

**SECTION 27 05 53****IDENTIFICATION FOR COMMUNICATIONS SYSTEMS****PART 1 - GENERAL****1.1 SUMMARY**

- A. This section shall govern the products and installation of identification and labeling of all required parts, pieces and accessories of the communications cabling system, which shall include, but is not limited to, cabling, faceplates, patch panels, 110-blocks, conduit, innerduct, junction and pullboxes, firestop locations, and the communications grounding system.
- B. Contractor shall also supply a cable manifest (spreadsheet) prior to construction for all backbone and horizontal cabling links, which shall identify the cable type, the starting and ending points of each cable, include pair/strand count, and indicate the label content on both ends (at the faceplate or telecommunications room termination). An updated cable manifest shall be delivered with substantial completion.

**1.2 RELATED DOCUMENTS**

- A. The latest versions of the following codes, standards, and guidelines shall be followed. Bring to ITS' immediate attention where construction documents or conditions differ from requirements in codes, standards, guidelines and specifications.
- B. The following codes, as required by law:
  - 1. National Electric Code (NEC)
- C. The following standards:
  - 1. TIA/EIA-606-A – Administration Standard for Commercial Telecommunications Infrastructure
- D. The following guidelines:
  - 1. BICSI, Telecommunications Distribution Methods Manual (TDMM)
  - 2. BICSI, Information Transport Systems Installation Methods Manual (ITSIMM)

**1.3 QUALITY ASSURANCE:**

- A. All labels shall be machine-printed, crisp, clear, non-smearing and extremely legible. Labels shall be durable for the life of the system (the 15+ year system warranty); labels which can be easily removed shall not be utilized.

**1.4 DEFINITIONS:**

- A. Uplink Cables – Where Communications Rooms are within 295 cabling feet of the Main Communications Room (MDF), they are to be connected back to the MDF by several Category 5e Uplink Cables. These act as backbone cables, and should be treated as such.

**1.5 COORDINATION WITH ITS ASSIGNMENT OFFICE:**

- A. Prior to submission of pre-construction submittals, coordinate with UT ITS Representative for an owner-provided labeling scheme to be followed for each building.
  - 1. ITS will provide a two (or three if applicable) digit designation for each Communication Room. Examples: 1A, 1B, 2A, 2B, etc.
  - 2. ITS will provide both copper and fiber backbone cable identifiers.

3. Refer to the subsequent sections for additional instructions.

B. Failure to coordinate with UT ITS on labeling and identification schemes in a timely manner, and/or failure to follow the requirements of this section may result in the project's Substantial Completion not being met.

#### 1.6 SUBMITTALS

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

##### 1. Product Information Submittals

- a) Provide manufacturer's product information cutsheet or specifications sheet with the specific product number identified or filled out.
- b) For planned labeling for all outlets/horizontal cables and backbone cabling:
  - 1) Provide a complete list, in Microsoft Excel format, of the planned identification labels for all outlets/horizontal cables and backbone cables.
  - 2) Await approval or corrections by UT ITS for labeling scheme prior to printing/applying labels.

##### 2. Shop Drawings

- a) Planned labeling for outlets:
  - 1) Provide scaled drawings of the floor plans showing all outlets with the proposed identification label for each outlet.
- b) Communication Rooms and Backbone Cabling:
  - 1) Provide a riser diagram that indicates each Communications Room by both room number and two letter ITS designation. Also indicate the ITS-provided backbone cable identifiers on this riser diagram, including Uplink Cables. UT ITS will provide specific labeling scheme using the Uplink Cable information provided.
- c) Planned labeling for racks and patch panels:
  - 1) Provide enlarged scaled drawings of each communication room indicating Rack Row and Number.
  - 2) Refer to the Execution section for additional information, including Rack Row/Number and Patch Panel labeling.

B. The following submittals are due prior to Substantial Completion, in accordance with the submittal requirements in Section 27 00 00 Communications:

##### 1. Record Drawings

- a) Updated shop drawings (now identified as Record Drawings) with any additions or changes as required during the course of construction.

##### 2. Cable Manifest

- a) Provide cable manifest (spreadsheet) identifying source, destination, pair/strand count, and labeling scheme used for each horizontal and backbone cable.

- b) This file shall be readable with Microsoft Excel (2007 Version) with formatting intact.
- c) Submit this file on USB Flash Drive or CD/DVD-R specific for Div. 27 Record Drawings. Refer to Section 27 00 00 for additional information.

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

- A. All labels or means of identification shall utilize machine-printed type.

