READ THIS FIRST

Notice to the Design Engineer, please refer to the Port of Seattle, Facilities and Infrastructure standards for reference before editing this specification.

This Project Spec Document may need additional modifications to suit your project. It is recommended that you proofread each section, paying attention to any “Notes” boxes such as this one--you should remove these “Notes” sections as you go. Also, do a search for all bracket characters “ [ ] “ as they are used to show you areas containing options or project specific details (you can use Microsoft Word’s Find feature {Ctrl-F} to jump to an open bracket “ [ “ character quickly). Again, these bracket characters should be removed.

It is important that every paragraph be numbered to allow for easy referencing. If you use the document’s built in styles and formatting your outline should be fine (turn on the formatting toolbar by going to View > Toolbars > Formatting). Most paragraphs will use the style “Numbered Material” and can be promoted (Shift) or demoted (Shift-Tab).

You should not have to manually enter extra spaces, carriage returns or outline characters such as A, B, C, or 1.01, 1.02; the formatting will do this for you. The entire document is 11 pt. Arial. If you paste items in, you may need to reapply the “Numbered Material” format.

1. GENERAL
   1. SUMMARY OF WORK
      1. The extent and location of “Basic Electronic Safety and Security” Work is shown in the Contract Documents. This Section includes general requirements for accomplishing Basic Electronic Safety and Security Work as specified herein and indicated on the Drawings.
   2. GOVERNING CODES, STANDARDS AND REFERENCES
      1. American Standard Code for Information Interchange (ASCII)
      2. American Society for Testing and Materials (ASTM)
      3. CBC & 2010 ADA Standards (DOJ)
      4. FCC Regulations Part 15 – Radio Frequency Devices & Radiation Limits
      5. National Electric Code (NEC), NFPA 70
      6. National Electrical Manufacturers' Association (NEMA)
      7. National, State, Local and any other binding building and fire codes
      8. Underwriter's Laboratories (UL)
      9. UL 294: Access Control System Units
      10. UL 1076: Proprietary Burglar Alarm Units and Systems
      11. Electronic Industry Association (EIA) testing standards
   3. SUBMITTALS
      1. Submit materials data in accordance with of Section 01 33 00 - Submittals. Furnish manufacturers’ technical literature, standard details, product specifications, and installation instructions.
      2. Product Data
         1. General: Product data submittals must be approved by the Engineer prior to release of order for equipment and prior to installation.
            1. Include product data consisting of manufacturer's technical data, product literature, "catalog cuts", data sheets, specifications, and block wiring diagrams (if necessary). This data shall clearly describe the product’s characteristics, physical and dimensional information, electrical performance data, materials used in fabrication, material color & finish, and other relevant information such as test data, typical usage examples, independent test agency information, and storage requirements.
            2. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories, which are included and those which are excluded.
            3. Include delivery dates for equipment.
      3. Shop Drawings
         1. General: The Engineer must approve shop drawings prior to release of order for equipment and prior to installation.
         2. Quantity & Media: Furnish quantity and on media specified in Division 1.
         3. Content:
            1. Floor Plans:

Floor and site plans showing the locations of all devices associated with each door locations (ex: contacts, REX locks, card readers) and cable routing paths with cable type and quantity called out. Prepare cable schedule if required to simplify sheet plan notation

Provide termination information for each device on the plans or in a schedule that identifies the physical connections to the equipment panels. Include the panel address, and the termination point ID that is consistent and reflective of the programming fields.

Point-to-Point Diagrams: Include all wiring, points of connection and interconnecting devices.

* + - * 1. Include all miscellaneous control relays.
        2. Include all devices connected to the system.
        3. Identify all conductors on the point-to-point diagrams with the same tag as the installed conductor.
      1. Block Diagram/Riser Diagram: Show the system components and all conduit and wire types and sizes between them including all cabling interface between termination hardware.
      2. Installation Details: Include installation details for all devices.
      3. Seismic Calculations: As part of the shop drawings submittal where applicable, the manufacturer shall provide anchorage calculations for floor mounted fully loaded distribution frames such that it shall remain attached to the mounting surface after experiencing forces per Section 26 05 48 - Seismic Controls for Electrical and Communication Work
      4. Calculations:
         1. Battery calculations for all batteries.
         2. Voltage-drop calculations for all lock circuits and fire alarm Notification Appliance Circuits.

Coordinate with Port AVM ET Shop for labeling requirements and edit below to fit project.

* + 1. Labeling Sample
       1. Quantity & Media: Furnish quantity indicated in Division 1.
       2. Submit two sets of physical product samples for review and comment by the Port prior to the installation of equipment:
       3. Content:
          1. Provide panel label
          2. Provide cable label on a cut length of cable.
    2. Record Drawings: Submit record drawings per Division 1 Requirements.

Edit subparagraph below to suit Project.

* + - 1. Drawings become the Port’s property. The Port shall maintain all ownership rights.
         1. Content:

All system components (devices, cable routes, etc.) and text shall be plotted at a sufficient line weight to stand out against background information.

Fully represent actual installed conditions and incorporate all revisions made during the course of construction.

Include drawings submitted as part of the Shop Drawing package, plus any additional information required to accurately document installed conditions.

