

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. The extent and location of "Communications Infrastructure Commissioning" Work is shown in the Contract Documents.

1.02 Definitions

- A. Unshielded twisted pair cable (UTP cable)
- B. The following UTP cable types shall be utilized for data and voice circuits:
 - 1. Data circuits: 4-pair Category 6/6a (Cat 6/6a)
 - 2. Voice circuits: 25-pair Category 5e (Cat 5e)

1.03 RELATED WORKS

- A. Commissioning shall be completed for the following Work in this Contract:

Construction of cable trays and raceways, backboards, and other communications cabling equipment indicated in Section 27 05 28 - Communication Pathways, Section 27 13 00 - Backbone Cabling Requirements, and Section 27 15 00 - Horizontal Cabling.

- 1. Construction and testing of the backbone cable plant as indicated in Section 27 13 00 - Backbone Cabling Requirements.
 - 2. Construction and testing of the horizontal cable plant as mandated in Section 27 15 00 - Horizontal Cabling Requirements.
 - 3. Identification and Labelling as indicated in Section 27 05 53
 - 4. Completion of cable administration documentation using the Cable Administration System as indicated in Section 27 13 00 - Backbone Cabling Requirements, and as mandated in Section 27 15 00 - Horizontal Cabling Requirements.
- B. Commissioning shall include Work not performed under any contract, but required for completion and commissioning of Work in any specific contract.
 - 1. Cable trays installed as required for backbone cable installation or extension.
 - 2. Backbone cable elements installed and tested that are integrated with the cable system in this Contract.
 - 3. Cable conduit, shafts, and communications rooms that are used to route and install backbone branch cable to communications rooms.
 - 4. Branch cable installed between communications rooms and Security Master Plan assigned locations designated in this Contract.
 - 5. Labeling done as required.
- C. Port may contract with an independent test contractor for full commissioning and testing of Work performed under this contract.

1.04 INSPECTIONS AND TESTING

- A. Inspection of the quality of Work completed is the primary commissioning tool for communications infrastructure.

- B. Testing and documentation are the commissioning methods for communications cable plant and termination equipment.
- C. Testing and documentation shall be executed per this section and other Division 27 Communications sections in this contract.

PART 2 PRODUCTS

2.01 SUBMITTALS

- A. All submittals (documents and drawings) required for commissioning by the Contractor shall be submitted electronically as Microsoft Word or Excel documents, or as pdf and AutoCAD drawings. Electronic files shall be compatible with the latest version of the authoring software or as approved by the Engineer.

PART 3 EXECUTION

3.01 INSPECTION OF WORK

- A. Contractor inspections shall be conducted of all Work in the Work area to be commissioned, and a punch list of corrections shall be prepared and submitted to the Engineer for review.
- B. The Contractor shall execute the punch list corrections prior to requesting Port commissioning inspections of the Work area.
- C. Port pre-test inspections shall begin upon notice that the Contractor's punch list Work is completed or at a point of completion mutually agreeable to the Engineer. The request to start the Port inspection shall be provided in writing by the Contractor.
- D. The Contractor shall coordinate Port inspections with the Engineer with at least (3) days notice.
- E. Depending upon the Work quality determined by the Port inspection, the Engineer may authorize the Contractor to start testing prior to completion of inspection of the entire Work area to be commissioned.
- F. The Engineer will provide the Contractor with a correction punch list after each Port inspection. The Contractor shall provide an action plan for each punch list within 5 calendar days, and begin corrections within the same 5-day period.

3.02 CONTRACTOR TESTING

- A. Contractor tests may not start without Engineer approval of the Contractor Test Plan and Procedures.
- B. Prior to the testing Work in the first Work area to be commissioned, the Contractor shall provide a demonstration to the Engineer of the testing process for ten (10) of each type of test being performed.
- C. Upon completion and approval of the demonstration tests, the Contractor shall complete testing.
- D. Testing may be executed in stages within a Work area depending upon the progress of pre-test inspections.
- E. Test results are required to be submitted to the Port of Seattle no later than 14 days from the date of the individual test.

- F. If the Contractor finds more than 2% of the tests do not meet specifications, testing shall stop, the Engineer shall be notified, and the Contractor shall immediately take corrective actions and reschedule testing.
- G. Test results and cable administration information shall be submitted to the Engineer only when all testing in the Work area being commissioned is complete.
- H. Test results shall be provided to the Port on both disk and hardcopy.
- I. Upon receipt of the independent test report and Work or identification deficiency report, a correction plan shall be submitted within 5 working days.
- J. Work and identification deficiencies shall be corrected in a professional and timely manner. Each correction shall be documented and reported to the Engineer.

3.03 FINAL CLOSURE OF WORK

- A. Final closure of infrastructure facilities shall not occur until after Engineer approval of the commissioning of each designated Work area.
- B. Closure sequence shall be:
 - 1. Closure of pull boxes and junction boxes after final inspection and approval of cable, cable labels, and box identification. Pull and junction boxes shall be cleaned prior to closure.
 - 2. Closure of cable trays after final inspection and approval of innerducts, cables, cable labels, flex joint treatment, cable tray grounding, and cable tray labeling. Cable trays shall be cleaned prior to closure.
 - 3. Closure of ceilings after cable tray approval and closure. Inspection locations in ceilings shall be identified at ceiling closure.
 - 4. Closure of patch panels and splice panels after post-testing inspection and approval of terminations, identification, cable dressing, patch panel labeling, and patch panel security. Patch panels and rack areas shall be cleaned prior to final closure.
 - 5. Repair of finishes and disposal of all waste material.
- C. Hardcopy and softcopy (MS Word or Excel) of testing and cable administration information shall be properly identified and packaged for delivery to the Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. 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

01/20/2017 Added labeling verification

01/01/2022 Cat 5 changed to Cat5e. Timeframe for test results added.