

SECTION 28 23 00
VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 – General Requirements" form a part of the Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SUMMARY

- A. The contractor shall extend the existing Campus Video Surveillance System as required to accommodate all cameras and associated equipment as detailed within the project documents to provide a fully functional and integrated video surveillance solution as detailed here and within the project documentation.
- B. Provide labor, materials, coordination, and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Video management software and associated licensing required for a fully functional solution.
 - 2. Network video recorder servers and storage arrays
 - 3. Network video cameras
 - 4. Surge protection devices
- C. It is the intent of these specifications to provide a complete workable integrated security system ready for the Client's use as described within the project documentation. Any items not specifically detailed on the drawings or described in the Specifications, but normally required to conform to the intent, are to be considered as part of the Contract.
- D. These specifications are equipment and performance specifications. Actual installation shall be as indicated on drawings, specifications and/or contained within the manufacturers written installation instructions. Any discrepancies found between the specification, drawings and manufacturers' installation instructions shall be immediately brought to the attention of engineer/Client in writing at once. Installation and details indicated on the drawings shall govern if they differ from the specifications.

1.3 REFERENCES

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. Related Documents and Sections:
 - 1. Division 01 - General Requirements
 - 2. Division 26 - Electrical
 - 3. Division 27 - Communications
- C. The following codes, associations, acts and agencies, as required by law:

1. American National Standards Institute/Electronic Industries Association/Telecommunication Industries Association (ANSI/EIA/TIA)
2. Federal Communications Commission (FCC)
3. National Fire Protection Association (NFPA)
4. NFPA-70, 2011 (National Electric Code)
5. National Electrical Safety Code (NESC)
6. National Electrical Manufacturers Association (NEMA)
7. Occupational Safety and Health Administration (OSHA)
8. UL Standard for Safety
9. International Building Code
10. International Fire Code
11. Any additional applicable local codes or amendments

D. When a discrepancy arises between the above-mentioned codes, standards or guidelines and the standards contained in this document, it shall be brought to the attention of the Owner immediately for resolution. The more stringent of the two guidelines shall be implemented.

1.4 SYSTEM DESCRIPTION

A. Overview

1. The video surveillance system will be monitored from the Security Operations Center, various security desks, and security offices. Further, the solution shall provide the ability to monitor and view live and recorded video remotely via web-based and mobile based applications. Integrations with various subsystems shall provide the ability to program an interactive experience including automatic camera call-ups based on preprogrammed events. The solution shall include a mapping feature and facility floor plans shall be incorporated and programmed to allow users the ability to easily identify camera locations and fields of view. Joystick controllers shall be utilized for PTZ control.
2. Cameras will be served by Owner provided network switches located in local telecommunication rooms and utilize Owner's LAN to communicate with the network recording servers for local video storage.
3. Cabling (PoE network connectivity) for the network cameras shall follow requirements as detailed within the Division 27000 specifications. Network cabling will be terminated at the camera location utilizing an 8 position 8 contact (8P8C) modular connector. This contractor shall provide factory manufactured and certified patch cords for use as the final camera connection. (refer to Division 27 specifications for requirements). Additional cable requirements (power, control, etc.) shall be provided by this contractor.
4. This contractor shall be responsible for the coordination and providing the interface for all the systems, but also interfacing and coordinating the signals from other systems including the access control systems, resident intercom system, emergency phone system, and other systems in the future.

B. Scope of Work includes, but is not limited to, the following:

1. Provide extension of existing video management platform including associated license fees and video storage modifications as required to support the cameras and security devices shown on the project drawings.
2. Provide network fixed and PTZ cameras as shown on project drawings including all required mounting hardware. Interior cameras to utilize drop-ceiling kit for a flush mount installation.

1.5 SUBMITTALS

- A. Refer to Division 1 and the General Provisions of the Contract for exact submittal procedures.
- B. It will be assumed that the Contractor has examined the shop drawings and equipment brochures prior to submission and that materials and equipment depicted will readily fit into the construction. Contractor shall also review all completed work related to materials or equipment depicted to ensure that it has been installed properly.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts are available.
- B. When more than one unit of the same class of equipment or material is required, such units shall be the products of a single manufacturer and part number.
- C. All products and materials shall be new and unused prior to their installation as part of this project. Refurbished items are not allowed.
- D. Alternates may be proposed but shall meet or exceed specifications for the items listed. Acceptance shall be at the sole discretion of the owner.

