READ THIS FIRST

Notice to the Design Engineer, please refer to the Port of Seattle, Facilities and Infrastructure standards for reference before editing this specification.

This Project Spec Document may need additional modifications to suit your project. It is recommended that you proofread each section, paying attention to any “Notes” boxes such as this one--you should remove these “Notes” sections as you go. Also, do a search for all bracket characters “ [ ] “ as they are used to show you areas containing options or project specific details (you can use Microsoft Word’s Find feature {Ctrl-F} to jump to an open bracket “ [ “ character quickly). Again, these bracket characters should be removed.

It is important that every paragraph be numbered to allow for easy referencing. If you use the document’s built in styles and formatting your outline should be fine (turn on the formatting toolbar by going to View > Toolbars > Formatting). Most paragraphs will use the style “Numbered Material” and can be promoted (Tab) or demoted (Shift-Tab).

You should not have to manually enter extra spaces, carriage returns or outline characters such as A, B, C, or 1.01, 1.02; the formatting will do this for you. The entire document is 11 pt. Arial. If you paste items in, you may need to reapply the “Numbered Material” format.

1. GENERAL
   1. SUMMARY OF WORK
      1. The extent and location of “Communications Standard for Labeling and Nomenclature” Work is shown in the Contract Documents. This section includes the label formatting and structure requirements, and is intended to work in conjunction with Port of Seattle specification Section 27 05 53 - Identification and Labeling and TIA-606 “The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings”.
   2. GOVERNING CODES, STANDARDS AND REFERENCES
      1. TIA-606 “The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings”
      2. Table "Termination Hardware" TIA-606
   3. SUBMITTALS
      1. Submit materials data in accordance with of Section 01 33 00 - Submittals. Furnish manufacturers’ technical literature, standard details, product specifications, and installation instructions for all products.
   4. ELEMENTS REQUIRING LABELS
      1. The following elements of the telecommunications infrastructure shall require identifiers and labels:
         1. Spaces
            1. A telecommunications space shall refer to any area used for housing the installation and termination of telecommunications equipment and cable. Telecommunications spaces include, but are not limited to, entrance facilities, racks and cabinets, equipment rooms, work areas and hand holes.
         2. Pathways
            1. A pathway shall refer to the facility or element used for the placement of telecommunications cable. Examples of pathways include cable tray, conduit and innerduct.
         3. Cabling
            1. Cabling shall include all fiber and copper conductor media used for the transmission of voice, video and data signals. Examples of cable includes, backbone, tie and horizontal cables and jumpers.
         4. Termination Hardware
            1. Termination hardware refers to the discrete point or element where telecommunications conductors are terminated. Termination hardware includes but is not limited to patch panels, punch down blocks, interconnections units, voice/data jacks and protector panels.
         5. Splices
            1. A splice is any joining of fiber or copper conductors in a splice enclosure meant to be permanent.
         6. Grounding System
            1. Grounding system elements include but are not limited to bonding conductors and grounding busbar.
   5. TELECOMMUNICATIONS IDENTIFIERS
      1. Spaces “sp”
         1. Space labels shall take the following form: [sp.fczz.nnnnn]
            1. “sp” represents the unique space code as identified in section 1.05.A.2.
            2. “fc” represents the Port of Seattle (POS) facility code as identified in section 1.06.
            3. “zz” represents the level in the particular facility as identified in section 1.07.
            4. “nnnnn” represents:

For all Spaces excluding Pull Boxes a (5) five digit sequence number.

Confirm that project drawings incorporate current, recognized gridlines per F&I. Coordinate and confirm gridline labeling with ICT Infrastructure group/

For Pull Boxes the nearest north-south followed by east-west gridlines.

