Section 27 0553
Identification for communication systems
Part 1 - Labeling

1.1 - General

A. Different labeling applications require different labeling parts and techniques. The Campus standard permits a variety of materials for labeling communications infrastructure. These labels must be large enough to be read at a distance and provide all required information. Additional information regarding labeling is in the Caltech Construction Specification, Division 27. Labels which do not meet campus requirements will be rejected at no cost to Owner.

B. The work of this Section consists of Division 27 Labeling required to identify cable components; cable runs and identify cables uniquely on campus. This document describes labeling for:

1. Telephone cable plant
    a. Cable
    b. 66 Block terminations
    c. 110 Block/patch panel terminations
2. Category 6A copper cable plant
    a. Patch panel
    b. Horizontal
    c. Riser
    d. OSP
    e. Patch Cords
3. Fiber cable plant
    a. OSP Inter-building
    b. Intra-building
    c. OSP workstation area outlets
    d. Patch cords
    e. Fiber enclosures
4. Workstation outlets (termination and faceplates)
    a. Wall mounted duplex and quad
    b. Biscuit
    c. Floor Monuments
    d. Modular Furniture
    e. Wireless Access Point
    f. Time Clock/AV equipment/Security Camera
    g. Wet area installations
    h. Patch panels – end user

C. Installation Requirements
1. Labels to be machine generated.
2. Text on labels shall be as large as practical.
3. Text shall be free of defect.
4. Label shall be free of defect.

Part 2 - Products and Execution

2.1 - General

A. General
1. Mock-up and samples are required and must be approved for use by Caltech prior to use on the job.
2. Mock-up and samples are to be retained and used as reference for all labeling performed on the job.
3. Clean surfaces with appropriate cleaner (if required) prior to attaching labels. Labels which are not properly affixed will be rejected at no cost to Owner.
4. Labels that unwrap, delaminate or otherwise fail shall be replaced as no cost to Owner.
5. Installed labels shall be free from defect.
6. Label shall not be installed over a previously installed label.
7. Labels shall be resistant to:
   a. Chemical
   b. Water
   c. Wear
   d. UV
   e. Abrasion

B. Label text
1. Shall be mechanically generated, no hand-written labels permitted.
2. Shall be a minimum of 11 point, block style typeface, unless otherwise noted.
3. Shall be read from left to right, unless otherwise noted.
4. Shall be centered horizontally and vertically on printed label.
5. Shall be free from defect.

C. Self-adhesive machine generated labels
1. Label shall be no less than 0.375” in height.
2. Label shall be UV resistant.
3. Label adhesive shall be aggressive, resistant to chemical, resistant to heat, and resistant to water.
4. Label shall face out to facilitate reading from ground level.
5. Approved products include

Make	Part Number	Description
Brady	MC-500-595-WT-BK	0.50 in. x 25 ft.
Brady	MC-750-595-WT-BK	0.75 in. x 25 ft.
Brady	MC-1000-595-WT-BK	1.00 in. x 25 ft.

Make	Part Number	Description (continued)
Brady	MC-1500-595-WT-BK	1.50 in. x 25 ft.
Brady	MC-375-422	0.375 in. x 25 ft.
Brady	MC-475-422	0.475 in. x 25 ft.
Brady	MC-500-422	0.50 in. x 25 ft.
Brady	MC1-1000-422	1.00 in. x 25 ft.
Panduit	T038X000VPC-BK	0.38 in. x 25 ft.
Panduit	T050X000VPC-BK	0.50 in. x 25 ft.
Panduit	T075X000VPC-BK	0.75 in. x 25 ft.
Panduit	T100X000VPC-BK	1.00 in. x 25 ft.

6. Products conforming to the technical requirements listed in 2.1.C.5 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27. Submit alternate products to Caltech for review and approval.

D. Self-laminating labels
1. Shall have a white background with black text.
2. Shall have a white background of sufficient size to permit required text printed on one line.
3. Shall have a clear protective section to completely cover and protect printed text.
4. Shall utilize an aggressive adhesive that prevents labels from unwrapping after installation.
5. Shall be UV resistant and weather resistant.
6. Shall face out to facilitate reading from ground level.
7. Approved products include

Make	Part Number	Description	Form
Brady	M-31-427	1.00” wide x 1.50” tall with 0.50” print area	Cart
Brady	M-32-427	1.50” wide x 1.50” tall with 0.50” print area	Cart
Brady	M-21-427	1.00” wide x 2.50” tall with 0.75” print area	Cart
Brady	M-116-427	1.50” wide x 2.50” tall with 0.75” print area	Cart
Brady	M-23-427	1.00” wide x 4.00” tall with 1.00” print area	Cart
Brady	M-33-427	1.50” wide x 4.00” tall with 1.00” print area	Cart
Brady	M-34-427	1.50” wide x 6.00” tall with 1.50” print area	Cart
Panduit	S100X150YAJ	1.00” wide x 1.50” tall, 0.50” print area	8x11
Panduit	S100X225YAJ	1.00” wide x 2.25” tall, 0.75” print area	8x11
Panduit	S100X400YAJ	1.00” wide x 4.00” tall, 1.00” print area	8x11
Panduit	S100X650YAJ	1.00” wide x 6.50” tall, 1.50” print area	8x11
Panduit	S150X400YAJ	1.50” wide x 4.00” tall, 1.00” print area	8x11
Panduit	S200X150YAJ	2.00” wide x 1.50” tall, 0.50” print area	8x11
Panduit	S200X225YAJ	2.00” wide x 2.25” tall, 0.75” print area	8x11
Panduit	S200X400YAJ	2.00” wide x 4.00” tall, 1.00” print area	8x11
Panduit	S200X650YAJ	2.00” wide x 6.00” tall, 1.50” print area	8x11

Make	Part Number	Description (continued)	Form
Panduit	S100X150FAL	1.00” wide x 1.50” tall, 0.50” print area	8x11
Panduit	S100X225FAL	1.00” wide x 2.25” tall, 0.75” print area	8x11
Panduit	S200X225FAL	1.00” wide x 2.25” tall, 0.75” print area	8x11
Panduit	S200X400FAL	1.00” wide x 4.00” tall, 1.00” print area	8x11

8. Products conforming to the technical requirements listed in 2.1.D.7 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27. Submit alternate products to Caltech for review and approval.

