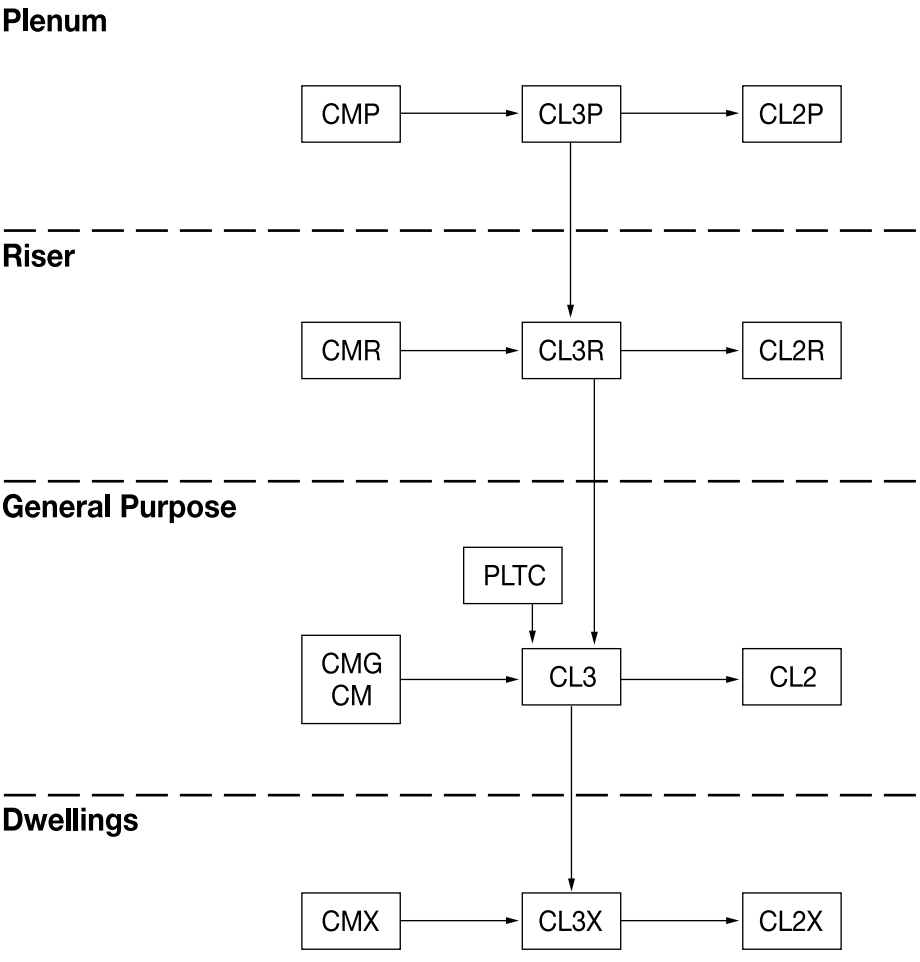
Technical Information 9

NEC and CSA Fire Resistance Levels

FIRE RESISTANCE LEVEL	TEST REQUIREMENT	NEC ARTICLE		
		800	725	760
(Highest) Plenum Cables	NFPA 262 (Steiner tunnel) CSA-FT6 (Steiner tunnel)	CMP	CL3P CL2P	FPLP
Riser Cables Multiple Floors	UL-1666 (Vertical Shaft) CSA-FT4 (Vertical Tray)	CMR	CL3R CL2R	FPLR
General Purpose Cables	UL-1581 (Vertical Tray) CSA-FT4 (Vertical Tray)	CMG	CL3 CL2	FPL
(Lowest) Residential Cables Restricted Use	UL-1581 VW-1 CSA-FT	CMX	CL3X CL2X	

Notes: 1. Cables with a higher fire resistance level may be substituted for those with a lower fire resistance level.
2. Non-fire-rated outside plant telephone cables may not run outside of a rigid metal conduit more than 50 feet from the point of entrance into a building.
3. Cables rated CMG or CM may be used in runs penetrating one floor (NEC 800-53).

Communications wire and cable for premise installations are in accordance with Article 800 and other applicable parts of the National Electrical Code (NEC), latest issue. Communications wire and cables for Canada are in accordance with the harmonized Canadian Standard Association C22.2 No. 214, Underwriters Laboratories UL 444, latest issue.



TYPE	DESCRIPTION
CM	Communications Wires and Cables
CL2 and CL3	Class 2 and Class 3 Remote-Control, Signaling and Power-Limited Cables
PLTC	Power-Limited Tray Cable

(From 2008 NEC Handbook)

[A] → [B] Cable A shall be permitted to be used in place of Cable B

Temperature Conversion Chart

To use this chart, find your known temperature (˚F or ˚C) in the shaded column. If the known temperature is in ˚C and you wish to know its value in ˚F, move to the adjacent right-hand column. If the known temperature is in ˚F and you wish to know its value in ˚C, move to the adjacent left-hand column.

