

SECTION 26 0875 - SECURITY SYSTEM (ALTERNATE)

PART 1 - GENERAL

Applicable Provisions of the Conditions of the Contract and Division 1 General Requirements govern work in this section. Submit shop drawings for checking and approval.

1.1 SUMMARY

- A. This section includes the electronic access control and POE security cameras.
 - 1. Related sections include the following: Division 26 Section 26 0200 Conduit and Section 26 0350 Boxes.
- B. The work covered by this specification includes the construction described, including all labor necessary to perform and complete such construction; all materials and equipment incorporated or to be incorporated in such construction; and all services, facilities, tools and equipment necessary or used to perform and complete such construction.
- C. Provide the following:
 - 1. Lateral Cabling
 - a. Codes and Standards: Meet CSA T530, TIA-569, and TIA 569a standards.
 - b. Provide, test and document Category 7 UTP copper horizontal communications cabling as shown in construction documents. Horizontal cabling shall derive from new data rack mounted patch panel located in Server Room and shall terminate at each data outlet location as per construction documents. Cabling shall be run above the ceiling supported by J-hooks, inside surface mounted raceway or within conduit. Cabling must hang behind the cabinet, within one foot of the floor, but not touching the floor, before the cabling enters through the top of the cabinet. Cable bundles must be wrapped in UL listed Velcro with a minimum over wrap of half the bundles' circumference. Non-Velcro cable ties may never be used on cable bundles. Adequate strain relief must always be given to the cabling. When bundles of cable hang or drop, a drop out with a radius in accordance with EIA recommendations must be used.
 - c. Core drill (include sleeves with caps to reduce resistance) as required to provide access through cinderblock walls into rooms for lateral cabling above ceilings.

- d. All lateral cabling installation shall be concealed above ceiling. In areas that require being exposed cable shall be run in the following manner: In unfinished and in finished area provide hard plastic surface mounted raceway to hide and protect lateral cable. No cabling shall be run exposed except in Server Room.
2. Furnish, install, terminate, test and document new electronic access door swipes, including proximity card readers, door contacts, control panels, cabling and interface with Elmsford Union Free School District existing security system. All mechanical door hardware is furnished & installed by others. Coordinate with Architect.
3. Furnish, install, terminate, test and document new POE cameras, including control panels and cabling, software and interface with owner's existing security system at Alexander Hamilton High School.
4. It is the intent of these specifications to procure a complete, workable and programmed security system, compatible with the owner's planned and existing systems and ready for the owner's use. Any item not specifically shown on the drawings or called for in the specifications, but normally required to conform to the intent, is to be considered as part of the contract.
5. Any given item of equipment, material or software shall be the product of manufacturers indicated within this specification or approved equal, throughout the facility. Multiple manufacturers of any one item shall not be permitted, unless specifically noted otherwise or approved by the owner.
6. These specifications are equipment and performance specifications. Any discrepancies found between the specifications and drawings shall be brought to the attention of the consultant. Installation and details indicated on the drawings shall govern if they differ from the specifications.
7. Bidders are encouraged to propose alternative solutions that are fully compliant with the client's requirements.
8. Certain terms such as "shall, provide, install, complete, etc." are not used in some parts of these specifications. This does not indicate that the items shall be less than completely installed or that systems shall be less than complete.
9. Wiring layout is not indicated on the drawings. It is the responsibility of the contractor to provide all wiring in accordance with applicable codes and these specifications. Provide compatible male/female connector as required.

1.2 SUBMITTALS

- A. Submit manufacturers' product data sheets for all material and equipment products proposed. Only specified or accepted manufacturers or suppliers shall appear in the product data submittal.
- B. Provide physical samples of products if requested by Engineer.
- C. Where substitutions or alternates are requested for any specified manufacturer or product, submit complete documentation for the product proposed, including complete product data and catalog cut sheets, engineering test and performance reports and any other information pertinent to the product.
- D. Submit shop drawings for review ten (10) days prior to start of work and prior to ordering of material to consist of one (1) set of reproducible and five (5) sets of prints of drawings, diagrams, and/or manufacturers' data in accordance with the contract documents. One electronic copy will also be submitted.
- E. At completion of installation, furnish a complete set of as-built documents, including plan view and elevation drawings, device schedules, test and acceptance documentation, equipment manuals and operating instructions.
- F. As-built drawings shall consist of one (1) set of reproducible and five (5) sets of prints, and one (2) computer format CD.