E. Heat-shrink machine generated labels
1. Shall have a white background with black text.
2. Shall have a white background of sufficient size to permit required text printed on one line.
3. Shall be UV resistant and weather resistant.
4. Shall face out to facilitate reading from ground level.
5. Shall face out to facilitate reading from ground level.
6. Approved products include

Make	Part Number	Description	Form
Brady	M-375-1-342	0.125-0.320” diameter, 1.00” wide	Cart
Brady	MC1-375-342	0.125-0.320” diameter, 7 foot roll	Cart

7. Products conforming to the technical requirements listed in 2.1.E.6 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27. Submit alternate products to Caltech for review and approval.

F. Marker plates
1. Marker plate shall have factory cut slots/holes for cable ties.
2. Marker plates shall be made of flexible material that is UV resistant.
3. Marker plate shall be installed so it is readable from the ground.
4. Marker plate shall be installed using cable ties.
5. Cable ties shall be UV rated, utilize a metal retention tab and be sized sufficiently to hold label in place.
6. Cable ties of sufficient quantity shall be installed to keep label on cable at both ends of label and prevent movement of label horizontally on the cable.
7. Cable ties shall be trimmed to eliminate sharp edges when tail is removed.
8. Cable ties shall be fastened to cable without damage to cable and/or cable jacket.
9. Text may be applied directly to marker plate.
10. If text cannot be applied directly to marker plate, self-adhesive machine generated labels may be submitted to Caltech for review and approval.
11. Marker plate shall be installed on cable to permit being read from the ground.

12. Approved products include

Make	Part Number	Description
Panduit	M200X050Y6T	2.00 W x 0.50 H, Yellow
Panduit	M200X050Y7T	2.00 W x 0.50 H, White
Make	Part Number	Description (continued)
Panduit	M300X050Y6T	3.00 W x 0.50 H, Yellow
Panduit	M300X050Y7T	3.00 W x 0.50 H, White
Panduit	M300X100Y6T	3.00 W x 1.00 H, Yellow
Panduit	M300X100Y7T	3.00 W x 1.00 H, White
Brady	HSLT-4000-0.600-YL	4.00" W x 0.60" H, Yellow
Make	Part Number	Description (continued)
Brady	HSLT-2800-0.375-YL	2.80" W x 0.375" H, Yellow
HT	IMP1.7510C2	1.75" W x 0.75" H, White
HT	IMP210C2	2.00" W x 0.75" H, White
HT	IMP2.510C2	2.50" W x 0.75" H, White
HT	IMP3.510C2	3.50" W x 0.75" H, White
HT	IMP2.5W1.7510C4	2.50" W x 1.50" H, White
HT	544-80202	3.54" W x 0.78" H, SS
Panduit	MMP350-C316	3.50" W x 0.75", SS
Panduit	MMP350-C	3.50" W x 0.75", SS

13. Products conforming to the technical requirements listed in 2.1.F.12 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27. Submit alternate products to Caltech for review and approval.
14. Marker plates used in manholes and outdoor pull-boxes shall be made of stainless steel, use embossed lettering and use stainless steel cable ties fastening marker plate to cable without damage to cable or cable jacket.

G. Name plates

D. For each piece of electrical equipment, provide a manufacturer's nameplate showing their name, location, the pertinent ratings, the model designation, and shop order number.

E. Additionally, identify each piece of equipment and related controls with a rigid laminated engraved plastic nameplate. Unless otherwise noted, nameplates shall be melamine plastic 0.125 inch thick, white with black center core. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be 2.50 in. wide and 1.00 in. high unless otherwise noted. Where not otherwise specified, lettering shall be a minimum of 0.25-inch-high normal block style. Engrave nameplates with the inscriptions indicated on the Drawings and, if not so indicated, with the equipment name. Securely fasten nameplates in place using two stainless steel screws or, where favorably reviewed by the Engineer, with epoxy cement. Where no inscriptions are

indicated on the Drawings, furnish nameplates with appropriate inscriptions furnished by the Engineer upon prior request by the Contractor.

H. Faceplate window labels
   1. Shall have a white background with black text.
   2. Shall have a white background of sufficient size to permit fully qualified jack-identification string printed on one line.
   3. Shall have protective see-through cover installed after installation.
   4. Shall be a purpose-built label specific for use in faceplate windows.
   5. Shall not utilize adhesive.
   6. Shall be UV resistant and weather resistant.
   7. Shall have text centered vertically and horizontally in window
   8. Approved products include

Make	Part Number	Description
Panduit	C195X040Y1J	1.95” wide by 0.40” tall
Panduit	C261X035Y1J	2.61” wide by 0.35” tall
Panduit	C282X030Y1J	2.82” wide by 0.30” tall
Panduit	C288X040Y1J	2.88” wide by 0.40” tall
Panduit	C390X030Y1J	3.90” wide by 0.30” tall

   9. Products conforming to the technical requirements listed in 2.1.H.8 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27. Submit alternate products to Caltech for review and approval.
   10. Labels must be matched to correct application.

I. Jack termination module labels
   1. Shall have a white background with black text.
   2. Shall be a purpose-built label specific for use on jack termination modules.
   3. Shall utilize adhesive.
   4. Shall be UV resistant and weather resistant.
   5. Shall have text centered vertically and horizontally on label
   6. Shall have text as large as practical.
   7. Shall be affixed to label in such a manner that printed text is centered on the front of the termination module and wrap around the sides of the termination module. Labels only affixed to the front of the termination module will be rejected.
   8. Text on jack termination module shall correspond to the jack position identification number (jack position) at the patch panel in the telecommunications room.
   9. Approved products include

Make	Part Number	Description
Panduit	C138X019FJJ	1.38” wide by 0.19” tall

10. Products conforming to the technical requirements listed in 2.1.I.9 but designed for other printers/delivery systems will be considered for review under the Alternate and Substitution provisions outlined in Division 27.
11. Labels must be matched to correct application.

2.2 - Telephone Cable Plant

A. Telephone cable
   1. Materials
      a. Self-laminating labels shall be used for cables 0.50 inches in diameter or less.
      b. Cable tie affixed marker plate(s) shall be used for cables greater that 0.50 inches in diameter.
      c. Stainless steel marker plates required per 2.1.F.14.

