
SECTION 28 20 00
VIDEO SURVEILLANCE**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Video surveillance system requirements.
- B. Video recording and viewing equipment.
- C. Cameras.
- D. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- B. Section 26 05 29 - Hangers and Supports for Electrical Systems.
- C. Section 26 05 33.13 - Conduit for Electrical Systems.
- D. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
- E. Section 27 10 00 - Structured Cabling: Data cables for IP video surveillance system network connections.
- F. Section 28 10 00 - Access Control: For interface with video surveillance system.

1.3 REFERENCE STANDARDS

- A. 47 CFR 15 - Radio Frequency Devices current edition.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NECA 303 - Standard for Installing and Maintaining Closed-Circuit Television (CCTV) Systems 2019.
- D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of cameras with structural members, ductwork, piping, equipment, luminaires, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 - 2. Coordinate the work with other installers to provide power for cameras and equipment at required locations.
 - 3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Preinstallation Meetings:
 - 1. Conduct meeting with facility representative to review camera and equipment locations and camera field of view objectives.
 - 2. Conduct meeting with facility representative and other related equipment manufacturers to discuss video surveillance system interface requirements.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables. Include elevations and details of proposed equipment

arrangements. Include system interconnection schematic diagrams. Include requirements for interface with other systems.

- C. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.
- D. Design Data:
 - 1. Standby battery/UPS calculations.
 - 2. Video storage capacity calculations.
- E. Certify that proposed system design and components meet or exceed specified requirements.
- F. Evidence of qualifications for installer.
- G. Evidence of qualifications for maintenance contractor (if different entity from installer).
- H. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.
- I. Manufacturer's detailed field testing procedures.
- J. Field quality control test reports.
- K. Project Record Documents: Record actual locations of system components and installed wiring arrangements and routing.
- L. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
 - 1. Include contact information for entity that will be providing contract maintenance and trouble call-back service.
- M. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.
- N. Maintenance contracts.
- O. Software: One copy of software not resident in read-only memory.

1.6 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. NFPA 70.
 - 2. Applicable TIA/EIA standards.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience with video surveillance systems of similar size, type, and complexity and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.
- E. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions and NECA 303.

- B. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1.8 FIELD CONDITIONS

- A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.9 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.1 VENDOR AND PROCUREMENT

- A. Contractor will obtain the services of the prison's security vendor: ESCO Security, Inc. who will select equipment manufacturer and systems software.

2.2 VIDEO SURVEILLANCE SYSTEM

- A. Provide new video surveillance system consisting of all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.
- B. System Description: IP system with connection to network (IP) cameras.
 - 1. Video Storage Capacity: As indicated.
 - 2. System Battery Backup: Provide batteries/uninterruptible power supplies (UPS) as required.
- C. Cameras Required:
 - 1. See article "CAMERAS" below for product descriptions.
- D. Video Recording and Viewing Equipment Required:
 - 1. See article "VIDEO RECORDING AND VIEWING EQUIPMENT" below for product descriptions.
- E. Interface with Other Systems:
 - 1. Provide products compatible with other systems requiring interface with video surveillance system.
 - 2. Interface with access control system as specified in Section 28 10 00.
 - a. Capable of affecting camera/video operation for selected access control system events.
- F. Provide products listed, classified, and labeled as suitable for the purpose intended.
- G. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B, consumer application.

2.3 VIDEO RECORDING AND VIEWING EQUIPMENT

- A. Provide video recording and viewing equipment compatible with cameras to be connected.
- B. Network Video Recorders (NVRs):
 - 1. Supports connection of network (IP) cameras.
 - 2. Supports continuous and event-based recording.
- C. Computers:
 - 1. Workstation Computers: Unless otherwise indicated, workstation computer hardware not furnished by video surveillance system manufacturer to be provided by Contractor as part of work

of this section, meeting video surveillance system equipment manufacturer's minimum requirements.

2. Servers: Unless otherwise indicated, server hardware not furnished by video surveillance system manufacturer to be provided by Contractor as part of work of this section, meeting video surveillance system equipment manufacturer's minimum requirements.
- D. Software:
 1. Unless otherwise indicated, provide all software and licenses required for fully operational system.

2.4 CAMERAS

- A. Provide cameras and associated accessories suitable for operation under the service conditions at the installed location. Provide additional components (e.g. enclosures, heaters, blowers, etc.) as required.
- B. Where not factory-installed, provide additional components (e.g. lenses, mounting accessories, etc.) as necessary for complete installation.
- C. Network (IP) Cameras:
 1. Signal-to-Noise Ratio: Not less than 50 dB.
 2. Provide the following standard features:
 - a. Automatic electronic shutter.
 - b. Automatic gain control.
 - c. Automatic white balance.
 - d. Web-based interface for remote viewing and setup.
 - e. Password protected security access.
- D. Camera Enclosures and Mounting Brackets:
 1. Where not factory-installed, provide accessory camera enclosures suitable for operation under the service conditions at the installed location.
 2. Where not factory-installed, provide accessory camera mounting brackets necessary for installation.

2.5 ACCESSORIES

- A. Provide components as indicated or as required for connection of video surveillance system to devices and other systems indicated.
- B. Provide components as indicated or as required for system power and network connections.
- C. Provide cables as indicated or as required for connections between system components.
 1. Data Cables for IP Network Connections: Unshielded twisted pair (UTP), minimum Category 5e, complying with Section 27 10 00.
- D. Provide accessory racks/cabinets as indicated or as required for equipment mounting.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that ratings and configurations of system components are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive system components.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to system where applicable.

- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install video surveillance system in accordance with NECA 1 (general workmanship) and NECA 303.
- B. Install products in accordance with manufacturer's instructions.
- C. Provide required support and attachment in accordance with Section 26 05 29.
- D. Wiring Method: Unless otherwise indicated, use cables (not in conduit).
 - 1. Use suitable listed cables in wet locations, including underground raceways.
 - 2. Use suitable listed cables for vertical riser applications.
 - 3. Use listed plenum rated cables in spaces used for environmental air.
 - 4. Install wiring in conduit for the following:
 - a. Where required for rough-in.
 - b. Where required by authorities having jurisdiction.
 - c. Where exposed to damage.
 - d. Where installed outside the building.
 - e. For exposed connections from outlet boxes to cameras.
 - 5. Conduit: Comply with Section 26 05 33.13.
 - 6. Conceal all cables unless specifically indicated to be exposed.
 - 7. Route exposed cables parallel or perpendicular to building structural members and surfaces.
 - 8. Include service loop cable lengths to allow relocation of cameras within 30 ft of installed location.
- E. Provide grounding and bonding in accordance with Section 26 05 26.
- F. Identify system wiring and components in accordance with Section 26 05 53.

3.3 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.
- C. Prepare and start system in accordance with manufacturer's instructions. Contractor shall assist vendor with startup.
- D. Adjust cameras to provide desired field of view and produce suitable images under all service lighting conditions.
- E. Program system parameters according to requirements of Owner.
- F. Test for proper interface with other systems.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.
- H. Submit detailed reports indicating inspection and testing results and corrective actions taken.

3.4 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.5 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.

- B. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of four hours of training.
 - 3. Instructor: Manufacturer's authorized representative.
 - 4. Location: At project site.

3.6 PROTECTION

- A. Protect installed system components from subsequent construction operations.

END OF SECTION 28 20 00