

SECTION 28 13 53
DOOR ACCESS CONTROL DEVICES AND CABLING

PART 1 - GENERAL

**SUMMARY NOTE: DOOR ACCESS CONTROL EQUIPMENT AND DEVICES ARE
SHALL BE DELETED AS PART OF ALTERNATE 4.
(PROVIDE CONDUIT, BOXES AND PULLWIRE FOR ROUGH-IN ONLY UNDER
BASE BID, SHALL BE PROVIDED).**

1.1

- A. Section includes security door access control devices, control panel, and signal and control wiring.
- B. The VA Reno already has an existing door access control system with related software, software licensing and card printer. The system installed by the contractor shall match and be compatible with the existing installed system. The existing access control system including software and controllers is manufactured by Lenel and the card readers are manufactured by HID Global. Other access control devices and cabling are listed in the following specifications.
- C. Related Sections:
 - 1. Section 28 13 50 - Door Access Control Basic Requirements
 - 2. Drawings and general provisions of the Contract, Including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SCOPE OF WORK

- A. Furnish and install door security devices, cabling and raceway as shown on the drawings.
- B. Electrified door hardware will be provided by the door contractor as shown on the architectural door hardware schedule.
- C. Furnish, install and program security panels and associated security panel add-in boards, power supplies, batteries, relays, etc as identified on the drawings.
- D. Furnish and install security devices including proximity/smart card readers, power supplies, magnetic door position contacts, request to exit devices, remote and local audible alarms, etc. as shown on the drawings.
- E. Perform system testing for all security devices shown on the drawings.
- F. Meet with the Reno VA Police Department to determine the required operation and functionality of the system. Program the security system in accordance with the Owner's requirements (provide an allowance of 12 hours for programming).
- G. Demonstrate the entire security system to the Owner at the completion of the project.
- H. Provide a 1-year parts and labor warranty for the entire system.
- I. The contractor shall have service facilities near the project site and shall respond to service calls onsite within a four (4) hour period after receipt of a service call. This includes weekends and holidays. At the time of service, the contractor shall provide all equipment, material and personnel necessary to perform all repairs.

1.3 DESCRIPTION OF WORK

- A. The Contractor shall provide all equipment, materials, labor, and services necessary to complete an operable security system and to ensure that the system is in compliance with requirements stated or reasonably inferred by the Specifications and the Contract Drawings.

- B. Provide all components, devices, accessories, interconnect cabling, etc as normally provided for a complete operational security system.
- C. Minimum requirements and installation methods are included for the following:
 - 1. Security Panels
 - 2. Main Card Access Control Panel.
 - 3. Card Reader Control Boards.
 - 4. Security Panel Add-in Boards
 - 5. Power Supplies
 - 6. Batteries
 - 7. Proximity/Smart Card Readers
 - 8. Magnetic Door Contacts
 - 9. Remote Push Buttons (at reception desks)
 - 10. Local Alarms
 - 11. Request to Exit Motion Detectors
 - 12. Security Device Power Supplies
 - 13. Conduit and Boxes
 - 14. Security Cabling
 - 15. Labeling
 - 16. System Programming
 - 17. System Testing and Demonstration

1.4 REGULATIONS AND CODE COMPLIANCE

- A. The Contractor will comply with all applicable governmental regulations including Federal, State, City, and local applicable codes and ordinances.
- B. References to codes and standards called for in the Specifications refer to the latest edition, amendments, and revisions to the codes and standards in effect on the date of these Specifications.
- C. All work and materials shall conform to and be installed, inspected and tested in accordance with the governing rules and regulations of the security industry, as well as federal, state and local governmental agencies, including, but not limited to the following
 - 1. ANSI/NFPA-70, 2002 -- National Electrical Code (NEC).
 - 2. Underwriter's Laboratories, Inc. (UL) 294 - Access Control Systems.
 - 3. Underwriter's Laboratories, Inc. (UL) 1076 - Burglar Alarm and Systems.
 - 4. Federal Communications Commission (FCC).
 - 5. Americans with Disabilities Act (ADA).