B. Installation on telephone cable
   1. Label text requirements
      a. Minimum text size is 11 point, block type face.
      b. Text shall fit on label without reduction in text font size. If there is not enough room on the label for all required text, additional labels may be used.
      c. Additional labels shall be placed on cable to permit text to be read from left to right, right-side up.
   2. Information requirements
      a. Source and destination information to include building and room number.
      b. Label to contain cable construction/strand count/conductor count information and usage.
   3. Label position requirements
      a. Label shall be affixed to cable in a manner that does not require cable to be moved to read label.
      b. Label shall face out to be read.
      c. Label shall be affixed four (4) to eight (8) feet from end of cable at termination point at 66 Block or 110 Block, or as practical due to cable routing. If label is affixed to cable installed/dressed on ladder rack, label shall be attached to permit being read from the ground.
      d. Four (4) to eight (8) feet from entry/exit of conduit.
      e. Every 50 feet for the first 200 feet from building entry into tunnel.
      f. Every 200 feet along tunnel paths

C. Installation on 66 block
   1. Labels of sufficient size shall indicate conductor number at upper left, lower left, upper right and lower right of punch block.
   2. Label of sufficient size shall identify source and destination information if 66 block is used as a cross-connect.
   3. Top of blue board frame shall identify source (foreign end) of cable and conductor count.

D. Installation on 110 style patch panels
1. Self-adhesive machine generated labels shall be installed on the front, upper left side of patch panel identifying source (foreign end) of cable and conductor positions from foreign end.

2.3 - Category 6A copper cable plant

A. Patch panel
1. Flat patch panel
a. Material
i) Utilize self-adhesive machine generated labels.
b. Installation
i) Patch panel shall have label attached in upper left corner of patch panel.
ii) Label shall be wide enough for building-telecom_room-patch_panel information.
iii) Text shall be in 000-00-00 format (leading zeroes required).
iv) Text shall be as large as practical (no smaller than 12 point or auto-adjusted to fit width of label) to fill identification space on patch panel without label covering termination jacks.
v) Text shall be centered vertically and horizontally on label.
vi) Individual jack termination modules installed in patch panel do not need to be individually labeled if there are identification numbers on the patch panel to identify jack positions on the patch panel.
2. Angled patch panel
a. Material
i) Utilize self-adhesive machine generated labels.
b. Installation
i) Patch panel shall have label attached in center area of patch panel reserved for labeling.
ii) Label shall be wide enough for building-telecom_room-patch_panel information.
iii) Text shall be in 000-00-00 format (leading zeroes required).
iv) Text shall be as large as practical (no smaller than 12 point or auto-adjusted to fit width of label) to fill identification space on patch panel without label covering termination jacks.
v) Text shall be centered vertically and horizontally on label.
vi) Individual jack termination modules installed in patch panel do not need to be individually labeled if there are identification numbers on the patch panel to identify jack positions on the patch panel.

B. Horizontal cable plant
   1. Material
      a. Label shall be heat shrink or self-laminating wrap-around style.
   2. Installation
      a. Label shall be applied to cable prior to termination of cable.
      b. Label shall be positioned four (4) to eight (8) inches from rear of jack termination module.
      c. Label shall be positioned on cable to be read from cable source (tail end) towards jack termination (left to right).
      d. Label shall be wide enough for fully qualified jack identification number in building-telecom_room-patch_panel-cable_number format to fit on one line without line wrapping.
      e. Text shall be in 000-00-00-00 format (leading zeroes required).
      f. Fully qualified jack identification number to repeat a minimum of three times on label in white printable area.
      g. Clear lamination portion of label to wrap completely around cable at least one full rotation to protect all text and secure to label.
      h. Label shall be replaced (not repositioned) if cable is reterminated and interferes with readability of affixed label.

C. Riser cable plant
   1. Material
      a. Label shall be heat shrink or self-laminating wrap-around style.
   2. Installation
      a. Label shall be applied to cable prior to termination of cable.
      b. Label shall be positioned four (4) to eight (8) inches from rear of jack termination module.
      c. Label shall be positioned on cable to be read from cable source (tail end) towards jack termination (left to right).
      d. Label shall be wide enough for
         i) Source_telecom_room-patch_panel-jack_termination_number
         ii) Destination_telecom_room-patch_panel-jack_termination_number
      e. Text shall be in 00-00-00 >> 00-00-00 format (leading zeroes required).
      f. Fully qualified jack identification number to repeat a minimum of three times on label in white printable area.
      g. Clear lamination portion of label to wrap completely around cable at least one full rotation to protect all text and secure to label.
      h. Label shall be replaced (not repositioned) if cable is reterminated and interferes with readability of affixed label.

D. OSP cable plant
    1. Material
        a. Label shall be heat shrink or self-laminating wrap-around style.
    2. Installation
        a. Cable to be use for work area outlets, other OSP copper cable usage has other requirements.
        b. Label shall be heat shrink or self-laminating wrap-around style.
        c. Label shall be applied to cable prior to termination of cable.
        d. Label shall be positioned four (4) to eight (8) inches from rear of jack termination module.
        e. Label shall be positioned on cable to be read from cable source (tail end) towards jack termination (left to right).
        f. Label shall be wide enough for fully qualified jack identification number in building-telecom_room-patch_panel-cable_number format to fit on one line without line wrapping.
        g. Text shall be in 000-00-00-00 format (leading zeroes required).
        h. Fully qualified jack identification number to repeat a minimum of three times on label in white printable area.
        i. Clear lamination portion of label to wrap completely around cable at least one full rotation to protect all text and secure to label.
        j. Label shall be replaced (not repositioned) if cable is reterminated and interferes with readability of affixed label.
E. Patch Cords
    1. Material
        a. Label shall be self-laminating wrap-around style.
    2. Installation
        a. Label shall be positioned approximately one (1) inch from termination plug.
        b. Label shall be positioned on cable to be read from cable source (tail end) towards jack termination (left to right).
        c. Label shall be wide enough for patch panel and jack identification number in patch_panel-cable_number format to fit on one line without line wrapping.
        d. Text shall be in 00-00 format (leading zeroes required).
        e. Fully qualified jack identification number to repeat a minimum of three times on label in white printable area.
        f. Clear lamination portion of label to wrap completely around cable at least one full rotation to protect all text and secure to label.
        g. Label shall be replaced instead of repositioned due to error during installation.

