environments.

Transmission and topology

The standard specifies the same star topology and cabling lengths as specified for commercial buildings.

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