* + - 1. Space Codes “sp”

|  |  |
| --- | --- |
| MD | Main Distribution room |
| ER | Equipment Room |
| TC | Telecommunications Closet |
| EQ | Equipment Rack or Cabinet |
| EF | Entrance Facility |
| WF | Wall Field |
| WA | Work Area |
| HH | Handhole |
| MH | Manhole |
| JT | Junction - cable Tray |
| PB | Pull Box |

* + - 1. Space Label General Application Notes
         1. Main distribution room sequence numbers shall be unique. All other sequence numbers shall restart with each level of the facility.
         2. For Equipment Racks and Cabinets (space type EQ) located in a room a five digit number (ABCDE) shall be determined as follows:

A: Is determined by the last digit of the room sequence number in which the rack or cabinet is located. For equipment racks or cabinets not within a room, “A” shall be represented by a “0”

BC: Is the row designator for the room

DE: Is the sequence designator for the row.

* + - * 1. For Wall Fields (space type WF) located in a room, a seven digit number (ABCDE.pp) shall be determined as follows:

A: Is determined by the last digit of the room sequence number in which the rack or cabinet is located. For wall fields not within a room, “A” shall be represented by a “0”

BC: Is the wall designator for the room (note that most rooms have 4 sides).

DE: Horizontal position of the wall field

pp: Vertical position of the wall field.

* + - * 1. Additionally, a suffix ".pp" shall be appended to ABCDE to designate vertical position within the wall field. Example: ABCDE.pp
        2. For Existing cable vaults, man holes or handholes, use the existing name if available.
    1. Pathways “ptw”
       1. Pathway labels shall take the following form: [ptw.fc.nnnnn]
          1. “ptw” represents the unique pathway code as identified in section. 1.05.B.2.
          2. “fc” represents the POS facility code as identified in section 1.06.
          3. “nnnnn” represents a (5) digit sequence number.
       2. Pathway Codes “ptw”
          1. CDB ConDuit Backbone
          2. CDO ConDuit Other
          3. CTB Cable Tray Backbone
          4. CTO Cable Tray Other
          5. CDT ConDuit Telecom
          6. CTT Cable Tray Telecom
          7. DDO innerDuct Other
          8. DDT innerDuct Telecom
          9. SLT SLeeve Telecom
       3. Pathway Label Application Notes
          1. For a pathway occupying two or more facilities use the facility code “fc” with the majority of the run in it.
    2. Cables “cb”
       1. Cable labels shall be identified by two or three text lines, as illustrated below.
          1. Composite (multimode and singlemode) Backbone Cables: The POS cable management system treats composite cable as if each cable type were an individual cables.

1st text line: cb.st.fc.nnnnn.ss (1st cable type)

2nd text line: cb.st.fc.nnnnn.ss (2nd cable type)

3rd text line: sp.fczz.nnnnn-sp.fczz.nnnnn (from- to)

* + - * 1. Non-composite Backbone Cables:

1st text line: cb.st.fc.nnnnn

2nd text line: “Blank”

3rd text line: sp.fczz.nnnnn-sp.fczz.nnnnn (from- to)

* + - * 1. Horizontal Cables:

1st text line: cb.st.fczz.nnnnn

2nd text line: “Blank”

3rd text line: sp.fczz.nnnnn-th.fczz.nnnnn (from- to)

“cb” represents the cable type code identified as follows in section 1.05.C.2.

“st” represents the cable subtype code identified as follows in section 1.05.C.3.

“fc” represents the POS facility code identified as follows in section 1.06.

“zz” represents the level in the particular facility identified as follows in section 1.07.

“nnnnn” represent a (5) five digit sequence number

“ss” represents the composite cable sub-subtype identified as follows in section 1.05.C.4.