°C	KNOWN TEMP	°F	°C	KNOWN TEMP	°F	°C	KNOWN TEMP	°F	°C	KNOWN TEMP	°F	°C	KNOWN TEMP	°F
-45.0	**-49.0**	-56.2	-17.2	**1.0**	33.8	10.6	**51.0**	123.8	38.3	**101.0**	213.8	66.1	**151.0**	303.8
-43.9	**-47.0**	-52.6	-16.1	**3.0**	37.4	11.7	**53.0**	127.4	39.4	**103.0**	217.4	67.2	**153.0**	307.4
-42.8	**-45.0**	-49.0	-15.0	**5.0**	41.0	12.8	**55.0**	131.0	40.6	**105.0**	221.0	68.3	**155.0**	311.0
-41.7	**-43.0**	-45.4	-13.9	**7.0**	44.6	13.9	**57.0**	134.6	41.7	**107.0**	224.6	69.4	**157.0**	314.6
-40.6	**-41.0**	-41.8	-12.8	**9.0**	48.2	15.0	**59.0**	138.2	42.8	**109.0**	228.2	70.6	**159.0**	318.2
-39.4	**-39.0**	-38.2	-11.7	**11.0**	51.8	16.1	**61.0**	141.8	43.9	**111.0**	231.8	71.7	**161.0**	321.8
-38.3	**-37.0**	-34.6	-10.6	**13.0**	55.4	17.2	**63.0**	145.4	45.0	**113.0**	235.4	72.8	**163.0**	325.4
-37.2	**-35.0**	-31.0	-9.4	**15.0**	59.0	18.3	**65.0**	149.0	46.1	**115.0**	239.0	73.9	**165.0**	329.0
-36.1	**-33.0**	-27.4	-8.3	**17.0**	62.6	19.4	**67.0**	152.6	47.2	**117.0**	242.6	75.0	**167.0**	332.6
-35.0	**-31.0**	-23.8	-7.2	**19.0**	66.2	20.6	**69.0**	156.2	48.3	**119.0**	246.2	76.1	**169.0**	336.2
-33.9	**-29.0**	-20.2	-6.1	**21.0**	69.8	21.7	**71.0**	159.8	49.4	**121.0**	249.8	77.2	**171.0**	339.8
-32.8	**-27.0**	-16.6	-5.0	**23.0**	73.4	22.8	**73.0**	163.4	50.6	**123.0**	253.4	78.3	**173.0**	343.4
-31.7	**-25.0**	-13.0	-3.9	**25.0**	77.0	23.9	**75.0**	167.0	51.7	**125.0**	257.0	79.4	**175.0**	347.0
-30.6	**-23.0**	-9.4	-2.8	**27.0**	80.6	25.0	**77.0**	170.6	52.8	**127.0**	260.6	80.6	**177.0**	350.6
-29.4	**-21.0**	-5.8	-1.7	**29.0**	84.2	26.1	**79.0**	174.2	53.9	**129.0**	264.2	81.7	**179.0**	354.2
-28.3	**-19.0**	-2.2	-0.6	**31.0**	87.8	27.2	**81.0**	177.8	55.0	**131.0**	256.8	82.8	**181.0**	357.8
-27.2	**-17.0**	-1.4	0.6	**33.0**	91.4	28.3	**83.0**	181.4	56.1	**133.0**	271.4	83.9	**183.0**	361.4
-26.1	**-15.0**	5.0	1.7	**35.0**	95.0	29.4	**85.0**	185.0	57.2	**135.0**	275.0	85.0	**185.0**	365.0
-25.0	**-13.0**	8.6	2.8	**37.0**	98.6	30.6	**87.0**	188.6	58.3	**137.0**	278.6	86.1	**187.0**	368.6
-23.9	**-11.0**	12.2	3.9	**39.0**	102.2	31.7	**89.0**	192.2	59.4	**139.0**	282.2	87.2	**189.0**	372.2
-22.8	**-9.0**	15.8	5.0	**41.0**	105.8	32.8	**91.0**	195.8	60.6	**141.0**	285.8	88.3	**191.0**	375.8
-21.7	**-7.0**	19.4	6.1	**43.0**	109.4	33.9	**93.0**	199.4	61.7	**143.0**	289.4	89.4	**193.0**	379.4
-20.6	**-5.0**	23.0	7.2	**45.0**	113.0	35.0	**95.0**	203.0	62.8	**145.0**	293.0	90.6	**195.0**	383.0
-19.4	**-3.0**	26.6	8.3	**47.0**	116.6	36.1	**97.0**	206.6	63.9	**147.0**	296.6	91.7	**197.0**	386.6
-18.3	**-1.0**	30.2	9.4	**49.0**	120.2	37.2	**99.0**	210.2	65.0	**149.0**	300.2	92.8	**199.0**	390.2

Temperature Conversion Formulas	
°C =	$\frac{5}{9}$ (°F - 32)
°F =	($\frac{9}{5}$ x °C) + 32

General Cable

Color Code Chart

BINDER GROUP COLOR	PAIR COUNT
White-Blue	001-025
White-Orange	026-050
White-Green	051-075
White-Brown	076-100
White-Slate	101-125
Red-Blue	126-150
Red-Orange	151-175
Red-Green	176-200
Red-Brown	201-225
Red-Slate	226-250
Black-Blue	251-275
Black-Orange	276-300
Black-Green	301-325
Black-Brown	326-350
Black-Slate	351-375
Yellow-Blue	376-400
Yellow-Orange	401-425
Yellow-Green	426-450
Yellow-Brown	451-475
Yellow-Slate	476-500
Violet-Blue	501-525
Violet-Orange	526-550
Violet-Green	551-575
Violet-Brown	576-600

