(This is a design guideline spec. It's the responsibility of the Design/Installation team to develop project specific specifications to meet the project requirements.)

SECTION 270553 - IDENTIFICATION FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Identification requirements for communications systems

B. Related Sections:

1. Div 01
2. Section 270526 Grounding and Bonding for Communications Systems
3. Section 270528 Interior Pathways for Communications Systems
4. Section 270543 Exterior Pathway for Communications Systems
5. Section 271100 Communications Equipment Room Fittings
6. Section 271300 Communications Backbone Cabling
7. Section 271500 Communications Horizontal Cabling
8. Section 272100 Data Communication Network Equipment

1.2 REFERENCES

A. Refer to section 270000.

1.3 QUALITY ASSURANCE

A. Refer to section 270000.

1.4 SUBMITTALS

A. Refer to sections 270000

1.5 DELIVERY, STORAGE, AND HANDLING

A. Refer to sections 270000

1.6 PROJECT/SITE CONDITIONS

A. Refer to section 270000

1.7 WARRANTY

A. Refer to section 270000

1.8 MAINTENANCE AND SUPPORT

A. Refer to section 270000

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Identification (Labeling) System

1. Brady
2. Dymo
3. Hellerman-Tyton
4. Or Equal

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Label all cable, fiber strands, patch panels, patch panel termination positions, distribution frames, jacks, and cover plates.

B. Wire and fiber labels shall be clear vinyl with acrylic adhesive tape. Text shall be typed with minimum 8 point font.

C. All other labels shall be white polyester with acrylic adhesive tape. Text shall be typed with minimum 10 point font.

D. Label shall be attached to each copper cable at each end.

E. Label all conduit stubs.

F. Label all conduits and innerducts passing through MDF/IDF Rooms.

G. Provide front adhesive label for individual patch panel positions. Label patch panels consecutively from bottom to top. Label shall be typed with minimum font size of 8 point.

H. Label shall be attached to fiber cable at each end and to each individual fiber at each end prior to termination.

I. Cable labels shall be placed in the following locations: on jack face plates, on cable inside back boxes, junction boxes, access points, and manholes/handholds, on cable above the terminations in the IDF and MDF, on patch panels, and every 50 feet when not in conduit. Conduits shall be labeled “communications” every 50 feet and at the origination and destination.

J. Nameplates

1. Provide engraved three-layer laminated plastic nameplates with white letters on a black background.
2. Provide nameplates for the following:
   a) Equipment Racks and cabinets.
   b) Telecommunication Grounding Busbars.
   c) Equipment Enclosure Boxes and Pull Boxes

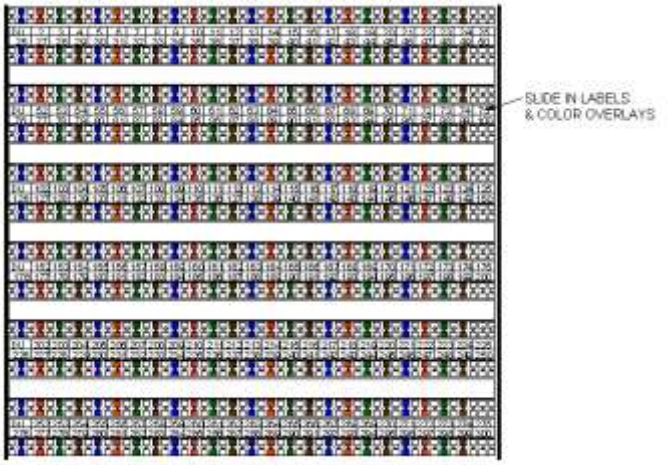
K. Copper Cable 66/110 Wiring Blocks:

1. 66/ 110 wiring block shall be labeled on for individual pairs.
2. Label using Excel spreadsheet template, along with color transparent plastic strip (EFM) for color-coding.
3. Voice and data 110 wiring block labels will be distinguished by the following acronyms:

Data Frame Example:	Voice Frame Example:
DT = Data Campus Cable	VT = Voice Campus Cable
DM = Data Backbone Cable	VM = Voice Backbone Cable
DL= Data Network Cable	VP = Voice ISDN Power Cable
DU = Data Horizontal Cable	VU = Voice Horizontal Cable

4. Skip 25th position on each strip of 110 wiring block when wiring 4-pair cable.

5. Provide floor-standing frame labels assuming twelve 300-pair 110 wiring blocks. Group of blocks are to be designated as backbone cables, power cables, network cables, and horizontal voice or data cables.
6. Install nameplate on each floor-standing frame.
7. Label network equipment 110 wiring blocks with equipment number, slot, and port number.
8. Insert EFM color-coded plastic slides over 110 block labels.



