

SECTION 28 0000 – SECURITY DESIGN CRITERIA

PART 1 - GENERAL

1.1 RELATED DOCUMENT

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section

1.2 SUMMARY

- A. This section includes the following:
 - 1. Conduits
 - 2. Boxes
- B. Related Sections
 - 1. Division 26 – Electrical
 - 2. Division 27 – Technology and Communications

1.3 REFERENCES

- A. NFPA 70 – The National Electrical Code
- B. ANSI/TIA 568-C.0 – Generic Telecommunications Cabling for Customer Premise
- C. ANSI/TIA/EIA 568-C.1 – Commercial Buildings Telecommunications Cabling Standard
- D. ANSI/TIA/EIA 569 – Commercial Building Standard for Telecommunications Pathways and Spaces
- E. ANSI/TIA/EIA 606-A – Administration Standard for the Telecommunications Infrastructure of Commercial Building; TR-42.6 - Labeling
- F. ANSI/TIA/EIA 607A – Commercial Building Grounding and Bonding Requirements for Telecommunications
- G. ANSI/TIA – TSB 95 – Testing Standards
- H. ANSI/TIA-568-B.2-ad10 – Augmented Category 6
- I. ANSI/TIA 942 – Data Center Cabling Standard
- J. BICSI TDMM – Telecommunications Distribution Methods Manual

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Include data sheets for the following additional items:
 - 1. Grounding and bonding
 - 2. Lightning Protection
- C. Samples
 - 1. The Engineer reserves the right to request, and have submitted, additional samples, or samples not explicitly requested within these Documents.

1.5 DELIVERY STORAGE AND HANDLING

- A. The Contractor shall responsible for the storage and handling of all Materials required by the Structured Cabling portion of this Contract.
- B. Storage and Protection
 - 1. Any Materials that show signs of mishandling or have been stored in a fashion so as to reduce the value of the Materials shall be replaced with new Materials at no additional cost to the Owner.
- C. Waste Management and Disposal
 - 1. All excess Materials shall be discarded in an appropriate manner.
 - 2. Any/all hazardous materials shall be handled appropriately and shall be disposed of in a manner consistent with same, and compliant with all applicable codes and regulations.

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1.7 PROJECT/SITE CONDITIONS

- A. The Contractor shall become and remain familiar with all project/site conditions that may have impact on the timing, quality and/or quantity of Materials for the project. The Contractor shall

coordinate their efforts with changes in the Project/Site conditions so as to optimize the installation for the Owner.

- B. Any additional efforts by the Contractor due to a lack of awareness of project/site conditions shall not require additional compensation from the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Boxes and Conduit

1. All boxes and conduit shall be new and UL listed.
2. Security conductors shall be routed in blue metal raceways.
3. Minimum raceway size is $\frac{3}{4}$ ".
4. All boxes and conduit shall be as specified under the Division 26 specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Materials shall be examined for damage on receiving the materials. Reject any materials that are damaged.
- B. Examine all materials before installation. Reject and materials that are damaged.
- C. Examine elements and surfaces to which materials will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Telecommunications pathways, spaces and metallic raceways, which run parallel with electric power or lighting cables or conduits, which is less than or equal to 480 Vrms, shall be installed with a minimum clearance of 50 mm (2 inches).
- B. The Contractor shall provide all devices for routing the cabling as indicated on the Drawings, and as required by the manufacturer of the Structured Cabling System, so as to maintain the long term health and operability of the Structured Cabling System.
- C. All horizontal pathways shall be designed, installed and grounded to meet applicable local and national codes
 1. Boxes
 - a. All boxes, unless otherwise specifically indicated, shall be 4-11/16" square by 2-1/8" deep, with a two gang plaster ring, of appropriate depth for the wall material utilized in the application.

- b. Where pullboxes are utilized, conduits shall enter and exit the box on opposite sides of the box. The box shall not be used as the turning point of the cable.
2. Conduit
- a. All conduit shall be a minimum of 3/4".
 - b. Conduit routes shall meet the following criteria:
 - 1) No conduit bend shall exceed 90°.
 - 2) Conduit bends must be no less than 6-inch radius.
 - 3) No conduit route shall have more than two bends.
 - 4) Continuous conduit runs shall not exceed 100 ft. nor contain more than two (2) 90° bends without utilizing appropriately sized pull boxes
3. Bonding and Grounding
- a. Security system components shall be bonded to the building grounding systems.
 - 1) Grounding conductor shall be compliant with Class 1 systems.
 - 2) Conduit shall be properly bonded to cable trays, wireways, and pull boxes, as appropriate.
 - 3) Power supplies grounded in compliance with Class 3 requirements.
4. Lightning Protection
- a. Every underground and overhead security conductor which enters a facility from the outdoors shall have a lightning arrestor installed.
5. Power Outage Protection
- a. Uninterruptable Power Supplies
6. Door Security Device Power Supplies

3.3 FIELD QUALITY CONTROL

- A. Keep areas of work accessible until inspection by authorities having jurisdiction.
- B. Where deficiencies are found, repair products so they comply with the Construction Documents.
- C. Install work in full accordance with the rules, regulations, and safety requirements of Federal, State, County and City authorities having jurisdiction over premises. Do not construe this as relieving Contractor from compliance with any requirements of the Specifications which are in excess of Code requirements and not in conflict therewith.
- D. Correct unacceptable workmanship and, as necessary, provide additional inspection to verify compliance with this Specification at no additional cost to the Owner or the Owner's appointed representative.

3.4 ADJUSTING AND CLEANING

- A. Remove equipment, materials, and debris, leaving area in undamaged, clean condition.

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- B. Clean all surfaces adjacent to sealed openings to be free of excess firestopping materials and soiling as work progresses.

END OF SECTION 28 0000

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