1.3 QUALITY ASSURANCE

- A. Electrical components, devices, and accessories: listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70, "National Electrical Code."
- C. Comply with applicable SIA industry standards.
- D. Codes, Regulations and Standards
 - 1. Comply with the most recently issued requirements, standards, recommendations, rules, and regulations of authorities having jurisdiction over the project.
 - 2. Follow the most restrictive code or recommendations. Where there are ambiguities, refer to the Engineer for interpretation.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide the products called out below and on drawings or approved equal. Where a specific manufacturer has not been called out, provide industry standard products of first quality and fully compatible with the system.
- B. All equipment shall be equal to or exceed the applicable minimum requirements of NEC, IEEE, ASME, ANSI and UL.
- C. All products and materials shall be new, clean, free of defects or damage and of first quality.
- D. Coordinate device quantities, locations, types and finishes with architect and engineer.
- E. The work covered by this specification includes the construction described, including all labor necessary to perform and complete such construction; all materials, software and equipment incorporated or to be incorporated in such construction; and all services, facilities, tools and equipment necessary or used to perform and complete such construction.

2.2 UTP COPPER CABLE

- A. For Horizontal Cable, Plenum rated, (4) 23 AWG twisted unshielded pairs, to meet or exceed Category 7 standards, solid copper, insulated conductors, UL Listed CMP. Manufacturer: Belden, Part No.:1874A - Color.
 - 1. POE: Green wire, Green connector.

2.3 COMPUTER AND NETWORK HARDWARE

- A. Switches; similar to Aruba 2920 (J9836A)
- B. Server specs: 64bit OS, Dual Power supply, Rails & Cable Management, At least 8GB RAM, XEON E5-2420 minimum, 20 TB minimum, DVD +/- RW, Minimum 5Yr Warranty
- C. Racks

2.4 ACCESS CONTROL SYSTEM

- A. Furnish and install access control devices including proximity card readers, door contacts and all associated components. All new security devices shall integrate with the district wide existing access control management system (ACMS), complete with all hardware necessary for a complete and functional system. Provide the following components:

1. The devices shall all connect through the existing IT system to the Elmsford Union Free School District security management system. All programming, monitoring and control of equipment will be managed from this central location. The existing control system is:
 - a. Camera system – Digital Sentry
 - b. Access control system – Easy Web 2015
 2. The equipment shall be flexible and scalable in architecture, permitting expansion of both capacity and functionality, to be implemented progressively as needed, through software licensing and/or software upgrades.
 3. Access granted or denied decisions shall be made in under 0.5 seconds
 4. There shall be an option for hardware made with a lead-free manufacturing process to meet ROHS requirements.
 5. Communication Schemes
 - a. Hardwired Communications: The field panels shall be located convenient to the access and monitor points that they control.
 6. Bandwidth Utilization:

The proposal shall include documented manufacturer's evidence of network bandwidth utilization including plots and supporting data, covering all aspects of normal system operation. Proposal submissions without supporting documentation will not be considered or evaluated.
- B. Furnish and install all ancillary devices which shall be compatible with the specified access control system or the approved equal. All devices and finishes shall be coordinated and approved by the Engineer/Owner prior to installation. Provide the following components:
1. Card readers
manufacturer: Isonas
part #: RC-03 PRX K
Or approved equivalent
 2. Door contacts (recessed)
manufacturer: GE-Sentrol
part # 1076w (wide 1 inch gap)
or approved equivalent
 3. Reader cabling (composite-plenum)
Manufacturer: Isonas
part #: CABLE-POWERNET-25
or approved equivalent

4. Power supply (locks)
Manufacturer: Altronix
part #: AL600ULXD- 6 amp 12-24vdc
or approved equivalent
5. Transfer Hinge
6. Electric Lockset
7. Cameras
 - a. POE Day/Night low-light anti-bloom H.264 5MP cameras. Remote management. Adjustable frame rate, specifically 5fps. Box cameras outside, dome inside. IE Pelco Sarix series.
 - b. POE wiring – CAT 7 cable, green wire and green connector
- C. Miscellaneous materials. Provide all cabling, connectors, mounting hardware, interface modules, software, manuals, instructions and miscellaneous items necessary for a complete, fully installed and functional system, ready for the owner's use. All mechanical door hardware shall be furnished by others (electric locks, magnetic door strike, strikes, etc).
- D. Labeling and documentation of all cables, boxes, devices, and hardware installed under this contract.
- E. Testing and test documentation as described below.
- F. Ancillary devices. Key pads, PIR detectors, panic buttons, door contacts, glass break detectors (audio type) etc. shall be compatible with the district equipment and servers or the approved equal. All devices and finishes shall be coordinated and approved by the Engineer prior to installation.
- G. Miscellaneous materials. Provide all cabling, connectors, mounting hardware, interface modules, software, manuals, instructions and miscellaneous items necessary for a complete, fully installed and functional system, ready for the owner's use.
- H. Labeling and documentation of all cables, boxes, devices, and hardware installed under this contract.
- I. Testing and test documentation as described below.