2.2 VIDEO SURVEILLANCE SOFTWARE

- A. Application: Software that provides remote video monitoring, recording, and event management functionality without being dependent on specific hardware.
- B. Manufactures
 - 1. Pelco
 - 2. Approved Equal

2.3 NETWORK VIDEO RECORDER SERVERS

- A. Application: Dedicated servers for network video management and recording.
- B. General Server Features
 - 1. Extend existing video recording equipment as required to support this project.

2.4 NETWORK FIXED CAMERAS 5MP DOME

- A. Application: 5 MP, H.265, H.264, WDR, Day/Night IP Dome Cameras
- B. Approved Manufactures
 - 1. Pelco Sarix Professional Camera 4 Series
 - 2. Approved Equal

2.5 NETWORK FIXED CAMERAS 5MP ANTI-LIGATURE

- A. Application: 5 MP, H.265, H.264, WDR, Day/Night IP Dome Cameras
- B. Approved Manufactures
 - 1. Pelco Sarix Corner Camera 3 Series
 - 2. Approved Equal

2.6 CAMERA SURGE PROTECTION DEVICES

- A. Application: Protects circuits and devices that use PoE connections.
- B. Provide surge protection devices for all exterior cameras.
- C. Surge Protection Devices:
 - 1. Features:
 - a. Protects power, video, and data on network-based security cameras.
 - b. Supports GbE without signal degradation.
 - c. Compliant with IEEE 802.3af and 802.3at for PoE and High PoE
 - 2. General:
 - a. Connectors: RJ45 connection with external grounding screw
 - b. Data rate: Gigabit Ethernet
 - c. Max Continuous Current: 1.5 Amps
 - d. Dissipation: 3,000W
 - e. Protection Mode: Line-Ground
- D. Manufactures:
 - 1. Basis of Design: Ditek
 - a. #DTK-MRJPOE, single channel surge protection device
 - b. #DTK-RM12NETS, 12-channel surge protection device
 - 2. Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Contractor shall coordinate with all other trades prior to installation. Meeting with the Electrical Communications, and General Contractors to identify pathways and infrastructure space requirements.
- B. Install all system components including Owner furnished equipment, and appurtenances in accordance with the manufacturer's instructions, and as shown, and shall furnish all necessary connectors, terminators, interconnections, services, and adjustments required for a complete and operable system.
- C. Visit the site and verify that site conditions agree with the design package. Report all changes to the site or conditions that will affect performance of the system to the Owner in a report. The Contractor shall not take any corrective action without written permission from the Owner and Owner.

- D. The Contractor shall perform a field survey and furnish a report to the Owner as part of the site survey report. The Contractor shall be held responsible for repair costs due to Contractor negligence or abuse of Owner equipment.
- E. Verify that all surfaces and areas are ready to receive work.
- F. Verify field measurements as shown on drawings and as instructed by manufacturer.
- G. Verify that required utilities are available, in proper location, and ready for use.

3.2 DIMENSIONS AND DEFINITE LOCATIONS

- A. The Project Drawings depicting work show approximate locations. The exact location of equipment and devices shall be established in the field in accordance with instructions from the owner. Consideration shall be given to construction features, equipment of other trades, and requirements of the equipment proper
- B. The Contractor shall refer to shop drawings and submittal drawings for equipment requiring electrical connections to verify rough-in and connection locations.
- C. Unless specifically stated to the contrary, no drawings by scale shall be used as a dimension to work by. Dimensions noted on the drawings are subject, in each case, to measurements of adjacent or previously completed work and all such measurements necessary shall be taken before undertaking any work dependent upon them.

3.3 INSTALLATION

- A. General:
 - 1. Install the video surveillance system related equipment as specified by the manufacturer and as shown, provide mounting hardware sized appropriately to secure each device for conditions encountered at the site; connect signal lines and AC power to equipment.
 - 2. Ensure that:
 - a. All applicable statutes, ordinances, regulations, license requirements and codes are fully complied with.
 - b. All required permits are obtained.
 - c. All required inspections are conducted.
 - d. All necessary certificates are issued, obtained, and delivered to the Owner.
 - e. All equipment installations and mounting are in strict accordance with requirements for applicable seismic classification.
- B. Video Management Software:
 - 1. Coordinate with Owner's IT and Security representatives to set the following criteria:
 - a. Administrator and operator passwords
 - b. Camera and video device nomenclature
 - c. Maximum bitrate (assume 4-6MB per camera) and bandwidth throttle, if any
 - d. Camera groups, salvos, and operator views
 - e. PTZ camera presets
 - f. Mapping features and criteria for a fully interactive graphical display of each floor plan
 - g. Alarm events and integration into the access control system and other subsystems

