

BICSI's ICT Terminology Handbook

Version 3.0

**A collection of internationally
recognized industry terms,
acronyms, abbreviations,
and symbols**



*advancing the information and
communications technology community*

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We welcome all comments about BICSI's *ICT Terminology Handbook*. If you have any questions about BICSI and its services, please contact our office at 800.242.7405 (USA/Canada toll free); +1 813.979.1991; fax +1 813.971.4311; e-mail bicsi@bicsi.org; website www.bicsi.org.

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- In general, approximate (soft) conversions are used in this manual and are denoted with the approximate symbol (\approx) in front of the metric number. Approximate conversions are considered reasonable and practicable; they are not precise equivalents. In some instances, equivalents (hard conversions) may be used when it is a:
 - Manufacturer requirement for a product (e.g., conduit sizes).
 - Standard or code requirement.
 - Safety factor.
- In general, approximate SI units of measurement are converted to an imperial unit of measurement and placed in parentheses. Exception: When the reference material from which the value is pulled is provided in imperial units only, the imperial unit is the benchmark.
- For metric conversion guidelines, refer to IEEE/ASTM SI 10, *American National Standard for Metric Practice*.
- Trade size is approximated for both metric and non-metric purposes. Example:
 \approx 100 millimeters (mm [4 trade size]).
- In some instances (e.g., optical fiber media specifications), the physical dimensions and operating wavelengths are designated.

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Glossary Terms

10Base-FL	Ethernet at 10 megabits per second (Mb/s) over one pair of optical fiber cabling to a maximum distance of ≈ 2000 meters (m [6500 feet (ft)]).
10Base-T	Ethernet at 10 megabits per second (Mb/s) over two pairs of balanced twisted-pair cabling to a maximum distance of ≈ 100 meters (m [328 feet (ft)]).
10GBase-ER	Ethernet at 10 gigabits per second (Gb/s) over one pair of singlemode optical fiber cabling to a maximum distance of ≈ 40 kilometers (km [25 miles (mi)]).
10GBase-LR	Ethernet at 10 gigabits per second (Gb/s) over one pair of singlemode optical fiber cabling to a maximum distance of ≈ 25 kilometers (km [15.5 miles (mi)]).
10GBase-LX4	1. Ethernet at 10 gigabits per second (Gb/s) over one pair of multimode optical fiber cabling to a maximum distance of ≈ 300 meters (m [984 feet (ft)]). 2. Ethernet at 10 Gb/s over one pair of singlemode optical fiber cabling to a maximum distance of ≈ 10 kilometers (km [6.2 miles (mi)]).
10GBase-SR	Ethernet at 10 gigabits per second (Gb/s) over one pair of multimode optical fiber cabling to a maximum distance of ≈ 300 meters (m [984 feet (ft)]).
10GBase-ZR	Ethernet at 10 gigabits per second (Gb/s) over one pair of singlemode optical fiber cabling to a maximum distance of ≈ 80 kilometers (km [50 miles (mi)]).
100Base-FX	Ethernet at 100 megabits per second (Mb/s) over one pair of optical fiber cabling to a full-duplex maximum distance of ≈ 2000 meters (m [6500 feet (ft)]).
1000Base-LX	Ethernet at 1000 megabits per second (Mb/s) over two strands of singlemode optical fiber cabling using a 1310 nanometer (nm) laser source. Maximum distance of ≈ 5 kilometers (km [(3.1 miles (mi))]).
1000Base-SX	Ethernet at 1000 megabits per second (Mb/s) over multimode optical fiber cabling using an 850 nanometer (nm) laser source.
110C Connector	<i>See</i> insulation displacement connector (IDC).
2N redundancy	A system design that provides two complete units, modules, paths, or systems for every one required for a base system. 2N is also referred to as dual-path topology. Failure or maintenance of one entire unit, module, path, or system will not disrupt operations. For smaller fault-tolerant systems where a single module can accommodate the critical load, the 2N and N + 1 models are synonymous. <i>See</i> redundancy.

2(N + 1) redundancy A system design that provides two complete (N + 1) units, modules, paths, or systems. The failure or maintenance of one unit, module, path, or system will leave a system intact with full redundancy and will not disrupt operations. *See* redundancy.

66 connector A type of insulation displacement connector (IDC).

== A

abandoned cable The installed cables and cabling (e.g., connectorized cables) that are not terminated at both ends at a connector or other equipment and not identified with a tag for future use.

A-bis The Global System for Mobile Communications (GSM) interface if the base station controller (BSC) is not collocated with the base transceiver station (BTS).

ablative The development of a hard char that resists the erosion of fire and flames; a characteristic of a firestop when exposed to fire. (TIA)

above finished floor (AFF) The standard mounting height or vertical distance for a fixture, ceiling, device, or any other object measured from the finished floor surface to the center line of the object as the measurement point.

above mean sea level (AMSL) The height of the topmost point of the antenna. (FCC)

absolute filter A filter capable of collecting solid particles greater than a stated micron size.

absorption A phenomenon causing attenuation of wave signals (e.g., electrical, electromagnetic, optical, acoustic) passing through a medium. It occurs when gaseous molecules or suspended water particles in the atmosphere absorb the signal energy and convert it into heat due to molecular resonance.

A-C-rated fire-retardant plywood The plywood treated with a fire-retardant that has a smooth-finished A grade side that is exposed for the purpose of mounting equipment and a rough-finished C grade side.

accelerator A chemical agent used to hasten a chemical reaction for setting permanent bonds on epoxy glues.

acceptance angle The half-angle of an imaginary cone extending from the end of an optical fiber cable, within which incident light is totally and internally reflected within the optical fiber core. Light within this cone is coupled into reflected modes of the optical fiber cable. Light striking the surface of the fiber at an angle greater than the acceptance angle will not enter the optical fiber cable. Also known as maximum coupling angle.

acceptance plan	A facilitating agreement between parties (e.g., contractor and client or client representative) that defines satisfactory completion of a project task or complete project. It may include items on which the client's acceptance is dependent (e.g., delivery of as-built drawings, test certification).
acceptance test	A test or set of tests performed to demonstrate satisfactory completion of a predetermined task or group of tasks on which acceptance is dependent.
access	The process of connecting to a network.
access block	A single access switch or group of switches sharing one trunk, uplink, or set of redundant uplinks to the distribution layer. Generally confined to one telecommunications room (TR). In a large TR, it is possible to have more than one access block.
access control	The process in which access to the resources of an area or system is limited to authorized personnel, users, programs, processes, or other systems and denied to all others.
access control card	An identification card with encoded information that, when presented to a card reader, identifies the cardholder to the access control system (ACS), allowing that system to determine the cardholder's entrance and exit rights.
access control list (ACL)	The database that keeps track of and controls access to network services through assigned privileges for users and groups.
access control mechanism	An identification device assigned to an individual to give that individual access rights to an access control system (ACS). <i>See also</i> controlled access.
access control system (ACS)	An interconnected set of controllers managing the entrance and exit of people through secure areas.
access controller	<i>See</i> data gathering panel.
access floor	A system consisting of completely removable and interchangeable floor panels that are supported on adjustable pedestals or stringers (or both) to allow entry to the area beneath. Also called a raised floor. <i>See also</i> pedestal and stringer.
access group	A superset of information, including time zones and secured doors, that is applied toward cardholders. This information defines the time of day and doors through which cardholders are granted access.
access layer	The point at which local end users are allowed into the network. In the LAN environment, this connection point is typically a switched Ethernet port that is assigned to a virtual LAN (VLAN).

access level matrix	An access control system (ACS) reference that is specific to each system for which it is being utilized. The purpose of the document is to provide a hierarchy of rights and privileges for different user groups and their associated authorized zones.
access parameter	The programmed information that defines the conditions that must be met to grant access to a secure area.
access point (AP)	<ol style="list-style-type: none">1. The point of entry into a secure area.2. A stand-alone hardware device or a computer wireless adapter with software that acts as a wireless communication hub for users of wireless devices to connect with each other and to bridge those devices to the cabled portion of the network.
access protocol	The set of procedures that enables a user to obtain services from a network (e.g., carrier sense multiple access with collision detection [CSMA/CD]) and token passing for LANs.
access provider (AP)	<ol style="list-style-type: none">1. A company (e.g., telephone company) that provides a circuit path between a service provider (SP) and the client user. An AP also can be the SP.2. The operator of any facility that is used to convey telecommunications signals to and from a client premises. (TIA) <i>See</i> service provider (SP).
accreditation	The formal process by which an agency or organization evaluates and recognizes an institution or program of study as meeting certain predetermined criteria or standards.
acknowledgment (ACK)	A frame used in IEEE 802.11 to confirm that an error-free, data-free frame has been received.
acrylate	A coating applied during the optical fiber cable manufacturing process to provide physical and environmental protection for the optical fiber cable.
active card	A type of access card that is dependent upon a card reader to provide the power necessary to allow the card to transmit its data.
active circuit	Any circuit connected to an energized system.
active equipment	The energized equipment used for receiving or transmitting analog or digital signals (e.g., switches, hubs, routers, private branch exchanges). Also called a powered device. <i>See also</i> passive equipment.
active multiplex system	A multiplexing system in which signaling devices (e.g., transponders) are employed to transmit status signals of each initiating device or initiating device circuit within a prescribed time interval. The lack of receipt of such a signal can be interpreted as a trouble signal.
ad hoc network	A peer-to-peer network characterized by communication between nodes without the need for an infrastructure. Also called independent basic service set (IBSS).

adapter	A device that enables different sizes or types of plugs to mate with one another or to fit into a telecommunications outlet/connector; the rearrangement of leads; large optical fiber cables with numerous wires to fan out into smaller groups of wires; interconnection between optical fiber cables; and limited voltage or polarity or direct current (dc) rectification conversion.
adapter; optical fiber duplex	A mechanical device designed to align and join two duplex optical fiber connectors (plugs) to form an optical fiber duplex connection. (TIA)
addendum	A document used to provide additional requirements and recommendations to a published document (e.g., standards, contracts). When published, an addendum effectively becomes part of the document that it supports.
address	1. A unique identification code assigned to a network device that is used to associate a message with its source and destination. 2. A unique location in a computer's memory or other electronic storage medium.
address resolution	A process used to associate network addresses with media access control (MAC) addresses.
addressable device	A system component with discrete identification that can have its status individually identified or that is used to individually control other functions.
adjacent channel discrimination	<i>See adjacent channel rejection.</i>
adjacent channel interference	The radio frequency interference (RFI) caused by residual energy outside the nominal bandwidth of an adjacent channel signal spilling into the wanted channel signal on two systems operating in close proximity on side by side channels.
adjacent channel rejection	The ability of a receiver to reject interference caused by a transmitter operating on an adjacent channel.
administration	The methodology defining the documentation requirements of a cabling system and its containment, the labeling of functional elements, and the process by which moves, additions, and changes (MACs) are recorded. (ISO)
advanced encryption standard (AES)	A National Institute of Standards and Technology (NIST) secret key encryption using 128 to 256 bit keys.
adverse condition	Any condition occurring in a telecommunications channel that interferes with the proper transmission or interpretation of status change signals at the supervising station.
aerial cable	Telecommunications cable installed on aerial supporting structures (e.g., poles, sides of buildings, other structures). (TIA)

aerial entrance	An entrance facility where the telecommunications cables providing service to a building are placed overhead and the entry point is located above the ground level.
aerial plant	The components of aerial infrastructure, including poles, strand, guys, anchors, cable, and pole line hardware, used to provide telecommunications services between facilities.
aerial-buried plant	A general term for all outside plant (OSP) cable runs made up of both aerial and direct-buried cables.
agile reader	A reader that can read tags operating at different frequencies or using different methods of communication between the tags and readers.
air bottle	A portable compressed air or gas source.
air feeder pipe	An underground pipe that parallels cable runs and is used to supply air for pressurized telecommunications cables.
air handling unit (AHU)	A device that monitors and controls the air by volume, temperature, and humidity before being released into a specified building area. Typically, an AHU consists of a fan, hot or cold coils, and supply and return ducts and dampers. The AHU mixes indoor and outdoor air and passes the mixture of air through the coils.
air-pressure closure	A splice closure that uses an applied internal air pressure to prevent water entry. Internal pressure needs to be greater than external pressure caused by water pressure or other sources.
air sampling-type detector	An early warning smoke detector that consists of a piping or tubing distribution network that runs from the detector to the areas to be protected.
air terminal	A lightning strike termination device that is a point receptor for attachment of flashes to the lightning protection system. A typical air terminal is formed from a tube or solid rod. An air terminal also may be known as a lightning rod.
alarm	<i>See</i> alarm indicator.
alarm indicator	A device or combination of devices (e.g., bell, lamp, strobe, horn, gong, buzzer) that responds to a signal from an alarm sensor and indicates a fault or emergency condition.
alarm service	1. The service required following the receipt of an alarm signal. 2. An organization that monitors alarm device activity and responds to alarm signals.

alarm signal	Any signal resulting from the activation of an alarm event (e.g., fire alarm). An alarm signal usually results in automatic activation of visible or audible notification or signaling appliances. The purpose of an alarm signal is to indicate that immediate action is needed.
alarm system	A combination of compatible initiating devices, control panels, and indicating appliances designed and installed to produce an alarm signal in a specifically defined event (e.g., fire, entry, temperature increase).
alarm verification	A feature of automatic fire detection and alarm systems to reduce unwanted feature alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period after being reset, in order to be accepted as a valid alarm initiation signal.
alert tone	An audible attention-getting signal to inform occupants of the pending transmission of a voice message.
alien crosstalk	The unwanted coupling of signals into a balanced twisted-pair in a given copper cable from one or more balanced twisted-pairs external to the given cable.
alien far-end crosstalk (AFEXT)	The unwanted signal coupling from a disturbing pair of a 4-pair channel, permanent link, or component to a disturbed pair of another 4-pair channel, permanent link, or component, measured at the far end.
alien near-end crosstalk (ANEXT)	The unwanted signal coupling from a disturbing pair of a 4-pair channel, permanent link, or component to a disturbed pair of another 4-pair channel, permanent link, or component, measured at the near end.
all-dielectric self-support (ADSS)	A type of aerial optical fiber cable that is nonconductive/non-metallic and requires no messenger strand for installation.
all-threaded-rod (ATR)	The straight section of round rod stock that has threads installed over its entire length.
alternate entrance	A supplementary entrance facility into a building using a different routing to provide diversity of service and for assurance of service continuity. (TIA) <i>See also</i> loop diversity.
alternate route	A secondary communications path used to reach a destination. <i>See</i> diverse route.
alternating current (ac)	A current flow that alternates periodically (usually sinusoidal) in magnitude and direction.
alternating current equipment ground (ACEG)	A conductor installed from the equipment grounding busbar inside an electrical panel to a secondary bonding busbar (SBB) or primary bonding busbar (PBB).

ambient intelligence	The presence of a digital environment that is sensitive, adaptive, and responsive to the presence of people. Ambient intelligence improves the efficiency and quality of life by creating the desired atmosphere and functionality via intelligent, personalized interconnected systems and services.
ambient sound level	The level of acoustic noise existing at a given location (e.g., room, area). Commonly expressed as background noise, ambient sound level is an objective measurement of audible sound levels in an arbitrary location under ambient conditions. The measurement is usually expressed in decibels (dB). The ambient noise level may be measured with a sound level meter and is defined as the root mean square (rms), A-weighted, sound pressure level measured over the period of time that any person is present or a 24-hour period, whichever time period is less.
ambulatory care	The examination, diagnosis, treatment, and proper disposition of all categories of eligible inpatients and outpatients presenting themselves to the various ambulatory care specialty or subspecialty clinics.
ambulatory care clinic	An entity or unit of a medical or dental treatment facility that is organized and staffed to provide medical treatment in a particular specialty or subspecialty and holds regular hours in a designated place.
American Institute of Architects (AIA)	An organization that provides resources, continuing education, and networking for architects.
American National Standards Institute (ANSI)	A private, nonprofit membership organization focused on meeting the standards and conformity assessment requirements of its diverse constituency. It provides a neutral forum for the development of consensus agreements on issues relevant to voluntary standardization. The United States (U.S.) representative to the International Organization for Standardization (ISO), and through the U.S. National Committee, to the International Electrotechnical Commission (IEC).
Americans with Disabilities Act (ADA)	A United States (U.S.) federal law enacted in 1990 that guarantees equal civil rights for people with disabilities, ensuring that individuals with disabilities have access to or may use public entities and government buildings. These laws affect telecommunications cabling, infrastructure, design, and installation (e.g., public telephone height, visual and audible signaling).
Americans with Disabilities Act Accessibility Guidelines (ADAAG)	A set of guidelines that defines the specific methods for compliance with the Americans with Disabilities Act (ADA) when undertaking construction or alteration of places of public accommodation and commercial facilities in the United States. The first guidelines were published in 1991 on the first anniversary of the enactment of the ADA.
American wire gauge (AWG)	A system used to specify wire size. The greater the wire diameter, the smaller the AWG value.

ampacity	The current, in amperes (A), that a conductor can carry continuously under the conditions of use without exceeding its temperature rating. (<i>NEC</i> [®])
ampere (A)	A unit of measure of the rate of electron flow or current in an electrical conductor. In Ohm's Law, one A is equal to the current produced by one volt (V) flowing through a resistance of one ohm.
amplifier	A device that increases the voltage, current, or power of a signal.
amplitude	The maximum absolute value reached by a voltage or current waveform.
Amplitude Modulation (AM)	The modulation in which the amplitude of a carrier wave is varied in accordance with some characteristic of the modulating signal.
analog	<i>See</i> analog signal.
analog initiating device (sensor)	An initiating device that transmits a signal indicating varying degrees of condition as contrasted with a conventional initiating device that can indicate only an on-off condition.
analog input (AI)	A device (e.g., temperature sensor) that receives a continuously variable signal from a source such as a building automation system (BAS) controller.
analog output (AO)	A device (e.g., damper actuator) that sends a continuously variable signal to another device such as a building automation system (BAS) controller.
analog signal	A signal in the form of a wave that uses continuous variations of a physical characteristic over time (e.g., voltage amplitude, frequency) to transmit information.
anchor	A device attached to a piece of equipment or a structure used to fasten other materials or equipment and securely hold them in place (e.g., in an outside plant [OSP] environment, a device made up of a single plate or series of flat plates and combined with a rod having a connecting eye).
anchor rod	In an outside plant (OSP) environment, the portion of an anchor assembly that extends above the anchor plate below ground level to a point above ground level.
angled physical contact (APC)	An optical fiber connector that is polished at an angle of 8 to 10 degrees to reduce the back-reflection of the signal. Some high-performance singlemode systems (e.g., high-bandwidth analog video systems, passive optical networks) require a low level of back-reflection (-55 decibels [dB] or better) to perform correctly.
annular space	The ring of space between a penetrating element such as a cable, conduit, or other building service and the fire-rated barrier.

annunciator	A unit containing one or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a circuit, condition, or location.
antenna	A conductive structure specifically designed to couple or radiate electromagnetic energy. In radio frequency (RF) systems, the antenna may be used to both transmit and receive electromagnetic energy.
antenna array (including panel)	An antenna made up of a number of elements, including an active or driven element, a reflector, and a director. Array antennas may be narrowband or broadband and are used in all frequency bands.
antenna gain	1. A term used to describe the capability of an antenna to direct signal energy in a particular direction, thereby increasing the effective range of the antenna in the given direction at the expense of range in other directions. 2. The ratio of the power required at the input of a loss-free reference antenna (usually an isotropic radiator or dipole) to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength at the same distance. Antenna gain is usually expressed in decibels relative to an isotropic radiator (decibel isotropic [dBi]) or half wavelength dipole reference (dBd).
antipassback	A method for providing one card one-way access into and out of a secure area. It prevents someone from using a card to enter a secure area and then passing that card back to another to enter that same area. <i>See also</i> interlock.
aperture size	1. The effective capture area of an antenna. The term is commonly used in connection with microwave horn antennas and waveguides. 2. The physical size of the opening in a camera lens expressed as f-stops.
apogee	The point in its orbit at which a satellite is furthest from the earth. <i>See also</i> perigee.
apparatus	A finished combination of devices (or equipment) intended to be placed on the market as a single commercial unit.
apparent power	The product of the root mean square (rms) of voltage and current. It is the magnitude of the vector sum of real and reactive power.
application address	An address used principally by an operating system to uniquely identify each software process running on a device.
application layer	The Open Systems Interconnection (OSI) Reference Model layer responsible for providing mechanisms that enable software applications on different systems to use the services of a network to exchange information. <i>See</i> Layer 7.

application programming interface form (API)	A set of routines, functions, and protocols that accomplish a specific task or interact with a specific software component. An API may come in the form of a library that includes specifications for routines, data structures, object classes, and variables.
application software	The software used to perform a specific task (e.g., word processing, spreadsheet analysis, database management).
application specific	The type of communications cabling installed to meet the requirements of a specific system or application cabling
approved	The official consent typically denoted by an authority having jurisdiction (AHJ).
approved ground	A grounding (earthing) source approved for use by the authority having jurisdiction (AHJ).
aramid yarn	A material with exceptional tensile strength and coefficient of thermal expansion near that of glass used in optical fiber cable to provide support and additional protection of the buffered fiber strands.
arbitration	1. A method of negotiation used in resolving disputes between parties. 2. The process of determining the order in which devices will gain access to a resource. (IEEE)
Architectural and Barriers Compliance Board (Access Board)	A United States (U.S.) federal agency charged with developing minimum guidelines and requirements standards issued under the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA). Established as part of the Rehabilitation Act of 1973. The Access Board is charged with ongoing development and publication of ADA Accessibility Guidelines.
architectural assemblies	Walls, partitions, or other barriers that are not load bearing. (TIA)
architectural drawing	A graphical representation of a building, space, or object prepared with adequate detail to convey design information in a manner to serve as a guide for construction.
architectural, mechanical, electrical, structural (AMES)	The drawings or blueprints that include architectural, mechanical, electrical, and structural designs.
architectural structures	Walls, floors, floor/ceilings, and roof/ceilings that are load bearing. (TIA)
archive	The long-term collection and storage of data, records, or information.
area distribution facility (ADF)	<i>See</i> campus distribution facility.

armoring	A method for protecting communication cables against damage (e.g., crush, impact, rodents). Can be achieved through the use of corrugated steel, fiber-reinforced polymer rods, steel wire, glass yarns, or other suitable materials under or over the outer sheath of the cable.
array connector	A single ferrule connector that contains multiple optical fibers arranged in a row or in rows and columns. An array connector may also be known as a multifiber connector.
array fiber	The optical fiber cable with multiple fiber strands formed together by encasing the fibers into 12-fiber horizontal array units. Array optical fiber cables offer high-fiber density and are ideal for mass fusion splicing or quick terminations. Also called a fiber ribbon cable.
asbestos	A fibrous silicate mineral substance used in items such as building materials, gaskets, fireproof safes, bearings, electrical wiring insulations. Asbestosis has been found to be carcinogenic (cancer causing).
as-built	The documentation of measurements, location, and quantities of material work performed. May be in the form of marked up documents or other work order forms.
as-built drawing	<i>See</i> record drawing.
ASHRAE	An international society organized for advancing the arts and sciences of heating, ventilating, air-conditioning, and refrigerating for the public's benefit through research, standards writing, continuing education, and publications.
asset	An employee, contractor, or any physical, technological, or intellectual possession.
astragal	A molding attached to a door or set of double doors in order to prevent drafts.
asymmetric digital subscriber line (ADSL)	A digital service designed to provide high data transfer rates over traditional telephone cable. Asymmetric refers to different speeds for uplink and downlink traffic. <i>See</i> digital subscriber line (DSL).
asymmetric full-duplex	A transmission process that allows transmitting and receiving information at different rates on the same path.
asynchronous signaling	A form of signaling in which each data character is coded as a string of bits. The bits are separated by start character and stop character bits. The signaling is not synchronized to a network clock. <i>See</i> isochronous signaling, synchronous signaling, and synchronous transmission.

asynchronous transfer mode (ATM)	A high-speed packet switching protocol that uses fixed-length (53-byte) packets organized into cells to carry all types of traffic (e.g., voice, data, still image, audio/video). Fixed-length cells allow cell processing to occur in the hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media, such as E3, synchronous optical network (SONET), and T3.
ATM Forum	An international organization of manufacturers, service suppliers, and users of asynchronous transfer mode (ATM) networking products.
attachment	1. One or more files connected to and sent with an e-mail message. 2. The connection of one device to another. 3. The physical connection of a communication, to a pole or in an underground conduit.
attenuation	The decrease in magnitude or the power loss of a signal that propagates between points, expressed in decibels (dB) as the ratio of received signal to transmitted signal level. <i>See also</i> insertion loss and loss.
attenuation-to-crosstalk ratio (ACR)	The ratio obtained by subtracting insertion loss (i.e., attenuation) from near-end crosstalk (NEXT), measured in decibels (dB). ACR is normally stated at a given frequency.
attenuation-to-crosstalk ratio, far-end (ACRF)	The crosstalk measured at the opposite end from which the disturbing signal is transmitted normalized by the attenuation contribution of the optical fiber cable or cabling.
attenuator	A device used for reducing the energy magnitude of a wave without introducing distortion, normally a combination of fixed or adjustable resistances.
AuC	The Global System for Mobile Communications (GSM) authentication center database.
audible notification appliance	A notification appliance (e.g., bell, horn, speaker) that alerts by the sense of hearing.
audible signal	A sound made by one or more audible notification appliances (e.g., bells, horns, speakers) in response to the operation of any manual or automatic electronic device.
audio frequency (AF)	The band of frequencies (approximately 20 hertz [Hz] to 20 kilohertz [kHz]) that, when transmitted as acoustic waves, can be heard by the normal human ear.
audit trail	A sequential record that accounts for all the activities of a system, device, or process. This record allows for the analysis of events over a given time period.

aught	A colloquial term for the arithmetical symbol 0. It is used in the numbering scheme for conductors larger than 1/0 American wire gauge (AWG) [8.3 millimeters (mm [0.32 inch (in)]), (e.g., two aught, 2/0 [9.3 mm (0.36 in)]). The term aught does not apply to conductors sized in thousand circular mils (MCM [e.g., 250 MCM, 300 MCM]).
authentication	A security mechanism that confirms the identity of a user or a process being implemented.
authority having jurisdiction (AHJ)	The building official, electrical inspector, fire marshal, or other individuals or entities responsible for interpretation and enforcement of local building and electrical codes.
authorization	The process of establishing and enforcing the network activities that are permitted for a given user or device.
authorization level	A security rating that must be met before access to a secure area can be granted. Different secure areas may have different ratings, requiring a range of authorization levels.
authorized passage device (authorized egress device)	A device that when activated, allows authorized persons to enter or exit monitored and controlled openings without triggering an alarm (e.g., keyed switch, card reader, digital code reader).
authorized service provider (ASP)	A third party cleared to work on a product still under warranty by another company without voiding the warranty.
automatic extinguishing system supervisory device	A device that responds to abnormal conditions that could affect the proper operation of an automatic sprinkler system or other fire extinguishing system or suppression system, including control valves, pressure levels, liquid agent levels and temperatures, pump power and running, engine temperature and overspeed, and room temperature.
automatic fire detector	A device designed to detect the presence of a fire signature and to initiate action. Examples include automatic fire detectors that are classified as automatic fire extinguishing or suppression system operation detector, fire-gas detector, heat detector, radiant energy-sensing fire detector, and smoke detector.
automatic gain control (AGC)	A circuit arrangement used to automatically sense variations in the received signal levels and adjust the gain of the receiver amplification stages to provide a constant output.
autonegotiation (AUTONEG)	A feature that determines link options and optimal settings for a given Ethernet connection. When AUTONEG is enabled, a network interface card or a switch port can determine the capabilities of the device at the far end of the link and select the best mode of operation.

autorange	An automatic ranging by a test instrument or tool, such as an optical time domain reflectometer (OTDR) or a laser-based tape measure.
autotest	A function used by field test instruments to run all the required tests in a sequential manner without operator intervention.
auxiliary box	A fire alarm box that can be operated only from one or more remote actuating devices.
auxiliary disconnect outlet (ADO)	1. An extension of a telecommunications circuit demarcation point from a common owner's space into a tenant's individual space. 2. A device usually located within the tenant or living unit used to terminate the ADO cable or backbone cable. (TIA)
auxiliary disconnect outlet (ADO) cable	1. The cable that extends the demarcation point in a common owner's space to a tenant's individual space. 2. In residential applications, the cable from the auxiliary telecommunications disconnects outlet/connector or the distribution device in a client's premises to the backbone facility or the point of demarcation. (TIA)
auxiliary fire alarm system	A system connected to a municipal fire alarm system for transmitting an alarm of fire to the public fire service communications center. Fire alarms from an auxiliary fire alarm system are received at the public fire service communications center on the same equipment and by the same methods as alarms transmitted manually from municipal fire alarm boxes located on streets. (NFPA)
auxiliary fire alarm system, local energy type	An auxiliary system that employs a locally complete arrangement of parts, initiating devices, relays, power supply, and associated components to automatically trip a municipal transmitter or master box over electrical circuits that are electrically isolated from the municipal system circuits. (NFPA)
auxiliary fire alarm system, parallel telephone system	An auxiliary system connected by a municipally controlled individual circuit to the protected property to interconnect the initiating devices at the protected premises and the municipal fire alarm switchboard. (NFPA)
auxiliary fire alarm system, shunt-type auxiliary alarm system	An auxiliary system electrically connected to the public emergency alarm reporting system extending a public emergency alarm reporting circuit to interconnect initiating devices within a protected premises, which, when operated, opens the public emergency alarm reporting circuit shunted around the trip coil of the master box or auxiliary box. The master box or auxiliary box is thereupon energized to start transmission without any assistance from a local source of power. (NFPA)

availability	1. A measure of a network's operation (up time) or absence of operating failure (downtime) during a given period of time. 2. The probability that a system or component is operating at a specified time. 3. The ratio of the total time a system or component is functional divided by the length of the time interval for which availability is being determined.
average ambient sound level	The root mean square (rms), A-weighted, sound pressure level measured over a 24-hour period.
average power (PA)	The sustainable or usable portion of electrical energy in an alternating current. For sinusoidal signal, it is the peak power (PP) multiplied by .707 (e.g., 100 watts [W] of PP is approximately equal to 71 W of PA). <i>See also</i> power and peak power.
average terrain	The average elevation of terrain between ≈ 3.2 kilometers (km) and ≈ 16 km (2 and 10 miles [mi]) from the antenna site. (FCC)
A-weighted decibel (dBA)	<i>See</i> decibel, A-weighted (dBA).

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back end equipment	The equipment component of a distributed antenna system (DAS) that is located in an area of coverage and receives and transmits signals to the headend.
backboard	A panel (e.g., wood, metal) used for mounting connecting hardware and equipment.
backbone	A facility (e.g., pathway, cable, conductors, optical fibers) between any of the following spaces: telecommunications rooms (TRs), telecommunications enclosures (TEs), common TRs, floor-serving terminals, entrance facilities (EFs), equipment rooms (ERs), and common ERs.
backbone bonding conductor (BBC)	A telecommunications bonding connection which interconnects telecommunications bonding backbones.
backbone loop diversity	A type of loop diversity that assigns circuits among different intrabuilding or interbuilding backbone communication cables.
backbone network	An intermediate data network connecting two or more LANs. <i>See</i> internetwork.
backbone pathway	The portion of the pathway system that permits the placing of main and high-volume communication cables between the entrance location and all cross-connect points within a building and between buildings.

backfill	The earth placed outside foundation walls or in a communications cable trenches for filling and grading back to a finished state.
backplane	<i>See</i> switch matrix.
backpressure	A flow control mechanism used to pause data transmission.
backscatter	The scattering of light into a direction opposite to the original direction.
backscatter coefficient	The ratio of backscattered light to transmitted light. The backscatter is a fixed percentage of the transmitted light.
backup	A copy of the data stored on a device.
backup path	A secondary or alternate channel for signal flow. It typically is used when there has been a failure of the main (primary) path.
backup power	<i>See</i> standby power.
backup storage	A redundant storage mechanism that provides the means to recover from primary storage failure and the corresponding loss of data. <i>See</i> disaster recovery.
BACnet® broadcast device	One of the building automation and control network (BACnet)/ management internet protocol (IP) broadcast management methods outlined in ISO 16484-5. This (BBMD) standard incorporates all amendments to ANSI/ASHRAE Standard 135 since 1995. <i>See also</i> building automation and control network (BACnet).
BACnet® interoperability	The software that simplifies interoperability into common functions that are building block (BIBB) intuitive to specifiers and owners. May define a name and set of simple building automation and control network (BACnet) requirements. <i>See also</i> building automation and control network (BACnet).
BACnet® Testing Laboratories (BTL)	The BACnet Manufacturer's Association offers a product testing and listing program for building automation products that have building automation and control network (BACnet) capability. Laboratories that conduct such testing and listing services are known as the BACnet Testing Laboratories. <i>See also</i> building automation and control network (BACnet).
BACnet® virtual link layer (BVLL)	A building automation and control network (BACnet)/internet protocol (IP) communication is implemented by defining a new protocol layer called the BACnet virtual link layer. The BVLL provides the interface between the BACnet Network layer and the underlying capabilities of a particular communications subsystem. <i>See</i> building automation and control network (BACnet).
badge reader	<i>See</i> card reader.

badging software	The security software that is capable of creating a photo identification badge.
balanced cable	<i>See</i> balanced twisted-pair cable.
balanced copper cable	<i>See</i> balanced twisted-pair cable.
balanced transmission	A transmission method consisting of two conductors, each having an impedance along its length equal with each other and with ground. This ensures that the signal in one conductor is equal and opposite to the other conductor, which reduces interfering noise to and from other nearby conductors. An example is twisted pair cabling. <i>See also</i> balun and unbalanced transmission.
balanced twisted-pair cable	A multi-conductor communications cable composed of two or more copper conductors twisted in a manner designed to cancel electrical interference. <i>See also</i> unshielded twisted-pair (UTP) cable.
balloon float	A helium-filled balloon device used to assist in the verification of line of sight (LoS) in the design of point-to-point (PTP) radio communications systems.
balun	A device used to convert unbalanced to balanced transmission of one impedance value to another or one media type to another (e.g., impedance matching of twisted-pair to coaxial cabling). <i>See also</i> balanced transmission and unbalanced transmission.
bandwidth	A range of frequencies available for signaling expressed in hertz (Hz). It is used to denote the potential information handling capacity of the medium, device, or system.
bar code card	An access control card with identification information encoded in the bar code format.
barrel connector	A female-to-female adapter used to join two connectorized segments of optical fiber communications cable together.
barrier	A partition, divider, or other separation that provides complete separation from adjacent compartments.
base station	The fixed station part of a mobile radio frequency (RF) network. It could be operated using a remote control or local control. In the cellular industry, this also may be called a base transceiver station (BTS).
baseband	The bandwidth containing the original basic information of a signal before it is subject to multiplexing or modulation processes.
baseband signaling	A method of signal transmission where the entire bandwidth of the medium is used to send a single signal.

baseboard pathway	A communications cable distribution pathway method in which channels containing cables run along or within the baseboards located at the bottom of a wall in a building space or in modular furniture.
basic service set (BSS)	A single wireless LAN (WLAN) access point (AP) and its associated clients, loosely equivalent to a wireless collision domain.
battery backup	A secondary energy source using only batteries to temporarily power devices in the event the primary energy source fails.
baud	The rate at which the signal changes from one state to the other.
bay	<ol style="list-style-type: none">1. A regular repeated spatial architectural element defined by beams, columns, or ribs and their support.2. Floor-standing racks, frames, or cabinets to house communications cabling, distribution hardware or equipment.
beacon	<ol style="list-style-type: none">1. A device (usually a light) used to mark towers for aircraft avoidance.2. A frame transmitted by wireless LAN (WLAN) access points (APs) at regular intervals to let its presence be known to clients within its transmit range.3. An automated radio transceiver on a fixed frequency, usually transmitting a fixed identification code or message.
beacon frame	A special token ring frame that is transmitted by a network device when it detects a ring failure. The device sending the frame is said to be beaconing.
beam clamp	A device attached to a beam or other building structure above the ceiling or under the floor to hold cable supports or equipment.
beam width	On an antenna radiation pattern for a particular plane, the angle between the half-power (3 decibels [dB]) points of the main lobe when referenced to the peak effective radiated power of the main lobe. Beam width is usually expressed in degrees.
bearing plate	A steel plate placed under one end of a beam, column, or truss at a support point for load distribution.
bearing wall	A wall supporting a load other than its own weight. (TIA)
bel	A logarithmic ratio of analog signal strengths, named in honor of telephone pioneer Alexander Graham Bell. A decibel is one-tenth of a bel.
bell, vibrating	A bell that rings continuously as long as operating power is applied.
bend radius	The radius of curvature that a media can bend without signal degradation. For example, communications cabling exceeding the cables' bend radius, determined by the cables construction and contents, may cause excess attenuation due to light leaking from the core in a fiber optic or the impedance changing in a copper.

bending moment	The totality of forces acting perpendicular to a structural element, such as a tower, beam, or pole, tending to cause the element to bend. Bending moments on a tower or pole are usually caused by unbalanced tension (load) in the guy lines. This load can be calculated as the algebraic sum of the moments about the neutral axis of any cross section of the element.
berm	A mound or wall of earth. A narrow shelf, path, or ledge. In outside plant (OSP) construction, the berm is the stabilized or paved area of a road shoulder.
bias tee	A type of connection used to inject direct current (dc) power into one end of a coaxial cable, combining it with the alternating current (ac) radio frequency (RF) signal, and tapping it off at the other end, thereby allowing remote powered devices to operate without a separate local power source.
biased door contacts	A high-security door contact that uses a biasing magnet mounted inside the reed switch part of the door contact package. The magnet establishes a minimum threshold level and polarity for the magnetic field required to activate the switch, thereby reducing false activations.
biconical (biconic)	A screw type of optical fiber connector, now obsolete. This connector has a conical molded-plastic ferrule that fits into a biconical mating adapter when connected to another connector.
bid form(s)	A prepared set of documentation that the bidder will submit to the owner or contracting agent. (e.g., material pricing, labor pricing, submittals, contract acknowledgments).
bidders' conference	A meeting conducted by the issuer of a request for quote or request for proposal to review and address any questions from respondents (bidders) with regard to the bid documents.
bidding documents	The construction documents issued to provide the information needed to bid on the project.
bidirectional amplifier (BDA)	<i>See</i> signal booster.
bidirectional signaling	The signals that pass in opposite directions between two transceivers. In a twisted-pair cable, this may be on the same or different pairs. Wireless and optical fiber systems also may operate in a bidirectional manner.
bill of materials (BOM)	A list of the quantity and specific types of materials to be used on a project. This list also should consider miscellaneous hardware (e.g., screws, bolts).
binary	A numbering system using a base number of two. Many digital signals may be described as binary signals. In a binary system, all information is expressed as patterns of zeros and ones.

binary digit	The basic unit of digital information used to indicate the existence of one of two binary states or conditions (e.g., current flow, no current flow). A digital pulse representing a one or a zero. Also known as a bit.
binary digital system	A system in which the data rate is determined by the baud rate and the number of bits encoded per baud interval.
binary phase-shift keying (BPSK)	A modulation scheme using phase-shift keying (PSK) between two phase states, normally 180 degrees apart.
binder group	A bound collection of balanced twisted-pairs or optical fibers within a cable. Binder groups are organized into predetermined sequences of conductors or fibers and distinguished by a unique set of color codes.
biometrics	The authentication techniques based on measurable physical characteristics of individual users (e.g., fingerprints).
bit	<i>See</i> binary digit.
bit error rate (BER)	The ratio of incorrectly transmitted bits to total transmitted bits. A primary specification for all transmission systems, it is usually expressed as a power of 10.
bit rate	<i>See</i> bits per second (b/s).
bit stream	A series of bits representing the message being transferred between devices.
bits per second (b/s)	A unit of measure used to express the data rate of a device, system, or communications channel. Commonly used rates include kilobit per second (kb/s), megabit per second (Mb/s), and gigabit per second (Gb/s). <i>See</i> bit rate.
BIX connector	A type of insulation displacement connector (IDC).
blade server	A small data server in a modular, circuit board format optimized to minimize the use of physical space and energy. Numerous blade servers may be inserted into a blade chassis, sharing common support services such as power, network connections, and cooling.
blank cell	The hollow space of a cellular metal or cellular concrete floor unit without factory installed fittings. (TIA)
blanking panel	A barrier installed in an information technology equipment (ITE) cabinet, rack, or enclosure for maximizing segregation between hot exhaust air and cool source air for optimized cooling effectiveness. Also known as filler panel.

blended floor system	A combination of cellular floor units with raceway capability and other floor units with raceway capability systematically arranged in a modular pattern. (TIA)
blueprint	A reproduction of an architectural plan or technical drawing that provides details of a construction project or an existing structure or system.
Bluetooth®	A low-power, radio frequency (RF), personal area network (PAN) technology that enables cordless data transfer between Bluetooth-equipped devices at short range.
BNC	A coaxial connector with twist-on bayonet locking coupling.
bolt position switch	A miniature switch used on or in a locking device to monitor whether the locking bolt is in the locked (projected) or unlocked (retracted) position.
bond	1. An electrical connection using a low-resistance path. 2. A written obligation under seal to guarantee that specific documents are accurate or that the bonded party will meet specific requirements, in a specific way, within a specific time period.
bonded channels	Two adjacent 20 megahertz (MHz) wireless LAN (WLAN) channels bonded together to form a 40 MHz-wide channel. This allows more than double the performance improvement since interchannel reserved frequencies can be used. IEEE 802.11n defines 40 MHz channels in both 2.4 gigahertz (GHz) and 5 GHz bands. The 2.4 GHz band can support only one 40 MHz channel.
bonding	The effective joining of metallic parts to form an electrically conductive path that will ensure electrical continuity and the capacity to safely conduct any current likely to be imposed.
bonding conductor (BC)	A conductor used specifically for the purpose of bonding.
bonding conductor for telecommunications (BCT)	A regional term for telecommunications bonding conductor (TBC).
bonding network (BN)	A set of interconnected conductive structures that provides an electromagnetic shield for electronic systems and personnel.
boring	A method to displace earth under the ground without breaking the ground surface (trenching) or cutting ground surface (e.g., sidewalks, driveways, parking lots, road surfaces). Normally, as dirt is displaced or removed, conduit or pipe is inserted.
bounded medium	A term used to describe cabling or waveguide. <i>See also</i> unbounded medium.
box battery	A battery supplying power for an individual fire alarm box where radio signals are used for the transmission of box alarms.

branch circuit	The conductors between the final overcurrent device protecting the circuit and the outlet/connectors.
branch conduits	The conduits extending from the main conduit system. These systems usually serve a smaller portion of the facility. Branch conduits usually contain distribution cables.
branch splice	A splice in which one communication cable is spliced to multiple smaller pair-count cables.
break before make	<i>See</i> open transition.
break-glass box	A box with a special element that requires breaking in order to operate.
breaking load	The tension (load) that causes fracture in a tensile, compression, flexure, or torsion test. Also called breaking strength.
break-out cable	The multifiber or multi-conductor cables where each optical fiber or conductor pair is further protected by an additional jacket and optional strength elements.
bridge	The hardware used to connect multiple devices or communication cables to a single appearance of a signal.
bridged tap	A connection that enables multiple appearances of the same cable pair at several distribution points. (TIA)
bridging (architectural)	A system of bracing between floor beams to prevent lateral instability.
bridging clip	An encased or bare metal clip used to couple copper communication cable conductors on a connecting block and provide a point of physical disconnection.
bridle ring	A ring that is circular in shape but is open rather than closed. It has a pointed shaft at its apex that is threaded for installation into wood or rethreaded devices.
broadband	An analog design simultaneously using multiple communication channels separated by guard bands. Commonly used to describe a high-speed digital signal associated with backbone or multiplexed transmissions.
broadband signaling	The simultaneous transmission of multiple signals over a medium sharing the entire bandwidth of the medium (e.g., video signals multiplexed into channels with a bandwidth of 6 megahertz [MHz] each).

broadcast	1. A technique for sending data simultaneously to all devices attached to a network with a single transmission. 2. A form of multidirectional telecommunications intended for a large number of users having appropriate receiving facilities and carried out by radio or by communications cable networks <i>See also</i> multicast and unicast.
broadcast domain	The span of a network as represented by the devices capable of receiving a Layer 2 frame or Layer 3 datagram addressed to all devices.
broadcast group	The group of devices receiving a broadcast transmission.
broadcast storm	A series of retransmitted broadcasts caused by uncontrolled duplication of the original message.
browser	The applications software used to access internet-based content.
browser mode	A form of remote access where the remote station accesses LAN resources through an internet-based server on the LAN and obtains access to resources designed to operate in a browser environment.
bucket lift	A personnel lift composed of a large bucket mounted on the end of an extendable arm in which the user stands inside the bucket.
buffer	A temporary storage area in an electronic device used to hold incoming data until it can be processed.
buffer coating	A protective thermoplastic material applied to the acrylate layer of the optical fiber to protect against environmental hazards. May be more than one layer.
buffer tube	A supplemental loose-fitting cover applied over the primary coated optical fibers at time of installation.
buffering	1. The process of providing a supplemental air supply to pressurized optical fiber cables during splicing operations. 2. The process of storing data in a temporary memory area until it can be processed.
building automation and control network (BACnet®)	An industry standard protocol for building automation and control networks developed under the auspices of ASHRAE, published as ANSI ASHRAE standard 135. BACnet defines a four-layer architecture that includes the physical, data link, network, and application layers of the Open Systems Interconnection (OSI) Reference Model (ISO 7498).
building automation system (BAS)	A control system consisting of hardware (e.g., controllers, optical fiber cabling, input/output devices) and a software application or suite of software applications that automate the electrical, mechanical, or other building and facility subsystems.
building automation system (BAS) outlet	A connecting device between a horizontal cable and a coverage area device. (TIA)

building code	The construction requirements that are adjudicated into law by the authority having jurisdiction (AHJ).
building core	A three-dimensional space permeating one or more floors of the building and used for the extension and distribution of utility services (e.g., elevators, washrooms, stairwells, mechanical and electrical systems, telecommunications) throughout the building. (TIA)
building distributor (BD)	An international equivalent term for intermediate cross-connect (IC).
building entrance	The point where services media leaves its outside plant (OSP) pathway to enter and leave the building. For example, the building entrance for an optical fiber cable inside a conduit extending from outside the building is the point where the cable exits the conduit, regardless of the distance the conduit travels into the building.
building entrance terminal (BET)	The cable termination equipment used to terminate outside plant (OSP) cables at or near the point of building entry and protect the cable pairs from lightning and foreign voltage. Sometimes referred to as protected entrance terminal (PET).
building grounding electrode system	A network of grounded building components (e.g., metal underground piping, metal building frame, concrete-encased electrode, ground ring and rod, pipe electrodes).
building information modeling (BIM)	The process (and supporting software) of generating and managing building data during its life cycle using three-dimensional, real-time graphical images with substantial imbedded data about each object. This allows interactions and conflicts to be automatically highlighted.
building management system (BMS)	A system that provides centralized monitoring of two or more building systems that are typically controlled by a building automation system (BAS). A building management system (BMS) may also provide provide control functionality of the individual BAS system.
building module	In architecture, an arbitrary unit adopted to regulate the dimensions, proportions, or construction of the parts of a building. Design modules may be used to organize the proportioning and dimensioning of plans.
building systems	The architectural, mechanical, electrical, and control systems along with their respective subsystems, equipment, and components.
bull line	A rope with limited stretch characteristics used for pulling high pair-count backbone communications cable.
bullwheel	A large wheel used to maintain an arc when feeding large communication cables into a backbone pathway.

bundle	1. Many individual optical fibers contained within a single jacket or buffer tube. A group of buffered optical fibers distinguished in some fashion from another group in the same cable core. 2. Used to indicate time and common handling of multiple optical fiber cables routed together.
bundled cable	An assembly of two or more cables continuously bound together to form a single unit. (TIA)
bundled fiber	A group of buffered optical fibers distinguished in some fashion from other groups.
buried cable	A cable installed under the surface of the ground in such a manner that it cannot be removed without disturbing the soil. (TIA)
buried marker ball	A sealed passive electronic device that activates and transmits when it receives a locating signal. It comes in several configurations (e.g., ball, cylinder, disk, surface marker) and is color coded to indicate a particular utility transmit frequency.
burn-in	A test or continuous operation of a component or system before it is put into use.
burst mode	A data transmission mode in which data is sent faster than normal.
bursty	A characteristic of digital transmission where the transmission rates have large variations during short periods of time.
bus topology (physical)	A linear networking topology in which each communications device or network has a single connection to a shared medium that serves as the communications channel. Also called a point-to-multipoint topology.
bushing	An insulating lining for an aperture through which multiple conductors may pass.
butt set	<i>See</i> telephone test set.
butt splice	A splice in which optical fiber cables enter the same end cap of the splice closure.
butt splice connector	A splice connector used to join two or more conductors routed from the same direction.
butterfly detail	A maintenance hole (MH) or room diagram that shows all four walls with detailing of route and splicing locations of optical fiber cable passing through the MH.
byte	A data unit made up of eight bits. Also called an octet.

by-wire (or x-by-wire) A term used to describe control systems that depend on a real-time telecommunications network to connect different electronic components. Historically, these control systems relied on mechanical or hydraulic linkages, and the goal of by-wire is to replace hydraulic/mechanical systems with electronics.

