

SECTION 27 13 13
COMMUNICATIONS COPPER BACKBONE CABLING

Part 1 General

1.1 Summary

1.1.1 This section shall govern the products and installation of copper backbone cabling.

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-568.0.D, Generic Telecommunications Cabling for Customer Premises
2. ANSI/TIA-568.2-D, Balanced Twisted-Pair Telecommunications Cabling and Components Standards
3. ANSI/TIA-568.4-D, Broadband Coaxial Cabling and Components Standard
4. TIA-569-E, 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 11 13 Communications Entrance Protection

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 drawing indicating routing of copper horizontal cabling.

Part 2 Product

2.1 General Requirements

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2.1.1 The Telecom sub-contractor shall utilize Belden or Superior Essex as the manufacturer for copper backbone cable.

2.2 Multipair Backbone Cable (Intra-Building Backbone) (ISP)

2.2.1 All backbone cabling shall be UTP, with solid copper conductors, compliant with EIA/TIA cable category as identified below.

2.2.2 The cable shall be CSA certified and stamped with CMP or CMR rating accordingly.

2.2.3 Cable shall have continuous sequential length markers clearly and permanently printed over the entire length of the cable.

2.2.4 Cable shall be constructed with 25pr units complete with binding cords and overall jacket splitting cord.

2.2.5 All UTP cables shall meet requirements identified below.

Specified Product:

	Cat.	Rating	Pairs	Colour	Series	Termination
Belden	3	CMR/FT4				Patch Panel
Belden	3	CMP/FT6				Patch Panel
SuperiorEssex	3	CMR/FT4				Patch Panel
SuperiorEssex	3	CMP/FT6				Patch Panel

2.3 ATMM/ARMM Multipair Backbone Cable (Intra-Building Backbone) (ISP)

2.3.1 All backbone cabling shall have a metallic sheath, with solid copper conductors, compliant with EIA/TIA cable category as identified below.

2.3.2 The cable shall be CSA certified and stamped with CMR rating accordingly.

2.3.3 Cable shall have continuous sequential length markers clearly and permanently printed over the entire length of the cable.

2.3.4 Cable shall be constructed with 25pr units complete with binding cords and overall jacket splitting cord.

2.3.5 All UTP cables shall meet requirements identified below.

Specified Product:

	Cat.	Rating	Pairs	Colour	Series	Termination
Belden	3	CMR/FT4	tbd	Black		IDC Block
Superior Essex	3	CMR/FT4	tbd	Black		IDC Block

2.4 Canadian Alpeh Sheath Multipair Backbone Cable (Inter-Building Backbone) (OSP Aerial)

2.4.1 All outdoor overhead copper backbone shall have an alpeh sheath backbone cabling, with solid copper conductors, compliant with EIA/TIA cable category as identified below.

2.4.2 The cable shall be CSA certified.

2.4.3 Cable shall have continuous sequential length markers clearly and permanently printed over the entire length of the cable.

2.4.4 Cable shall be constructed with 25pr units complete with binding cords and overall jacket splitting cord.

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2.4.5 All UTP cables shall meet requirements identified below.

Specified Product:

	Cat.	Rating	Pairs	Colour	Series	Termination
Superior Essex	3		tbd	Black	BKMB/BHAB	IDC Block

2.5 CELFIL Multipair Backbone Cable (Inter-Building Backbone) (OSP duct)

2.5.1 All outdoor ductbank copper backbone shall be CELFIL backbone cabling, with solid copper conductors, compliant with EIA/TIA cable category as identified below.

2.5.2 The cable shall be CSA certified.

2.5.3 Cable shall have continuous sequential length markers clearly and permanently printed over the entire length of the cable.

2.5.4 Cable shall be constructed with 25pr units complete with binding cords and overall jacket splitting cord.

2.5.5 All UTP cables shall meet requirements identified below.

Specified Product:

	Cat.	Rating	Pairs	Colour	Series ¹	Termination
Superior Essex	3		tbd	Black	BJMB/BJAB	IDC Block

Part 3 Execution

3.1 Copper Cable Installation

3.1.1 The Communications Contractor shall be responsible for a complete backbone cabling installation including and not limited to, termination hardware, adaptor plates, cabling, ty-wraps, patch panels and labelling.

3.1.2 Supply all materials and labour for the installation of the complete Copper Cabling system including all cables and terminations as per the accompanying drawings, tables and Tender documents.

3.1.3 Install the Copper Cable System in accordance with manufacturer's specifications ensuring that proper installation techniques are observed and that the cable maximum pull-force and minimum bend radii specifications are adhered to.

3.1.4 Ensure that proper cable support techniques are utilized for suspending and supporting the riser cables as per manufacturer's specifications. Riser cables to utilize Vertical Rise Split Mesh Grips to suspend the weight of the Cable. Additionally, cable ties to be used to prevent side to side movement of the cable. The cable ties shall not be installed so as to deform the cable jacket.

3.1.5 Provide, install and terminate the indicated quantities of Riser Cables in the noted Telecom and Equipment Rooms.

3.1.6 All cables are to be pulled in a continuous run unless otherwise indicated.

3.1.7 Supply and install proper cable harness according to manufacturer's specifications.

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- 3.1.8 Utilize slots, sleeves, conduits and cable trays as indicated in accompanying drawings or by Engineer prior to installation to route cables vertically through building. Exercise caution when pulling cables in such pathways to avoid damage to any existing cabling and to ensure that the cable manufacturers' maximum pull-force and minimum bend radii specifications are adhered to.
 - 3.1.9 All cables to be neatly bundled, tie-wrapped and routed together. Secure cable bundles to vertical and horizontal supports and neatly fasten to plywood backboards or termination racks when routing to termination panels.
 - 3.1.10 For any cable bundles, ensure that cable ties or cable bundling does not put excess pressure on the cable at any point which may result in compression or deformation of the cable jacket and internal pair/conductor geometry.
 - 3.1.11 When routing and bundling cables do not kink or exceed the cables minimum bend radius, do not exceed the cable's maximum tensile loading, do not over-cinch the cables with cable ties or cords that cause any compression of the cable jacket.
 - 3.1.12 All cabling must be routed and organized to minimize cross-overs and congestion.
 - 3.1.13 Where required, ground all cable and components according to manufacturers' specifications and standard practices.
 - 3.1.14 The Contractor to be responsible for any additional coring required in the installation of the riser cabling. All cables to be tested after complete installation from termination end to termination end under worst-case environmental conditions and in accordance with this and the manufacturer's specification.
- 3.2 Copper Termination Installation
- 3.2.1 Supply all materials and labour for the installation, assembly and mounting of the complete Riser Distribution Termination Panels, Cabinets and Frames and subsequent termination of all copper cables as per accompanying drawings and tender documents and manufacturer's specifications.
 - 3.2.2 All copper pairs to be terminated on the Riser Termination Panels according to manufacturer's specifications and installation schedules to be provided by the Engineer prior to installation.
 - 3.2.3 Neatly route all copper cables to their respective Riser Termination Panels, securing cables to cabinets and plywood backboard where required.
 - 3.2.4 Neatly mark the Blank Designation Labels with identifiers as per installation instructions provided by the Engineer prior to installation.
 - 3.2.5 The Contractor to include for termination mounts and connectors at both ends of all copper cables.
 - 3.2.6 Inter-building copper cables shall have lightning protection as per the Canadian Electrical code.