PAIR NO.	RING CONDUCTOR		TIP CONDUCTOR	
	INSULATION COLOR	BAND MARK	INSULATION COLOR	BAND MARK
1	Blue	White	White	Blue
2	Orange	White	White	Orange
3	Green	White	White	Green
4	Brown	White	White	Brown
5	Slate	White	White	Slate
6	Blue	Red	Red	Blue
7	Orange	Red	Red	Orange
8	Green	Red	Red	Green
9	Brown	Red	Red	Brown
10	Slate	Red	Red	Slate
11	Blue	Black	Black	Blue
12	Orange	Black	Black	Orange
13	Green	Black	Black	Green
14	Brown	Black	Black	Brown
15	Slate	Black	Black	Slate
16	Blue	Yellow	Yellow	Blue
17	Orange	Yellow	Yellow	Orange
18	Green	Yellow	Yellow	Green
19	Brown	Yellow	Yellow	Brown
20	Slate	Yellow	Yellow	Slate
21	Blue	Violet	Violet	Blue
22	Orange	Violet	Violet	Orange
23	Green	Violet	Violet	Green
24	Brown	Violet	Violet	Brown
25	Slate	Violet	Violet	Slate

Note: Bandmarking on the ring conductors is omitted on cables with 5 pairs or less.

Conduit Capacities by Wire or Cable Diameter

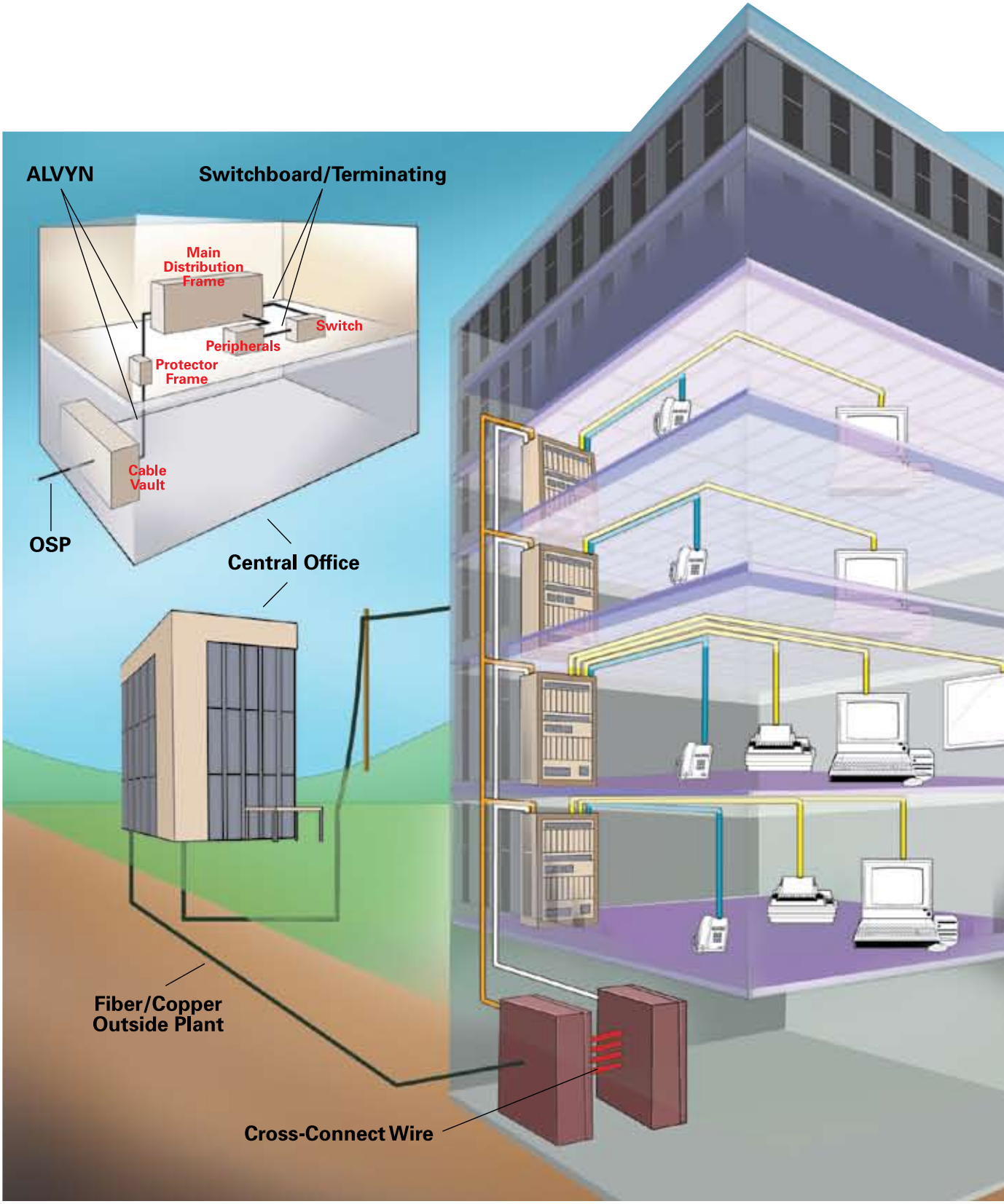
	TRADE SIZES IN INCHES[1]											
	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5
I.D., Inches	.622	.824	1.049	1.380	1.610	2.067	2.469	3.068	3.548	4.026	4.506	5.047
O.D., Inches-Conduit	.840	1.05	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563
Internal Area, Sq. In.	.304	.533	.864	1.496	2.036	3.356	4.788	7.393	9.887	12.730	15.947	20.006
Permissible Fill, Sq. In.[2]	.12	.21	.35	.60	.81	1.34	1.92	2.96	3.95	5.09	6.38	8.00