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C drop wire A single-pair self-supporting wire cable used in aerial pathways to extend telephone circuits from a pole, span, or cable terminal to a subscriber premises by means of an aerial drop from the distribution backbone. Also available as a singlemode optical fiber self-supporting aerial drop wire cable.

cabinet, electrical A freestanding and self-supporting enclosure for housing electrical or electronic equipment. It is usually fitted with doors and/or side panels, which may or may not be removable. (EIA/ECA-310-E)

cabinet, telecommunications An enclosure used for terminating telecommunications cables, wiring, and connection devices with a hinged cover, usually mounted in or on the wall. (TIA)

cable **1.** An assembly of one or more insulated conductors or optical fibers within an enveloping sheath that may be screened or unscreened. **2.** The act of installing communications cable.

cable assembly A cable that has connectors installed on one or both ends. *See also* jumper and pigtail.

cable brake *See* reel brake.

cable dip The aerial cable that is transitioned down a utility pole and placed below grade, typically occurring at the pole closest to the building. Also called a pole dip.

cable-end locator kit A set of numbered 8-pin modular plugs that can be identified by the cable tester. Also called an office locator kit.

cable fill **1.** A term used to describe the number of communication cables permitted in a cabling pathway, calculated as a percentage of the total number of cables with a given cross-sectional area to a pathway with a given cross-sectional area. **2.** The number of working conductor pairs or optical fibers in a cable.

cable head The end of a cable attached to the pulling device.

cable infrastructure pull tension The pulling force that cannot be exceeded on the cable-holding infrastructure without affecting the structural integrity of the facility during cable pulling and installation operations.

cable labeling system	A scheme employed when identifying communications cable or its associated hardware.
cable loss	The attenuation of a signal as it passes through a communications cable medium. Cable loss is normally expressed in decibels (dB) and increases with frequency.
cable management	Within a telecommunications space (e.g., telecommunications room [TR]), the use of physical structures used to provide horizontal and vertical pathways for guiding and managing communications cabling infrastructure. Used throughout horizontal cabling systems, building backbone cabling systems, and campus cabling systems; physical structures to guide cabling infrastructure in an engineered and orderly fashion when connecting cabling to equipment as well as when connecting one set of cabling infrastructure distributors (e.g., main cross-connect [MC (campus distributor [CD])]) to another. <i>See also</i> distribution ring (D ring).
cable marker post	An aboveground stake or post with an attached sign indicating the existence of underground facilities in the area and the direction of the cable.
cable matting	A protective mat that may be installed into cabling pathways as a form of protection for high-performance cabling.
cable plant	The portion of an information and communications technology (ICT) system consisting of non-wireless systems, equipment, and materials.
cable rack	<i>See</i> cable tray system.
cable reel	A spool or cylinder for storing and distributing cable.
cable reel brake	<i>See</i> reel brake.
cable run	Length of installed media, which may include other components along its path. (TIA)
cable sheath	A covering over the insulated optical fiber strands or copper conductors forming an assembly of components that may include one or more metallic members, strength members, and/or jackets. (TIA) <i>See also</i> jacket.
cable support system	A combination of conduits, communications cable trays, support hooks, tie wraps, and any other hardware pieces designed specifically for use in a cabling installation to keep excess stress off the cables. May provide some mechanical protection to the cables being supported.
cable terminal	A mechanical assembly used to terminate the components (e.g., conductors, fibers) of a cable.

cable termination	1. The act of applying a connector to the end of a cable for the purpose of facilitating connection to active or passive transmission equipment. 2. The act of attaching a connectorless conductor to active or passive transmission equipment. 3. Hardware applied to the end of a cable for the purpose of facilitating connection to active or passive transmission equipment.
cable throw	A changing of the circuit identity of communication cable pairs by splicing to pairs of a different identity.
cable tie	<i>See</i> tie wrap.
cable tray	A support mechanism used to route and support communications and other cables. Cable trays may be equipped with side walls or barriers to constrain a cable's horizontal placement or movement. <i>See also</i> ladder cable tray.
cable tray system	A section or assembly of sections and associated fittings forming a mechanical system used to support communication cables and raceways.
cable tree	The apparatus that holds multiple reels of communications cable used for the controlled distribution of cabling during installation.
cable TV (CATV)	A system for TV reception in which signals from distant stations are picked up by a master antenna and sent by communications cable to the individual receivers.
cable vault	<i>See</i> vault.
cabling	A system of telecommunications cables, cords, and connecting hardware that can support the connection of information technology equipment. (ISO, CENELEC).
cabling infrastructure	The communications cable, connecting hardware, cabling pathways, vaults, junction/pull boxes, racks, cabinets, enclosures, equipment, patch bays/blocks, and other infrastructure required to provide physical, electrical, or optical connectivity within and between buildings of the owner or between buildings on the owner's property.
cabling system	<i>See</i> cabling.
caching	A technique that provides faster access to data by storing a copy of recently used or likely to be used data in fast, accessible memory.
calibration	The task of verifying test equipment against a reference.
campus	The buildings and grounds having legal contiguous interconnection. (TIA) Some examples include premises containing one or more buildings such as a college, university, industrial park, or military facility. (ISO, CENELEC) <i>See also</i> plant.

campus area network (CAN)	A network that links LANs located in two or more buildings in close proximity to each other.
campus distribution facility (CDF)	A telecommunications space in one building that serves that building and all other buildings in a designated area or zone. A CDF typically houses a building distributor (BD) and serves as, or is adjacent to, the entrance facility (EF) for the building in which it is located, in addition to serving as a hub for the distribution of backbone cabling to other buildings within the zone. It also may serve as a telecommunications room (TR) for the floor it occupies. It may act as an equipment room (ER) for one or more buildings within the zone. CDFs are generally placed on the lowest floor of a building to allow the entry of outside plant (OSP) cables without transition splicing and for grounding (earthing) of cables.
campus distributor (CD)	<i>See</i> main cross-connect (MC).
candela (cd)	The International System of Units (SI) metric measure for the luminous intensity or light output of a light or strobe.
capacitance	1. The ability of an electronic component to store electrical energy. 2. The opposition to a change in voltage.
capacitance unbalance	A difference in capacitance between the conductors of two pairs (or between the conductors and the ground) that are located in close proximity to each other within a communications cable that can result in the undesirable transfer ring of an undesired signal, commonly referred to as crosstalk.
capacitive reactance	The portion of impedance that opposes a change in voltage due to electric field coupling.
capping	1. The applying of a closure device to an insert after the floor fitting is removed. 2. Covering communication cables located within a wall chase. 3. Sealing the end of an optical fiber cable to prevent moisture intrusion prior to termination.
capstan	A component used for pulling or pushing cable. Commonly used with blown fiber installation systems.
carbon protector or block	An overvoltage protector that uses closely spaced carbon electrodes (granules) for voltage limiting.
card access	An access control system (ACS) using encoded cards and card readers to recognize identification cards and determine whether access may be granted.
card encoder	A device used to encode data onto an access card.
cardholder	An individual who has been assigned an access control card.

card reader	A device that retrieves information stored on an access card or badge and transmits the information to a controller. Also called a badge reader.
carrier	A transmitted signal on which information can be imposed by varying the signal strength, base frequency, wave phase, or by other means. <i>See also</i> access provider.
carrier sense multiple access with collision avoidance (CSMA/CA)	The IEEE® 802.11 listen-before-talk protocol.
carrier sense multiple access with collision detection (CSMA/CD)	The protocol for carrier transmission access in Ethernet networks. Defines how network devices respond when multiple devices simultaneously attempt to send data over the same medium. CSMA/CD is specified in the IEEE® 802.3 standard.
carrier sensing	The monitoring of a communications channel to check if it is free before transmitting (i.e., to see if any network devices are transmitting).
carrier system	A means of conveying a number of channels over a single path by modulating each channel on a different carrier frequency and demodulating at the receiving point to restore the signals to their original form.
carrier-to-interference ratio (C/I)	The ratio between the desired carrier signal at the receiver end and the strongest co-channel carrier signal, expressed in decibels (dB).
category	A rating that defines the performance of communications cabling components and systems. A category describes mechanical properties and transmission characteristics of balanced twisted-pair and optical fiber cabling and provides a numbered designation. Categories are defined in many regional standards (e.g., ANSI/TIA, ISO, AS/NZS, JIS).
category 3	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 16 megahertz (MHz).
category 4	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 20 megahertz (MHz). This category is no longer recognized in published standards.
category 5	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 100 megahertz (MHz). The Telecommunications Industry Association (TIA) no longer recognizes this category of cabling. ISO/IEC 11801.Ed.2.0, Generic Cabling for Customer Premises, does recognize this category of cabling. In ISO/IEC and related standards, category 5 is the functional equivalent of TIA category 5e cabling.

category 5e	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 100 megahertz (MHz). This category specifies transmission parameters that were not characterized by TIA category 5 (e.g., power sum near-end crosstalk [PSNEXT], return loss, equal level far-end crosstalk [ELFEXT], power sum equal level far-end crosstalk [PSELFEXT]) and features more stringent near-end crosstalk (NEXT) than TIA category 5.
category 6	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 250 megahertz (MHz).
category 6A (augmented)	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 500 megahertz (MHz). The augmentation from category 6, typically expressed as category 6A, features extended frequency range and alien crosstalk transmission parameters.
category 7	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 600 megahertz (MHz).
category 7A (augmented)	The balanced twisted-pair cabling specifications characterized by, among other requirements, a frequency range from 1 to 1000 megahertz (MHz).
catenary wire	<i>See</i> support strand (messenger).
cathodic protection	A system to provide a constant low-current flow in equal and opposite polarity to the existing electrolysis current flow. Used to protect buried conduit, piping, and cable sheaths from corrosion.
catwalk	An elevated walkway provided in some buildings to help workers reach utility spaces.
cavity wall	A wall constructed to provide air space within the wall.
cdma2000	An air interface developed under the Third Generation Partnership Project Two (3GPP2) that evolved from second generation (2G) mobile telephony code division multiple access (CDMA) interim standard (IS)-95.
CE marking	A Conformité Européene (CE) mark fixed to the product itself or its packaging, instructions for use, or guarantee certificate. It indicates that the product complies with all relevant European directives that call for its application (e.g., electromagnetic compatibility [EMC] directive).

CEBus[®] Industry Council (CIC)	A multi-industry organization of companies, incorporated as a nonprofit corporation, to develop and enlarge the market for products compliant with the Consumer Electronics Bus (CEBus) standard or the common application language as implemented in the home plug and play specification. The council maintains the value of its certification marks while facilitating interoperability among products and with multiple transport protocols through the maintenance of the standard and specification, its application database, product testing, and conformance certification. <i>See also</i> Consumer Electronics Bus (CEBus [®]).
ceiling	The upper surface of a space regardless of height. Areas with a suspended ceiling have two ceilings, one visible from the floor and one above the suspended ceiling.
ceiling distribution system	A distribution system that uses the space between a suspended or false ceiling and the structural surface above. (TIA)
ceiling height	The height from the continuous floor of a room to the continuous ceiling of a room or space.
ceiling surfaces	1. Beam construction-Ceilings that have solid structural or solid non-structural members projecting down from the ceiling surface more than ≈ 100 millimeters (mm [4 inches (in)]) and spaced more than ≈ 1 meter (m [3.3 feet (ft)]), center to center. 2. Girder-A support for beams or joists that runs at right angles to the beams or joists. If the top of the girder is within ≈ 100 mm (4 in) of the ceiling, the girder is a factor in determining the number of detectors and is to be considered a beam. If the top of the girder is more than ≈ 100 mm (4 in) from the ceiling, the girder is not a factor in detector location. 3. Solid joist construction-Ceilings that have solid structural or solid non-structural members projecting down from the ceiling surface for a distance of more than ≈ 100 mm (4 in) and spaced at intervals of ≈ 1 m (3.3 ft) or less, center to center.
cell	1. The fixed area in which a wireless base station is configured to operate. 2. A single wireless LAN (WLAN) access point (AP) and its associated clients.
cellular floor	A floor distribution method in which cables pass through floor cells constructed of steel or concrete to provide a ready-made raceway for distribution of power and telecommunications cables. (TIA)
cellular floor raceway	An assembly of hollow, longitudinal units constituting part of a floor and systematically placed for the distribution of cables. (TIA)
cementitious firestop	A firestopping material that is mixed with water and is similar in appearance to concrete or mortar.

centralized cabling	<p>1. A cabling topology from the work area to a centralized cross-connect using pull-through cables or an interconnect in the telecommunications room (TR). 2. In optical fiber cabling systems, it is the same topology described above, with the addition of a splice method allowed for use. Often used in passive optical networks.</p>
central member	<p>The center component of a cable installed as a strength element.</p>
central office (CO)	<p>A common carrier switching center office (also called public exchange) that is conveniently located in areas to serve subscriber homes and businesses. It provides telephony services (lines) that are connected on a local loop. The CO contains switching equipment that can switch calls locally or to long-distance carrier telephone offices.</p>
central processing unit (CPU)	<p>The part of a computer in which logical operations are performed.</p>
central station	<p>A location that remotely monitors activities that occur at a protected facility. Central stations frequently are identified as a proprietary or non-proprietary contract.</p>
central station fire alarm service	<p>The use of a system or group of systems in which the operations of circuits and devices at a protected property are signaled to, recorded in, and supervised from a central station that has competent and experienced operators who, upon receipt of a signal, take such action as required by codes, standards, and regulations (e.g., NFPA 72®). Central station service is controlled and operated by a person, firm, or corporation whose business is furnishing such contracted services or whose properties are the protected premises.</p>
certificate of need (CON)	<p>A document from an oversight organization that grants a health care organization permission before making changes. Generally applies only to facilities or facility-based services.</p>
certification	<p>A formal procedure by which an accredited or authorized person or agency assesses and verifies (and attests in writing by issuing a certificate) the attributes, characteristics, quality, qualification, or status of individuals or organizations, goods or services, procedures or processes, or events or situations in accordance with established requirements or standards.</p>
certification of personnel	<p>A formal program of related instruction and testing provided by a recognized organization or the authority having jurisdiction (AHJ).</p>
certification test set	<p>A test set designed specifically to measure the properties of a circuit to determine whether the circuit meets certification standards.</p>
change management	<p>A term used to describe the process of tracking all network modifications.</p>

change of state	A change from the normal operating stance of a system, whether required by maintenance or a failure, resulting from an automatic or a manual response to some form of system input or response.
change order	A written and signed document issued after the construction agreement has been signed authorizing additions to, deletions from, or modifications of the work to be completed or an adjustment in the contract sum or time. (CSI) Also called job change order.
channel	1. The end-to-end transmission path connecting interfaces of any two pieces of application-specific equipment. Equipment cords and work area cords are included in the channel. <i>See also</i> permanent link and transmission channel. 2. In frequency division multiplexing (FDM), a band in the frequency spectrum that is assigned to a specific logical connection. 3. In time division multiplexing (TDM), a time that is assigned to a specific logical connection. 4. In radio systems, a single talk path or a single mode for the data stream.
channel bank	A multiplexing device that divides a high-speed digital service into multiple, smaller, fixed-size channels that can be separately accessed. The device also allows several channels to be linked into larger bundles (often referred to as Nx64).
channel cable tray	A fabricated structure consisting of a one-piece ventilated-bottom or solid-bottom channel section.
channel service unit (CSU)	A client premises device that physically connects the data terminal equipment to a digital line from the public network service provider (SP).
channel stock	A metallic, U-shaped bar with spaced holes often hung in a trapeze configuration for support of pathway systems (e.g., conduits, cable trays).
characteristic impedance	The input impedance of a circuit or a uniform transmission line with a constant voltage-to-current ratio any point along the line.
chase	A space or channel within an architectural barrier (e.g., wall, floor, ceiling) created for routing raceways, pipes, or ducts. An opening that passes completely through a barrier is not considered a chase.
chase nipple	A metallic bushing used with a locknut and inserted into a hole (typically in a metal enclosure) to protect communications cabling from abrasion on sharp edges.
chat	A basic text display application that allows two or more users to communicate in real time over a network. A text message typed by any user is instantly displayed on the screens of all users. Also called instant messaging.

checksum	A value calculated from the binary content of a message. It is used by the receiving device to verify that the data has not been altered during its transfer from source to receiver. <i>See also</i> frame check sequence.
chemical electrode	Copper tubes containing a chemical that slowly leaches into the soil, lowering the soil's resistance. Also called a chemical ground rod.
chief of service	A member of a hospital staff who is elected or appointed to serve as the medical or administration head of a clinical service.
chip rate	The rate of the spreading code factor in code division multiple access (CDMA).
chipping sequence	A specific sequence of bits created by converting each bit in the message stream. Used in direct sequence spread spectrum (DSSS) signaling and called a chipping code.
chromatic dispersion	A result of the phenomenon that the velocity of propagation in a medium is frequency dependent, which causes the frequency components of a pulse to lose phase coherence as it propagates (e.g., transmitted pulse will spread out as it propagates).
churn	1. The rate of client attrition (e.g., moving from one service provider [SP] or system to another). 2. The inventory moving through a distribution warehouse.
cipher lock	A mechanical combination lock that is used in access control to unlock a knob or level or to actuate a set of contacts.
circuit (ckt [U.S.], cct [European])	1. The electrical or optical path used for communications between two devices. 2. Any combination of electrical components and conductors connected to perform a specific function.
circuit gateway	A firewall that permits an inbound or outbound connection to take place on the basis of authentication and authorization criteria. This type of firewall does not inspect each datagram—once a device is granted access to the communications channel, it can send and receive any type of message.
circuit interface	A component that interfaces initiating devices, control circuits, or both; notification appliances, circuits, or both; system control outputs; and other signaling line circuits to a signaling line circuit.
circuit switching	A communications method in which a temporary dedicated communications path is established between two devices prior to message transfer.

circular mil	A measuring unit used to specify the cross-sectional area of conductors, equal to the area of a circle with a diameter of one mil (one thousandth of an inch). It is a convenient unit for referring to the area of a wire with a circular cross section because the area in circular mils can be calculated without reference to pi. Typically used in thousands of circular mills (kcmil or MCM). One kcmil is equal to about 0.79 square inches. Used by the <i>National Electrical Code</i> [®] (NEC [®]) and other codes and standards to refer to large wire sizes.
cladding	The outer concentric glass layer that surrounds the optical fiber core and has a lower index of refraction than the core.
class	<ol style="list-style-type: none">1. The level of redundancy present in components, systems, or a data center.2. A rating defined within ISO/IEC 11801 that provides the minimum performance required of balanced twisted-pair cabling systems.
class C	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 16 megahertz (MHz). This term is used to express the installed cabling system performance.
class D	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 100 megahertz (MHz). This term is used to express the installed cabling system performance.
class E	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 250 megahertz (MHz). This term is used to express the installed cabling system performance.
class E_A	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 500 megahertz (MHz). This term is used to express the installed cabling system performance.
class F	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 600 megahertz (MHz). This term is used to express the installed cabling system performance.
class F_A	The balanced twisted-pair cabling specifications characterized in a frequency range from 1 to 1000 megahertz (MHz). This term is used to express the installed cabling system performance.
classified	The act of assigning a level of sensitivity to information (e.g., authorized personnel only, secret, top secret).
classified locations	Locations classified depending on the properties of the flammable gas, flammable liquid-produced vapors, or combustible liquid-produced, or combustible dusts or ignitable fibers that may be present, and the likelihood that a flammable or combustible or ignitable concentration or quantity is present. (NEMA)

classified materials	Flammable gas, flammable liquid-produced vapors, or combustible liquid-produced vapor, combustible dusts, or ignitable fibers or flyings that may be present and ignite, burn, or explode in air. (NEMA)
clean agent	An electrically nonconducting, volatile, or gaseous fire extinguishant that does not leave a residue upon evaporation.
clean agent fire suppression	A fire extinguishing system using a total flooding clean agent.
clear to send (CTS)	A frame type used as a reply to the request to send (RTS) component when the medium is available for transmission.
clear zone	An area separating an outdoor barrier from buildings or any form of natural or fabricated concealment.
cleave	The process of breaking an optical fiber by a controlled fracture of the glass to obtain an optical fiber end that is flat, smooth, and perpendicular to the optical fiber axis.
cleaver	A device that square-cuts the ends of optical fibers. <i>See also</i> scribing tool.
client	1. A piece of computer hardware or software that accesses a service made available by another computer system (e.g., server) by a network connection. The server is often on another computer system, in which case the client accesses the service by way of a network. The term applies to programs or devices that are part of a client-server model. 2. Denotes the party within a contract who is receiving products and services.
client-server model	A form of distributed computing in which a series of interdependent tasks are processed by two or more computers on a network, allowing client devices with limited processing capabilities to gain access to the available resources of one or more servers attached to the network.
client software	The additions to a station's operating system that enable access to network resources.
clinic	A health treatment facility primarily intended and appropriately staffed and equipped to provide treatment and ambulatory services. A clinic is also intended to perform certain non-therapeutic activities related to the health of the personnel served. <i>See also</i> comprehensive health care clinic (CHCC).
clock	A signal used to synchronize communications between devices.
closed-circuit TV (CCTV)	A private video distribution system typically used for security surveillance camera purposes in which the signal is transmitted to a limited number of receivers or monitoring points.

closed loop control	A process in computer and electronic systems in which the output is measured and compared with a standard representing the acceptable range and any deviation from the standard is fed back into the system in a way that will reduce the deviation. <i>See also</i> feedback.
closed loop secure	A closed or continuous circuit or monitoring loop when a door or monitoring equipment is secure.
closed transition	A change of state or transfer where the electrical circuit connection is maintained during the transfer. This is also known as make before break.
cloud chamber smoke detection	A principle of using an air sample drawn from the protected area into a high-humidity chamber combined with a lowering of chamber pressure to create an environment in which the resultant moisture in the air condenses on any smoke particles present, forming a cloud. The cloud density is measured by a photoelectric principle. The density signal is processed and used to convey an alarm condition when it meets preset criteria.
cluster	A collection of servers and associated storage devices interconnected using a dedicated, high-speed network. The collection appears as a single device to the network. All incoming requests are divided among the servers for quicker response. <i>See also</i> load balancing.
clustered star	Similar to a tree topology, except that there are clusters of devices at the end of each branch. A clustered star topology is also known as a bus star topology.
CLX cable	A cable with a corrugated aluminum sheath. It is another term for the <i>National Electrical Code</i> [®] (<i>NEC</i> [®]) Type MC cable as defined in NEC Article 330.
coarse wavelength division multiplexing (CWDM)	A method of combining multiple signals of various wavelengths for transmission along fiber optic communications cables.
coating	<i>See</i> buffer coating.
coaxial cable	A cable consisting of a central metallic inner conductor separated from an enclosing outer conductor by a dielectric material. This material may be solid, foam, suitable gas, or dry air. The outer conductor comprises a metallic braid, a foil layer, or a combination of braid and foil.
code	A rule or set of rules intended to ensure safety during the installation and use of materials, components, fixtures, systems, premises, and related subjects. Codes typically are invoked and enforced through government regulation.
codec	A device that can transform analog signals into a digital bit stream (coder) and digital signals into an analog signal (decoder). A codec also may convert a digital bit stream from one format or digital medium to another.

coded signals	An audible or visual signal conveying discrete information by establishing a pattern of pulses or flashes.
coefficient of expansion	A parameter of a material that describes the rate of its tendency to change size in relation to temperature.
cognitive radio system	A radio system employing technology that allows the system to obtain knowledge of its operational and geographical environment, established policies, and its internal state; to dynamically and autonomously adjust its operational parameters and protocols according to its obtained knowledge in order to achieve predefined objectives; and to learn from the results obtained. (ITU-R)
collapsed backbone	An internetwork connection contained in one device. Individual networks are connected to this central device and can communicate with one another.
collar step	The steps placed in the collar of a maintenance hole (MH) for ease of entry or exit.
collision	An event on a network indicating that two or more devices have simultaneously accessed the communications channel.
collision diameter	<i>See</i> network diameter.
collision detection	The process initiated when two or more network devices on an Ethernet network attempt to send a message at the same time and their messages collide. A device stops transmitting when it detects a collision and only attempts to retransmit after waiting a random period of time.
collision domain	A collection of one or more network devices and segments, possibly connected by a repeater or hub. When a device in a collision domain transmits a data link layer frame, all other devices in the same collision domain receive the transmission. Devices and segments separated by bridges, routers, or switches are said to be in different collision domains.
combination detector	A device that either responds to more than one fire phenomenon or employs more than one operating principle to sense one of these phenomenon. Typical examples are a combination of a heat detector with a smoke detector or a combination of rate-of-rise and fixed-temperature heat detector.
combination fire alarm and guard's tour box	A manually operated box for separately transmitting a fire alarm signal and a distinctive guard patrol tour supervisory signal.
combination system	A fire alarm system in which components are used, in whole or in part, in common with a non-fire signaling system.
combiner	A device that has multiple inputs and a single output. Also called a transmitter combiner.

commissioning	The start-up of a system that includes testing and adjusting the systems to ensure proper functioning and adherence to design criteria. Commissioning also includes the instruction of building representatives in the use of building systems. <i>See also</i> recommissioning and retrocommissioning.
commissioning authority	The qualified person, company, or agency that plans, coordinates, and oversees the entire commissioning process. The commissioning authority also may be known as the commissioning agent.
commissioning plan	The document prepared for each project that describes all aspects of the commissioning process, including schedules, responsibilities, documentation requirements, and functional performance test requirements.
commissioning test plan	The document that details the pre-functional performance test, functional performance test, and necessary information for carrying out the testing process for each system, piece of equipment, or energy efficiency measure.
common bonding network (CBN)	The principal means for effecting telecommunications bonding and grounding (earthing) inside a building. It is the set of metallic components that are intentionally or incidentally interconnected to form the principal bonding network (BN) in a building. These components include structural steel or reinforcing rods, plumbing, alternating current (ac) power conduit, ac equipment ground (ACEG) conductors, cable trays, racks and cabinets, and bonding conductors. The CBN always has a mesh topology and is connected to the grounding electrode system.
common element (CE)	A portion of a dock that is publicly accessible to all marina users.
common equipment room (telecommunications)	An enclosed space used for equipment and backbone interconnections for more than one tenant in a building or campus.
common grounding electrode	1. An electrode in or at a building structure that is used to ground an access control system (ACS) as well as equipment or conductor enclosures. 2. A single electrode connected to separate services, feeders, or branch circuits supplying a building. 3. Two or more grounding electrodes that are bonded together.
common mode (CM) circuit	The closed circuit for the common mode (CM) or ground loop current.
common mode (CM) noise	The noise that is present between phase and ground or between neutral and ground, but not between each line.
common mode (CM) voltage	A symmetrical noise voltage that is coupled into a cabling channel or link with equal magnitudes and in phase from each conductor measured at the cable's point relative to ground potential.

communications channel	A circuit or path connecting a transmitter to a receiver.
communications plenum (CMP) cable	Type CMP communications plenum cable shall be listed as being suitable for use in ducts, plenums, and other spaces used for environmental air and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics. (<i>NEC</i> [®]) Cables must pass required tests for fire and smoke characteristics of wires and cables, NFPA 262, or UL 910.
communications protocol	<i>See</i> protocol.
communications riser (CMR) cable	Type CMR communications riser cable shall be listed as being suitable for use in a vertical run in a shaft or from floor to floor and shall also be listed as having fire-resistant characteristics capable of preventing the carrying of fire from floor to floor. (<i>NEC</i> [®])
compander	A device for mitigating the distortion effects of a channel with limited dynamic range. When a signal with a large dynamic range is sent over a channel with less dynamic range, the signal's range is reduced in a specific way by the transmitter and expanded back to its original dynamic range by the receiver. A shortened form of compressor/expander.
compartmentation	The segregation of components, programs, and information. Provides isolation and protection from compromise, contamination, or unauthorized access.
compatibility listed	A specific listing process that applies only to two-wire devices (e.g., smoke detectors) that are designed to operate with certain control equipment.
compatible equipment	The equipment that interfaces mechanically or electrically as manufactured without field modification.
complementary code keying (CCK)	A single carrier modulation technique used in IEEE 802.11b and IEEE 802.11g networks.
completion bond	<i>See</i> bond.
component	Any part or subassembly of devices used in the construction of a system (e.g., video surveillance system).
component redundancy	A configuration designed into a system to increase the likelihood of continuous function despite the failure of a component. It is achieved by designing and deploying a secondary component so that it replaces an associated primary component when the primary component fails.

composite cable	A type of hybrid cable that contains two or more cables of different types of media and/or transmission classification (e.g., category 6A, OM3) covered by one overall sheath.
composite conductor	A conductor constructed from nontraditional materials (e.g., metallic resins, graphite).
compound curve	A series of two or more circular curves, each with a different radius, all turning in the same direction.
comprehensive health care clinic (CHCC)	A facility planned, designed, and constructed to provide comprehensive ambulatory care services, to include ambulatory surgery, and with limited holding bed capability. <i>See also</i> clinic.
compression	The coding or modification of data from its original form in order to save storage space or transmission time.
compressor/ decompressor	<i>See</i> codec.
computer room	An architectural space with the primary function of accommodating data processing equipment.
concentrator	A device that combines data from several active inputs into one shared channel that can be separated after transmission. The concentrator's output bandwidth must be greater than the total bandwidth of all simultaneously active inputs.
concentricity	The degree with which the core and cladding of an optical fiber cable, or the center conductor and shield of a coaxial cable, share the same central axis.
concrete fill	A minimal-depth concrete pour to encase single-level underfloor duct. (TIA)
concrete masonry unit (CMU)	A concrete block, cement block, or foundation block.
concrete universal enclosure (CUE)	An aboveground environmentally enclosed cabinet. A type of vault.
concrete-encased electrode	An electrode encased in concrete that is in direct contact with the earth. Also called an Ufer ground.
concurrently maintainable and operable	A configuration where system components may be removed from service for maintenance or may fail in a manner transparent to the load. There will be some form of state change, and redundancy will be lost while a component or system is out of commission. This is an essential requirement for a Class F3 facility.

conductance (G)	The measure of the ease with which electrical current flows through a conductor. Uniformly distributed along the conductor length, conductance varies as a function of a conductor's geometry and the dielectric properties of the materials surrounding the conductor. One of the primary parameters for transmission lines. The inverse of resistance. The unit of measure is siemens (S).
conductor	A material or media (e.g., solid, liquid, gas) for transmitting electric current, electromagnetic waves, or light.
conduit	1. A raceway of circular cross section. 2. A structure containing one or more ducts. (TIA)
conduit, branch	Conduits extending from the main conduit system. These systems usually serve a smaller portion of the facility. Branch conduits usually contain distribution cables.
conduit elbow	The bend in a section of conduit, usually at a specified radius and degree of turn.
conduit, main	The conduit systems used to serve all or a large portion of the facility. These systems usually contain feeder cables. Also called duct systems.
conduit run	The multiple sections of conduit that are joined together with fittings.
conduit shoe	A device placed at the open end of a horizontal conduit to prevent communications cable extending out of the conduit from exceeding its bend radius.
conduit stub-out	<i>See</i> stub-out.
conduit stub-up	<i>See</i> stub-up.
conduit, subsidiary	The conduits that are used to route communication cables to poles, pedestals, buildings, and cabinets where transitioning or termination occurs.
conduit system (duct system)	Any combination of ducts, conduits, maintenance holes (MHs), handholes (HHs), and vaults joined to form an integrated whole. (TIA)
condulets	A conduit coupling that has a removable side plate to allow access to the cable for pulling purposes. Most condulets are not permitted for use with communications cable because the tight 90-degree bends violate the cable's bend radius. Sometimes called LBs.
cone	A safety marker, typically brightly colored, may be orange or green in color, that is used to designate a secure off-limits area for non-workers.
conferencing	The process of communicating among multiple users simultaneously over a network in real-time using any combination of text, voice, and video.

confidentiality attack	Another term for data theft.
confined space	The work space defined by the United States (U.S.) Occupational Safety and Health Administration (OSHA) as space a worker can enter and work in but that has limited or restrictive means of entry or exit and that is not designed for continuous occupancy (e.g., maintenance holes [MHs], splice pits, crawl spaces, attics).
congestion	A state in which the volume of messages exceeds the designed capacity of a communications channel or network fabric, resulting in transfer delays or failures.
connecting hardware	A device or combination of devices used to connect communication cables or cable elements <i>See also</i> termination.
connectivity	The patch panels, optical fiber cabling, connectors, and cable management used to create and maintain electrical and optical circuits.
connector	A mechanical device used to provide a means for aligning, attaching, and achieving continuity between conductors or optical fibers.
connector insertion loss	The attenuation associated with the physical attachment of two connectors.
connector, small form factor (SFF)	An optical fiber duplex connector with a footprint approximating that of an 8-position outlet connector typically used with 4-pair balanced twisted-pair connectors.
consistency check	A method of verifying the confidence of a field measurement.
consolidation point (CP)	A connection facility within a horizontal cabling subsystem for interconnection of communication cables extending from building pathways into furniture pathways or modular wall partitions to the equipment outlet.
construction document/drawing (CD)	A written and graphic document prepared or assembled by the architect or engineer for communicating the design of the project.
construction	Employed by the owner to oversee and administer the project management and manager
construction ride out (CRO)	<i>See</i> site survey.
consultant	A specialist who provides services to the design team that is headed up by an architect or engineer who is under contract with the client.
Consumer Electronics Bus (CEBus®)	An open architecture set of specification documents that defines protocols for making home products and appliances communicate.
contact	A conducting device that makes or breaks a circuit.

contact rating	The specifications or load rating of a switch. The ratings are at maximum voltage or current.
containment	1. The process of dividing a structure into fire zones. Also called compartmentation. 2. A term used in the United Kingdom to describe cable raceway products (e.g., wall trunking, basket trunking, galvanized tray work).
content acceleration	The process of loading data accessed frequently by a large number of users onto devices capable of transferring the data more rapidly than the existing servers can transfer.
content access	The process of providing remote users the means to connect to a network to obtain specific information.
content filtering	The process of restricting the entry or exit of unauthorized or unwanted data (e.g., e-mail attachments) to and from a network.
contention	A network access method in which devices compete for use of the available communications channel.
contention domain	<i>See</i> collision domain.
contiguous property	A single-owner or single-user protected premises on a continuous plot of ground, including any buildings thereon, that is not separated by a public thoroughfare, transportation right-of-way, property owned or used by others, or body of water not under the same ownership.
contingency	1. A sum of money, usually a percentage of the estimated construction cost, held in reserve to pay for unforeseen costs that may arise during a project. 2. An event or condition that might or might not occur (e.g., a manmade or natural disaster) and trying to provide an action planned and support for everything that might failed in a communications system.
continuity tests	A test that validates whether a material can conduct current or light without significant interruption or degradation.
continuous duty	A device that can operate continuously with no off or rest periods.
continuous tone coded squelch system (CTCSS)	A feature in most conventional analog radios using subaudible tones to allow multiple users to communicate on the same frequency (channel) without receiving radio traffic from each other and to improve radio operation in high radio frequency (RF) noise, interference, and congested areas. The feature transmits a tone between 67 hertz (Hz) and 254 Hz (below human hearing range) along with the voice traffic. The receiving radio may be programmed to respond only to signals transmitting the desired tone frequency. <i>See also</i> privacy code.

continuum of care	A way of looking at the level and type of care provided to individuals from the most acute and intensive to the least acute and intensive. Integrated health networks of the future will be expected to provide the entire range of services contained on the continuum.
contract	A written document covering the understanding between the client and the contractor.
contract documents	Plans, specifications, and other documents that together set forth the requirements of the contract and become legally enforceable when the agreement is signed. Executed agreements between owner and contractor that become part of the contract when the agreement is signed. (CSI)
contractor	The company that performs specific tasks in the construction trade.
control mode	1. A form of remote access where a network administrator uses the remote station to monitor or modify a specific network device or general network operations. 2. A specialized form of terminal services also called remote control.
control module (CM)	A unit that provides addressable outputs for signaling devices (e.g., fire alarm horns, speakers).
control point	1. A physical location on a feeder route located by precise surveying that is used to measure existing facilities as well as present and future requirements. These control points are based on design judgment, which usually involves cable size changes. 2. Any place from which a transmitter's functions may be controlled. (FCC)
control unit	A system component that monitors inputs and controls outputs through various types of circuits.
controlled access	The process in which access to the resources of an area or system is limited to authorized personnel, users, programs, processes, or other systems and denied to all others. <i>See also</i> access control mechanism and security management.
controlled environment	A communications space with humidity, temperature, flood, and wind controls to provide protected conditions for sensitive electronic equipment.
controller	A microprocessor-based circuit board that manages access to a secure area. The controller receives information that is used to determine through which doors and at what time cardholders are granted access to secure areas. Based on that information, the controller locks or unlocks doors, sounds alarms, and communicates its status to a host computer.
control unit	A system component that monitors inputs and controls outputs through various types of circuits.

conventional radio system	A method of operation in which one or more radio frequency channels are assigned to mobile and base stations but are not employed as a trunked group. (FCC)
convergence	The linking of many systems, which remain independent in operation, to common information and communications technology (ICT) systems. As related to electronic safety and security (ESS), convergence involves many similar and dissimilar systems and facilitates their integration. <i>See also</i> integration.
converter	A device that transfers a signal from one transmission medium type to another (e.g., from copper to optical fiber) or changes from one signaling type to another (e.g., from analog to digital).
conveniently accessible	Capable of being reached from the floor or the use of a \approx 2.4 meter (m [8 foot (ft)]) stepladder without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping, and ductwork.
coordinated protection	The application of protection engineering across a set of premises systems to prevent electrical failure of telecommunications cabling and equipment.
core	The central, light-carrying part of optical fiber cable through which a light pulse is transmitted.
core area	<i>See</i> building core.
core hitch	The weaving of copper conductors or pairs through a pulling eye for pulling communications cable.
core wall	The building structure that runs from the structural floor to the structural ceiling to separate the core area from the rest of the building.
coronary care unit (CCU)	A medical care unit in which there is appropriate equipment and a concentration of physicians, nurses, and others who have special skills and experience to provide optimal medical care for critically ill coronary or cardiac patients.
corrosion area	A space that is subject to a high degree or risk of deterioration to the elements.
countermeasures	The procedures, technologies, devices, or organisms (e.g., animals, humans) used to deter, delay, or detect damage from a threat.
coupled bonding conductor (CBC)	A bonding conductor placed (e.g., strapped) on the outside surface of telecommunications cable to reduce transient noise.

coupler	A device for connecting two other devices (e.g., connectorized cables) together.
coupling	1. A mechanical device used to connect two sections together. 2. The electromagnetic energy transfer from a disturbing circuit or channel into a disturbed circuit or channel due to either separated or combined influence of electric and magnetic fields.
coverage density	The number of stations in a wireless network coverage zone.
crawl space	A limited access building space that may be used for the placement of communications cabling.
credential	An item or object that possession or knowledge of provides access to a secure space.
crimp	The act of permanently clamping connectors to a conductor or optical fiber cable.
crimp head	The section of a splicing rig that fits over an assembled modular connector on the splicing head to provide the crimping of the module.
critical distribution board	A power distribution board that feeds critical loads.
critical infrastructure industry (CII)	State and local government and non-government entities, including utilities, railroads, metropolitan transit systems, pipelines, private ambulances, fire departments, and not-for-profit organizations, that offer emergency road services, providing private internal radio services that are used to protect safety of life, health, or property and are not made commercially available to the public. (FCC)
criticality	The relative importance of a function or process as measured by the consequences of its failure or inability to function.
cross threading	A stripping of the thread pattern that can occur during installation when the thread patterns of a nut and bolt are not properly aligned.
crossbar	An electromechanical switching system consisting of rectangular fields of contact springs operated in coordination by horizontal and vertical members. Crossbar switches ideally are suited to data switching because of their low-noise characteristic.
cross-connect	A facility enabling the termination of cable elements and their interconnection or cross-connection. (TIA)
cross-connection	A connection scheme between cabling runs, subsystems, and equipment using patch cords or jumpers that attach to connecting hardware on each end. (TIA)

cross-coupling	<i>See</i> coupling.
crossed pairs	An error condition where the physical connection of one or more conductors in a pair of copper wires is incorrectly made to one or more conductors in another pair of wires, generally in the same communications cable.
crossover	1. The junction unit at the point of intersection of two cable trays, raceways, or conduits (pathways) on different planes. (TIA) 2. The junction unit at the point of intersection of two cable support strands, or cables (aerial pathways) on different planes.
cross-point matrix	A device that takes in a number of closed-circuit TV (CCTV) camera signals and switches them to selectable outputs for viewing and recording. Typically, the number of inputs is higher than the number of outputs.
cross-polarization	The orientation of two antennas such that their radiated electric fields are at right angles to each other. This results in a substantial reduction in the ability of each antenna to receive signals from the other. The amount of reduction is frequency and distance dependent. <i>See also</i> polarization.
cross-polarization discrimination (XPD)	The difference in antenna gain or device response between a signal arriving on one polarization and one arriving on the opposite polarization (expressed in decibels [dB]).
crosstalk	The unwanted transfer of signal from one or more circuits to other circuits as a result of electromagnetic interference (EMI).
cryptography	The field of study associated with encryption.
culvert	A sewer, drain, or channel crossing under a road, embankment, or sidewalk.
curing	To prepare for use over a period of time by chemical or physical process.
current (I)	The flow of electrons in a conductor, measured in amperes. (TIA)
customer	An individual or company that has employed contractors to install their information and communications technology (ICT) system.
customer premises	Buildings, grounds, and appurtenances (belongings) under the control of the client. (TIA)
customer premises equipment (CPE)	Any equipment related to communications that is located on the client's premises, as opposed to inside the access provider (AP) or service provider (SP) network. (TIA)
cut	An excavation or the removal of earth.

cutover	The process of switching from old network components to new network components. Used when describing the switch of a piece of equipment (e.g., computer terminal, telephone) from an existing channel to a newly installed channel. <i>See also</i> flash cut, hot cut, phased cutover and rolling cut.
cutsheet	1. A listing of communications cable pair assignments used to specify desired circuit connections in a splice or cross-connect. This listing also can serve as the as-built of a splice or cross-connect field. 2. A cable documentation that shows the existing cable plant, new cable plant, and cross-connects that will be relocated during cutover. 3. A document that provides product specifications. Typically provided by product manufacturers and may include product drawings. Also called a specification sheet (spec sheet).
cut-through	A switching method in which messages are forwarded as soon as the destination address is received without error checking. <i>See also</i> modified cut-through and store-and-forward.
cyclic redundancy check (CRC)	An error-detection technique based on polynomial division that adds bits to a transmitted data stream for the purpose of error detection at the receiver. <i>See also</i> frame check sequence (FCS).

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daisy-chaining	The practice of wiring devices in a series, with a cable coming into the device and another out of the device, as opposed to a bus with a continuous line and taps.
dark fiber	1. Fiber that is not in use and has no light transmitted. 2. Excess fiber installed in anticipation of system expansion; may or may not be terminated.
data center	A building or portion of a building whose primary function is to house a computer room and its support areas. (TIA)
data center infrastructure efficiency (DCIE)	<i>See</i> power usage effectiveness (PUE).
data gathering panel	A component of an electronic access control system (ACS) whose primary function is to consolidate field-mounted peripheral devices and communicate bidirectionally between the system's headend software and field-mounted peripheral devices.
data integrity	1. The assurance that a given data file has not been deleted, modified, duplicated, or forged without detection. 2. The degree to which a collection of data is complete, consistent, and accurate. <i>See also</i> integrity attack.

data link layer	The Open Systems Interconnection (OSI) Reference Model layer (Layer 2) responsible for providing reliable data transfer between two network entities across a single physical connection or series of bridged connections.
data link layer address	<i>See</i> media access control (MAC) address.
data network	<i>See</i> network.
data protection	The techniques used to guard the confidentiality and integrity of data.
data rate	The rate at which electronically encoded information is transferred between network devices over a communications channel. Also called throughput or operating speed. Measured in bits per second (b/s).
data service unit (DSU)	A client premises device that frames and channelizes the user's data for transmission on the digital network. The unit performs a similar function in reverse for data coming from the network to the client premises equipment.
data terminal equipment (DTE)	The term used in the IEEE 802.3 standard to refer to a station (e.g., computer) or port that serves as the data transmission source, data transmission destination, or both for the purpose of sending or receiving data over the network.
data transfer rate	<i>See</i> data rate.
datagram	A self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination computer without reliance on earlier exchanges between this source and destination computer and the transporting network (IETF RFC-1594). Sometimes also called a packet; the term is generally reserved for packets of an unreliable service that does not notify the user if delivery fails, while the term packet applies to any message formatted as a packet. In the official terminology of the Open Systems Interconnection (OSI) Reference Model, a data unit in Layer 2 (data link layer) is a frame, in Layer 3 (network layer) it is a packet, and in Layer 4 (transport layer) it is a segment or datagram. <i>See also</i> frame and packet.
DB connector	A connector widely used between data equipment, available in a variety of configurations (e.g., DB15, DB25). The digits (e.g., 15, 25) refer to the number of pins in the connector. The connector gets its name from its characteristic D-shaped metal shield. Also called a D-subminiature connector.
dB(A)	Decibels (dB) <i>See</i> decibel, A-weighted (dBA).
dBm	Decibel referenced to 1 milliwatt (mW); 0 dBm is equal to 1 mW; -10 dBm corresponds to 0.1 mW; -20 dBm corresponds to 0.01 mW; -30 dBm corresponds to 0.001 mW.

dBmV	Decibel (dB) referenced to 1 millivolt (mV). Often used in cable TV (CATV) installations across 75 ohms.
dBrc	Decibels above reference noise (with C-message weighting). Reference noise is equivalent to a 1004 hertz (Hz) test tone at -90 dBm.
de facto standard	An informal standard resulting from popular acceptance of a product or practice.
dead latch	A latch in which the latch bolt is positively held in the projected position by an auxiliary mechanism. The auxiliary mechanism is typically a small plunger that lies alongside or near the latch bolt. The latch cannot be retracted, and the door opened, until the plunger is retracted.
dead zone	<ol style="list-style-type: none">1. A space on an optical time domain reflectometer (OTDR) fiber trace following a Fresnel reflection in which no measurement can be made.2. An area where cellular telephones cannot transmit to a nearby cell site.3. In radio systems using low, medium, and high frequencies (LF, MF, HF), the region between the furthest distance of the ground wave and the closest distance of the sky wave, where the transmitted signal cannot be received. Also called the skip zone or silent zone.
deadbolt	A bolt operated manually and non-actuated by springs. When locked, the bolt cannot be forced back. A deadbolt is operated (projected and retracted) by a key cylinder or lever handle.
deadend	A type of attachment that is used in outside plant (OSP) aerial cabling at the end of an OSP cable run or when the pull on a corner exceeds ≈ 15 m (50 ft). Deadends and corners in pole lines usually require guying to support the cable or wire facility. <i>See also</i> double deadend.
decibel (dB)	A logarithmic unit for measuring the relative voltage, current, or power of a signal. One tenth of a bel. <i>See also</i> bel.
decibel, A-weighted (dBA)	An expression of the relative loudness of sound as perceived by the human ear. In the A-weighted system, the decibel values of sounds at low frequencies are reduced compared with unweighted decibels, in which no correction is made for audio frequency. This correction is made because the human ear is less sensitive at low audio frequencies (e.g., below 1000 hertz [Hz]) than at high audio frequencies. Most sound level requirements in fire codes and standards are expressed in dBA units. Also written as dB(A) and dBA.
dedicated	Used only for the specified purpose and no other. For example, in electrical systems, one overcurrent protective device and one set of conductors serving a single outlet.
dedicated in-floor service fitting	<i>See</i> insert.

dedicated LAN	A network on which a separate communications channel is assigned exclusively to each device by using switching technologies.
degradation	The decline in operational performance.
delay on break	A term used to describe a mode of operation relative to timing devices. The delay begins when the initiate switch is opened (delay break of initiate switch).
delay on energization	A term used to describe when the initiate switch is closed for application of power to the input.
delay skew	The difference in propagation delay between any two balanced twisted-pairs within the same cable sheath. (TIA) Usually used in reference to the delay between the balanced twisted-pair with the highest and the lowest signal propagation delay value.
delay spread	In radio systems experiencing multipath, the difference in time of the arrival at the receiver of the earliest multipath component (often line of sight [LoS]) and the latest multipath component. Excessive delay spread can cause intersymbol interference.
delayed egress	Panic or fire exit hardware (required by building code) that allows a 15 second delay before opening.
delinquency signal	A signal indicating the need for action in connection with the supervision of guards or system attendants.
delivered audio quality (DAQ)	A subjective scale used to measure the quality of sound over a voice telecommunications system. Often used in specifications for wireless voice systems. There are seven DAQ levels. The minimum allowable level specified typically is DAQ 3.
delta	The difference between two values, symbolized with a triangle (Δ).
delta power system	A three-legged non-grounded configuration with one equal potential between legs.
demand priority	An arbitration scheme that provides network access on the basis of the priority level of the message or sending device.
demarcation point (demarc)	1. A point where the operational control or ownership changes. (TIA) 2. The point of interface between service providers (SPs) and client facilities. Also referred to as minimum point of entry (MPOE). <i>See also</i> building entrance, building entrance terminal, and minimum point of entry (MPOE).
demodulation	The recovery of information from a modulated carrier of a signal having substantially the same characteristics as the original information. <i>See also</i> discrimination.

demodulator	An electronic device that performs demodulation.
demultiplexer (demux)	A device that performs demultiplexing.
demultiplexing	The process of reconstituting the individual channels from the composite signal.
depressed clad	An optical fiber, usually singlemode, that has double cladding with the outer cladding having a refractive index ratio between that of the inner cladding and the core. This reduces macrobending losses and provides lower dispersion over a wider wavelength range. Also called a dual clad or double clad.
derived channel	A signaling line circuit that uses the local leg of the public switched network as an active multiplex channel while simultaneously allowing that leg's use for normal telephone communications.
design development (DD)	A design phase that follows a schematic design and is prior to construction documents.
design documents	The record that details the design intent.
design intent	A detailed technical description of the ideas, concepts, and criteria defined by the building owner to be important.
design specification	A written document that defines a goal or set of goals, including specific performance and design parameters.
designation strip	A colored label placed on terminal blocks and used for identification (e.g., circuits).
design-build construction	When an owner contracts with a single entity employed to both design and build a project.
despread	The process of filtering out or shrinking a digitally coded signal to its original form in direct sequence (pseudo-noise) spread spectrum technology.
detail drawing	A detailed graphical representation of a specific area or element of construction, often not drawn to scale.
detection badge	<i>See</i> exposure monitor.
detector	A device suitable for connection to a circuit that has a sensor that responds to a physical stimulus (e.g., heat, smoke).
detector (optical)	An optoelectronic transducer that converts light to an electrical signal.
deviation	In radio systems, the maximum range that a total signal extends above and below the carrier frequency.

device	An item serving a particular purpose and used to perform one or more tasks.
device (protection)	A protector, protector mount, protector unit, or protector module.
device address	<i>See</i> media access control (MAC) address.
dialer	1. The software used by remote stations to connect to the network over communications circuits. Also called remote client software. 2. An electronic device connected to a communications line that monitors incoming dialed digits and changes them or adds to them, transparently providing services that would otherwise require long access codes. For example, a dialer could provide one commercial carrier for domestic calls and another for international calls.
die	Metallic block or plate with small conical holes through which wire is drawn or thermoplastic is injected as part of a manufacturing process.
dielectric	The nonconducting properties of a non-metallic, insulating material that resists the passage of electric current. Dielectric examples include the insulation surrounding a copper conductor and the material between the center conductor and outer shield of a coaxial cable.
dielectric cable	A non-conducting cable (e.g., optical fiber cable with no metallic members).
dielectric constant	A unit of relative electric permittivity of an insulator.
dielectric strength	A specification of the maximum voltage that an insulation can withstand without breakdown.
differential mode attenuation	The differences in attenuation among the various modes in an optical fiber cable.
differential mode impedance	The ratio of voltage to current on a pair of transmission channels when one conductor carries a signal in opposite phase to another (e.g., one signal positive and the other signal negative).
differential mode voltage	The symmetrical noise voltage that appears equally and in opposite phase in each active signal-carrying conductor.
diffraction	The bending of radio, sound, or light waves around an object, barrier, or aperture edge.
digital	<i>See</i> digital signal.

digital alarm communicator system (DACS)	A system in which signals are transmitted from a digital alarm communicator transmitter (DACT) located at the protected premises through the public switched telephone network (PSTN) to a digital alarm communicator receiver (DACR) so that it may seize the line to which it is connected. The seizure disconnects any private telephone equipment beyond the DACT's point of connection.
digital alarm radio receiver (DARR)	A system component composed of two subcomponents—one that receives and decodes radio signals and another that annunciates the decoded data. These two subcomponents can co-reside at the central station or be separated by means of a data transmission channel.
digital alarm radio system (DARS)	A system in which signals are transmitted from a digital alarm radio transmitter (DART) located at a protected premises through a radio channel to a digital alarm radio receiver (DARR).
digital alarm radio transmitter (DART)	A system component that is connected to or an integral part of a digital alarm communicator transmitter (DACT) that is used to provide an alternate radio transmission channel.
digital certificate	A security tool used to authenticate a message. It ensures the recipient that the message originated from a source whose identity has been verified by the issuer of the certificate.
digital coded squelch (DCS)	A digital form of continuous tone coded squelch system (CTCSS).
digital enhanced cordless telecommunications (DECT)	A standard developed by the European Telecommunications Standards Institute (ETSI). DECT defines the radio connection between two points and can be used for remote access to public and private networks. DECT is the European standard for cordless telephones.
digital input (DI)	The input to a device that receives a digital signal from an output device.
digital key	A bit sequence used by a security tool to encrypt a message prior to transmission to keep its contents confidential and restore the encrypted message when received. <i>See also</i> key.
digital output (DO)	The output of a device that sends a digital signal to an input device.
digital signal	Information used by digital devices in the form of a sequence of discrete pulses (e.g., a binary signal with two values used to transmit the two states [0, 1]).
digital signature	A bit sequence used by a security tool to authenticate a message. It ensures the recipient that the message was not modified after being transmitted by the sender.

digital subscriber line (DSL)	A family of digital technologies designed to provide high data transfer rates to residential or commercial subscribers over existing (legacy) telecommunications circuits. <i>See also</i> asymmetric digital subscriber line (ADSL) and xDSL.
digital video technology (DVT)	An electronic representation of video utilizing digital signals in lieu of analog signals. Digital video can be copied without degradation in quality whereas analog video will suffer from a reduction in quality with successive copies.
Dijkstra's algorithm	A mathematical formula for determining the shortest path through a network of routers for a given packet. Dijkstra's Shortest Path First (SPF) algorithm uses distance vectors, time, and cost to determine best routes to travel from one location to another. The algorithm is used in a network by the link-state protocols, such as Open Shortest Path First (OSPF) to map topological information about its network and neighboring network, to figure best routing to deliver data from one host to another. It is also used by global positioning systems (GPSs) to map out locations.
diplexer	A passive three-port frequency-dependent device that allows two transmitters to share a single antenna system (e.g., 150 megahertz [MHz] and 450 MHz). A type of combiner.
dipole	An antenna formed by splitting two wires of a two-wire transmission line and bending them back to form a single straight line. It is a narrowband antenna, operating efficiently in only a narrow band of frequencies. The optimal length of a dipole antenna is one half of the wavelength of the signal being received or transmitted by the antenna.
dipole array	<i>See</i> antenna array.
direct broadcast satellite (DBS)	A service that uses satellites to broadcast multiple channels of TV programming directly to a small dish antennas.
direct attach cable (DAC)	A twinax copper cable that directly connects the network ports between active equipment such as switches or servers.
direct-buried cable	A telecommunications cable designed to be installed under the surface of the earth in direct contact with the soil. (TIA) <i>See also</i> underground cable.
direct connection	The act of connecting a cable to client equipment without the use of a patch panel or terminal block. (TIA)
direct current (dc)	Current flow that has a constant direction. The letters dc are also used generically to refer to any constant waveform or signal (e.g., a battery voltage of 3 volts direct current [Vdc]).
direct current (dc) loop resistance	The resistance throughout two conductors shorted (connected together) at one end of the cable run.

direct digital control (DDC)	A control loop used in building automation systems (BAS) in which a microprocessor-based controller controls equipment (e.g., air handlers, chillers, boilers) based on sensor inputs and set-point parameters according to a sequence of operations.
direct hold magnetic lock	A lock in which an electric magnet is mounted to a doorframe opposite a metal plate. When energized, the lock bonds to the armature and locks the door.
direct ray	In the ray theory analysis of light propagation, the direct ray connects the source and receiver in a straight line.
direct sequence spread spectrum (DSSS)	1. A technique used to structure signal processes using a digital code sequence having a chip rate much higher than the information signal bit rate. Each information bit within a digital signal is transmitted as a pseudorandom sequence of chips. 2. Using a spreading code, the transmitted signal is spread over a wide frequency band. The spreading code is reapplied to the transmitted signal at the receiver to recover the information.
direct sound	Sound that travels directly from a speaker to a listener.
direct wave	The portion of the wave that travels directly from a transmitting to a receiving antenna. It is limited to the distance from the transmitter to the horizon, plus a small distance added by the wave's attempt to bend with the surface of the Earth.
direct-attached storage (DAS)	The combination of a high-speed interface and shared disk drives, where the disk drives are connected directly to the servers (internally or externally).
directional antenna	An antenna that preferentially sends and receives signals in a specific direction. <i>See also</i> omnidirectional antenna and unidirectional antenna.
directional coupler	<i>See</i> isolator, radio frequency.
directory	A database of the resources available on a network. It typically contains records for devices, software applications, data files, users, and groups.
disaster recovery	The procedures and actions taken to restore network operations after an event that destroys or disables some or all of the network. <i>See also</i> backup storage.
discrimination	1. The process of selecting the desired signal of the proper input level. 2. In frequency and phase modulation radio systems, the demodulation process of detecting the change in frequency or phase of an incoming signal and converting it to an amplitude signal. <i>See also</i> demodulation.
disk mirroring	The simultaneous writing of all data to be stored onto two hard disks, where both hard disks are connected to the same controller card. If one of the hard disks fails, the other continues to provide storage services.

diskless workstation	A computer that depends upon a network server for loading data and applications. Diskless workstations are configured without a floppy or hard disk drive, thereby providing additional security.
dispersion	1. The loss of signal resulting from the scattering of light pulses as they are transmitted through a medium. 2. The widening or spreading out of the modes in a light pulse as it progresses along an optical fiber. 3. The characteristics of the sound coverage field of a speaker.
dispersion shifted	A singlemode optical fiber that has a nominal zero-dispersion point at a wavelength of 1550 nanometers (nm).
dispersion unshifted	A singlemode optical fiber that has a nominal zero-dispersion point at a wavelength of 1300 nanometers (nm). Also called conventional or unshifted optical fiber.
display	A visual representation of output data other than printed copy.
dissipation factor	The relative power loss in the insulation due to molecular excitement and subsequent kinetic and thermal energy losses.
distortion	An undesired change in the shape of a signal's waveform.
distributed access control	An access control system (ACS) in which all control decisions are made at the local controllers, independent from a host computer. Local controller events are uploaded to a host computer periodically for review and storage.
distributed antenna system (DAS)	A network of spatially separated antenna nodes connected to a common source via transport medium that provides wireless service within a geographic area or structure. (HetNet Forum)
distributed automation (DA)	A family of technologies, including sensors, processors, information and communication networks, and switches, through which a utility can collect, automate, analyze, and optimize data to improve the operational efficiency of its distribution power system (NEMA)
distribution cabling	<i>See</i> horizontal cabling.
distribution cell	The cellular floor sections from which cables emerge into work areas.
distribution duct	A raceway of rectangular cross-section placed within or just below the finished floor and used to extend the wires or cables to a specific work area. (TIA)
distribution frame	A structure with terminations for connecting the cabling of a facility in such a manner that interconnection or cross-connections may be readily made. (TIA)

distribution layer	A collection of switches between the core and access layer. Distribution switches may be a switch and external router combination or a multilayer switch.
distribution panel	A wiring board that provides a patch panel function and mounts either in a rack or on a wall.
distribution ring (D ring)	Wire and cable management ring shaped like the letter D for routing and supporting distribution cables and jumpers/patch cables on a backboard. <i>See also</i> cable management.
distribution system	A bridging engine in access points that is used to connect access points. The connection can be wired or wireless.
diverse route	An alternative routing for cables and services to provide a different pathway for resilience or security. <i>See also</i> alternate route.
diversity reception	A technique used to improve the reception ability of a wireless network device (e.g., access point [AP], microwave link) by combining or selecting signals from two or more independent antennas. Used to mitigate the effects of fading.
divestiture	Transferring of title or loss of ownership as a result of government orders, usually as a result of misdeed or in the interest of avoiding a monopolistic business environment.
Division 1	A division in the Construction Specifications Institute (CSI) <i>MasterFormat</i> [™] that standardizes the way information about a non-residential construction project is organized. Division 1 is subordinate to the general conditions and supersedes part 1 of each section. (CSI) <i>See also</i> <i>MasterFormat</i> [™] , <i>PageFormat</i> [™] , <i>UniFormat</i> [™] , and <i>SectionFormat</i> [™] .
domain	A portion of the naming hierarchy tree that refers to general groupings of networks based on organization type or geography.
donor signal	The signal from the originating source that is amplified and distributed throughout a facility by a distributed antenna system (DAS). The donor signal may be received by the DAS via either a donor antenna or direct cable connection to the donor site.
door contact	A recessed or surface-mounted peripheral device that provides information to the monitoring management of the access control systems (ACS), the status of a door or passageway by the opened or closed position of its contact.
door held open alarm	An alarm generated when a door is held open beyond the designated period of time programmed in the controller.

door position switch	A type of door contact that consists of a switch that is used to monitor whether a door is in an opened or closed position.
door switch	<i>See</i> door position switch.
door-forced alarm	An alarm generated when a door is forced open.
dopant	An impurity added to a pure substance (usually in minute amounts) to alter its properties. Typically used during the manufacture of optical fiber cables, transistors, and integrated circuits.
double deadend	In outside plant (OSP) aerial cabling, if the pull is greater than a 45-degree angle, two head guys are required. Also referred to as two head guys. <i>See</i> deadend.
double doorway	A single opening that has no intervening wall space or door trim separating the two doors.
double dwelling unit	A building consisting solely of two dwelling units.
double ended	A power distribution switchboard with two power source inputs, with an interposing tiebreaker between the sources, where either input source of the switchboard can supply 100 percent of the load. The double-ended system constitutes an N + 1 or 2N system. This type of system may be used for dual utility systems or a single utility system split into redundant feeds and may possess the circuit breaker transfer system with the generator.
double-gang box	A telecommunications outlet box, typically \approx 114 to 140 millimeters (mm [4.5 to 5.5 inches (in)]) wide. The term comes from the electrical trade, where a double-gang box can hold two duplex outlets or two switches side by side.
down conductor	A conductor that connects air terminals to the ground on the outside of a structure.
down guy	A steel messenger (strand) that connects the suspension strand, span guy, or other items of aerial plant to an anchor and rod.
downlink	1. Signals transmitted from satellites to ground stations. 2. In demand priority access method, the communications channel between a repeater and a connected end node or between a repeater and a lower-level repeater.
download	To send information from a host computer to a controller.
downtime	The interval during which a functional system is inoperable.
drag line	A pull cord or line installed in a cabling pathway for pulling in a stronger strength rope to pull cables of greater mass and weight into the finished conduits. <i>See also</i> pull (cord, rope, string, wire) and MuleTape.

drain wire	A non-insulated conductor placed in electrical contact with a shield. (TIA)
draw	A payment method for a telecommunications project in which the contractor receives an initial payment on commencement of the contract and makes periodic withdrawals during the term of the project.
dressing	Placing cables into a neat and symmetrical pattern for proper alignment and positioning for termination.
dressing block	Plastic receptacle used to form and hold connectors to allow wire termination.
drip loop	The length of cable, usually on the exterior of a building, placed above the entry hole of the building, extended to below the entry hole, and looped back up to the entry hole of the structure. The use of such cable installation will impede moisture infiltration.
drop and insert	A process where a part of the information carried in a transmission signal passing through the repeater site is demodulated (dropped) to serve local consumers from the repeater site or information is inserted for further transmission.
drop cable	1. A branch cable. 2. The cable allowing connection and access to and from the trunk cable of a network.
drop ceiling	<i>See</i> suspended ceiling.
drop wire	An aerial cable that connects a serving outdoor terminal to a building or structure.
dry contact	A switch or relay contact that is not connected to other voltage sources.
dry pipe	A pipe system that is fixed and installed permanently in place and distributed throughout an area of a floor or building for the purpose of delivering water in case of fire. Dry pipes are not normally filled with water until a fire alarm is activated.
drywall	An interior wall construction consisting of gypsum or plasterboard.
D-subminiature connector	<i>See</i> DB connector.
dual control	The use of two primary trunk facilities over separate routes or different methods to control one telecommunications channel.
dual-ring topology	A ring topology that allows each device or network to have two connections to each adjacent device or network.

duct	1. A single enclosed raceway for conductors, wires, or cables. <i>See also</i> conduit and raceway. 2. An enclosure in which air is moved. Generally part of the heating, ventilation, and air-conditioning (HVAC) system of a building.
duct plug	A fitting capping the end of a duct, or fittings to surround cables within the duct, designed to provide a gas- and liquid-tight seal.
duct, subsidiary	<i>See</i> conduit, subsidiary
ductbank	An arrangement of ducts in tiers, for wires or cables. (TIA)
ducted skirting	A cable raceway with a removable cover made of either wood, plastic, or metal, found on the perimeter of walls of a building. May have separate channels for power and telecommunications. <i>See also</i> raceway.
ductpic	Plastic insulated conductor cables designed for placement underground.
duplex	<i>See</i> duplex operation.
duplexer	A device in the antenna path containing a circulator and filters that allows a radio to transmit and receive simultaneously with maximum transfer of power using the same antenna without causing receiver interference.
duplex operation	An operating method in which transmission is possible simultaneously in both directions of a telecommunications channel. In general, duplex operation and semi-duplex operation require two frequencies in radio communication; simplex operation may use either one or two frequencies, in which only one transmitter can be operated at any one time. (ITU)
duty cycle	The percentage of on time or operating time a device experiences.
dwelling unit	One or more rooms for the permanent use of one or more persons for eating, living, and sleeping, with provisions for cooking and sanitation. A dwelling unit includes one- and two-family attached and detached dwellings and apartments and condominiums but does not include hotel and motel rooms and guest suites, dormitories, or sleeping rooms in nursing homes.
dynamometer	A tool that measures force, moment of force (torque), or power. In communications, this device is used to control the pulling tension of a cable.