B. Lightguide Interconnection Unit (LIU)

1. Attach engraved label to door of LIU. LIU label shall have building number, IDF number, and numeric sequence.
2. List cable(s) and room number on LIU along with LIU name.
3. Provide continuous numbering sequence for individual fibers. Number individual fiber strands in LIU from 1 through 24, for cables with 24 fiber strands or less.
4. Use multiple LIUs for cables with greater than 24 fiber strands, and label sequentially according to number of fiber strands.

C. Lightguide Termination Shelf

1. Label cable designation(s) on outside door of termination shelf.
2. Single shelf may hold more than one campus, backbone or horizontal cable. Do not split a single cable between shelves. Start numbering sequence from 1 within the shelf, and continue to last fiber strand within that cable, for cable larger than 4 fibers.
3. Label each individual coupler on coupler plate with appropriate sequential number for terminating shelves.
4. Each shelf shall contain either single-mode or multi-mode, not both.
5. Install multiple shelves for cables greater than 72 optical fibers. Label sequentially according to number of optical fibers.
6. Label 4-fiber user cables according to number of couplers in the shelf.

D. Conduit: Label conduits with appropriate color-coded tape.

1. Install tie wrap label tag on each conduit end point that terminates in IDF, MDF, or stubbed through floor, ceiling or wall without pullbox.
2. Printed letter with permanent black ink, in block type letters with clear, legible letters.
3. Match label information to information in nearest J-Box label that conduit leads to.

3.2 LABELLING SCHEME

A. Overview

1. All Communications system components (racks, equipment, cables, etc.) shall be labeled per this documents and TIA-606 standard.
2. All labels shall be machine printed. No handwritten label is acceptable.
3. All labeling should be a unique identifier for the cabling infrastructure within a building and between buildings on a campus.
4. Submit the labeling scheme and text font type and size to HITS and IT Consultant for review and approval before installation.

B. Data Jackson Faceplate and Patch Panels

1. All Data ports on outlet faceplate shall be labelled with the following labelling scheme: RRR-#A##
   a. RRR: Telecom Room ID. Match the final room numbering on architectural floor plans (e.g. for MDF Room 110 the room ID should be 110)
   b. #A: Patch Panel ID starting with the rack number "#" (1, 2, 3, etc.) and letter A, B, C, etc. from top down)
   c. ##: patch panel port number 01, 02, 03, etc.
2. **All Data ports on the patch panels in the Telecom Rooms shall be labelled with the following labelling scheme: SSS-#A##**
   a. SSS: Data outlet location ID. (e.g. for Office 115 the room ID SSS should be "115", for locations without room numbers, use an abbreviation such as "HWY-S" for south hallway, etc.)
   b. #A: Patch Panel ID starting with the rack number "#" (1, 2, 3, etc.) and letter A, B, C, etc. from top down)
   c. ##: patch panel port number 01, 02, 03, etc.

C. Patch Panels

1. **All copper patch panels shall be labelled with the following labelling scheme: #A**
   a. #A: Patch Panel ID starting with the rack number "#" (1, 2, 3, etc.) and letter A, B, C, etc. from top down)
2. **All fiber patch panel/enclosure shall be labelled with the following labelling scheme:**
   a. At the upper left corner of the front cover, provide the panel/enclosure ID: FP#A #A: Patch Panel ID starting with "FP" then the rack number "#" (1, 2, 3, etc.) and letter A, B, C, etc. from top down)
   b. On the front of the enclosure door, add a label for each fiber cable terminated inside at the location corresponding to each fiber's termination area. For example, OS2-24ST-TO-IDF 111.
   c. On the interior side of the enclosure door, add a label for each cassette/adapter with fiber info and strand numbers. For example: OS2-24ST-TO-IDF 111 01, 02, … 24

D. Horizontal Cables

1. All horizontal cables shall be labeled with the following labeling scheme: CAT6A-RRR-#A##
    a. CAT6A: cable type (if Cat5e then it should be changed to “CAT5E”)
    b. See section above for instruction on “RRR-#A## ”
    c. Provide a minimum of one (1) cable label at 2” to 3” from terminations at the outlet end, and one (1) at 12” to 18” from terminations at the patch panel end.

E. Intra-building Riser Cables

1. All intra-building riser cables shall be labeled with the following labeling scheme: FFF-##ST-RRR-R#<=>TTT-R#
    a. FFF: fiber cable type (OM1, OM2, OS1, OS2, etc)
    b. ##ST: “##” indicates the cable strand count
    c. RRR: Telecom Room ID “RRR” (origination room number/ID, typically the MDF room)
    d. R#: rack ID. ”#”: 1, 2. 3, etc.
    e. TTT: Telecom Room ID “TTT” (destination room ID/number, typically the IDF rooms)

F. Inter-building Backbone Cables

1. All inter-building backbone cables shall be labelled with the following labelling scheme: FFF-##ST-BBBBB-RRR-R#<=>CCCCC-TTT-R#
    a. FFF: fiber cable type (OM1, OM2, OS1, OS2, etc)
    b. ##ST: “##” indicates the cable strand count
    c. BBBBB: origination building ID, CCCCC: destination building ID (e.g. 611WK for 611 Walker Street bldg.).
    d. RRR: Telecom Room ID (origination room, typically the MDF room)
    e. R#: rack ID “R1”, “R2, “R3”, etc.
    f. TTT: Telecom Room ID (destination room, typically the IDF rooms)

G. Equipment Racks/Cabinets

1. All equipment racks/cabinets shall be labeled with the following labeling scheme: R#
    a. #: rack number 1, 2, 3, etc.