WIRE/CABLE O.D. (INCHES)	AREA (SQ. IN.)												
.100	.008	15	27	44	76	103	170	243	376	503	648	812	1018
.125	.012	9	17	28	48	66	109	156	240	322	414	519	652
.150	.018	6	12	19	33	46	75	108	167	223	288	360	452
.175	.024	5	8	14	24	33	55	79	122	164	211	265	332
.200	.031	3	6	11	19	25	42	60	94	125	162	203	254
.225	.040	3	5	8	15	20	33	48	74	99	128	160	201
.250	.049	2	4	7	12	16	27	39	60	80	103	129	163
.275	.059	2	3	5	10	13	22	32	49	66	85	107	134
.300	.071	1	3	4	8	11	18	27	41	55	72	90	113
.325	.083	1	2	4	7	9	16	23	35	47	61	76	96
.350	.096	1	2	3	6	8	13	19	30	41	52	66	83
.375	.110	1	1	3	5	7	12	17	26	35	46	57	72
.400	.126	0	1	2	4	6	10	15	23	31	40	50	63
.425	.142	0	1	2	4	5	9	13	20	27	35	44	56
.450	.159	0	1	2	3	5	8	12	18	24	32	40	50
.475	.177	0	1	1	3	4	7	10	16	22	28	35	45
.500	.196	0	1	1	3	4	6	9	15	20	25	32	40
.600	.283	0	0	1	2	2	4	6	10	13	18	22	28
.700	.385	0	0	0	1	2	3	4	7	10	13	16	20
.800	.503	0	0	0	1	1	2	3	5	7	10	12	15
.900	.636	0	0	0	0	1	2	3	4	6	8	10	12
1.000	.785	0	0	0	0	1	1	2	3	5	6	8	10
1.200	1.084	0	0	0	0	0	1	1	2	3	4	5	7
1.400	1.485	0	0	0	0	0	0	1	1	2	3	4	5
1.600	1.948	0	0	0	0	0	0	0	1	2	2	3	4
1.800	2.474	0	0	0	0	0	0	0	1	1	2	2	3
2.000	3.142	0	0	0	0	0	0	0	0	0	1	1	2

[1] Table developed for steel or aluminum conduit.
[2] Permissible occupied area based on NEC-prescribed 40% fill factor.
Note: The reader is cautioned to consult the NEC or BICSI installation manual for specific information regarding conduit fill. Fill rates must be adjusted down based on distances and number of bends.