1.5 QUALITY ASSURANCE

- A. Provide new and un-used devices, equipment and cabling. Comply with all manufacturers' installation instructions.
- B. All work shall comply with local building codes, local and State fire marshal regulations and OSHA.
- C. All cable, raceways and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Specifications shall be subject to the control and approval of the Owner's Representative.
- D. All work shall be supervised on a daily basis by qualified and competent personnel. The contractor shall keep the same foreman and workman on the job throughout the duration of the project.
- E. See Specification Section 28 13 50 for Warranty and repair service requirements.

1.6 SUBMITTALS

- A. Manufacturer's Data Sheets: Submit manufacturer's data sheets for the following items
 - 1. Security Panels.
 - 2. Main Card Access Control Panel.
 - 3. Card Reader Control Boards.
 - 4. Security Panel Add-in Boards
 - 5. Power Supplies
 - 6. Batteries
 - 7. Proximity/Smart Card Readers
 - 8. Magnetic Door Contacts
 - 9. Remote Push Buttons
 - 10. Request to Exit Motion Detectors
 - 11. Local Audible Alarms
 - 12. Security Device Power Supplies
 - 13. Security Cabling
 - 14. Labels and Engraved Plates
- B. Bill of Materials: Submit a detailed bill-of-materials listing all manufacturers, part numbers, and quantities proposed for use on this project.
- C. Shop Drawings:
 - 1. Submit floor plans indicating all security devices installed at each door.
 - 2. Provide a spreadsheet for each security device and its ID (point) within the security system.
 - 3. Submit point-to-point wiring diagrams and block diagrams showing all door security devices, power supplies, relays, card reader panels, security panel I/O boards, battery backups, etc.
 - 4. Submit layout drawings of the components mounted in the Hoffman security cabinet including security panels, card access controllers, power supplies, battery chargers, relays, batteries, cable management wireways, overhead gutters, data outlets, electrical outlets, etc.
 - 5. Submit security panel battery calculations.
 - 6. Submit (1) reproducible and (3) blue lines. Architect/Engineer will retain a minimum of 3 copies and will return the reproducible to the Contractor.
 - 7. Submit shop drawings for all items identified in Section 28 13 53.

1.7 DELIVERY, STORAGE & HANDLING

- A. Protect all security panels and security devices from moisture, dust and debris prior to installation.

PART 2 - PRODUCTS

2.1 EQUIPMENT ENCLOSURES

- A. Provide 36" wide x 36" high x 6" deep Hoffman equipment enclosures where shown on the drawings.
- B. The contractor may provide a separate lockable equipment enclosure to house the batteries and power supplies immediately adjacent to the security panel.
- C. Equipment enclosures shall have a lockable hinged door. Lock shall be keyed alike with other security enclosures on the project.
- D. Install plastic slotted duct to route cabling within the enclosure.
- E. Ground security equipment enclosures to ground bar in telecom room with #6 green insulated ground conductor.

- F. Provide the following accessories inside the enclosures.
1. Tamper switch on each equipment enclosure door.
 2. 5" electric fan to cool enclosure.

2.2 SECURITY PANEL CONTROLLERS AND ADD-IN BOARDS

- A. Furnish and install new security panel controller and add-in boards as shown on the drawings. Security Panel will serve all doors on the project.
- B. Controllers and add-in boards shall match those installed at the Reno VA manufactured by Lenel.
- C. Mount security panel controllers and add-in boards in Hoffman enclosure.
- D. Security panels shall meet the following physical specifications
1. UL 294 and UL 1076 approved.
 2. 16 card readers inputs.
 3. 32 supervised inputs.
 4. 16 Form C Relay 2.5A Outputs.
 5. 2 Ethernet connections.
- E. Acceptable Products:
1. Lenel Door Access System Controller w/2-Reader Module (Lenel P/N LNL-2220). Provide 1 system controller for every 16 card reader doors.
 2. 2-Door Reader Module (Lenel P/N LNL-1520). Provide qty of 2-door reader modules to accommodate all card reader doors. Do not exceed qty (7) 2-door reader modules per LNL-2220 system controller (total 16 card reader doors per security panel).
 3. 16-Input Control Module (Lenel P/N LNL-1100). Provide qty of 16-input control modules to accommodate all required inputs shown on the drawings.
 4. 16-Output Control Module (Lenel P/N LNL-1200). Provide qty of 16-output control modules to accommodate all required outputs shown on the drawings.
 5. No Substitutions Accepted.