### **2.2 HANDHELD LABELERS**

- A. To be utilized for ISP cable labels, OSP (horizontal) cables, racks, and grounding busbars.
- B. Size according to cable diameter and readability.
- C. Shall be thermal-transfer type, and utilize self-adhesive labels.
- D. Approved manufacturers:
  - 1. Brady, IDXPERT
  - 2. Dymo, Rhino
  - 3. Hellermann Tyton, Spirit 2100
  - 4. Panduit, LS8E or LS9
  - 5. Or approved equivalent
- E. Alternatively, a thermal transfer desktop printer may be utilized with self-adhesive labels/rolls. Submit manufacturer and part number to be considered.

### **2.3 FACEPLACE, PATCH PANEL, AND WALL-BLOCK LABELS**

- A. Faceplates, patch panels and wall-blocks shall have integral slots for label inserts. Have identification machine-printed onto label inserts and populate the integral slots with these inserts.
- B. Where intended-product does not have an integrated label insert, submit proposed labeling method.

### **2.4 GROUNDING AND BONDING CONDUCTORS**

- A. Warning Marker
  - 1. Non-metallic, machine and pre-printed as a wrap-around marker (*not* a flag marker).
  - 2. Manufacturer shall be:
    - a) Panduit, LTYK
    - b) Or approved equivalent
- B. Identification Label
  - 1. Label shall be self-laminating, machine- and thermal-printed.
  - 2. Size of label will vary with size of conductor:
    - a) For 18-14AWG, 1.00"x0.75" label
    - b) For 12-10AWG, 1.00"x1.25" label

- c) For 8-4AWG, 1.00"x2.25" label
  - d) For 2-1AWG, 1.00"x4.00" label
  - e) For 1/0-250kcmil, 1.00"x6.50" label
3. Manufacturer shall be:
- a) Panduit, S100X\*\*\*VAC or S100X\*\*\*VAT, where \*\*\* is the second dimension.
  - b) Equivalent from Brady or Hellermann Tyton
  - c) Or approved equivalent

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Install labels in such a way as to be physically and visually accessible.
- B. Remove any temporary labels and ensure no permanent labels are damaged during construction.
- C. Replace all damaged or missing permanent labels prior to substantial completion.

#### 3.2 LABELING OF CABLING SYSTEMS

##### A. General

- 1. Communications Room (Terminal Room) numbering is determined by the ITS Assignment Office. Coordinate with UT ITS Representative prior to submitting pre-construction shop drawings to obtain labeling scheme. **Examples offered here are for preliminary purposes only.** Final direction is to come from ITS during construction.
  - a) Example of numbering scheme:
    - NAME=FL/TR
    - SAC 0.102=BA
    - SAC 1.602 =1A
    - SAC 1.202 =1B
    - SAC 2.406=2A
    - SAC 2.202=2B
    - SAC 3.202=3B
    - SAC 4.102A=4A
    - SAC 5.110=5A
  - b) The first number/letter indicates the floor (Basement, 1st, 2nd, etc.); the second letter indicates the particular communications room on that floor (A, B, C, etc.) For buildings with more than 9 floors, each floor will have a leading zero (ex: 01, 09.10, 11, etc.)
- 2. Buildings that are part of (attached) to another may need the source building's three letter building code incorporated into the labeling scheme. Coordinate with UT ITS prior to submitting proposed labeling scheme to determine if the building suffix is needed.

##### B. Equipment Racks

- 1. Racks in each communications room are to be labeled (minimum text height of 3/8").

2. Racks are to be numbered left to right, from front of room to back.
  3. Label shall also include Terminal Room number before rack number.
    - a) Example "Rack 2A1", for Rack 1 in Terminal Room 2A.
  4. For any Communications Room with more than 9 racks, rack 1-9 must include '0' prefix.
    - a) Example "Rack 2A01" for Rack 1 of 11 in Terminal Room 2A.
- C. Patch Panels
1. Label the center of the patch panel with the PP# (ex: A-Z, top to bottom; skipping I and O). Each rack starts over with a new rack number and patch panel alpha labeling scheme from A-Z top to bottom (skipping I and O).
    - a) For patch panels exclusively serving wireless access points, add "WF" as a suffix.
- D. Terminations for Patch Panels and 110-blocks
1. Utilize available inserts: print with inkjet or laser printer.
    - a) Include full labeling scheme if size permits.
      - 1) Example: 1A1A01\*\*
        - (i) 1st floor
        - (ii) Terminal Room A
        - (iii) Rack #1
        - (iv) Patch Panel A
        - (v) Position #01
        - (vi) \*\* Add WF suffix for all outlets for wireless access points,, FC for security video fixed camera, and PTZ for security video pan tilt zoom camera.
- E. Inside Plant (ISP) Horizontal Category Cable
1. Label within 6" at both termination ends.
    - a) Example: 1A1A01\*\*
      - 1) 1st floor
      - 2) Terminal Room A
      - 3) Rack #1
      - 4) Patch Panel A
      - 5) Position #01
      - 6) \*\* Add WF suffix for all cables for wireless access points, FC for security video fixed camera, and PTZ for security video pan tilt zoom camera.
  2. For cables routed through junction boxes and pull boxes, group all cables together by destination (room) via velcro-strap, and flag (identify) that destination near the velcro-strap.
- F. Outside Plant (OSP) Category Cable (horizontal cabling)