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ear protector	A hearing protection device that may resemble ear muffs or fits inside of the ear; available in passive or active models.
earth current	Alternating current (ac) or direct current (dc) that flows in the earth whether momentary, intermittent, or continuous.
earth curvature (earth bulge)	The curvature of earth and its effect on line of sight (LoS) communications links.
Earth Exploration-Satellite Service (EESS)	A radio communications service between earth stations and one or more space stations, which may include links between space stations, in which: (1) information relating to the characteristics of the Earth and its natural phenomena is obtained from active sensors or passive sensors on earth satellites; (2) similar information is collected from airborne or earth-based platforms; (3) such information may be distributed to earth stations within the system concerned; and (4) may include platform interrogation. (FCC 47 C.F.R. § 2.1(c)).
earth ground	An electrical connection to earth obtained by a grounding electrode system. <i>See also</i> approved ground and ground.
earth potential rise (EPR)	<i>See</i> ground potential rise (GPR).
earth resistance tests	The testing of earth electrodes and the measurement of soil resistivity.
earthing	Grounding to earth potential.
earthing electrode	<i>See</i> grounding electrode.
easement	A right acquired by one party to use land belonging to another party for a specific purpose. <i>See also</i> encroachment.
effective ground	Intentional connection to earth through a ground connection or connections of sufficiently low impedance (whose value is specified in suitable bonding and grounding [earthing] standards) and having sufficient current-carrying capacity to prevent the build-up of voltages that may result in undue hazards to connected equipment or to persons. (<i>NEC</i> [®])
effective isotropic radiated power (EIRP)	The power supplied to an antenna multiplied by the antenna gain in a given direction, relative to an isotropic antenna. Measured in decibels (dB). Also called the equivalent isotropic radiated power.
effective modal bandwidth (EMB)	The maximum signaling rate for a given distance, commonly measured in megahertz over kilometers (Mhz/km).

effective radiated power (ERP)	The power supplied to an antenna multiplied by the antenna gain in a given direction. Measured in decibels (dB). ERP is normally measured with respect to either a dipole or isotropic antenna, which should always be specified.
egress	A point or means of exit from a building, property or location.
elastomeric	A characteristic of a material or substance allowing stretching and flexibility, resembling rubber or elastic.
elastomeric firestop	A flexible firestop material resembling rubber.
electric field	A field of force that surrounds all electrically charged particles and objects. It is expressed in volts per meter (V/m). <i>See also</i> voltage gradient.
electric latch retraction	Allows doors equipped with exit devices to be operated in push-pull (dogged) mode by electrically retracting the latch bolts.
electric lockset	An electrified version of a standard lockset that generally comes in two basic configurations and incorporates an actuating solenoid that locks or unlocks a lockset, duplicating or replacing the function of a traditional mechanical key.
electric strike	An electrified locking element that replaces a traditional door's fixed strike with an electromechanical unit that upon application (fail secure) or removal (fail-safe) of power, a solenoid electrically activates the keeper, allowing a lock's latch bolt to pass.
electrical conductivity heat detector	A line-type or spot-type sensing element in which resistance varies as a function of temperature.
electrical coupling	The transfer of energy between two or more electrically conducting bodies. This energy can be through a direct connection or an indirect connection (e.g., electromagnetic interference [EMI], radio frequency interference [RFI]).
electrical distribution panel (EDP)	An assembly, mounted in or on a wall and accessible primarily from the front, consisting of enclosures, buses, and switches to control light, heat, and power circuits. Similar to an electrical distribution cabinet, except the panel is mounted to a vertical surface and a cabinet is floor mounted.
electrical drawing	A graphical representation of the electrical components of a construction project (e.g., power distribution, lighting).
electrical metallic tubing (EMT)	Thin-wall metal tubing that does not have threaded ends, which is widely used in electrical distribution systems and as a pathway for telecommunications cabling.

electrified door release hardware	A generic term for electromechanical locking hardware that is released upon an approval signal.
electromagnetic compatibility (EMC)	The ability of equipment to function in a manner that makes them immune to certain amounts of electromagnetic interference (EMI), while keeping the interference generated by them within specific limits.
electromagnetic disturbance	Any electromagnetic occurrence that may degrade the performance of a device, unit of equipment, or system. An electromagnetic disturbance may be noise, an unwanted signal, or a change in the propagation medium.
electromagnetic emission	The phenomenon by which electromagnetic energy emanates from a source. Emissions can be either radiated or conducted when coupled into a given disturbed circuit. Such emissions may be divided into two categories: intentionally emitted signals and unintentional emissions.
electromagnetic environment	The electromagnetic fields and signals existing in a propagation medium.
electromagnetic field	The energy field radiating from a source and containing both electric and magnetic field components. An electric field is a field surrounding a charged object. A magnetic field is the field surrounding any current-carrying conductor.
electromagnetic field tester	A tester that measures the presence of electromagnetic fields. Used to identify possible electromagnetic interference (EMI) sources and strength.
electromagnetic immunity	The ability of a device, equipment, or system to perform without degradation in the presence of an electromagnetic disturbance. <i>See also</i> electromagnetic compatibility.
electromagnetic induction	A current flow in communications conductors produced by coupling of a magnetic field (e.g., current in power lines, cable shield, other cable pairs).
electromagnetic interference (EMI)	Radiated or conducted electromagnetic energy that has an undesirable effect on electronic equipment or signal transmissions. (TIA) <i>See also</i> interference.
electromagnetic lock	An electric lock that uses an electromagnet to hold a door closed.
electromagnetic pulse (EMP)	A high-intensity electromagnetic field. EMPs can disrupt electronic and electrical systems, sometimes causing permanent damage.
electromagnetic radiation (EMR)	Radiation made up of oscillating electric and magnetic fields.
electromagnetic shield	Any structure used to divert, block, or impede the passage of electromagnetic energy.

electromagnetic spectrum	The full range of electromagnetic emissions, including all light and radio waves.
electromagnetic susceptibility	The inability of a device, equipment, or system to resist an electromagnetic disturbance.
electromagnetic wave	A wave produced by the interaction of time-varying electric and magnetic fields.
electronic access control (EAC)	A system composed of computer software and hardware for managing access to identified spaces through the use of established security levels, issued credentials, and peripheral electronic hardware, including door contacts, request to exit (REX) devices, card readers, and electronic locking hardware.
electronic safety and security system (ESS)	Systems that utilize analog and digital transmission of data in addition to mechanical or electrical methods to enhance the safety and security of a facility.
electronic serial number (ESN)	A unique 32-bit serial number permanently stored in the mobile station or cellular equipment by the manufacturer. The ESN is transmitted during the authentication process.
electrostatic coupling	The induction of electrical charges in electrical conductors that may be the result of capacitive coupling from the electric field (e.g., nearby power line).
electrostatic discharge (ESD)	Electrical release of electricity generated by the interaction of materials containing some amount of electric charge. ESD happens when these materials are put in contact with any type of electrical conductor.
elevation drawing	A two-dimensional graphical representation of a vertical plane (drawing side view) showing wall and rack details.
emergency callout	A process or procedure used by an organization to quickly obtain the personnel needed to restore service outages.
emergency power	A stand-alone secondary electrical supply source not dependent upon the primary electrical source. (TIA) Emergency power systems are used to power life safety systems (e.g., emergency lighting, fire pumps) if primary power fails.
emergency preparedness plan	Formal written plan of action for coordinating the response of a group or organization in the event of a natural or man-made disaster.
emergency responder radio coverage systems (ERRCS)	An implementation of distributed antenna system (DAS) designed for use by first responders or public safety officials. These systems re-transmit fire and police radio signals from outside of a building to the building's interior allowing for continuous communication even within structures whose construction greatly attenuates outside radio signals.

emergency systems	Those systems legally required and classed as emergency by municipal, state, federal, or other codes or by any governmental agency having jurisdiction. These systems are intended to automatically supply illumination, power, or both to designated areas and equipment in the event of failure of the normal supply or in the event of accident to elements of a system intended to supply, distribute, and control power and illumination essential for safety to human life.
emergency voice alarm communications	An audible alarm method that uses spoken messages to alert occupants. Voice communication alarms can be used to convey specific instructions to occupants during an alarm event. Voice communication systems typically use recorded messages but can provide manual override and paging capability.
emission	<i>See</i> electromagnetic emission.
emulation	The technique of modifying a device with hardware or software to make it operate in the same manner as another device. <i>See also</i> terminal emulation.
encapsulant	A permanent or removable filling compound for a splice enclosure to prevent water intrusion.
encapsulation	A process that enables message transfer over dissimilar networks. It is used when messages initiated by network devices must be transported over an intermediate network using different protocols. The encapsulation process places messages into data frames compatible with the intermediate network without altering the message content. Upon arrival at the destination network, the reverse process is used to extract the original form of the message.
encoding	<i>See</i> signal encoding.
enclosure	A surrounding case or housing used to protect the contained equipment and prevent personnel from contacting live parts. (IEEE)
encroachment	The private use of another person's right-of-way (R/W) for an indefinite term, with or without permission, usually involving obstructions (man-made structures). <i>See also</i> easement.
encroachment permit	A legal document (usually issued by a government agency) that gives the permit holder permission to install and maintain facilities over or under the property designated by the permit.
encryption	1. A security mechanism that transforms the readable content in a message into a seemingly random collection of characters, numbers, and symbols to provide confidentiality. 2. A modification of a bit stream to make it appear random and to control emissions.
encryption key	<i>See</i> digital key.

encumbrance	Any lien, claim, or liability attached to the land that affects or limits the title to property.
end user	The ultimate consumer of a delivered good or service.
endcap	1. The endplate of a splice enclosure specifically arranged for the cable(s) entering and exiting the enclosure. 2. Closure at the end of a cable tray, raceway, or series of modular furniture units.
end-of-life cycle (EOL)	The end-of-life (EOL) on a product or communications infrastructure depends whether the perspective is that of the manufacturer or the user. From the manufacturer's perspective, the product will no longer be available, and technically supported. From the user's perspective, it means disposing of the existing product responsibly, transitioning to a different product and ensuring that the disruption from the existing to the new product is minimal.
end-of-line device	A device used to terminate a supervised circuit.
end-of-line resistor (EOLR)	A resistor that permits active monitoring of a two-wire circuit by using low-level circuit current to detect a short or break.
endothermic	Absorbing heat energy.
endplate	<i>See</i> endcap.
energy efficiency measure	Any equipment, system, or control strategy installed in a building for the purpose of reducing energy consumption and enhancing building performance.
energy management system (EMS)	A computerized monitoring and control system used to manage and provide operational efficiency for electrical power, heating, ventilation, and air-conditioning (HVAC), and lighting control systems.
energy per bit to noise (Eb/NO)	A type of signal-to-noise ratio (SNR) measurement; measured at the input density ratio to the receiver to quantify signal strength. Sometimes called SNR per bit. The wireless system designer should consult the available curves of theoretical bit error rates (BER) to determine the best possible ratio based on the type of modulation.
engine generator	A unit that uses a fuel-powered engine to drive a rotary generator to produce electrical power.
engineered judgment	A decision by a professional for a slight variance from standard practices.
engineering judgment	In firestopping, a document furnished by a firestop manufacturer's qualified technical personnel or in concert with the manufacturer by a knowledgeable registered professional engineer for nonstandard conditions in which a firestop system does not exist.

entrance facility (EF)	An entrance to a building for both public and private network service cables, including wireless, mechanical and electrical services, and the entrance point at the building wall, and continuing to the entrance room or space. <i>See also</i> building entrance, demarcation point (demarc) and entrance room or space. Also called a service entrance.
entrance point (EP)	The point of emergence for telecommunications cabling through an exterior wall, a floor, or from a conduit. (TIA)
entrance room or space	A space in which the joining of inter or intrabuilding backbone facilities takes place. (TIA) <i>See also</i> entrance facility (EF).
equal level far-end crosstalk (ELFEXT)	Crosstalk measured at the opposite end from which the disturbing signal is transmitted, normalized by the attenuation contribution of the cable or cabling.
Equalizer (EQ)	An electronic device that compensates for the selective frequency losses of the cable that feeds into it to provide equalization.
equalizing conductor	A conductor for the equalization of different ground (earth) points of a building to keep them at the same potential (zero volts).
equipment cord	A cable assembly used to connect active electronics equipment directly to other active equipment or to horizontal or backbone cabling Also called a work area cable.
equipment distribution area (EDA)	The computer room space occupied by racks or cabinets.
equipment grounding conductor	The conductor used to connect the noncurrent-carrying metal parts of equipment, raceways, and other enclosures to the system-grounded conductor, the grounding electrode conductor, or both at the service equipment.
equipment rack	<i>See</i> rack.
equipment room (ER)	<ol style="list-style-type: none">1. An environmentally controlled centralized space for telecommunications equipment that usually houses a main or intermediate cross-connect. (TIA)2. An environmentally controlled space for communications and data processing equipment supporting communications connectivity infrastructure.
equipotential bonding	Properly designed and installed electrical connections putting various exposed conductive parts and extraneous conductive parts at a substantially equal potential, especially during normal non-transient conditions. <i>See also</i> intersystem bonding conductor.

equivalent facilitation	The concept of making any object equally accessible or usable to persons with physical disabilities. In building and construction, equivalent facilitation is usually achieved with special accessibility features (e.g., ramps, powered door operators, visual alarm appliances).
equivalent isotropic radiated power (EIRP)	<i>See</i> effective isotropic radiated power (EIRP).
erlang	A unit of telecommunications traffic measurement. An erlang represents a continuous use of one voice path for one hour. In practice, it describes the total traffic volume during one hour. The peak hour of the day (busy hour) typically is used.
error	Any unwanted change in the original contents of a transmission.
error control	A process that verifies that a message is transferred successfully between devices.
errors and omissions (E&O)	The failure to include or accurately define a requirement in a design document.
Ethernet	A networking technology originally based on a logical bus structure and carrier sense multiple access with collision detection (CSMA/CD). Ethernet standards are formulated by the IEEE 802.3 committee and apply to Open Systems Interconnection (OSI) Reference Model Layers 1 and 2.
European economic area (EEA)	An area composed of the European Union, Iceland, Norway, and Liechtenstein.
evacuation	The withdrawal of occupants from a building.
evacuation signal	A distinctive signal intended to be recognized by the occupants as requiring evacuation of the building.
event	An occurrence at a sensor (e.g., locking/unlocking a door, excessive smoke or heat, status change, equipment malfunction) that generates a message stored in the system's controller.
event table	Results of some optical time domain reflectometers (OTDRs) for optical fibers that list each event and its location, loss, and reflectance (if any).
event-based monitoring	The automated monitoring of systems using a principle based on the fact that electronic systems can efficiently and effectively drive operational response. Event-based monitoring solutions imply a high level of integration between systems such that events from one subsystem automatically drive actions from other systems.
exit plan	A plan for the emergency evacuation of the premises.

exothermic	A chemical change causing the release of heat (e.g., exothermic welding uses an exothermic chemical reaction releasing a large quantity of heat to weld two metals together).
exothermic weld	A method of permanently bonding two metals together by a controlled heat reaction, resulting in a molecular bond. (TIA)
expansion joint	A joint between adjoining surfaces (e.g., concrete, conduit) arranged to permit expansion and contraction with changes in temperature.
exposed	Capable of being inadvertently touched or approached more closely than a safe distance by a person or another conductor. It is applied to parts that are not suitably guarded, isolated, or insulated. (<i>NEC</i> [®])
exposed cable	<i>See</i> open cable.
exposed facilities	Any cable facilities subjected to such effects as lightning, power crosses, power induction, or differences in ground potential.
exposure monitor	A device worn by a worker indicating the level of exposure to a hazardous substance.
extended service set (ESS)	A collection of access points (APs) that are tied together by a wired backbone in a single collision domain, or by virtual LANs (VLANs), to allow Layer 2 (data link layer) roaming.
extensible markup language (XML)	A specification developed by the World Wide Web Consortium (W3C). XML is a pared-down version of the standard generalized markup language, designed especially for website documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation, and interpretation of data between applications and between organizations. XML has been widely adopted for use in the integration of computing systems with automation and control systems as the underlying language behind XML website services.
extremely high frequency (EHF)	Frequencies in the range of 30 gigahertz (GHz) to 300 GHz.

== F

F connector	A 75-ohm radio frequency connector typically used in cable TV and on entertainment devices for coaxial cable. Used for RG 59/6 and RG 7/11 type cables to attach drop cables to directional couplers (taps), splitters, end-user equipment (e.g., TVs) and other devices. An F connector does not have a center pin. An F connector uses the solid copper center conductor of the coaxial cable as the center pin to establish the connection.
fabric	An interconnection scheme that enables communications between any two connected devices or networks through a series of interlinked switches.
faceplate	A protective (often decorative) outlet plate.
facility	<ol style="list-style-type: none">1. A building or room that makes possible some specific activity.2. Sometimes used to describe outside plant (OSP) cables or pairs to provide service.
facility code	The coded data in access control cards that identifies the location of the access control system (ACS).
factor of safety (FS)	In outside plant (OSP) aerial cabling, a mathematical factor used in the calculation of required pole strength for a given transverse load. This factor varies with the grade of pole construction.
fade margin	A design allowance that provides for sufficient system gain or sensitivity to accommodate expected fading for the purpose of ensuring that the required quality of service is maintained.
fading	The variation in path loss between the transmitter at one station and its normal receiver at the following station.
fail latched	A property of a locking device that upon the loss of power, the device will latch or remain latched but does not necessarily restrict movement or access from the secured side.
failover	The automatic transfer of control from a primary to a backup system as a strategy for fault tolerance.
fail-safe	A property of a locking device that upon the loss of power, the device will automatically unlock (open) or remain unlocked (open).
fail-secure	A property of a device that upon the loss of power, the device will automatically lock (close) or remain locked (closed).
failure mode	A system state resulting from an unanticipated system outage and typically an automatic system response to that failure.

fallback	The ability of an access point (AP) to lower the data rate as the signal level from the mobile station drops below the level required to maintain a reliable connection.
false ceiling	<i>See</i> suspended ceiling.
false deadend	A clamp or grip item of hardware used to attach to strand in order to end it at a pole or building attachment for OSP aerial construction.
false event	An indication on a test instrument, such as an optical time domain reflectometer (OTDR), of an event that is not really there. This is sometimes caused by the improper use of the test set.
family	In building information modeling (BIM), a group of elements with a common set of properties and a related graphical representation. Different elements belonging to a family may have different values for some or all of their parameters, but the set of parameters (their names and meanings) is the same.
fan out	The physical preparation of conductors, wire pairs, or fiber optic strands exiting a jacketed cable, to facilitate placement and termination in a splice or connecting block.
fanned	Separated cable conductors, strands, or pairs.
Faraday cage	A metallic enclosure that is designed to prevent the entry or escape of electromagnetic fields. An ideal Faraday cage consists of an unbroken perfectly conducting shell. This ideal cannot be achieved in practice but can be approached.
Faraday's Law	A law stating that an oscillating magnetic flux field will lead to the generation of an oscillating voltage in a conductive loop placed in that field.
far-end crosstalk (FEXT) loss	A measure of the unwanted signal coupling from a transmitter at the near end into another pair measured at the far end, and relative to the transmitted signal level. Also called input/output far-end crosstalk loss. (TIA)
Fast Ethernet	An IEEE 802.3 Ethernet LAN protocol with a data transfer rate of 100 megabits per second (Mb/s). <i>See also</i> 10 Gigabit Ethernet, Ethernet, and Gigabit Ethernet.
fastener	A screw, bolt, clamp, or nail-like device that is used to secure an item to a wall, floor, or ceiling.
fault	An open, ground, or short condition on any line extending from a control unit, which could prevent normal operation.

fault management	The detection, isolation, and correction of hardware or software conditions that disrupt network operations.
fault tolerance	The ability of a system to continue operations after the failure of one or more components or communications paths.
fault voltage (current)	<i>See</i> foreign voltage (current).
feed horn	A device that concentrates radio frequency (RF) energy into a waveguide, antenna radiator, or antenna reflector. Also called an illuminator.
feedback	1. An unwanted oscillation or tone that quickly increases in loudness. 2. The return of a portion of a signal in a circuit from output to input or from one point on a transmission path to a preceding point along this path, usually for the purpose of self-correcting, self-regulating, or control purposes. <i>See also</i> closed loop control.
feeder duct	<i>See</i> header duct.
femtocell	1. A small, low-power cellular base station, typically designed for use in a home or small business. Most femtocells have a range of ≈ 10 meters (m [33 feet (ft)]). A femtocell allows service providers to extend service coverage indoors or at the cell edge, especially where access would otherwise be limited or unavailable. 2. One type of small cell.
ferroresonance	The resonance of iron molecules due to the application of a magnetic field that produces a magnetic flux on the iron structure. This is the principal operation of transformers.
ferroresonant transformer	A device that regulates alternating current (ac) voltages, capable of acting as a step-up or step-down voltage transformer and as an ac voltage regulator.
ferrule (optical fiber)	The alignment sleeve portion of an optical connector used to protect and align the stripped optical fiber.
ferrule connector (FC)	An optical fiber connector with a threaded body which was designed for use in high-vibration environments. It is commonly used with both singlemode optical fiber and polarization-maintaining optical fiber cabling. Commonly referred to as fiber connector. <i>See</i> angled physical contact (APC).
fiber	<i>See</i> optical fiber.
fiber connector (FC)	The device used to hold and align one or more fibers in interface with another fiber or fibers (when not referring to the specific type of connector designated FC).
fiber distributed data interface (FDDI)	A fault-tolerant token-passing network protocol based on single or dual optical fiber rings.

fiber distribution unit	An administrative housing used to terminate fiber cables and connectors for the purpose of interconnections and cross-connection.
fiber fault finder	A small handheld visible light source consisting of a light-emitting diode (LED), lamp, or visible laser. Used to identify fibers, faulty connectors, fiber breaks, and critical bends. The bad connector (break in the fiber) will glow from the light source and be visible on many fiber sheath types. Also called a visual fault locator (VFL).
fiber optic (FO)	<i>See</i> optical fiber.
fiber optic cable	<i>See</i> optical fiber cable.
fiber optic flashlight	<i>See</i> optical fiber flashlight.
fiber span	The length of optical fiber cable between poles or maintenance holes (MHs).
fiber strand identifier	A clamp-on testing unit for optical fiber that places a micro-bend into the cable to detect light escaping from the fiber.
fiber to the home (FTTH)	A fiber connection from an internet service provider (ISP) connecting directly to a single residence or apartment.
fiber to the office (FTTO)	A de-centralized cabling plant design that carries optical fiber to the outlet/ office space utilizing micro switches to provide connectivity to end devices. This design can be seen in airports or warehouse spaces where link limits often exceed 90 meters (m [295 feet (ft)]).
fiber to the X (FTTx)	A generic term used to encompass a range of broadband network architectures using optical fiber to provide all or part of the local loop used for the last mile telecommunications.
Fibre Channel	A technology for transmitting data between computer devices at high data rates. Fibre Channel is especially suited for connecting computer servers to shared storage devices and for interconnecting storage controllers and drives.
field of view	The area or volume, typically angular or conical in shape, that a sensor or device can detect an input.
field order (FO)	A document that allows the engineer to authorize or order minor variations in the work when such changes do not involve a change in contract price or contract time. These orders must be in writing, but do not require an executed change order or the owner's signature. (CSI)
fill	1. A sequence of added bits used to meet timing, sizing, or spacing requirements in and between messages. 2. Use of material (or material used) to equalize or raise earth topography to a certain elevation.

filled cable	A cable that contains water-blocking non-solid material inside the sheath to prevent the penetration of moisture.
filtering	A process that examines all incoming or outgoing traffic for specific characteristics (e.g., source address, destination address, protocol, virus) and determines whether to accept, forward, or discard that traffic based on the established criteria.
fingerprint reader	A biometric reader that identifies a person based on the person's fingerprint pattern.
fire	The rapid oxidation of a material in the exothermic chemical process of combustion, releasing a combination of heat, light, and reaction products specific to the materials undergoing combustion.
fire alarm (FA)	A device that detects one or more signs of a fire, typically heat or smoke. The device then transmits a notification by a loud audible speaker, a circuit connected to a controller, or both.
fire alarm code	A code that specifies when a fire alarm system is required.
fire alarm control panel (FACP) unit	A system component that receives and monitors inputs from fire alarm devices and controls outputs to connected appliances, transmitters, relays and devices, and other control units.
fire alarm signal	A signal initiated by a fire alarm-initiating device (e.g., manual fire alarm box, automatic fire detector, water flow switch) in which activation is indicative of the presence of a fire or fire signature.
fire alarm standard	A standard that prescribes such requirements as the spacing and placing requirements of fire detection and alarm equipment. This addresses how a fire alarm (FA) system is to be installed, tested, inspected, maintained, and monitored.
fire alarm (FA) system	A system or portion of a combination system that consists of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.
fire alarm/evacuation signal tone generator	A device that produces a fire alarm/evacuation tone upon command.

fire break	A fire-rated material, device, or assembly of parts installed along a cable or within a cable pathway, other than at a cable penetration of a fire-rated barrier, to prevent the propagation of fire along a cable. Typically, the material is applied directly to or around the cabling at incremental locations along the pathway in an effort to stop or significantly slow the advance of a fire down the length of the cables. Fire breaks are most often used in locations with large open floor spaces with cable trays carrying power cables to various pieces of equipment.
fire command center	A principal attended or unattended location where the status of the detection, alarm communications, and control systems is displayed and from which the systems can be manually controlled.
fire detection	The means of detecting the occurrence of heat, smoke, or other particles or products of combustion.
fire detector	<i>See also</i> flame detector, heat detector, smoke detector, spark/ember detector, other fire detectors, rate compensated heat detector, rate-of-rise pneumatic tubing heat detector and rate-of-rise detector.
fire detectors-other	Devices that detect a phenomenon other than heat, smoke, flame, or gases produced by a fire.
fire protection	The active means of detecting and suppressing fires.
fire rating system	<i>See</i> fire resistance rating.
fire resistance	A property of a material or rated assembly of materials that can withstand combustion and delay the passage of flame for some known period of time.
fire resistance rating	The time in hours, or fraction thereof, that a material or rated assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria. (TIA)
fire retardant (FR)	Any substance added to delay the start of fire ignition or to slow the spread of flame by the burning material.
fire safety function control device	A fire alarm (FA) system component that directly interfaces with the system that controls the fire safety function.
fire safety functions	The building and fire control functions that are intended to increase the level of life safety for occupants and control the spread of the harmful effects of fire.
fire shield	A fire-rated material, device, or assembly of parts installed between cable pathways (e.g., between two parallel cable trays or between layers in vertically stacked trays) to prevent propagation of flames from one pathway to an adjacent pathway.

fire suppression	The means of extinguishing an active fire.
fire warden	A building staff member or tenant trained to perform assigned duties in the event of a fire emergency.
fire zone	A contained area completely enclosed by fire-resistant rated walls, floors, and ceilings.
fire-gas detector	A device that detects gases produced by a fire.
fire-rated assembly	An architectural barrier assembly designed and installed to contain a fire within a specified space for the rated amount of time. The barrier includes both the membrane material (e.g., gypsum, metal, concrete) and the barrier's interior (e.g., studs, insulation). The barrier assembly includes the barrier itself and any architectural openings (e.g., windows or doors and their frames). <i>See also</i> fire-rated door.
fire-rated door	A door assembled of various materials and types of construction used in wall openings to retard the passage of fire. These doors are rated in hours or fractions of hours. <i>See also</i> fire-rated assembly.
fireproof	A property of a material (e.g., masonry, block, brick, concrete, gypsum board) that does not support combustion even under accelerated conditions. No material is entirely fireproof.
firestop	A fire-rated material, device, or assembly of parts installed in a penetration in a fire-rated barrier in accordance with a firestop system or engineering judgment to prevent the spread of fire, temperature, and gases of combustion.
firestop system	A document prepared by a nationally recognized testing laboratory (NRTL) or a firestop manufacturer that specifies a specific firestop and its installation requirements for a particular fire-rated assembly (e.g., gypsum wall with wood studs, 2-hour F rating, 1-hour T rating) and penetrating element.
firestopping	The process of installing nationally recognized testing laboratory (NRTL) listed fire-rated materials into penetrations in fire-rated barriers to reestablish the fire-resistance rating of the barrier. (TIA)
firewall	1. A continuous barrier used to prevent fire spreading from one fire zone or area to another. <i>See also</i> fire-rated assembly. 2. One or more security mechanisms (hardware and software) designed to prevent, detect, suppress, and contain unauthorized access to a network.
firm	An organization that participates in providing or selling goods or services to other firms or consumers. [BIM]

First Responder Network Authority (FirstNet)	An independent authority within the United States (U.S.) National Telecommunications & Information Administration (NTIA) established to develop a single nationwide, interoperable public safety broadband network. The network is called the Nationwide Public Safety Broadband Network (NPSBN).
fish tape	A tool or device that can be extended from the beginning of a pathway to the other end to assist in installing a pull line or to pull in a cable.
fixed connector (FC)	A type of optical fiber connector identifiable by its round, screw-operated locking nut. It is usually metal. Because of its ruggedness, it is widely used in test equipment.
Fixed Service (FS)	A radio communications service between specified fixed points. (FCC 47 C.F.R. § 2.1(c))
fixed-temperature detector	A device that responds when its operating element becomes heated to a predetermined level.
flame	A body or stream of gaseous material involved in the combustion process of a fire, which emits radiant energy within wavelength bands specific to the combustion chemistry of the fuel. In most cases, some portion of the emitted radiant energy is visible.
flame detector	A fire detector that detects the radiant energy emitted by a flame.
flame detector sensitivity	The distance along the optical axis of a detector at which the device can detect a fire of specified size and fuel within a given time frame.
flash cut	A process of migrating from an existing system to another where all circuits are cutover at once. <i>See also</i> cutover.
flashing	Pieces of sheet metal (or similar material) used to cover and protect certain joints and angles.
flat network	A network that consists of a single broadcast domain. <i>See also</i> broadcast domain.
flex	Flexible wide-area synchronous protocol.
flexibility	The ability of a design to anticipate future changes in space, communications, power density, or heat rejection, and to respond to these changes without affecting the mission of the critical information and communications technology (ICT) functions.
flexible conduit	Raceway of circular cross-section that is bendable without the use of tools.

float current	The current that is drawn by a battery when it is being kept in a fully charged state. The float voltage will determine this current. <i>See</i> float voltage.
float voltage	The voltage at which a battery is maintained (floated) in order to keep it in a fully charged state. <i>See</i> float current.
flooding	The process used by network switches, bridges, and routers to direct a message to all outgoing ports, with the exception of the port or interface on which the traffic was received. Flooding is typically used when the destination address of the message is not recognized or for multicast and broadcast message distribution.
floor distributor (FD)	The international equivalent term for horizontal cross-connect (HC).
floor plan	A scaled diagram or plan of a building floor or other structure shown as if seen from above.
floor slab	1. That part of a reinforced concrete floor, which is carried on beams below. (TIA) 2. A concrete mat poured on subgrade serving as a floor rather than as a structural member.
flow control	A mechanism used to regulate the data transfer between devices.
flow switch	A device that monitors minor surges in water flow.
flying cross	In outside plant (OSP) aerial cabling, the term used to describe the intersection of two perpendicular support strands for aerial cable that makes a 90-degree change in direction.
foil covered unshielded twisted-pair cable (F/UTP)	<i>See</i> shielded twisted-pair cable.
foil shield	A thin plastic and metal laminated tape wrapped around the cable conductors to act as a shield against electromagnetic interference (EMI) and prevent emission of electromagnetic energy. <i>See also</i> screen.
foil twisted-pair (FTP) cable	<i>See</i> screened twisted-pair cable.
foldback splicing	The process of folding back conductors in a splice for future maintenance or rearrangements.
footprint	The area where a piece of equipment or furniture rests on the floor with its moving parts in a closed position.
foreign voltage (current)	Any unwanted voltage (current) imposed on a system that is not supplied from within the system itself. Also called fault voltage (current).

form and dress cable	The process of lining up cables side-by-side, shaping them into sweeping arcs, and joining them into loose bundles with tie wrap or other means, to hold the bundles neatly together.
forming	<i>See</i> form and dress cable.
forward packet data channel (F-PDCH)	The cdma2000 1xEV-DV data channel on the forward link.
forwarding	The transferring of a message to another network by an internetworking device. <i>See also</i> filtering.
forwarding logic	The set of rules used by an internetworking device to transfer a received message to another network.
fragment-free switching	<i>See</i> modified cut-through.
frame	1. A data unit created at Layer 2 (data link layer) of the Open Systems Interconnection (OSI) Reference Model. It contains the data, control, and error-checking information necessary to transfer a message from one device to another on a LAN. <i>See also</i> datagram and packet. 2. A special purpose equipment mounting structure.
frame check sequence (FCS)	The product of an error-detecting code normally inserted as the final field in a block of transmitted data. <i>See also</i> checksum and cyclic redundancy check (CRC).
Frame Relay	A network protocol designed to transport messages over extended distances via a mesh network, using virtual circuits and switches. A high-performance modification of X.25.
frame synchronization (FS)	A 32-bit post office code standardization advisory group paging code used to identify the beginning of each message batch.
framed wall	An interior wall construction consisting of plasterboard.
franchise	A right-of-way (R/W) granted for placement of outside plant (OSP) facilities within the domain of public or private property.
free space loss	The signal loss that occurs between two antennas in free space, unaffected by blocking, refraction, diffraction, or absorption.
free space optics (FSO)	A low-power laser beam used for outdoor point-to-point high-rate protocol-independent transmission.
frequency	The number of cycles that a periodic signal completes in a given time. If the unit of time is one second, the frequency is stated in hertz (Hz). One Hz is equal to one cycle per second.

frequency band	A range of communications frequencies.
frequency converter	Integrated component assemblies required for converting signals into lower (or intermediate) or higher frequency ranges for further processing.
frequency-hopping spread spectrum (FHSS)	A modulation technique that employs rapid changing of the transmission frequency in a predetermined, pseudorandom pattern. Communication is accomplished by synchronizing the transmitter and receiver.
frequency modulation (FM)	A type of angle modulation of a sinusoidal carrier in which the instantaneous frequency of the modulated wave differs from the carrier frequency by an amount proportional to the instantaneous value of the modulating wave. In FM, the modulating signal causes the carrier to vary which is controlled by both the frequency and the amplitude of the modulating wave. FM and Phase Modulation (PM) are two types of angle modulation.
Fresnel reflection	Whenever light traveling in a material encounters a different density material, some of the light is reflected back to the light source, and the rest continues. <i>See also</i> reflection.
Fresnel zone	One of a (theoretically infinite) number of concentric ellipsoid shaped areas about the direct path between a transmitter and receiver in an unbounded transmission medium free of radiation sources. The cross section of the first (innermost) Fresnel zone is circular. The others are annular (doughnut-shaped). In radio systems, a good design requires that the first Fresnel zone in a propagation path be kept as clear as possible of obstacles that could cause refraction. Some obstruction can be tolerated (preferably 20 percent or less); the maximum is 40 percent.
frost lift	Ground buckling upward as a result of heavy frost.
frost line	The deepest level below grade to which frost penetrates in a particular geographic area. Usually specified in 50-year increments.
full-duplex signaling	The transmission of data in opposite directions simultaneously. <i>See also</i> half-duplex signaling and simplex signaling.
functional design process	A network design process where the designer begins by examining the types of applications and services that are to be supported by the network. Also called top-down design.
functional performance test	The full range of checks and tests carried out to determine whether all components, subsystems, systems, and interfaces between systems function in accordance with the design documents.
furcating harness	An assembly used to increase the effective outer diameter of strands within an optical fiber cable to enable connector termination, typically provided in either 6- or 12-strand configurations. Also called a fan out.

furcation	The process of covering a 250 micron coated fiber with a 900 micron buffer tube to facilitate field connectorization.
furcation tubing	Flexible tubes used to increase the effective outer diameter of coated optical fiber strands (typically from 250 microns to 900 microns) to enable connector termination and provide physical protection of the coated strands.
furniture system	Furniture walls combined with furniture units designed to form a work area (e.g., cubicle).
furniture wall	A component of a furniture system.
fuse	An overcurrent protective device with a circuit-opening element that is severed (open) when heated by the passage of an overcurrent. Fuses are normally onetime devices; once they are open, they are not reusable.
fuse cable	A length of cable that is two gauges smaller than the conductors of the cable being protected and at least ≈ 0.6 meters (m [2 feet (ft)]) long. Fuse cable is inserted in the plant and intended to open on excessive foreign power currents, thus protecting the station wiring cable or apparatus. Fuse cable does not protect against lightning currents or sneak currents. Also called fuse cable link and fuse link.
fuse cable link	<i>See</i> fuse cable.
fuse link	<i>See</i> fuse cable.
fusing	1. The process of joining fibers together by fusion or melting. 2. The process of joining materials through a chemical or heating process. This fusing can occur as an unwanted action that can appear as an open or a short.
fusion splice	A permanent joint accomplished by applying localized heat sufficient to fuse or melt the ends of two optical fibers together, forming a continuous single fiber.

== G

gain	1. The ratio of output current, voltage, or power relative to input current, voltage, or power, respectively. Gain is usually expressed in decibels (dB). If the ratio is less than unity, gain will be negative, in which case there is a loss between input and output. 2. The ratio of an antenna's maximum radiation intensity to that of a radiator in the far field of its main (forward direction) lobe. (FCC) <i>See also</i> effective radiated power (ERP) and equivalent isotropically radiated power (EIRP).
Gantt chart	A simple chart that diagrams a project schedule.
gamma rays	Electromagnetic frequencies between 30 exahertz (EHZ) and 3000 EHz.

gap distance	The distance between optical fiber ends.
gas tube protector	An overvoltage protector featuring metallic electrodes that discharge in a gas atmosphere within a glass or ceramic envelope. This type of protector does not require replacement each time it discharges.
gateway	1. An internetworking service used to connect dissimilar applications running on different networks with different telecommunication protocols. Gateways normally operate at one or more of the top four layers of the Open Systems Interconnection (OSI) Reference Model. 2. As it relates specifically to fire alarm control units, a device that is used in the transmission of serial data (digital or analog) from the fire alarm control unit to other building system control units, equipment, or networks and/or from other building system control units to the fire alarm control unit.
general alarm	An alarm signal that is not specific to an individual device or area. General alarms are signaled throughout an entire building or area and usually result in the evacuation of occupants.
general conditions	Any of a number of standards or code documents published that are applicable to the project delivery method.
generic content	In building information management (BIM), non-manufacturer specific models (e.g., devices, equipment, fittings) which are suitable for use in BIM project models.
Gigabit Ethernet (GbE)	An IEEE Ethernet LAN protocol with a data transfer rate of 1000 megabits per second (Mb/s). <i>See also</i> Ethernet, and Fast Ethernet.
gigabit per second (Gb/s)	A transmission rate denoting one billion bits per second.
gigahertz (GHz)	A unit of frequency denoting one billion cycles per second. <i>See also</i> hertz (Hz).
global area network (GAN)	A network of different interconnected computer networks that covers an unlimited geographic area.
global unlock	An input that, when activated, generates an access control system (ACS) signal that unlocks doors.
grade	1. The slope of a surface with a vertical rise or fall expressed as a percentage of the horizontal distance. 2. For a communications circuit, a category defining the level of the circuit's capability.
graded-index fiber	A multimode optical fiber design in which the refractive index decreases continuously from the center of the core to the outside of the core. The purpose is to reduce modal dispersion and thereby increase fiber bandwidth.

gray scale	An image in which the value of each pixel is a single sample or a pattern of dots that is used to represent a particular shade, typically composed of shades of gray (varying from black at the weakest intensity to white at the strongest).
grommet	A rubber or plastic insulator used to protect a wire passing through an aperture. <i>See also</i> bushing.
ground	A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of earth. (TIA) <i>See also</i> approved ground and earth ground.
ground electrode	<i>See</i> grounding electrode.
ground enhancement material	Any material used to enhance the soil for a low resistance to ground.
ground fault	An undesirable connection to ground in which the resistance between a conductor and ground reaches an unacceptably low level.
ground fault circuit interrupter (GFCI)	A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof, within an established period of time, when a current to ground exceeds the values established for a Class A device. (NEC®)
ground line	In outside plant (OSP) aerial cabling, the point where the pole enters the earth.
ground loop	Interference in electrical communication links due to the ground at each end being at different potentials.
ground penetrating radar (GPR)	A non-destructive method of imaging subsurface ground conditions using radar pulses.
ground plane	A system of conductors placed beneath an elevated antenna as a near field reflective point serving as an earth ground.
ground potential	The zero reference level used to apply and measure voltages in a system.
ground potential rise (GPR)	A voltage difference between a grounding electrode system and the earth return currents produced by a lightning strike or a power fault current.
ground resistivity	The measured direct current resistance of a volume of earth.
ground wave	A low frequency (LF), medium frequency (MF), or high frequency (HF) radio wave that bends along the earth's surface rather than traveling through the atmosphere because of different refractive indexes.

ground wire	<i>See</i> bonding conductor (BC) and bonding conductor for telecommunications (BCT).
grounded	Connected to earth or to some conducting body that serves in place of the earth.
grounded conductor	A system or circuit conductor that is intentionally grounded.
grounding	The act of providing a ground.
grounding bushing	A fitting for attaching a ground wire to a conduit.
grounding conductor	A conductor used to connect the grounding electrode to the building's main grounding busbar. (TIA)
grounding electrode	1. A conductor, (usually a rod, pipe, plate, or group of conductors), in direct contact with the earth for the purpose of providing a low-impedance connection to the earth. (TIA) 2. A device that establishes an electrical connection to the earth. (NEC®)
grounding electrode conductor (GEC)	The conductor used to connect the grounding electrode to either the equipment grounding conductor, or to the grounded conductor of the circuit at the service equipment, or at the source of a separately derived system. (TIA)
grounding electrode system	One or more grounding electrodes bonded to form a single reliable ground for a structure.
grounding equalizer (GE)	A regional term for backbone bonding conductor (BBC).
grounding mat	An extensive system of bare conductors, buried below the surface of the earth, intended to provide a low-resistance connection to earth and to equalize the potential within the area covered. (TIA)
grounding system	A system of hardware and wiring that provides an electrical path from a specified location to an earth ground point.
grounding terminal	A suitable bar, bus, terminal strip, or binding post terminal where grounding and bonding conductors can be connected.
ground-reflected wave	The portion of a wave that reaches a receiving antenna after it has reflected off the earth's surface.
groupware	A network software application designed to enhance administration communications (e.g., e-mail, scheduling, coordination, collaboration) among users in an organization.

grunt sack	A bag that is raised and lowered on a rope to provide a means of safely passing tools and small materials between individuals working in a construction environment.
GS mark	A symbol of safety recognized throughout Germany and European Union countries. Any electrical, mechanical, or electromechanical product bearing the GS mark indicates that it was tested and complies with the minimum requirements of the German Equipment and Product Safety Act.
guaranteed maximum price (GMP)	Bidders may be required to state a GMP that is not to be exceeded. This allows the owner an understanding of the absolute maximum cost of the project before start of construction.
guard's tour reporting station	A device that is manually or automatically initiated to indicate the route being followed and the timing of a guard's tour.
guard's tour supervisory signal	A supervisory signal monitoring the performance of guard patrols.
guy	1. In utility pole systems, a steel stranded wire used to provide counter tension to the pole opposite that of the installed cable pull tension to keep the pole upright. 2. For communications towers, a steel stranded wire used for support and to resist wind loading.
guy rod end	A single, double, or triple eye at the end of a guy rod for the attachment of the guy wire to the connect point above the ground anchor.

