

**SECTION 28 00 10: BASIC ELECTRONIC SAFETY AND SECURITY**

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**I. GENERAL****1.1 SUMMARY OF WORK**

- A. Security Access Control and Video Management System (VMS) Network is the equipment, components and devices necessary to manage the flow of data from airport systems and the accurate conveyance of that data to various operator interfaces.
- B. The Security Access Control and VMS Network are physically separate from other local area networks (LANs).
- C. The Security Access Control and VMS Network are comprised of temperature and humidity sensitive equipment.
  - 1. The environmental requirements are detailed in Section 27 05 00 – Common Work Results for Communications.
  - 2. Section 27 05 28 – Pathways for Communications Systems.
  - 3. Section 27 13 00 – Communications Backbone Cabling.
  - 4. Section 27 15 00 – Communications Horizontal Cabling.
- D. The Security Access Control and VMS Network fully integrates field devices, application architecture head ends (servers), operator interface terminals (workstations).
- E. The Contractor shall provide and install metal conduit as a pathway for the fiber optic cable and the door security cabling as shown on the Drawings. Cabling for door security from the terminal strip at the Interface Termination Box (ITB) Comm./EQ. room will be provided and installed by contractor.
- F. Contractor shall provide and install security hardware, conduit, and wiring at the communications room doors as shown in the Drawings. The security hardware will be connected to an Interface Termination Box (ITB) above each door.
- G. Port-Furnished Materials: The Contractor shall provide all materials except those specifically stated in Division 27 Communications as Port-furnished materials.

**1.2 GOVERNING CODES, STANDARDS AND REFERENCES**

- A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
- B. Codes: Perform work in accordance with all applicable requirements of the latest edition of all governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
  - 1. National Electric Code (NEC), NFPA 70.
  - 2. National, State, Local and any other binding building and fire codes.
  - 3. FCC Regulations:
    - a. Part 15 – Radio Frequency Devices & Radiation Limits
  - 4. Underwriter's Laboratories (UL): Applicable listing and ratings.

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- a. UL 294: Access Control System Units
  - b. UL 1076: Proprietary Burglar Alarm Units and Systems
- 5. Electronic Industry Association (EIA) testing standards
- 6. CBC & 2010 ADA Standards (DOJ)
- 7. American Standard Code for Information Interchange (ACSI)
- 8. American Society for Testing and Materials (ATSM)
- 9. National Electrical Manufacturers' Association (NEMA)
- 10. National Fire Protection Association (NFPA)
- C. Make a copy of each document readily available during construction for reference by field personnel.

**1.3 SYSTEM DESCRIPTION**

- A. Overview
  - 1. Access Control and Alarm Monitoring System (Section 28 13 00 - Access Control Alarm Monitoring System)
    - a. The ACS (Access Control System) is the equipment, components and devices necessary to manage the flow of data from airport systems and the accurate conveyance of that data to various operator interfaces.
    - b. The ACS network is physically separate from other Local Area Networks (LAN's) and fully integrates field devices, application architecture head ends (Servers) and Operator interface Terminals (workstations).
    - c. ACS system components will be designed and installed to support the following:
      - (1) Johnson Controls P2000 Access Control System
      - (2) Genetec Security Center Video Management System
      - (3) Zenitel Security Intercom System.
    - d. The ACS is a server-based system having Johnson Control Incorporated (JCI) P2000 Version 3.14 to control access and is maintained by POS Aviation Maintenance Electronics Shop. The primary ACS components consist of the following devices:
      - (1) Network Gear: POS ACS system has standardized on CISCO hardware.
      - (2) Network Security Controller: The POS has a sole source for the JCI CK721A Network Controller which is used as the interface between the JCI P2000 server and the RDR2SA terminal interface unit.
      - (3) Power Supply: POS ACS system uses UL listed and approved Altronix power supply.