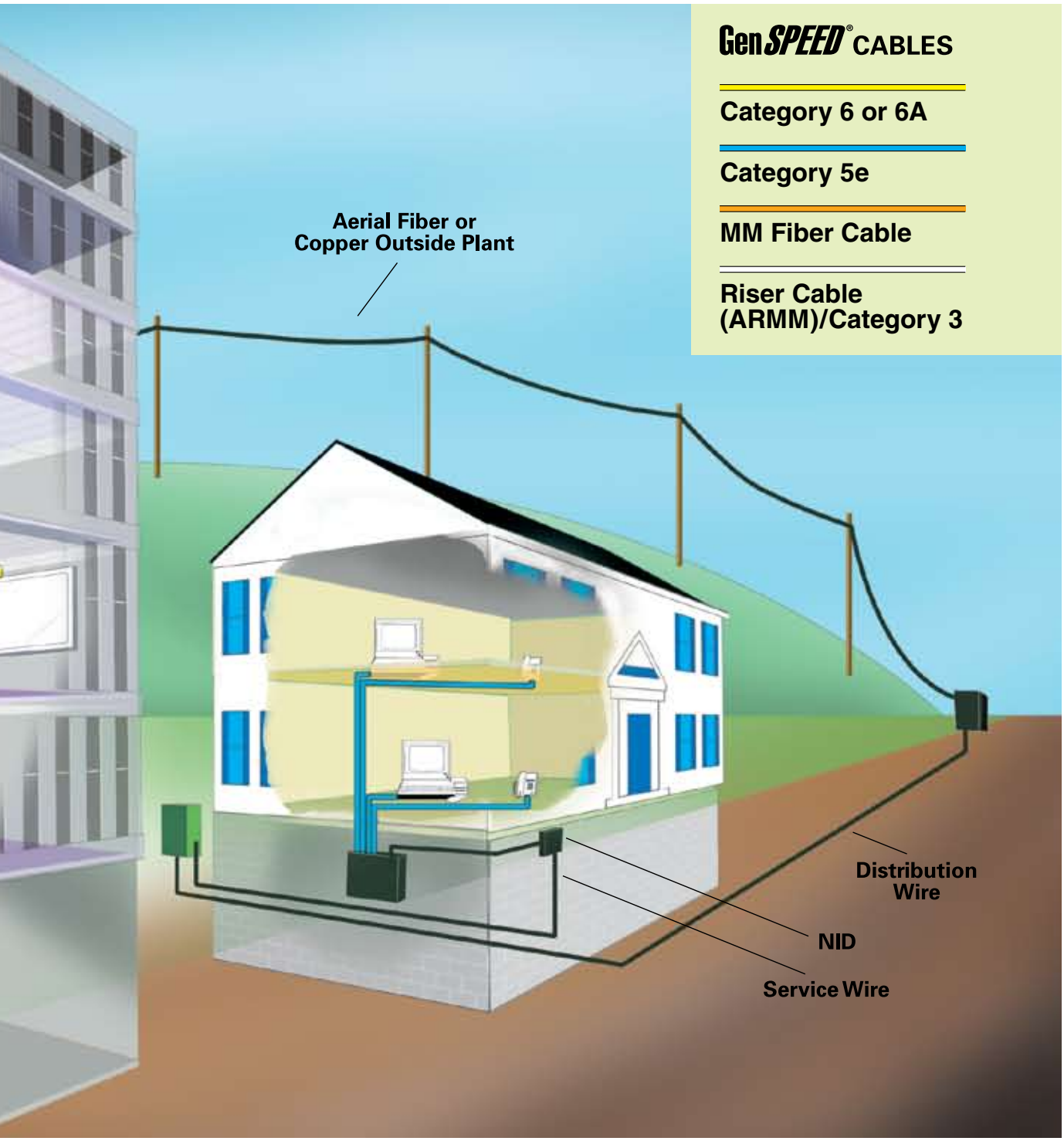
General Cable

Commercial Building Datacom/Topology



General Cable

Commercial Building Datacom/Topology



General Cable

OUR BEST IDEAS COME FROM YOU

You asked us to think outside the box, so we started with the box. Our Gen*SPEED*® Spool-Pac® Cat 6 cartons have been redesigned in response to your recommendations.

Share your ideas. We're listening:
Datacom@GeneralCable.com

General Cable
4 Tesseneer Drive
Highland Heights, KY 41076
Telephone: (800) 424-5666
(859) 572-8000
www.generalcable.com

Packaging Information

Gen*SPEED*® Packaging Options:

- Pull-Pac® cartons offer wide-mouth payouts that enhance cable pulling while preventing tangling and kinks.
- Spool-Pac® cartons offer the option of pulling cable from spools packaged within a carton, which also prevents tangling.
- Spools are a packaging of choice for most category cables.
- Cartons have been designed and preprinted with pertinent information such as brand name, category of cable and cable type. Cartons are also labeled with pertinent product information such as UL listing, category of cable, cable type, color, footage and product description.
- The plenum cable cartons have a green color band for ease of identification, and the riser cartons are identified by a blue color band.
- All Gen*SPEED* cables have the TRU-Mark® sequential footage marking system, from 1000 ft to 0 ft, to reduce waste on the job.
- Most packages are made with partially recycled cardboard. Please recycle. ♻

Other Communications Product Packaging Options:

- Standard Pull-Pac cartons, Spool-Pac cartons and spools
- Sequential footage marking
- Cartons are labeled with pertinent product information such as UL listing, category of cable, cable type, color, footage and product description.

