

## SECTION 28 10 01

### ACCESS CONTROL SYSTEMS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Access-controlled doors and associated control panels.

##### 1.02 RELATED SECTIONS

- A. Interface and coordinate with the work of Section 20 70 26 - Common Materials and Methods for Electrical Systems, Section 20 70 23 - Electronic Circuits, Wires, and Cables, and Section 20 50 13 - Raceways for Facility Services, as required for a complete installation.

##### 1.03 MEASUREMENT AND PAYMENT

- A. General: Separate measurement and payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form, or incidental to the Work of this Contract.

##### 1.04 REFERENCES

- A. American National Standard Institute (ANSI):
  - ANSI C2                      National Electric Safety Code (NESC).
- B. Americans with Disabilities Act (ADA)
- C. California Code of Regulations:
  - Title 24, Part 3              California Electrical Code
- D. Electronics Industries Association (EIA):
  - EIA 232-E                    Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
  - EIA 310-D                    Cabinets, Racks, Panels, and Associated Equipment
  - EIA/TIA-485                 Standard for Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems
  - EIA/TIA-568B                Commercial Building Telecommunication Wiring Standard
  - EIA/TIA-598                 Color Coding of Fiber Optic Cable
- E. National Fire Protection Association (NFPA):
  - NFPA 262-94                Standard Method of Test for Fire and Smoke Characteristics of Wires and Cables.

- F. Underwriters Laboratories (UL):
  - UL 1581 Standard for Safety Electrical Wires, Cables and Flexible Cords

- G. ISO/IEC:
  - UL 1581 Identification cards - Contactless integrated circuit(s) cards – Proximity cards – Part 2.

**1.05 SUBMITTALS**

- A. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data and Samples, for submittal requirements and procedures.
- B. Drawings: Submit detail drawings including panel and cabinet layouts, equipment interconnection diagrams, equipment and material lists, manufacturer's descriptive and technical literature, catalog cuts, and installation instructions.
- C. Instructions: Where installation procedures, or any part thereof, are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be submitted and approved prior to installation.

**1.06 QUALITY CONTROL**

- A. Products shall be manufactured by firms regularly engaged in manufacturing products described in this section.
- B. Field testing shall be performed by persons having five or more years of relevant testing experience.

**1.07 SYSTEM DESCRIPTION**

- A. Access control for a door includes a card reader, a “request-to-exit” device, an electrified lockset, an energy transfer hinge and a door contact (to monitor intrusions) integrated into one system. Access controlled doors are hardwired to an access control panel located as shown on the Contract Drawings.
- B. All doors equipped with access control shall be monitored by a varifocal lens camera. Refer to Section 28 41 29 – Closed Circuit Television Systems.
- C. Interfaces with other systems: Access control panels shall be connected to the associated station network switch as shown. Access control data is transmitted to the administrative network server at Central over the unified administrative network UAN) which is part of the systemwide unified optical network (UON).

**PART 2 - PRODUCTS****2.01 ACCESS-CONTROLLED DOORS**

- A. Access-controlled doors shall be equipped as follows:
1. Smart Card Readers: Smart card readers shall be designed to read the BART Only Smart Card (BOSC), and shall be fully compliant to ISO/IEC 14443 Part 2 Type B specifications. Readers shall be multi-function, contact/contact-less smart card reader that supports contact-less communication with ISO 14443 Type A, B and D and ISO 7816 contact functionality. Card reader interface units and associated card reader modules shall be mounted as shown. Smart card readers shall be Designated Matching Products, The Saturn Reader, as manufactured by OTI.
  2. Request-To-Exit (REX) Detectors: REX detectors shall detect motion in the room exit coverage area and shall signal the access control system. REX detectors shall be Designated Matching Products, Bosch Model 1501i, and shall be installed as indicated.
  3. Key-In-Lever Cylindrical Locksets: Key-in-lever cylindrical locksets shall meet the following requirements:
    - a. Locks shall meet the new ANSI/BHMA A156.2, Series 4000, Grade 1 for key-in-lever locksets.
    - b. Locksets shall be UL Listed (3 hour A Label) and equipped with electrified, fail-secure mechanism rated at 24 VDC, 0.18 amps continuous duty.
    - c. When the outside lever is locked, the lever shall move freely without operating the latch bolt.
    - d. Lever trim shall have individual heavy duty springs behind the rose for lever return and to prevent lever sag. Trim shall be through-bolted with two 10-32 screws coated with thread sealant to provide strength and resistance to loosening. Inner and outer trim shall "bottom out" to prevent door collapse. Roses shall be a minimum of 3-1/2" diameter.
    - e. Lever designs shall be solid and meet the Federal ADA and State disability requirements. Inside levers shall be attached by an Allen-head set screw to prevent tampering or vandalism.
    - f. Locksets shall adjust to fit door thickness from 1-3/4" to 2-1/4".
    - g. Locksets shall be non-handed and not require field disassembly for re-handing; preparation for the door shall be non-handed.
    - h. Key-in-lever cylindrical locksets shall be Falcon Lock T Series or equal.
  4. Energy Transfer Hinges: Each door shall be equipped with one energy transfer hinge to enable the transfer of low voltage power from the hinge jamb to the electrified lock. Energy transfer hinges shall be Command Access model ETH or equal.

5. Steel Door Contacts: Steel door contacts shall contain a hermetically sealed magnetic reed switch. The contact and magnet housing shall snap-lock into a 1" diameter hole. Housings shall be molded from flame-retardant ABS plastic. Steel door contacts shall be GE Interlogix 1078 Series Steel Door contacts or equal.

## **2.02 ACCESS CONTROL PANELS**

- A. Access control panels (ACPs) shall be designated matching products as specified in BFS Appendix – District Technical Manuals, Designated Matching Products.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Door access control devices shall be installed as shown on the Contract drawings.
- B. Cables between each controlled door and the associated ACP shall be routed as shown without any splices. All cables shall be installed complying with the requirements of Section 20 70 26, Common Materials and Methods for Electrical Systems, Section 20 70 23, Electronic Circuits, Wires, and Cables, and Section 20 50 13, Raceways for Facility Services.

### **3.02 TESTING**

- A. Factory and field testing shall be performed in accordance with Section 01 45 24, Testing Program Requirements and as specified herein. All fiber optic and Cat 6 cabling shall be tested as specified in Section 20 70 23, Electronic Circuits, Wires and Cables.
- B. Factory Test: A factory test of one ACP connected to a full complement of access-controlled door devices shall be performed to demonstrate correct operation as defined in these specifications.
- C. Field Test: Field testing shall be conducted in three phases following the installation of all field devices, ACPs and interconnecting wires and cables.
  1. Phase 1 – Installation Verification: The correct termination of all field wiring shall be verified using Contractor-prepared interconnection diagrams.
  2. Phase 2 – Access-Controlled Door to ACP End-to-End Testing: Each access-controlled door function shall be verified by entering and exiting each door to verify that the door status is correctly displayed on a laptop computer connected to each ACP via the Ethernet port. The laptop computer shall be equipped with the necessary application software to perform the functional tests.
  3. Phase 3 – Access Control End-to-End Testing to Server: The Contractor shall provide support to BART in the end-to-end testing of all access-controlled doors to the administrative network server.

**END OF SECTION 28 10 01**