* + - 1. Cable Type Codes “cb”
         1. CB Copper cable Backbone
         2. FB\* Fiber cable Backbone (also used for composite fiber cable Backbone)
         3. CH Copper cable Horizontal
         4. FH Fiber cable Horizontal (also used for composite fiber cable Horizontal)
         5. CO Copper cable Other
         6. FO\* Fiber cable Other (also used for composite fiber cable Other)
         7. \* Indicates cable types that require a unique sequence number
      2. Cable Subtype Codes “st”
         1. XM composite cable
         2. M6 Multimode, 62.5 Micron fiber cable
         3. M5 Multimode, 50 Micron fiber cable
         4. SM Single mode, Matched clad
         5. SD Single mode, Depressed clad
         6. SA Single mode, Allwave
         7. UT Uncategorized unshielded Twisted pair
         8. U3 category 3 Unshielded twisted pair
         9. U5 category 5 Unshielded twisted pair
         10. U6 category 6 Unshielded twisted pair
         11. ST Shielded Twisted pair
         12. CX Co-axial copper cable
         13. MU Unshielded multi-conductor copper cable
         14. MS Shielded multi-conductor copper cable
         15. RX Radiating Coax
         16. US Universal Station cable
         17. FX Fiber station cable
         18. JS fiber Jumper, Simplex
         19. JD fiber Jumper, Duplex
         20. CC Copper cross Connect
         21. WC Wireless Coax
      3. Composite Cable Sub-Subtype Codes “ss”
         1. M5 Multimode, 50 Micron fiber cable
         2. M6 Multimode, 62.5 Micron fiber cable
         3. SM Single mode, Matched clad
         4. SD Single mode, Depressed clad
         5. SA Single mode, Allwave
      4. Cable Label General Application Notes
         1. Backbone or riser cables do not require the level “zz” code; all other cables require it
         2. For a cable occupying two or more facilities (or levels), use the facility “fc” and level “zz” where the cable originates or where most of the cable resides.
    1. Termination Hardware “th”
       1. Termination hardware labels other than cross connects shall take the following form: [th.fczz.nnnnn]
          1. ““th” represents the unique space code identified as follows in para. 1.05.D.2.
          2. “fc” represents the POS facility code identified as follows in section 1.06.
          3. “zz” represents the level in the particular facility as identified in section 1.07.
          4. “nnnnn” represent a (5) five digit sequence number.
       2. Termination Hardware Codes “th”
          1. AT Antenna
          2. CD Copper Data jack
          3. FD Fiber Data jack
          4. CV Copper Voice jack
          5. FV Fiber Voice jack
          6. CU Copper Universal Outlet
          7. PP Protector Panel
          8. TV Video
          9. CM Intercom
          10. VP Voice Paging
       3. Cross connect termination hardware labels shall take the following form: [t.stc.fczz.nnnnn.nn]
          1. t” represents the cross connect type code identified as follows in section 1.05.D.4.
          2. “stc” represents the cross connect subtype code as identified in section 1.05.D.5.
          3. “fczz.nnnnn is determined by the rack or cabinet where the termination hardware resides.
          4. “nn” represents the (2) two digit sequence position within the rack or cabinet. The numbers shall be determined by labeling the equipment in sequential order starting at the top of the rack or cabinet.
       4. Cross connect type code “t”
          1. Main cross connect
          2. Intermediate cross connect
          3. Horizontal cross connect
       5. Cross connect subtype code “stc”
          1. CPP Copper Patch Panel (RJ45)
          2. CPB Copper Punchdown Block (66, 110)
          3. FPP Fiber optic Patch Panel
          4. FSS Fiber Splice Shelf
          5. XPP hybrid Patch Panel with copper RJ45 and fiber optic ports
          6. FIU Fiber optic Interconnection Unit
          7. CES Network Switch
          8. CXP Coaxial Patch Panel
          9. CPT CoPper Terminal block/strip
          10. FCS Fiber optic Combination Shelf splice/termination or interconnection unit
    2. Splices “sc”
       1. Splice labels shall take the following form: [sc.fczz.nnnnn]
          1. “sc” represents the unique splice code identified as follows in section. 1.052.E.2.
          2. “fc” represents the POS facility code identified as follows in section 1.06.
          3. “zz” represents the level in the particular facility identified as follows in section 1.07.
          4. “nnnnn” represent a (5) five digit sequence number.
       2. Splice Codes “sc”
       3. CS Copper Splice
       4. FS Fiber Splice
    3. Grounding System “gs”
       1. Grounding system labels shall take the following form [gs.fczz.nnnn]
          1. ““gs” represents the unique grounding system code identified as follows in para. 1.05.F.2.
          2. “fc” represents the POS facility code as identified in section 1.06.
          3. “zz” represents the level in the particular facility identified as follows in section 1.07.
          4. “nnnnn” represent a unique (5) five digit sequence number.
       2. Grounding System Codes “gs”

