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

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.

1.05 IDENTIFICATION

A. Identify each protector unit as to the details of the cable (other end of the cable, wirepath, number of pairs, etc.)

B. Outdoor cables must be labeled with 1¼” stamped brass tags at each endpoint and in each underground facility.
C. Refer to Section 27 05 53 for additional details.

1.06 DEFINITIONS

A. ROOM TAXONOMY

1. BUILDING SERVICE ENTRANCE (BSE): The BSE is where the outside plant (OSP) cables connect (through protection devices and distribution cross-connects) to the building backbone. The BSE should be located as close as possible to where the communications conduits enter the building from the underground. The BSE must be large enough for plywood backboards with 36 inches of clearance in front of the entrance cross-connects and the same door and lighting requirements as a TR. A TR can also function as a BSE provided sufficient space is added to the room.

2. TELECOMMUNICATIONS ROOM (TR): Telecommunication rooms are recognized in ANSI/TIA/EIA-569 as the transition point between the horizontal (station) pathway facilities and the backbone (riser) pathway facilities. A TR can also function as a BSE provided sufficient space is added to the room. The TR generally houses telecommunications equipment, cabling, environmental control equipment, power distribution/conditioners, and uninterruptible power supply (UPS) systems. TRs must also be large enough for equipment installation/replacement without interfering with other systems. The TR interior dimensions must be at minimum no less than 10' x 12' when planned to serve no more than 200 communications outlets.

TELECOMMUNICATIONS ROOM TYPES:

a. MAIN DISTRIBUTION FACILITY (MDF): Designation for a room serving as the core of the telecommunications and data network for a campus.

b. BUILDING DISTRIBUTION FACILITY (BDF): Designation for a room serving as the main telecommunications facility for an individual building

c. INTERMEDIATE DISTRIBUTION FACILITY (IDF): Designation for secondary telecommunications facilities in a building. IDFs connect to the MDFs via the building’s BDF.

d. SUPPLIMENTAL DISTRIBUTION FACILITY (SDF): Designation for a tertiary “special purpose” telecommunications facility.

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 will not be permitted.

2.02 BUILDING ENTRANCE TERMINAL (FOR BUTE 401D USE ONLY)

A. To be used for entrance cabling terminating in a telecommunications room.
B. 100 pair with input stub cable and 110 block style output.
C. Terminal to incorporate a 26 AWG fuse link cable stub for splicing to OSP cable.
D. Uses type 4 protection modules.
E. Must be UL listed.
F. Manufacturer/Product: Circa Part# 1880B1-100K

2.03 BUILDING ENTRANCE TERMINAL (FOR BSE USE)

A. To be used for entrance cabling terminating in a building service entrance room.
B. 100 pair input stub cable and 100 pair output stub cable.
C. Terminal to incorporate a 26 AWG fuse link cable stub for splicing to OSP cable.
D. Uses type 4 protection modules.
E. Must be UL listed.
F. Manufacturer/Product: tii Network Technologies / Porta Systems 26100-ST-MST

2.04 BUILDING ENTRANCE TERMINAL (FOR TR USE)

A. To be used for entrance cabling terminating in a telecommunications room.
B. Building entrance terminals shall be 489A type.
C. 100 pair with input stub cable and 110 block style output.
D. Terminal to incorporate a 26 AWG fuse link cable stub for splicing to OSP cable.
E. Uses type 4 protection modules.
F. Must be UL listed.
G. Manufacturer/Product: tii Network Technologies / Porta Systems 25100-ST-M110C
2.05 SURGE PROTECTION MODULE
   A. Protectors shall utilize PTC (positive temperature coefficient) technology.
   B. Balanced 3-element gas discharge tube with fail-safe.
   C. Low capacitance (less than 10 pF) and low resistance (4-6 ohm PTCs)
   D. Protectors shall utilize gold plated connectors.
   E. Manufacturer/Product: tii Network Technologies / Porta Systems 195-6C1EM

2.06 BUILDING ENTRANCE TERMINAL 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. Manufacturer/Product: tii Network Technologies / Porta Systems 1506

2.07 BUILDING ENTRANCE TERMINAL FOR HORIZONTAL COPPER UTP OSP STATION CABLE (DATA)
   A. Four Pair, Category 6A with 110 IDC termination input and output.
   B. Supports 10 Gigabit & POE where Power and Data are on All 4-Pairs.
   C. Manufacturer/Product: Ditek Surge Protection DTK-110C6APOE