H. Work Area IT Devices

1. All work area IT devices shall be labelled with a device tag using the following labelling scheme “DEP-BBBBB-WAP-001”, and MAC address “ MAC=00:1A:1E:C9:17:38”
    a. DEP: Department ID (HPD for Houston Police Department)
    b. BBBBB: building/site ID
    c. WAP: Device type (WAP for WiFi Access Point, RSH for room scheduler, DSD (Digital Signage Device, etc.)
    d. 001: AP number starting from 001 at 1st floor entrance (by building)
    e. MAC=: indicates the numbers and letters following are for the MAC address

I. Telecom Room Equipment

1. All Telecom Room equipment shall use the following labelling scheme: “DEP-BBBBB-RRR-UPS-001”
    a. DEP: Department ID (HPD for Houston Police Department)
    b. BBBBB: building/site ID
    c. RRR: Telecom Room ID

d. UPS: device type (UPS for uninterruptable power supply, NSW for network switch, PDU for power distribution units, etc.)
e. 001: Device number (by building)

J. Underground Manholes

1. All communications manhole (and handhole) covers shall use the following labelling scheme: “COMMUNICATIONS MH01”

a. MH: Communications structure type
b. 01: Device number (by campus)

K. Communications Conduits/Sleeves

1. All short run of communications conduits with clear visibility of their destination shall be labeled “DATA”.
2. All long run of communications conduits without clear visibility of their destination shall use the following labelling scheme: “DATA-MH01<>MH03”.

a. DATA: indicate the intended use
b. MH01: origination location (building ID if it’s between buildings, or telecom room ID

3. All sleeves for communications shall be labelled “DATA”

L. Communications Pull Boxes

1. Use the following labelling scheme: “DATA-PB-001”.

M. Telecom Grounding and Bonding

1. All busbars shall be labeled with the following labeling scheme

a. Primary Bonding Busbar: “PBB-##”
b. Secondary Bonding Busbar: “SBB-##”
c. Rack Bonding Busbar: “RBB-##”

2. All bonding conductors shall be labeled with a unique ID and origination/destination. See below for the labeling scheme

a. Bonding Backbone (from PBB to SBB/RBB or building service ground electrode): **BBC-## PBB-01@RM### to SBB-01@RM###”**
b. Equipment Bonding Conductor (from PBB/SBB to each equipment/devices): **“EBC-## SBB-01@RM### to PB-001@RM###”** (PB-001: ID of equipment enclosure box)

3.3 ADMINISTRATION

A. Upon completion of the installation, Contractor will prepare as-built documentation of the entire Communications systems. This documentation should include:

1. Drawings

a) All drawings shall be provided in AutoCAD and PDF format. All drawings shall be properly scaled with all information on proper layers.

b) A complete diagram of all terminations in the Telecommunication Rooms and Closets

c) A complete diagram of all copper, fiber, and coax riser cables.

d) A complete diagram of all copper, fiber, and coax inter-building cable.

e) Floor plans showing exact Data Outlet ID, and backbone/riser cable routings with each one clearly marked with cable ID.

f) Rack Elevations showing all rack-mounted devices, the rack ID, and patch panel ID.

g) A complete diagram of all cable tray, conduits and conduit sleeves.

2. Documentation

a) All cable inventory data documentation will be submitted in the designated Microsoft Excel 2018 or later format.

b) Documentation on horizontal cable will include cable number and length ofcable.

c) Documentation on riser cable and interbuilding cable will include cable number, source and destination, type of cable, length of cable and number of pairs or fibers.

d) Complete cross-connect documentation is required. This information will include detailed documentation of all four pairs of each horizontal cable and every pair of all copper riser and inter-building cable and every fiber strand of fiber optic cable.

3. Final Reports - Copper UTP Cables and Optical Fiber: Final reports which confirm that cabling has been tested per shall be delivered within two weeks after completion of installation.

a) Submit electronic copy of final reports to A/E and Owner IT representative.

b) Each report shall include the following:
   1) Completed cable test report by order of room number for each IDF/MDF room.
   2) Copies of UTP and optical test equipment calibration/certification certificates.
   3) Copies of training certificates for test personnel.
   4) Written statement ensuring UTP and optical fiber performance of the entire installation for a minimum period of 25 years from the day of acceptance.
   5) Cable and Data port ID shall be consistent on all documents (as-built drawings, cable test report and cable inventory spread sheet).

END OF SECTION 270553