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- (4) Door Interface Terminal: The POS has a sole source for the JCI RDR2SA which is used as a door interface Terminal
    - (5) Card Readers: POS ACS system uses Idemia Morpho Access Sigma series (Multi & Extreme) and HID card readers to read the badges to access different terminals throughout our facility.
    - (6) Security Intercoms: POS ACS system has a sole source for Zenitel IP intercom stations and TCIS-2 or TMIS-1 intercoms are used depending on the location.
    - (7) Standard ACS Field equipment block diagram attached in the appendix describes how field device are connected to the door interface terminals. Those typical door configurations shown in the ACS Field equipment block diagram attached in the appendix illustrates typical wiring requirements. Project and AV-Security implementations will vary and must be specified in contract documents.
  - e. The access control system shall control electric door locks and strikes, and other devices as shown on the Drawings.
- 2. Video Management System (Section 28 23 00 - Video Surveillance Remote Devices and Sensors)
  - a. Provide a complete Network based Video Management System as shown on Drawings.
  - b. Security Cameras: POS ACS system has a sole source for Axis cameras and are used in most of the applications at SeaTac Airport. Unique applications may require the use of a camera not available from Axis and are considered for use on a case by case basis.
  - c. Complete systems are defined as all cables, fiber, back boxes, IP color cameras, enclosures, digital Network Video Recorders/servers, networking equipment, software, and programming needed to achieve a complete and functional system. Also included are all required power supplies, power filtering, mounts, housings, and interfaces to equipment furnished by others.
  - d. Install all field control panel equipment in new equipment racks as shown on Drawings.
  - e. Provide installation of all equipment and coordinate with POS AVM ET shop for testing, adjustment, and all necessary system programming for all equipment.
  - f. Provide written documentation and instructions for system as installed.
  - g. Provide training to the Port in the operation, adjustment, servicing, and repair of this system.
- B. Contract Drawings

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1. Layout: Follow the general layout shown on the Drawings except where other work may conflict with the Drawings.
2. Accuracy: The Drawings show a diagrammatic representation of the system within the constraints of the symbology applied.
3. The Drawings do not fully represent the entire installation for the Security System. Drawings indicate the layout and location of control components, as well as location of security devices, i.e. card readers, door locks and contacts, glass break detectors, etc. The Drawings do not show all conduits, wire and cabling between every system component, equipment, device, etc.
4. Obtain shop drawings of other related systems that require integration and coordinate means and methods to complete the system as described and specified in these sections.

**1.4 QUALITY ASSURANCE**

- A. All equipment supplied shall be listed by a nationally recognized test laboratory where applicable.
- B. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.
- C. All items of a given type shall be the products of the same manufacturer.
- D. All items shall be of the latest technology; no discontinued models or products are acceptable.
- E. The manufacturer, or their Authorized Representative, shall confirm that within 300 miles of the project site there is an established agency which:
  1. Stocks a full complement of parts
  2. Offers service during normal working hours as well as emergency service on all equipment to be furnished
  3. Will supply parts and service without delay and at reasonable cost.
  4. Contractor shall be capable of performing service or maintenance work on these specified or accepted systems. Contractor shall be factory-certified where such certification is available.

**1.5 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Delivery
  1. Do not deliver products to the site until protected storage space is available. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at jobsite.
  2. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels (name of the manufacturer, product name, type, grade, UL classification, etc.) intact.
  3. Replace materials damaged during shipping at no cost to the Port of Seattle.
- B. Storage

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1. Store materials in clean, dry, ventilated space free from temperature and humidity conditions (as recommended by manufacturer) and protected from exposure to harmful weather conditions.
  2. Comply with manufacturer's requirements for each product. Comply with recommended procedures, precautions or remedies as described in the Material Safety Data Sheets (MSDS) as applicable.
  3. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris, and traffic.
  4. Storage outdoors covered by rainproof material is not acceptable.
  5. Provide heat where required to prevent condensation or temperature related damage.
- C. Handling
1. Handle in accordance with manufacturer's written instructions.
  2. Damaged equipment shall not be installed.
  3. Replace damaged equipment at no cost to the Port of Seattle.
  4. Handle with care to prevent internal component damage, breakage, denting, and scoring.

**1.6 WARRANTY**

- A. Installation, equipment, and all parts and labor are guaranteed by Contractor and manufacturer for one year from written notification of acceptance by the Port of Seattle.
- B. The installing Contractor shall provide, upon notification of a problem, a field service technician to correct the problem within 24 hours of notification.
- C. At least 60 days prior to expiration of guarantee, provide maintenance contract proposals for a second year of service for each system to the Port of Seattle.

**II. PRODUCTS**

- 2.1 The POS has standardized on Cisco Hardware and no exceptions to that hardware will be accepted.

- A. All access layer switches will support 802.1w (Rapid Spanning Tree).