1. Label transition point (if utilized) as COMMUNICATIONS OSP TRANSITION POINT.
  2. Label all cables within transition point within 6" of termination ends.
    - a) Example: 1A1A01
      - 1) 1st floor
      - 2) Terminal Room A
      - 3) Rack #1
      - 4) Patch Panel A
      - 5) Position #01
- G. CATV (coaxial) cable labeling
1. Label within 6" at both termination ends and on faceplate.
    - a) Horizontal Cables:
      - 1) Format: 2-Digit ITS Comm Room Designation – Room # - Outlet # for that Room
      - 2) Example: 2B-3.208B-1
        - (i) 2 = Floor number (will vary)
        - (ii) B = Terminal Room Identifier (will vary)
        - (iii) 3.208B indicate Room Number
        - (iv) 1 = indicates sequential CATV identifier for that room.
    - b) Backbone Cables:
      - 1) Format: CATV – Source Room (with 2-Digit ITS Designation) – Destination Room (with 2-Digit ITS Designation)
      - 2) Example: CATV – 2.212A (2A) – 3.412 (3A)
- H. Faceplates / Work Area Outlets
1. Utilize faceplate label inserts if available: print with inkjet or laser printer. Otherwise, use handheld printer with adhesive label for application directly onto faceplate. Labels are to have straight edges and alignment.
    - a) For Category 5e jacks
      - 1) Example: 1A1A01\*\*
        - (i) 1st floor
        - (ii) Terminal Room A
        - (iii) Rack #1
        - (iv) Patch Panel A
        - (v) Position #01
    - b) For Category 6A jacks
      - 1) Example: 1A1A01\*\*
        - (i) 1st floor

- (ii) Terminal Room A
- (iii) Rack #1
- (iv) Patch Panel A
- (v) Position #01
- (vi) \*\* Add WF suffix for all cables for wireless access points, FC for security video fixed camera, and PTZ for security video pan tilt zoom camera.
- (vii)

I. Copper Backbone (between Telecom Rooms)

1. Label within 6" at both ends of cable with the following information:
  - a) ITS Designation – DESTINATION (TR#)
  - b) Example: R2N – 3.336 (3A)

J. Fiber Backbone (between Telecom Rooms)

1. Cable - Label within 6" at both ends of cable with the following information:
  - a) ITS Designation – STRANDS – DESTINATION (TR#)
  - b) NAME shall follow the following format:
    - 1) OFMM### for multimode
    - 2) OFSM### for singlemode
    - 3) Coordinate with UT ITS for ### for fiber cables.
  - c) Example: OFSM511 – STRANDS 1-12 – SZB 336 (3A)

### 3.3 PATHWAYS

A. Conduit

1. Label exterior of conduit as COMMUNICATIONS (unless otherwise noted on the drawings) with text readable from a standing position on the finished floor.
  - a) For wall stub-up locations, label overhead only.
  - b) For strictly overhead conduits, label both ends.
  - c) For long runs of conduits that stub directly up or into Communications Room, label the end of the conduit in the Communications Room with the destination room number or location.
    - 1) Examples: FLOOR BOX ROOM 2.302, EMERGENCY CALL BOX NW CORNER OF BUILDING, ELEVATOR EQUIPMENT ROOM 1.402.
2. Sleeves which pass through a single wall or floor need not be labeled.

B. Junction boxes and pull boxes

1. Label exterior of junction boxes and pull boxes as COMMUNICATIONS with text readable from a standing position on the finished floor.
  - a) Preferred method is to paint ITS on the lid in blue paint.

C. Firestop locations

1. All communications firestop locations are to be labeled on both sides of wall or floor. Refer to firestopping specification section for additional information.

3.4 GROUNDING

- A. Label TMGB as FLOOR# - ROOM# - TMGB.
- B. Label TGBs as FLOOR# - ROOM# - TGB.
- C. Label grounding conductors within 12” of both ends with Warning Marker and Identification Label.
  1. Identification label is to include the source and destination of the grounding conductor.

**END OF SECTION**

Initial Publication	30-Sep-11
Update #1	23-Nov-11