2.4 - Fiber cable plant

A. OSP Inter-building cable plant
   1. Materials
      a. Self-laminating labels shall be used for cables 0.50 inches in diameter or less.
      b. Cable tie affixed marker plates shall be used for cables greater that 0.50 inches in diameter.
      c. Stainless steel marker plates required per 2.1.F.14.
   2. Installation on fiber cable
      a. Label text requirements
         i) Minimum text size is 11 point, block type face.
         ii) Text shall fit on label without reduction in text font size. If there is not enough room on the label for all required text, additional labels may be used.
         iii) Additional labels shall be placed on cable to permit text to be read from left to right, right-side up.
      b. Information requirements
         i) Source and destination information to include building and room number.
         ii) Label to contain cable construction/strand count information and usage.
      c. Label position requirements
         i) Label shall be affixed to cable in a manner that does not require cable to be moved to read label.
         ii) Label shall face out to be read.
         iii) Label shall be affixed four (4) to eight (8) feet from end of cable at termination point at fiber enclosure, or as practical due to cable routing. If label is affixed to cable installed/dressed on ladder rack, label shall be attached to permit being read from the ground.
         iv) A label is required at one end of the coil for all service .
         v) Four (4) to eight (8) feet from entry/exit of conduit.
         vi) Every 50 feet for the first 200 feet from building entry into tunnel.
         vii) Every 200 feet along tunnel paths

B. Intra-building cable plant
   1. Materials
      a. Self-laminating labels shall be used for cables 0.50 inches in diameter or less.
      b. Cable tie affixed labels shall be used for cables greater that 0.50 inches in diameter.
   2. Installation on fiber cable
      a. Label text requirements
         i) Minimum text size is 11 point, block type face.
         ii) Text shall fit on label without reduction in text font size. If there is not enough room on the label for all required text, additional labels may be used.
         iii) Additional labels shall be placed on cable to permit text to be read from left to right, right-side up.

b. Information requirements
i) Source and destination information to include building and room number.
ii) Source rack number, fiber enclosure number and fiber insert number/letter.
iii) Cable construction/strand count information and usage.
c. Label position requirements
i) Label shall be affixed to cable in a manner that does not require cable to be moved to read label.
ii) Label shall face out to be read.
iii) Label shall be affixed four (4) to eight (8) feet from end of cable at termination point at fiber enclosure, or as practical due to cable routing. If label is affixed to cable installed/dressed on ladder rack, label shall be attached to permit being read from the ground.
iv) A label is required at one end of the coil for all service loops.
v) Four (4) to eight (8) feet from entry/exit of conduit.
vi) Every 50 feet for the first 200 feet from building entry into tunnel.
vii) Every 200 feet along tunnel paths.

C. OSP fiber workstation area outlets
1. Material
a. Label shall be heat shrink or self-laminating wrap-around style.
2. Installation on fiber cable
a. Label text requirements
i) Minimum text size is 11 point, block type face.
ii) Text shall fit on label without reduction in text font size. If there is not enough room on the label for all required text, additional labels may be used.
iii) Additional labels shall be placed on cable to permit text to be read from left to right, right-side up.
b. Labels affixed between endpoints
i) Information requirements
a) Source and destination information to include building and room number.
b) Label to contain cable construction/strand count information and usage.
ii) Label position requirements
a) Label shall be affixed to cable in a manner that does not require cable to be moved to read label.
b) Label shall face out to be read.
c) Label shall be affixed four (4) to eight (8) feet from end of cable at termination point at fiber enclosure, or as practical due to cable routing. If label is affixed to cable installed/dressed on ladder rack, label shall be attached to permit being read from the ground.

d) A label is required at one end of the coil for all service loops.
e) Four (4) to eight (8) feet from entry/exit of conduit.
f) Every 50 feet for the first 200 feet from building entry into tunnel.
g) Every 200 feet along tunnel paths

c. Labels affixed at endpoints

i) Information requirements

a) Source and destination information to include building and room number, rack containing fiber termination, insert identifier and fiber strand positions.
b) Format shall be in the format
018-01-R00-C01-A01/02 where
018 is the building number
01 is the telecommunications room number using IMSS nomenclature
R00 is the rack id number
C01 is fiber can/enclosure 01
A01/02 is fiber insert A, fiber positions 1 and 2
c) Leading zeroes are required.

ii) Label position requirements

a) Label shall be affixed to cable in a manner that does not require cable to be moved to read label.
b) Label shall face out to be read.
c) At telecom room side, label shall be affixed as close as practical to fiber enclosure entry that permits the label to be visible without opening the fiber enclosure. This is typically within 8 inches of entry to the fiber enclosure before the fiber retention device/strain relief device.
d) At field location, label shall be affixed approximately 12 inches from fiber entry to fiber termination enclosure, spool or housing.
e) Fiber shall be labeled at beginning of all service loops.

D. Patch cords

1. Fiber patch cords shall be labeled by Caltech using Caltech's internal labeling methodology. Contact Caltech for assistance.

E. Fiber enclosures

F. Materials

G. Use self-adhesive machine generated labels.

H. Installation on exterior of fiber enclosure.

I. Label shall be affixed to upper left corner of door, underneath door latch.

J. Text shall indicate source of fiber (foreign end) including building, room, rack and fiber enclosure position in the local enclosure.

K. Installation on bulkhead adapter inside fiber enclosure.

L. Label shall be affixed between retention fastener and top row of fiber inserts.

M. Label text shall be reduced in size to meet text requirements.

N. Text shall indicate destination, type of fiber and strand count.

O. Installation on fusion splice cassette inside fiber enclosure.
P. Label shall be indicate foreign end of fiber including building, room, rack, fiber enclosure position and fiber strands located in fusion splice cassette.