▲Spool-Pac® Cat 3

▲ Gen*SPEED*® Pull-Pac® II

5000 CMR/CMP
5350 CMR/CMP
5500 CMR/CMP
6000E CMR/CMP
6 CMR/CMP

▲ Gen*SPEED*® Basic Spool-Pac®

5000 CMR/CMP
5350 CMR/CMP
5500 CMR/CMP

◀Gen*SPEED*® EZ-Brake™ Spool-Pac®

6000E CMR/CMP
6500P CMR/CMP

Spool▶
Available for all Datacom products

General Cable

Industry Standards, Typical Uses and Electrical Requirements

For Twisted Pair Horizontal Wiring Cable

CATEGORY	INDUSTRY STANDARDS	TYPICAL USES	FREQUENCY	ATTEN. dB/100M (MAX)	CHARACTERISTICS IMPEDANCE OHMS MIN	CHARACTERISTICS IMPEDANCE OHMS MAX	NEXT dB (MIN)	PSNEXT dB (MIN)	RETURN LOSS dB (MIN)	PSACRF (PSELFEXT) dB (MIN)	PSAACRF dB (MIN)	PSANEXT dB (MIN)
Category 3	ANSI/TIA/EIA 568 B.2 ANSI/ICEA S-90-661 NEMA WC63.1	10 BASE-T 4 Mbps TOKEN RING 52 Mbps ATM 100 BASE VG AnyLAN	772kHz 1MHz 4MHz 8MHz 10MHz 16MHz	2.2 2.6 5.6 8.5 9.7 13.1	87 85 85 85 85 85	117 115 115 115 115 115	43 41 32 28 26 23	— — — — — —	— — — — — —	— — — — — —	— — — — — —	— — — — — —
Category 5e	ANSI/TIA/EIA 568 B.2 ANSI/ICEA S-90-661 NEMA WC63.1 ISO 11801	16 Mbps TOKEN RING 100 BASE-T 52/155 Mbps ATM 100 BASE VG AnyLAN 100 Mbps TP PMD 1000 BASE-T (Gigabit Ethernet)	772kHz 1MHz 4MHz 8MHz 10MHz 16MHz 20MHz 25MHz 31.25MHz 62.5MHz 100MHz	1.8 2.0 4.1 5.8 6.5 8.2 9.3 10.4 11.7 17.0 22.0	87 85 85 85 85 85 85 85 85 85 85	117 115 115 115 115 115 115 115 115 115 115	67 65 56 51 50 47 45 44 43 38 35	64 62 53 48 47 44 42 41 40 35 32	— 20.0 23.0 24.5 25.0 25.0 25.0 24.3 23.6 21.5 20.1	63.0 60.8 48.7 42.7 40.8 36.7 34.7 32.8 30.9 24.8 20.8	— — — — — — — — — — —	— — — — — — — — — — —
Category 6	ANSI/TIA/EIA 568 B.2 ANSI/ICEA S-90-661 NEMA WC66 TIA/EIA 568 B.2-1 ISO 11801	16 Mbps TOKEN RING 155/622 Mbps ATM 1.2 Gbps ATM 100 Mbps TP PMD 100 BASE-T 1000 BASE-T (Gigabit Ethernet)	772kHz 1MHz 4MHz 10MHz 16MHz 20MHz 31.25MHz 62.5MHz 100MHz 200MHz 250MHz	1.8 2.0 3.8 6.0 7.6 8.5 10.7 15.4 19.8 29.0 32.8	87 85 85 85 85 85 85 85 85 85 85	117 115 115 115 115 115 115 115 115 115 115	76.0 74.3 65.3 59.3 56.2 54.8 51.9 47.4 44.3 39.8 38.3	74.0 72.3 63.3 57.3 54.2 52.8 49.9 45.4 42.3 37.8 36.3	— 20.0 23.0 25.0 25.0 25.0 23.6 21.5 20.1 18.0 17.3	67.0 64.8 52.8 44.8 40.7 38.7 36.8 34.9 24.8 18.8 16.8	— — — — — — — — — — —	— — — — — — — — — — —
Category 6a	ANSI/TIA 568 B.2-10 RoHS	IEEE 802.3 10G BASE-T 100 BASE-T 100 BASE-TX 10 BASE-T 1000 BASE-TX 155 Mb/s ATM ANSI X3.263 100Mb/s	1MHz 4MHz 8MHz 10MHz 16MHz 20MHz 25MHz 31.25MHz 62.50MHz 100MHz 200MHz 250MHz 300MHz 400MHz 500MHz	2.1 3.8 5.3 5.9 7.5 8.4 9.4 10.5 15.0 19.1 27.6 31.1 34.3 40.1 45.3	85 85 85 85 85 85 85 85 85 85 85 85 85 85 85	115 115 115 115 115 115 115 115 115 115 115 115 115 115 115	74.3 65.3 60.8 59.3 56.2 54.8 53.3 51.9 47.4 44.3 39.8 38.3 37.1 35.3 33.8	72.3 63.3 58.8 57.3 54.2 52.8 51.3 49.9 45.4 42.3 37.8 36.3 35.1 33.3 31.8	20.0 23.0 24.5 25.0 25.0 25.0 24.3 23.6 21.5 20.1 18.0 17.3 16.8 15.9 15.2	64.8 52.8 46.7 44.8 40.7 38.8 36.8 34.9 28.9 24.8 18.8 16.8 15.3 12.8 10.8	78.2 66.2 60.1 58.2 54.1 52.2 50.2 48.3 42.3 38.2 32.2 30.2 28.7 26.2 24.2	92.5 83.5 79.0 77.5 74.4 73.0 71.5 70.1 65.6 62.5 58.0 56.5 55.3 53.5 52.0

Data subject to change without notice. Contact your Customer Service Representative for latest information.

— No requirement

Note: Higher category may be substituted for lower category.

General Cable

Glossary

Alien Crosstalk (AXT): Unwanted signal coupling from one component, channel, or permanent link to another is defined as alien crosstalk. Alien crosstalk is only specified by the Standards as a power sum parameter for components and cabling to approximate the energy present when all pairs are energized. Power sum alien measured at the near-end is called Power Sum Alien Near-End Crosstalk loss (PSANEXT) and power sum alien crosstalk at the far-end is called Power Sum Alien Attenuation to Crosstalk Ratio, far-end (PSAACRF). High power sum alien crosstalk levels can compromise the operation of 10G Base-T applications.

American Wire Gauge (AWG): A system used to specify wire size. The greater the wire diameter, the smaller the value (e.g., 24 AWG [0.51 mm {0.020 in}]).

Asynchronous Transfer Mode (ATM): A high-speed switching transmission protocol that utilizes payload packages organized into 53-byte cells to carry data.

Attenuation: The decrease in magnitude of transmission signal strength between points, expressed as the ratio of output to input. Measured in dB, usually at a specific frequency for copper or wavelength for optical fiber, the signal strength may be power or voltage.