|  |  |
| --- | --- |
| BC | Bonding Conductor |
| EG | Equipment bonding conductor |
| GB | Grounding Busbar |
| TG | Telecom. Grounding busbar |
| TM | Telecom. Main grounding busbar |

* 1. Facility Codes "fc" - 2 characters as required for POS facility

|  |  |
| --- | --- |
| MT | Main Terminal |
| AD | Admin Building |
| PT | Parking Terminal |
| CA | Concourse A |
| CB | Concourse B |
| CC | Concourse C |
| CD | Concourse D |
| NS | North Satellite |
| SS | South Satellite |
| CT | Central Terminal |
| NZ | North Toll Plaza |
| RC | Rental car Facility |
| A4 | Air Cargo 4 |
| EX | Exterior |

* 1. Facility Level Codes "zz" 2 digits as required for POS facility
     1. MT Main Terminal

|  |  |
| --- | --- |
| 00 | Utility Tunnel |
| 01 | Transit (STS) |
| 02 | Interstitial Space / GTX Tunnel |
| 03 | Baggage Claim |
| 04 | Bridge |
| 05 | Ticketing (Concourse) |
| 06 | Mezzanine |
| 07 | Mechanical Penthouse |

* + 1. AD Administration Building

|  |  |
| --- | --- |
| 00 | Ground |
| 01 | Not Used |
| 02 | Second Floor |
| 03 | Third Floor |
| 04 | Fourth Floor |
| 05 | Fifth Floor |
| 06 | Sixth Floor |
| 07 | Seventh Floor |
| 08 | Eighth Floor |
| 09 | Ninth Floor |

* + 1. PT Parking Terminal

|  |  |
| --- | --- |
| 00 | Basement |
| 01 | First Floor |
| 02 | Second Floor |
| 03 | Third Floor |
| 04 | Fourth Floor |
| 05 | Fifth Floor |
| 06 | Sixth Floor |
| 07 | Seventh Floor |
| 08 | Eighth Floor |
| 09 | Ninth Floor |

* + 1. CA Concourse A

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 02 | Interstitial Space |
| 03 | Baggage Claim |
| 04 | Ramp/Bridge |
| 05 | Concourse (Ticketing) |
| 06 | Mezzanine |
| 07 | Mechanical Penthouse |

* + 1. CB Concourse B

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 03 | Ramp |
| 05 | Concourse |
| 07 | Mechanical Penthouse |

* + 1. CC Concourse C

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 03 | Ramp |
| 05 | Concourse |
| 07 | Mechanical Penthouse |

* + 1. CD Concourse D

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 03 | Ramp |
| 05 | Concourse |
| 07 | Mechanical Penthouse |

* + 1. NS North Satellite

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 03 | Ramp |
| 05 | Concourse |
| 07 | Mechanical Penthouse |

* + 1. SS South Satellite

|  |  |
| --- | --- |
| 00 | Tunnel (Basement) |
| 01 | Transit (STS) |
| 02 | Mezzanine (FIS) |
| 03 | Ramp |
| 04 | International Corridor |
| 05 | Concourse |
| 07 | Mechanical Penthouse |