2.3 RELAYS

- A. Provide DIN rail mounted relays for all equipment requiring relay activation. Separate relays located outside the Lenel output modules are required. Mount relays in Hoffman enclosures.
- B. Provide 24V plug-in type relays with LED lights that indicate when the relay is energized.
1. Acceptable Manufacturers:
- a. IDEC.
 - b. Or Approved Equal.

2.4 POWER SUPPLIES & BATTERY CHARGERS FOR SYSTEM CONTROLLERS AND I/O BOARDS

- A. Provide UL listed supervised power supplies for security panel system controllers and I/O control modules as shown on the drawings.
- B. Power supply input shall be 120v. Output shall be 12V 5A.
- C. Power supplies shall have integrated battery charger.
- D. Mount power supplies / battery chargers in Hoffman enclosures.
1. Acceptable Products:
- a. ESD P/N SPS-6B.
 - b. Or Approved Equal.

2.5 POWER SUPPLIES & BATTERY CHARGERS FOR ELECTRIC STRIKES

- A. Provide UL listed supervised power supplies for electrified door hardware including electric strikes. Provide quantity of power supplies to accommodate all electric strikes.

- B. Power supply input shall be 120v. Output shall be 24V 3A.
- C. Power supplies shall have integrated battery charger.
- D. Power supplies shall be provided with UL listed fused power distribution modules for electric locks, local alarms (sounders) and request to exits. Power distribution modules shall have status LED's and 1,500 watt surge protector.
- E. Mount all power supplies / battery chargers in Hoffman security enclosures. Power supplies located at doors will not be accepted.
 - 1. Acceptable Products:
 - a. ESD P/N SPS-6ED8.
 - b. Or Approved Equal.

2.6 POWER SUPPLIES & BATTERY CHARGERS FOR OTHER SECURITY DEVICES

- A. Provide non-supervised power supplies for all other security devices including request-to-exits, local audible alarms, annunciator panels, etc. Provide quantity of power supplies to accommodate all devices.
- B. Power supply input shall be 120v. Output shall be 24V 3A.
- C. Power supplies shall have integrated battery charger.
- D. Power supplies shall be provided with UL listed fused power distribution modules for electric locks, local alarms (sounders) and request to exits. Power distribution modules shall have status LED's and 1,500 watt surge protector.
- E. Mount power supplies / battery chargers in Hoffman enclosures.
 - 1. Acceptable Products:
 - a. ESD P/N SPS-6ED8.
 - b. Or Approved Equal.

2.7 BATTERIES

- A. Provide UL listed batteries to backup all security power supplies. Mount relays in Hoffman enclosures.
- B. Provide 12V 12Ah, leak proof lead acid batteries.
- C. Batteries shall be equipped with safety release valves designed to operate between and 2 and 5 psi and shall automatically reseal.
- D. The Contractor shall perform calculations to determine the number of batteries required to backup each power supply. In the case of a power failure, the batteries shall provide a minimum of 2 hours of continuous backup for the entire door access control system.
- E. Acceptable products:
 - 1. Yuasa NP 12-12.
 - 2. Or approved equal.

2.8 PROXIMITY / CONTACTLESS SMART CARD READERS

- A. Provide proximity / contactless smart card readers as shown on the drawings.
- B. Readers shall be color black.
- C. Readers shall match those already installed at the Reno VA manufactured by HID Global.
- D. Provide readers with a 12V operating voltage and 4" read range.
 - 1. Acceptable Products:
 - a. HID Global P/N RP40.
 - b. No Substitutions Accepted.

2.9 MAGNETIC DOOR POSITION CONTACTS

- A. Provide recessed magnetic door contacts where indicated on the drawings.
- B. Door contacts shall be double pole, double throw type.
- C. Acceptable Products:
 - 1. GE/Sentrol 1078.

2. Or approved equal.

2.10 REQUEST TO EXIT MOTION DETECTORS

- A. Provide UL listed 24V request to exit motion detectors as shown on the drawings (color white).
- B. Devices shall have 2 form "C" contacts adjustable up to 60 seconds.
- C. Devices shall have programmable fail safe and fail secure modes.
- D. Provide device trim plates as necessary.
- E. Acceptable Products:
 1. Bosch P/N DS160.
 2. Or Approved Equal.