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half-duplex channel	A communications channel that can transfer signals in either direction, but not at the same time.
half-duplex signaling	A bidirectional signaling method in which data transfer can take place in either direction, but in only one direction at a time. <i>See also</i> full-duplex signaling; simplex.
half-tap	The attachment of one conductor to another where the through conductor is not cut until the cutover takes place. This is a hot cut penetration step.
halftone	<i>See</i> gray scale.
hand geometry	A biometric reader that verifies a person's identity using the variations in hand size, finger length, and finger thickness.
hand trace	The act of physically hand tracing a cable, patch cord, jumper, or cross-connect from one known point to another known point to determine its path.

handhole (HH)	A structure similar to a small maintenance hole (MH) in which cable can be pulled, but not large enough for a person to fully enter to perform work. <i>See also</i> vault.
handoff	1. The process that occurs when a mobile user moves from one cell or zone (thereby terminating communications) to another cell or zone (thereby initiating communications) in a wireless network. The handoff is accomplished without disruption of the exiting connection. 2. The transfer of control from one cell to another in cellular wireless networks.
handover	<i>See</i> handoff.
handshaking	A connection-oriented protocol. The process whereby verification is established before controlled data is sent to a remote system. When handshaking is successful, the systems establish connection.
hanger	A device that is used to hold something in position, usually from a ceiling or overhead support structure.
hanging load	The weight that can be suspended from the underside of the floor or structure above.
hardened	The condition of a facility or piece of equipment with protective features that enables it to withstand destructive forces (e.g., explosions or natural disasters for facilities; being dropped or exposed to weather conditions for equipment).
hard-line trunk	A rigid coaxial cable, typically used for backbone cabling. (TIA)
hard-sheath cable	A cable or wire contained within a continuous inner or outer metallic sheath. (TIA)
hardware address	<i>See</i> medium access control (MAC) address.
harmonic distortion	Disruption of a signal caused by harmonics of the fundamental frequency. <i>See also</i> harmonics.
harmonics	Frequencies in an output signal that are not present in the input signal. <i>See also</i> harmonic distortion.
hazardous locations	<i>See</i> classified locations.
hazardous materials	<i>See</i> classified materials.
headend	The equipment located at the start of a cable distribution system where the signals are processed and combined prior to distribution.
header	The initial part of a message, typically containing identification, addressing, and control information.

header duct	A raceway of rectangular cross-section placed within the floor to tie distribution duct(s) or cell(s) to the telecommunications room. (TIA) Also called feeder duct and trench duct. <i>See also</i> underfloor duct system.
Health Insurance Portability and Accountability Act of 1996 (HIPAA)	A United States federal law that protects health insurance coverage for workers and their families when they change or lose their jobs; establishes national standards for electronic health care transactions and addresses the security and privacy of health data.
heat alarm	A signal sent from a sensor to a controller announcing excessive heat within the sensor's range. <i>See also</i> heat detector.
heat coil	A device that grounds a conductor when the conductor's current time limits are exceeded.
heat detector	A fire sensor that detects either abnormally high temperature or rate of temperature rise, or both.
heat (fire protection)	The existence of temperatures significantly above normal ambient temperatures.
heat map	A color-coded representation of predicted received radio frequency (RF) levels within a specified area. A heat map is prepared by RF system designers during the initial design preparation to determine the location, strength, and other parameters of existing RF signals, and how the planned new RF system will propagate throughout the structure.
heat shrink tubing	Rubber (or similar material) tubing that shrinks upon the application of heat. Used to insulate splices and connectors, or to create weather or environmental protection for a connection.
height above average terrain (HAAT)	The height of the center of the radiating element of the antenna above the Average Terrain. Refer to FCC regulation 47CFR90.309(a)(4) for the calculation method. (FCC)
Henry hermaphroditic connector	The unit used to measure magnetic inductance of electromagnetic fields. A connector that is both male and female.
hertz (Hz)	A unit of frequency equal to one cycle per second.
heterodyning	The process of generating new frequencies by mixing two or more signals in a nonlinear device (e.g., vacuum tube, transistor, diode mixer).
heterogeneous network	1. A network connecting computers and other devices with different operating systems and protocols. 2. A wireless network which provides service through a wireless LAN (WLAN) and is able to maintain service when switching to a cellular network. 3. A term referring to the use of multiple types of wireless access nodes in a wireless network.

hidden node	When two or more nodes in a wireless LAN (WLAN) are within transmission range of the same access point (AP), but not within transmission range of each other, they are said to be hidden from each other.
hierarchical star topology	An expanded star topology where the center element of a star topology is individually connected to a central point at one level higher. Unlike a tree topology, elements within a particular hierarchical level may not provide connectivity to similar elements at the same level (e.g., devices are not linked in series or daisy-chained).
hierarchical topology	A topology that links devices or networks using a series of levels, similar to an organizational chart.
high band	VHF frequencies between 150 megahertz (MHz) and 300 MHz.
high frequency (HF)	Frequencies in the range of 3 megahertz (MHz) to 30 MHz.
high-order mode transient losses	Losses in optical signal level power caused by the attenuation of weakly guided high-order modes of multimode optical fiber.
high pair-count cable	Cables consisting of multipair conductors formed into binder groups of 25 pairs.
high rate direct sequence spread spectrum (HR/DSSS)	A form of wireless signaling similar to DSSS, but employing a more advanced coding scheme to enable higher data rates.
high resistance/impedance grounding system	A type of impedance grounded neutral system in which a grounding impedance, usually a resistor, limits the ground-fault current.
high-rise building	1. A building having many stories and serviced by elevators. 2. A building with upper floors higher than fire department aerial ladders, usually ten or more stories.
high-speed air blown procedure (HASB)	The process of deploying optical fiber strands through a dedicated duct system using high-speed air. Often referred to as blown fiber.
high-speed downlink packet access (HSDPA)	A third generation (3G) mobile telephony digital cellular standard based on the evolution of wideband code division multiple access (WCDMA) technologies.
home run	A cabling pathway or cable installed without a splice or intermediate termination point between active electronics (e.g., switching, routing, data processing equipment) in a telecommunications space (e.g., equipment room [ER], telecommunications room [TR]) and an end user telecommunications outlet/connector in a work area.

horizontal cabling	The part of the cabling system that extends from (and includes) the work area telecommunications outlet/connector to the horizontal cross-connect (HC [floor distributor (FD)]) in the telecommunications room (TR).
horizontal connection point (HCP)	<i>See</i> horizontal cross-connect (HC)
horizontal consolidation	A segment of horizontal cable between the consolidation point connector point/telecommunications and the telecommunications outlet/connector. This cable should be easily outlet cable moved for modular office rearrangement.
horizontal cross-connect (HC)	A group of connectors (e.g., patch panels, punch-down blocks) that allow horizontal, backbone, and equipment cabling to be cross-connected with patch cords or jumpers. Floor distributor (FD) is the international equivalent term for horizontal cross-connect.
horizontal directional drilling	A method for placing underground facilities that uses a directed horizontal auger or drill to establish the path, place casings or cables, and minimize restoration costs associated with plowing or trenching.
horizontal distribution area (HDA)	A space in a computer room where a horizontal cross-connect (HC) is located, and may include LAN switches, storage area network (SAN) switches, and keyboard/video/mouse (KVM) switches for the end equipment located in the equipment distribution areas.
horizontal HC-CP cable	The segment of horizontal cable permanently installed between the horizontal cross-connect (HC) and the consolidation point (CP) connector.
horizontal pathway	<i>See</i> pathway.
horn	A device or a component of an appliance that produces an audible signal at a specified frequency.
host	In the internet environment, the term used to describe any network-attached device that provides application-level services.
host computer	The central controlling computer on which access control software runs.
host identification (hostid)	A part of an internet protocol (IP) network address. It identifies a specific device within a broadcast domain. <i>See also</i> network identification (netid).
hot cut	A cutover where the active cables are unplugged from the old system and plugged into the new system. <i>See also</i> cutover.
hot red light	<i>See</i> low-intensity laser.
hot spot	A temperature reading, taken at the air intake point of equipment mounted in a rack or cabinet, in excess of the design standard or equipment requirement.

household fire alarm system	A fire alarm system used in dwelling units. <i>See</i> fire alarm system.
hub	A network device that provides a centralized point for Ethernet LAN communications, media connections, and management activities of a physical star topology cabling system. Hubs route all packets from the incoming port to all other ports, performing no filtering or routing. Hubs do not separate collision domains. Also called multiport repeater.
huddle room	Small and private meeting space designed for teams of 3–6 people and equipped with video conferencing and collaboration technologies
human events	Man-made incidents, including economic, general strike, terrorism (e.g., ecological, cyber, nuclear, biological, chemical), sabotage, hostage situation, civil unrest, enemy attack, arson, mass hysteria, accidental, and special events.
hunt group	A group of associated telephone lines within which an incoming call is automatically routed to an idle (not busy) telephone line for completion.
hybrid cable	A manufactured assembly of two or more cables, of the same or differing types media, or categories, covered by one overall sheath.
hybrid coupler	A component used to combine two wireless frequencies bands into a single antenna feed or distribution cable. <i>See also</i> diplexer.
hybrid optical fiber cable	A cable containing two or more types of optical fiber (e.g., multimode, singlemode) or optical fiber combined with copper.
hybrid spread spectrum systems	Systems which use combinations of two or more types of direct sequence, frequency hopping, time hopping and pulsed FM modulation in order to achieve their wide occupied bandwidths. (FCC)
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ice load	The weight factor calculated from the potential amount of ice that can build up on outside plant (OSP) structures or antennas and their support structures from storm conditions.
identifier (ID)	An item of information that links a specific element of the telecommunications infrastructure with its corresponding record. (TIA)
illuminator	A device that concentrates radio frequency (RF) energy at the focal point of a satellite dish. Also called a feed horn.
image rejection	The discarding of signal images by a receiver. Such images are produced due to mixing in the intermediate frequency (IF) section of the receiver, resulting in desired signals and undesired signal images.

immunity	The ability of a device, equipment, or system to perform without degradation in the presence of an electromagnetic disturbance.
impedance	The total opposition (resistance and reactance [capacitance and inductance]) that a circuit, cable, or component offers to the flow of alternating current (ac) at a given frequency. It is measured in ohms. <i>See also</i> resistance.
impedance match	A condition whereby the impedance of a particular circuit, cable, or component is the same as the impedance of the circuit, cable, or device to which it is connected.
Importance Factor	In structure construction design, a parameter from Design Loads for Buildings and Other Structures (ASCE 7) based on the occupancy category. It is used in calculating flood, wind, snow, seismic, and ice design loads. The Importance Factor is a multiplier that increases or decreases the base design loads. <i>See also</i> Occupancy Category.
impulse noise	Discrete noise spikes that have random amplitude and spectral content.
incident handling	The organizational response to a security or safety-related event.
incidental radiator	A device that generates radio frequency (RF) energy during operations although it has not been intentionally designed to do so (e.g., direct current [dc] motors, mechanical light switches).
incipient	The first of four stages (incipient, visible smoke, flame, heat) of a fire. Combustion particulates in the incipient stage are low in density and lower than the level of detection capabilities of conventional smoke detectors.
incipient products of combustion	Particles emitted from materials developing inherently high heat but from which no smoke is yet visible.
independent basic service set (IBSS)	A group of stations in a wireless LAN (WLAN) that communicate directly with each other (without the use of a central access point [AP]). This type of network is also called an ad hoc network.
index of refraction (IOR)	The ratio of the velocity of light in a vacuum to the velocity of a light in another medium. Also called refractive index.
index-matching gel	Material used in optical fiber connections or splices that has a refractive index close to that of the fiber core; used to reduce reflections from the residual air gap.
inductance	1. The property of an electrical force field built around a conductor when current flows through it. 2. The resistance to change in current.
induction	The phenomenon of a voltage, magnetic field, or electrostatic charge being produced in an object from the source of such fields.

inductive amplifier	A test device used to detect a signal placed on a cable for the purpose of tracing and identification. Also called a wand or probe.
inductive coordination	The cooperative effort of telecommunications and power company personnel in the engineering and application of measures and devices to ensure compatibility of operation between both systems for noise reduction and protection.
inductive coupling	The transfer of electromagnetic energy from one circuit to another by mutual inductance.
inductive reactance	The portion of impedance that opposes a change in current flow due to magnetic field coupling.
inductive/reactance-grounded power system	A method of grounding in which the system is grounded through impedance, the principle element of which is inductive reactance.
industrial, scientific, and medical (ISM)	Radio bands reserved internationally for the use of radio frequency (RF) energy for industrial, scientific, and medical purposes other than telecommunications (e.g., medical diathermy equipment, industrial heating equipment, magnetic resonance equipment). Even though they are allocated for non-communications use, these bands have become popular for short range communications systems (e.g., cordless telephones, Bluetooth devices, near field communication [NFC] devices, wireless computer networks) because no license is required to use them.
infection control program	Policies and procedures followed by medical and dental treatment facilities to minimize the risk of infection to patients and staff. Installers and designers need to take infection control programs into consideration as they relate to information and communications technology (ICT) systems.
information and communications technology (ICT) system	The cabling, pathways, rooms and spaces, wireless systems, racks, power, grounding, cooling, and other infrastructure required to support the transportation of voice and data signaling between communication, data processing, data display of information gathering devices. Formerly known as a structured cabling system, information transport system, and information technology system.
information technology equipment (ITE) power	The power consumed by ICT to manage, monitor, control, process, store, and route data within the data center, excluding all infrastructure technology equipment.
infrared (IR)	Electromagnetic radiation (light) with longer wavelengths than those of the visible light spectrum extending from the nominal edge of the visible red spectrum. The infrared spectrum is approximately 700 nanometers (nm) to 1 millimeter (mm).
infrared (IR) conversion card	Allows a cabling installer to visually detect an infrared signal when that signal is directed at the card's phosphorus material.

infrastructure (telecommunications)	See information and communications technology (ICT) system.
ingress	1. An electrical characteristic associated with externally generated noise induced into a cable. 2. A point of entry for a building or property.
initiating device	A system component that originates the transmission of a change-of-state condition (e.g., smoke detector, manual fire alarm box, supervisory switch).
initiating device circuit (IDC)	A circuit to which automatic or manual initiating devices are connected where the signal received does not identify the individual device operated.
innerduct	A non-metallic duct, either circular or fabric mesh, placed within a larger pathway. (TIA)
inpatient care	The examination, diagnosis, treatment, and disposition of inpatients appropriate to the specialty and/or subspecialty under which the patient is being cared for as an inpatient in a hospital.
input impedance	The ratio of the voltage at the sending end of the line to the current in the line at the sending ends.
input source transfer	The function of and the location in the electrical system where the transfer occurs between two sources.
inrush (amperes)	The current that a device requires during its initial power-up.
insert	A fitting installed into an opening into the distribution duct or cell from which wires or cables emerge.
insert, afterset	An insert installed after the installation of the concrete floor slab or other flooring material. (TIA)
insert, preset	An insert installed prior to the installation of the concrete floor slab or other flooring material. (TIA)
insertion card	A card that must be inserted into a card reader to retrieve the information stored on it.
insertion loss	The signal loss resulting from the insertion of a component, or link, or channel, between a transmitter and receiver (often referred to as attenuation). (TIA) <i>See also</i> attenuation and loss.
insertion loss deviation	The difference between the actual insertion loss as measured on a permanent link or channel and the insertion loss as determined by adding the component losses. (TIA)

inside plant (ISP)	Infrastructure (telecommunications) systems (e.g., balanced twisted-pair cabling, optical fiber cabling, coaxial cabling, racks, cabinets, cabling pathways, information outlets) inside a building. Telecommunications companies refer to this as inside wire (IW) or intrafacility cabling (IFC).
instant messaging	Text-only real-time conferencing. Also called chat.
insulating gap	An insulator (e.g., ceramic link) in a down guy that prevents the flow of currents that may cause electrolytic corrosion. <i>See</i> isolation gap.
insulation	The dielectric material that physically separates wires and prevents conduction between them.
insulation displacement connector (IDC)	A type of wire terminating connection in which the conductor's insulation jacket is cut by the connector where the insulated wire is inserted, making a connection to the conductor.
insulation resistance	The insulation's ability to resist the flow of current through it. For inside conductors, insulation resistance is typically expressed in megohm•kilometer or megohm•1000 feet.
integrated digital enhanced network (iDEN®)	A wireless technology developed by Motorola that provides digital cellular telephone, two-way radio, alphanumeric pager, and data/fax modem services in a single network.
integrated services digital network (ISDN)	A digital communications facility designed to provide transparent end-to-end transmission of voice, data, audio/video and still images across the public switched telephone network (PSTN). Different versions and configurations exist regionally and internationally.
integration	1. The seamless gathering of similar and dissimilar components into one system. 2. The concept of using a single network infrastructure for multiple, otherwise dissimilar, systems (e.g., telecommunications, building management, security, safety). <i>See also</i> convergence.
integrity attack	An unauthorized attempt to modify the contents of one or more files on a network. <i>See also</i> data integrity.
intelligent device (ID)	An addressable device used to monitor and control functions in a building automation systems (BAS) network.
intelligent field panel	<i>See</i> data gathering panel.
intelligibility	For voice communications, the capability of being understood by the intended audience. Intelligibility does not imply the recognition of a particular voice. It cannot be measured with instrumentation but may be electronically simulated and measured using an indexing method.

intensive care unit (ICU)	A hospital unit in which patients requiring close monitoring and intensive care are housed for as long as needed. An ICU contains highly technical and sophisticated monitoring devices and equipment, and the staff in the unit is educated to give critical care.
intentional radiator	A device designed to generate and emit radio frequency (RF) energy during operations using radiation or induction.
interaccess point protocol (IAPP)	A protocol developed by the IEEE® to enable interoperability between access points (APs) manufactured by different vendors. Adopted as IEEE 802.11f in 2003.
interbuilding backbone cable	1. Cable that runs between buildings in a campus environment. 2. Customer-owned outside plant (OSP) cabling.
intercom system	A private network, typically using telephone-type or wall-mounted units, to allow two-way voice communications over a limited area.
interconnection	1. A device for the direct connection of a cable to another cable without a patch cord or jumper (e.g., pass-through bulkhead). 2. A type of connection in which single-port equipment connections (e.g., copper and optical fiber connectors) attach to horizontal or backbone cabling by means of equipment cords or optical fiber jumpers.
interface	1. A shared boundary. A physical point of demarcation between two devices or systems where electrical signals, connectors, and timing are defined. 2. The procedures, protocols, and codes that allow two devices to interact for the purpose of exchanging information.
interference	The undesirable signals on a device, equipment, or system. <i>See also</i> electromagnetic interference (EMI).
interior	An area not directly connected to the perimeter walls of a building. For electronic safety and security (ESS) systems, these areas tend to require specific sensors because the protection is usually for both spaces and objects within the spaces.
interlock	A system of multiple doors that control interaction. No door can be unlocked unless all other doors are secure and locked. Also called a mantrap or sally port.
intermediate care	Care rendered to patients whose physiological and psychological status is such that they require observation and nursing for the presence of real or potential life-threatening disease or injury. These patients may require monitoring devices, ventilator support, intravenous (IV) therapy, frequent suctioning, dressing changes or reinforcements, and ambulation.

intermediate cross-connect (IC) [building distributor (BD)]	The connection point between a backbone cable that extends from the main cross-connect (MC [campus distributor (CD)] first-level backbone) and the backbone cable from the horizontal cross-connect (HC [floor distributor (FD)] second-level backbone). Building distributor (BD) is the international equivalent term for intermediate cross-connect (IC). Formerly called the intermediate distribution frame (IDF).
intermediate fire alarm unit	A control unit used to provide area fire alarm or area fire supervisory service that, where connected to the proprietary fire alarm system, becomes a part of that system.
intermediate frequency (IF)	The frequency resulting from the combination of the received frequency with the locally generated frequency (by a local oscillator circuit) equal to their differences or sum.
intermediate network	A network used to connect two or more networks. <i>See</i> internetwork.
intermittent duty solenoid	A current-carrying coil of wire that acts like a magnet when a current passes through it that is designed to be energized for short periods of time. Continuous operation may damage an intermittent duty solenoid.
internet	A worldwide internetwork using transmission control protocol/ internet protocol (TCP/IP).
internet address	A numerical label assigned to each device (e.g., computer, printer) participating in a computer network that uses the internet protocol (IP) for communication. An IP address serves two principal functions: host or network interface identification and location addressing. The address consists of either 32-bits (for internet Protocol Version 4 (IPv4)) or 128 bits (for IPv6). An example of each format is: 172.16.254.1 (for IPv4) and 2001:db8:0:1234:0:567:8:1 (for IPv6).
internet of things (IoT)	A general/collective term for a system of interrelated computing devices, mechanical and digital machines, objects, animals, or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.
industrial internet of things (IIoT)	Extension and use of the internet of things (IoT) in industrial sectors and applications. The IIoT encompasses industrial applications, including robotics, medical devices, and software-defined production processes.
internet protocol (IP)	The Open Systems Interconnection (OSI) Reference Model Layer 3 (network layer) protocol most commonly used for internetworking. Required for communications over the internet.
internet protocol (IP) address	<i>See</i> internet address.

internet protocol security (IPsec)	A security protocol used for data encryption when communicating over an IP-based network.
internet service provider (ISP)	An entity that provides or sells internet services and/or access to the internet.
internetwork	The communications system connecting two or more networks. <i>See</i> backbone network.
internetworking	The process of communicating between two or more networks.
interruption	A total absence of voltage on one or more conductors for a period of time.
interstitial space	A small or narrow space located above or below the occupied space on each floor. It is used for routing building services (e.g., lighting, heating, ventilation, and air conditioning [HVAC] power, telecommunications, plumbing).
intersymbol interference	The condition where the pulses of digital signals on a medium spread out to the point that they begin to blend together, making it difficult or impossible for the receiver to distinguish individual bits.
intersystem bonding conductor	In grounding and bonding systems, a conductor used to bond a room's telecommunications bus bar to an intersystem bus bar or termination, usually elsewhere in the facility, for the purpose of ensuring all connected systems (e.g., telecommunications, electric power, telephone, cable TV [CATV], radio, TV) are maintained at a substantially equal potential. <i>See also</i> equipotential bonding.
Intertek (ETL)	A nationally recognized testing laboratory (NRTL), primarily recognized in the United States and Canada. The mark uses the initials ETL, a reference to their legacy name (Electrical Testing Labs). Intertek also uses other marks (e.g., S, CE, ASTA) for various product testing.
intrabuilding backbone cable	Cable that runs between telecommunications rooms (TRs) inside a building. Can be vertical or horizontal in physical orientation.
intranet	A collection of servers, routers, switches, cabling, and other devices designed to provide content on an internal network to a specified group of users.
intrusion detection	The process of detecting and tracking actual or attempted unauthorized access to a network, a protected device, or a protected physical facility.
intumescent	The ability to expand to close gaps or voids in through-penetration openings when exposed to high temperature conditions.
intumescent firestop	A firestopping material that expands under the influence of heat. (TIA)

inverter	A device that converts direct current into alternating current (ac). (Dictionary.com)
invisible	That which is not visible or perceptible to the human eye. This is normally a particle smaller than 40 micrometers (μm) in diameter.
invitation to bid (ITB)	<i>See</i> request for bid (RFB).
ion	An atom or molecule in which the total number of electrons is not equal to the total number of protons, giving the atom or molecule a net positive or negative electrical charge.
ionization	The process of converting matter into ions.
ionization smoke detection	The principle of using a small amount of radioactive material to ionize the air between two differentially charged electrodes to sense the presence of smoke particles. Smoke particles entering the ionization volume decrease the conductance of the air by reducing ion mobility. The reduced conductance signal is processed and used to convey an alarm condition when it meets preset criteria.
ionosphere	A section of the atmosphere that extends from ≈ 70 kilometers (km [43.5 miles (mi)]) to ≈ 500 km (311 mi) in altitude, in which ions and free electrons exist in sufficient quantities to reflect or refract electromagnetic waves.
IP address	<i>See</i> internet address.
isoceraunic map	A geographical map of a wide area with continuous lines connecting points of equal thunderstorm-day activity. It provides a relative comparison of the thunderstorm activity in one area to that of another area.
isochronous signaling	A signaling method where a set data transfer rate within a communications channel is guaranteed. Timing or synchronizing information is derived from the signal carrying the data. <i>See also</i> asynchronous signaling and synchronous signaling.
isolated bonding network (IBN)	A bonding and grounding (earthing) subsystem in which all associated equipment cabinets, frames, racks, cable trays, pathways, and supplementary bonding grids designated to be within that IBN are bonded together at a single point of connection (SPC), which is then bonded to either the common bonding network (CBN) or another IBN.
isolation	A design strategy that mitigates the risk of concurrent damage to some components in a facility using physical, logical, or system separation.

isolation gap	A procedure that isolates the building ground from the outside plant (OSP) ground by removing the armor shield from the entrance cable for a short distance and inserting a capacitor to connect from one side of the armor shield to the other side. This may be accomplished at a splice point or in the entrance cable sheath itself.
isolation transformer	A transformer with its primary and secondary windings physically and electrically separated to prevent undesired primary circuit voltages or fault currents from being impressed onto the secondary circuit.
isolator, radio frequency	A passive device used to control the propagation of a radio frequency (RF) signal by allowing the signal to pass in one direction while providing high isolation to reflected energy in the reverse direction.
isotropic radiator	A theoretical model antenna that radiates power with identical and constant intensity in all directions from a point source. Used as a reference standard to compare the radiation properties of all other types of antennas.
issuer	The person or company that issues a request for quote (RFQ) or request for proposal (RFP).

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jack	1. A common term for telecommunications outlet/connector. <i>See also</i> modular jack. 2. A female telecommunications outlet/connector that may be keyed or unkeyed and may have as many as eight to ten contact positions (with not all positions needing to be equipped with jack contacts). The eight contact, eight position telecommunications outlet/connector has been adopted by many industry standards. <i>See also</i> plug.
jack header	A raceway similar to a header duct, usually provided in short lengths to connect a quantity of distribution ducts together. (TIA)
jacket	A protective outer layer of a cable. <i>See also</i> cable sheath.
jackstand	Device for holding a large cable reel off the floor or ground surface so the cable can be removed from the reel. Also called a reel dolly.
J-hook	A non-continuous supporting device for horizontal cables that is shaped like the letter "J". It is attached to the building structure using a beam clamp, bracket, or other mounting type devices and either a wire or threaded rod. Horizontal cables are laid in the opening formed by the "J," to provide support for the cables.
job change order	<i>See</i> change order.

job plan	Comprehensive outline of all aspects of a project. It includes all work, material, labor, operations and scheduling, how and when the work is to be performed, how each aspect of the work will affect the remaining areas, and how the work will fit into the general contractor's construction schedule.
job site	The physical location where work is to be performed.
joint random buried plant	Power and telecommunications cables that are placed in a common trench with little or no separation.
J-STD-008	A second generation (2G) narrowband code division multiple access (CDMA) digital cellular standard for operations in the 1900 megahertz (MHz) band.
jumper	1. An assembly of twisted pairs without connectors, used to join telecommunications circuits/links at the cross-connect. (TIA) 2. An optical fiber cable assembly with connectors installed on both ends. <i>See also</i> cable assembly and pigtail.
junction box	A location in the pathway system that allows transition of pathways and access to cables. (TIA)

==K

Kellems grip	A wire mesh tube fitted over a cable that, when tightened, holds the cable securely without overly compressing it. There are three general types. One is used to hold cable in a vertical pathway installation and has a loop eye on one end to secure the grip to a structural point. The second is used to provide strain relief for cables exiting an enclosure and has a bushing on one end for securing to the hole in the enclosure and protecting the cable as it enters. The third is used for pulling cable and has a pulling loop with a swivel on one end.
Kerberos	A network authentication protocol designed to provide strong authentication for client and server applications by using secret key cryptography. (Massachusetts Institute of Technology)
key	1. <i>See</i> digital key. 2. A button on a manual data entry device, such as a keyboard. 3. A tab, slot or other shape on a connector to prevent mismatching. 4. A device to open or close a mechanical lock.
key service unit (KSU)	An electromechanical telephone main control unit where telephones have multiple buttons permitting the user to manually select outgoing or incoming central office (CO) phone lines. It is not necessary to select and depress a numbered key on a telephone keypad for an outgoing line.
key system	<i>See</i> key service unit (KSU).

key telephone system (KTS)	<i>See</i> key service unit (KSU).
keyed	A jack, outlet, or connector is considered keyed when it requires a specific orientation in order to prevent mismatching.
keying (pole)	In outside plant (OSP) aerial cabling, the process of bolting a horizontal member (e.g., wood, non-rusting substance) to a pole \approx 150 millimeters (mm [6 inches (in)]) below the ground line to provide a resistance to torsional forces.
keypad	An alphanumeric grid that allows a user to enter a personal identification code.
k-factor	In tropospheric radio propagation, the ratio of the effective earth radius to the actual earth radius. The typical k-factor is approximately 4:3, but others are used for various purposes.
kilobits per second (kb/s)	A data transmission rate denoting one thousand bits per second (b/s).
kilohertz (kHz)	A measurement of frequency equivalent to one thousand cycles per second (hertz).
kilowatt (kW)	A unit of electrical power equal to 1000 watts (W).
kilowatt hour (kWh)	A measure of the amount of power consumed over time. The equivalent of one kilowatt (kW) used steadily for one hour equals one kWh (two kW used for one-half hour is also one kWh). Utility companies charge for power in kWh.
knockout	A portion of the wall of an enclosure so fashioned that it may be removed readily by a hammer, screwdriver, and pliers at the time of installation in order to provide a hole for the attachment of an auxiliary device or raceway, cable, or fitting. (NEMA)
Krone connector	A proprietary type of insulation displacement connector (IDC).

== L

labeling system	A methodology which allows unique identifiers to be assigned to all elements of an ICT infrastructure.
labor list	Complete list of all major units of labor to be employed on a project.
ladder cable tray	A fabricated structure consisting of two longitudinal side rails connected by individual transverse members (rungs).

ladder rack	<i>See</i> ladder cable tray.
LAN address	<i>See</i> media access control (MAC) address.
land mobile service (LMS)	A mobile service between base stations and land mobile stations or between land mobile stations. (FCC)
laser	<i>See</i> light amplification by stimulated emission of radiation.
laser diode	An electrical pump semiconductor laser for optical fiber applications. Usually made from a p-n junction in a semiconductor material. Laser diodes give higher performance at higher cost than light-emitting diodes (LEDs). Laser diodes are commonly used with singlemode optical fiber.
lashing	Attachment of cable to another cable or to a support strand by wrapping thin steel or dielectric strands around them.
last mile	The last leg of a network transport system from the point of presence or local exchange switch to a home or business.
latency	The time it takes for a signal to pass through a device or network (e.g., delay between the time a switch receives a message on an input port and forwards it to an output port).
lateral conduit	A conduit placed from the sidewall of a maintenance hole (MH) to the structure.
launch cable	A length of optical fiber cable attached to the transmitting end of a path under test to allow the optical time domain reflectometer (OTDR) to accurately measure the path conditions. An OTDR cannot accurately measure conditions close to the launch point, as the signal has not yet stabilized.
lay length	The length measured along the axis of a wire or cable required for a single strand (in stranded wire) or conductor (in cable) to make one complete turn about the axis of the conductor or cable. In a balanced twisted-pair cable, the lay length is the distance it takes for the two wires to completely twist around each other.
lay direction	The direction of the progressing spiral twist in a cable while looking along the axis of the cable away from the observer. The lay direction can be either left or right.
Layer 1	<i>See</i> physical layer.
Layer 2	<i>See</i> data link layer.
Layer 2 address	<i>See</i> media access control (MAC) address.

Layer 3	<i>See</i> network layer.
Layer 4	<i>See</i> transport layer.
Layer 5	<i>See</i> session layer.
Layer 6	<i>See</i> presentation layer.
Layer 7	<i>See</i> application layer.
layering	The use of many layers of barriers, other countermeasures, or a mixture of both, used to provide the maximum level of deterrence and delay.
LC connector/adaptor	A small form factor (SFF) single fiber, optical fiber connector/adaptor used for the termination of both multimode and singlemode optical fiber cables. A two-fiber, duplex connector option is also available. The housing mechanism of the LC connector (simplex and duplex) is a push-pull type connection.
lead-to-height ratio	In outside plant (OSP) aerial cabling, lead-to-height ratio is equal to the lead divided by the height of the attachment to a pole (measured in meters or feet). The lead is the distance from the base of the pole to the anchor. The height is the point of attachment for the guy. This formula is used to determine the load on the guy wire supporting the pole.
leaky coaxial (LCX)	A colloquial term for radiating cable. <i>See also</i> radiating cable.
lease	A contract that grants the lessee (tenant) the right to occupy the property of the lessor (landlord) for a specified period of time.
light-emitting diode (LED)	A semiconductor diode that spontaneously emits incoherent light from the p-n junction when forward current is applied. It converts information from electrical to optical form. An LED typically has a large spectral width. LEDs are commonly used with multimode optical fiber.
leg	1. The portion of the conduit elbow that is straight. 2. A segment of an end-to-end route or path (e.g., a cable from the work area outlet to the switch is one leg; from the switch to the router is another leg).
leg facility	The portion of a telecommunications channel that connects not more than one protected premises to a primary or secondary trunk facility. The leg facility includes the portion of the signal transmission circuit from its point of connection with a trunk facility to the point where it is terminated within the protected premises at one or more transponders.
legacy mode	A Wi-Fi network that supports legacy 802.11 devices (e.g., 802.11g a/g clients).

legend	A list of symbols and abbreviations on construction documents.
lens antenna	An antenna consisting of an electromagnetic lens and a feed antenna which illuminates it. (IEEE)
level	A tool to measure surfaces and sight-lines to ensure they are horizontal or vertical, as needed.
license	1. An interest in property for a limited time and purpose. 2. To give permission as well as the document recording that permission.
lien	A legal right of a party or claimant, such as a subcontractor, to control the improved property of another or have it sold for payment of a claim. (CSI)
life safety code	A document developed and updated regularly by an organization such as the National Fire Protection Association (NFPA). The NFPA specifies construction and operational conditions to minimize fire hazards and provide a system of safety in case of fire.
life safety network	The combination of fire alarm and other systems that monitor a premises, detect events that may adversely affect the safety of occupants, and initiate one or more actions to alert occupants and other required personnel to the occurrence of the event, as well as mitigate, suppress, or contain the event to minimize risk to occupants and personnel.
lifting belt	Safety device designed to be worn around the lower torso while lifting heavy objects to help support the stomach and back muscles while encouraging proper posture.
light amplification by stimulated emission of radiation (laser)	A device that produces coherent, highly directional light with a narrow range of wavelengths. Used in a transmitter to convert information from electrical to optical form.
light imaging detection and ranging (LiDAR)	A method of using pulses of light, such as those emitted by a laser, to determine distance or range between two points.
light source	In optical fiber testing (used in conjunction with a power meter), the test equipment unit that normally contains a light-emitting diode (LED) or laser used to create a light signal for testing signal (light) loss or continuity.
lightning down conductor	A metallic conductor running vertically down a building, connecting the equalizing conductor to the lightning ground terminals. There are typically several down conductors on each building. The air terminals (lightning rods) are connected to the equalizing conductor. The equalizing conductor is then connected to the lightning down conductor.

lightning equalizing conductor	A closed metallic loop around the top and bottom of a building that aids in equalizing the potential of a lightning strike over the entire building and offers multiple connection points to the ground terminals. On the roof, the equalizing conductor interfaces the air terminals to the down conductors.
lightning ground terminal	A metallic conductor installed in the earth for lightning protection.
lightning rod	<i>See</i> air terminal.
lightweight access point	A dynamically configured radio and antenna managed by a wireless controller.
lightweight access point protocol (LWAPP)	A protocol that allows control of multiple wireless access points (WAPs).
Line A (FCC)	An imaginary line within the U.S., approximately paralleling the U.S.-Canadian border, north of which Commission coordination with the Canadian authorities in the assignment of frequencies is generally required. It begins at Aberdeen, Washington, running by great circle arc to the intersection of 48° N., 120° W., then along parallel 48° N., to the intersection of 95° W., thence by great circle arc through the southernmost point of Duluth, Minnesota, thence by great circle arc to 45° N., 85° W., thence southward along meridian 85° W. to its intersection with parallel 41° N., to its intersection with meridian 82° W., thence by great circle arc through the southernmost point of Bangor, Maine, thence by great circle arc through the southernmost of Searsport, Maine, at which point it terminates. (FCC)
Line A (ITU)	An imaginary line extending from the North Pole along meridian 40° East of Greenwich to parallel 40° North; thence by great circle arc to the intersection of meridian 60° East and the Tropic of Cancer; thence along the meridian 60° East to the South Pole. Per the ITU Radio Regulations for defining three regions of the world in which to allocate frequencies. (ITU)
Line B (FCC)	An imaginary line in Canada, beginning at Tofino, British Columbia, running by great circle arc to the intersection of 50° N., 125° W., thence along parallel 50° N., to the intersection of 90° W., thence by great circle arc to the intersection of 45° N., 79°30' W., thence by great circle arc through the northernmost point of Drummondville, Quebec (Lat. 45°52' N., Long 72°30' W.), thence by great circle arc to 48°30' N., 70° W., thence by great circle arc through the northernmost point of Campbellton, New Brunswick, thence by great circle arc through the northernmost point of Liverpool, Nova Scotia, at which point it terminates. (FCC)

Line B (ITU)	An imaginary line extending from the North Pole along meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by great circle arc to the intersection of meridian 50° West and parallel 40° North; thence by great circle arc to the intersection of meridian 20° West and parallel 10° South; thence along meridian 20° West to the South Pole. Per the ITU Radio Regulations for defining three regions of the world in which to allocate frequencies. (ITU)
Line C (FCC)	An imaginary line in Alaska approximately paralleling the border with Canada, East of which Commission coordination with Canadian authorities in the assignment of frequencies is generally required. It begins at the intersection of 70° N., 144° W., thence by great circle arc to the intersection of 60° N., 143° W., thence by great circle arc so as to include all the Alaskan Panhandle. (FCC)
Line C (ITU)	An imaginary line extending from the North Pole by great circle arc to the intersection of parallel 65° 30' North with the international boundary in Bering Strait; thence by great circle arc to the intersection of meridian 165° East of Greenwich and parallel 50° North; thence by great circle arc to the intersection of meridian 170° West and parallel 10° North; thence along parallel 10° North to its intersection with meridian 120° West; thence along meridian 120° West to the South Pole. Per the ITU Radio Regulations for defining three regions of the world in which to allocate frequencies. (ITU)
Line D (FCC)	An imaginary line in Canada beginning at the intersection of 70° N., 138° W., thence by great circle arc to the intersection of 61°20' N., 139° W. (Burwash Landing), thence by great circle arc to the intersection of 60°45' N., 135° W., thence by great circle arc to the intersection of 56° N., 128° W., thence south along 128° meridian to Lat. 55° N., thence by great circle arc to the intersection of 54° N., 130° W., thence by great circle arc to Port Clements, thence to the Pacific Ocean where it ends. (FCC)
line cord	A telecommunications equipment cord typically using stranded or tinsel conductor. <i>See also</i> work area cable (cord) and equipment cord.
line of sight (LoS)	The imaginary line that connects the observer's eye with the object the observer is looking at.
line supervision	1. The electrical supervision of a monitoring loop to detect tampering (a cut or shorted wire). Line supervision usually requires a terminating element at the end of the monitoring loop (e.g., resistor, diode). 2. In telephone systems, the detection of on-hook and off-hook status, allowing dial tone and ring voltage to be applied as appropriate.
linearity	A signal output voltage directly proportional to the signal input voltage.
line-type detector	A device in which detection is continuous along a path. Typical examples are rate-of-rise pneumatic tubing detectors, projected beam smoke detectors, and heat sensitive cable.

linewidth	The spread of wavelengths around the central wavelength of an optical signal source (e.g., laser).
link	A transmission path between two points.
link access device (LAD)	An internetworking device used to convert LAN signals into a format suitable for transmission over a wide area internetwork link.
link aggregation	A mechanism that combines multiple network communication channels into a single large channel to allow for increased data transfer rates and redundancy. Also called trunking and teaming, port aggregation, and port trunking.
link loss budget	In optical and wireless systems, the end-to-end maximum allowable transmission loss in a single path.
link margin	The amount of available signal level (usually in decibels [dB]) between the normal receive level and the point at which the signal is too weak to be received.
link reliability	A calculation of how much of the time a system is expected to be functional (expressed in percent or time).
link state algorithm	A method of computation used to determine efficient routing in networks, based on Dijkstra's algorithm.
linkage	In a database, a connection between a record and an identifier or between records.
Listed	One of four product test ratings used in the United States (Listed, Classified, Recognized, Verified). A product is Listed after it successfully completes a series of mechanical, electrical, and thermal characteristics tests that simulate all reasonable, foreseeable hazards. The Listed classification is exclusive to the product for the specific applications for which it was tested and is not valid for other applications.
load balancing	A mechanism for distributing incoming requests among a collection of devices or circuits to reduce response times. In a network, load balancing is used to distribute network traffic/requests across multiple devices to maximize use of otherwise idle resources. <i>See also</i> cluster.
load bank	A device to simulate actual equipment consisting of groups of resistive and/or reactive elements, fans, and controls. The load bank is an electrical load that is connected to power distribution unit (PDU) systems, uninterruptible power supply (UPS) systems, or generators in load test situations.
load point	In copper long distance outside plant (OSP), the point at which loading coils are attached.

loading capacity	The maximum number of discrete elements permitted to be used in a particular configuration.
loading coil	A low-resistance, high-inductance coil inserted in a voice copper circuit to increase its inductance in order to compensate for the buildup of capacitance in a cable pair.
local	A geographic zone large enough to encompass a multi-building campus. <i>See also</i> metropolitan.
local alarm	A visible or audible signaling device located at a monitored door, window, or other opening. It is used to pinpoint a violation by sounding a distinctive alarm at an opening and to frighten away a would-be intruder.
local distribution point (LDP)	Connection point in the zone distribution cabling subsystem between a zone distributor and an equipment outlet in CENELEC EN 50173-5 and ISO/IEC 24764. Equivalent to the consolidation point (CP) in a zone distribution area (ZDA) in ANSI/TIA-942-A.
local exchange carrier (LEC)	A telecommunications company that provides public switched network access service. (TIA) Can be referred to as an incumbent local exchange carrier (ILEC) and competitive local exchange carrier (CLEC).
local multipoint distribution service (LMDS)	A fixed wireless technology that operates in the 8 gigahertz (GHz) and 27.5 GHz to 29.5 GHz band and offers line-of-sight (LOS) coverage. The 8 GHz band covers distances from ≈ 3 kilometers (km [1.9 miles (mi)]) to ≈ 5 km (3.1 mi) and the 27.5 GHz to 29.5 GHz band covers distances from ≈ 4.8 km (3 mi) to ≈ 8 km (5 mi). Both could deliver data and telephony services to 80,000 clients from a single node.
local station	A station that is directly connected to the network over cabling or wireless media. <i>See also</i> remote station and station.
logging	Creating and storing a permanent record of events that can be reviewed, printed, and analyzed.
logical topology	The actual method (e.g., ring, bus, star) by which different nodes in a network communicate with one another as compared with the physical connections.
log-periodic dipole array (LPDA)	A radio antenna system consisting of several driven elements, but not all elements in the system are active on a single frequency of operation.
long haul	Cabling and telecommunications circuits that span a considerable distance, well beyond the range of a campus.
longitudinal noise	Noise coupled due to electrostatic or electromagnetic fields that induces longitudinal currents into the disturbed circuit. <i>See also</i> common mode voltage.

Long Range (LORAN) Navigation	A global system of multiple land-based stations transmitting signals in the 1 – 2 MHz band, used for maritime and aeronautical positioning and navigation.
long-term care	Routine help with everyday activities (e.g., eating, bathing, dressing necessitated by chronic illness, disability, frailty). Provided to individuals over an extended period in their homes, in community settings, or nursing homes. A part of the continuum of care.
LonTalk® (Local Operating Network Talk)	A protocol developed by the Echelon Corporation for interoperable control networks using the LonWorks® technology. LonWorks is used for processing and communicating signals in distributed control networks consisting of intelligent devices (e.g., Neuron® chips).
loop	1. In telephone systems, the wire pair that connects the client to the switching center. This path is called a loop because it is generally two wires electrically tied together through the client terminal set when the client goes off hook. 2. The outside plant (OSP) facilities that extend from a serving main entrance facility or remote site to the exchange boundary. 3. A communications channel from a switching center or an individual message distribution point to the user terminal.
loop diversity	The placing of alternate facilities to back up the main system in case of failure. <i>See also</i> alternate entrance.
loop loss	The telecommunications circuit signal loss between the telephone company central office (CO) and the client premises equipment (CPE). Loop refers to the physical telecommunications circuit loop from a CO location to the CPE. This loop is effectively the round trip circuit between the CO and the CPE. Signal loss occurs between the CO and the CPE as a result of distance between the two points, cabling imperfections, and resistance of the wire pairs.
loop resistance	A measurement of the resistance of both conductors in a pair of conductors when they are connected in series.
loose tube	A type of optical fiber cable construction where one or more fibers are laid loosely in a protective tube often filled with gel. Also called loose tube fiber.
loss	Attenuation of a signal, usually expressed in decibels (dB). <i>See also</i> attenuation and insertion loss.
loss level	A change or sudden spike up from the backscatter that indicates Fresnel reflections.
loss resolution	A setting on an optical time domain reflectometer (OTDR) to determine the sensitivity with which the time domain reflectometer (TDR) detects loss levels, and hence the number of data points reported.

low band VHF	Frequencies between 30 megahertz (MHz) and 150 MHz.
low frequency (LF)	Frequencies in the range of 30 kilohertz (kHz) to 300 kHz.
low-intensity laser	A device that operates in the visible light range and is used to identify individual fibers that glow red at the point of a fiber break. Also called a hot red light.
low-power radio transmitter	Any device that communicates with associated control/receiving equipment by low-power radio signals.
low smoke, zero halogen (LSZH or LS0H)	Cables with an LSZH jacket are intended for applications where both low smoke and low corrosive gases are needed. This requirement is often found in tunnel and rail applications as well as shipboard or airborne applications or in environments where expensive equipment would be damaged if exposed to corrosive gases.
low-voltage disconnect (LVD)	A predetermined voltage value for an electromechanical device designed to disconnect a battery from the load.
low-voltage mounting bracket	A device that may be inserted in or on a non-fire-rated finished wall allowing the mounting of a faceplate that may hold telecommunications outlet/connectors.
luminaire	An electric light and its components; an electrical lighting fixture.
lump sum	A payment method for a telecommunications project in which the contractor is paid the full amount upon completion and acceptance of the work.

== M

M13 multiplexer	A device that consolidates T-1 and E-1 signals into a T-3 or E-3 circuit. A cost-effective device for combining independent T-1s, E-1s, or a combination of the two over the same T-3 or E-3 circuit.
macrobend	The optical fiber cable bending due to installation. Such bends will increase attenuation in optical fiber cable.
macrocell	A cell in a mobile telephone network that provides radio coverage served by a high-power cellular base station. Generally, macrocells provide coverage larger than a microcell, with a range up to a few tens of kilometers. The antennas for macrocells are mounted on ground-based masts, rooftops, and other existing structures at a height that provides a clear view over the surrounding buildings and terrain. Macrocell base stations have typical power outputs of tens of watts.
magnetic field strength	The magnitude of the magnetic field vector expressed in amperes per meter (A/m).

magnetic resonance imaging (MRI)	A system that produces images of the body by using a strong magnetic field and computers to show the differences between gray and white matter in the brain. It also shows other soft-tissue structures that cannot be demonstrated with X-ray technologies.
magnetic strip card	An access control card with a strip of recordable magnetic material on which data is encoded.
main building ground electrode	The designated point to which all grounding systems of the utilities in a building are connected. The primary building or structural elements that are in direct physical contact with the earth, such as metal underground water pipe, metal frame of the building, concrete-encased electrode, ground ring, rod and pipe electrodes, plate electrodes, and other local metal underground systems or structures (e.g., piping systems, underground tanks). Used to establish an electrical current path to earth for electrical and telecommunications services and infrastructure systems.
main conduit	The conduit systems used to serve all or large portion of a facility. These systems usually contain feeder cables.
main cross-connect (MC [campus distributor (CD)])	The cross-connect normally located in the (main) equipment room for cross-connection and interconnection of entrance cables, first-level backbone cables, and equipment cables. Campus distributor is the international equivalent term for main cross-connect.
main distribution area (MDA)	The space in an equipment room where the main cross-connect is located.
main distribution panel (MDP)	The primary electrical service entrance facility.
main distributor (MD)	A distributor used to make connections between the main distribution cabling subsystem, network access cabling subsystem, and cabling subsystems specified in ISO/IEC 11801 or EN 50173-1 and active equipment. Referenced in CENELEC EN 50173-5 and ISO/IEC 24764. Equivalent to the main cross-connect in ANSI/TIA-942-A.
main electrical grounding busbar	The busbar at which electrical service grounding electrode conductors (GECs) and other bonding and grounding (earthing) conductors are (MEGB) interconnected to establish the main equipotential location for the building.
main terminal room	<i>See</i> main terminal space. (TIA)
main terminal space	The location of the cross-connect point of incoming cables from the telecommunications external network and the premises cabling system. (TIA)

maintenance hole (MH [telecommunications])	1. A vault located in the ground or earth as part of an underground duct system and used to facilitate placing, splicing, and maintenance of cables, as well as the placing of associated equipment, in which it is expected that a person will enter to perform work. Formerly called manhole. <i>See also</i> vault. 2. A hole through which access to an underground or enclosed structure may be gained.
maintenance mode	A system state resulting from an anticipated system outage or routine maintenance activity and typically a manual system response to that activity.
make before break	<i>See</i> closed transition.
makeready	The process of preparing an existing aerial pole line for new attachments.
man in the middle	An attack on weak or nonexistent authentication mechanisms between two endpoints. The attacker inserts himself between these endpoints, where he can view information passing back and forth, which allows him the ability to modify or inject data going into such a connection.
managed device	A device (e.g., hub, computer) having hardware and software features that allow it to be remotely monitored and configured over a network by a central computer.
management	<i>See</i> network management.
management information base (MIB)	A database within the simple network management protocol (SNMP) that defines objects and attributes to be managed.
Manchester encoding	A digital encoding scheme where a voltage transition occurs in the middle of each binary digit sent. A high-to-low transition represents the binary digit zero and a low-to-high transition represents the binary digit one.
mandrel	1. A rod or a shaft. 2. A mechanical device sized to fit the inside diameter of a conduit. Pulled or pushed through a duct, it ensures concentricity of the structure and frees the structure from debris. 3. A cylindrical object around which a multimode optical fiber cable is wrapped to cancel high order modes during testing. Also called a roll bar.
mantrap	<i>See</i> interlock.
manual fire alarm box	A manually operated device used to initiate an alarm signal.
mass splicing	The splicing of factory-made fiber ribbons or field-ribbonized fibers using a mass fusion splicer.
master box	A municipal fire alarm box that also can be operated by remote means.
master code card	An access card that grants access and exit at every card reader on the system.

master control unit (panel)	A control unit that serves the protected premises or portion of the protected premises as a local control unit and accepts input from other fire alarm control units.
master group	In large, multipair copper cables, consists of five super groups and is identified by a manufacturer's specific binder string. There are 3000 pairs in a master group. <i>See also</i> super group.
MasterFormat™	Jointly developed by the Construction Specifications Institute and Construction Specifications Canada; it is an organizational structure providing numbers and titles for the variety of subject matter specifications necessary for the construction, operation, and maintenance of a facility. (CSI) <i>See also</i> PageFormat™, SectionFormat™, and UniFormat™.
matched clad fiber	Singlemode optical fiber glass strands with a single homogeneous layer of dielectric material.
material safety data sheet (MSDS)	A legacy term for safety data sheet (SDS).
materials list	A complete list of all materials to be ordered and received for the project. This includes all capital items and miscellaneous materials.
matrix	<i>See</i> switch matrix.
measured tape	A calibrated tape used to measure and pull lengths of conduit.
measurement accuracy	The possible difference between the measured value and the actual value of the parameter.
measurement resolution	<ol style="list-style-type: none"> 1. The level of precision with which a particular measurement is made. 2. The setting on the optical time domain reflectometer (OTDR) to determine spacing of data points.
mechanical splicing	The joining of two optical fibers through mechanical means to enable a continuous signal. These spliced connections may be temporary or permanent.
Mechanical, Ingress, Climatic/Chemical, and Electromagnetic (MICE)	A method of categorizing the cabling and equipment environment. It has three levels called classifications: M1I1C1E1, M2I2C2E2, and M3I3C3E3. The three classifications correspond to severity levels: 1 is office, 2 is light industrial, and 3 is industrial. Each increasing severity level is harsher. The factors included in each category are mechanical (shock, vibration, crush, and impact), ingress (liquid and particulates), climatic/chemical (temperature, humidity, contaminates, and solar radiation), and electromagnetic (electrostatic discharge [ESD], radiated radio frequency [RF], conducted RF, transients, and magnetic fields).

mechanical room	An enclosed space serving the needs of mechanical building systems.
media (telecommunications)	1. The wire, coaxial cable, conductors, optical fiber, or open space (e.g., wireless) used for the transport of a telecommunications signal. Also called transmission media. <i>See also</i> bounded medium and unbounded medium. 2. The material used for the storage of data.
media access control (MAC) address	A standardized data link layer address that is required for every device that connects to a LAN or other network. It is 6 bytes long and represented as a unique set of 12-digit hexadecimal numbers. It is typically coded onto the device's network interface card (NIC). Also called the physical address.
media access control (MAC) layer	A sublayer of the data link layer (data link control [DLC]) Open Systems Interconnection (OSI) standard model. The MAC sublayer acts as an interface between the logical link control (LLC) sublayer and the network's physical layer. The MAC address of each device on a LAN or other network has a unique identification. <i>See also</i> media access control (MAC) address, application address, device address, and network address.
media converter	<i>See</i> converter.
mediator	A person who is trained in dispute resolution, including negotiation techniques, and is familiar with the art of making a deal. The mediator is neutral and does not offer legal advice but is actively engaged in the discussion process, including narrowing down the issues, offering alternatives, and generally directing the parties toward settling the dispute.
medical center	A large hospital that has been so designated and is appropriately staffed and equipped to provide a broad range of health care services. Serves as a referral center and conducts, as a minimum, a surgical graduate medical education program.
medium	A material (e.g., magnetic disk) on which data may be stored. <i>See</i> media.
medium frequency (MF)	Frequencies in the range of 300 kilohertz (kHz) to 3000 kHz.
medium voltage	Any electrical voltage above the normally used value and below transmission-level system voltages. The usual voltage varies from country to country. In the United States, medium voltage is considered to be between 1001 volts (V) and 35,000 V, whereas in the European Union (EU) or other parts of the world, the usual voltage level can be significantly higher.
megabits per second (Mb/s)	A transmission rate denoting one million bits per second. <i>See also</i> bits per second (b/s).
megachips per second (Mcps)	A measure of the speed with which encoding elements called chips are generated in direct sequence spread spectrum (DSSS) signals. This speed is also known as the chipping rate. A speed of 1 Mcps is equivalent to 1,000,000 chips per second.

megahertz (MHz)	A unit of frequency equal to one million cycles per second. <i>See also</i> hertz (Hz).
megahertz•kilometer (MHz•km)	The expression of optical fiber cable bandwidth where half power is realized at a specific point in frequency at 1 km (i.e., 160 MHz•km at 850 nanometers [nm] and 500 MHz•km at 1300 nm).
megaohmmeter	1. An instrument used to measure resistance. 2. A portable instrument used to measure insulation resistance.
Megger®	1. A device that can be used to measure electrical resistance in a grounding system. 2. A testing unit used to generate a voltage between cable conductors to detect current leakage between conductors or conductor to ground.
membrane penetration	An opening through only one surface or side of a barrier. (TIA) <i>See also</i> through penetration and penetration.
mesh grip	A device attached to the end of a cable to facilitate pulling the cable. Also called cable sock.
mesh topology	A topology where each device or network is connected to all other devices or networks by multiple paths.
meshed bonding network (mesh-BN)	A non-isolated bonding network to which all associated cabinets, frames, racks, trays, and pathways are connected by using a bonding grid. This grid is connected by multiple points to the common bonding network (CBN).
messenger	<i>See</i> support strand (messenger).
metadata	The data embedded within or associated with a file, record, or directory that describes information about or related to the file, record, or directory. This may include but is not limited to color, size, trajectory, locations where the content is stored, dates, times, application specific information, and permissions.
metal clad (MC) cable	A factory assembly of one or more insulated circuit conductors with or without optical fiber members enclosed in an armor of interlocking metal tape or a smooth or corrugated metallic sheath. Referred to as MC cable.
meteorburst communications	Communications by the propagation of radio signals reflected off ionized meteor trails. (FCC)
meteorological-satellite service (MSS)	An Earth exploration-satellite service for meteorological purposes. (FCC)
metes and bounds	A description of a parcel of land by reference to the course's bearings and distances (usually measured in feet or chains) of the straight lines that form its boundary, with one of the corners tied to an established point.