2.5 RELATED WORK not included in this section and specified elsewhere, unless otherwise noted.

- A. Electrical outlets.
- B. Standard electrical boxes with ¾-in conduit stub ups to ceiling.
- C. Cutting, patching, and painting.

2.6 WARRANTY

- A. Warranty all portions of the work against faulty and improper material and workmanship for a minimum period of one (1) year from date of final acceptance by the owner. Where warranty for a longer term is offered through a manufacturer/installer certification program, such longer term shall apply.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.
- B. Examine roughing-in for cable conduit systems to controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GROUNDING

- A. Comply with Division 26 Section 26 0650 Grounding.
- B. Comply with IEEE 100, "power and grounding sensitive electronic equipment."
- C. Ground cable shields, drain conductors, cabinets and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
- D. Bond shields and drains conductors to ground at only one point in each circuit.

3.3 LABELING/IDENTIFICATION

- A. In addition to requirements in this article, comply with applicable requirements in Division 26 Section 26 0550 General Labeling and Identification and with TIA/EIA-606.

- B. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
 - 1. All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.
 - 2. Each wire connected to building-mounted devices is not required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.
- C. At completion, cable and asset management software shall reflect as-built conditions.

3.4 FIRE STOPPING

- A. Seal all penetrations through fire rated walls, floors and walls created by or made on the behalf of the contractor so that the original fire rating of the floor or wall is maintained as required by article 300-21 of the national electric code.
- B. Use sealant material that has passed fire exposure testing in accordance with standard time-temperature curve in the standard, UL, ASTM E 119, and NFPA 251 and the hose stream test in accordance with UL1 OB.

3.5 CABLE TESTING

- A. Test all cables installed under the contract.
- B. Pre-installation Inspection
 - 1. Visually inspect all cables, cable reels and shipping cartons for shipping damage. Return visibly damaged items to the manufacturer.
 - 2. Prior to testing, submit for review and approval copies of test report forms proposed for use. Forms shall, at minimum, contain: Project name; Contractor's name; Date of test; Media type and description; Make, model and serial number of the test equipment used and date of last calibration.
- C. Post Installation Testing
 - 1. Test only completed systems. Partial or statistically sampled testing is not acceptable, except by prior, written approval from the Consultant.
 - 2. Paired and multi-conductor metallic cables: perform an end-to-end test for continuity, ground fault, shorts and crossed pairs for each cable pair/conductor.
 - a. Test cable pairs from the work area outlet, through all conductors to patch board in data rack in each Server Room

3. 4-pair Category 7 UTP: in addition to end-to-end tests listed above.
 - a. Test for length, capacitance, attenuation, noise, resistance, NEXT, FEXT, ELFEXT, PSNEXT, PSELFEXT and delay skew with injected standard signals. Utilizing automated test equipment, set up and measure a basic link to determine the actual swept frequency ACR. Compare the ACR to the ISO/IEC Cat 7/Class E ACR at 300 or 350 MHz. Test bi-directionally in accordance with ANSI/TIA/EIA-568-().
 - b. Test all cables, including fiber optic cables.
4. For 4-pair replace the entire cable if a bad pair or conductor is found.
5. Remove defective cable in its entirety from point to point. Do not abandon cables in place.
6. Provide test results for each cable/point to engineer and owner.
7. The Consultant and Owner reserves the right to observe the conduct of any or all portions of the testing process and to conduct, and to require the Contractor, using the Contractor's equipment and labor, a random re-test of up to five (5) percent of the cable plant to confirm documented test results.
8. Document all test results and corrective procedures and submit to the Consultant within ten (10) working days of test completion.
9. In addition to the actions specified above, the contractor may be required to be present while the Elmsford Union Free School District or designated representatives conduct performance tests of the transport electronics connected to the cabling system.

3.6 SYSTEM SOFTWARE / HARDWARE

- A. Configure equipment including but not limited to IP address, device name, MAC address, frame rate sensitivity, focus, etc.
- B. Develop, install, configure and test software and databases for the complete and proper operation of systems involved. Assign software license to Owner.

3.7 ACCEPTANCE

- A. Once the testing has been completed, as-built and testing documentation delivered to the owner and the owner is satisfied that all work is in accordance with the contract documents, the owner will notify the contractor in writing of the acceptance of the work performed. The date of this acceptance shall constitute the commencement of the warranty period.

3.8 STARTUP SERVICE

- A. Engage a factory-authorized service representative to supervise and assist with startup service. Complete installation and startup checks according to approved procedures that were developed in "preparation" article and with manufacturer's written instructions.
1. Prepare and issue access cards and finalized database for owner's operators, management, and security personnel.
 2. Train security personnel.
 3. All equipment needs to be labeled with Name, IP, etc.

****End of Section****