2.5 - Workstation outlets (termination and faceplates)

Q. Wall mounted duplex and quad faceplates
R. Materials
S. Use faceplate window label of appropriate size to the faceplate being labeled.
T. Labels that do not match the faceplate window size (too small or too larger) will be rejected at no cost to Owner.
U. Use labels specific for jack termination modules for labeling jacks.
V. Installation
W. Top label
X. Label to match window size of faceplate.
Y. Text to contain building-telecom_room-patch_panel information.
Z. Text shall be in 000-00-00 format (leading zeroes required).
AA. Faceplate shall only have one corresponding patch panel listed, jack termination modules must all be fed from the same patch panel. Jack termination modules from differing patch panels residing in the same faceplate will be rejected at no cost to Owner.
BB. Text shall be as large as practical (no smaller than 12 point or auto adjusted to fit width of label) to fill label window.
CC. Text shall be centered vertically and horizontally on label.
DD. Paper labels that ship with faceplate are to be removed before installation of printed label.
EE. Plastic window covers to be installed after installation of printed label.
FF. Bottom label
GG. Label to match window size of faceplate.
HH. Text to contain

Need help? x3500
or
Need help? Call x3500

depending on window size.
II. Text shall be as large as practical (no smaller than 12 point or auto-adjusted to fit width of label) to fill label window.
JJ. Text shall be centered vertically and horizontally on label.
KK. Paper labels that ship with faceplate are to be removed before installation of printed label.
LL. Plastic window covers to be installed after installation of printed label.
MM. Jack termination module positioning
NN. Individual jack termination modules must be labeled in compliance with 270553-2.1.I.

OO. Jack termination modules shall be labeled and inserted into faceplate with lowest value number located in the upper left position, incrementing in value across the top row. When the top row is full of termination modules, the next jack module in sequential order shall occupy the left most position the next row down, populating the row from left to right.

PP. Faceplate jack positions not populated by a jack termination module shall be filled in with a blanking module of the same color as the faceplate.

QQ. Blanking modules shall not be labeled.

RR. Biscuit

SS. Materials

TT. Use self-adhesive machine generated labels for biscuit.

UU. Use labels specific for jack termination modules for labeling jacks.

VV. Installation

WW. Label text requirements

XX. Minimum text size is 11 point, block type face.

YY. Text shall fit on label without reduction in text font size. If there is not enough room on the label for all required text, additional labels may be used.

ZZ. Additional labels shall be affixed above or below other labels.

AAA. Label to be affixed to top of biscuit (on biscuit cover).

BBB. When biscuit cover top will not be visible after final installation, apply label to side facing outward that can be read without manipulation or the use of special tools (inspection mirror, camera, phone or similar device) for viewing.

CCC. Label shall be wide enough for fully qualified jack identification number in building-telecom_room-patch_panel-cable_number format to fit on one line without line wrapping.

DDD. Text shall be in 000-00-00-00 format (leading zeroes required).

EEE. On biscuits where more than one jack termination module is installed, text shall be in building-telecom_room-patch_panel format, leading zeroes required using 000-00-00 format.

FFF. Individual jack termination modules must be labeled in compliance with 270553-2.1.I.

GGG. Floor Monuments

HHH. Materials

III. Use faceplate window label of appropriate size as applicable.

JJJ. If floor monument does not have label windows, use self-adhesive machine generated labels.

KKK. Use labels specific for jack termination modules for labeling jacks.

LLL. Installation
MMM. Top of faceplate shall conform to requirements described at 270553-2.5.A.2.a.
NNN. Bottom of faceplate shall conform to requirements described at 270553-2.5.A.2.b.
OOO. Individual jack termination modules must be labeled in compliance with 270553-2.1.i.
PPP. In the event the faceplate/insert utilized does not have plastic windows, self-adhesive machine generated labels may be used with Caltech approval.
QQQ. Modular Furniture
RRR. Materials
SSS. Use faceplate window label of appropriate size as applicable.
TTT. If modular furniture insert does not have label windows or windows of sufficient quantity, use self-adhesive machine generated labels.
UUU. Use labels specific for jack termination modules for labeling jacks.
VVV. Installation
WWW. Top of faceplate shall conform to requirements described at 270553-2.5.A.2.a.
XXX. Bottom of faceplate shall conform to requirements described at 270553-2.5.A.2.b.
YYY. Individual jack termination modules must be labeled in compliance with 270553-2.1.i.
ZZZ. In the event the faceplate has only one window, this window shall be populated to conform with the requirements described at 270553-2.5.A.2.a.
AAAA. In the event the faceplate/insert utilized does not have plastic windows, self-adhesive machine generated labels may be used with Caltech approval.
BBBB. Wireless Access Point
CCCC. Materials
DDDD. Use faceplate window label of appropriate size as applicable.
EEEE. Use self-adhesive machine generated labels.
FFFF. Use labels specific for jack termination modules for labeling jacks.
GGGG. Installation
HHHH. Label following specifications for faceplate/termination type used.
IIII. Label exterior of wireless access point with fully qualified jack ID using self-adhesive machine generated label. Label shall be of sufficient size to be read from ground level.
JJJJ. Ceiling or wall mounted wireless access point enclosure shall be labeled with fully qualified jack ID in 000-00-00-00 format using self-adhesive machine generated label. Label shall be of sufficient size to be read from ground level. This label is in addition to the label affixed to the wireless access point itself.
KKKK. Wireless access point bollard shall be labeled with fully qualified jack ID in 000-00-00-00 format using self-adhesive machine generated label. Label shall be of sufficient size to be read from ground level. Label to be positioned 2 inches from base of bollard.