metric	<p>1. In routing, a value assigned to a path that is used as the criteria to choose routes through an internetwork. 2. A standard of measurement (e.g., metric system). 3. Used by individuals or organizations to encourage performance improvement, effectiveness, efficiency, and appropriate levels of internal controls, performance metrics measure an individual or an organization's activities and performance.</p>
metropolitan	<p>A geographic zone (e.g., city, town, municipal area). <i>See also</i> local.</p>
metropolitan area network (MAN)	<p>A communications network that covers an area larger than a LAN and smaller than a wide area network (WAN). Typically covers an entire metropolitan area (a large city and its suburbs).</p>
microbend	<p>The cable bend associated with the manufacture or construction of optical fiber cable. May be associated with compression of optical fibers.</p>
microcell	<p>One type of small cell in a mobile telephone network served by a low-power cellular base station, covering a limited area such as a mall, hotel, or transportation hub. A microcell is usually larger than a picocell, with a range of usually less than two kilometers (km [1.2 miles (mi)]), though the distinction is not always clear. Microcells are often deployed temporarily during sporting events and other occasions in which extra capacity is known to be needed at a specific location in advance or following a disaster to assist in recovery. While femtocells and picocells are dependent on headend equipment or internet connections to link to the cellular network, a microcell is like a full-size macrocell, just smaller.</p>
micron (μm)	<p>A unit of length equal to one millionth of a meter. Commonly used to express the diameter of optical fiber core and cladding (e.g., 50/125) as 50 μm and 125 μm. Also called a micrometer.</p>
microprocessor-based controller	<p>A controller that uses a microprocessor to perform logic and control functions in a building automation system (BAS) network. Typically controls or monitors a specified building area through wired devices and resident software but also has the ability to communicate with other controllers via a communications bus.</p>
microsegmentation	<p>The technique used to divide a network into multiple small networks to improve performance. Ultimately, each device can have its own dedicated LAN through an exclusive connection to a switch port.</p>
microwave	<p>An electromagnetic wave having a wavelength from \approx300 millimeters (mm [12 inches (in)]) to \approx1 mm (0.04 in) (1 gigahertz [GHz] to 300 GHz). Wireless communication systems employing microwave signals generally require line of sight (LoS) between transmitting and receiving antennas. <i>See also</i> terrestrial microwave.</p>

microwave flange connector	A style of connector for microwave waveguide that uses screws to hold two mating pieces together.
midspan powering	A method to infuse power into a Power over Ethernet (PoE) system between the end-points of the system.
Mie scattering	A phenomenon related to free space optics (FSO) that describes light scattered by particles the size of the wavelength (e.g., fog).
mil	A unit of length equal to ≈ 0.0254 millimeter (mm [0.001 inch (in)]), used in measuring the diameter of wires.
millimeter wave	An electromagnetic wave having a wavelength from ≈ 1 millimeter (mm [0.04 inch (in)]) to ≈ 0.1 mm (0.004 in) (300 gigahertz [GHz] to 3000 GHz). Millimeter waves exhibit many of the properties usually associated with waves in the optical regime.
MIMO	<i>See</i> Multiple-Input Multiple-Output
minimum point of entry (MPOE)	<i>See</i> demarcation point.
mirroring	A technique used to increase the fault tolerance of a system (e.g., dual data centers, hard drives). A backup device is configured identically to the primary device and can replace the primary device if it fails. <i>See also</i> disk mirroring.
mission critical	Any operation, activity, process, equipment, or facility that is essential to continuous operation for reasons of business continuity, personnel safety, security, or emergency management.
mobile access	A form of resource access where a connection to a LAN is made from a remote station using a temporary telecommunications link.
mobile application part (MAP)	A protocol using the lower level layers of the Signaling System 7 (SS7) protocol stack (e.g., transaction capabilities application part, signaling connection control part, message transfer part) for communication between the various registers and other mobile switching centers (MSCs).
mobile assisted handoff (MAHO)	A handoff technique involving feedback from the mobile station as part of the handoff process. The feedback is usually in the form of signal level and quality measurements on the downlink and signal level measurements from neighbor cells.
mobile identification number (MIN)	Usually the mobile station number assigned to a cellular user.

mobile internet protocol (IP)	An IP designed to support the mobility of a user (host).
mobile relay station	A base station in the mobile service authorized to retransmit automatically on a mobile service frequency communications which originate on the transmitting frequency of the mobile station. (FCC) <i>See also</i> mobile repeater station and repeater.
mobile repeater station	A mobile station authorized to retransmit automatically on a mobile service frequency, communications to or from hand-carried transmitters. (FCC) <i>See also</i> mobile relay station and repeater.
mobile service	A radio communications service between mobile and land stations or between mobile stations. (FCC)
mobile station (MS)	The client terminal in a wireless network.
modal dispersion	A characteristic of transmission in an optical fiber that results from different lengths of the light paths taken by the many modes of light as they travel down the fiber from source to receiver. Also called modal distortion.
mode	1. Loosely, a possible light path followed by light rays, as in multimode or singlemode. 2. Strictly, a distribution of electromagnetic energy that satisfies Maxwell's equations and boundary conditions in guided wave propagation (e.g., through a waveguide or optical fiber).
mode field diameter (MFD)	The diameter of one mode of light propagating in a singlemode optical fiber. The MFD replaces core diameter as a practical parameter in singlemode optical fiber.
modem	A device that converts digital signals to analog for transmission over analog telephone lines and then reconverts analog signals to digital for processing by digital communication devices. An acronym for modulator/demodulator.
moderate frequency base motion	A period of movement due to strong winds (expressed in seconds).
modification (contract)	A document issued after a contract has been awarded that alters, adjusts, or limits the terms or requirements of the agreement (contract).
modified cut-through	A switching technique in which messages are forwarded as soon as the received frame has been determined not to be a collision fragment (i.e., longer than 64 bytes). Also called fragment-free switching. <i>See also</i> cut-through and store-and-forward.
modular connector	<i>See</i> modular jack and modular plug.

modular furniture	The groups of walled partitions, desks, or furniture assembled in open spaces within an office or work area.
modular jack	<p>1. A female telecommunications connector (socket) that may be keyed or unkeyed and may have six or eight contact positions, but not all the positions need be equipped with jack contacts. (TIA). 2. A family of connectors standardized in size, shape, layout, and number of electrical connectors used for multiple types of telecommunications circuits. Modular connectors typically have 2, 4, 6, or 8 electrical contacts. A few manufacturers use a 10 contact version for special applications, and some advanced connector types have 12. Modular connectors are also known by acronyms describing the number of positions and contacts they have (e.g., 6P4C, 8P8C). Registered jack acronyms are also commonly used, such as RJ11 (6P2C), RJ14 (6P4C), or RJ45 (8P8C), although these are colloquial terms. The 8P8C (RJ45) connector is used in Ethernet networks, while the 6P2C (RJ11) or 6P4C (RJ14) is used for standard analog telephone connections. <i>See also</i> jack.</p>
modular patch panel (MPP)	<i>See</i> patch panel.
modular plug	A male telecommunications connector for cable or cords that may be keyed or unkeyed and may have six or eight contact positions, but not all the positions need be equipped with contacts. (TIA)
modular plug terminated link (MPTL)	A copper cable incorporating a standard RJ45 plug on one end with a RJ45 jack on the opposing end.
modulation	Any of several techniques (e.g., amplitude modulation [AM], frequency modulation [FM]) used to impress an information bearing signal onto a carrier signal. For example, a voice conversation is coded into binary bits (digital information), transmitted, and then decoded at the receiving end.
modulator	An electronic device that modulates baseband video, audio, or data signals to specific carrier frequencies for insertion into the broadband radio frequency (RF) distribution system.
moment	In outside plant (OSP) pole attachments, each transverse load causes a moment on the pole that tends to move the pole in the direction of the applied load. The value of that moment (in newton-meters [N*m] or equivalent pound-force foot [lbf*ft]) is equal to the transverse load (in newtons [N] or equivalent pounds-force [lbf]) times the distance (in meters [feet]) from the load point to the point where the moment is being considered. The moments caused by each of the transverse loads must be vector-summed together to obtain the total load. A pole with sufficient resistant moment must be selected to handle the total moment. A shortened form of the term bending moment. Also called transverse moment.

monolithic pour	The single, continuous pouring of a concrete floor or columns of any given floor of a building structure. (TIA)
monolithic slab	The result of a monolithic pour. (TIA)
monopole	<p>1. A resonant antenna that can be thought of as being one arm of a dipole antenna, with the other arm having been removed. The optimal length of a monopole antenna is one quarter of the wavelength of the signal being received or transmitted by the antenna. A monopole antenna is a narrowband antenna, operating efficiently in only a narrow band of frequencies. <i>See also</i> dipole. 2. A type of antenna support structure consisting of a single (usually cylindrical) pole or column, often tapered, being wider at the base than at the top. Monopoles are typically several feet in diameter at the base. Their hollow interior is used to route cabling.</p>
motor control center (MCC)	An electrical unit typically located in the main electrical room, primarily used to control mechanical equipment (e.g., motors, pumps, compressors).
MT ferrule	A component used in the assembly of an optical fiber connector (e.g., multi-fiber push-on [MPO]). Commonly referred to as mass termination, multiple termination, or mechanical transfer.
mud ring	<i>See</i> low-voltage mounting bracket.
MuleTape®	A flat woven polyester tape used for pulling cable through conduit or innerduct. It does not cause friction and get caught when pulling lines through and around corners. The tape is strong (typically rated at 1250 pounds [lb (567 kilograms [kg])] to 2500 lb [1134 kg]), pre-lubricated, and usually sequentially marked, allowing the installer to know the remaining distance left in the pull. <i>See also</i> pull (cord, rope, string, wire) and drag line.
multi-carrier code division multiple access (MC-CDMA)	A multiple access scheme used in orthogonal frequency division multiplexing (OFDM) based communication systems supporting multiple users at the same time.
multi-N redundancy (xN)	A system topology used primarily in fault-tolerant or large-scale systems where more than two large systems are employed together. <i>See also</i> redundancy.
multicast	A technique for sending data, audio, or voice to a selected group of devices on a network using a single point of transmission. <i>See also</i> broadcast and unicast.
multi-dwelling unit (MDU)	A category of dwellings with multiple living spaces in one structure or complex. It includes apartments, townhouses, condominiums, and assisted-living facilities. These facilities may be under a single roof or consist of multiple buildings in a residential campus.

multi-dwelling unit telecommunications room (MDU-TR)	The space where backbone, horizontal, and auxiliary disconnect outlet cables terminate to support multiple living units.
multifiber push-on (MPO)	A compact keyed array connector that is used to terminate 4-72 optical fibers. MPOs are typically used as 12 and 24 fiber array connectors within high-density and multifiber interconnect applications, such as array trunk cables and high speed (e.g., 40 G, 100 G) parallel optical multimode links.
multiground neutral (MGN) system	A utility power system where the neutral conductor is continuously present along with the phase conductors. The neutral conductor is connected to earth periodically along its path, typically four times per ≈ 1.6 kilometers (km [1 mile (mi)]).
multimedia	An application that communicates to more than one of the human sensory receptors. (TIA)
multimeter	The test equipment that can be set up to perform a variety of electrical property measurements, usually including resistance, voltage, and current.
multimode fiber (MMF)	<i>See</i> multimode optical fiber (MMF).
multimode optical fiber (MMF)	An optical waveguide that allows many bound modes to propagate. Typically used over short distances within buildings or on a campus.
multimode telephone	A cellular telephone compatible with a number of air interface technologies.
multipair	A cable having more than four pairs. In telecommunications cabling, commonly available in binder groups that are divisible by 25 pairs (e.g., 25 pairs, 100 pairs), although smaller multipair groups are available (e.g., 12 pairs).
multipath fading	On a wireless network, the signal loss caused by multipath propagation.
multipath propagation	On a wireless network, the arrival of signals from different directions, each with a different path length.
multiple access	1. In satellite communications, the capability of a communications satellite having simultaneous access to a number of ground stations. 2. A scheme that allows users to share the same channel instead of being assigned a unique frequency.
multiple aperture	The separate transmit and receive antennas within a free space optics (FSO) transceiver.
multiple input multiple output (MIMO)	A multiplexing technique that uses multiple transmit and receive antennas.

multiple prime contract	A project management method whereby the owner divides the work among several contractors and enters into a separate contract with each.
multiple station alarm device	Two or more single station alarm devices that can be interconnected so that actuation of one causes all integral or separate audible alarms to operate; one single station alarm device having connections to other detectors or to a manual fire alarm box.
multiple zone wireless LAN (WLAN)	A wireless LAN (WLAN) with two or more overlapping zones, each equipped with an access point (AP).
multiplexing (muxing)	The combining of two or more communications channels into a common, high-capacity channel from which the original signals may be individually recovered.
multipoint microwave distribution system (MMDS)	A wireless broadband technology for internet access, also called multi-channel multipoint distribution service (MMDS) and wireless cable.
multi-user telecommunications outlet assembly (MUTOA)	A grouping in one location of several telecommunications outlets/connectors. (TIA)
municipal fire alarm box (street box)	<i>See</i> manual fire alarm box.
municipal fire alarm system	A system of alarm-initiating devices, receiving equipment, and connecting circuits (other than a public telephone network) used to transmit alarms from street locations to the public fire service communications center.
municipal transmitter	A transmitter that only can be tripped remotely that is used to send an alarm to the public fire service communications center.
mushroom	1. A plastic guide in the shape of a mushroom that typically is used for routing jumpers, cross-connects, and patch cords. 2. A type of push-button cover, shaped like a mushroom, that provides a large surface for pushing, making it easier to find and activate the switch.
muster report	A report for accounting for occupants within a defined space that is used as a tool to aid in the verification that all occupants are accounted for.
mutual capacitance	The effective capacitance between the two conductors of a pair.

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N + 1 redundancy	A system design that provides one additional unit, module, path, or system in addition to the minimum required to satisfy the base requirement. The failure or maintenance of any single unit, module, or path will not disrupt operations. For smaller fault-tolerant systems where a single module can accommodate the critical load, the N + 1 and 2N models are synonymous. <i>See also</i> redundancy.
N + 2 redundancy	A system design that provides two additional units, modules, paths, or systems in addition to the minimum required to satisfy the base requirement. The failure or maintenance of any two single units, modules, or paths will not disrupt operations. <i>See also</i> redundancy.
N type or N connector	A medium-size threaded coaxial connector for use with direct current through 11 gigahertz (GHz) coaxial cables. It features a characteristic 50 ohm impedance structure. N-type connectors have a center pin that must be installed over the cable's center conductor.
nanometer (nm)	A unit of length equal to one billionth of a meter. The most common unit of measurement for optical fiber operating wavelengths.
nanosecond (ns)	One billionth of a second.
narrowband	In business and public safety radio systems, a radio signal, either analog or digital, that occupies significantly less than the previously typical 25 kilohertz (kHz) of bandwidth. Current Federal Communications Commission (FCC) regulations require a radio channel's bandwidth to be no more than the equivalent of 12.5 kHz.
National Electrical Code® (NEC®)	A safety code written and administered by the National Fire Protection Association (NFPA®).
nationally recognized testing laboratory (NRTL)	An organization recognized by the government and industry that tests products according to their application or purpose. Test results are often used for insurance underwriting.
natural events	Incidents that include drought, fire, avalanche, snow/ice/hail, tsunami, windstorm/tropical storm, hurricane/typhoon/cyclone, biological, extreme heat/cold, flood/wind-driven water, earthquake/land shift, volcanic eruption, tornado, landslide/mudslide, dust/sand storm, and lightning storm.
near-infrared	The part of the infrared (IR) spectrum near the visible spectrum, typically 700 nanometers (nm) to 1500 nm or 2000 nm; it is not rigidly defined. Also called IR-A.
near-end crosstalk (NEXT) loss	The unwanted signal coupling between pairs. It is measured at the end of a cable nearest the point of transmission.

near-field radiation pattern	1. The distribution of the irradiance over an emitting surface (over the cross-section of an optical waveguide). 2. The propagation pattern of a radio frequency (RF) wave physically very close to the transmitting antenna, relative to the wavelength. This pattern is very different from, and much more complicated than, the far-field radiation pattern usually considered in RF propagation.
needs assessment	An evaluation of the requirements or demands of a user community for the particular project or technology under consideration.
neonatal intensive care unit (NICU)	An intensive care unit for high-risk newborn babies (neonates), directed by a board-certified pediatrician with subspecialty certification in neonatal medicine.
network	An interconnected system of computers, peripherals, and other equipment (e.g., servers, controllers) that communicates over a medium and shares commands, files, and messages.
network access device	<i>See</i> network interface card (NIC).
network address	A Layer 3 address used to uniquely identify each LAN connected to an internetwork. <i>See also</i> internet address.
network administration	<i>See</i> network management.
network computer (NC)	A device similar to a computer with respect to processing power, memory capacity, and graphics capabilities but lacking any mass storage capabilities. Also called a thin client.
network diameter	The distance between the two data terminal equipment devices farthest apart in the same collision domain. Also called a collision diameter.
Network Equipment-Building System (NEBS)	A set of guidelines for seismic and electromagnetic compatibility protection. They were developed by Bell Labs and are now controlled by Telcordia Technologies. There are two NEBS documents: GR-63, NEBS™ Requirements: Physical Protection, which provides for seismic protection, and GR-1089, Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment, which provides for electromagnetic and lightning protection. GR-63 is often specified in project documents for the design and installation of telecommunications equipment capable of withstanding seismic events.
network identification (netid)	A part of the Open Systems Interconnection (OSI) Layer 3 address. It identifies the LAN broadcast domain. <i>See also</i> host identification (hostid).
network interface (NI)	1. The point of connection between a user terminal and a private or public network. 2. The point of interconnection between a public switched network and a privately owned terminal.

network interface card (NIC)	The circuitry in a device that provides the means to connect, via cabling or wireless to a network.
network interface card (NIC) address	<i>See</i> media access control (MAC) address.
network interface device (NID)	The point of connection between networks. (TIA)
network layer	Open Systems Interconnection (OSI) layer responsible for transferring data in the form of datagrams from one network device to another on an internetwork. Also called Layer 3.
network management	The combination of planning, procedures, hardware, software, and personnel needed to maintain network operations at maximum efficiency at all times.
network management center (NMC)	<i>See</i> network operations center (NOC).
network operating system (NOS)	An integrated collection of software programs designed to control and coordinate all access to network resources. It enables the sharing of software applications, peripheral devices, communications services, and user-created files by authorized network users.
network operations center (NOC)	A location from which network administrators manage, control, monitor, and maintain one or more computer, communications, or satellite networks. Also called network management center (NMC).
network-attached storage (NAS)	A form of data storage where shared data is placed on a high-capacity storage device with a built-in network interface card (NIC).
newsgroup	An internet-based messaging environment in which all messages and replies are posted for shared viewing.
newsreader	The software used to read, compose, and post newsgroup messages.
nibble	A data unit made up of 4 bits. Also called a quartet.
node	An addressable point on the network with processing abilities (e.g., computer, terminal, printer).
noise	An unwanted electrical signal on a medium that provides a random or persistent disturbance that interferes with the clarity or quality of the expected signal and alters the shape of the signal.
noise reduction coefficient (NRC)	The ability of a material or surface to absorb or attenuate sound, measured in dB

nominal velocity of propagation (NVP)	The coefficient used to determine the speed of transmission along a cable relative to the speed of light in a vacuum, typically expressed as a percentage. Also called phase velocity and velocity of propagation.
nomograph	A chart showing three or more scales across which a straightedge may be held in order to read off a graphical solution to a three-variable equation.
non-blocking	The ability of a device or network to successfully provide a communications path between all available devices.
non-classified locations	Locations that will not contain hazardous (classified) materials in sufficient quantity to create an explosion. (NEMA)
non-coded signal	An audible or visible signal conveying one discrete bit of information.
non-collusion statement	A document often required with the submission of a bid certifying that the bidder has not conferred, conveyed, or otherwise communicated with another party in an attempt to restrict competition.
non-contiguous property	Two or more premises controlled by the same owner or user and separated by a public thoroughfare, body of water, transportation right-of-way, or property owned or used by others.
non-fail-safe	<i>See</i> fail-secure lock.
non-power-limited fire alarm (NPLFA)	In the United States, a fire alarm system using 115 volts (V) alternating current (ac) power circuits for control rather than reduced voltage.
non-reflective break	A break in an optical fiber in such a manner that no light is reflected from the failure point.
non-repudiation services	The network security processes that provide proof that a message was sent from a specific source, thereby preventing that source from denying having sent the message.
non-required system	A supplementary fire alarm system component or group of components that is installed at the option of the owner and is not installed due to a building or fire code requirement.
non-restorable initiating device	A device in which the sensing element is designed to be destroyed or is incapable of returning to its original state in the process of operation. For example, mechanical heat detectors in fire suppression systems may be bimetallic or pneumatic. Bimetallic heat detectors have a strip consisting of two dissimilar metals. When the strip is heated, the metal distorts and closes a contact. Mechanical heat detectors have a fixed temperature setting, and once activated, they are not restorable.

non-return-to-zero (NRZ)	An encoding scheme in which “1s” are represented by one significant condition and “0s” are represented by another, with no neutral or rest condition.
non-zero dispersion shifted	A type of optical fiber designed to introduce a small amount of dispersion without a zero point crossing being in the wavelength division multiplexer (WDM) passband. With this type of optical fiber, it is possible to eliminate or at least greatly reduce the degradation due to four-wave mixing, a distortion mechanism that requires the spectral components to be phase matched along the optical fiber.
normal mode	The steady-state system configuration while under load.
normal power	The electrical power provided by the serving utility company and distributed through the facility electrical system.
notification appliance	A fire alarm system component (e.g., bell, horn, speaker, light, text display) that provides audible, tactile, visible, or any combination of outputs designed to alert people to danger (e.g., fire alarm).
notification appliance circuit (NAC)	A fire alarm circuit used to connect and operate notification appliances to the fire alarm system.
notification zone	An area covered by simultaneously activated notification appliances.
nuisance alarm	An alarm caused by mechanical failure, malfunction, improper installation, or lack of proper maintenance or activated by a cause that cannot be determined.
null	<ol style="list-style-type: none">1. An area where the signal strength has a non-detectable magnitude.2. A data field which contains no entry (i.e., an empty field).
numerical aperture (NA)	<ol style="list-style-type: none">1. A number that expresses the light-gathering ability of an optical fiber, defining the maximum angle to the fiber axis at which light will be accepted and propagated through the fiber. $NA = \sin q$, where q is the acceptance angle.2. Describes the angular spread of light from a central axis, as in exiting a fiber, emitting from a source or entering a detector.

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obscuration	The effect of reducing the intensity of a light source by obscuring the source from detection or vision.
Occupancy Category	A parameter in the International Building Code (IBC) for a structure's design based on the facility's intended use and anticipated occupant load (Nature of Occupancy). A structural engineer uses the categories in calculating flood, wind, snow, seismic, and ice design loads. There are four categories represented by a roman numeral (I, II, III, or IV) and ordered from lowest to highest, where Category I represents a low hazard to human life and Category IV represents an essential facility. Essential facilities are intended to remain operational during and after an extreme environmental event, such as a hurricane or snowstorm. <i>See also</i> Importance Factor.
octet	<i>See</i> byte.
off-axis	A state of an optical system in which the optical axis of the aperture does not coincide with the mechanical center of the aperture.
off-hook	To make a connection with a switched telephone network in preparation for dialing a telephone number or providing a contact closure in a ringdown or alarm circuit. <i>See also</i> on-hook.
offset	The degree to which the a communications cable (e.g., elliptical waveguide) or a conduit, or an object (e.g., cable tray) changes direction.
offset (frequency)	The difference between the source and reference frequencies or between transmit and receive frequencies.
ohm	A unit of measure of electrical resistance; one ohm is defined as the resistance that allows one ampere (A), the unit of electric current, to flow when one volt (V) is applied.
Ohm's law	The mathematical relationship among electric current, resistance, and voltage. The voltage in volts (V) is equal to the current in amperes (A) multiplied by the resistance in ohms.
ohmmeter	A device used to measure electrical resistance.
omnidirectional	Radiating in all directions for the source signal.
omnidirectional antenna	An antenna characterized by a broad coverage zone that radiates signals in all horizontal directions equally. <i>See also</i> directional antenna and unidirectional antenna.
on-axis	A state of an optical fiber system in which the optical axis of the aperture coincides with the mechanical center of the aperture.

on-hook	To disconnect from a switched telephone network. <i>See also</i> off-hook.
one-call system	A system created to protect the underground facilities of members through communication with any person planning to disturb the earth. This communication network receives and processes line location requests from excavators, contractors, builders, designers, the general public, and others and disseminates this work location information to all members based on their service agreements.
open	An error condition in a cabling link or channel in which a fault occurs in the continuity of a circuit or conductor.
open area detection (protection)	The protection of an area (e.g., room, space) with detectors to provide early warning of fire.
open cable	Cabling that is not run in a raceway as defined by NFPA 70. This refers to cabling that is open to the space in which the cable has been installed and is therefore exposed to the environmental conditions associated with that space. May also be referred to as exposed cable.
open invitation request for quotation (RFQ)	<i>See</i> request for quotation (RFQ).
open office	A floor space division provided by furniture, movable partitions, or other means instead of by building walls. (TIA)
open office cabling	The communications cabling that distributes from the horizontal cross-connect (HC [floor distributor (FD)]) to the open office area using a consolidation point (CP) or multiuser telecommunications outlet/connector. Also called zone cabling.
Open Systems Interconnection (OSI) Reference Model	A seven-layer network architecture developed by the International Organization for Standardization (ISO) that has served as a foundation for the development of many standards for network systems communications. The seven layers are physical, data link, network, transport, session, presentation, and application. <i>See also</i> the entries for these seven layers.
open transition	A change of state or transfer where the electrical circuit connection is not maintained during the transfer. This is also known as “break before make.”
operating mode, private	An audible or visible signaling only to those persons directly concerned with the implementation and direction of emergency action initiation and procedure in the area protected by the fire alarm system.
operating mode, public	An audible or visible signaling to occupants or inhabitants of the area protected by the fire alarm system.
operating room	An area of a hospital equipped and staffed to provide facilities and personnel services for the performance of surgical procedures.

operating system (OS)	The system software that controls the execution of all programs and the use of resources on a device such as a computer. <i>See also</i> network operating system (NOS).
operations and maintenance (O&M)	The day-to-day activities necessary for the building and its systems and equipment to perform their intended function. (NIBS)
optical fiber	A transmission media using a thin filament of glass or plastic use to transport pulse light signals. Its bandwidth is higher than copper and not subject to electromagnetic interference (EMI). The optical fiber consists of a central core (glass or plastic) and an outer cladding.
optical fiber cable	A cable assembly made up of one or more strands of glass consisting of a central core and outer cladding (optical fibers), primary coating (primary buffer), tube buffers, strength members, and an outer jacket.
optical fiber cladding	<i>See</i> cladding.
optical fiber connector	A device attached to the end of an optical fiber for the purpose of mating the fiber to a source, a receiver, or another fiber through an optical adapter.
optical fiber core	<i>See</i> core.
optical fiber flashlight	A device that generates safe visible light (e.g., light-emitting diode [LED]) for verifying continuity of optical fiber with the naked eye.
optical field of view	The area visible through the lens of an optical instrument.
optical power meter (OPM)	The test equipment that measures the strength of a light wave in decibel milliwatt (dBm) over an optical fiber cable. <i>See also</i> light source.
optical time domain reflectometer (OTDR)	An instrument that measures transmission characteristics of optical fiber by measuring the backscatter and reflection of injected light as a function of time. Used to measure attenuation of optical fiber, splices, and connectors and locate faults.
optoelectronics	The components or circuitry used to perform the necessary conversions between light-based signaling and electricity-based signaling.
order of magnitude	An expression where the upper value is 10 times larger than the lower value.
“or equal”	A phrase used to identify a level of quality or features of a specific product or assembly that can be substituted but must be equivalent to the specified product in every way. Better phrases are “or as approved” and “or approved substitute.”
organic light-emitting diode (OLED)	A type of light emitting diode (LED) that incorporates an organic compound as part of its electroluminescent layer.

organization breakdown structure (OBS)	A hierarchal chart that visually represents people and organizations who are stakeholders in a project regardless of their company or organizations. An OBS should include contact information for each team member.
organizational network	<i>See</i> network.
orthogonal frequency division multiplexing (OFDM)	A technique whereby a wide frequency band is split into a number of narrow frequency bands. Data is inverse multiplexed across the subchannels. OFDM is used in the IEEE® 802.11a and IEEE 802.11g networks.
other fire detectors	The devices that detect a phenomenon other than heat, smoke, flame, or gases produced by a fire. <i>See also</i> fire-gas detector, flame detector, heat detector, smoke detector, spark/ember detector, radiant energy-sensing fire detector, rate compensated heat detector, rate-of-rise pneumatic tubing heat detector, and rate-of-rise detector.
outer protection	An outer layer of material composed of armored wire or metallic tape that covers the sheath of the cable.
outlet box (telecommunications)	A junction box (J-Box) or housing used to hold telecommunications outlet/connectors. (TIA)
outlet cable (OC)	A cable placed in a residential unit extending directly between the telecommunications outlet/connector and the distribution device. (TIA)
outside plant (OSP)	<ol style="list-style-type: none">1. Telecommunications infrastructure designed for installation exterior to buildings and is typically routed into the entrance facility. (TIA)2. Communications infrastructure outside of the buildings/premises using underground conduits and vaults, direct-buried cable, aerial plants, and wireless.
overbuild	The outside plant (OSP) facilities placed in conjunction with existing OSP of a locally owned or competitive company.
overflow	The energy around a receive antenna that is lost due to its being outside the surface where it can be captured.
overfilled launch	The condition when the cladding of an optical fiber is completely filled with light.
overhead guy	In outside plant (OSP) aerial cabling, any pole support strand (guy) that extends to the top of a pole.
overlashing	The practice of lashing a new optical fiber cable over an existing aerial support strand and/or cable bundle.
overvoltage	An increase in the nominal voltage for more than 3600 cycles (one minute).

ownership Any property or building or its contents under legal control by the occupant, by contract, or by holding of a title or deed.

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packet Bits grouped serially in a defined format containing a command or data message sent over a network. A generic term used to describe a unit of data at any layer of the Open Systems Interconnection (OSI) Reference Model protocol stack. *See also* frame and datagram.

packet assembler/disassembler (PAD) A device that segments a digital message into X.25 packets for transmission and reassembles a message from received packets.

packet binary convolutional coding (PBCC) An encoding method proposed for IEEE® 802.11g. Because of the peak transfer rate of 33 megabits per second (Mb/s), it was rejected in favor of orthogonal frequency division multiplexing (OFDM). It is still included in IEEE 802.11g as an option.

packet filter Part of a firewall program that examines each network packet, or datagram, and uses an access control list to determine if the inbound or outbound datagram should be discarded (filtered) or allowed to pass through the firewall.

packet switching A data communications switching and transmission system in which each packet is transmitted independently between devices through the network without first establishing a dedicated communications path between the devices. At the receiving end, the packets are checked for errors, resequenced as necessary, and combined into an output data stream.

padding down Intentional attenuation of a signal.

PageFormat™ A guide published by the Construction Specifications Institute (CSI) that describes the recommended arrangement of text on a specification page; provides a system for designating articles, paragraphs, and subparagraphs; and includes guidance for page numbering, margins, and other aspects of formatting. *See also* MasterFormat™, UniFormat™, and SectionFormat™. (CSI)

paging system A type of public address system that may include the capability of providing notifications, information, and instructions utilizing visible signals or a lamp annunciator. Paging systems may also utilize devices allowing communication between the initiator of the page and the intended recipients.

pair count Indicates how many pairs of wires are in a cable.

pair loading patch cord To raise the power demand (in an electrical circuit), as by adding resistance. A length of cable with a plug on one or both ends used to join telecommunications circuits/links at the cross-connect. (TIA)

pair scanner	<i>See</i> wire map.
pair twist	The uniform twist of an insulated copper pair that helps to reduce the negative effects of capacitance imbalance and electromagnetic induction.
pairing	A connection between two devices using Bluetooth®.
panel antenna	A style of radio frequency (RF) antenna constructed in a flat panel shape. A flat panel antenna is highly directional and usually a phased array antenna.
panelboard (electrical)	A single panel or groups of panel units designed for assembly in the form of a single panel, including buses and automatic over-current devices such as fuses or molded-case circuit breakers, accessible only from the front. <i>See also</i> switchboard and switchgear.
panic bar	A push bar and latch mechanism that is installed on the secure side of an opening. When the push pad is pressed, the latch will be released and the opening will be unsecured.
parabolic antenna	A directional antenna often shaped like a dish (concave reflector) used to produce a parallel beam when the source is placed at its focus (transmission) or to focus an incoming parallel beam (reception).
parallel telephone system	A telephone system in which an individually wired circuit is used for each fire alarm box.
parity	The information needed to recover the data stored on a failed disk drive in a redundant array of independent disks (RAID) configuration.
parked state	Refers to a slave device in Bluetooth®. A parked slave is not active on the channel but will remain synchronized to the clock of the master.
partitioned LAN	<i>See</i> virtual LAN (VLAN).
passive card	A type of access card that is dependent on a battery to provide the power necessary to allow the card to transmit its data.
passive equipment	Equipment that does not require electric power. <i>See also</i> active equipment.
passive hub	A hub that does not require electrical power to operate. Such devices function as simple signal distribution units, where an incoming signal on one port is directed to another port with no amplification, retiming, or regeneration. <i>See also</i> hub.
patch antenna	Comprises a patch of conductive material fixed above a conductive plane and separated from the plane by a thin dielectric substrate.

patch cord	A length of cable with a plug on one or both ends. (TIA) Patch cords are used for connections between two passive cross-connect terminations or direct connection from one active equipment to another active equipment. <i>See also</i> equipment cord and line cord.
patch cord adjuster	A mechanical device to which a patch cord is mated that enables the cord to be managed within the patch cord field. It permits the bend radius of the cable to be controlled and allows for periodic readjustment of the length of the patch cord.
patch panel	A connecting hardware system that facilitates cable termination and cabling administration using patch cords or equipment cords. (TIA)
patching	The means of connecting circuits via cords and connectors that can be easily disconnected and reconnected at another point.
path loss	In a communications system, the attenuation undergone by an electromagnetic wave in transit between a transmitter and a receiver. It may be caused by many effects such as free-space loss, refraction, reflection, aperture-medium coupling loss, and absorption.
pathway	1. Physical infrastructure (e.g., conduit, cable tray, raceway) used to facilitate the placement of information and communications technology (ICT) or electronic safety and security (ESS) cabling media. 2. A term used within the United States to denote any method of connecting elements of the fire alarm system (e.g., electrical, optical, radio frequency [RF]).
pathway barrier penetration plates (PBPP)	A firestopping solution designed to centralize the installation and administration of multiple firewall penetrations.
payout box	A cardboard container with a hole for cable distribution directly from the box.
peak envelope power (of a radio transmitter)	The average power supplied to the antenna transmission line by a transmitter during one radio frequency (RF) cycle at the crest of the modulation envelope taken under normal operating conditions. (ITU)
peak output power	Maximum allowable output power of a transmission source.
peak power (PP)	Maximum electrical energy available in an alternating current (ac). It is a factor of voltage multiplied by the current (amperage). <i>See also</i> average power and power.
pedestal	1. In outside plant (OSP) systems, a protective aboveground enclosure used most commonly to house a splice point or administrative terminal location. 2. In access floor systems, a fixed height or adjustable height structural element that supports the access floor panel and raises it off the slab to create an interstitial space for service distribution. <i>See also</i> access floor and stringer.

peer-to-peer LAN	A network environment where any station can contribute to or access network resources. All network devices function as equals.
penalties (contract)	Fines levied by a client against a contractor for failure to meet certain contract requirements (e.g., completing a project by the specified date).
penetration	An opening made in a barrier (architectural structure or assembly). There are two types of penetration: a membrane penetration pierces or interrupts the outside surface of only one side of a barrier; a through penetration pierces or interrupts both outside surfaces of a barrier. <i>See also</i> membrane penetration and through penetration.
penetration seal	<i>See</i> firestop.
performance bond	A bond that ensures a contractor will use specified methods and procedures in performing a project.
performance management	The optimization of individual components and the overall network to optimize the time it takes to complete a given task.
performance verification	The process of determining the ability of the system to function according to the design intent.
perigee	The point in its orbit at which a satellite is closest to the earth. <i>See also</i> apogee.
perimeter area	The perimeter area is the outermost, first line of defense in any functional security system. <i>See also</i> perimeter system.
perimeter system	A system designed to generate an alarm when the defined perimeter area is intruded upon. For effective perimeter protection, a combination of sensors is usually installed and integrated to sense, decide, and act on all attempts at unauthorized entry to the protected area. It is important that the sensors specified match the environment to be protected.
period	The smallest repetitive interval of a periodic waveform (e.g., time for one cycle of a sine wave).
peripheral device	A unit of external equipment connected to and controlled by a station or a server.
permanent link	1. The permanently installed portion of horizontal cabling (excludes cordage). <i>See also</i> channel. 2. A test configuration for a link excluding test cords and patch cords or equipment cords. (TIA) Previously referred to as basic link.

permanent link test configuration	The transmission path between two mated interfaces of generic cabling, excluding equipment cords, work area cords, and cross-connections but including the connecting hardware at each end. (ISO) Previously referred to as basic link test configuration.
permanent virtual circuit (PVC)	A software-defined logical connection in a switched network in which users define logical connections and required bandwidths between end points while the switched network technology achieves the defined connections and manages the traffic. With this type of circuit, the line is always ready, which eliminates the delay associated with line setup and release.
permanent visual record (recording)	An immediately readable, not easily alterable, print, slash, or punch record of all occurrences of status change.
permeability	The property of a magnetizable substance that determines the degree in which it modifies the magnetic flux in the region occupied by it in a magnetic field.
permit required confined space (PRCS)	<i>See</i> confined space.
personal area network (PAN)	A network system that covers an area generally associated with an individual workspace (e.g., office, cubicle).
personal fall arrest system (PFAS)	A system used to arrest an employee in a fall from a walking-working surface. It consists of a body harness, anchorage, and connector. The means of connection may include a lanyard, deceleration device, lifeline, or a suitable combination of these. (OSHA)
personal identification number (PIN)	A unique numeric code used to identify an individual.
personal operating space (POS)	<i>See</i> personal area network (PAN).
personal protective equipment (PPE)	Any number of safety apparatuses worn or used by an individual (e.g., hard hat, protective eyewear, gloves, clothing) that shields against possible injury while performing tasks.
personnel lift	A mechanical device for lifting construction personnel when a ladder cannot be used safely because of the required working height or weight of equipment.
phase	<ol style="list-style-type: none">1. The relationship in time between two waveforms of the same frequency.2. The relationship in time between two parameters of a single waveform (e.g., voltage and current).

phase modulation (PM)	An angle modulation in which the phase angle of a carrier is caused to depart from its reference value by an amount proportional to the instantaneous value of the modulating signal.
phase velocity	<i>See</i> nominal velocity of propagation (NVP).
phased array antenna	An antenna that can transmit and receive electromagnetic fields at and from any direction without any mechanical movement. Such antennas usually support broad bandwidth and carry more information. They have low visibility and are difficult to detect due to the absence of moving parts.
phased cutover	A progression of transferring an old system to a new system. <i>See also</i> cutover.
phase-shift keying (PSK)	In digital transmission, angle modulation in which the phase of the carrier is discretely varied in relation either to a reference phase or to the phase of the immediately preceding signal element, in accordance with data being transmitted.
photoelectric (photoelectric effect)	The property of a material to conduct electricity when light is applied to it where the amount of current can be varied depending on the frequency or intensity of the applied light.
photoelectric light-obscuration smoke detection	The principle of using a light source and a photosensitive sensor onto which the principal portion of the source emissions is focused. When smoke particles enter the light path, some of the light is scattered and some is absorbed, thereby reducing the light reaching the receiving sensor. The light reduction signal is processed and used to convey an alarm condition when it meets preset criteria.
photoelectric light-scattering smoke	The principle of using a light source and a photosensitive sensor arranged so that the rays from the light source do not normally fall onto the detection photosensitive sensor. When smoke particles enter the light path, some of the light is scattered by reflection and refraction onto the sensor. The light signal is processed and used to convey an alarm condition when it meets preset criteria.
photon	A fundamental element of light.
photosensitive epilepsy	A medical condition presented by seizures due to a reaction from rapidly flickering light impulses. As a preventive measure, strobe-type notification appliances can be synchronized so that multiple appliances do not cause overly rapid and disorienting light pulses.
physical address	<i>See</i> media access control (MAC) address.
physical design process	A network design process where the network designer begins by assessing the site where the proposed network is to be implemented. Also called bottom-up design.

physical layer	The Open Systems Interconnection (OSI) Reference Model layer responsible for the transfer of bit streams over a specific medium. Also called Layer 1.
physical layer interface (PHY)	Typically, the circuit in a network interface card (NIC) or similar device that inserts the signal onto the transmission medium (e.g., cabling system). It includes the connector configuration, or medium dependent interface (MDI).
physical medium attachment (PMA)	In Ethernet, the part of the physical layer that controls transmission, reception, collision detection, clock detection, and skew alignment.
physical security	Measures that deter, detect, delay, mitigate, or notify any attempt to injure, damage, modify, or remove an asset or person. This includes damage by accident, fire, environmental elements, crime, vandalism, and industrial espionage. It can be a simple device or multiple layers of electronic measures.
physical topology	The physical layout of a network as defined by its cabling architecture.
picocell	A small cellular base station typically covering a small area, such as in-building (e.g., offices, shopping malls, train stations, stock exchanges), and more recently in aircraft. The range of a picocell is typically ≈ 200 meters (m [656 feet (ft)]) or less. Most picocells are connected to headend equipment on the premises using in-building cabling. The headend processes the signals and sends them on into the cellular network. Some picocells have increased intelligence, giving them the capability required to connect directly to the internet, without the need for the headend infrastructure. This form of picocell is sometimes called an access point base station or enterprise femtocell. One type of small cell.
picofarad	One-trillionth of a farad.
piconet	A single Bluetooth® wireless personal area network (WPAN) that can contain a maximum of eight active devices. Each master device and the slave device, or devices associated with it, form a piconet. It provides a base level of connectivity to even the simplest of sensing and computing objects. <i>See also</i> scatternet.
picowatt of noise	Psophometrically weighted, 1.0 pWp is equivalent to an 800 hertz (Hz) test power (pWp) tone at -90 decibels per meter (dBm).
piggybacking	<i>See</i> tailgating.
pigtail	One or more conductors or fibers with only one end terminated. (TIA) <i>See also</i> cable assembly and jumper.

PIII-500	A semi-rigid coaxial cable with an aluminum sheath that is typically used as a trunk cable in a cable TV (CATV) distribution network. This term is pronounced “P three five hundred.” PIII indicates the type of cable and 500 indicates the cable diameter, which is ≈ 12.7 millimeters (mm [0.5 inches (in)]).
pink noise	A noise masking system that creates an artificial sound barrier in open office environments to provide increased privacy by masking conversations.
pinout	A wiring scheme for the individual conductors in a telecommunications connector, jack, or plug.
placarded	A means to signify that the fire alarm system of a particular facility is receiving central station service by a listed central station or listed fire alarm service—a local company that is part of a systematic follow-up program under the control of an independent third-party listing organization.
plain old telephone service (POTS)	Basic service that supplies standard single-line telephone, telephone lines, and access to the public switched telephone network (PSTN).
plant	One or more buildings under the same ownership or control on a single property. <i>See also</i> campus.
Planté cell	Invented in 1859 by French physicist Gaston Planté, the lead acid storage battery uses a liquid electrolyte to generate current. This type of battery generates hydrogen gas when charging. Because sulfuric acid electrolyte evaporates to some extent, these batteries must be used in a room that is well ventilated to the outside and kept away from delicate electronic equipment. The lead acid/calcium battery is commonly used for uninterruptible power supply (UPS) backup.
plastic insulated conductor (PIC)	A metallic conductor that is insulated with a plastic material.
plastic optical fiber (POF)	Optical fiber made of plastic rather than glass. <i>See also</i> optical fiber.
plate anchor	An anchor composed of a rigid steel or other high-strength metal plate direct-buried in the ground.
plenum	A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system. (TIA)
plenum cable	<i>See</i> communications plenum cable.
plenum rated	Meeting flammability and smoke requirements for the purpose of fire, life, and safety as described by the <i>National Electrical Code</i> [®] .

plug	A male telecommunications outlet/connector that may be keyed or unkeyed and may have up to eight to ten contact positions; not all positions need to be equipped with contacts. The eight contact, eight position telecommunications outlet/connector has been adopted by many industry standards. <i>See also</i> jack.
plunger	Stopper for the end of a syringe.
pneumatic rate-of-rise tubing heat detector	A line-type detector consisting of small-diameter tubing, usually copper, that is installed on the ceiling or high on the walls throughout the protected area. The tubing is terminated in a detector unit containing diaphragms and associated contacts set to actuate at a predetermined pressure. The system is sealed except for calibrated vents that compensate for normal changes in temperature.
point of demarcation	<i>See</i> demarcation point.
point of entrance	<i>See</i> entrance point
point of presence (POP)	The physical demarcation or access point (AP) of control and billing at an interexchange carrier, local exchange carrier (LEC), competitive LEC, client premises equipment (CPE), or service provider (SP).
point of sale (POS)	A location where credit card transactions are performed with the cardholder present, such as a retail establishment.
point-to-multipoint	A connection from one point to several other points. <i>See also</i> point-to-point (PTP).
point-to-point (PTP)	A direct connection established between two specific locations, as between two buildings or devices. <i>See also</i> point-to-multipoint.
poisoned	The introduction and possible absorption of foreign material into the detection chamber of a fire, smoke, or other sensor causing a condition where the detecting elements are inhibited, affecting the electrical or catalytic reaction of the device.
poke-thru	Penetrations through the fire-resistive floor structure to permit the installation of horizontal telecommunications cables. (TIA)
poke-thru system	A poke-thru device installed in a penetration through a fire-resistant floor structure. (TIA)
polar	A diagrammatic method that maps a notification appliance output intensity over an angular plane, typically 180 degrees. A polar diagram can be used to illustrate notification appliance sound or light output at various locations relative to the appliance.

polarity	1. The condition of a body or system in which it has opposing physical properties at different points (e.g., magnetic poles, electrical charge). 2. A method of positioning optical fibers within duplex and array connectors to ensure connectivity between transmitter(s) and receiver(s).
polarization	The orientation with respect to a given position, force, voltage, or direction. As with antennas, this is the direction of the radiated electric field in relation to the surface of the earth. This is generally vertical in mobile radio systems.
pole	A column of wood, steel, fiberglass, or other material supporting overhead cables or antennas.
pole class	A rating used to classify outside plant (OSP) pole strengths. <i>See also</i> pole.
polyethylene (PE)	Thermoplastic material having excellent electrical properties, such as a low, stable dielectric constant over all frequencies with very high insulation resistance. In terms of flexibility, polyethylene can be rated stiff to very hard, depending on molecular weight and density—low density being the most flexible and high density, high molecular weight formulation being very hard. Moisture resistance is rated excellent.
polymer	A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber, or elastomer.
polyvinyl chloride (PVC)	A tough, general-purpose, flame-retardant, thermoplastic, water-resistant insulator used for wire and cable insulation and jackets and for conduit.
port	1. A physical connection point on a device (e.g., hub, switch, patch panel). 2. An identifier of an application process within the transmission control protocol/ internet protocol (TCP/IP) suite.
port aggregation	<i>See</i> link aggregation.
port density	The number of modular connections within a space.
port mirroring	The process of copying the data passing through one or more ports of a switch to a network management port for monitoring purposes.
port trunking	<i>See</i> link aggregation.
portable operator's terminal (POT)	A portable terminal used for maintenance and error detection in building automation systems (BAS).
portal	An access point (AP) that connects a wireless LAN (WLAN) to another IEEE® 802 network (e.g., Ethernet, token ring).
positive alarm sequence	An automatic sequence that results in an alarm signal, even when manually delayed for investigation, unless the system is reset.

positive intrinsic negative (PIN) diode	Used to convert optical signals to electrical signals in a receiver.
positive temperature coefficient (PTC) protector	A type of outside plant (OSP) protector installed in a building entrance terminal (BET). PTC thermistors are ceramic and provide over-current protection against power cross, power induction surges, and lighting surges that is reversible and self-resetting.
positive temperature coefficient (PTC) resistor	A resistor whose resistance increases with temperature.
Post Office Code Standardization Advisory Group (POCSAG)	A basic signaling pattern used in global paging systems.
poststressed concrete	A type of reinforced concrete construction in which embedded steel cables are put under tension after the concrete has cured. <i>See also</i> post-tensioned concrete, prestressed concrete, and reinforced concrete.
post-tensioned concrete	A type of reinforced concrete construction in which the embedded steel members are first put under tension, the concrete poured and allowed to harden, and the tension of the steel members released causing compression of the concrete. (TIA) <i>See also</i> poststressed concrete, reinforced concrete, and prestressed concrete.
pothole	<i>See</i> test hole.
powder-actuated fastener	A device used to attach material to concrete or steel that is installed using a powder-actuated drive tool.
power (P)	<ol style="list-style-type: none">1. The rate of transfer or absorption of energy per unit time in a system.2. The energy required to operate an electrical device (e.g., motor, amplifier, telephone transmitter). <i>See also</i> average power and peak power.
power arrester	A device installed in power systems to limit the line-to-ground surge voltage due to a power surge or spike.
power distribution unit (PDU)	A floor-, cabinet-, or rack-mounted enclosure for distributing branch circuit electrical power via cabling, either overhead or under an access floor, to multiple racks, cabinets, or enclosures of information technology equipment (ITE). A PDU includes one or more distribution panel boards and can include a transformer, monitoring, and controls. Sometimes called a computer power center or a power distribution center.
powered device (PD)	<i>See</i> active equipment.
power factor	The ratio of real power to apparent power shown as a percentage.

power-limited (PL)	A reference to secondary power (subcircuit) reduced to 24 volt (V) direct current (dc) or less for building automation system (BAS) functions.
power-limited fire alarm (PLFA)	Fire alarm systems that use low-voltage circuits (less than 24 volt [V]).
power outlet unit (POU)	<i>See</i> power strip.
power over Ethernet (PoE)	A network subsystem that offers the ability for the LAN switching infrastructure to provide power over balanced twisted-pair cabling to an endpoint device (e.g., access point [AP], camera, telephone set).
power pole	<i>See</i> utility column.
power splitter	A passive device that accepts an input signal and delivers multiple output signals with specific phase and amplitude characteristics.
power strip	A device mounted onto or within an information technology equipment (ITE) rack, cabinet, or enclosure or on a backboard, supplied by a single branch circuit, and containing power receptacles into which multiple information technology devices can be plugged. A power strip can include metering, controls, circuit protection, filtering, and surge suppression. Also known in IEEE 1100 as a power outlet unit (POU). Sometimes called rack-mount PDU, rack power distribution unit, ITE-PDU, cabinet distribution unit, or plug strip.
power sum	A term used to specify a combination of crosstalk interference signals from multiple sources.
power sum alien far-end crosstalk (PSAFEXT)	The power sum of the unwanted signal coupling from multiple disturbing pairs of one or more 4-pair channels, permanent links, or components to a disturbed pair of another 4-pair channel, permanent link, or component, measured at the far end.
power sum alien near-end crosstalk (PSANEXT)	The power sum of the unwanted signal coupling from multiple disturbing pairs of one or more 4-pair channels, permanent links, or components to a disturbed pair of another 4-pair channel, permanent link, or component, measured at the near end.
power sum attenuation-to-crosstalk ratio (PSACR)	A ratio in decibels (dB), determined by subtracting the attenuation from the power sum near-end crosstalk (PSNEXT) loss. PSACR is a calculated value.
power sum attenuation to crosstalk ratio, far-end (PSACRF)	A computation of the unwanted signal coupling from multiple transmitters at the near end into a pair measured at the far end and normalized to the received signal level.

power sum attenuation-to-alien crosstalk ratio at far end (PSAACRF)	A ratio in decibels (dB), determined by subtracting the attenuation from the power sum alien far-end crosstalk (PSAFEXT) loss between cables or channels in close proximity.
power sum attenuation-to-alien crosstalk ratio at end (PSAACRN)	A ratio in decibels (dB), determined by subtracting the attenuation from the power sum alien near-end crosstalk (PSANEXT) loss between cables or channels in close proximity.
power sum equal level far-end crosstalk (PSELFEXT)	A computation of the unwanted signal coupling from multiple transmitters at the near-end into a pair measured at the far-end, and normalized to the received signal level. (TIA)
power sum near-end crosstalk (PSNEXT) loss	A computation of the unwanted signal coupling from multiple transmitters at the near-end into a pair measured at the near-end. (TIA)
power supply	A source of electrical operating power, including the circuits and terminations connecting it to the dependent system components.
power usage effectiveness (PUE)	A measure of a data center's efficiency in terms of its electrical energy use. PUE is calculated as total facility energy used divided by information technology (IT) energy. Units are kilowatt-hours (kWh) and PUE is measured as an average over a specified period. PUE is the inverse of data center infrastructure efficiency (DCIE).
precast concrete	A concrete member that is cast and cured in other than its final position.
pre-functional test	A series of tests for specified equipment or systems, which determine that the systems are installed correctly, start up, and are prepared for the functional performance tests. Often these tests are in a checklist format. The pre-functional test checklists may be completed as part of the normal contractor startup test.
pre-fusing	Machine cleaning of the fiber ends prior to performing a fusion splice.
pre-installation meeting	An internal meeting convened by the project manager and including the telecommunications installation team and appropriate contractors to discuss all aspects of an upcoming construction project.
premise control unit	A device that receives changes of an intrusion detection alarm status from sensors and transmits an alarm condition to a monitoring station.
premises	A building or set of buildings on common property that are occupied by a single tenant or landlord.
premises cabling	A generic term that includes interbuilding, intrabuilding, and horizontal cabling that is owned by a single tenant or landlord. Refers to the entire cabling system used for voice, data, video, and power on a user's premises.