C. Network Cameras:

1. Provide flush ceiling mount kit for fixed network cameras within interior accessible ceiling space. Install camera body above ceiling line so only lower polycarbonate dome and trim ring is exposed.
2. Provide outdoor rated housings and mounts for exterior cameras.
3. Prior to installation, coordinate with electrical contractor to confirm exact placement of cameras for conduit and rough-in requirements.
4. Field determine exact placement of cameras installed in interior accessible ceiling to ensure complete coverage of targeted area.
5. Adjust the wide dynamic range, gain control, and noise reduction settings on each camera as required to provide clear and crisp video images.

3.4 PROGRESSIVE AND FINAL CLEANING OF PROJECT SITE

- A. During construction, and prior to the Owners acceptance of the building, remove from the premises and dispose of packing material and debris cause by communications work.
- B. Remove dust and debris from interior and exterior of telecommunications equipment. Clean accessible current carrying equipment prior to being energized.
- C. Contractor shall clean work areas each day and remove debris properly and legally from the Owner's property. Where communications equipment and related materials are installed or stored for use in the project shall be neatly stacked and remain free of debris, cable scraps and accumulated dust from the floor and surfaces of installed communication equipment, and materials. All exits and paths shall be cleaned to prevent dirt from being tracked throughout the facility.
- D. Upon completion of the work, remove excess debris, materials, equipment, tools, and similar items. Leave the premises clean, neat, and orderly.

3.5 CAMERA SURGE PROTECTION

- A. Connect incoming horizontal UTP cabling in the IN connector. Connect the camera's UTP patch cable to the OUT connector to be protected.
- B. Use common ground per device to eliminate the possibility of a differential in ground potentials.

3.6 TESTING

A. General:

1. The Contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all site testing. The Owner will witness all performance verification. Written permission shall be obtained from the Owner before proceeding with the next phase of testing. Original copies of all data produced during performance verification shall be turned over to the Owner at the conclusion of each phase of testing prior to Owner approval of the test.
2. Coordinate testing requirements with the General Contractor and provide specific information on pre-acceptance and final acceptance testing activities so that they can be entered into the overall construction schedule.

B. Cable Testing:

1. All cables and termination hardware shall be 100% tested for defects in the installation and the materials used to verify performance under installed conditions. All conductors of each installed cable and system component shall be verified usable by the contractor.
2. Testing for the horizontal structured cabling serving the video surveillance system provided by under Section 27 1513 - Communications Horizontal Copper Cabling.

C. Pre-Acceptance Testing:

1. The Contractor shall perform a 100% pre-acceptance test to verify operation of the video surveillance system prior to the final acceptance test with the Owner.
2. Pre-Acceptance Testing activities shall not occur until Contractor has ensured that all punch list items have been remedied. If conditions exist that may cause degradation or interference with any security device, the Contractor shall inform the Owner.
3. The pre-acceptance testing shall, as a minimum, include:
 - a. Verification that all signal or control cabling under this contract has been installed, tested, and approved as specified.
 - b. Verification that cameras are properly installed and provide clear, crisp images in the specified format and resolution.
 - c. Verification that current recording configuration provides the minimum required storage (i.e. 30 days, etc.).
 - d. Verification that client software can view live video and recorded video. Verify graphical mapping and alarm management screens.
 - e. Verify integration with specified access control system for automatic camera call-up on alarm with proper alarm/event recording parameters.
 - f. Document the results of the pre-acceptance testing using approved test forms. Report shall indicate the system has been properly calibrated, tested, and is ready to begin final acceptance testing with the Owner.

D. ACCEPTANCE TESTING

1. Upon successful completion of Pre-Acceptance Testing, the Contractor shall demonstrate to the Owner that the completed video surveillance system complies with the contractor requirements. Acceptance Testing shall not commence until receipt of approved Pre-Acceptance Testing activities based on the Contractor's written report.
2. Using approved test procedures, all physical and functional requirements of the project shall be demonstrated and shown.
3. The Owner may terminate Acceptance Testing at any time when the system fails to perform as specified. Upon termination of testing by the Owner or by the Contractor, the Contractor shall submit a report outlining the required repairs to the Owner then commence system repairs upon direction by the Owner. Upon successful completion of the Acceptance Testing, the Contractor shall deliver test reports and other documentation as specified to the Owner.

END OF SECTION