2.08 SPLICE CASE
   A. Sized as required for pair counts and cable size.
   B. Shall be fire retardant, and reenterable.
   C. Endcaps shall be sized as required for the number and size of the cables.
   D. All splices, splice cases, and connectors shall be installed per manufacturers written instructions.
   E. Manufacturer/Product: 3M™ Building Riser Closure K&B Series Kit 3 inch R-3 (For cables of 300 pair or less)
   F. Manufacturer/Product: 3M™ Building Riser Closure K&B Series Kit 5 inch R-5 (For cables of more than 300 pair)
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 closures, splices and other related hardware shall be approved in advance by the Campus Telecommunications Representative.

C. For each OSP cable that extends beyond the dripline of the building, an appropriately sized entrance protector module is required at each end.

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. Building Entrance Terminal shall only be installed within telecommunications spaces.

2. Per NEC 800-90, Building Entrance Terminals shall be located as close as practical to the cable’s point of entrance to a building.

3. Each OSP cable entering the building shall terminated on a separate building entrance terminal, combining cables on a single building entrance terminal will not be allowed.

4. All building entrance terminals shall be fully populated with surge protection modules of the same make, model and manufacturer.

5. Each Building Entrance Terminal shall be individually grounded to the TGB/TMGB or ground rod with a #6 AWG copper bonding conductor.

6. All Building Entrance Terminal shall be labeled. See Section 27 05 53 for more detail.

B. Building Entrance Terminal for OSP Station Cable (Data and Voice)

1. Building Entrance Terminals for OSP Station Cable shall only be installed within telecommunications spaces.

2. Each cable shall terminate on its own Building Entrance Terminal.

3. All Building Entrance Terminals shall be fully populated with surge protection modules of the same make, model and manufacturer.

4. Each Building Entrance Terminal shall be individually grounded to the TGB/TMGB or ground rod
with a #6 AWG copper bonding conductor.

5. All Building Entrance Terminal shall be labeled. See Section 27 05 53 for more detail.

C. Splice Cases

1. Splice cases are only to be employed within a building, and are never to be placed in a vault or other underground structure.

2. OSP cables from separate buildings are not to share a splice case.

3. Splice cases shall be securely mounted, cables entering splice cases shall be fixed so they do not cause deflection in the rubber endcaps. Verify locations prior to placement with Campus Telecommunications Representative.

4. All splices in a splice case shall be terminated with 3M 710 Straight Splice Connectors.

5. The OSP cable metallic shield shall be bonded to the metallic shield of the stub input to the Building Entrance Protector and then further grounded to the TGB/TMGB.

6. Each splice shall be individually grounded to the TGB/TMGB with a #6 AWG copper bonding conductor.

7. All splice cases shall be labeled. See Section 27 05 53 for more detail.

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.

B. Each splice 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. Building Entrance Terminals are to 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 campus telecommunications representative is satisfied that all work is in accordance with the Contract Documents, the representative will notify the Contractor and/or Campus Project Manager in writing or via email.

3.07 RECORD (ASBUILT) DRAWINGS

A. The Project Record Drawings shall show the types and locations of all Building Entrance Terminals. Drawings should include identifying information from the cable identification tags.
## DOCUMENT VERSION CONTROL

<table>
<thead>
<tr>
<th>REVISION</th>
<th>DATE</th>
<th>AUTHOR</th>
<th>REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/07/2012</td>
<td>C. WHITEHOUSE</td>
<td>INITIAL DOCUMENT CREATION</td>
</tr>
<tr>
<td>2</td>
<td>01/24/2013</td>
<td>CJW &amp; CLC</td>
<td>PRIMARY REVIEW COMPLETE</td>
</tr>
<tr>
<td>3</td>
<td>10/09/2014</td>
<td>CJW &amp; CLC</td>
<td>YEARLY UPDATE AND REVISIONS</td>
</tr>
<tr>
<td>4</td>
<td>12/07/2017</td>
<td>MAS &amp; CLC</td>
<td>2017 REVISION COMPLETE</td>
</tr>
<tr>
<td>5</td>
<td>12/04/2019</td>
<td>MAS</td>
<td>Updated Part Numbers</td>
</tr>
</tbody>
</table>