presentation layer	The Open Systems Interconnection (OSI) Reference Model layer responsible for various forms of message conversion, including compression and encryption. Also called Layer 6.
preset insert	<i>See</i> insert, preset.
pre-signal alarm	In fire alarm systems, signals or signs delivered to occupants before sending a general alarm. This type of alarm may be automatically transmitted to a central fire alarm system after a specified time period.
pressurization	The use of pressurized gas or dry air inside cable sheaths to prevent the entry of moisture.
prestressed concrete	Concrete poured into a mold containing tension rods or cable. <i>See also</i> poststressed concrete, reinforced concrete, and post-tensioned concrete.
prevailing wage rate	Labor rates published by state or federal governments that state the minimum allowable wage that can be paid to a laborer for a particular task, typically on a publicly funded project. The rates are published for each project and can vary from county to county and project to project.
pre-wiring	1. Cabling installed before walls are enclosed or finished. Also called rough-in. 2. Cabling installed in anticipation of future use or need.
primary battery (dry cell)	A non-rechargeable battery requiring periodic replacement.
primary bonding busbar (PBB)	A busbar placed in a convenient and accessible location and bonded, by means of the telecommunications bonding conductor (TBC), to the building's service equipment (power) ground.
primary power system	The power distributed from an electric generation station usually consisting of three phased 2200 volts (V), 7200 V, 13,800 V, or higher.
primary protector	1. A device that limits voltage between telecommunications conductors and ground (usually between 215 volt [V] direct current [dc] to 350 Vdc). 2. A protective device placed on telecommunications conductors in accordance with codes and standards (e.g., National Fire Protection Association [NFPA] 70, <i>National Electrical Code</i> [NEC®]).
primary rate interface (PRI)	An integrated services digital network (ISDN) interface standard that consists of twenty-three 64 kilobytes per second (kb/s) B (bearer) channels and one 64 kb/s D (data) channel using a T-1 line or thirty 64 kb/s B channels and one 64 kb/s D channel using an E-1 channel.
primary side	The high-voltage side of an electrical power transformer or the electrical power service line side of an uninterruptible power supply (UPS), power distribution unit (PDU) transformer, or static switch.

primary trunk facility	The part of a transmission channel connecting all leg facilities to a supervising or subsidiary station.
prime contractor	1. Master contractor on a work site that may be serviced by several contractors. 2. The one company contractually responsible for providing central station services to a subscriber. The prime contractor can be either a listed central station or a listed fire alarm service (a local company).
prioritization	A function performed by a network interface card (NIC) that makes it possible to assign different levels of priority to the requests made by applications using the NIC on a device. Also called traffic prioritization.
privacy code	A term used by some Family Radio Service (FRS) radio manufacturers for Continuous Tone Coded Squelch System (CTCSS), although there is no real privacy. Also sometimes called a sub-channel.
private automatic branch exchange (PABX)	<i>See</i> private branch exchange (PBX).
private branch exchange (PBX)	A private telecommunications switching system allowing private local voice (and other voice-related services) switching over a network. (TIA) <i>See also</i> key service unit (KSU).
private key encryption	A security process in which information is encrypted with a key that both the sender of the information and the receiver possess. The parties involved are expected to agree on a key in a way that does not compromise the established security processes. <i>See also</i> public key encryption.
private mode	The applications, situations, or incidents where a notification or signaling is intended to alert and inform only those directly involved with the response to an emergency, where trained personnel are in place to take additional measures and actions upon the notification. Such personnel may include those who are familiar with the operation of the fire alarm system (e.g., firefighters, security workers). Private mode visual signaling generally is not intended to compensate for hearing impairment or high ambient noise conditions.
private radio signaling	A radio system under control of the proprietary supervising station.
privity	1. The doctrine of privity of contract stipulates that only parties to the contract can sue or be sued in respect of it. 2. The knowledge of something secret or private.
probe	<i>See</i> inductive amplifier.
program evaluation review technique (PERT) chart	A network chart or logic diagram for project management. Generally used by the project manager to see how one change in the project affects the remaining tasks.

program material	The video and audio material that is broadcast over a cable system.
programmable card	A card on which data may be encoded.
project log	A written log of everything that happens on a project hour-by-hour, day-by-day, or item-by-item.
project management	Planning, organizing, and managing resources to achieve successful completion of project goals and objectives.
project plan	Construction plan reflecting all aspects of the work to be performed using a priority schedule.
project schedule	1. Chronological order of events that will be accomplished on a project and in the order that they must occur. 2. A scheduling document including all activities to take place in a construction project.
projected beam-type detector	A type of photoelectric light obscuration smoke detector wherein the beam spans the protected area.
propagation	The motion of waves through or along a medium.
propagation delay	The time required for a signal to travel from one end of the transmission path to the other end. (TIA)
proposal	Detailed offer of services and/or resources, usually in exchange for other services or monies. Also called a quote.
proprietary	A characteristic of a technique, technology, or device which is owned and controlled by a company or other party and is thereby only usable or adaptable as allowed by that party and not deemed to achieve interoperability.
proprietary supervising station	The location to which alarm or supervisory signaling devices on proprietary fire alarm systems are connected and where personnel are in attendance at all times to supervise operation and investigate signals.
proprietary supervising station fire alarm system	An installation of fire alarm systems that serves contiguous and non-contiguous properties, under one ownership, from a proprietary supervising station located at the protected property, at which trained, competent personnel are in constant attendance. This includes the proprietary supervising station; power supplies; signal-initiating devices; initiating device circuits; signal notification appliances; equipment for the automatic, permanent visual recording of signals; and equipment for initiating the operation of emergency building control services.
protected and diversity	A wireless system that provides redundancy through the use of two transmitters, each connected to a separate antenna. <i>See also</i> diversity reception.

protected premises	The physical location protected by one or more electronic safety and security (ESS) systems.
protected premises (local) control unit (panel)	A control unit that serves the protected premises or a portion of the protected premises and indicates the alarm via notification appliances inside the protected premises.
protected premises (local) fire alarm system	A protected premises system that sounds an alarm at the protected premises as the result of the manual operation of a fire alarm box or the operation of protection equipment or systems (e.g., water flowing in a sprinkler system, discharge of carbon dioxide, detection of smoke or heat).
protected system	A wireless system that provides redundancy by using a transmitter combiner to connect two transceivers to an antenna for redundancy. <i>See also</i> protected and diversity and unprotected system.
protection, fire	<i>See</i> fire protection.
protector	A device that prevents damage to lines or equipment by conducting hazardous high voltages or currents to ground. Most protectors come in assemblies containing fusible link stubs and the housing and circuitry for individual protector units.
protector (cable)	An outside plant (OSP) protector that limits the voltage between the conductors and shield of a cable.
protector (ground conductor)	A wire run from the ground lug on the protector to an approved ground via the shortest and straightest route.
protector (open wire)	An outside plant (OSP) protector that limits the voltage between open wire telecommunications conductors and ground.
protector bond	A bond of a grounding conductor to a protector.
protector unit	A replaceable voltage-shunting device that is inserted on each cable pair in a protector assembly. The units come in a variety of types based on clamping voltages and reaction time.
protocol	A set of rules and procedures governing the formatting of messages and the timing of their exchange between devices on a network covering addressing, transmitting, receiving, and verifying.
protocol data unit (PDU)	Information that is exchanged between peer entities on a network. It contains control information and may optionally contain data.
protocol stack	A comprehensive set of specifications that define how network hardware and software interact at various levels to transfer messages between devices on a network (e.g., Open Systems Interconnection [OSI] Reference Model).

proton	A subatomic particle with a positive electric charge. It is a constituent of all atomic nuclei.
proximity	A method of reading a card without requiring any physical contact between the card and the reading device.
proximity card	A card using proximity technology to store and transmit encoded data.
proxy server	A firewall security mechanism that functions as an intermediary device to represent one side of a connection to the other for a specific application. Messages and commands intended for the other side are inspected by this device before being forwarded to prevent unauthorized use of that application.
psophometrically weighted noise	Noise weighted by a filter the amplitude and frequency characteristic of which corresponds to the sensitivity of the human ear at different frequencies. The weighting law is given in the definition of the psophometer in ITU-T Recommendation 0.41 for commercial telephony and in ITU-R Recommendation 468 for sound programme channels. (International Electrotechnical Commission)
psychological barrier	A device, obstacle, or lack of obstacle that by its presence alone discourages unauthorized access or penetration.
public address (PA) system	An electronic sound amplification and distribution system with a microphone, amplifier, and loudspeakers used to provide notifications, information, or instructions within a designated area.
public fire alarm reporting system	A system of fire alarm initiating devices, receiving equipment, and connecting circuits used to transmit alarms from street locations or buildings to the fire department communications center.
public fire service communications center	A building or portion of the building used to house the central operating part of the fire alarm system; usually the place where the necessary testing, switching, receiving, transmitting, and power supply devices are located.
public key encryption	A security technique in which a user is assigned two related keys. One key is held privately and the other key is distributed publicly. Anyone wishing to send a confidential message to the user encrypts it with the user's public key. When the message is received, the user decrypts it with the corresponding private key. <i>See also</i> private key encryption.
public mode	The applications, situations, or incidents where a notification or signaling is intended to alert and provide adequate warning of imminent danger so that all occupants of a building can safely evacuate the premises. In public mode, notifications and signaling must therefore be unambiguous, simple, and easily recognizable by all persons with no knowledge of fire alarm systems and be able to reach all occupants of the premises.

public opening	An opening of request for quotation (RFQ) responses (bids) at which all respondents may be present. <i>See also</i> request for quotation (RFQ).
public switched telephone network (PSTN)	An assembly of telecommunications facilities and central office equipment operated jointly by authorized common carriers that provides the general public with the ability to establish telecommunications channels via discrete dialing codes. Usually accessed by telephones, key telephone systems, private branch exchange trunks, and data arrangements.
public utilities commission (PUC)	A regulatory body with jurisdiction over rates, service areas, or other aspects of the services and operation of providers of telecommunications services as vested in the commission or other body authority, to guide development of telecommunications services.
pull	1. The act of placing cable by pulling. 2. A vectorizing method used to estimate the required strand size for guying.
pull box (PB)	A device to access a closed raceway used to facilitate placing of wire or cables.
pull (cord, rope, string, wire)	A cord, rope, string, wire, or other mechanism placed within a cabling pathway and used to pull wire and cable through a cabling pathway. <i>See also</i> drag line and MuleTape.
pull finder	In outside plant (OSP) aerial cabling, the pull on a pole can be calculated using one of three methods. These include using a pull finder, using a tape measure, and measuring the included angle created by the three points. To use a pull finder: 1. Screw the threaded end of the pull finder into a pole. 2. Sight down each sight to the next pole in the line (proposed or existing). 3. Read the pull off the scale.
pull point	Location where it is possible to physically access the cables to pull them.
pull strength	<i>See</i> pull tension.
pull tension	The pulling force that can be applied to a cable. (TIA)
pull wire	<i>See</i> drag line and pull cord.
pulling eye	A factory-installed device on a length of cable to which a swivel eye and pull rope are attached.
pulling iron	An attachment installed in maintenance holes (MHs) to provide a point of connection for blocks, sheaves, and other devices used for pulling cable into the duct system.
pulling sheave	A pulley having a grooved rim for retaining a rope or cable.
pulling technique	Collectively refers to the methods and materials employed to install cables.

pulse code modulation (PCM)	A technique for representing an analog signal as a string of bits. The analog signal is converted to a bit string by periodically sampling the amplitude of the analog signal and representing each sample as a binary number.
pulse frequency modulation (PFM)	A method of representing an analog signal using only digital pulses.
pulse position modulation (PPM)	A form of signal modulation in M which message bits are encoded by transmitting a single pulse in one of possible required time shifts. This is repeated every T seconds, such that the data rate is M/T bits per second
pulse repetition rate (PRR)	The number of pulses per unit of time.
pulse width modulation (PWM)	A method of digital signal modulation where the width of a pulse associated to a clock frequency corresponds to specific data values. These values are encoded upon transmission and decoded on receipt.
punch down	The process of terminating copper cable conductors on insulation displacement connection (IDC) terminals by use of a handheld tool.
punch list	A short list of tasks that are required to be completed in order to close out a work order or project.
push brace	In OSP systems, pole of an equivalent type to the pole being reinforced, used to brace pole where guying is not feasible.

== Q

quad cable	A 4-conductor non-twisted-pair cable with a red, green, black, and yellow conductor.
quadrature amplitude modulation (QAM)	A means of encoding digital information over radio, wireline, or optical fiber transmission links. It is a modulation technique that uses variations in signal amplitude and phase, allowing data encoded symbols to be represented as a multitude of 2^N states, where each state encodes $2N$ bits (e.g. 2, 4, 8, 16, 32, 64, 128, 256). The encodings most commonly used are QAM-4, QAM-16, QAM-64, and QAM-256.
quadrature phase-shift keying (QPSK)	Phase-shift keying in which four different phase angles are used. In QPSK, the four angles are usually out of phase by 90 degrees.
qualified	Indicates compliance or accordance with specific standards or requirements.
quality control (QC)	A strategy for increasing reliability by ensuring that high quality is designed and implemented in the facility, thus reducing the risk of downtime due to new installation failures or premature wear.

quality-of-service (QoS) 1. A commitment to performance, based on predefined service parameters.
2. A measure of the level of service provided on a network.

quarter-wave antenna A radio antenna that is one-fourth the size of the wavelength of the design frequency.

quartet *See* nibble.

quote *See* proposal.

== R

raceway Any enclosed channel designed for holding electrical wires or telecommunications cabling. Raceways include multiple types of conduit and tubing, as well as other types of channels built into the architectural materials, such as floor ducts, wireways, and busways. Cable tray is not considered a type of raceway.

rack Typically a two-post or four-post vertical aluminum or steel support structure that holds equipment and cabling terminations. Also called a relay rack.

rack and stack The process of installing equipment (e.g., network switches, routers, servers, patch panels) into otherwise empty racks and cabinets. The process includes terminating network cabling on the equipment and connecting a power source, but does not include activating, configuring, or programming the equipment.

rack bonding busbar (RBB) A busbar within a cabinet, frame, or rack.

rack bonding conductor (RBC) A bonding conductor used to connect a rack directly to the primary bonding busbar (PBB) or secondary bonding busbar (SBB). Also called a telecommunications equipment bonding conductor (TEBC).

rack grounding busbar (RGB) A busbar that is vertically or horizontally mounted on an rack or cabinet and connected directly to the primary bonding busbar (PBB) or secondary bonding busbar (SBB) via a rack bonding conductor (RBC). Equipment within the rack is grounded to the RGB.

rack unit (RU) A unit of measure of vertical space in an rack. One rack unit is equal to ≈ 45 millimeters (mm [1.75 inches (in)]).

radian An International System of Units (SI) unit of plane angular measure. There are 2π (pi) or approximately 6.28318 radians in a complete circle. Thus, one radian is about 57.296 angular degrees.

radiant energy-sensing fire detector	A device that detects radiant energy (e.g., ultraviolet, visible, infrared) that is emitted as a product of combustion reaction and obeys the laws of optics. <i>See also</i> flame detector, spark/ember detector, other fire detectors, and rate compensated heat detectors.
radiating cable	A coaxial cable consisting of a solid copper helical outer shield with a solid copper inner conductor and foam dielectric in between. The helical outer shield has slots that allow ingress and egress of signals within a limited range of the cable. Coverage is omnidirectional perpendicular to the cable run for a cable suspended in space, but some modification of the radiation pattern results from the structure to which the cable is attached. The main applications of this cable are indoor and underground coverage in large buildings, tunnels, perimeter detection systems, and underground mines and facilities. Also called leaky coax.
radiation pattern envelope (RPE)	A graphical representation of radiation properties of an antenna as a function of space coordinates. RPE is the guaranteed maximum directive gain (relative to boresight gain) that should be encountered due to side lobes on a dish antenna.
radio alarm repeater	An intrusion detection system (IDS) component that receives radio signals station receiver (RARSR) and resides at a repeater station that is located at a remote receiving location.
radio alarm supervising	An intrusion detection system (IDS) component that receives data and station receiver (RASSR) annunciates that data at the supervising station.
radio alarm system (RAS)	An intrusion detection system (IDS) in which signals are transmitted from a radio alarm transmitter (RAT) located at a protected premises through a radio channel to two or more radio alarm repeater station (RARS) receivers and that are annunciates by a radio alarm supervising station receiver (RASSR) located at the central station.
radio alarm transmitter (RAT)	An intrusion detection system (IDS) component at the protected premises that transmits signals indicating a status change of the initiating devices or groups of devices connected to it.
radio channel	A band of frequencies of a width sufficient to allow its use for radio communications.

radio frequency (RF)	The spectrum of electromagnetic frequencies below the infrared (IR) region, which begins at about 300 gigahertz (GHz [1 millimeter (mm)]) wavelength. As a practical matter, only certain specialized systems use frequencies below about 30 kilohertz (kHz), such as radio navigation services, government time radio stations that broadcast time signals to set radio clocks, and secure military communication. The International Telecommunication Union (ITU) has divided the radio spectrum into several bands (e.g., high frequency [HF], very high frequency [VHF], ultrahigh frequency [UHF]). By convention, the spectrum between 3 GHz and 300 GHz is more commonly known as the microwave band. Other electromagnetic frequency bands above the radio spectrum include infrared (IR), visible light, ultraviolet, x-rays, and gamma rays.
radio frequency (RF) dispersion	A term used to describe any process by which an RF signal propagating in space is degraded because the various wave components (i.e., frequencies) of the signal have different propagation velocities. Similar to mode dispersion in an optical fiber cable.
radio frequency identification device (RFID)	Generic term for technologies that use radio waves to automatically identify people or objects.
radio frequency interference (RFI)	Electromagnetic interference (EMI) in the radio frequency (RF) spectrum. The source may be any object (artificial or natural) that carries rapidly changing electrical currents or generates RF, such as an electrical circuit or the sun. <i>See also</i> electromagnetic compatibility (EMC) and electromagnetic interference (EMI).
radio frequency over glass (RFoG)	A hybrid fiber-coax (HFC) network design in which most of the network normally using coax is instead provided by a single-fiber passive optical network (PON).
radio repeater	A combination of a radio receiver and a radio transmitter that receives a weak or low-level signal and retransmits it at a higher power so that the signal can cover longer distances without degradation. In land mobile radio (LMR) communications, repeaters are used extensively to relay radio signals across a wider area. <i>See also</i> mobile relay station, mobile repeater station, and repeater.
radome	A contraction of radar and dome. A structural, weatherproof enclosure that protects a microwave (e.g., radar) antenna, constructed of materials that minimally attenuate the electromagnetic signals transmitted or received by the antenna, appearing nearly transparent to radar or radio waves. Radomes protect the antenna surfaces from weather or conceal antenna electronic equipment from public view while protecting nearby personnel from being accidentally struck by quickly-rotating antennas.

radome loss	The sum of the ordinary insertion loss of the antenna signal passing through the radome wall plus the scattering loss off the radome panel framework blocking (shadowing) the antenna aperture.
raised floor	<i>See</i> access floor.
rake receiver	A radio receiver designed to counter the effects of multipath fading so named because it is reminiscent of the function of a garden rake, with each finger collecting symbol energy similar to how tines on a rake collect leaves. Each finger independently decodes a single multipath component; at a later stage the contribution of all fingers are combined in order to make the most use of the different transmission characteristics of each transmission path. This may result in higher signal-to noise ratio in a multipath environment than in a single path environment.
random spacing	An outside plant (OSP) cable installation method where the cable is directly buried in the same trench with power conductor cables and no deliberate attempt is made to maintain a separation between the two systems.
rapid spanning tree protocol (RSTP)	A network protocol that creates a loop-free topology for ethernet networks allowing for backup links, often popular in redundant network designs such as those serving critical systems.
rat	A lightweight object (e.g., ball, inflatable bag) that can be sent into a conduit to aid in installing a pull string.
rate compensated heat detector	A device that is designed to activate at a predetermined temperature in a space regardless of the rate at which the temperature in the space increases. <i>See also</i> fire-gas detector, flame detector, heat detector, smoke detector, spark/ember detector, other fire detectors, rate-of-rise detector, and rate-of-rise pneumatic tubing heat detector.
rate-of-rise detector	A type of heat detector that can operate at a lower fire temperature condition than would be possible if the threshold were fixed. Features two heat-sensitive thermocouples (thermistors). One thermocouple monitors heat transferred by convection or radiation. The other responds to ambient temperature. <i>See also</i> fire-gas detector, flame detector, heat detector, smoke detector, spark/ember detector, other fire detectors, radiant energy-sensing fire detector, rate compensated heat detector, and rate-of-rise pneumatic tubing heat detector.
rate-of-rise pneumatic tubing heat detector	A line-type detector typically installed on the ceiling or on walls throughout the protected area consisting of small diameter tubing and a detector unit containing diaphragms and associated contacts set to actuate at a predetermined pressure. The system is sealed except for calibrated vents that compensate for changes in ambient temperature. <i>See also</i> fire-gas detector, flame detector, heat detector, smoke detector, spark/ember detector, other fire detectors, rate compensated heat detector and rate-of-rise detector.

rayleigh scattering	The scattering of light or other electromagnetic radiation by particles much smaller than the wavelength of the light. It can occur when light travels through transparent material (e.g., optical fiber glass strands). The oscillating electric field of a light wave acts on the charges within a particle, causing them to move at the same frequency. The particle becomes a small radiating dipole whose radiation we see as scattered light. In optical fiber cabling, this scattering results in signal attenuation.
reactive power	In alternating current (ac) circuits, a measure of the rate at which a circuit uses energy while passing through the purely reactive portion of the load. The portion of power flow that, averaged over a complete cycle of the ac waveform, results in no net transfer of energy to the load. Expressed in volt-amps reactive (VAR).
reader	A device that receives an identification code from a card.
reader collision	When the signal from one reader interferes with the signal from another reader where coverage overlaps.
real power	In alternating current (ac) circuits, a measure of the rate at which a circuit uses energy while passing through the purely resistive portion of the load. The portion of power flow that, averaged over a complete cycle of the ac waveform, results in net transfer of energy in one direction to the load. Expressed in watts (W).
real-time	The recording, processing, storage, transmission, and or viewing of a message created by an activity as it occurs.
reboot	The process of shutting down and restarting a device or group of devices.
receive sensitivity	<i>See</i> sensitivity.
receiver	An electronic device that detects, demodulates, and amplifies transmitted signals.
receiver, optical	An optoelectronic circuit that converts an optical signal to an electrical serial logic signal. It contains a photodetector, amplifier, discriminator, and pulse-shaping electronics.
reciprocity	A fundamental property of antennas that the electrical characteristics (e.g., gain, radiation pattern, impedance, bandwidth, resonant frequency, polarization) are the same whether the antenna is transmitting or receiving.
recognized	One of four product test ratings used in the United States (Listed, Classified, Recognized, Verified). A product is Recognized after it is tested for use as a component in a Listed package and passes. These component products are tested for electrical, mechanical, and thermal characteristics. The Recognized classification is a more general-purpose approval than Listed because it allows a product to be certified for a category of equipment uses.

recommissioning	Commissioning of existing facilities following significant modifications, upgrades, or expansions to previously commissioned sites. <i>See also</i> commissioning and retrocommissioning.
record	The permanent documentation of installed telecommunications infrastructure obtained from as-builts. This collection of detailed information is related to specific elements of the infrastructure and is contained in a database. <i>See</i> record drawing (as built).
record drawing (as built)	A plan that graphically documents and illustrates the installed telecommunications infrastructure, including devices, appliances, cabling sequences, cabling methods, connections of components, cabling pathways, and telecommunications spaces in a building or portion thereof. (TIA)
record of completion	A document that acknowledges the completion of installation, and readiness for operation of the equipment, with representation by the property owner, system installer, system supplier, service organization, and the authority having jurisdiction (AHJ).
recording media	Any device or component to which digital multimedia content (DMC) is written, stored, and can be retrieved.
rectifier	An apparatus that converts alternating current (ac) to direct current (dc).
recycle time	The time needed to reset and reinstate the timing function and remain within the specified timing tolerances. Recycle time is generally specified during timing or after timing.
red iron	Structural steel assembly commonly primer painted with zinc oxide paint.
redirector	<i>See</i> shell.
redundancy	Providing secondary components that either become instantly operational or are continuously operational so that the failure of a primary component will not result in mission failure. <i>See also</i> N + 1 redundancy, N + 2 redundancy, 2N redundancy, 2(N + 1) redundancy, and Multi-N redundancy (xN).
redundant array of independent disks	A technology that makes it possible to group together multiple hard disk drives and allow them to function as a single storage unit. Different (RAID) configurations (levels) of RAID provide varying amounts of redundancy and performance.
reel brake	A device used to control the rate of removal of a cable from a cable reel. Also known as a cable brake.
reel dolly	<i>See</i> jack stand.

reflection	The abrupt change in direction of a wave front (e.g., wireless signal, light signal) at the interface between two dissimilar media such that the incident wave front returns into the medium from which it originated. In wireless transmission, radio frequency (RF) waves can be strongly reflected off the surface of a lake, the side of a large building, or off walls inside a building. In optical fiber transmission, <i>see</i> Fresnel reflection.
reflection coefficient	The ratio of the amplitude of the reflected wave and the amplitude of the incident wave. (Glossary of Telecommunications Terms)
reflective break	The reflection at an optical fiber cable break caused by the abrupt change in the index of refraction. <i>See</i> Fresnel reflection.
reflector	In a radio frequency (RF) antenna, one or more conducting elements or surfaces that reflect incident radiant energy. A reflector may consist of a large surface, as in a dish antenna, or a linear element, as in a Yagi antenna.
refraction	The change of direction experienced by a wave of radiated energy when passing from one medium to another having a different dielectric constant or index of refraction.
refractive index	<i>See</i> index of refraction.
Registered Communications Distribution Designer (RCDD®)	A certification awarded by BICSI to individuals who, by meeting specified criteria, have demonstrated their expertise in the design, integration, and implementation of telecommunications (voice, data, video, audio, and other low-voltage control) technology systems and their related infrastructure components.
registered jack (RJ)	The FCC Part 68 registration program for jacks.
regulation	An authoritative rule that controls or governs behavior leading to uniformity.
reinforced concrete	A type of construction in which steel (reinforcement) and concrete are combined, with the steel resisting tension and the concrete resisting compression. (TIA) <i>See also</i> prestressed concrete, post-tensioned concrete, and poststressed concrete.
reinforcing bar	A steel bar or rod used in concrete construction to provide additional strength. Also called rebar. <i>See also</i> reinforced concrete.
relay rack	<i>See</i> rack.
reliability	The probability that a component or system will perform as intended over a given time period.

remote alarm	A visible or audible signaling device used to signal a sensor activation at locations removed from the central control station or monitored openings. For example, a remote alarm may be placed on a roof, in a stair tower, or in a guard station outside a building.
remote authentication dial-in user service (RADIUS)	An authentication, authorization, and accounting service used to verify identities prior to granting access to network resources. This client/server protocol and software enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. <i>See also</i> controlled access.
remote client software	The software that makes it possible for a remote station to function in the same manner as a local station. <i>See also</i> dialer.
remote control	A form of remote access in which the remote station connects to a network-attached station and controls its operation.
remote power panel (RPP)	A power distribution cabinet downstream from a power distribution unit (PDU) or uninterruptible power supply (UPS), typically containing circuits and breakers, without a transformer, located near the load.
remote station	A station that connects to a network over a telecommunications circuit. <i>See also</i> local station, and station.
remote supervising station fire alarm system	A system installed to transmit alarm, supervisory, and trouble signals from one or more protected premises to a remote location where appropriate action is taken.
repeater	A device that repeats and regenerates a signal. A repeater receives a signal from one source, reads it, generates a completely new signal identical to the original, and transmits it to the next destination. Repeaters can be separate devices to boost long-haul or wireless transmissions, or can be incorporated into other devices such as switches and routers.
repeater station	The location of the equipment needed to relay signals between supervising stations, subsidiary stations, and protected premises.
request for bid (RFB)	A type of procurement document and process used to select the best qualified response for goods, services, and materials. The selection process need not be exclusively price driven. Respondents may be evaluated on technical qualifications and other factors. Typically used when requirements are well defined and when a relatively large number of bidders is expected and/or negotiations are not anticipated. Also called invitation to bid (ITB). <i>See also</i> request for proposal (RFP) and request for quotation (RFQ).
request for information (RFI)	A type of document or process, generated by either an owner, owners agent, or contractor, to obtain information or to clarify the capabilities of various products, services, processes or requirements.

request for interest (RFI)	A type of solicitation document generated by the owner or owners agent, containing enough information to indicate scope of project and provides contact information to receive full request for qualifications document. Typically the first public document issued for a project.
request for interpretation (RFI)	<i>See</i> request for information.
request for proposal (RFP)	A type of procurement document and process used to solicit proposals from qualified respondents of products or services. The selection process need not be exclusively price driven. Respondents may be prequalified and evaluated on technical qualifications and other factors. Typically used for less finalized project designs or when fewer bidders are involved and the final terms will be negotiated. <i>See also</i> request for bid (RFB) and request for quotation (RFQ).
request for qualifications (RFQ)	A type of documentation generated by owners or owners agent used to solicit information pertaining to personnel, specialized equipment, qualifications, skills, experience, special training, certification or licensing, financial stability and history of claims and disputes of respondents. Used for selection of professional and trades services (e.g., architects, engineers, general contractors, subcontractors).
request for quotation (RFQ)	A type of procurement document or process used to solicit prices from prospective providers of products or services. The RFQ response is not as highly detailed as a request for bid (RFB) or request for proposal (RFP), as it may not include financial, contractual, or respondent qualification information. Receiving competitive pricing is typically the primary objective of an RFQ. <i>See also</i> request for bid (RFB) and request for proposal (RFP).
request to exit (REX) signal	A signal that informs the controller that someone has requested an exit from a secure area.
request to send (RTS)	A frame type used to request permission to transmit. The response is a clear to send (CTS) signal if the wireless medium is available for transmission.
requester	<i>See</i> shell.
rescue, alarm, confine, extinguish (RACE)	An acronym that is commonly used by staff of a healthcare facility to remember their responsibilities in the event of a fire.
reset	A control function that attempts to return a system or device to its normal, non-alarm state.
resilient packet ring (RPR)	A technology implemented using a dual-ring topology with data transfer taking place at all times using both rings. In the event of a fault on one ring, all traffic is transferred to the second ring.

resistance	A measure of opposition a material offers to the flow of direct current. Measured in ohms. <i>See also</i> impedance.
resistance unbalance	The difference in resistance, expressed in ohms, between the conductors of a pair. It may also be expressed in terms of percentage, by the ratio of unbalance in ohms between the highest and lowest conductor resistance.
resistive load	In electrical circuits, a load that is totally resistive (i.e., it has no reactive components). This happens when the voltage and current are in phase.
resistively grounded power system	A method of grounding in which the system is grounded through impedance, the principle element of which is resistance.
resistivity	Resistance per unit of measure. The measure can be by length (e.g., 100 ohms per meter) or volume (e.g., 500 ohms per cubic meter).
respondent	A person or company that submits a proposal in response to a request for bid (RFB), request for proposal (RFP), request for quotation (RFQ) or similar document.
response due date	The date by which a response to a request for quotation (RFQ), request for proposal (RFP), or request for information (RFI) must be received in order to be valid.
restorable initiating device	A device in which the sensing element is not ordinarily destroyed in the process of operation, whose restoration can be manual or automatic. An example is a circuit breaker (which normally can be reset) versus a fuse (which cannot).
retainage	A percentage of a total contract that is withheld from a contractor until the entire scope of work is completed.
retrocommissioning	Commissioning of existing facilities that were not commissioned when constructed. <i>See also</i> commissioning and recommissioning.
retrofit	1. To furnish a device, system, or structure with new parts or equipment not originally installed. 2. The installation of a structured cabling system into a pre-existing structure (e.g., residential, commercial, industrial).
return loss	A ratio, expressed in decibels (dB), of the power of the outgoing signal to the power of the reflected signal. (TIA) When the termination (load) impedance does not match (equal) the value of the characteristic impedance of the transmission line, some of the signal energy is reflected back toward the source and is not delivered to the load. This signal loss contributes to the insertion loss of the transmission path and is called return loss.
return on investment (ROI)	The ratio of money gained or lost on an investment relative to the amount of money invested.

return to zero (RZ)	A digital code having two information states in which the signal returns to a zero state during a portion of the bit period.
reverberant sound	Sound that is reflected from a surface (e.g., wall, floor) to the listener.
reverse firewall	A firewall implemented in a reverse configuration to monitor and control outgoing internet protocol (IP) traffic.
reverse proxy	<i>See</i> website acceleration.
reversed pair	A condition in which the conductors in a wire pair are terminated in the wrong sequence (i.e., tip connects to ring and ring connects to tip).
Revit®	A building information management (BIM) modeling software package for architects, engineers, and contractors to design a building and its components in 3D.
ribbon cable	An assembly of several conductors or optical fibers laid side by side in a geometric plane and fastened together.
ribbon fiber	<i>See</i> array fiber.
rigging	System of ropes and/or pulleys used to move material and equipment.
right-of-way (R/W)	A route across public or private lands over (or under) which telecommunications facilities can be legally installed and maintained.
ring laser gyroscope	A gyroscope consisting of a body rotating around an axle called a gyro wheel. It is used in inertial navigation units on board satellite launch vehicles, allowing them to place the satellites very near their final orbits.
ring network	<i>See</i> ring topology.
ring topology	A physical or logical network topology in which devices (e.g., nodes) are connected in an unbroken circular configuration in a point-to-point serial manner. Each node receives and retransmits the signal to the next node. Also called a ring network.
ringing tool	A device used to remove cable sheaths.
rise time	1. The period of time it takes a transmitter to change from a low power state (logical 0) to a high power state (logical 1). Transmitters may have bandwidth limitations because of rise time. 2. The time required for a transient spike (e.g., lightning) or a rapidly rising periodic waveform (e.g., sawtooth, square wave) to change from its minimum level to its maximum level.

riser	1. Vertical sections of cable (e.g., changing from underground or direct-buried plant to aerial plant or from one floor of a building to another). 2. The space used for cable access between floors. <i>See</i> backbone.
riser closet	<i>See</i> telecommunications room (TR).
risk	A vulnerability to or potential for loss from a threat or event.
risk management	The process of identifying risks and developing the strategy and tactics needed to eliminate, mitigate, or manage them.
RJ45 (Registered Jack type 45)	A specific configuration of modular jack and modular plug.
roadbed	The graded portion of a roadway upon which the base course, surface course, shoulders, and median are constructed.
roaming	1. In cellular technology (mobile telephony technology), the use of a wireless telephone outside a specified tariffed geographic area defined by the service provider (SP), which usually is called the home area. Outside of the home area, additional charges usually apply. 2. In wireless LAN (WLAN) technology, this refers to the ability to move seamlessly between the wireless cells from adjacent access points (APs) while remaining connected to the network. <i>See also</i> soft handoff.
rodding	Pushing or pulling a mandrel or duct brush through a conduit, using poles or rods that join together to determine if the pathway is clear and can be used to install a pull string.
roll bar	<i>See</i> mandrel.
rolling cut	Cutover where the cross-connects are relocated one pair after another. <i>See also</i> cutover.
rough-in	<i>See</i> pre-wiring.
route loop diversity	A type of loop diversity that assigns telecommunications circuits along entirely different cabling paths to a building.
router	An internetworking device that operates at Layer 3 (network layer) of the Open Systems Interconnection (OSI) Reference Model, used to direct datagrams from one network to another.
router table	A database containing information on the routes a datagram can take through an internetwork.

rule of percentage In a retrofit installation, if a substantial percentage of the cabling is replaced, it may be necessary to bring a percentage of the installation or the entire installation up to the current code requirements. Check with the local authority having jurisdiction (AHJ) to determine if the rule of percentage exists for the area. The AHJ may determine the percentage of existing cabling that is permitted to remain when substantial retrofit cabling installation takes place.

runner A person other than the required number of operators on duty at central, supervising, or runner station (or otherwise in contact with these stations) available for prompt dispatching, when necessary, to the protected premises.

runner service A service provided by a runner at the protected premises, including resetting and silencing of all equipment transmitting fire alarm or supervisory signals to an off-premises location. *See also* runner.

== S

S mark A European safety mark valid throughout the European Union. Products bearing the S mark demonstrate compliance with legal European electrical safety requirements via third-party testing.

saddle **1.** A device for establishing the position of the raceway or raceways within the concrete relative to the screed line and for maintaining the spacing between the raceways. (TIA) **2.** A supporting device for horizontal cable made of flexible cloth, vinyl, or plastic in a sling- or U-shape and attached to the building structure. Horizontal cables are laid across the fabric to provide support for the cables. An alternative to J-hooks.

safety committee Committee composed of employees, management, and other staff members whose purpose is to oversee safety practice.

safety data sheet (SDS) A document prepared by the manufacturer describing all known chemical, radiological, and other hazards of a specific product. Formerly called material safety data sheet (MSDS).

safety margin **1.** Power loss value (in decibels [dB]) used to assure optical fiber cable performance criteria will be satisfied over the life of the network. Includes expected losses in source power, splice losses, and wear and tear of connectors and adapters. *See also* link loss budget. **2.** The margin required in order to ensure safety.

safety plan A plan prepared by a company and put in place before beginning any work operation, covering all safety issues likely to arise on a particular work site.

sag	1. A decrease in nominal root mean square (rms) voltage or current lasting 0.5 cycles up to one minute. 2. The difference in height between an aerial cable mounting and the height of the cable above the surface at its lowest point between supports.
sally port	<i>See</i> interlock.
Sarbanes-Oxley Act of 2002	A United States (U.S.) federal law that set new or enhanced standards for all U.S. public company boards, management, and public accounting firms. The law imposes numerous recordkeeping and accounting requirements in response to a number of major corporate and accounting scandals. One consequence of the law is a substantial increase in the costs associated with electronic recordkeeping, data processing, and network traffic to support the reports and records required by the law.
satellite room	<i>See</i> telecommunications room (TR).
satellite trunk	A circuit or path connecting a satellite to its central or proprietary supervising station.
S-band	The frequency spectrum used for land-based microwave and some mobile satellite communications. The S-band uplink band is 5.855-6.055 gigahertz (GHz) and the downlink band is 2.535-2.655 GHz.
scaffold	A temporary structure for holding workers and materials during the erection, repair, or decoration of a building. (dictionary.com)
scalability	An existing system's capability of growing to meet the client's needs over time. Most legacy systems are not scalable, resulting in obsolescence of components or entire systems and requiring regular software and hardware replacements.
scale-dependent	A graphical depiction of an item having a plotted size that is dependent on the scale of the drawing in which it appears (i.e., being drawn to scale).
scale-independent	A graphical depiction of an item having a plotted size that is always the same, regardless of the scale of the drawing in which it appears. For example, a triangular symbol for a faceplate, which always appears ≈4.8 millimeters (mm [0.19 inches (in)]) on a side, regardless of the scale of the drawing.
scan	A non-intrusive analysis technique that identifies the open ports found on each live network device and collects the associated port banners found as each port is scanned. Each port banner is compared against a table of rules to identify the network device, its operating system, and all potential vulnerabilities.

scanner	<p>1. The equipment located at the telephone company headend cabling center that monitors each local leg and relays status changes to the alarm center. Processors and associated equipment also might be included. 2. A device that verifies cabling segments for wiring pair scheme compliance (e.g., opens, shorts, crossed, reversed, and split pairs). The device may also measure cabling length and cabling performance. 3. A radio receiver designed to jump quickly and continuously among a range of frequencies, pausing when a signal is detected to allow the user to stop the scan process. This allows the user to monitor a large number of frequencies for traffic.</p>
scattering	<p>In optical fiber cabling, the deflection of light from the path it would follow if the refractive index were uniform or gradually graded. Caused primarily by micro-defects, impurities, and molecular structure in the fiber. <i>See also</i> Rayleigh scattering and Mie scattering.</p>
scatternet	<p>A network of two or more piconets in a common area, where each piconet contains at least one Bluetooth® device that is part of two or more piconets. <i>See also</i> piconet.</p>
schematic design	<p>A design phase that follows preliminary planning and scope development and occurs prior to design development. This phase typically takes the design to about 30 percent.</p>
schematic diagram	<p>A structural or procedural diagram used in association with telecommunications and electrical systems.</p>
scintillation	<p>In free space optics (FSO), the temporal and special variations in light intensities caused by differences of refractive index along the propagation path due to slight temperature variations among different air pockets.</p>
scissor lift	<p>A personnel lift composed of a working platform mounted on a large scissor jack.</p>
scope of work (SoW)	<p>A document that provides detailed statements and descriptions of the work content for the project requirements.</p>
screen	<p>A thin metallic wrapping (e.g., aluminum foil) used to isolate cable pairs from interference. <i>See also</i> foil shield.</p>
screened twisted-pair (ScTP) cable	<p>A balanced twisted-pair cable with an overall screen (shield) surrounding all of the pairs, possibly with a drain wire. The entire assembly is covered with an insulating sheath (cable jacket). This type of shielding protects against electromagnetic interference (EMI) from entering or exiting the cable. One type of ScTP is called foil twisted-pair (FTP) cable and uses foil shielding instead of a braided screen.</p>

screened/foil twisted-pair (S/FTP) cable	A balanced twisted-pair cable with one or more pairs of individual foil-screened balanced twisted-pairs having an overall braid-screen shield and may contain a drain wire. The entire assembly is covered with an insulating sheath (cable jacket). This type of shielding protects against electromagnetic interference (EMI) from entering or exiting the cable and also protects neighboring pairs from crosstalk. This cable construction is common in ISO class F/category 7 and higher cabling.
scribing tool	1. A device used to remove cable sheaths. 2. A device used to remove excess bare fiber during optical fiber connector termination. Also called a cleaver.
scripting	The process of determining which configuration tasks can be performed unattended and then automating the process.
sealant	A material that has the adhesive and cohesive properties to form a seal.
secondary bonding busbar (SBB)	A common point of connection for telecommunications system and equipment bonding to ground, and located in the distributor room.
secondary operation	Radio communications which may not cause interference to operations authorized on a primary basis and which are not protected from interference from those primary operations. (FCC)
secondary side	The low-voltage side of the electrical power service transformer or the load side of the uninterruptible power supply (UPS), power distribution unit (PDU) transformer, or static switch.
secondary test	After acceptance testing, additional tests that are conducted to diagnose a problem or verify the cabling to additional requirements.
secondary trunk facility	The part of a transmission channel connecting two or more, but fewer than all, leg facilities to a primary trunk facility.
secondary voltage (supplemental/auxiliary) protector	A voltage protector installed in series with the indoor telecommunications cable between the primary protector and the equipment. The secondary protector provides overcurrent protection that will safely fuse at currents less than the current-carrying capacity of the device that it is intended to protect.
secret key encryption	<i>See</i> private key encryption.
section throw	Splicing of a new section of cable at both ends into existing cable plant.
sectional drawing	A drawing as if a vertical cut was made through the materials indicating relationships, connections, and transitions.
<i>SectionFormat</i>[™]	A format controlled by the Construction Specifications Institute (CSI) that provides a uniform approach to organizing specifications text contained in a project manual by establishing a structure consisting of three primary parts. <i>See also</i> <i>MasterFormat</i> [™] , <i>UniFormat</i> [™] , and <i>PageFormat</i> [™] .

secured side	The area or side of an opening that is locked and requires a key card or other means to enter.
security (network)	The protection against unauthorized activities, generally requiring a combination of access controls, data integrity, and transaction confidentiality.
security and access control (SAC)	Equipment associated with systems used to monitor and control devices (e.g., card readers, door alarms, video surveillance).
security management	The protection of all network and data processing resources, including physical devices, operating systems, applications software, organizational data, and network operations. <i>See also</i> controlled access.
security plan	The set of principles, rules, and practices that are used to implement security in an organization.
security quandary	The total safety and security for an individual would require complete isolation from their environment and from other people while maintaining basic life support. The total security for an object or asset would require that it be completely isolated from access, essentially removing its availability for those who need to use it. Rarely does totally isolating a person or asset seem sensible. Providing safety and security is a balancing act between access and isolation.
segment	1. An electrically continuous network created within a switch. 2. A single collision domain within a network consisting of multiple collision domains.
segmentation	The process of dividing a large collision domain into multiple smaller collision domains to improve overall network performance.
seismic snubber	Mechanical devices, anchored to the building structure and placed around vibration isolated equipment, intended to limit motion by containing the supported equipment. Snubbers are designed for use in locations subject to earthquakes, high winds, or other external forces that could displace resiliently supported equipment.
sensitivity	In an electronic device (e.g., telecommunications system receiver, detection device, positive intrinsic negative diode), the minimum input signal required to produce a specified output signal having a specified signal-to-noise ratio, or other specified criteria. The signal input may be expressed as power in decibel milliwatt (dBm) or as field strength in microvolts per meter ($\mu\text{V}/\text{m}$), with input network impedance stipulated.

separately derived system	A premises wiring system whose power is derived from a source of electric energy or equipment other than a service. Such systems have no direct connection from circuit conductors of one system to circuit conductors of another system, other than connections through the earth, metal enclosures, metallic raceways, or equipment grounding conductors. Examples include: generators, batteries, converter windings, transformers, and solar photo-voltaic systems.
serial port profile (SPP)	A set of data that defines the steps required to make an emulated serial port connection in a Bluetooth® connection.
Series 6 coaxial cable	A cable with a center conductor measuring approximately 18 AWG [1.0 mm (0.039 in)]. It supports similar applications such as Series 11 coaxial cable but over a shorter distance (≤ 75 m [≈ 250 ft]) due to increased insertion loss (attenuation) characteristics. Typically used for drop cabling and called RG-6.
Series 11 coaxial cable	A cable with a center conductor measuring approximately 14 AWG (1.6 mm [0.063 in]). It supports similar applications as Series 6 coaxial cable but over a greater distance (≤ 120 m [≈ 400 ft]) due to reduced insertion loss (attenuation) characteristics. Typically used for backbone cabling and called RG-11.
server	A network device that combines hardware and software to provide and manage shared services and resources on the network.
service clearance	The space encompassing the equipment that is required to permit proper working room for operating, inspecting, and servicing equipment.
service discovery profile (SDP)	A database embedded within a Bluetooth® device used to discover other Bluetooth devices and services.
service drop	In outside plant (OSP) cabling, limited pair count cable (balanced twisted-pair or optical fiber) that is extended to a facility.
service entrance	<i>See</i> entrance facility (telecommunications).
service fitting	An outlet box to house the connections for telecommunications at the user work area. <i>See also</i> insert. (TIA)
service gallery	A space adjacent to a computer room (CR) where electrical and mechanical equipment that supports the CR may be located.
service loop	A surplus of cable, typically located at or near the point of termination, to facilitate potential future changes.
service provider (SP)	The operator of any service that furnishes telecommunications content (transmissions) delivered over access provider facilities. (TIA)

service set identifier (SSID)	A character string used for identification of a service set. Service sets must have identical SSIDs to establish radio contact. <i>See also</i> basic service set (BSS) and independent basic service set (IBSS).
servo	A transducer that converts coded electrical signals into precise angular or linear motion.
session layer	The Open Systems Interconnection (OSI) Reference Model layer responsible for providing services used to organize, synchronize, and manage any message exchange between network devices. Also called Layer 5.
setscrew coupling	Couplings that are placed over the ends of conduit with little or no friction. Once the end of the conduit is seated into the coupling, screws are tightened on the outside of the coupling, causing the coupling to become firmly attached to the conduit.
shadowing	<i>See</i> disk mirroring and mirroring.
shall	A term frequently used in codes and standards publications that indicates a mandatory requirement.
shallow room	A telecommunications space used only for the passage of cabling between floors, without distribution or termination on that floor. Shallow rooms are typically only ≈ 0.6 meters (m [2 feet (ft)]) deep, not environmentally controlled, and do not contain electronic equipment.
shared tenant service (STS)	A system provided by the landlord or an access provider that consolidates individual-line subscribers using a common premises switch.
shear lock magnetic lock	A modification of the direct hold magnetic lock that uses both magnetic and physical properties for locking. The electric magnet's lock body is mortised into the door's frame, and the armature is mortised into the door's edge. Indentations in the armature receive protrusions in the lock body. <i>See also</i> direct hold magnetic lock.
sheath	<i>See</i> cable sheath.
sheath (cable) loop diversity	A type of loop diversity that assigns circuits among different sheaths or cables.
shell	A software-controlled interface between a user and an operating system. The shell software examines commands and user interaction for access to remote resources, processing the requests via the operating system. Also called a redirector and requester.
shield	A metallic layer (e.g., copper braids, metal foils, solid tubing) placed around a conductor or group of conductors. (TIA)

shielded enclosure cabinet	A metal cabinet constructed with welded seams and conductive gaskets on the doors that serves as an effective shield against electromagnetic radiation. (TIA) <i>See also</i> Faraday cage.
shielded twisted-pair cable	Twisted-pair cable with a metallic shield. Also called foil covered unshielded twisted-pair cable (F/UTP). <i>See also</i> balanced twisted-pair cable and unshielded twisted-pair (UTP) cable.
shop drawing	A drawing showing how a particular aspect of the work is to be fabricated or installed. It may be prepared by the contractor, subcontractor, or material/equipment supplier.
short circuit	A low-resistance connection between two conducting materials.
short message service (SMS)	Similar to e-mail store and forward, SMS is a service for sending short text messages (up to 160 characters) to mobile telephones via SMS centers.
shorting bar	A mechanism within a connector (e.g., RJ31X) used to maintain continuity between wire pairs in a connector after the removal of a mating connector.
shorting plug	A mechanism within a plug to create a direct connection between two or more conductors at one end of a cabling link for testing purposes.
should	Frequently used in codes and standards publications, the term indicates the statement is advised but not required.
shrouded dish	A dish antenna with a cylindrical metallic shield around the rim and extending several centimeters (inches) out in front of the dish. Used where interference to and from other systems on the same frequency and in the same area must be avoided.
signal	Any information sent over an electrical, electronic, or optical circuit.
signal booster	A device at a fixed location which automatically receives, amplifies, and retransmits on a one-way or two-way basis, the signals received from base, fixed, mobile, and portable stations, with no change in frequency or authorized bandwidth. A signal booster may be either narrowband (Class A), in which case the booster amplifies only those discrete frequencies intended to be retransmitted, or broadband (Class B), in which case all signals within the passband of the signal booster filter are amplified. (FCC)
signal encoding	The conversion of data into a form suitable for transmission over a medium.
signal generator	A piece of test equipment that generates a distinctive tone(s) that is placed on a cable pair for identification purposes. Sometimes referred to as a tone generator.
signal splitter	<i>See</i> splitter.

signal strength	In a telecommunications system, the signal power or intensity at a specified point and with respect to a specified reference level.
signal system 7 (SS7)	In cellular networks, a separate packet network using out-of-band signaling channels to connect the cellular network and carry information for advanced calling features.
signal transmission sequence	A digital alarm communicator transmitter (DACT) that obtains a dial tone, dials the number(s) of the digital alarm communicator receiver (DACR), obtains verification that the DACR is ready to receive signals, transmits the signals, and receives acknowledgment that the DACR has accepted that signal before disconnecting.
signaling dynamic range	The combination of the total pulse power of a source and the sensitivity of the associated receiver. Measurements are expressed in decibels (dB) where larger values mean longer distance measurement capability.
signaling line circuit (SLC)	A circuit between any combination of circuit interfaces, control units, or transmitters over which multiple system input signals, output signals, or both are carried.
signal-to-noise ratio (SNR)	The ratio between the amount of signal and noise (undesirable signal) present at the receiver end in a communications system, expressed in decibels (dB). In digital systems, SNR depends on signal coding and is a determining factor in bit error rate (BER).
signature verification	A biometric method using a person's signature characteristics (writing speed, pen pressure, shape of loops) to identify that person.
simplex	A process during which signals are transmitted in only one direction at a time on a single frequency. One station is the transmitter and the other is the receiver. <i>See</i> full-duplex signaling and half-duplex signaling.
sine wave	A periodic wave described by a trigonometric function that varies from zero to a maximum (positive) value back through zero to a minimum (negative) value and back to zero.
single-rail cable tray	A fabricated structure consisting of a longitudinal rail with transversely connected members (rungs) that project from one side (side-supported) or both sides (center-supported), which may be single- or multi-tier.
single dwelling unit	A building consisting solely of a one dwelling unit. <i>See</i> dwelling unit.
single sideband modulation (SSB)	A variation of the amplitude modulation (AM) technique where one sideband is suppressed. The carrier is also often, but not always, suppressed. This effectively halves the bandwidth and power requirements of a radio frequency (RF) transmission.