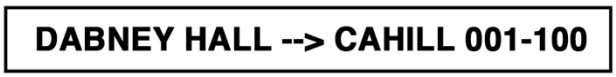
LLLL. Time Clock/AV equipment/Security Camera
MMMM. Materials
NNNN. Use faceplate window label of appropriate size as applicable.
OOOO. Use self-adhesive machine generated labels as applicable.
PPPP. Use labels specific for jack termination modules for labeling jacks.
QQQQ. Installation
RRRR. Label following specifications for faceplate/termination type used.
SSSS. Label exterior of device with fully qualified jack ID in 000-00-00-00 format using self-adhesive machine generated label. Label shall be of sufficient size to be read from ground level.
TTTT. Wet area installations
UUUU. Materials
VVVV. Use faceplate window label of appropriate size as applicable.
WWWW. Use self-adhesive machine generated labels as applicable.
XXXX. Use labels specific for jack termination modules for labeling jacks.
YYYY. Installation
ZZZZ. Label following specifications for faceplate/termination type used.
AAAAA. Label exterior of device with fully qualified jack ID in 000-00-00-00 format using self-adhesive machine generated label. Label shall be of sufficient size to be read from ground level.
BBBBB. Patch panels (end user)
CCCCC. Materials
DDDDD. Use faceplate window label of appropriate size as applicable.
EEEEE. Use self-adhesive machine generated labels as applicable.
FFFFF. Use labels specific for jack termination modules for labeling jacks.
GGGGG. Installation
HHHHH. Patch panel shall have label attached in upper left corner of patch panel.
IIIII. Label shall be wide enough for the text
Fed from building-telecom_room-patch_panel information.
JJJJJ. Text shall be in 000-00-00 format (leading zeroes required).
KKKKK. Text shall be as large as practical to fill identification space on patch panel without label covering termination jacks. Consult with Caltech to determine text size and label layout.
LLLLL. Text shall be centered vertically and horizontally on label.
MMMMM. Individual jack termination modules installed in patch panel shall be individually labeled to correspond to identification numbers on the patch panel at the telecommunication room position information.

