SECTION 27 15 33
COMMUNICATIONS HORIZONTAL COAXIAL CABLING

Part 1 General

1.1 Summary

1.1.1 This section shall govern the products and installation of horizontal coaxial cable.

1.2 Related Documents

1.2.1 The latest versions of the following codes, standards, and guidelines shall be followed. Bring to CCS' immediate attention where construction documents or conditions differ from requirements in codes, standards, guidelines and specifications.

1.2.2 The following standards:

1. ANSI/TIA-568-C.4, Broadband Coaxial Cabling and Components Standard

4. TIA-569-C, Commercial Building Standard for Telecommunications Pathways and Spaces

1.2.3 The following guidelines:

1. BICSI, Telecommunications Distribution Methods Manual (TDMM)

2. BICSI, Information Transport Systems Installation Methods Manual (ITSIMM)

1.2.4 The following project specifications:

1. 27 05 26 Grounding and Bonding for Communications

2. 27 05 53 Identification for Communications Systems

3. 27 11 19 Communications Terminations Blocks and Patch Panels

4. 27 15 43 Communications Faceplates and Modular Jacks

1.3 Submittals

1.3.1 The following submittals are due at the Pre-Construction Phase, in accordance with submittal requirements in Section 27 05 00:

1. Product Information

a) Provide manufacturer's product information cutsheet or specifications sheet with the specific product number identified or filled out.

2. Shop Drawings

a) Provide scaled drawings indicating routing of copper coax cabling.

Part 2 Product

2.1 Horizontal Coaxial Cabling

2.1.1 The Coaxial cable shall meet or exceed the latest requirements of all Codes, Standards and Regulations.

2.1.2 Non-plenum inside plant cables with a 12.7 mm (0.500 inch) OD or larger shall meet all requirements specified for outside plant cables, with the exception of the outer jacket

[and armouring]. Inside plant cables less than 12.7 mm (0.500 inch) OD shall have a braided copper or aluminum outer conductor with 65 plus or minus 5 percent braid coverage. The inner conductor shall be copper clad steel wire or solid copper and an aluminum foil bonded to the outside of the dielectric.

2.1.3 The following types of cables are acceptable for use in the distribution system. The cables shall as a minimum conform to the following specifications:

Max Attenuation at 20 degrees C (See table below for max. loss per 100 ft)

Frequency (Mhz)	12.7 mm (0.5")	19.1 mm (0.75")	RG-59	RG-6	RG-11
55	0.54 dB	0.37 dB	2.05 dB	1.05 dB	0.96 dB
216	1.10 dB	0.76 dB	3.80 dB	3.05 dB	1.90 dB
300	1.32 dB	0.91 dB	4.45 dB	3.55 dB	2.25 dB
750	2.26 dB	1.60 dB	7.10 dB	5.50 dB	3.48 dB

DC Resistance at 20 degrees C (68 degrees F)

Inner Conductor	1.34 Ohms	0.57 Ohms	(n/a)	(n/a)	(n/a)
Outer Conductor	0.39 Ohms	0.18 Ohms	(n/a)	(n/a)	(n/a)
Characteristic Impedance	75 plus or minus 2 Ohms				
Capacitance (per foot)	15.5 pF	15.5 pF	17 pF	17 pF	17 pF
Velocity of Propagation	87%	87%	81% ± 3	81% ± 3	81% ± 3
Minimum Structural Return Loss	26 dB	26 dB	(n/a)	(n/a)	(n/a)

2.1.1 Horizontal coaxial cabling shall be copper, RG-6 double shielded (minimum) type with non-contaminating jacket, and certified 100% sweep tested by the Manufacturer as indicated by tags on each reel. The tags and a two-foot sample shall be delivered to the Communications Consultant prior to installation.

2.1.2 The cable shall be able to pass the frequency spectrum test from 5 to 890 MHz.

2.1.3 The cable shall have an 18 AWG centre conductor with a foam dielectric.

2.1.4 The cable shall have a return loss of 26 dB, be temperature rated to 80°C and have an impedance of 75 Ω.

2.1.5 The maximum attenuation at 100 ft shall be:

0.6 dB @ 7 MHz
1.8 dB @ 54 MHz
3.5 dB @ 216 MHz
4.7 dB @ 470 MHz
7.0 dB @ 890 MHz

Specified Product:

Rating Colour Series Termination

Belden	CMP/FT6	White	RG6	Patch Panel

Part 3 Execution

3.1 General

3.1.1 All cables shall be neatly bundled and installed and terminated as per the manufacturer's guidelines or the standards in these specifications; whichever is more stringent.

3.1.2 Ensure that all cables are sufficiently long to allow for slack, vertical runs, wastage, connectorization and future moves.

3.1.3 Support all horizontal cabling continuously in conduit or cable tray, or every 5' with jhooks.

3.1.4 Maintain the following clearances from electrical and heat sources as per the following table

	Minimum Separation Distances		
Item	**(<2kVA)**	**(2-5kVA)**	**(>5kVA)**
Unshielded power lines or electrical equipment in proximity to open or non-metallic pathway.	127 mm (5"(in))	305 mm (12"(in))	610 mm (24"(in))
Unshielded power lines or electrical equipment in proximity to a grounded metal conduit pathway.	64 mm (2.5"(in))	152 mm (6"(in))	305 mm (12"(in))
Power lines enclosed in a grounded metal conduit (or equivalent shielding) in proximity to a grounded metal conduit pathway.	---	76 mm (3"(in))	152 mm (6"(in))
Motors	1.2 m (4'-0")		
Transformers	1.2 m (4'-0")		
Conduit and cables used for electrical distribution less than 1kV	0.3 m (1'-0")		
Conduit and cables used for electrical distribution greater than 1kV	1.0 m (3'-0")		
Fluorescent Luminaires	300 mm (12")		
Pipes (gas, oil, water, etc.)	120 mm (5")		
HVAC (equipment, ducts, etc.)	150 mm (6")		
Coax (CATV/CCTV)	Separate conduits or metallic divider in cable tray (do not run Cat6A and coax in same pathways)		

3.1.5 Coordinate with all other trades prior to installation.

3.1.6 Lubrication shall not be used on cable.

1. Exception is allowed for wet-rated cables.

3.1.7 No portion of cabling is to be painted for any length. Any cables that are painted are to be replaced at no cost to the owner/project.

3.1.8 All coax cables shall be installed and terminated by technicians experienced in the installation and termination of coax cables.

3.1.9 The Coax Horizontal cabling consisting of RG-6 shall be tested for length utilizing a Fluke, DTX 1800 e/w coax test adapters. Test unit shall be set up using RG-6 cable selected. Testing required is 100%. Contractor shall provide PDF and native format files. CCS will perform random verification testing as part of acceptance of all coaxial cable testing.

End of Section 27 15 33