Device addresses & IP address information.

Floor plans shall show:

Locations and identifiers of all devices.

Size, quantity, location, and routes of all pathways (such as cable trays, conduits, J- hangers, and other cable support devices).

Equipment room floor plans scaled at 1/2”=1’-0” showing exact placement of all equipment cabinets/frames, rack bays, and other equipment.

Wall elevations scaled at 1”=1’-0” showing exact placement of all security system hardware.

Installation details.

* + 1. Operation and Maintenance Manuals per Division 1
  1. DRAWINGS
     1. The basic electronic safety and security drawings are diagrammatic and are not intended to show all raceway, wiring, exact locations of equipment, terminations, or number or types of fittings required by the electronic safety and security system. Provide all related basic electronic safety and security Work which is specified herein, diagrammed or scheduled on the contract drawings, required by code enforcing agencies and as indicated on other details or elevations for complete and operating electronic safety and security systems. Since the drawings of floor, wall, and ceiling installation are made at a small scale, outlets, devices, equipment, etc. are indicated only in their approximate location unless dimensioned or otherwise indicated. Locate outlets and apparatus symmetrically on floors, walls and ceilings where not dimensioned and coordinate such locations with the Work of other trades to prevent interferences. Verify all dimensions on the job. Do not scale the electronic safety and security drawings. Refer to Architectural and Mechanical shop drawings and project drawings for dimensions as applicable.
  2. QUALITY ASSURANCE
     1. All materials shall be new, unless noted otherwise. Properly store all materials and equipment for protection from physical damage or damage due to corrosion.
     2. Review accessibility of equipment for operation, maintenance and repair prior to installation. Proceed with installation only after unsatisfactory conditions have been corrected
     3. Equipment Manufacturer Qualifications: Equipment manufacturers shall have at least 10 years experience in manufacturing products and accessories similar to those for this Project, with a record of successful in-service performance.
     4. All equipment supplied shall be listed by a nationally recognized test laboratory where applicable.
     5. All items of a given type shall be the products of the same manufacturer.
     6. All items shall be of the latest technology; no discontinued models or products are acceptable.
     7. 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.
     8. 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.
  3. PRODUCT DELIVERY, STORAGE AND HANDLING
     1. 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.
     2. Storage
        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 Safety Data Sheets (SDS) 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.
     3. Handling
        1. Handle in accordance with manufacturer's written instructions.
        2. Damaged equipment shall not be installed.
  4. SUBSTITUTIONS
     1. Comply with Section 01 25 00 - Substitutions.
  5. WARRANTY
     1. Warranty: Comply with Section 01 78 36 - Warranties and Bonds. Warranty shall be manufacturer’s standard or a minimum of one year unless noted otherwise in Division 28 Electronic Safety and Security Sections.

1. PRODUCTS

If only one product is acceptable (single or sole source product), obtain an approved Competition Waiver and submit to the CPO Construction, Contract Administrator. The language shall read as: “Manufacturer Name, Product # XXXXX, No Equal.” Refer to CPO-6 Competition Waiver Policy for more information.

If a Competition Waiver is not approved or more than one product is acceptable, this section must list a minimum of 2 products plus the language “Or Approved Equal,” along with salient characteristics. Refer to CPO Construction’s Salient Characteristics Guidelines for more information.

* 1. NETWORK SWITCHES
     1. The POS has standardized on Cisco Hardware and no exceptions to that hardware will be accepted.

Network Switches shall be purchased by the Project. Designer shall coordinate with Aviation Maintenance Electronic Technicians for specific switch models and Bill of Materials required for the project. Designer shall delete 2.01 NETWORK SWITCHES from the specifications.

1. EXECUTION
   1. REQUIREMENTS
      1. Systems shall be complete and operational in all respects.
      2. 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.
      3. 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.
      4. Connect power to Systems as required.
      5. 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.
      6. 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.
      7. Refer to individual Security System sub-sections for additional installation requirements.
      8. Provide cable per Section 27 15 00 – Communications Horizontal Cabling.
      9. 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.
      10. 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.
   2. TRAINING
      1. As a part of this contract, provide training as described herein and detailed under each System sub-section.
      2. Training shall be by engineers or technicians highly skilled in the systems and certified by manufacturer as qualified to train in the particular systems.
      3. 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.
      4. Verification of completion of training is required by the Port prior to release of retention compensation.
   3. COMMISSIONING, ACCEPTANCE TESTING AND REPORTS
      1. All commissioning, acceptance testing shall be coordinated with PORT AVM ET shop.
      2. 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.

Edit following paragraphs to fit project requirements.

* + 1. 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.
    2. 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.
    3. 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.
    4. 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.
    5. 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.
    6. 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.

1. MEASUREMENT AND PAYMENT
   1. GENERAL
      1. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items in the [Schedule of Unit Prices] [Lump Sum price bid for the Project].

End of Section

Revision History:

05/01/2014 Conversion to 2004 CSI Numbering System

10/15/2014 Added Sole Source and Salient Characteristics note to Part 2 and revisions

12/04/2018 Renamed Section, revised content and changed section number

02/25/2022 Revised with content from F&I, and for clarity