**III. EXECUTION****3.1 REQUIREMENTS**

- A. Systems shall be complete and operational in all respects.
- B. Contractor shall furnish and install all conduit, conductors, etc. for all building Systems. All wiring shall be in conduit unless shown otherwise on the drawings.
- C. Wiring and conduit shown on drawings represents a minimum requirement. Contractor shall furnish and install all wiring and conduit recommended by submitted system manufacturers for optimum system performance at no additional cost to the Port of Seattle.
- D. Connect power to Systems as required.

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- E. All equipment, junction boxes, terminal cans, etc., in accessible locations shall be installed utilizing tamper proof mounting hardware. Provide a minimum of 2 driver bits or hand tools for each type of security fastener provided.
- F. Provide seismic restraint for all equipment, including equipment racks, consoles, etc. Refer to Section 26 05 48 – Seismic Controls for Electrical and Communication Work, for seismic restraint requirements.
- G. Refer to individual Security System sub-sections for additional installation requirements.

**3.2 TRAINING**

- A. As a part of this contract, provide training as described herein and detailed under each System sub-section.
- B. Training shall be by engineers or technicians highly skilled in the systems and certified by manufacturer as qualified to train in the particular systems.
- C. Training shall be conducted at dates and times directed by the Port's representative. Initial training shall be provided for the System Administrator and consultant. Upon their approval, a second training session shall be provided for System Operators. An additional training session for Operators shall be provided within the first year after system acceptance. Provide specific training sessions for the Port's maintenance personnel. After-hours training shall be provided at no additional cost if requested by the Port.
- D. Verification of completion of training is required by the Port prior to release of retention compensation.

**3.3 COMMISSIONING, ACCEPTANCE TESTING AND REPORTS**

- A. All commissioning, acceptance testing shall be coordinated with PORT AVM ET shop.
- B. There are two distinct types of tests for which the Contractor is responsible:
  - 1. The first type is the Pre-Functional Performance Test. These tests ensure that all equipment, wiring, and systems are installed in accordance with the Specifications, Drawings, and Manufacturers' requirements.
  - 2. The second type of test is the Functional Performance Test. These tests ensure that all equipment and systems operate in accordance with design intent. These are dynamic tests and test the systems through all possible modes of operation.
- C. Provide written testing plan describing proposed duration and schedule for performing pre- functional performance test and functional performance test in spreadsheet format listing each and every device, cable/wire, and software point to be tested. Submit within Sixty (60) days of Notice to Proceed for project the testing plans for approval prior to commissioning and acceptance testing.
- D. Perform systems tests using personnel who have attended a manufacturer's training school for installation and testing of the systems as described above. Perform testing with the test instruments as required by the manufacturer; testing by means other than the manufacturer's procedures will not be acceptable unless agreed to by the Port and manufacturer.

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- E. Upon completion of the installation of the Security Systems, the contractor shall perform 100% testing and submit pre-functional reports including, but not limited to, the following information in spreadsheet format:
1. A complete list of all equipment installed, including serial numbers of major components and warranties.
  2. Certification that all equipment is properly installed and functional and conforms with contract Specifications and drawings.
  3. Test reports of all inputs and outputs, devices, and equipment.
  4. Test technician's name, company, and dates of test.
- F. Following review of the test report by the Port's Representative, the contractor shall perform a functional test of all Security System equipment in the presence of the Port and the Port's Representative. Test shall include performance tests of each device, switch, control unit, power supply, battery standby unit, monitor panel, controller, printer, and all other equipment and material required by the contract.
- G. At a minimum, perform tests to demonstrate that:
1. All systems are free from grounding and open circuits.
  2. Each alarm-initiating device consistently functions as specified and produces the specified alarm actions.
  3. An abnormal condition of any circuit or device required to be electrically supervised will result in activating the specified trouble or tamper alarm signal.
  4. Systems operate properly during and while on emergency generator power.
  5. Alarm signals are audible at the monitor.
  6. The system is operable under specified trouble conditions.
  7. System as-built drawings correspond with actual installation.
- H. If retesting is required due to contractor equipment failure, incorrect programming, omission, error, etc., the contractor shall compensate the Port's Representative and the Port for all Port costs associated with retesting.
1. Sixty (60) days prior to expiration of warranty, Contractor shall retest all systems as described above, and submit a test report of findings. All items covered by warranty shall be corrected immediately. Warranty remains in effect until the Contractor corrects 100% of defective items.

End of Section
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