Attenuation-to-Crosstalk Ratio (ACR): The difference between attenuation and crosstalk, measured in dB at a given frequency. This difference is critical to ensure that the signal sent down the twisted-pair cable is stronger at the receiving end of the cable than any interference signals (crosstalk) from other cable pairs.

Bandwidth: A range of frequencies, usually the difference between the upper and lower limits of the range, expressed in Hz. It is used to denote the potential capacity of the medium, device or system. In copper and optical fiber cabling, the bandwidth decreases with increasing length.

Baseband transmission: A transmission technique in which all of the available bandwidth is dedicated to a single communications channel. Only a single message transfer can occur at a given time.

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. The number of errors made in a digital transmission as compared to complete accuracy.

Broadband transmission: The transmission of multiple signals on a medium at the same time, sharing the entire bandwidth of the medium. The signals are multiplexed into channels with a bandwidth of 6 kHz each and occupy a different frequency on the cable. The signals are divided, usually by frequency divisions, to allow more than one channel on the cable at any time.

Broadcast: A technique for sending data simultaneously to all devices attached to a network with a single transmission. See multicast and unicast.

Capacitance: The tendency of an electronic component to store electrical energy. Pairs of wire in a cable tend to act as a capacitor. The charge on one of two conductors of a capacitor divided by the potential difference between them (measured in farads).

Common-mode noise (and longitudinal): The noise voltage that appears between each signal conductor to ground, caused by electrostatic induction and/or electromagnetic induction.

Cross-connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.

Crosstalk: The unwanted reception of electromagnetic signals on a communications circuit from another circuit.

Decibel (dB): A logarithmic unit used for expressing the loss or gain of signal strength. One dB is the amount by which the pressure of a pure sine wave of sound must be varied in order for the change to be detected by the average human ear.

Delay skew: The difference in the propagation delay between any two pairs within the same cable sheath.

Dielectric constant: The ratio of capacitance of an insulated wire measured against the same wire uninsulated, but using air as the dielectric, which is equal to one.

Elongation: The fraction increase in the length of a material stressed in tension.

Equal Level Far-End Crosstalk (ELFEXT): A measure of the unwanted signal coupling from a transmitter at the near end into another pair measured at the far end, relative to the received signal level.

Ethernet: A LAN protocol using a logical bus structure and carrier sense multiple access with collision detection.

Far-end crosstalk loss: A measure of the unwanted signal coupling from a transmitter at the near end into another pair measured at the far end, relative to the transmitted signal level.

FEP: Fluorinated Ethylene Propylene

Frequency: The measure of the number of cycles (waves) per second, expressed in Hz.

Full Duplex: Simultaneous two-way transmission utilizing all 4 pairs.

Gigabits per second (Gb/s): A transmission rate denoting one billion bits per second.

Gigabit Ethernet: A carrier sense multiple access with collision detection LAN standard developed by the IEEE 802 group operating at one Gb/s.

Hertz (Hz): A unit of frequency equal to one cycle per second.

Insertion loss: The signal loss resulting from the insertion of a component, link or channel between a transmitter and receiver (often referred to as attenuation).

Insulation: The dielectric material that physically separates wires and prevents conduction between them.

Megabits per second (Mb/s): A unit of measure used to express the data transfer rate of a system, device or communications channel.

Megahertz (MHz): A unit of frequency equal to one million cycles per second (hertz).

Near-end crosstalk (NEXT): The unwanted signal coupling between pairs. It is measured at the end of a cable nearest the point of transmission. Contrast with far-end crosstalk.

Nominal velocity of propagation (NVP): The speed of transmission along a cable relative to the speed of light in a vacuum.

General Cable

Glossary

Ohm: The standard unit of electrical resistance that measures the opposition to the flow of direct current, called resistance, or opposition to the flow of alternating current, called impedance. One volt will cause one ampere of current to flow through one ohm of resistance. The symbol is W.

Plenum: A designated area used for transport of environmental air as part of the air distribution system. Because it is part of the air distribution system, cables installed in this space require a higher fire rating.

Plenum cable: A cable with flammability and smoke characteristics that meet the safety requirements of the National Electrical Code® (NEC®) that allow it to be routed in a plenum area without being enclosed in a conduit.

Polyolefin: A thermoplastic insulation material having excellent properties and moisture resistance, used in the construction of some communications cable.

Polyvinyl Chloride (PVC): A tough, flame-retardant, thermoplastic, water-resistant insulator. Its dielectric losses are higher than polyethylene.

Polyvinylidine DiFluoride (PVDF): A highly non-reactive and pure thermoplastic fluoropolymer. It is tough and has low friction.

Power Sum Attenuation-to-Crosstalk Ratio (PSACR): The difference between attenuation and power sum crosstalk measured in dB at a given frequency. This difference is critical to ensure that the signal sent down the twisted-pair cable is stronger at the receiving end of the cable than any interference signals (crosstalk) from other cable pairs.

Power Sum Equal Level Far-End Crosstalk (PSELFEXT) Loss: 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 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.

Propagation delay: The time interval required for a signal to be transmitted from one end of the circuit to the other.

Restriction on Hazardous Substances (RoHS): The European Commission's Directive 2002/95/EC adopted January 27, 2003, also known as "RoHS," which restricts the use of certain hazardous substances in electrical and electronic equipment.

