

SECTION 27-11-13 COMMUNICATIONS ENTRANCE PROTECTION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work covered by this section of the Specifications includes all labor necessary to perform and complete such construction, all materials and equipment incorporated or to be incorporated in such construction and all services, facilities, tools and equipment necessary or used to perform and complete such construction. The work of this section shall include, but is not limited to, the following:
 - 1. Building entrance protectors and related accessories

1.02 QUALITY ASSURANCE

- A. Refer to Section 27-00-00 for general details.

1.03 CODES, STANDARDS, AND GUIDELINES

- A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations in Section 27-00-00.
- B. Customer Owned Outside Plant Design Manual (BICSI)
- C. Telcordia GR-974, Issue 3
- D. The Cal Poly ITS Telecomm, Telecommunications Standards Document (TSD) and the Labeling, Design & Syntax Standard in Appendix B.

1.04 SUBMITTALS

- A. Refer to Section 27-00-00 for general details.
- B. Shop Drawings:
 - 1. Shop drawings shall show the locations of protector blocks and splices, pair counts and cable designations at each installed entrance protector.
- C. Submit Manufacturer's Cut Sheets for the following:
 - 1. Any products not specifically listed in the PRODUCTS section shall require a submittal of the manufacturer's cut sheets and approval by the Cal Poly ITS Telecomm group.

1.05 IDENTIFICATION

- A. Identify each protector unit as to the details of the cable (other end of the cable, wire path, number of pairs, etc.) See the Cal Poly ITS Telecomm group Labeling, Design and Syntax Standard, Appendix B.
- B. Outdoor cables shall be labeled with outdoor rated, 1" wide, white with machine generated black lettering (DYMO type label) at each endpoint and entering and exiting each underground facility.
- C. Refer to Section 27-05-53 for additional details.

1.06 DEFINITIONS

- A. N/A

1.07 WARRANTY

- A. Refer to Section 27-00-00 for general details.

PART 2 – PRODUCTS

2.01 PRODUCT CONSISTENCY

- A. Product Consistency: Any given item of equipment or material shall be the product of one manufacturer throughout the facility. Multiple manufacturers of any one item shall not be permitted.

2.02 BUILDING ENTRANCE TERMINAL

- A. Shall be used with entrance cabling that terminates in an EF/TR/ER.
- B. The units shall be 100 pair with input stub cable and 66 block style output.
- C. Terminal unit to incorporate a 26 AWG fuse link cable stub for 710 splicing to OSP cable.
- D. Uses type 4 protection modules.
- E. Must be UL listed. (See Fig. #142 in Appendix B)
- F. Approved Manufacturers: Commscope 489 Series, AVAYA or Cal Poly ITS Telecomm group approved equal

2.03 SURGE PROTECTION MODULE

- A. Protectors shall utilize heat coils.
- B. Balanced 3-element gas discharge tube with fail-safe.
- C. Gas discharge tube is without backup gap.
- D. Built in Fail-safe device.
- E. Self-resetting sneak current protection (PTCs).
- F. Low capacitance (less than 10 pF) and low resistance (2.2 ohm PTCs).
- G. Protectors shall incorporate gold plated connections.
- H. Approved Manufacturer: Commscope Systimax or approved Cal Poly ITS Telecomm group equal

2.04 ENTRANCE PROTECTOR FOR HORIZONTAL COPPER UTP OSP STATION CABLE (VOICE)

- A. Six Pair, Cat3 with 110 IDC termination input and output
- B. UL 497 Listed for primary protection
- C. Uses type 4 protection modules.
- D. Approved Manufacturers: Tii Network Technologies / Porta Systems or Cal Poly ITS Telecomm group approved equal

2.05 ENTRANCE PROTECTOR FOR HORIZONTAL COPPER UTP OSP STATION CABLE (DATA)

- A. Four Pair, CAT 6 with 110 IDC termination input and output

- B. Supports 1 Gigabit & POE where Power and Data are on all 4-Pairs
- C. Approved Manufacturer: Comscope, Marconi, Lucent or Cal Poly ITS Telecomm group approved equal

2.08 SPLICE CASE

- A. Splice case for terminating entrance OSP cable to Protector Panel stub cable
- B. All splices in a splice case shall be terminated with 3M 710 style connectors.
- C. Sized as required for pair counts and cable size.
- D. Shall be fire retardant, and re-enterable.
- E. End caps shall be sized as required for the number and size of the cables.
- F. All splices, splice cases, and connectors shall be installed per manufacturers written instructions.
- G. Approved Manufacturer: 3M™ Building Riser Closure K&B Series or Cal Poly ITS Telecomm group approved equal
- H. Approved Manufacturer: 3M™ Building Riser Closure K&B Series or Cal Poly ITS Telecomm group approved equal
- I. Connect sheath to grounding bar (TGB) to provide cable sheath continuity.

