

SECTION 28 05 13

SECURITY SYSTEM CABLING

PART 1 - GENERAL

1.1 SUMMARY

- A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary construction and special or occasional services as required to make a complete working security system installation, as described in these specifications.
- B. Section Includes:
  - 1. Wire and cable
- C. Related Sections:
  - 1. Consult other Sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.
  - 2. Section 28 00 00 Basic Security Requirements: includes general project requirements, submittal formats, installation, and warranty requirements.
  - 3. Section 28 05 53 Security System Labeling: includes label types and formats.
  - 4. Section 26 05 33 Raceway & Boxes for Electrical System: includes pathway types in different areas of the project.

1.2 SUBMITTALS

- A. Product Data: Submit product information, including:
  - 1. Cable Description and Use
  - 2. Jacket Rating
  - 3. Outside Diameter (of the overall wire or cable)
  - 4. Manufacturer
  - 5. Part Number

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

- A. General
  - 1. Provide required wire and cable sized to allow for voltage drop on long runs and effectively shielded as required to allow the routing of 12 & 24V power and video signal cable in the same conduit without interference or signal noise.
  - 2. Cable installed outdoors or in underground conduit must contain a PVC or Polyethylene jacket, flooded to prevent water intrusion.
  - 3. Cables installed outdoors or in underground conduit that transition into the building and run in plenum space to contain a plenum rated (type CMP) jacket and contain water block material to prevent water intrusion.
  - 4. Cables installed indoors to contain a plenum rated jacket (type CMP).
- B. Manufacturers:

1. Westpenn
  2. Belden
  3. Commscope
  4. Or Equal
- C. Access Control & Alarm Monitoring System Cable
1. Plenum Jacketed Cable
    - a. #22/2 AWG unshielded: Westpenn #25221B
    - b. #22/4 AWG unshielded: Westpenn #25241
    - c. #22/2 PR AWG individually shielded: Westpenn #D25510
    - d. #22/4 AWG shielded (overall): Westpenn #D253651
    - e. #22/6 AWG shielded (overall): Westpenn #253270B
    - f. #18/2 AWG unshielded: Westpenn #25224B
    - g. #18/4 AWG unshielded: Westpenn #25244B
    - h. #18/4 AWG shielded (overall): Westpenn #253244B
    - i. #14/2 AWG unshielded: Westpenn #25226B
- D. CCTV Cabling
1. Provide minimum RG-59/U CCTV video coaxial cable between the camera and the monitoring equipment, with the following features:
    - a. 95% percent copper braid
    - b. Foam dielectric
    - c. Solid copper core
    - d. 75 ohm characteristic impedance
    - e. Plenum jacket
  2. Manufacturer: West Penn #25815
  3. Provide West Penn #825 with a black jacket for CCTV video cross-connect/patch cabling under 15' in length.
  4. Indoor/Outdoor or Underground CCTV Coaxial Cable
    - a. Provide minimum RG/U video coaxial cable between the camera and the monitoring equipment with the following features:
      - 1) 95% percent copper braid
      - 2) Foam dielectric
      - 3) Solid copper core
      - 4) 75 ohm characteristic impedance
      - 5) PVC jacketed
      - 6) CM or CMP rating
      - 7) Suitable for indoor and outdoor installation
      - 8) Water blocking material
    - b. Manufacturer:
      - 1) Belden #5439W5 or equal for cable run in non-plenum space or conduit.
      - 2) Belden #89259 or equal for cable run in cable tray in plenum rated space.
- E. Entry Telephone
1. Communications Cable:
    - a. CAT6e UTP 4-Pair Cable

- 1) Application: Suitable for indoor installation within conduit.
- 2) Conductors:
  - a) Insulated Conductors: 24 AWG solid copper, fully insulated with a flame retardant thermoplastic material (material = PVC, or equivalent).
  - b) Twisted Pairs: Two insulated conductors “twisted” into a “pair” (twisted pair), individually color-coded to industry standards (ANSI/ICEA Publication S-80-576-1994, and EIA-230).
- 3) Core & Sheath:
  - a) Cable core (twisted pairs) to contain a tape applied longitudinally (wrapped around it’s entirety)
  - b) Tape Material: non-hydroscopic polypropylene film, or equal
  - c) Sheath Type: “ASP”. Sheath to consist of a shield and an outer jacket
    - (1) Shield: Dual corrugated tape of inner aluminum and outer steel longitudinally applied, with a locking overlap.
    - (2) Jacket: PE, bonded to shield
  - d) Electrical Performance: Meet or exceed TIA/EIA-568-B requirements for CAT6e UTP cabling.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Label cables in accordance with Section 28 05 13 – Security System Labeling.
- B. Secure wire and cable run vertically in conduit for continuous distances greater than thirty (30) feet at the vertical run terminations. Secure non-coaxial cables using screw-flange nylon cable ties or similar approved devices, Thomas and Betts or equivalent. Provide symmetrical clamping devices with split, circular or other wire conforming, nonmetallic bushings for coaxial cables.
- C. Provide wire and cable with a continuous, splice-free sheath for the entire length of run between designated connections or terminations.
- D. Make connections to screw-type barrier blocks with insulated crimp-type spade lugs. Size lugs properly to assure high electrical integrity, i.e., low resistance connections.
- E. Lace, tie or harness wire or cable as required herein, and in accordance with accepted professional practice. Dress, lace or harness wire and cable to prevent mechanical stress on electrical connections; do not support wire or cable from a connection point.
- F. Dress and secure coaxial cables to preclude stress and/or deformation.
- G. Install shielded wiring or route in separate raceways as recommended by the manufacturer's current requirements.
- H. Provide necessary tie wires.
- I. Do not run signal wire and cable in parallel to power (120VAC).
- J. Follow manufacturers recommended guidelines for installation.

## 3.2 CABLE SUPPORT

### A. Horizontal Support

1. Concrete and Metal construction (Above Ceiling)
  - a. Provide separate and dedicated cable support system for security cable runs. Anchor cable support system to structural ceiling. Support and tie cables at a maximum of 5-foot intervals.
2. Wood Construction (above ceiling and no ceiling)
  - a. Support cable utilizing appropriately sized drive rings or "D" rings.
  - b. Fasten rings to structural ceiling.
  - c. Install drive rings at approximately 5 foot intervals.
  - d. Route cable through drive rings and cable tie at 10 foot intervals, or every other drive.

### B. Vertical Support

1. Riser Systems
  - a. Route cable through conduit in vertical riser systems.
  - b. Terminate conduit at each stacked closet in a lockable junction box. Use 12"x10"x8" junction box as a minimum.
  - c. Fastened entire cable group to the inside of junction box at every other floor or approximately every 24 feet.
  - d. Fasten cable in Junction box utilizing cable ties equipped with eyelets designed to accept screws for fastening or approved equivalent method.
2. Vertical cable on floor space not in riser system
  - a. Route cable from below suspended ceiling devices to above ceiling when possible.
    - 1) Provide conduit and firestopping for cable routed in fire rated wall assemblies.
    - 2) Provide conduit for cable routed from below ceiling devices to above ceiling on concrete tilt up style walls.
  - b. Cable routed vertically from devices with no suspended ceiling.
    - 1) Provide conduit stub from device junction box to 14 feet A.F.F minimum.

END OF SECTION