Return loss: A ratio of the power of the outgoing signal to the power of the reflected signal, expressed in dB.

Rip cord: A small filament cord used to rip through the outer cable sheath.

Riser: Term applied to vertical sections of cable, such as changing from underground or direct-buried plant to aerial plant. Term also applies to the space used for cable access between floors.

Separator: A layer of insulating material, which is placed between pairs inside a cable to enhance crosstalk. This could be in a form of tape, cross-web or just single filler.

Signal-to-Noise Ratio (SNR): The ratio between the detected signal power and noise in a receiver, expressed in dB. The prime determining factor in bit error rate. See Bit Error Rate.

Star Topology: A Local Area Network (LAN) topology in which end points of the network are connected to a common central switch by point-to-point links.

Structural Return loss: A measure of reflected energy of a transmitted signal due to impedance variations along the length of the cable, expressed in dB.

T-1: A digital transmission link with a bandwidth capacity of 1.544 Mb/s. Typical medium is 2-pair telephone wire; however, T-1 is not indicative of transmission medium.

Token ring: Allows attached devices to 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.

Velocity of propagation: The speed of transmission along a cable relative to the speed of light in a vacuum.

VoIP: A term used in IP telephony for voice delivered using the Internet Protocol.

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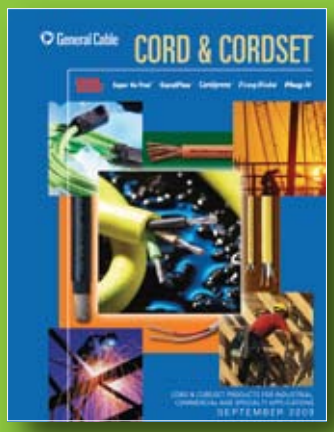

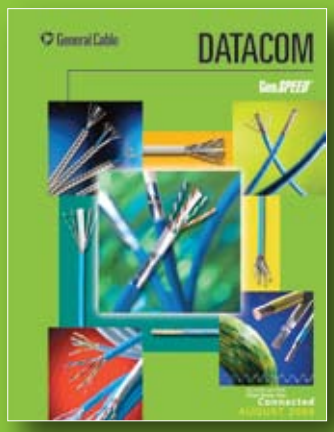

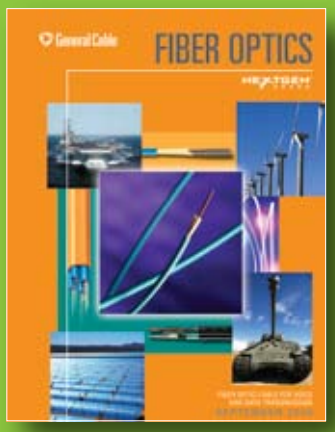

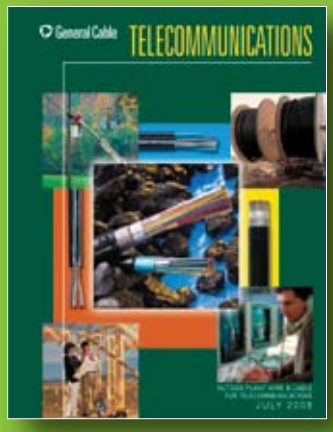

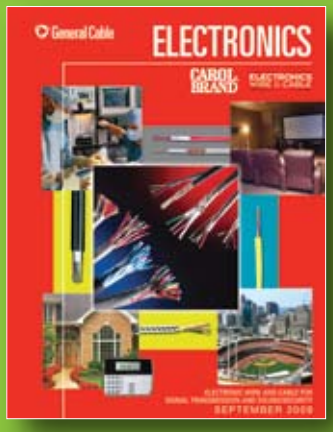

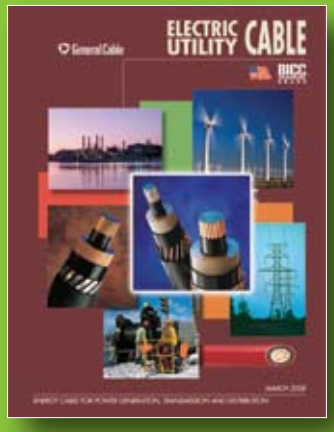

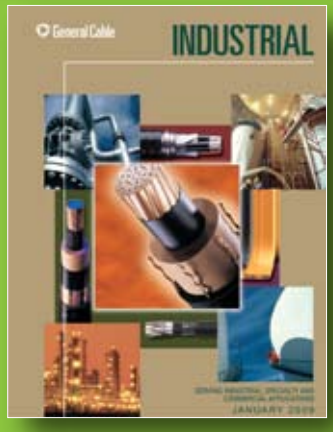

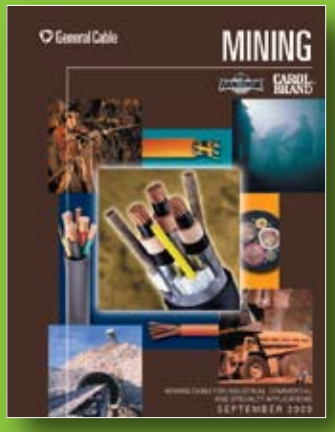

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