single sign-on (SSO)	A system that allows an individual automatic access to all applications on the network to which they are authorized by simply logging into the network. Signing in to each application separately is not needed.
single station alarm device	An assembly that incorporates the detector, control equipment, and an alarm notification device in one unit; operated from a power supply either in the unit or obtained at the point of installation. Actuation of the sensor in the device sends an alarm notification from the one device only.
singlemode fiber (SMF)	<i>See</i> singlemode optical fiber (SMF).
singlemode optical fiber (SMF)	An optical fiber with a relatively small core diameter of 8 to 9 micrometers and a cladding diameter of 125 micrometers; lightwave propagation is restricted to a single path, or mode, in singlemode optical fiber. (TIA)
single-point ground (SPG) terminal	A single ground point for connecting all communications equipment and raceways to the building's grounding system. Grounding various communications equipment to separate ground points is not recommended.
sinusoid	The graph of a sine wave. <i>See also</i> sine wave.
site drawing	A two-dimensional graphic representation of the land upon which a construction project will take place and any exterior pathways that are being installed upon it.
site survey	A process used to identify the physical and electromagnetic characteristics of an environment impacting the installation of cable or wireless network components. Required for the design of any network.
site-specific software	Software that defines the specific operation and configuration of a particular system. Typically, it defines the type and quantity of hardware modules, customized labels, and specific operating features of a system.
skin effect	A phenomena in an electrical conductor in which the current density of an alternating current (ac) is greater at the conductor's surface, decreasing with greater depths into the conductor. This tendency grows with increasing frequency. Approximately 63 percent of the current flows between the outer surface and a level called the skin depth. The skin depth depends on the frequency of the current and the electrical and magnetic properties of the conductor. At 60 hertz (Hz) in copper, the skin depth is \approx 8.5 millimeters (mm [0.33 inches (in)]). At higher frequencies the skin depth becomes much smaller. The skin effect causes the effective resistance of the conductor to increase at higher frequencies where the skin depth is smaller, thus reducing the effective cross-section of the conductor.
sky wave	A radio wave that travels upward from the antenna. A sky wave may be reflected to earth by the ionosphere, troposphere, or stratosphere.

slab	<i>See</i> floor slab.
slab on grade	A concrete floor placed directly on the soil, without a basement or crawl space. (TIA)
slave	A Bluetooth® wireless device that communicates with a master to form a piconet.
sleeve	A short length of raceway, usually conduit, for protecting cable passing through a single wall, ceiling, or floor.
slip sleeve	An oversized conduit that moves easily along an inner conduit and covers a gap or missing part of the smaller conduit. (TIA)
sloping ceiling	A ceiling that has a slope of more than one in eight.
sloping peaked-type ceiling	A ceiling in which the ceiling slopes in two directions from the highest point. Curved or domed ceilings can be considered peaked, with the slope figured as the slope of the chord from the highest to lowest point.
sloping shed-type ceiling	A ceiling in which the high point is at one side, with the slope extending toward the opposite side.
slot	An opening through a wall, floor, or ceiling, usually rectangular, to allow the passage of cables. (TIA) <i>See also</i> penetration.
slow frequency hopping	A frequency-hopping spread spectrum (FHSS) technique in which the frequency is changed once every 4.615 milliseconds (ms).
small cell	A collective term for a low-powered cellular base station that operates in licensed or unlicensed spectrum and has a range of ≈ 10 meters (m [33 feet (ft)]) to ≈ 1 or 2 kilometers (km [0.6 miles (mi) or 1.2 mi]) compared to a macrocell which might have a range of a few tens of kilometers (miles). Small cells are typically used to extend coverage to indoor areas where outdoor signals do not reach well, or to add network capacity in areas with very dense phone usage, such as train stations and stadiums. Types of small cells include femtocells, picocells, and microcells.
small computer system interface (SCSI)	A set of American National Standards Institute (ANSI) standard electronic interfaces that allows computers to communicate with peripheral hardware.
small form factor (SFF)	Any of several physically compact optical fiber connector and adapter designs that have been developed for use in optical fiber systems. They are about half the size of conventional connectors and adapters.
small form-factor pluggable (SFP)	A specification for a new generation of optical modular transceivers. The devices are designed for use with small form factor (SFF) connectors and offer high-speed and physical compactness. They are hot-swappable.

smart antenna	An antenna that combines multiple elements with an active electronics signal processing capability to optimize and adapt the antenna pattern dynamically in response to the signal environment.
smart card	A card with a built-in integrated circuit (IC) chip. This gives the card microprocessor memory and intelligence to use for storing data.
smart environment	A smart environment employs pervasive embedded computation systems to collect sensory data from the surrounding area, assess and evaluate the resulting information, interact with human users and perform and facilitate alarm, decision-making, and control functions. Smart environments can exist in houses, vehicles, buildings, and campuses, and include the use of telecommunications networks, sensor devices, computer hardware, and software.
smoke	Visible products of combustion prior to and concurrent with a fire.
smoke detector	A device that detects visible smoke particles by photoelectric methods or invisible particles by ionization methods. Some detectors use both methods for increased sensitivity.
smooth ceiling	A ceiling surface uninterrupted by continuous projections (e.g., solid joists, beams, ducts) extending more than ≈ 100 millimeters (mm [4 inches (in)]) below the ceiling surface.
snake rod	A telescoping pole used to route horizontal cable above suspended ceilings.
sneak current	An undesired current flowing through terminal wiring and equipment that is driven by a voltage too low to cause the overvoltage protector to operate.
sneak current protection	The use of devices to protect against sneak currents either by interrupting the current (sneak current fuses) or grounding the conductor (heat coils).
socket	1. A method of associating a program or process with a software address so they can communicate with other programs or processes. 2. A hardware defined socket connection is the combination of a data communication device address and a logical channel (port) number.
soft handoff	A cellular, Wi-Fi, or radio signal that is controlled by multiple cells before disconnecting and being handed off from the previous controlling cell to the new controlling cell (make-before-break). <i>See also</i> roaming.
soft space	In architectural spaces, areas adjacent to actual spaces that permit expansion of the area if required at a later date (e.g., expansion of a telecommunications room [TR]). Examples of soft spaces include storage spaces, conference rooms, unassigned coverage areas, or other spaces not located within the life safety egress path.
softphone	Internet protocol (IP) telephone software.

software as a service (SaaS)	A model in which software is licensed on a subscription basis and is centrally hosted remotely by independent software vendors or application service providers. SaaS utilizes the internet to provide access to the software, which increases flexibility of use and typically reduces the physical infrastructure required on-site to support the software application.
software defined radio (SDR)	A radio transmitter and/or receiver employing a technology that allows the radio frequency (RF) operating parameters including, but not limited to, frequency range, modulation type, or output power, to be set or altered by software, excluding changes to operating parameters which occur during the normal pre-installed and predetermined operation of a radio according to a system specification or standard. (ITU-R)
solar interference	Intense levels of direct sunlight that interfere with signal reception in free space optical and satellite systems.
solid-bottom or non-ventilated cable tray	A fabricated structure consisting of a bottom without ventilation openings within integral or separate longitudinal side rails.
solidly grounded	Connected to ground without inserting any resistor or impedance device.
sound level meter	An instrument used to measure the actual pressure created by a sound wave.
sound pressure level (SPL)	The actual air pressure created by a sound wave as measured by a sound level meter.
source	The originator of any transmitted information (e.g., a human, computer, alarm sensor).
source address table (SAT)	The internal database used by bridges to track the medium access control (MAC) addresses of devices connected to each bridge port.
space (telecommunications)	An area used for housing the installation and termination of telecommunications equipment and cable (e.g., equipment room [ER], telecommunications room [TR], telecommunications enclosure [TE], work area [WA], maintenance hole [MH], handhole [HH]).
space diversity	Two vertically spaced antennas connected to the same transmitter and/or receiver that enable the received signal to be temporarily lost by one of the two antennas, reducing the effect of signal fading.
space wave	<i>See</i> direct wave.
spade lug	A U-shaped metal connector that is soldered or crimped to a wire conductor, used for connection to a terminal post.
span	The length between two support points. In aerial plant, the span is the space between two poles or building connection points.

span guy	Guying installed across a span placed on straight pole lines to reinforce them against excess tension placed on them due to severe weather conditions. Also called a line guy or pole-to-pole.
spanning tree	A mathematical algorithm used by bridges and switches to create a logical topology that connects multiple collision domains. It ensures that no path loops exist on the internetwork.
spark	A sudden (often visible) discharge of electrical energy or an incandescent particle across open space.
spark/ember detector	A radiant energy-sensing fire detector that is designed to detect sparks or embers. These devices are intended to operate in dark environments and in the infrared part of the spectrum.
spark/ember detector sensitivity	The number of watts (or the fraction of a watt) of radiant power from a point source radiator, applied as a unit step signal at the wavelength of maximum detector sensitivity, necessary to produce an alarm signal from the detector within the specified response time.
spatial resolution	A setting on an optical time domain reflectometer (OTDR) to determine how close individual data points are spaced in time and distance.
special care unit (SCU)	A medical care unit in which there is appropriate equipment and a concentration of physicians, nurses, and others who have special skills and experience to provide optimal care to critically ill patients. This excludes a close observation room (COR).
specialized mobile radio (SMR) system	A radio system in which licensees provide land mobile communications services (other than radiolocation services) in the 800 megahertz (MHz) and 900 MHz bands on a commercial basis to entities eligible to be licensed under this part, federal government entities, and individuals. (FCC)
specification	An essential technical requirement for items, materials, or services, including the procedures to be used to determine whether the requirement has been met.
spectral mask	A radio transmitter's radiated power confined to a band of frequencies through the use of a band-pass filter.
spike	A very brief surge of energy.
spine cable tray	An open tray with a central rigid spine with cable support ribs along the length at 90-degree angles.
splayed	Sloped, slanted, or spread outward. Splayed maintenance hole (MH) duct entrances are placed toward the outward sides of an entrance wall rather than placed in the center of the entrance wall.

splice	1. A joining of conductors meant to be permanent. (TIA) 2. A device that joins conducting or transmitting media. <i>See also</i> straight splice. 3. A joining of conductors or optical fiber strands meant to be permanent or temporary.
splice bank	The placement of 25-pair modules in a symmetrically spaced configuration within a splice enclosure.
splice case	A metal or plastic housing with a semi-cylindrical cavity used to clamp around a cable splice to provide a closure.
splice closure	<i>See</i> splice case.
splice tray	A container used to organize and protect fiber splices, as well as a means for storing fiber slack. Splice trays are contained in fiber splice enclosures.
splicing	The act of joining copper conductors or fiber strands together.
splicing head	The section of a splicing rig that supports the crimp head. It can be either single or dual.
splicing rig	A specific manufacturer's tool kit for splicing optical fibers.
split grip	A wire mesh grip that is open on one side.
split pair	The transposition of two conductors of separate pairs.
splitter	A device that provides signals to a number of outputs, which are individually matched and isolated from each other. A passive device used to divide the signal into two or more outputs.
spool	1. A combination of hardware and software commonly used by print servers to redirect requests destined for a printer. 2. Cylindrical containers of cable. <i>See</i> cable reel. 3. A cylindrical guide, typically used for routing jumpers, cross-connects, and patch cords.
spooling	The use of secondary or auxiliary storage as a buffer to temporarily store data until it can be queued for processing (e.g., print spooling).
spot-type detector	A device in which the detecting element is concentrated at a particular location. Typical examples are bimetallic detectors, fusible alloy detectors, certain pneumatic rate-of-rise detectors, certain smoke detectors, and thermoelectric detectors.
spreading ratio	The number of bits used in the chipping sequence to represent a message bit.
spread spectrum	A radio transmission technology that distributes the transmitted signal power over a wide frequency bandwidth to increase the overall immunity of the signal to noise, prevent message interception, and increase spectral efficiency.

spurious emissions	Emission on a frequency or frequencies that are outside the necessary bandwidth and the level of that which can be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products, and frequency conversion products, but exclude out-of-band emissions.
spurious rejection	The ability of a receiver to reject spurious emissions.
squelch	In a receiver, the act of automatically suppressing the audio output when an incoming signal is not detected. Squelch is also used to reduce user distractions among radio systems that share the same frequency by suppressing the audio when signals from other systems are detected.
squelch tail	A short burst of static heard when the transmitting station stops transmitting but before the receiving radio squelches.
stackable hub	One of potentially multiple hubs that are in close proximity, capable of being connected to each other using a short length of specialized cable assembly and functioning together as a single unit. <i>See also</i> hub.
standard	A collection of specifications that encompass properties of components, systems, and practices intended to ensure an accepted minimum degree of functionality and longevity (performance). Standards are intended to reflect accepted norms as typically determined either through a balloting process conducted by a nationally or internationally accredited organization or as developed by businesses, industry groups, or governments for their use.
standard network interface (SNI)	A device that serves as a demarcation point between the local exchange carrier and the client. Usually a modular jack with some type of mounting for the modular jack.
standby power	A stand-alone secondary electrical supply source not dependent upon the primary electrical source (e.g., secondary electrical power feed from a utility power company, generator at a user site). Standby power systems are used to provide power to telecommunications, data processing, and possible other systems in case of primary power failure. Also known as backup power.
standing wave	A wave that remains in a constant position within its medium. This usually occurs as a result of interference between two waves traveling in opposite directions. For waves of equal amplitude traveling in opposing directions, there is, on average, no net propagation of energy.
standing wave ratio (SWR)	In radio systems, the ratio of a maximum to an adjacent minimum amplitude of a standing wave. A parameter measured and calculated during a wireless (radio frequency) system installation or maintenance. SWR is usually measured using voltage. In these instances, it is also called voltage standing wave ratio (VSWR). It can also be expressed in terms of current or power, though these are less common.

star topology	A topology used within communications networks where every individual network-enabled equipment or device is connected to a central element (e.g., switch, interconnect).
star-wired ring	A physical star configured as a logical ring. Also known as a collapsed ring through a hub that performs all appropriate routing operations.
start bit	A bit used in asynchronous communications to indicate the beginning of a character.
static dissipater	An array that dissipates static charges by providing a low-resistance route for the static ground charge to reach the atmosphere, thus preventing a buildup of the ground charge to the value necessary to trigger a lightning strike.
static switch	An automatic transfer switch capable of electronically sensing power deviations and transferring load conductor connections from one power source to another without interruption of the connected load. <i>See also</i> transfer switch, automatic (ATS).
station	1. A device used by an individual to access network services. 2. An input and output point in a communications system (e.g., telephone, radio, computer, fire alarm station). <i>See also</i> local station and remote station.
station cord	<i>See</i> equipment cord.
station equipment	<i>See</i> client premises equipment.
station fuse	An overcurrent device used at the client's premises.
station location	A telephone or computer location. <i>See also</i> work area.
statistical time division multiplexing (STDM)	An advanced version of time division multiplexing (TDM). Unlike TDM, the STDM method analyzes statistics related to the typical workload of each input device (e.g., printer, computer) and determines how much time each device should be allocated for data transmission on the telecommunications circuit (e.g., T1 or T3 line).
steerable/polar mount	An antenna support structure that steers the reflector.
step-index fiber	An optical fiber, either multimode or singlemode, in which the core refractive index is uniform throughout such that a sharp step in refractive index occurs at the core-to-cladding interface.
stick	A colloquial term used to describe a section of conduit.
stipulated sum	<i>See</i> lump sum.
stop bit	A bit used in asynchronous communications to indicate the end of a character.

storage area network (SAN)	A network of storage devices that can be accessed by multiple computers. Each computer on the network can access hard drives in the SAN as if they were local disks connected directly to the computer. It includes a specialized high-speed network dedicated to the transport of data between storage devices and servers.
storage virtualization	<i>See</i> virtualization.
store-and-forward	A switching method in which messages are stored as they are received, fully checked for errors, and then forwarded. <i>See also</i> cut-through and modified cut-through.
story	The portion of a building included between the upper surface of a floor to its roof.
straight splice	A splice in which one balanced twisted-pair conductor or optical fiber strand is spliced from opposite directions.
straight terminus (ST)	A type of optical fiber connector identified by its bayonet housing. The housing may be metallic or plastic. Commonly referred to as straight tip.
strand	1. A single string of wire used to make up a larger wire or cable by twisting a number of strands together. Galvanized steel stranded cable is used as support strand and guy wire. 2. A single unit of optical fiber within a cable.
stranded wire cable	A cable with multiple individual conductors composed of groups of small wires twisted together to form a single conductor.
strand identifier	A clamp-on unit that inserts a microbend into an optical fiber cable and detects light escaping from the fiber.
streaming	A group of technologies developed to enable the transfer of multimedia content over a network for immediate play at the receiving device before the entire file has been downloaded.
strength member	That part of an optical fiber cable composed of aramid yarn, steel strands, fiberglass filaments, or fiberglass-reinforced epoxy composite rod that increases the tensile strength of the cable.
stringer	A metallic rod or bar installed horizontally across the top of pedestals in access floor systems, to form a grid for providing lateral stability. <i>See also</i> access floor and pedestal.
striping	1. A data storage technique in which the content of a given file to be stored is divided and placed on multiple hard disk drives for faster retrieval and improved fault tolerance. 2. The act of removing the insulation jacket of a wire or optical fiber strand using a tool.

strobe	A signaling device that produces a bright flashing high-intensity light notification. Repetition rates are usually between one and five flashes per second, with typical light intensities of 15 candela (cd), 30 cd, 75 cd, or an alternating intensity (e.g., 15/75 cd).
stroke factor	The number of lightning strokes to ground per unit area for each thunderstorm day (obtained by statistical studies).
structural barrier	An architectural barrier that fully or partially encloses a space and physically deters or prevents unauthorized access, movement, destruction, or removal of information technology (IT) assets.
structural return loss (SRL)	The ratio in decibels (dB) of the test signal power and the reflected signal power due to impedance variations in the cable.
structured cabling system (SCS)	<i>See</i> information and communications technology (ICT) system.
stub	A short length of cable or pathway.
stub-out	A short section of conduit that is installed from a receptacle box, usually in a wall, through a suspended ceiling space a short distance to an adjacent hallway.
stub-up	A short section of conduit installed from a wall or floor outlet (e.g., receptacle box) into the accessible ceiling space above.
sub-channel	<i>See</i> privacy code.
subcommittee	A committee that is responsible to a higher level committee. Subcommittees usually focus on a more specialized area than the higher level committee. <i>See also</i> working group.
subduct	<i>See</i> innerduct.
submittal	Information, documentation, or samples that a contractor may be requested to submit to the design team for review and approval before the commencement of work.
subnet	<i>See</i> subnetwork.
subnetting	The process of subdividing a single broadcast domain into smaller portions called subnets in the network layer (Layer 3) addressing assignments. <i>See also</i> subnetwork.

subnetwork	A single broadcast domain in a network that is made up of multiple broadcast domains. A logical grouping of connected network devices. Nodes on a subnetwork tend to be located in close physical proximity to each other on a LAN. Network designers employ subnetworks as a way to partition networks into logical segments for greater ease of administration. When subnetworks are properly implemented, both the performance and security of networks can be improved. In internet protocol (IP) networking, devices on a subnetwork share contiguous ranges of IP address numbers.
subscriber	An ongoing end user of a network or the services of a service provider (SP).
subscriber connector (SC)	A type of optical fiber connector/adapter.
subscriber connector-ultra physical contact (SCUPC)	<i>See</i> ultra physical contact (UPC).
subscriber identity module (SIM) card	A small module containing an integrated circuit (IC) with memory and intelligence. It holds all the client information needed to connect to the carrier's network and operate a wireless phone, allowing the user to move their data among phones with little or no programming.
subsidiary station	A normally unattended location that is remote from the supervising station and is linked by telecommunications channels to the supervising station. The interconnection of signals on one or more transmission channels from protected premises with telecommunications channels to the supervising station is performed at this location.
substantial completion	The stage in the progress of the work when the work or designated portion thereof is sufficiently complete in accordance with the contract documents so that the owner can occupy or use the work or a portion thereof for its intended use. (AIA)
substitution	A replacement of material or processes called for in the design documents.
super group	A group of media (e.g., copper cable pairs, microwave channels) that consists of 24 subgroups. A cable super group is identified by a manufacturer's specific binder string. There are 600 pairs in a super group. <i>See also</i> master group.
super high frequency (SHF)	Frequencies in the range of 3 gigahertz (GHz) to 30 GHz.
supervising station	A facility that receives signals and at which personnel are in attendance at all times to respond to these signals.
supervision	The continuous monitoring of the condition of a network, system, or unit of equipment.

supervisory control and data acquisition (SCADA) system	A control system composed of programmable logic controllers (PLCs), data input to the PLCs, custom software, and electrically operated circuit breakers in the distribution gear. All these combine to form a system that allows automatic operation and monitoring of the electrical system through control panel workstations.
supervisory service	The service required to monitor performance of guard tours and the operative condition of fixed suppression systems or other systems for the protection of life and property.
supervisory signal	A signal designed to alert only facilities or maintenance personnel. Supervisory signals are used for non-emergency situations and generally are not used to activate general building notification appliances.
supervisory signal initiating device	An initiating device (e.g., valve supervisory switch, water level indicator, low air pressure switch on a dry-pipe sprinkler system) in which the change of state signals an off-normal condition and its restoration to normal of a fire protection or life safety system or a need for action in connection with guard tours, fire suppression systems or equipment, or maintenance features of related systems.
supervisory switch	A switch designed to control system valves.
supplementary	The equipment or operations not required and designated as such by the authority having jurisdiction (AHJ).
supplementary bonding grid (SBG)	A set of conductors or conductive elements formed into a grid or provided as a conductive plate that becomes part of the bonding network to which it is intentionally attached.
support strand (messenger)	1. A strength element used to carry the weight of the telecommunications cable in an aerial pathway. (TIA) 2. A strength element hanging between two points used to carry the weight of the communications cable in an aerial pathway.
suppression, fire	<i>See</i> fire suppression.
suppression system operation detector	<i>See</i> automatic fire extinguishing detector.
surety bond	A bond that ensures a respondent (bidder) to a request for quotation (RFQ) is sincerely interested in performing the project and has responded accurately to the RFQ specifications.
surface fitting	A surface-mounted service fitting. <i>See also</i> service fitting.
surface-mounted raceway	Plastic or metallic raceway installed on the surface of a wall, floor, or ceiling that provides a protective pathway for cables.

surface transfer impedance	The ratio of the conductor-to-shield voltage per unit length to the shield current. Surface transfer impedance is usually measured in milliohm/meter or ohm/foot.
surge arrester	A protective device for limiting surge voltages by discharging or bypassing surge current. It also prevents the continued flow of follow current while remaining capable of repeating these functions. (<i>NEC</i> [®])
surge protection device (SPD)	A protective device for limiting transient voltages by diverting or limiting surge current. It has a nonlinear voltage-current characteristic that reduces voltages exceeding the normal safe system levels by a rapid increase in conducted current. Also called a voltage limiter, overvoltage protector, (surge) arrester, or transient voltage surge suppressor (TVSS).
survivability	The ability of the network to function after a disruption.
susceptibility (electromagnetic)	<i>See</i> electromagnetic susceptibility.
suspended ceiling	A ceiling that creates an area or space between the ceiling material and the structure above. (TIA) Also called a false ceiling or a drop ceiling.
sweep	A bend that has a gentle arc rather than a sharp bend.
swell	An increase in the nominal root mean square (rms) voltage or current lasting from 0.5 cycles to one minute.
swing-floor phasing	The act of moving personnel and property from one location to another in order to facilitate renovation of the space vacated.
switch	1. A network access device that provides a centralized point for LAN communications, media connections, and management activities where each switch port represents a separate communications channel. A network switch operates at Layer 2 or Layer 3 of the Open Systems Interconnection (OSI) model. Sometimes referred to as a multiport bridge. 2. A voice communications device that uses switching technology to establish and terminate calls. 3. A device designed to close or open, or both, one or more electrical circuits. (IEEE).
switchboard	A single-panel frame or assembly of panels, typically front access, containing electrical disconnects, fuses, and circuit breakers used to isolate electrical equipment. Switchboards are typically rated 400 amperes (A) to 5000 A, and are characterized by fixed, group-mounted, molded case, or insulated case circuit breakers, but may include draw-out circuit breakers, and usually require work on de-energized equipment only. <i>See also</i> panelboard (electrical) and switchgear.

switched telephone network	An assembly of telecommunications facilities and central office (CO) equipment operated jointly by authorized service providers that provides the general public with the ability to establish transmission channels via discrete dialing.
switched virtual circuit (SVC)	A virtual circuit created on an as-needed basis. It is a temporary connection lasting only as long as the connected devices are communicating.
switch fabric	A network topology where network nodes connect with each other via one or more network switches, particularly via crossbar switches.
switchgear	An electrical enclosure, typically both front and rear access, containing over-current protective devices such as fuses and circuit breakers used to isolate electrical equipment. Switchgear is typically rated 800 A to 5000 A and is characterized by segregated, insulated-case or low-voltage power circuit breakers, usually draw-out, and frequently containing monitoring and controls as well as features to permit addition or removal of switching devices on an energized bus. <i>See also</i> panelboard (electrical) and switchboard.
switching	1. A networking protocol in which a station sends a message to a switch, which then routes the message to the specified destination station. 2. The action of opening or closing one or more electrical circuits by establishing a direct signal path from one device to another.
switch latency	The amount of time it takes for an incoming message to be inspected, processed, and forwarded through a switch.
switch matrix	The connections that link each port to every other port in a switch. Also called a backplane.
symmetric key cryptography	<i>See</i> private key encryption.
synchronization profile	A set of data commonly used in a personal area network (PAN) to update calendar and scheduling information between devices. Once the devices come within range, the synchronization can automatically occur.
synchronous communication	<i>See</i> synchronous signaling.
synchronous connection-oriented (SCO) link	A point-to-point (PTP) link between the master device and one slave device, used primarily for synchronous voice traffic.
synchronous optical network (SONET)	A scalable transport technology designed to provide a uniform, consistent method of transferring data over extended geographic distances, by using an optical fiber transmission infrastructure. SONET provides the Open System Interconnection (OSI) Reference Layer 1 details of how to pass high-speed data over optical links.

synchronous signaling	A form of signaling in which no start and stop bits are used. Each data character is coded as a string of bits and the sending and receiving devices are synchronized with each other, using a common clock. <i>See also</i> asynchronous signaling and isochronous signaling.
synchronous transmission	The transfer of data using synchronous signaling.
system	A group of interacting, interrelated, or independent components forming an integrated set of components.

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T0, T1, T2, T3, T4, and T5 drawings	Telecommunications drawings that show site information (T0), building information (T1), serving zone information (T2), telecommunications rooms (T3), details (T4), and schedule/spreadsheets (T5). A part of the National CAD Standard (NCS), a collaborative effort in the United States between the National Institute of Building Sciences, the American Institute of Architects, and the Construction Specifications Institute.
T1 (DS1)	The digital transmission link consisting of 24 channels to support rates of 1.54 megabits per second (Mb/s).
T3 (DS3)	The digital transmission link consisting of 672 channels to support rates of 44.7 megabits per second (Mb/s), each channel supporting 64 kilobits per second (kb/s).
tactile notification appliance	A notification appliance that alerts by the sense of touch or vibration.
tagging	The marking of a message for the purpose of specialized processing or handling on a network.
tailgating	1. In access control, one or more individuals entering a controlled area by using a single card. 2. Following an authorized person into a controlled area. Also called piggybacking.
tap	1. The linking between the bus and the drop cable that connects the workstation to the bus in 10BASE-5 Ethernet. 2. A device used on community antenna television cables and voice circuits for matching impedance or connecting service drops. <i>See also</i> bridged tap.
taper point	A splice location where the cable size along a route is reduced.
tapped trunk	A cable connection system where a coaxial cable is tapped by means of a splitter or vampire tap.

targeted availability	A positive expression of allowable maximum annual downtime.
T-band spectrum	Radio frequencies in the 470-512 megahertz (MHz) range, used mostly for public safety and business land mobile radio systems.
teaming	<i>See</i> link aggregation.
technological events	Incidents including hazardous material release, explosion/fire, transportation accident, building/structural collapse, power/utility failure, extreme air pollution, radiological accident, dam/levee failure, fuel/resource shortage, strike, business interruption, financial collapse, and communication failure.
telecommunications	Any transmission, emission, and reception of signs, signals, writings, images, and sounds; that is, information of any nature by using copper cable, radio, optical, or other electromagnetic systems. (TIA)
telecommunications bonding backbone (TBB)	A conductor that interconnects the primary bonding busbar (PBB) to the secondary bonding busbar (SBB). (TIA)
telecommunications bonding backbone interconnecting bonding conductor (TBBIBC)	<i>See</i> grounding equalizer.
telecommunications bonding conductor (TBC)	A conductor that interconnects the telecommunications bonding infrastructure to the building's service equipment (power) ground.
telecommunications circuit	Any line, conductor, or other method by which information is transmitted.
telecommunications closet (TC)	<i>See</i> telecommunications room (TR).
telecommunications enclosure (TE)	A box or cabinet used to house telecommunications equipment. Enclosures are often wall-mounted but are sometimes large enough to be floor-mounted.
telecommunications equipment bonding conductor (TEBC)	A bonding conductor that should be installed from each piece of equipment in the telecommunications room (TR) or equipment room (ER) to the secondary bonding busbar (SBB) or primary bonding busbar (PBB). TEBCs may also be connected to the rack grounding busbar (RGB), if the rack or cabinet has one.
telecommunications grounding busbar (TGB)	A regional term for secondary bonding busbar (SBB).
Telecommunications Industry Association (TIA)	An association that publishes telecommunications standards and other documents. (TIA)

telecommunications main grounding busbar (TMGB)	A regional term for primary bonding busbar (PBB).
telecommunications media	<i>See</i> media (telecommunications).
telecommunications outlet (TO)	An assembly of components consisting of one or more connectors and a faceplate or housing.
telecommunications outlet/connector	A connecting device in the work area (WA) on which horizontal cable, equipment cord, or outlet cable terminates. Provides the means to connect premises equipment. Does not include the faceplate or housing that contains the telecommunications outlet/connectors.
telecommunications room (TR)	A telecommunications space that differs from equipment rooms (ERs) and entrance facilities (EFs) in that this space is generally considered a floor-serving or tenant-serving (as opposed to building- or campus-serving) space that provides a connection point between backbone and horizontal cabling.
telecommunications service entrance	<i>See</i> entrance facility (EF).
telecommunications space	A generic term to refer to all areas containing telecommunications equipment, including entrance facilities (EFs), equipment rooms (ERs), telecommunications rooms (TRs), cable vaults, and areas of data centers containing telecommunications equipment and isolated racks or cabinets in rooms not dedicated to telecommunications.
Telecommunications Systems Bulletin (TSB)	A document published by the Telecommunications Industry Association (TIA) used to provide guidance for design methodologies or installation practices that pertain to telecommunications cabling systems. The next published edition of a related standard typically incorporates these bulletins.
telemedicine	A term that encompasses various technologies as part of a coherent health service resource management program, which captures, displays, stores, and retrieves medical images and data for the creation of a computerized patient record and managed care.
telemetry	A telecommunications system designed for the automatic transmission of digital or analog data by using copper or optical cable, radio, or other means from remote sources to a receiving location for the recording, monitoring, and analysis of systems.
telephone test set	A voice circuit-testing device used to identify circuits and perform diagnostics. Also called a butt set.
telephony	1. Speech transmission by radio sets or telephony sets. 2. Telephone technology.

telescoping pole	A pole used for lifting and moving cable in open ceilings. The pole has multiple sections inside each other that stretch out and collapse together, like a telescope.
temperature resistance rating (T-rating)	The time, in hours, that a firestop assembly will withstand a temperature test, such as to raise the temperature of the unexposed surface of the firestop assembly by 163 °Celsius (C [325 °Fahrenheit (F)]) above its initial temperature.
temporal code	An audible alarm pattern that is standardized over time to make it more universal or recognizable. For example, the ANSI/NFPA recommended standard evacuation pattern code for smoke alarms, called the Temporal-Three alarm signal, or T-3, produces an interrupted four count (three half second pulses, followed by a one and one half second pause, repeated for a minimum of 180 seconds).
tensile strength	The longitudinal pulling stress needed to break apart a cable or material.
terabit per second (Tb/s)	A data transmission speed, where one Tb/s equals 1000 gigabits per second (Gb/s).
terabyte (TB)	A measure of storage capacity where one TB equals 1000 gigabytes (Gb).
terminal (TERM)	1. A point at which information may enter or leave a telecommunications network. (TIA) 2. A device by means of which wire conductors may be connected to each other. (TIA)
terminal block (TB)	A unit that serves to terminate cable conductors and is a transition point between cable conductors.
terminal emulation	The process that enables a computer to operate as a terminal for connecting to a mainframe or minicomputer. <i>See also</i> emulation.
terminal mode	A form of remote access where the remote station accesses LAN resources through a specialized terminal server, which makes all requests for LAN resources on behalf of the remote station.
terminate	<i>See</i> cable termination.
termination	The physical connection of a conductor to connecting hardware. <i>See also</i> connecting hardware.
termination hardware	<i>See</i> connecting hardware.
terminator	<i>See</i> connector.
terms and conditions (T&C)	A section in a request for quotation (RFQ) or request for bid (RFB) and a contract that defines the terms used and the conditions under which the work must be performed.

terrestrial microwave	Direct microwave communications between two land-based locations. <i>See also</i> microwave.
tertiary care	The provision by a large medical center, usually serving a region or state and having sophisticated technological and support facilities, of highly specialized medical and surgical care for complex medical problems.
tested	A statement that a product or system has been evaluated against a set of metrics.
test hole	A hole or group of holes dug along a proposed OSP pathway route to determine what utilities or other obstructions may be present. Also called a pothole.
test procedures	The detailed, sequential steps to set the process and conditions necessary to test the system functionality.
thimble eye	A device for securing the end of a strand.
thimble eye rod	A device used to place the guy wire(s) within the eye opening when guying from a main pole to a stub pole or when guying to the ground. Also called a thimble eyebolt.
thin client	<i>See</i> network computer.
thinnet	A coaxial cable trunk used for 10BASE2 baseband Ethernet.
threadless fitting	A conduit connector or coupling that does not thread onto the end of the conduit. The compression ring style provides a weatherproof seal.
threat	1. An indication of the event or the intent to do harm or damage. 2. An agent by which damage, injury, loss, or death can occur. Threats are commonly classified as originating from temperature extremes, liquids, gases, projectiles, organisms, movement, or energy anomalies.
threat analysis	An evaluation of an environment, structure, or scenario to determine the level of risk for the purpose of deterring potential vulnerabilities for an unauthorized entry, removal of physical or intellectual material, or exposure to terrorist activities.
through penetration	A continuous opening that passes through both surfaces of a barrier. <i>See also</i> membrane penetration and penetration.
throughput	The amount of actual user information transferred between two points in a given amount of time. Throughput does not include the network and protocol overhead.
through-window	The transmission and reception of a free space optics (FSO) signal through glass.

thruster	A device used to propel a satellite in a specific direction.
thunderstorm day	Any day thunder is heard at a specific observation point.
tie cable	A (usually short) cable typically used to transition from one type of cross-connect device to another. An example is a tie cable between entrance cables on a backboard and horizontal or backbone cables on a patch panel in a rack.
tie wrap	A plastic strip used for binding and dressing cable. Most tie wraps are permanently closed and must be cut for removal. Also called a cable tie.
tight-buffer(ed) optical fiber cable	Type of cable construction whereby each glass fiber is tightly buffered by a protective thermoplastic coating to a diameter of 900 microns. Increased buffering provides ease of handling and connectorization.
timber hitch	A type of knot used to attach a single length of rope to a cylindrical object. Secure while tension is maintained, it is easily untied even after heavy loading. Sometimes used by installers and technicians to raise or lower objects from one elevation to another.
time division duplex (TDD)	A radio frequency (RF) communication scheme that transmits and receives alternately with sequential time slots using a single frequency.
time division multiplexing (TDM)	A transmission technique whereby several low-speed channels are combined into a single high-speed channel for transmission. Each low-speed channel is allocated a specific time position in the bit stream.
time division synchronous code division multiple access (TD-SCDMA)	A third generation (3G) mobile telephony standard.
time domain reflectometer (TDR)	A testing device that sends a signal down a cable, then measures the magnitude and amount of time required for the reflections of that signal to return. TDRs are used to measure the length of cables and locate cable faults.
token	A Layer 2 frame containing access control information that is passed from device to device on a token ring bus or fiber distributed data interface network.
token passing	An access control method that uses an electronic signal called a token.
token ring	A network protocol in which attached devices share a common cabling system for communications purposes without the possibility of a collision between transmissions. A device is only able to send a message when it is in possession of a special electronic sequence of bits called a token. <i>See also</i> token and token passing.
tone generator	A device used to apply an audible electrical signal to a circuit to assist in identification or fault location.

top-down design	<i>See</i> functional design process.
topology	The physical or logical arrangement of a telecommunications, information and communications technology (ICT), electronic safety and security (ESS), or similar system.
total facility power	The power dedicated to the data processing or information technology equipment (ITE) facility, including all infrastructure equipment, such as power delivery components, cooling and environmental control system components, computer network and storage nodes, and miscellaneous other components necessary for the operation of the data center.
total internal reflection	The confinement of light within a fiber because the angle of incidence is within the numerical aperture.
trade size	A name given to materials to identify a nominal size. For example, a trade size 2 EMT conduit is \approx 50 millimeters (mm [2 inches (in)]) inside diameter.
traffic prioritization	<i>See</i> prioritization.
traffic shaping	A technique that directs data streams on the basis of their address, protocol, priority, or application content.
trailer string	Line attached to the end of a cable being pulled. May be used for future additional pulls.
transceiver	A radio transmitter and receiver combined into a single unit.
transducer	<ol style="list-style-type: none">1. A device that changes one form of energy into another. For example, a speaker is a transducer that converts electrical energy to mechanical energy.2. In pressurized systems, a device that permits reading the cable pressure in a pressurized cable.
transfer impedance	A measure of shielding performance determined by the ratio of the voltage on the conductors enclosed by a shield to the surface currents on the outside of the shield. (TIA)
transfer switch, automatic (ATS)	Self-acting equipment for transferring load conductor connections from one power source to another. <i>See also</i> static switch and transfer switch, non-automatic.
transfer switch, non-automatic	Equipment operated manually and initiated either locally or remotely for transferring load conductor connections from one power source to another (also commonly referred to as manual transfer switch). <i>See also</i> static switch and transfer switch, automatic (ATS).
transition point (TP)	A location in the horizontal cabling where flat undercarpet cable connects to round cable. (TIA)

translational bridge	A networking device capable of converting frame formats from one type to another prior to forwarding messages. It only operates on the logical link control sublayer of the data link layer.
transmission	The movement of information as electrical or optical signals from one point to another via a medium (e.g., space, wire conductor, optical fiber).
transmission channel	A circuit or path connecting transmitters to supervising stations or subsidiary stations on which signals are carried. <i>See also</i> channel.
transmission control protocol (TCP)	An Open Systems Interconnection (OSI) Reference Model Layer 4 connection-oriented protocol. TCP supports reliable, end-to-end transmission of data by allowing for guaranteed delivery and sequencing of message segments.
transmission line	A bounded medium used to transport a desired signal between two points (e.g., coaxial cable, waveguide, optical fiber).
transmission media	<i>See</i> media (telecommunications).
transmit opportunity (TXOP)	A network protocol that provides a channel access function controlled with a defined starting time and a maximum duration. Access may be obtained by contention or through polling.
transmitter (TX)	A communications system component where an electromagnetic energy source is converted to waves and propagated (transmitted) through a medium (e.g., space, copper or optical cable) to a receiving end (receiver).
transmitter combiner	<i>See</i> combiner.
transparent mode	A form of remote access where the remote station accesses LAN resources through a remote access server and operates in the same manner as a local station, eliminating the need for a local station.
transponder	1. In satellite systems, a combination uplink receiver and downlink transmitter acting like a repeater. There are typically numerous transponders on each satellite. 2. In security systems, a multiplex alarm transmission system functional assembly located at the protected premises. 3. In air or marine navigation, a device that emits an identifying signal in response to an interrogating received signal.
transport layer	The Open Systems Interconnection (OSI) Reference Model layer responsible for providing end-to-end management of a communications session, ensuring the reliable arrival of messages as well as error checking mechanisms and data flow controls. Also called Layer 4.
transposed pairs	A condition where two pairs of conductors are incorrectly terminated on the other's location.

transverse	Lying or extending across or in a cross direction.
transverse moment	<i>See</i> moment.
trapeze	A support device (resembling a circus trapeze) using threaded rod and channel stock for supporting cable tray or conduit from the ceiling.
tray	<i>See</i> cable tray and ladder cable tray.
tree topology	A type of star topology that may use a common link from a central point to connect multiple elements, similar to the trunk of a tree having multiple branches to support clusters of leaves. A tree topology also allows elements of a specific level (e.g., servers, subcontrollers) to utilize like elements as part of the connectivity link to a central point.
trench duct	<i>See</i> header duct.
triplexer	A device in the antenna path containing a circulator and filters that allows three radios to share the same antenna. <i>See also</i> combiner.
troposphere	The lower layers of atmosphere in which the change of temperature with height is relatively large. The layer extends from ≈ 10 kilometers (km [6 miles (mi)]) to ≈ 20 km (12 mi) above the earth's surface. It is the region where clouds form, convection is active, and mixing is continuous and more or less complete.
trouble signal	A signal designed to alert facilities or maintenance personnel of a system malfunction. Trouble signals are used to indicate and generally are not used to activate general building notification appliances.
trough (cable)	A pathway for the containment and protection of cable. Typically provided with a removable top cover and solid bottom. Also called a wireway (WW).
trough or ventilated cable tray	A fabricated structure consisting of integral or separate longitudinal rails and a bottom having openings sufficient for the passage of air and utilizing 75 percent or less of the plan area of the surface to support cables where the maximum open spacing between cable support surfaces of transverse elements do not exceed ≈ 100 millimeters (mm [4 inches (in)]) in the direction parallel to the tray side rails.
trunk cable	The main distribution cable. A typical trunk cable begins at the headend and terminates at the outermost feeder cable.
trunk distribution and feeder	Rigid coaxial cable, typically used for backbone cabling.

trunking	<p>1. A combination of equipment, software, and protocols that allows many clients to share relatively few telecommunications channels, as opposed to each channel being dedicated to an individual client. In radio systems, the channels are frequencies and repeaters. In wireline systems, the channels are copper wire pairs or fiber optic strands. Trunking greatly expands the efficiency of resource usage, making limited resources (channels) available to many more clients. 2. Combining (multiplexing) frames from multiple virtual LANs (VLANs) across a single physical link (trunk) by using an encapsulation protocol such as IEEE 802.1Q. The protocol modifies the frame to identify the originating VLAN before the frame is placed on the trunk. The reverse process occurs at the receiving end of the trunk.</p>
tugger	<p>A device that acts as an assist mechanism for advancing a cable or groups of cables within a conduit.</p>
tunnel	<p>1. An underground passageway, completely enclosed except for openings at each end for entrance and exit. It can be used for utilities between buildings and for foot, vehicular, rail, and canal traffic. 2. The transmission of data intended for use only within a private (usually corporate) network through a public network. It is executed in such a way that the routing nodes in the public network are unaware that a transmission is part of a private network. It is done by encapsulating the private network data and protocol information within the public network transmission units so that the private network protocol information appears to the public network as data. Tunneling allows the use of the internet (a public network) to convey data on behalf of a private network. Also called port forwarding and virtual private network (VPN).</p>
turnstile	<p>An entryway that uses a rotating mechanical device to restrict entry to one person at a time.</p>
twisted-pair	<p>Two individually insulated copper wire conductors physically twisted together to form a balanced pair.</p>
twisted-pair cable	<p><i>See</i> balanced twisted-pair cable.</p>
twisted-pair physical medium dependent (TP-PMD)	<p>A network protocol that allows for 100 megabits per second (Mb/s) transmission. Another name for ANSI X3.263 standard and copper distributed data interface.</p>
two-level duct	<p>An underfloor raceway system installed with the header raceways and the distribution raceways on two different planes. (TIA)</p>
two-point method	<p>A method used to measure optical fiber cable loss using two closely spaced cursors on an optical time domain reflectometer (OTDR).</p>

U

Ufer ground	<i>See</i> concrete-encased electrode.
U-guard	A U-shaped guard, usually ≈2.4 meters (m [8 feet (ft)]) in length, placed over a cable, on a pole, or on a side of a building to protect a cable.
ultrahigh frequency (UHF)	Frequencies in the range of 300 megahertz (MHz) to 3000 MHz.
ultra physical contact (UPC)	An optical fiber connector where the fiber end face is polished and installed at no angle. These types of fiber connectors are often used in less sensitive digital systems as reflected light is sent back to the light source instead of into the fiber cladding.
ultraviolet (UV)	The portion of the electromagnetic spectrum in which the longest wavelength is just below the visible spectrum, extending from approximately 10 nanometers (nm) to approximately 400 nm, or about 790 terahertz (THz) to 30 petahertz (PHz).
Um	A global system for mobile telephony air interface component or radio link.
unbalanced tension	In outside plant (OSP) aerial cabling, the uneven distribution of tension (load) on a guy or pole.
unbalanced transmission	A transmission method consisting of two conductors with unequal impedances with respect to ground. Most commonly, one of the conductors is at ground potential. An example is coaxial cable. <i>See also</i> balun and balanced transmission.
unbounded medium	A term sometimes used to describe wireless communication. <i>See also</i> bounded medium.
underfloor duct system	A network of metal raceways embedded in concrete, which facilitates the distribution of horizontal cables (e.g., between a telecommunications rooms [TR] or telecommunications enclosure [TE] and a work area [WA]). <i>See also</i> header duct and trench duct.
underfloor raceway	A pathway placed within the floor or under a raised floor system from which electrical wires and telecommunications cables emerge to service a specific floor area. (TIA)
underground cable	A telecommunications cable designed to be installed under the surface of the earth in a trough or duct that isolates the cable from direct contact with the soil. (TIA). <i>See also</i> direct-buried cable.
underground facilities	Cables placed in subsurface conduits, using maintenance holes (MHs), handholes (HHs), and pull boxes.

unequal splitter	A device that asymmetrically splits a radio frequency (RF) signal between two outputs while maintaining direct current (dc) continuity between all ports.
unicast	A technique for sending data to a single attached network device. A one-to-one mode of communication. <i>See also</i> broadcast and multicast.
unidirectional antenna	An antenna characterized by a very narrow focus and an extended reach. <i>See also</i> directional antenna and omnidirectional antenna.
unidirectional signaling	The signaling that occurs in one direction.
unified communications (UC)	A business and marketing concept of integrating one or more real time and non-real time communications services (e.g., receiving a voicemail message via e-mail or on a cell phone).
UniFormat™	A document produced by the Constructions Specifications Institute (CSI) that is a classification system used to organize preliminary project descriptions, preliminary cost estimates, and drawings that detail filing. <i>See also</i> MasterFormat™, PageFormat™, and SectionFormat™.
ungrounded power system	A power system where only one point, usually the midpoint, of the supply transformer bank is grounded. The neutral conductor may or may not be carried along with the phase wire conductors.
unintentional radiator	A device that intentionally generates radio frequency (RF) energy for use within the device or that sends RF signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction (e.g., microwave oven). (FCC)
uninterruptible power supply (UPS)	A system that provides a continuous supply of power to a load using stored energy when the normal source of energy is not available or is of unacceptable quality. A UPS will provide power until the stored energy of the system has been depleted, or when the acceptable quality of either an alternative source of power (e.g., generator) or the normal source of power returns to acceptable quality.
uninterruptible power supply (UPS), rotary	A UPS consisting of a prime mover (such as an electric motor), a rotating power source (such as an alternator), a stored energy source (such as a battery), associated controls and protective devices, and a means of replenishing the stored energy (such as a rectifier/charger).
uninterruptible power supply (UPS), static	A UPS consisting of non-moving (solid state) components, usually consisting of a rectifier component, an inverter component, a stored energy component, associated controls and protective devices.
unit bonding conductor (UBC)	A conductor that interconnects the rack grounding busbar (RGB) to the telecommunications equipment.

unit price	The supplier's price for a quantity of one of a given material, equipment, or service. Often used in a contract when the actual statement of work cannot be determined at the time of the bid.
Universal Mobile Telecommunications Service (UMTS)	A third generation (3G) broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to 2 megabits per second (Mb/s), similar to wideband code division multiple access (WCDMA).
unlicensed frequency band	Radio frequencies (RFs) that require no license. The unlicensed frequency requirements vary by country.
unlicensed multipoint	A radio system linking three or more nodes and used in an unlicensed frequency band.
unlicensed national information infrastructure (U-NII)	Frequency spectrum designated to provide short-range, high-speed wireless networking communication at low cost. Consists of three frequency bands in the 5 gigahertz (GHz) band of 100 megahertz (MHz) each: 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.725–5.825 GHz.
unprotected system	1. A non-redundant wireless system that uses a single transceiver and antenna. 2. Telecommunications equipment powered directly from the main power, without an uninterruptible power supply (UPS) for protection from transient anomalies or temporary outages.
unshielded twisted-pair (UTP) cable	Twisted-pair cable without a metallic shield. <i>See also</i> balanced twisted-pair cable.
unshifted singlemode	<i>See</i> dispersion unshifted.
uplink	1. Signals transmitted from ground stations to satellites. 2. In the demand priority access method, the communications channel between a connected end node and a repeater, or between a repeater and a higher-level repeater. Used with 100VG-AnyLAN transmission protocol.
upload	1. To send information from the controller or client to the host computer or server. 2. To send information from an information and communications technology (ICT) device with internet protocol (IP) access to the IP cloud.
uptime	The period of time, usually expressed as a percentage of a year, in which the information technology equipment (ITE) is operational and able to fulfill its mission.
user datagram protocol (UDP)	An Open Systems Interconnection (OSI) Reference Model Layer 4 connectionless protocol. UDP provides low-latency data transfer with no guarantee of message delivery.

utility column	An enclosed pathway extending from the ceiling to furniture or to the floor that forms a pathway for electrical wiring, telecommunications cabling, or both. (TIA) Typically used in open office (i.e., cubicle) layouts. Also called a power pole.
utility pole	An outside plant (OSP) pole owned by a private or municipal utility. <i>See also</i> pole.
utility tunnel	An enclosed underground passageway, usually placed between buildings, for the distribution of utility services.

== V

value engineering	An effort to examine and weigh the initial cost, evaluate the maintenance expense and ultimate worth of certain materials, components, and systems, and assess performance at the lowest price consistent with the project criteria during the design development/preliminary design phase.
vampire tap	A method of tapping into a cable (usually coaxial) to connect a branch circuit or test device that does not break the cable into sections. It pierces the sheath to make contact with the center conductor and, separately, the shield. This allows new connections to be made on a given cable while the cable is in use. <i>See also</i> bridged tap, tap and tapped trunk.
variable air volume (VAV)	A self-contained heating, ventilation, and air-conditioning (HVAC) unit that uses a built-in microprocessor-based controller to control environmental air to a specific zone via a damper. The unit is placed near the end of an HVAC duct and can monitor temperature inputs from local sensors.
varistor	An electrical component whose resistance depends on the applied voltage or current.
vault	A telecommunications space, typically subterranean, located within or between buildings and used for the distribution, splicing, and termination of cabling. These spaces may be established as a maintenance hole (MH) in campus environments or may include active equipment in addition to passive cabling such as in a controlled environment vault (CEV).
velocity of propagation	<i>See</i> nominal velocity of propagation (NVP).
verification	The establishment of documented evidence that will provide a high degree of assurance the system will consistently perform according to the design intent.

Verified	One of four product test ratings used in the United States (Listed, Classified, Recognized, Verified). In addition to safety testing, Underwriters Laboratories® (UL®) also produces a performance verification of communications cabling with the classification of Verified. Optical fiber cabling manufacturers and their cabling types are listed in the UL publication, Performance Levels Certification Program, for meeting the base performance criteria for the product, such as category 3, 5e, and 6. The Performance Verification Mark allows manufacturers to demonstrate that telecommunications cabling products are certified for both safety and performance and comply with industry performance standards and draft standards. The UL Performance Verification Mark also signifies the testing of copper and optical fiber cabling products to industry performance standards such as ANSI/TIA/EIA, ISO/IEC 11801 Ed.2:2002, NEMA, and Telcordia. It also can be applied to UL Listed optical fiber cable Verified to Telcordia specifications. The Verification Mark also may be applied to data transmission or optical fiber cable Verified to performance specifications only.
vertical down lead (VDL)	A ground wire placed on a pole that leads down to the ground electrode at the base of the pole.
vertical spiral	An omnidirectional vertical log periodic antenna may be formed using a continuous spiral with the radius and spacing of each turn varying in the same manner as the dipole array relationship. Such an antenna must be operated over a ground plane and fed unbalanced.
very high frequency (VHF)	Frequencies from 30 megahertz (MHz) to 300 MHz.
very low frequency (VLF)	Frequencies from 3 kilohertz (kHz) to 30 kHz.
V-groove	The position in a fusion splicer where the fiber strand is placed.
vibration resistance	The ability of an antenna to mechanically survive the flexing and vibration caused by wind blowing across it and its supporting structure.
video teleconference (VTC)	Technology that facilitates the communication and interaction of two or more users through a combination of high-quality audio and video over Internet Protocol (IP) networks
Vigants formula	1. In microwave systems, an equation that models performance factors used when providing space diversity to an unprotected system. 2. An equation that models rain outages of radio frequency (RF) systems.

vignetting	A tunnel or porthole image that is produced by using a smaller image-size format lens on a larger image-size format camera (e.g., 8 millimeter [mm] lens and 13 mm camera). Similar to an unbordered picture, often a portrait, that shades off into the surrounding color at the edges. Conversely, a larger image-size lens can be used on a smaller image-size format camera.
virgin plywood	New or unused plywood.
virtual circuit	A packet-switching communications connection service between two network devices that appears to the user as a direct connection. The two devices communicate as though they have a dedicated connection even though the packets may actually travel different routes before arriving at their destination. The virtual circuit is cleared after the data transfer is completed. An X.25 connection is an example of a virtual circuit.
virtual LAN (VLAN)	A technique made possible by switching technologies that permits the logical grouping of any number of disparate network devices into one or more subnetworks to improve traffic management and security. Also called a partitioned LAN.
virtual private network (VPN)	A communications method commonly used to extend a private network across a public network (the internet) using protocols such as Point-to-Point Tunneling Protocol (PPTP), Layer 2 Tunneling Protocol/ internet Protocol security (L2TP/IPSec), or Dynamic Multipoint Virtual Private Network (DMVPN). It enables a computer to send and receive data as if it were directly connected to the private network, while benefitting from the functionality, security, and management policies of the private network. This is done by establishing a virtual point-to-point (PTP) or point-to-multipoint connection. A VPN connection across the internet is similar to a wide area network (WAN) link between sites. Also called port forwarding and a tunnel.
virtualization	The software and procedures that make it possible for users and administrators to view and manage a group of storage devices as a single unit regardless of differences in capacities, locations, and device types.
visible light spectrum	The electromagnetic wavelengths visible to the human eye. Located between the infrared (IR) and ultraviolet (UV) spectrums, visible light has wavelengths of approximately 390 nanometers (nm) to 759 nm or frequencies of about 400 terahertz (THz) to 790 THz.
visible notification appliance	An alarm appliance that alerts occupants with light.
voice frequency (VF) band	The frequencies within the part of the audio range that are used for the transmission of speech. Generally, the frequency band of 300 hertz (Hz) to 3400 Hz.

voice intelligibility	The audible voice information that is distinguishable and understandable.
voice over internet protocol (VoIP)	A system in which voice signals are converted to packets and transmitted over a network using transmission control protocol/ internet protocol (TCP/IP).
voice recognition	Identifying an individual by comparing previously stored voice recordings of key words or phrases with the same key phrases spoken at the same time that access is requested.
volt (V)	A unit of measure for electromotive force (commonly called voltage). Specifically, one V is the difference in electric potential across a conductor or load when an electric current of one ampere (A) dissipates one watt (W) of power.
voltage gradient	The change in voltage differential per unit distance. <i>See also</i> electric field.
voltage standing wave ratio (VSWR)	<i>See</i> standing wave ratio (SWR).
voltage standing wave	A device that measures and limits the level of undesirable reverse power ratio (VSWR) protection caused by impedance mismatches between a radio frequency (RF) transmitter, its transmission line, and the antenna. The measuring and limiting of reverse RF power will prevent damage to these components.
volt-ohm-milliammeter (VOM)	An instrument capable of measuring electrical voltage, current and resistance (ohm). <i>See also</i> multimeter.
vulnerability	A physical, procedural, or technical weakness that creates an opportunity for injury, death, failure, or loss of an asset.