2.11 SECURITY CABLING

- A. Install plenum rated 18/6 shielded twisted pair cable from proximity/smart card readers to the reader processor boards in the security panel.
 1. Acceptable Products:
 - a. Alpha Wire 5386C.
 - b. Or Equal by Belden, CommScope or WestPenn.
- B. Install 18/2 stranded twisted pair from request to exit devices, door contacts and remote audible alarms to the input board located in the security panel.
 1. Acceptable Products:
 - a. Belden 8461.
 - b. Or Equal by Alpha Wire, CommScope or Westpenn.
- C. Install 18/2 stranded twisted cables to provide power to electric locks, electric strikes, request to exits and local alarms from the power supplies located at the security panel.
 1. Acceptable Products:
 - a. Belden 8461.
 - b. Or Equal by Alpha Wire, CommScope or Westpenn.
- D. Install 18/4 shielded twisted pair cables from the security panel Input board to the fire alarm panel. In case of fire alarm, all egress doors shall fail open. Install qty (2) 18/4 shielded twisted pair cables from the security panel to the elevator control panel in the elevator equipment room. In the event of a successful card read at the elevator lobbies, the security system shall send an output to the elevator controller to allow the call buttons to operate.
 1. Acceptable Products:
 - a. Westpenn 253244B.
 - b. Or Equal by Alpha Wire, CommScope or Belden.

2.12 CABLE SHEATH LABELS

- A. Label cable sheaths at the point of termination with laser printed self laminating wrap around vinyl labels.
- B. Labels shall be white with black type. Label size shall be 1.0" wide by 1.5" high.
 1. Acceptable Manufacturers:
 - a. Brady.
 - b. Belden.
 - c. Hellermann Tyton.
 - d. Or equal.

PART 3 - EXECUTION

3.1 SECURITY CABLE ROUTING AND TERMINATION

- A. Route all security cable in conduit. Paint exposed conduit to match existing surfaces.

- B. Install access panels as necessary for reasonable access to security cable and junction boxes located above inaccessible ceilings.
- C. Ten feet of cable slack shall be stored in the security cable above the security panel enclosure.
- D. Cables shall be installed in continuous lengths from origin to destination (no splices).
- E. The cable's minimum bend radius and maximum pulling tension shall not be exceeded. Refer to manufacturer's requirements and reference documents.
- F. Cables shall not be attached to ceiling grid or lighting fixture wires.
- G. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the Contractor prior to final acceptance at no cost to the Owner.
- H. Cables shall be labeled with self-adhesive labels. At the security panel, each cable shall be clearly labeled on the cable jacket 1" from the termination location.
- I. Terminate security cables with insulated crimp type lugs.
- J. When installing security cable raceway, the Contractor shall maintain the following minimum clearance from sources of electro-magnetic interference (EMI).
 - 1. 6" clear from power conductors.
 - 2. 12" clear from fluorescent lighting fixtures and ballasts.
 - 3. 36" clear from transformers and motors.

3.2 LABELING

- A. Label all security devices. Labels shall be placed in a concealed location and shall identify the ID of the device.
- B. Label all security enclosures, power supplies and relays.
- C. Label all batteries with the date that the batteries were installed.
- D. Label all cables at the security panels. Affix labels a minimum of 1 inch from the point of termination. Labels shall be placed so that they are clearly visible. Labels shall identify the ID of the device.
- E. Install engraved name plates on all security enclosures.

3.3 SYSTEM PROGRAMMING, TESTING AND DEMONSTRATION

- A. Meet with the VA Reno Police Department and determine the required operation, functionality and scheduling of the system. Program the security system in accordance with the Owner's requirements (provide an allowance of 12 hours for programming).
- B. Provide custom maps (floor plans) and alarm notifications (visual and audible) for monitoring the system. AutoCAD drawings will be provided by the engineer to create the necessary maps.
- C. The contractor shall perform 100% testing of the security doors and devices. All deficiencies shall be corrected and the devices re-tested.
- D. The contractor shall demonstrate operation of the entire system to the VA Reno. Any punchlist items identified shall be corrected by the contractor.

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