Part 3 - Examples and Images

3.1 - Telephone cable plant

A. Cable

B. 66 Block terminations



C. 110 Block/patch panel terminations

50 pair cable

100 pair cable

3.2 - Category 6A copper cable plant

A. Patch panel

B. Horizontal Cabling

BLDG-TR-PP-JACK
BLDG-TR-PP-JACK
BLDG-TR-PP-JACK

018-01-01-48
018-01-01-48
018-01-01-48

C. Riser Cabling, same building

TR01-PP-JK > TR02-PP-JK
TR01-PP-JK > TR02-PP-JK
TR01-PP-JK > TR02-PP-JK
TR01-PP-JK > TR02-PP-JK

01-01-25 > 02-01-01
01-01-25 > 02-01-01
01-01-25 > 02-01-01
01-01-25 > 02-01-01

D. OSP

See Category 6A Horizontal Cable

E. Patch Cords

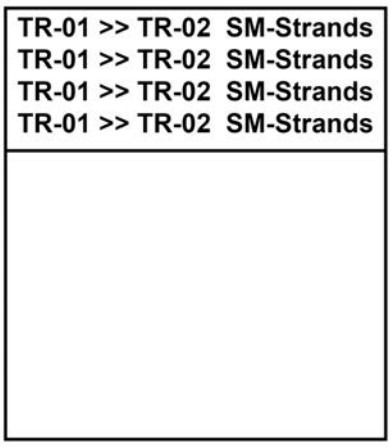
PP-JACK PP-JACK PP-JACK

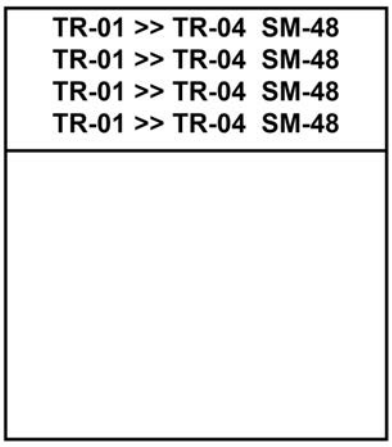
01-48 01-48 01-48

3.3 - Fiber cable plant

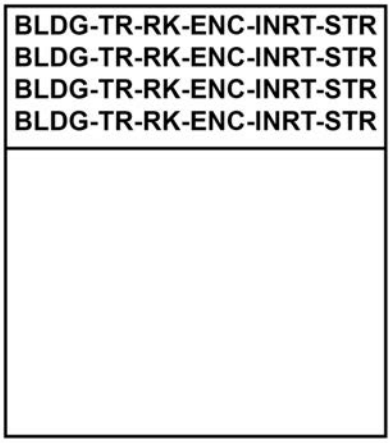
A. OSP Inter-building

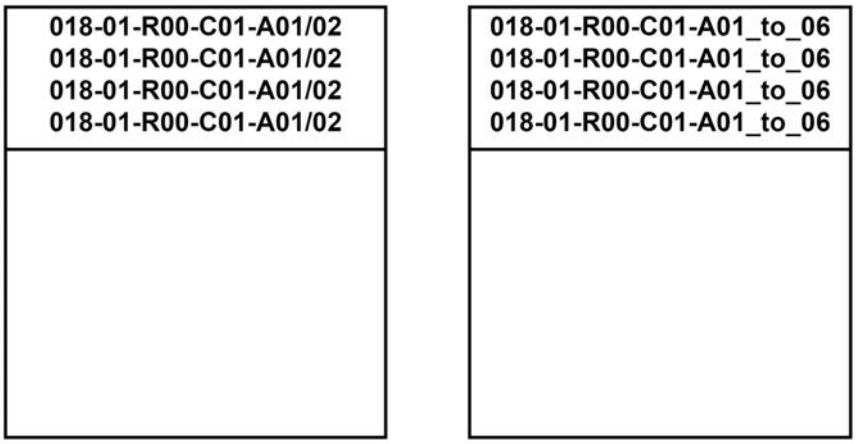
B. Intra-building





C. OSP workstation area outlets





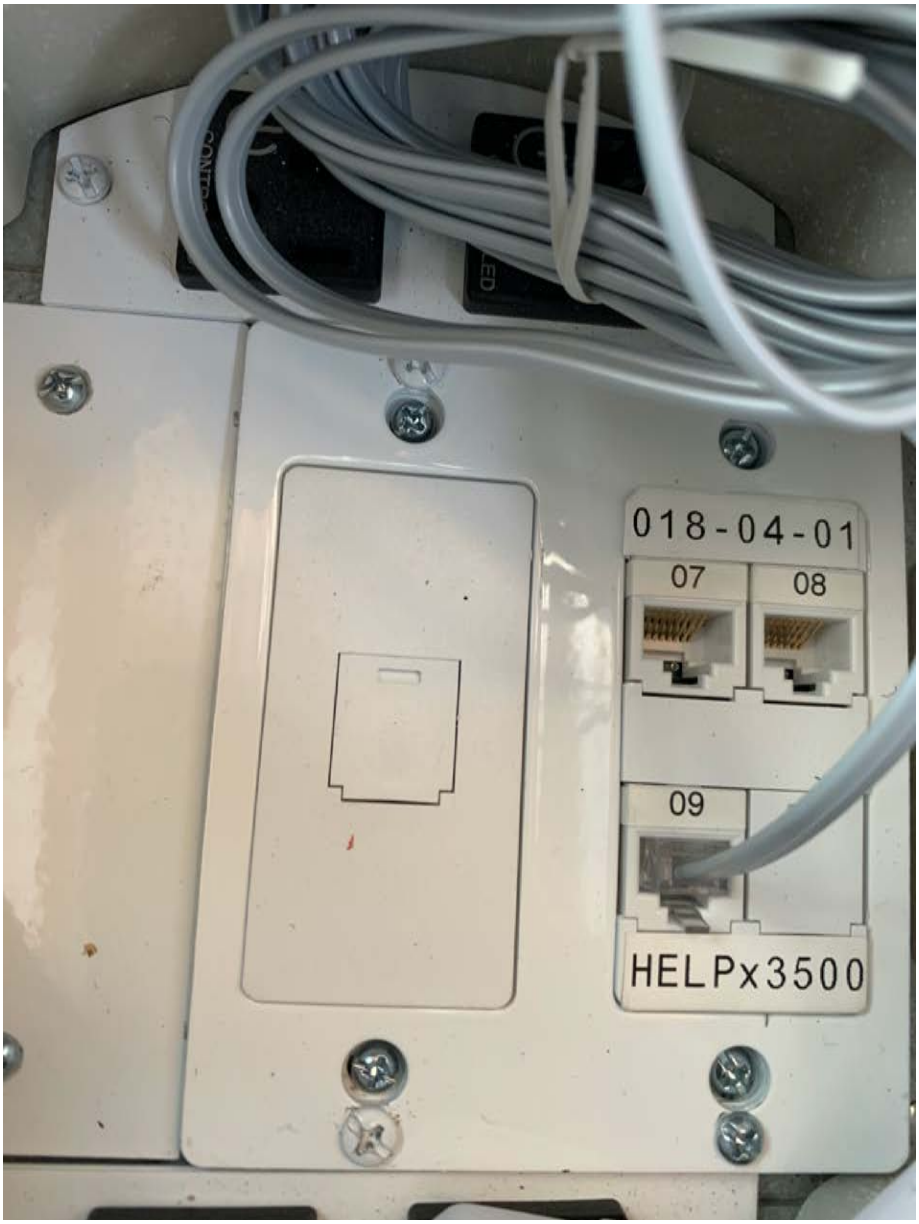
D. Patch Cords – Not in scope

3.4 - Workstation outlets (termination and faceplates)

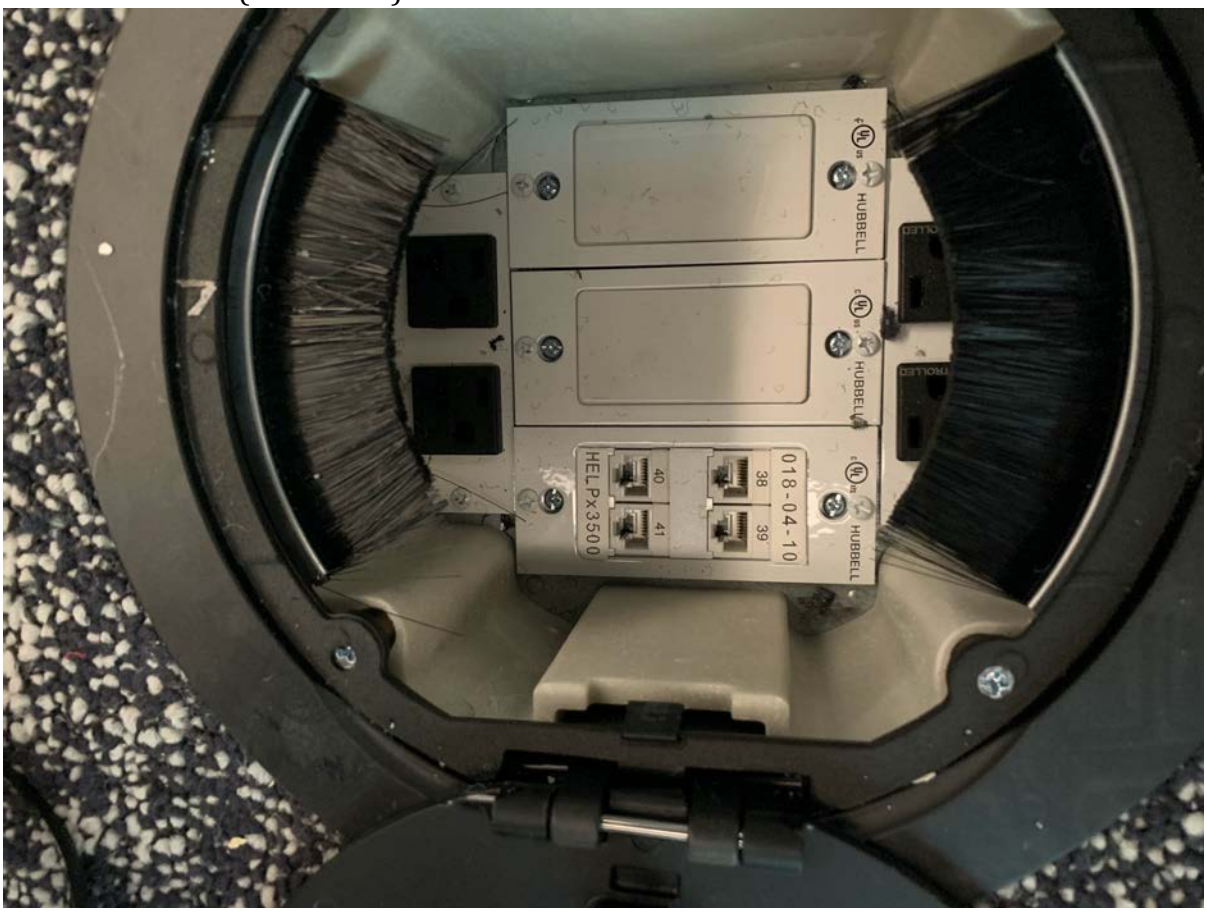
A. Wall mounted duplex and quad

B. Biscuit

C. Floor Monuments



Floor Monument (Continued)