==W

Walsh code	A common orthogonal code used for direct sequence spread spectrum (DSSS) in a code division multiple access (CDMA) network.
wand	A test device that is used to detect a signal placed on a particular conductor in an optical fiber cable for the purpose of identification. <i>See also</i> inductive amplifier.
war driving	A process of traveling and looking for wireless access point (WAP) signals that can be used to acquire network access. This typically is accomplished by using a wireless device running a software program that scans the IEEE® 802.11 network frequencies with a high-gain antenna.

waterfall	<p>1. A drop-out panel attached to cable trays to communication cables as they enter or leave the tray and prevent crushing, pinching, and the violation of the cables' minimum bend radius. 2. A display in some communications software showing information transmissions over a wide band of frequencies. The display looks similar to a waterfall.</p>
watt (W)	<p>The amount of power that is consumed by a circuit at any given time. Calculated by multiplying the voltage times the current.</p>
waveguide	<p>A bounded medium used to direct radio frequency (RF) transmissions or light waves. A waveguide in radio systems normally consists of a hollow metallic conductor, usually rectangular, elliptical, or circular in cross section. In light wave applications, a waveguide is normally small prisms or optical fibers.</p>
wavelength	<p>The distance between the peaks of a sinusoidal wave. All radiant energy can be described as a wave having a wavelength. Wavelength serves as the unit of measure for distinguishing between different parts of the spectrum. Wavelengths are measured in microns (μm), or nanometers (nm).</p>
wavelength division	<p>The process of modulating a series of data streams, each using a different multiplexing (WDM) wavelength, and simultaneously transporting the multiple wavelengths over a single optical fiber. Developed to increase the information-carrying capacity of optical fiber transmission systems.</p>
waveshape (lightning)	<p>The numerical method of describing a voltage surge wave in terms of rise time versus decay time (e.g., 1 x 50 or 10 x 100). The first number represents the rise time of the surge in microseconds from zero to peak surge value. The second number represents the subsequent surge decay time to 50 percent of the peak surge value from the beginning of the surge.</p>
website acceleration	<p>A term used to describe a content acceleration appliance that is used to cache the locally stored content most frequently requested by remote users. Also called reverse proxy.</p>
whip antenna	<p>A long, thinly shaped antenna.</p>
wide area internetworking	<p><i>See</i> wide area network (WAN).</p>
wide area network (WAN)	<p>A data communications system that uses telecommunications circuits to link LANs that are distributed over large geographic distances.</p>
wide area telephone service (WATS)	<p>A telephone company service allowing reduced costs for certain telephone call arrangements. In WATS or 800-number service, calls can be placed to the called party at no cost to the calling party. Out WATS is a service whereby, for a flat-rate charge, dependent on the duration of such calls, a subscriber can make an unlimited number of calls within a prescribed area from a particular telephone terminal without the registration of individual call charges.</p>

wideband	The property of a circuit that has a bandwidth wider than normal for the type of circuit, frequency of operation, or type of modulation.
wideband code division multiple access (WCDMA)	A channel that is four times wider than the current channels typically used in second generation (2G) networks in North America.
Wi-Fi	A term owned by the Wi-Fi Alliance commonly used when referring to IEEE 802.11 devices or networks. Wi-Fi is used in place of IEEE 802.11 in the same way that Ethernet is used in place of IEEE 802.3. The term was created for the Wi-Fi Alliance as a play on hi-fi (high fidelity). The Alliance has made no formal statement that the term does or does not mean wireless fidelity.
wind load	The total force exerted by the wind on a structure or part of a structure. The total design wind load includes the sum of the horizontal forces applied to the structure in the direction of the wind and the design wind load on tower guys and discrete appurtenances.
window attenuation	In radio, microwave, and free space optics (FSO) systems, the loss of signal strength caused by passing through a window. Clear glass windows introduce approximately four percent attenuation for each pane of glass traversed by a signal. Tinted or coated windows, however, can cause much greater attenuation. Leadership in Energy and Environmental Design (LEED)-certified windows can often effectively block signals.
wire	An individual solid or stranded metallic conductor. (TIA)
wired equivalent privacy (WEP)	A wireless network security protocol defined by IEEE® to prevent access to the network by intruders using similar wireless LAN (WLAN) equipment and capture of WLAN traffic through eavesdropping. Access is denied by anyone who does not have an assigned key. WEP has been demonstrated to have numerous flaws and has been deprecated in favor of newer standards such as Wi-Fi Protected Access II (WPA2).
wireless	The use of radiated electromagnetic energy (e.g., radio frequency [RF] and microwave signals, light) traveling through free space to convey information.
wireless access point (WAP)	A wireless transceiver that connects WLAN clients to the wired LAN. Also used to bridge to other access points.
wireless collision domain	<i>See</i> basic service set (BSS) and collision domain.
wireless LAN (WLAN)	A LAN that functions wirelessly between the client and a wireless access point (WAP). Most modern WLANs are based on IEEE 802.11 standards, marketed under the Wi-Fi name. <i>See also</i> wireless access point (WAP).

wireless LAN (WLAN) gateway	A computer networking device that routes packets from a WLAN to another network, typically a wired WAN. Wireless gateways combine the functions of a wireless access point (WAP), a router, and often provide firewall functions as well.
wireless LAN (WLAN) switch	A network access device designed to centrally manage all connected wireless access points (WAPs) in a WLAN environment.
wireless mesh network	A network that uses a mesh topology between wireless nodes.
wireless protection system	In security systems, a system or part of a system that can transmit and receive signals using radio frequencies (RFs) as the medium rather than physical cabling. It can consist of either a wireless control panel or a wireless repeater.
wireless repeater	In security systems, a component used to relay signals between wireless receivers, wireless control panels, or both.
wireless service provider (WSP)	The source of a donor signal. <i>See also</i> donor signal.
wire management	Hardware designed and manufactured for keeping cross-connect wire and patch cables neat and orderly. Wire management also may refer to other types of hardware for securing wire and optical fiber cable to the building.
wire map	A pin-to-pin termination and continuity diagram of each individual conductor in a balanced twisted-pair cable. When created by an appropriate cable tester, the wire map indicates continuity to the remote end, shorts between two or more conductors, reversed pairs, split pairs, transposed pairs, and any other miswiring.
wire map tester	An instrument used to create a wire map. <i>See</i> wire map.
wire mesh cable tray	A cable tray consisting of steel wires welded at all intersections. Longitudinal wires located on the exterior of the tray are spaced at a maximum of ≈ 50 millimeters (mm [2 inches (in)]), and transverse wires are spaced at a maximum of ≈ 100 mm (4 in).
wireway (WW)	<i>See</i> trough (cable).
wire wrap	The termination of conductors by wrapping the conductor tightly around a rectangular post.
wiring	<i>See</i> cabling.
work area	A building space where the occupants interact with telecommunications terminal equipment (e.g., an individual office or cubicle, printer/copier room). (TIA)

work area cable (cord)	<i>See</i> equipment cord.
work breakdown structure (WBS)	A project management tool that breaks the project down into individual tasks that can be measured, scheduled, and assigned to individuals or teams.
working group (WG)	A group within a larger committee, usually assigned to complete a specialized task, such as developing usable measurement levels for use in a standard. <i>See also</i> subcommittee.
workstation	1. An information and communications technology (ICT) system device used in communicating with another ICT device. 2. A very powerful computer used for work requiring a high-speed processor and other features, such as for video graphics editing.
wye	A power system in which only one point (usually the midpoint of a supply transformer bank) is grounded. If the neutral is present, it is not grounded along the line.

== X

X.25	An established communications service for digital transmission over extended distances. Developed in the 1960s, it is the first large-scale implementation of packet-switching technologies. Sometimes described as a packet-switched data network.
xDSL	A family of digital technologies designed to provide high data transfer rates over existing (legacy) telecommunications circuits. <i>See</i> digital subscriber line (DSL).
X-O bond	The point in the electrical system where a separately derived ground is generated. This point generates a power carrying neutral conductor or fourth wire for the electrical power system. The X-O bond point typically is used as the ground reference for the downstream power system.
X-rays	Electromagnetic wavelengths above the ultraviolet (UV) spectrum, with frequencies between 30 petahertz (PHz) and 30 exahertz (EHz).

== Y

Yagi array antenna	A tree-shaped antenna that uses one or more director elements and usually a reflector element to focus the radiated signal in one direction or plane.
---------------------------	---

== Z

zero U space	A space for mounting accessories in cabinets that does not consume any rack mount spaces, typically between the side panel and the sides of equipment mounted in the rack unit mounting space, on the rear rails of a cabinet, or above the rack/cabinet mounted to the cable tray.
Z-gap	The distance between fiber ends before splicing takes place within a fusion splicing device.
ZigBee	A term owned by the Zigbee Alliance; commonly used when referring to the IEEE 802.15.4-based specification, devices or networks used to create low-power, low data rate, and close proximity (i.e., personal area) wireless ad hoc networks.
zone	A defined area within the protected premises. A zone can define an area from which a signal can be received, an area to which a signal can be sent, or an area in which a form of control can be executed. A zone is created by connecting multiple fire detection devices to a common circuit. Although a zone often has a geographic connotation, a zone is a result of system wiring and not the physical placement of a device.
zone cabling	<i>See</i> open office cabling.
zone distribution area (ZDA)	A space in a computer room where a zone outlet or a consolidation point (CP) is located.
zone distributor (ZD)	The distributor used to make connections between the main distribution cabling subsystem, zone distribution cabling subsystem, network access cabling subsystem, and cabling subsystems specified in ISO/IEC 11801 or EN 50173-1 and active equipment. (CENELEC EN 50173-5 and ISO/IEC 24764). Equivalent to the horizontal cross-connect (HC [floor distributor (FD)]) in ANSI/TIA-942-A.
zone of protection	The area in close proximity to and within a building's lightning protection system. Several factors may make this area relatively immune to direct lightning strikes.
zone outlet	A connecting device in the zone distribution area (ZDA) terminating the horizontal cable enabling equipment cable connections to the equipment distribution area (EDA).
zone paging	In a public address or overhead paging system, the ability to send an audio signal to a specific group of loudspeakers.

Symbols

A	amplitude
C	capacitance
c	speed of light
f	frequency
G	conductance
I	current
L	inductance
N	refractivity
p	atmospheric pressure
P	power
R	resistance
T	temperature
t	time
Z	impedance
ϵ	permittivity
λ	wavelength
π	pi
ϕ	phase

Commercial Communications



1. Telecommunications outlet with conduit stub-up



2. Large (feeder) underfloor duct, trench header, or header duct



3. Standard (distribution) underfloor duct, or cellular floor duct



4. To telecommunications room: Home run conduit to telephone terminal board



5. To telecommunications room: Two wall outlets, home run to telecommunications room and outlet boxes tied together with conduit

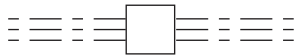


6. Aerial drop or wire

Commercial Communications, continued



7. Conduit for placing ground wire



8. Underfloor duct and junction box, triple system (number of lines entering a box in the header duct run indicates number of systems [e.g., telephone, electric, television])



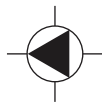
9. Conduit to floor outlet placed in slab



10. Conduit (size and type as noted)



11. Sleeve (size and type as noted)



12. Ceiling outlet

Commercial Communications, continued

13. Cross-connect



14. Floor outlet as noted



15. Dual drop containing one voice and one data cable



16. Single drop containing one data cable



17. Single drop containing one voice cable



18. Single drop containing one voice cable mounted using wall phone receptacle

Commercial Communications, continued

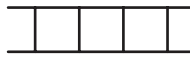
19. Single drop containing one CATV location



20. Ceiling mounted poke thru location from above



21. Poke thru location to ceiling below



22. Open ladder rack mounted

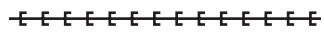


23. Center spline cable tray



24. Center spline one-sided mounted cable tray

Commercial Communications, continued



25. Cable tray



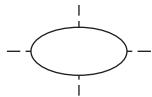
26. Cable tray (size as indicated)



27. Pull box (size as noted)



28. Trench header feed on cellular or underfloor duct system



29. Header duct with access unit on cellular or underfloor duct system



30. Backbone conduit for copper

Commercial Communications, continued

— BFC — BFC —	31.	Backbone conduit for fiber
— BC — BC —	32.	Backbone conduit
— OF — OF —	33.	Optical fiber backbone
— COP — COP —	34.	Copper backbone
— COAX — COAX —	35.	Coaxial backbone
— TN — TN —	36.	Legacy thicknet cabling

Commercial Communications, continued

37. Interior pathways ring run



38. Interior pathways strand



39. J hooks

Commercial Electrical

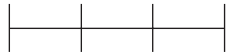
40. Duplex receptacle outlet



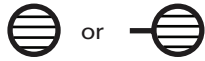
41. Wall switch

Commercial Electrical, continued

42. Individual fluorescent fixture



43. Continuous row fluorescent fixture



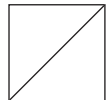
44. Incandescent fixture



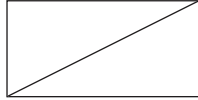
45. Power panel



46. Ground



47. 2 x 2 Fluorescent light

Commercial Electrical, continued

48. 2 x 4 Fluorescent light



49. Electrical power panel



50. Junction box



51. Ground bar



52. Thermostat



53. Multiwire splice

Commercial Electrical, continued

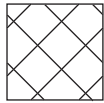
54. Lightning protection



55. Boundary line



56. Legacy boundary line



57. Ceiling access panel

Electronic Security and Access Control

58. Telephone panel (entry and security)

Electronic Security and Access Control, continued

A	59.	Electronic door opener
MD	60.	Electronic motorized door activation motion detector
●	61.	Push button (≈ 1170 mm [46 in] above finished floor)
TV	62.	TV location
TC	63.	TV location wired to call system
C	64.	Copier network box (≈ 450 mm [18 in] above finished floor)

Electronic Security and Access Control, continued

- ⒹⒻ 65. Electromagnetic door lock
- Ⓓ⒮ 66. Electromagnetic door strike with monitoring contact
- ⒹⓂ 67. Magnetic door switch
- ⒸⓇ 68. Security system card reader
- ⒹⓂ 69. Motion detector
- ⒸⓅ 70. Security system magnetic lock key bypass switch
(≈1170 mm [46 in] above finished floor)

Electronic Security and Access Control, continued



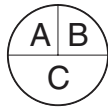
71. Closed-circuit surveillance camera outlet (≈ 2.3 m [7.5 ft] above finished floor)



72. Security system keypad entry station (≈ 1170 mm [46 in] above finished floor)



73. Closed-circuit surveillance television monitor (≈ 1170 mm [46 in] above finished floor)



74. Device reference (A = drawing sheet; B = detail; C = device/zone number)



75. Card access reader



76. Biometric access control device

Electronic Security and Access Control, continued

77. Keypad device



78. Card reader with keypad



79. Card reader with time and attendance



80. Field panel



81. Control panel

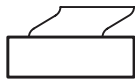


82. Central processing unit

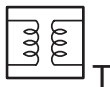
Electronic Security and Access Control, continued



83. Keyboard



84. Printer



85. Power supply



86. Audio device



87. Turnstile



88. Revolving door

Electronic Security and Access Control, continued

89. Traffic arm



90. Vehicle loop detector



91. Security window screen



92. Intercom



93. 2-Way radio microphone

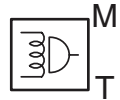


94. Cellular transmitter

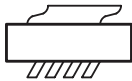
Electronic Security and Access Control, continued



95. Telephone dialer



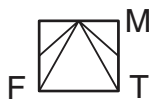
96. Optical fiber module



97. Document destroyer



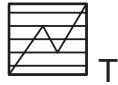
98. Motion detector



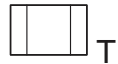
99. Bi-static beam sensor



100. Glass break sensor

Electronic Security and Access Control, continued

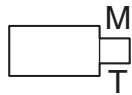
101. Security screen with alarm



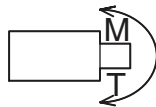
102. Screening device



103. Monitor



104. Camera



105. Camera with pan/tilt/zoom



106. Video control keyboard

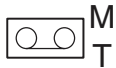
Electronic Security and Access Control, continued



107. Video multiplexer



108. Video motion detector



109. Recorder



110. Automatic monitoring switch



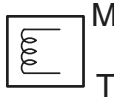
111. Manually operated switch



112. Push button

Electronic Security and Access Control, continued

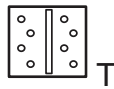
113. Relay switch



114. Electric lock



115. Exit device



116. Power transfer hinge



117. Video intercom



118. Camera with card reader

Electronic Security and Access Control, continued



119. Camera with keypad

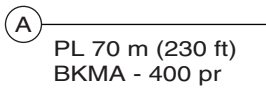


120. Video intercom master

Outside Plant Communications



121. Primary protector, not cross-connected



122. Placing stamp

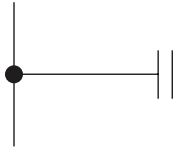


123. Splice and splice number

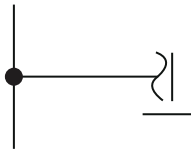
Outside Plant Communications, continued



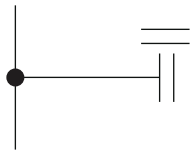
124. Transferred pairs in splice



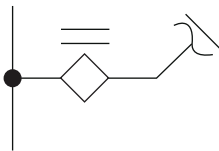
125. Fixed-count terminal block spliced to cable



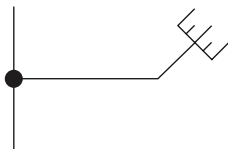
126. Ready-access type connecting block; pairs terminated on a fixed-count basis



127. Protected fixed-count type terminal block spliced to cable



128. Protected block spliced to cable with pairs terminated on a ready-access type connecting block



129. Optical fiber cable termination

Outside Plant Communications, continued

TYPE _____

130. Cable or wire (denote type)

131. Proposed cable

132. Future cable

-x-x-x-x-x-x-

133. Cable to be removed

_____ B _____

134. Buried cable

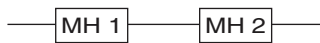
_____ BJ _____
CEG

135. Buried in joint trench (C = communications;
E = electric; G = gas)

Outside Plant Communications, continued



136. Cable slack (denote slack length)



137. Underground duct or cable with maintenance hole



138. Sheath type, gauge, installation type, and pairs (greater than or equal to 100 pairs)—3 indicates the number of 100-pair complements



139. Cable containing less than 100 pairs

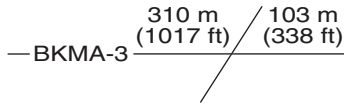


140. Submarine cable



141. Changes in cable size, count, type, or classification

Outside Plant Communications, continued



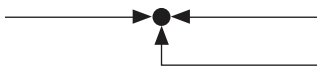
142. Point on cable (other than splice) where a division of measurement or point of record is required



143. Proposed straight splice



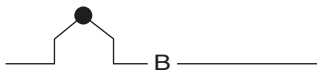
144. Straight splice with changes



145. Splice with trench cable



146. Isolation gap

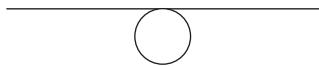


147. Splice, buried cable, in pedestal

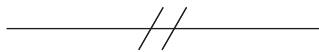
Outside Plant Communications, continued



148. Encapsulated splice



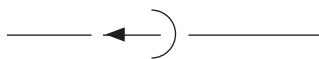
149. Cable loop—no splice involved



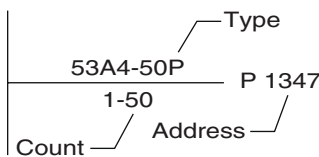
150. Pairs out and ends cleared in splice enclosure



151. Cable cut, ends cleared and capped

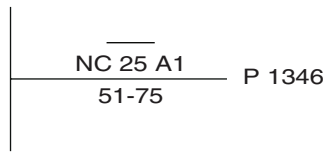


152. Insulating joint

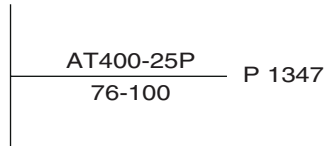


153. Fixed-count terminal

Outside Plant Communications, continued



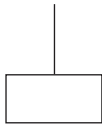
154. Fixed-count terminal with cable protection



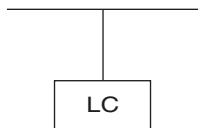
155. Fixed-count terminal without cable protection



156. Interface with moisture plug



157. Case with factory-equipped stub



158. Load coils and case



159. Ground

Outside Plant Communications, continued



160. Ground to multiground neutral vertical ground wire



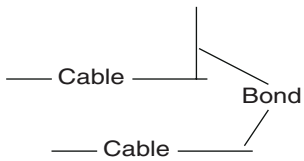
161. Power multiground neutral



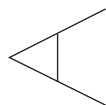
162. Telecommunications ground rod



163. Power neutral bond



164. Bond between separate metallic cable shields



165. Anchor only

Outside Plant Communications, continued



166. Guy only



167. Anchor guy only



168. Anchor and insulated guy



169. Sidewalk anchor and guy



170. Push brace

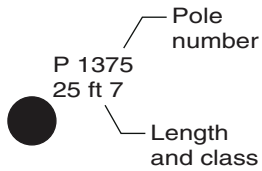


171. Anchor and guy owned by others

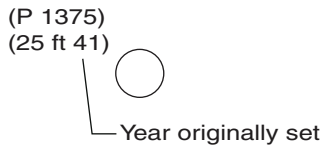
Outside Plant Communications, continued



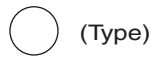
172. Existing pole



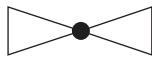
173. Proposed pole



174. Pole to be removed



175. Non-wood pole (indicate material type)

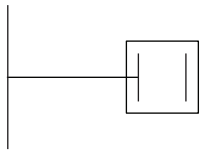


176. Repeater station—two way



177. Capacitor (wire diagram)

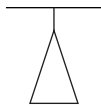
Outside Plant Communications, continued



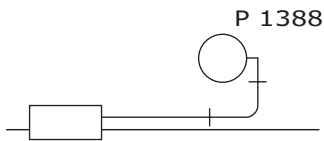
178. Buildout capacitors located in case



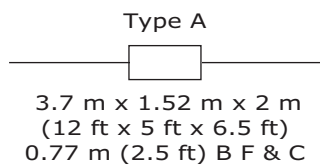
179. Optical fiber cable



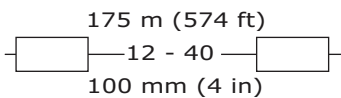
180. Multiplexer



181. Underground conduit, maintenance hole, and subsidiary conduit to pole P 1388



182. Proposed maintenance hole type, length, width, headroom, and type of frame and cover



183. Trench meters (feet) and conduit type of duct

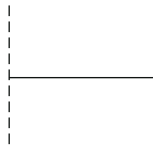
Outside Plant Communications, continued



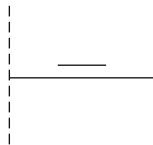
184. One 6-pair multiple drop wire



185. Direct-buried wire



186. Non-protected wire terminal



187. Protected wire terminal




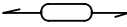
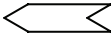
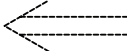


188. Center line



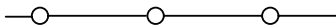
189. Drop pole

Outside Plant Communications, continued

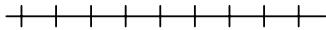
	190.	Existing pole with power of 230 V or less attached (includes street light poles)
	191.	Existing pole with power of 480 V or more attached
	192.	Existing pole (of any voltage) with a mounted power transformer or switch
	193.	Other buried utility
	194.	Extreme caution
	195.	Future plant extension

Outside Plant Communications, continued

196. Flag referring to a specific note concerning the indicated location



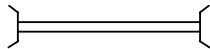
197. Fence of any type



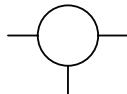
198. Railroad tracks



199. Tree or large shrub



200. Large drainage tube or culvert



201. Fire hydrant

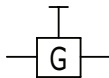
Outside Plant Communications, continued



202. Buried cable marker post



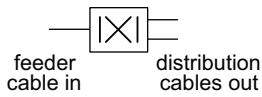
203. Buried cable marker post with locator cap



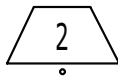
204. Gas or water valve



205. Buried cable closure



206. OSP cable interface with cross-connect field



207. Placing operation

Residential Communications

208. Drop location



XTW

209. Existing location to be rewired



P

210. Public telephone



W

211. Wall telephone



SP







212. Secure wall telephone



BA

213. Building automation outlet

Residential Communications, continued

 OF	214.	Horizontal fiber to the desktop
 S	215.	Security panel
 E	216.	Emergency telephone
 B	217.	Drop location with blank plate
 FP	218.	Future telephone location
 C	219.	Ceiling-mounted telephone location

Residential Communications, continued



220. Fire alarm panel



221. Security or fire alarm dialers



222. Floor mounted

Acronyms and Abbreviations

== A

A/D	analog-to-digital
A&E	architecture and engineering
ABA	Architectural Barriers Act
ac	alternating current
ACEG	alternating current equipment ground
ACK	acknowledgment
ACL	access control list
ACR	attenuation-to-crosstalk ratio
ACRF	attenuation-to-crosstalk ratio, far-end
ACS	access control system
ACWP	actual cost of work performed
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
ADF	area distribution facility
ADO	auxiliary disconnect outlet
ADPCM	adaptive differential pulse code modulation
ADR	alternative dispute resolution
ADSL	asymmetric digital subscriber line
ADSS	all-dielectric self-support
AEC	acoustic echo canceller
AEC	architecture, engineering, and construction

AES	advanced encryption standard
AF	audio frequency
AFEXT	alien far-end crosstalk
AFF	above finished floor
AGC	automatic gain control
AHJ	authority having jurisdiction
AHU	air handling unit
AI	analog input
AI	articulation index
AIM	automated infrastructure management
AM	amplitude modulation
AMES	architectural, mechanical, electrical, structural
AMI	alternate mark inversion
AMSL	above mean sea level
ANEXT	alien near-end crosstalk
AO	analog output
AP	access point
AP	access provider
APC	angle physical contact
API	application programming interface
AS	Australian standard
ASCII	American standard code for information interchange
ASP	authorized service provider
ATM	asynchronous transfer mode
ATM	automatic teller machine

ATR	all-threaded-rod
ATS	automatic transfer switch
AUTONEG	autonegotiation
AV	audiovisual
AWG	American wire gauge
AWS	advanced wireless services
AXT	alien crosstalk

== B

BACnet®	building automation and control network
BAS	building automation systems
BBC	backbone bonding conductor
BBMD	BACnet® broadcast management device
BC	bonding conductor
BCT	bonding conductor for telecommunications
BCWP	budgeted cost of work performed
BCWS	budgeted cost of work scheduled
BD	building distributor
BDA	bidirectional amplifier
BDSL	bit rate digital subscriber
BER	bit error rate
BET	building entrance terminal
BIBB	BACnet® interoperability building block
BIM	building information modeling

BMS	building management system
BN	bonding network
BNC	Bayonet Neill-Concelman
BOM	bill of material
BPSK	binary phase shift keying
BRI	basic rate interface
BSC	base station controller
BSS	basic service set
BTL	BACnet® Testing Laboratories
BTS	base transceiver station
BVLL	BACnet® virtual link layer

== C

C	chrominance signal
CAD	computer-aided design
CADD	computer-aided drafting and design
CAFM	computer-aided facility management
CAN	campus area network
CAP	carrierless amplitude and phase
CAT	category
CATV	cable TV
CBC	coupled bonding conductor
CBN	common bonding network
CBS	core bore seal
CCD	charge coupled device

CCK	complementary code keying
cct	circuit (European)
CCTV	closed-circuit TV
CCU	coronary care unit
CCU	critical care unit
cd	candela
CD	campus distributor
CD	construction document
CDF	campus distribution facility
CDMA	code division multiple access
CE	common element
CE	Conformité Européene
CEBus®	Consumer Electronics Bus
CENELEC	Comité Européen de Normalisation Electrotechnique
CENTREX	central exchange
CER	common equipment room
CEV	controlled environment vault
CFR	Code of Federal Regulations (U.S.)
CHCC	comprehensive health care clinic
C/I	carrier-to-interference ratio
CI	circuit integrity
CIA	confidentiality, integrity, and availability
CIC	CEBus® Industry Council
CII	critical infrastructure industry

CIS	common intelligibility scale
ckt	circuit (U.S.)
CLEC	competitive local exchange carrier
CM	common mode
CM	construction manager
CM	control module
CMP	communications plenum
CMR	communications riser
CMRR	common-mode rejection ratio
CMU	concrete masonry unit
CMUC	communications undercarpet
CMX	communications residential
CO	central office
CO	change order
CON	certificate of need
COR	close observation room
COT	central office terminal
CP	consolidation point
CPE	customer premises equipment
CPI	cost performance index
CPM	critical path method
CPU	central processing unit
CPVC	chlorinated polyvinyl chloride
CR	computer room
CRAC	computer room air conditioning

CRC	cyclic redundancy check
CRI	color rendition index
CRO	construction ride out
CRT	cathode ray tube
CSI	Construction Specifications Institute
CSMA/CA	carrier sense multiple access with collision avoidance
CSMA/CD	carrier sense multiple access with collision detection
CSU	channel service unit
CTCSS	continuous tone coded squelch system
CTR	common telecommunications room
CTS	clear to send
CUE	concrete universal enclosure
CWDM	coarse wavelength division multiplexing

== D

D/A	digital-to-analog
DA	distributed automation
DA	distribution amplifier
DAC	direct attach cable
DACR	digital alarm communicator receiver
DACS	digital alarm communicator system
DACT	digital alarm communicator transmitter
DARR	digital alarm radio receiver
DARS	digital alarm radio system
DART	digital alarm radio transmitter

DAS	direct-attached storage
DAS	distributed antenna system
DAQ	delivered audio quality
DB	design-build
dBa	A-weighted decibel
dBd	decibels relative to a half wavelength dipole
dBi	decibels relative to an isotropic radiator
DBS	direct broadcast satellite
dBu	decibel unit
dc	direct current
DCIE	data center infrastructure efficiency
DCS	digital cellular system
DCS	digital coded squelch
DD	design development
DD	design document
DD	distribution device
DDC	direct digital control
DDS	dynamic digital signage
DECT	digital enhanced cordless telecommunications
DEPIC	dual expanded plastic insulated conductor
DHCP	dynamic host configuration protocol
DI	digital input
DLC	data link control
DM	differential mode

DMD	differential mode delay
DMT	discrete multitone
DMVPN	Dynamic Multipoint Virtual Private Network
DMZ	demilitarized zone
DNR	digital noise reduction
DO	digital output
DoS	denial of service
DP	demarcation point
DS	digital signal
DS	distribution system
DS0	digital signaling level zero
DS1	digital signal level one
DS1C	digital signal level one C
DS2	digital signal level two
DS3	digital signal level three
DSL	digital subscriber line
DSP	digital signal processor
DSS	digital satellite signal
DSSS	direct sequence spread spectrum
DSU	data service unit
DSX	digital signal cross-connect
DTE	data terminal equipment
DTV	digital TV
DVB	digital video broadcast
DVD	digital versatile disc

DVI-A	digital visual interface–analog
DVI-D	digital visual interface–digital
DVI-I	digital visual interface–integrated
DVMS	digital video management system
DVR	digital video recorder
DVT	digital video technology

== E

E&O	errors and omissions
E/O	electronic-to-optical
EAC	electronic access control
Eb/NO	energy per bit to noise density ratio
EBC	equipment bonding conductor
ECTFE	ethylene chlorotrifluoroethylene
EDA	equipment distribution area
EDP	electrical distribution panel
EEA	European economic area
EESS	Earth Exploration-Satellite Service
EF	entrance facility
EFM	Ethernet in the first mile
EFT	electrical fast transient
EHF	extremely high frequency
EIA	Electronic Industries Alliance
EIRP	effective isotropic radiated power
EIRP	equivalent isotropic radiated power

ELF	extremely low frequency
ELFEXT	equal level far-end crosstalk
EM	electromagnetic
EMB	effective modal bandwidth
EMC	electromagnetic compatibility
EMI	electromagnetic interference
EMP	electromagnetic pulse
EMR	electromagnetic radiation
EMS	emergency medical service
EMS	energy management system
EMT	electrical metallic tubing
ENI	external network interface
ENT	electrical non-metallic tubing
EO	equipment outlet
EoDSL	Ethernet over digital subscriber line
EOLR	end-of-line resistor
EP	entrance point
EPO	emergency power off
EPON	Ethernet passive optical network
EPR	earth potential rise
EQ	equalizer
ER	equipment room
ERP	effective radiated power
ERRCS	emergency responder radio coverage systems
ESD	electrostatic discharge

ESF	extended superframe
ESMR	enhanced specialized mobile radio
ESN	electronic serial number
ESS	electronic security and safety
ESS	extended service set
ETSI	European Telecommunications Standards Institute
ETL	Electronic Testing Laboratories (Intertek)
EV	earned value

== F

F/UTP	foil screened with unshielded twisted-pairs
FA	fire alarm
FACP	fire alarm control panel
fax	facsimile
FC	ferrule connector
FC	fiber connector
FC	fixed connector
FCC	Federal Communications Commission
FCS	frame check sequence
FD	floor distributor
FDDI	fiber distributed data interface
FDM	frequency division multiplexing
FEC	forward error correction
FEP	fluorinated ethylene propylene
FEXT	far-end crosstalk

FHSS	frequency-hopping spread spectrum
FirstNet	First Responder Network Authority
FIT	frame interline transfer
FLA	flooded lead acid
FLS	fire-life-safety
FM	frequency modulation
FMC	flexible metal conduit
FMT	flexible metallic tubing
FO	fiber optic
FO	field order
FOV	field of view
F-PDCH	forward packet data channel
FR	fire retardant
FRS	Family Radio Service
FS	factor of safety
FS	Fixed Service
FSO	free space optics
FTC	failure to capture
FTP	file transfer protocol
FTP	foil twisted-pair
FTTH	fiber to the home
FTTO	fiber to the office
FTTx	fiber to the x
FWHM	full width half maximum

== G

G	conductance
GAN	global area network
GbE	Gigabit Ethernet
GC	general contractor
GE	grounding equalizer
GEC	grounding electrode conductor
GFCI	ground fault circuit interrupter
GIS	geographic information system
GMP	guaranteed maximum price
GPON	gigabit passive optical network
GPR	ground penetrating radar
GPR	ground potential rise
GSM	Global System for Mobile Communications
GUI	graphical user interface

== H

HAAT	height above average terrain
HC	horizontal cross-connect
HCP	horizontal connection point
HD	high definition
HDA	horizontal distribution area
HDMI	high-definition multimedia interface
HDPE	high density polyethylene
HDSDI	high-definition serial digital interface

HDSL	high bit-rate digital subscriber line
HDTV	high definition TV
HF	high frequency
HFC	hybrid fiber-coax
HH	handhole
HIPAA	Health Insurance Portability and Accountability Act of 1996
hostid	host identification
HR	human resources
HR/DSSS	high rate direct sequence spread spectrum
HSAB	high-speed air blown (procedure)
HSPDA	high-speed downlink packet access
HTTP	hypertext transfer protocol
HVAC	heating, ventilation, and air-conditioning

== |

I/O	input/output
I	current
I	in-phase signal
IAPP	interaccess point protocol
IB	intelligent building
IBC	International Building Code
IBN	isolated bonding network
IBSS	independent basic service set
IC	integrated circuit
IC	intermediate cross-connect

ICT	information and communications technology
ICU	intensive care unit
ID	identifier
ID	inside diameter
ID	intelligent device
ID	intermediate distributor
IDC	initiating device circuit
IDC	insulation displacement connector
IDF	intermediate distribution frame
IDS	intrusion detection systems
IEC	International Electrotechnical Commission
IESS	integrated electronic security systems
IETF	Internet Engineering Task Force
IF	intermediate frequency
IFC	intrafacility cabling
IG	isolated ground
ILEC	incumbent local exchange carrier
IMC	intermediate metal conduit
IOR	index of refraction
IoT	internet of things
IP	ingress protection (e.g., IP52)
IP	internet protocol
IPD	integrated project delivery
IPsec	internet protocol security
IPTS	interactive patient TV system

IR	infrared
IR	insulation resistance
ISDN	integrated services digital network
ISM	industrial, scientific, and medical
ISO	International Organization for Standardization
ISOC	Internet Society
ISP	inside plant
ISP	internet service provider
IT	information technology
ITB	invitation to bid
ITE	information technology equipment
ITS	information technology systems
ITU	International Telecommunications Union
IW	inside wire

== J

JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JIS	Japanese Industrial Standard
JPEG	Joint Photographic Experts Group

== K

KSU	key service unit
KTS	key telephone system
KVM	keyboard/video/mouse

==L

L2TP/IPSec	Layer 2 Tunneling Protocol/ internet protocol security
LAD	link access device
LC	latching connector
LCD	liquid crystal display
LCE	limited common element
LCX	leaky coaxial
LD	laser diode
LDP	local distribution point
LEC	line echo canceller
LEC	local exchange carrier
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
LF	low frequency
LiDAR	light imaging detection and ranging
LLC	logical link control
LMDS	local multipoint distribution service
LMR	land mobile radio
LMS	land mobile service
locap	low-capacitance
LORAN	long range navigation
LoS	line of sight
LOTO	lock out – tag out
LP	low pressure
LPC	license plate capture

LPDA	log-periodic dipole array
LPR	license plate recognition
LS0H	low smoke zero halogen
LSA	Lotfrei Schraubfei Abisolierfrei
LSZH	low smoke zero halogen
LT	line terminal
LVD	low voltage disconnect
LW	long wavelength
LWAPP	lightweight access point protocol

== M

MAC	media access control
MAC	move, add, and change
MAHO	mobile assisted handoff
MAN	metropolitan area network
MAP	mobile application part
MC	main cross-connect
MC	metal clad
MCC	motor control center
MC-CDMA	multi-carrier code division multiple access
MCU	master control unit
MD	main distributor
MDA	main distribution area
MDI	medium dependent interface
MDP	main distribution panel

MDU	multi-dwelling unit
MDU-TR	multi-dwelling unit telecommunications room
MEGB	main electrical grounding busbar
mesh-BN	meshed bonding network
MF	medium frequency
MFD	mode field diameter
MGN	multiground neutral
MH	maintenance hole
MIB	management information base
MICE	Mechanical, Ingress, Climatic/Chemical, Electromagnetic
MIMO	multiple input multiple output
MIN	mobile identification number
M-JPEG	Motion-Joint Photographic Experts Group
MLT	multilevel transmission
MM	multimode
MMDS	multi-channel multipoint distribution service
MMDS	multipoint microwave distribution system
MMF	multimode fiber
MOV	metal oxide varistor
MP3	Moving Picture Experts Group layer 3
MPEG	Moving Picture Experts Group
MPO	multifiber push-on
MPOE	minimum point of entry
MPP	modular patch panel
MPTL	modular plug terminated link

MRE	makeready engineering
MRI	magnetic resonance imaging
MS	mobile station
MSC	mobile switching center
MSDS	material safety data sheet
MSS	meteorological-satellite service
MTBF	mean time between failure
MTTR	mean time to repair
MUTOA	multi-user telecommunications outlet assembly

== N

NA	numerical aperture
NAC	network admission control
NAC	notification appliance circuit
NAS	network attached storage
NC	network computer
NC	noise criterion
NCS	National CAD Standard
NEBS	Network Equipment-Building Systems
NEC®	<i>National Electrical Code®</i>
NEMA	National Electrical Manufacturers Association
netid	network identification
NEXT	near-end crosstalk
NFPA	National Fire Protection Association
NI	network interface

NIC	network interface card
NiCd	nickel cadmium
NICU	neonatal intensive care unit
NID	network interface device
NIST	National Institute of Standards and Technology
NMC	network management center
NOC	network operations center
NOS	network operating system
NPLFA	non-power-limited fire alarm
NPSBN	Nationwide Public Safety Broadband Network
NRC	noise reduction coefficient
NRTL	nationally recognized testing laboratory
NRZ	non-return-to-zero
NRZI	non-return-to-zero inverted
NT	network terminal
NTIA	National Telecommunications and Information Administration
NTSC	National Television System Committee
NVP	nominal velocity of propagation
NVR	network video recorder
NZS	New Zealand Standard

== O

O/E	optical-to-electronic
O&M	operations and maintenance
OBS	organization breakdown structure

OC	optical carrier
OC	outlet cable
OCPD	overcurrent protection devices
OD	outside diameter
ODBC	open database connectivity
OEM	original equipment manufacturer
OET	Office of Engineering and Technology
OFC	optical fiber conductive
OFCG	optical fiber conductive general purpose
OFCP	optical fiber conductive plenum
OFCR	optical fiber conductive riser
OFDM	orthogonal frequency division multiplexing
OFDMA	orthogonal frequency division multiple access
OFL	overfilled launch
OFN	optical fiber non-conductive
OFNG	optical fiber non-conductive general purpose
OFNP	optical fiber non-conductive plenum
OFNR	optical fiber non-conductive riser
OLED	organic light-emitting diode
OLT	optical line terminal/termination
OLTS	optical loss test set
OM	optical multimode
OM1	optical multimode 1
OM2	optical multimode 2

OM3	optical multimode 3
OM4	optical multimode 4
ONT	optical network terminal
ONU	optical network unit
OPM	optical power meter
OS	operating system
OS	optical singlemode
OS1	optical singlemode 1
OS2	optical singlemode 2
OSHA	Occupational Safety and Health Administration
OSI	Open Systems Interconnection
OSP	Office of Strategic Planning and Policy Analysis
OSP	outside plant
OSPF	Open Shortest Path First
OTDR	optical time domain reflectometer

== P

PA	average power
PA	public address
PABX	private automatic branch exchange
PAD	packet assembler/disassembler
PAL	phase alternation line
PAM	pulse amplitude modulation
PAN	personal area network
PB	polybutylene

PB	pull box
PBB	primary bonding busbar
PBCC	packet binary convolutional coding
PBPP	pathway barrier penetration plates
PBX	private branch exchange
PC	physical contact
PCB	printed circuit board
PCM	pulse code modulation
PCS	personal communications system/service
PD	powered device
PDU	power distribution unit
PDU	protocol data unit
PE	polyethylene
PE	professional engineer
PERT	program evaluation review technique
PET	protected entrance terminal
PF	power factor
PFAS	personal fall arrest system
PFM	pulse frequency modulation
PHY	physical
PIC	plastic insulated conductor
PID	passive infrared detector
PIN	personal identification number
PIN	positive intrinsic negative

PIR	passive infrared
PIV	personal identification verification
PL	performance level
PL	power-limited
PLC	programmable logic controller
PLFA	power-limited fire alarm
PM	phase modulation
PM	project management/manager
PMA	physical medium attachment
PMD	physical medium dependent
POCSAG	Post Office Code Standardization Advisory Group
PoE	power over Ethernet
POF	plastic optical fiber
PON	passive optical network
POP	point of presence
POS	point of sale
POT	portable operator's terminal
POTS	plain old telephone service
POU	power outlet unit
PP	peak power
PPE	personal protective equipment
PPM	pulse position modulation
PPTP	Point-to-Point Tunneling Protocol
PRCS	permit required confined space

PRI	primary rate interface
PRR	pulse repetition rate
PSAACR-F	power sum attenuation-to-alien crosstalk ratio at far-end
PSAACR-N	power sum attenuation-to-alien crosstalk ratio at near-end
PSACR	power sum attenuation to crosstalk ratio
PSACRF	power sum attenuation-to-crosstalk ratio-far end
PSAFEXT	power sum alien far-end crosstalk
PSANEXT	power sum alien near-end crosstalk
PSE	power sourcing equipment
PSELFEXT	power sum equal level far-end crosstalk
PSIM	physical security information management
PSK	phase-shift keying
PSNEXT	power sum near-end crosstalk
PSTN	public switched telephone network
PTC	positive temperature coefficient
PTP	point-to-point
PTZ	pan, tilt, and zoom
PUC	public utilities commission
PUE	power usage effectiveness
PVC	permanent virtual circuit
PVC	polyvinyl chloride
PWM	pulse width modulation

== Q

Q	quadrature signal
QAM	quadrature amplitude modulation
QC	quality control
QoS	quality of service
QPSK	quadrature phase-shift keying

== R

R/W	right-of-way
RACE	rescue, alarm, confine, extinguish
RADIUS	remote authentication dial-in user service
RADSL	rate-adaptive digital subscriber line
RAID	redundant array of independent disks
RARSR	radio alarm repeater station receiver
RAS	radio alarm system
RASSR	radio alarm supervising station receiver
RAT	radio alarm transmitter
RBB	rack bonding busbar
RBC	rack bonding conductor
REX	request to exit
RF	radio frequency
RFB	request for bid
RFI	radio frequency interference
RFI	request for information
RFI	request for interest

RFI	request for interpretation
RFID	radio frequency identification
RFoG	radio frequency over glass
RFP	request for proposal
RFQ	request for qualifications
RFQ	request for quotation
RG	radio grade
RGB	rack grounding busbar
RGB	red, green, blue
RH	relative humidity
RJ	registered jack
RL	return loss
RMC	rigid metal conduit
rms	root mean square
RMU	rack mounting unit
RNC	rigid non-metallic conduit
RO	remote office
ROI	return on investment
RPE	radiation pattern envelope
RPP	remote power panel
RPR	resilient packet ring
RSTP	rapid spanning tree protocol
RTS	request to send
RU	rack unit
RZ	return to zero

== S

2G	second generation
S/E	signal to error
S/FTP	screened/foil twisted-pair
S	siemen
SaaS	software as a service
SAC	security and access control
SAN	storage area network
SAP	service access point
SAT	source address table
SAT	systems acceptance test
SBB	secondary bonding busbar
SBG	supplementary bonding grid
SC	subscriber connector
SCS	structured cabling system
SCADA	supervisory control and data acquisition
SCO	synchronous connection-oriented
SCSI	small computer system interface
ScTP	screened twisted-pair
SCU	special care unit
SCUPC	subscriber connector-ultra physical contact
SD	schematic design
SDH	synchronous digital hierarchy
SDI	serial digital interface

SDK	software development kit
SDP	service discovery profile
SDR	software defined radio
SDR	standard dimension ratio
SDSL	symmetrical digital subscriber line
SECAM	séquentiel couleur avec mémoire
SF/UTP	overall braid and foil screened with unshielded twisted-pair
SFF	small form factor
SFP	small form factor pluggable
SHF	super high frequency
SI	International System of Units
SIM	subscriber identity module
SLC	signaling line circuit
SM	singlemode
SMA	subminiature A
SMF	singlemode fiber
SMR	specialized mobile radio
SMS	short message service
SNI	standard network interface
SNMP	simple network management protocol
SNR	signal-to-noise ratio
SONET	synchronous optical network
SoW	scope of work
SP	service provider

SPD	surge protection device
SPF	shortest path first
SPG	single-point ground
SPI	schedule performance index
SPL	sound pressure level
SPP	serial port profile
SRL	structural return loss
SS7	Signaling System No. 7
SSB	single sideband modulation
SSID	service set identifier
SSO	single sign-on
ST	straight terminus
STDM	statistical time division multiplexing
STP	shielded twisted-pair
STS	shared tenant service
STS	static transfer switch
STS	synchronous transport signal
SVC	switched virtual circuit
SWR	standing wave ratio

== T

3G	third generation
3GPP2	Third Generation Partnership Project Two
T1	trunk level 1
T3	trunk level 3

T&C	terms and conditions
TB	terminal block
TBB	telecommunications bonding backbone
TBBIBC	telecommunications bonding backbone interconnecting bonding conductor
TBC	telecommunications bonding conductor
TCP	transmission control protocol
TCP/IP	transmission control protocol/ internet protocol
TDD	telecommunications device for the deaf
TDD	time division duplex
TDM	time division multiplexing
TDR	technology distribution room
TDR	time domain reflectometer
TD-SCDMA	time division synchronous code division multiple access
TE	telecommunications enclosure
TEBC	telecommunications equipment bonding conductor
TEC	technology equipment center
TERM	terminal
TGB	telecommunications grounding busbar
TIA	Telecommunications Industry Association
TL	transmission level
TM	trade mark
TMGB	telecommunications main grounding busbar
TO	telecommunications outlet
TP	transition point

TP-PMD	twisted-pair physical medium dependent
TR	telecommunications room
TSB	Telecommunications Systems Bulletin
TTY	teletypewriter/text telephone
TVL	TV line
TX	transmitter
TXOP	transmit opportunity

== U

U/FTP	unshielded twisted-pair cable with foil screened twisted-pair conductors
U-NII	unlicensed national information infrastructure
U/UTP	unshielded twisted-pair cable with unshielded twisted-pair conductors
UBC	unit bonding conductor
UC	unified communications
UDP	user datagram protocol
UDS	uniform data system
UHF	ultrahigh frequency
UMTS	Universal Mobile Telecommunications Service
UPC	ultra physical contact
UPC	universal product code
UPS	uninterruptible power supply
USB	universal serial bus
USGBC	U.S. Green Building Council
USOC	universal service order code

UTC undercarpet telecommunications cable

UTP unshielded twisted-pair

UV ultraviolet

==V

VAV variable air volume

VCSEL vertical cavity surface emitting laser

VDL vertical down lead

VE value engineering

VDSL very high bit-rate digital subscriber line

VF voice frequency

VFL visual fault locator

VGA video graphics array

VHF very high frequency

VLA vented lead-acid

VLAN virtual LAN

VLF very low frequency

VoIP voice over internet protocol

VOM volt-ohm-milliammeter

VPN virtual private network

VRLA valve-regulated lead-acid

VSS video surveillance system

VSWR voltage standing wave ratio

==W

WA	work area
WAN	wide area network
WAP	wireless access point
WATS	wide area telephone service
WBS	work breakdown structure
WCDMA	wideband code division multiple access
WDM	wavelength division multiplexing/multiplexer
WEP	wired equivalent privacy
WG	working group
Wi-Fi	wireless fidelity
WLAN	wireless LAN
WMTS	wireless medical telemetry service
WPAN	wireless personal area network
WW	wireway

==X

xDSL	x digital subscriber line
XGA	extended graphics array
XLPE	cross-linked polyethylene
XML	extensible markup language
XPD	cross-polarization discrimination

==Z

ZD	zone distributor
ZDA	zone distribution area

Units of Measurement

°C	degree Celsius
°F	degree Fahrenheit
A	ampere
AH	ampere hour
amp	ampere
b	bit
b/s	bit per second
BTU	British thermal unit
cfm	cubic foot per minute
cm	centimeter
dB	decibel
dB/km	decibel per kilometer
dBA	decibel A-weighting
dBm	decibel milliwatt
dBmV	decibel millivolt
dBu	decibel unloaded
dBV	decibel volt
dBW	decibel watt
EHz	exahertz
eV	electron volt
fc	foot-candle

fps	frames per second
ft	foot
ft²	square foot
ft³	cubic foot
Gb	gigabit
Gb/s	gigabit per second
GeV	giga-electron volt
GHz	gigahertz
H	henry
h	hour
HP	horsepower
Hz	hertz
in	inch
in WC	inch water column
in²	square inch
K	Kelvin
kb	kilobit
kb/s	kilobit per second
kcmil	one thousand circular mils
KeV	Kilo-electron-volt
kg	kilogram
kHz	kilohertz
km	kilometer

km/s	kilometer per second
kN	kilonewton
kPa	kilopascal
kV	kilovolt
kVA	kilovolt-ampere
kW	kilowatt
kWh	kilowatt hour
lb	pound
lbf	pound-force
m	meter
m²	square meter
mA	milliampere
Mb	megabit
Mb/s	megabit per second
MCM	one thousand circular mil
MeV	mega-electron volt
MHz	megahertz
MHz•km	megahertz•kilometer
mi	mile
mi/s	mile per second
mil	circular mil
Mm	megameter
mm	millimeter

mm²	square millimeter
ms	millisecond
mV	millivolt
mW	milliwatt
N	newton
nm	nanometer
ns	nanosecond
Pa	pascal
pF	picofarad
pF/m	picofarad per meter
PHz	petahertz
ps	picoseconds
psi	pound per square inch
RU	rack unit
s	second
Tb/s	terabit per second
THz	terahertz
V	volt
V/m	volt per meter
VA	volt-ampere
Vac	volts alternating current
Vdc	volt direct current
Vpp	volts peak-to-peak

Vrms	volt root-mean-square
W	watt
YHz	Yottahertz
ZHz	Zettahertz
μm	micron
μs	microsecond
μV	microvolt