1 General

1.1 Scope of work

1.1.1 The Contractor is held responsible to be familiar with the provisions contained herein and with other Sections of this Specification as applicable to the completion of the installation.

1.1.2 Work covered by this Section shall consist of furnishing labor, equipment, supplies, materials, and testing unless otherwise specified, and in performing the following operations recognized as necessary for the installation, termination, and labeling of termination blocks and patch panels as described on the Drawings and/or required by these specifications.

1.2 Intent of the drawings and specifications

1.2.1 These Specifications, together with the Drawings accompanying them, are intended to depict the installation requirements necessary to support this Project.

1.2.2 Contractor shall furnish materials shown and/or called for on the Drawings but not mentioned in the Specifications, or vice versa, that are necessary for the installation and support of the described work, whether or not specifically called for in both.

1.2.3 Contractor shall provide incidental equipment and materials required for the completion of systems included in this contract whether or not specified or shown on the Drawings.

1.3 Communication

1.3.1 It is Purdue’s expectation that the A/E of Record will work jointly with Purdue’s Telecommunication representatives to address specific technical issues and Owner requirements.

1.3.2 All questions, deviations, comments concerning guideline(s) interpretation, content, and/or use must be submitted in writing to the Project Manager for approval.

1.3.3 No deviations from these guidelines shall be incorporated into the project without written approval from the Project Manager and Purdue Telecommunications representative.

2 Products

2.1 Equipment Frames shall be owner- approved 19” wide x 7-0” high, aluminum construction powder coated black. Refer to Section 27 COMMUNICATION 1106.

2.2 Panduit 110 Blocks

2.2.1 110 Termination Blocks for Copper Riser Cables

- Panduit #P110KB1005Y, field termination kit
  - Field termination kit includes wiring block, (20) 5-pair connector blocks, and labels.
- Panduit #P110BW100-X, 110 Block
- Panduit #P110CB5-XY, 5-pair 110 Connecting Block
- Panduit #P110LH, Designation Label Holder
- Panduit #DSL110, 110 Designation Labels

2.2.2 110 Termination Blocks for Copper Horizontal Cables

- Panduit #P110KB1004Y, field termination kit
  - Field termination kit includes wiring block, (20) 4-pair connector blocks, (4) 5-pair connector block, and labels.
- Panduit #P110BW100-X, 110 Block
- Panduit #P110CB4-XY, 4-pair 110 Connecting Block
- Panduit #P110LH, Designation Label Holder
- Panduit #DSL110, 110 Designation Labels

2.3 Panduit Patch Panels

- Panduit #CPPA24FMWBL, Category 6a, 24-port angled modular patch panel, with TG style mini-com jacks and rear-mounted faceplates

2.4 Wall Mount Bracket for Patch Panels

- Panduit #WBE3 or owner-approved hinged 3 RU and 6” deep minimum wall mounted bracket

2.5 Wire Management for Equipment Frames

2.5.1 Horizontal Wire Management for copper is not required between Category 6a angled patch panels

2.5.2 One Panduit #NMF4 Horizontal Wire Management shall be installed between 23RU (42” AFF) and 26RU on equipment frames
2.5.3 Vertical Wire Management

- Panduit #PR2VD12 wire management shall be installed on either side of equipment frames in buildings utilizing Category 6a cabling.
  - In buildings lacking sufficient space, size deviations must be approved prior to installation by Purdue Information Technology Infrastructure Services personnel.

2.5.4 One Panduit #SRB19MDBL Strain Relief Bar shall be installed on the back (termination side) of the Equipment Frame starting at the uppermost patch panel and on every other patch panel underneath to relieve cable strain. Utilize hook and loop cable ties (Velcro® or owner-approved equivalent) to relieve cable strain.

2.6 Telecommunication Wire Management

- Panduit #CMVDR1, Plastic D-rings for Owner furnished cross connects.
- Panduit #CMVDR2, Plastic D-rings for Vertical and Horizontal Cable Management on plywood.

2.7 Fiber Enclosures

2.7.1 Wall Mounted Fiber Enclosures

- Corning Cable Systems #WCH-02P fiber enclosure
- Corning #CCH-CP12-A9, 12-port duplex LC style single-mode panels

2.7.2 Frame Mounted Fiber Enclosures for Riser and Horizontal Fiber

- Corning Cable Systems #CCH-02U fiber enclosure for 2-48 fiber strands
- Corning Cable Systems #CCH-03U fiber enclosure for 49-72 fiber strands
- Corning Cable Systems #CCH-04U fiber enclosure for 73-144 fiber strands
- Corning #CCH-CP12-A9, 12-port duplex LC style single-mode panels

2.7.3 Provide the appropriate quantity of 12-port panels to match the fiber strand count that will be supplied to each fiber enclosure.

3 Execution

3.1 110-Block Installation

3.1.1 The telecommunications rooms shall contain wiring blocks as required to terminate all incoming pairs and all outgoing pairs.

3.1.2 Locate telephone wiring blocks on fire-treated plywood backboards as specified on the Drawings or as specified herein.