* + 1. CT Central Terminal

|  |  |
| --- | --- |
| 01 | Transit (STS) |
| 03 | Baggage Claim |
| 04 | Bridge |
| 05 | Concourse (Ticketing ) |
| 06 | Mezzanine |
| 07 | Mechanical Penthouse |

* + 1. NZ North Toll Plaza

|  |  |
| --- | --- |
| 01 | Floor 1 |
| 02 | Floor 2 |

* + 1. RC Rental Car Facility

|  |  |
| --- | --- |
| 01 | Ground Level |
| 02 | Floor 2 |
| 03 | Floor 3 |
| 04 | Floor 4 |
| 05 | Floor 5 |

* + 1. AC Air cargo 4

|  |  |
| --- | --- |
| 01 | Grade Level |

* + 1. EX Exterior location

|  |  |
| --- | --- |
| 01 | Grade Level |

1. APPLICATION

A. If only one product is acceptable (single or sole source product), obtain an approved Competition Waiver and submit to the CPO Construction, Contract Administrator. The language shall read as: “Manufacturer Name, Product # XXXXX, No Equal.” Refer to CPO-6 Competition Waiver Policy for more information.

B. If a Competition Waiver is not approved or more than one product is acceptable, this section must list a minimum of 2 products plus the language “Or Approved Equal,” along with salient characteristics. Refer to CPO Construction’s Salient Characteristics Guidelines for more information.