PART 3 – EXECUTION

3.01 GENERAL

- A. Location and placement of termination blocks, splice closures, splices and other related hardware shall be as shown on the Drawings or defined in the Cable Schedules.
- B. Final placement of termination blocks, splice cases, splices, OSP cable (routing) and other related hardware shall be approved in advance by the Cal Poly Telecomm group.
- C. For each OSP cable that extends beyond the drip line of the building, an appropriately sized entrance protector module shall be provided at both ends.

3.02 QUANTITIES

- A. Quantities of blocks, splice closures, splices, etc. shown on the Drawings are illustrative only and are meant to indicate the general configuration of the work. The Contractor is responsible for providing the correct quantities of blocks, connectors, etc. necessary to terminate, cross-connect and patch the volume of cable described herein and shown on the Drawings.

3.03 INSTALLATION

- A. Building Entrance Terminals
 - 1. Submit Shop Drawings to the ITS Telecomm group for approval of block field, protector and splice case layouts and locations as well as OSP cable routing before starting work.
 - 2. Building Entrance Terminals shall only be installed within telecommunications spaces.
 - 3. Per NEC 800-90, Building Entrance Terminals shall be located as close as practical to its cable's point of entrance to a building.
 - 4. Cables from different buildings shall not to share the same building entrance terminals.

5. All building entrance terminals shall be fully populated with surge protection modules of the same make, model and manufacturer regardless of conductor count.
 6. Each protector shall be individually grounded to the TGB/TMGB or ground rod with a #6 AWG copper bonding conductor. (not daisy-chained)
 7. All building entrance terminals shall be labeled. (See Fig. #101 & 106 in Appendix B).
- B. Entrance Protectors for OSP CAT 3 Station Cable
1. Entrance Protectors for OSP Station Cable shall only be installed within EF/TR/ER telecommunications spaces.
 2. Each cable shall terminate on its own entrance protector.
 3. All entrance protectors shall be fully populated with surge protection modules of the same make, model and manufacturer.
 4. Each protector shall be individually grounded to the TGB/TMGB or ground rod with a #6 AWG copper bonding conductor. (not daisy-chained)
 5. All entrance protectors shall be labeled. See Section 27-05-53 and the Cal Poly ITS Labeling, Design & Syntax Standards in Appendix B for more detail. (See Fig. #101 & 106 in Appendix B)
- C. Splice Cases
1. Splice cases shall only be employed within a building, and shall not be placed in a vault or other underground structure.
 2. OSP cables from separate buildings shall not share the same splice case.
 3. Each splice shall be individually grounded to the TGB/TMGB with a #6 AWG copper bonding conductor. (not daisy-chained)

3.04 GROUNDING & BONDING

- A. Each protector shall be individually grounded to the TGB/TMGB or ground rod with a #6 AWG copper bonding conductor. (not daisy-chained)
- B. Each splice case shall be individually grounded to the TGB/TMGB with a #6 AWG copper bonding conductor.
- C. Refer to Section 27-05-26 for additional details.

3.05 TESTING

- A. Devices shall be tested as part of the required system testing for the cabling they protect and serve.

3.06 ACCEPTANCE

- A. Once the installation has been completed and the Cal Poly ITS Telecomm group representative is satisfied that all work is in accordance with the Contract Documents, the Cal Poly ITS Telecomm group representative will notify the Contractor and/or Cal Poly Project Manager in writing or via email.

3.07 RECORD (AS-BUILT) DRAWINGS

- A. The Project Record Drawings shall show the types and locations of all entrance protectors. Drawings shall include identifying information from the cable identification labels.

END OF SECTION

DOCUMENT VERSION CONTROL

REVISION	DATE	AUTHOR	REASON
1	02/20/2014	R. VOLK	INITIAL DOCUMENT DEVELOPMENT
	02/20/2014	DW&MH	PRIMARY REVIEW COMPLETE