D. Modular Furniture

[Pending/Job specific]

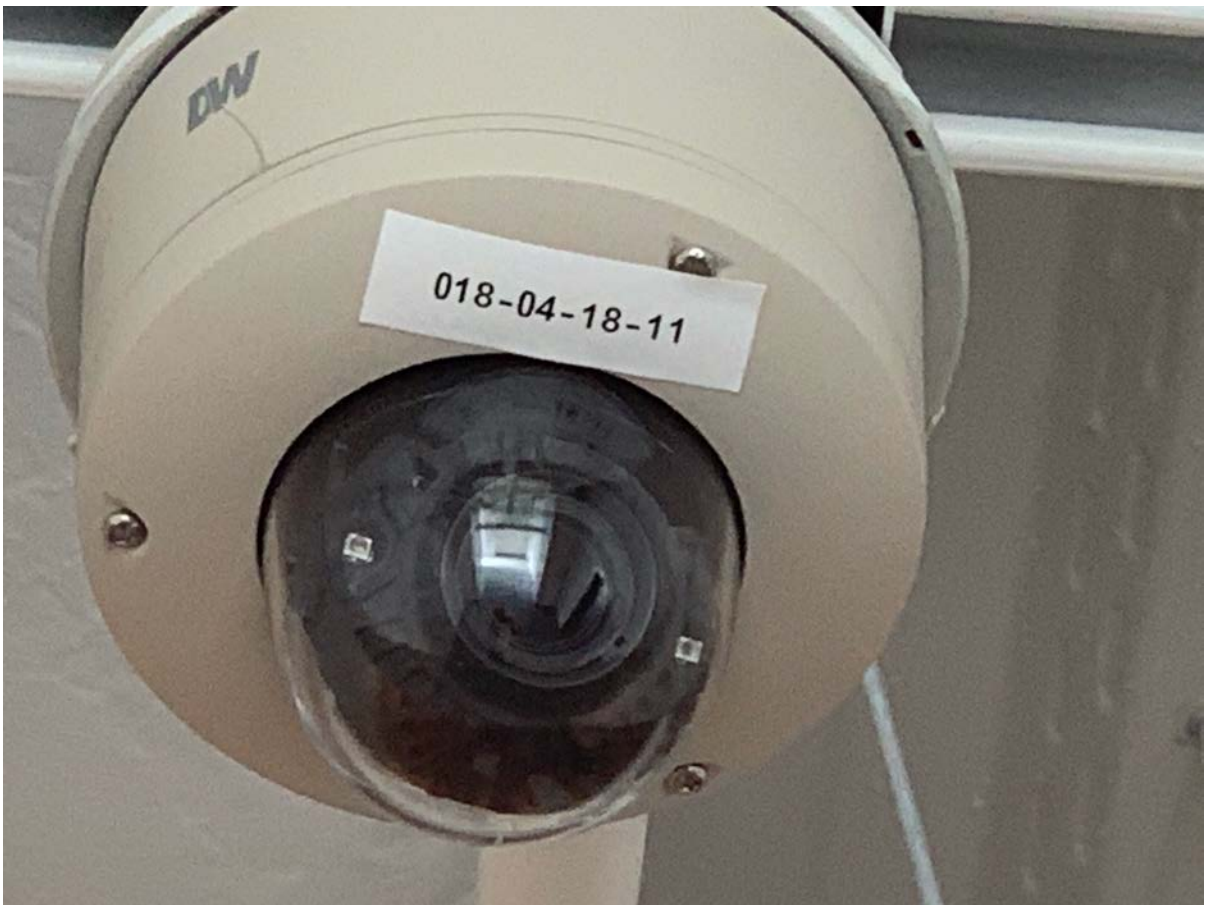
E. Wireless Access Point and Enclosure

Wireless Access Point (Continued)

Wireless Access Point (Continued)

F. Time Clock/AV equipment/Security Camera

NNNNN. Time Clock/AV equipment/Security Camera (Continued)



OOOOO. Time Clock/AV equipment/Security Camera (Continued)

G. Wet area installations

Vertical

Horizontal

Wet area installations (Continued)

Wet area installations (Continued)

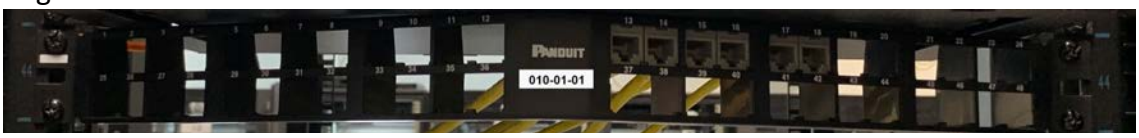
Wet area installations (Continued)

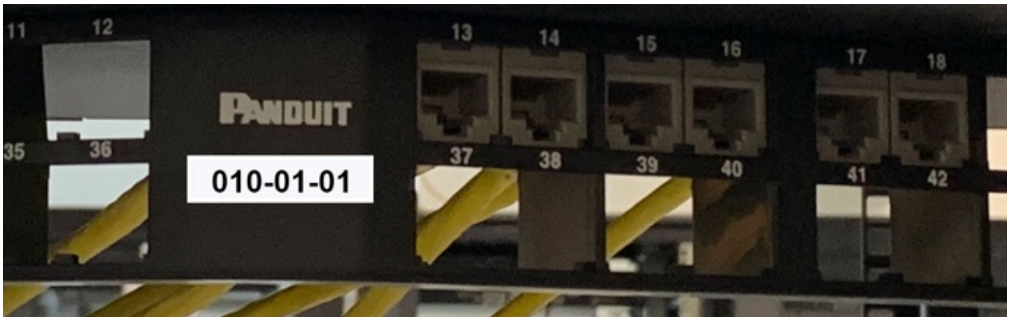
H. Patch panels – End User

Flat Patch Panel – End User

End user patch panel labeled with source patch panel ID at TR.
Jack IDs in end user patch panel match jack positions at TR patch panel.
In this example, 010-01-01-01 through 24 are populated.

Angled Patch Panel – End User





End user patch panel labeled with source patch panel ID at TR.
Jack IDs in end user patch panel match jack positions at TR patch panel.
In this example, 010-01-01-13 through 18 are populated.