3.1.3 BDF block labeling for riser cables shall designate the corresponding destination IDF wiring block.

3.1.4 BDF/IDF terminal boards shall be equipped with “D” rings for horizontal and vertical wire management as directed by Purdue’s IT Infrastructure Services Representative.

3.1.5 Horizontally separate 110 blocks 12” apart for horizontal cable by floor. Start 110 blocks 5’-6” AFF. In the BDF, horizontally separate 110 blocks 12” away from entrance protectors. If entrance protectors are not installed, leave enough space as specified above (protector dimension= 14.75” width by 11” height). See 3.01 Attachment #1.

3.1.6 Horizontal cables shall enter new 110 blocks from the left side. Cables shall not be routed behind 110 blocks. In cases where existing cables have been routed behind the 110 blocks, contact Purdue’s IT Infrastructure Services Representative before proceeding with new cable installation.

3.1.7 Telecommunication rooms feeding multiple floors

3.1.7.1 Install 110 blocks for each floor in a separate vertical row with each row separated 12” apart horizontally. See 3.01 Attachment #1.

3.1.8 When terminating cabling on new 110 blocks, PICs in the same room shall be punched down on adjacent 4-pair connecting blocks and the rooms shall be in numerical order.

3.1.9 When terminating new cabling on existing 110 blocks, PICs in the same room shall be punched down on adjacent 4-pair connecting blocks and the rooms shall be in as close to numerical order as practical.

3.2 Patch Panel Installation

3.2.1 Each telecom room shall contain patch panels as required to terminate all pairs on its respective floor area or floors served.

3.2.2 Locate data patch panels in 19” equipment frames as specified on the drawings or as specified herein.

3.2.3 Patch panels to be mounted in equipment frames no higher than 6’-0” A.F.F. and
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no lower than 3'-10" (46") A.F.F. (39RU – 27RU). Contact Purdue IT Infrastructure Services for exceptions or questions regarding mounting height.

3.2.4 Where additional equipment frames are required, separate the frames using one 12” vertical cable management device.

3.2.5 Include vertical cable management on both sides of every equipment frame. Multiple frames shall be separated by a 12” vertical cable management device.

3.2.6 Patch panels for buildings with a telecom room too small for an equipment frame shall utilize hinged, wall mountable brackets to mount the horizontal wire management and patch panels. Coordinate with Purdue Information Technology Infrastructure Representative for placement information.

3.2.7 Each category of cabling shall have its own patch panel and corresponding jacks

3.3 Fiber Panel Installation

3.3.1 Wall Mounted Installations

3.3.1.1 Mount fiber enclosures on the wall adjacent or next to equipment frame where applicable. Verify Corning WCH box use and location with Purdue’s IT Infrastructure Services Representative unless otherwise shown on the drawings.

3.3.1.2 Enclosures for multimode fiber to be complete with multimode LC connector panels.

3.3.1.3 Enclosures for single-mode fiber to be complete with single-mode LC connector panels.

3.3.1.4 Wall mounted fiber enclosure installations are only to be used when the telecommunications room does not have adequate space for an equipment frame. Consult with Purdue’s IT Infrastructure Services Representative before installing wall mounted fiber enclosures.

3.3.2 Equipment Frame Installations

3.3.2.1 Install frame mounted fiber enclosures at the top of the equipment frames where applicable. Verify frame mounted fiber enclosure use and location with Purdue’s IT Infrastructure Services Representative unless otherwise shown on the drawings.

3.3.2.2 Install horizontal fiber management panel for every frame mounted fiber enclosure used. Alternate fiber enclosure panels with the fiber management panels.

3.3.2.3 Allow 8 inches at the top of the mountable portion of the BDF equipment frame when outside plant fiber has not yet been installed.

3.3.2.4 In the BDF, install:
  - One (1) Corning Cable Systems #CCH-02U for buildings containing (1-2) IDFs.
  - One (1) Corning Cable Systems #CCH-04U for buildings containing (3-6) IDFs.
  - Additional CCH-04U housings would be needed for buildings containing over six IDFs.

3.3.2.5 In the IDFs, install:
  - One (1) Corning Cable Systems #CCH-02U for single-mode fiber terminations

3.3.2.5.1 Enclosures for single-mode fiber to utilize
  - One (1) Corning 12-port duplex LC style SM panels per 12-strand single-mode fiber.

3.3.2.6 Purdue’s IT Infrastructure Services Representative shall provide location for mounting enclosures if not shown on drawings.

3.3.2.7 Typically Multi-mode fiber and Single-mode fiber is always terminated in a frame mounted CCH panel in every telecommunications room unless an equipment frame is not present within the room.
TYPICAL BDF LAYOUT

- 1st floor risers
- 2nd floor risers
- Horizontal cables distributed from BDF if specified
- Entrance protectors
- D-rings
- Backboard installed 6" AFF

TYPICAL IDF LAYOUT

- Riser blocks
- Horizontal cables
- Additional row if needed
- D-rings
- Backboard installed 6" AFF