* 1. Labeling products shall be applied to spaces, pathways, cables, termination hardware, splices, grounding busbars, and grounding conductors as indicated in the table below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IDENTIFIER CATEGORY** | **WHAT TO LABEL** | **PRODUCT TO USE** | **WHERE TO LABEL** | **HOW TO ATTACH** | **NOTES** |
| Space | Entrance Facility (EF) | Phenolic space label | On backboard or wall in approved location | Screws |  |
| Equipment Rack (EQ) for open relay racks | Phenolic rack label and phenolic cabinet label | Rack label on front of top angle, centered horizontally.  Cabinet label on front of self-supporting base angle, centered horizontally and low on base. | Screws or metal rivets |  |
| EQ for cabinets and enclosures | Phenolic cabinet label | On front of all cabinet/enclosure doors, centered horizontally in door panel, 6” below top of door panel. | Screws or metal rivets |  |
| WF for wall fields | Phenolic | On wall, above wall field area. | Screws |  |
| Equipment Room (ER), Main Distribution  Room (MD), and Telecommunications Closet (TC) | Phenolic space label | Above door on outside of room in approved location | Screws |  |
| Handhole (HH) and Manhole (MH) | Embossed, engraved, imprinted, or etched in cover | Integral to handhole or manhole cover |  | Submit method for approval |
| Pull Box (PB) | Phenolic space label  Pathway warning label | Space label: At top-front of outside of cover if cover is hinged; otherwise on body of box in approved location.  Pathway warning label: At center of outside of cover if cover is hinged and on inside of box where visible; otherwise on body of box on outside and inside where visible | Space label: Screws  Pathway warning label: Self adhesive |  |
| Work Area (WA) | None |  |  | Not applicable |
| Pathway | Conduit Backbone (CDB), Conduit Telecom (CDT) | Conduit label | Within 12” on both sides of penetrations, within 12” of box entry, at ends, at intervals of 25 feet | Self-adhesive with clear overlay |  |
| Cable Tray Backbone (CTB), Cable Tray Telecom (CTT) | Cable tray label  Pathway warning label | Cable tray label: Within 12” of tray ends, within 12” of intersections (tees, etc.), within 12” on both sides of penetrations, at each floor level in risers, where entering/exiting risers, at intervals of 25 feet.  Pathway warning label: At intervals of 25 feet for horizontal runs, at intervals of 6 feet for vertical runs. | Cable tray label: Self-adhesive with clear overlay  Pathway warning label: Self-adhesive | Place where visible on bottom of tray for overhead tray, or on both sides of tray at specified intervals where bottom of tray is not easily visible. |
| Innerduct Telecom (DDT) | Innerduct label | Within 12” of end of run, in boxes, in manholes, in handholes, at tray intersections, at end of tray runs, where entering/exiting trays, within 12” of penetrations, at each floor level in risers, where entering/exiting risers | Plastic cable tie |  |
| Sleeve Telecom (SLT) | Sleeve label | Depends on field conditions. May be similar to conduit label, innerduct label, phenolic label, or other approved type. | Depends on field conditions | Submit proposed method for approval |
| Cable | All backbone cables, tie cables, outdoor cables, and cables of O.D. greater than 0.28” | Cable tag | At each end of cable, in boxes\*, handholes1, and manholes1, at cable tray intersections1, where entering/exiting tray1 or conduit1, where entering/exiting innerduct, and where entering/exiting ER1, MDR1, or TC1. | Plastic cable tie |  |
| All other cables with O.D. of 0.28” or less. | Cable label | At each end of cable, in boxes, handholes1, and manholes1, at cable tray intersections1, where entering/exiting tray1 or conduit1, where entering/exiting innerduct, and where entering/exiting ER1, MDR1, or TC1. | Self-adhesive with clear overlay |  |
| Termination hardware | CD, FD, CV, FV, CU, PP, TV, CM | Jack label | Use labels supplied with, or compatible with faceplates | Slip-in or self-adhesive | Use slip-in when label has plastic label cover on faceplate. Use self-adhesive only when faceplate is not used or has no label provision |
| Termination hardware | CPP, CPB, FIU, FCS, FPP, XPP, FSS | Termination label | For 110 blocks: Label block using label supplied with, or compatible with block. Label with block number and label all pairs.  For RJ45 patch panels: Label patch panel using label supplied with, or compatible with patch panel. Label with patch panel number and label patch ports with outlet number on front, and label 110 terminations with outlet number on back.  For fiber optic patch panels and protector panels: Label panel on front of cover and on inside of housing with panel number. Label protector panel positions with cable number(s) and pair(s). | Slip-in or self-adhesive  Slip-in or self-adhesive  Slip-in and self-adhesive | For all termination types:  Use color-coded termination labels per color coding standards of TIA-606.  Submit proposed products and labeling method for approval. |
| Splice | Type CS | Wire tag | Within 6” of splice | Small plastic wire tie through pair twist |  |
| Type FS | As provided with or compatible with splice connector | Label splice block, cables, and pairs | Slip-in or self-adhesive | Submit proposed products and methods for approval |
| Type FCG, FCN, FWG, FWN | Cable tag | Attached to closure or on cable within 6” of closure | Plastic cable tie | Obtain approval of attachment location |
| Type FCS, FSS | Termination label | Label enclosure on front of cover and on inside of housing. | Self-adhesive |  |
| Grounding system | BC, EG | Cable label  Ground warning | At each end of conductor, in boxes\*, handholes1, and manholes1, at cable tray intersections1, where entering/exiting tray1 or conduit1, where entering/exiting innerduct, and where entering/exiting EF1, ER1, MDR1, or TC1.  Within 3” of each end of conductor, at any tee splice | Self-adhesive with clear overlay  Plastic cable tie |  |
| GB, TG, TM | Cable tag | Attached to busbar | Plastic cable tie |  |

\*If a conductor is within an innerduct or conduit that runs without interruption through these locations, the cable does not require a label at this location.

1. EXECUTION - NOT USED
2. MEASUREMENT AND PAYMENT
   1. GENERAL
      1. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items in the [Schedule of Unit Prices] [Lump Sum price bid for the Project].

End of Section

Revision History:

05/01/2014 Conversion to 2004 CSI Numbering System

10/15/2014 Added Sole Source and Salient Characteristics Note to Part 2 and revisions

09/11/2020 Updated Specification per current F&I standards