

SECTION 282000
VIDEO SURVEILLANCE - VIVOTEK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Network (IP) cameras.
- B. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems.
- B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 DEFINITIONS

- A. 3D Noise Reduction (3DNR): Application of temporal noise detection mechanism to analyze frames in sequence to identify noise; used in combination with spatial noise detection mechanism for moving objects to reduce motion blur.
- B. Smart IR: Utilizes Adaptive IR (ADIR) to automatically dim lighting on near subjects to avoid overexposure.
- C. Smart IR II: Utilizes Adaptive IR (ADIR) to automatically dim lighting on near subject to avoid overexposure; utilizes Vari-Angle IR (VAIR) to automatically adjust IR angles to match the camera's field of view.
- D. Smart Stream: Utilizes algorithms to optimize bandwidth without sacrificing visual quality; Region of Interest (ROI) algorithm automatically enhances video quality for moving objects.
- E. Smart Stream II: Utilizes algorithms to optimize bandwidth without sacrificing visual quality; Region of Interest (ROI) algorithm automatically enhances video quality for moving objects; Dynamic Intra-Frame Period algorithm automatically adjusts I-frame interval.
- F. Smart Stream III: Utilizes algorithms to optimize bandwidth without sacrificing visual quality; Region of Interest (ROI) algorithm automatically enhances video quality for moving objects; Dynamic Intra-Frame Period algorithm automatically adjusts I-frame interval; Smart Q algorithm analyzes scene and applies optimized compression to different portions of scene; Smart FPS analyzes motion in the scene and applies optimized compression without changing frame rate.
- G. Supreme Night Visibility (SNV): Utilizes sensitive image sensors and image processing to capture high quality color video in extreme low light conditions.
- H. Trend Micro IoT Security: Cyber security software including brute force attack detection, intrusion detection and prevention, and instant damage control.
- I. WDR Enhanced: Automatically reduces dynamic range of images while retaining contrast by adjusting tone curve evenly based on brightness levels in different areas of field of view.
- J. WDR Pro: Automatically reduces dynamic range of images while retaining contrast by capturing alternate frames using different exposure times and combining to create a composite image that retains detail in both dark and bright areas of field of view.

1.04 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 303 - Standard for Installing Closed-Circuit Television (CCTV) Systems 2005.

- C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.05 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 the 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.

1.06 QUALITY ASSURANCE

A. Comply with the following:

1. NFPA 70.
2. Applicable TIA/EIA standards.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. 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; authorized manufacturer's representative.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 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.

1.08 FIELD CONDITIONS

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

1.09 WARRANTY

A. Provide manufacturer warranty equivalent to basis of design products covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Network (IP) Cameras - Basis of Design: VIVOTEK; as indicated under product descriptions below; www.vivotek.com/
- B. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.
- C. Source Limitations: Where possible, furnish system components and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 NETWORK (IP) 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) Bullet Network Camera, - Basis of Design: VIVOTEK Model IB9388-HT (5 MP, Outdoor, Vandal-resistant, Motorized Vari-focal, Remote Focus, 30M IR); www.vivotek.com
 - 1. Maximum Video Resolution: 2560 x 1920.
 - 2. Maximum Frame Rate: 20 fps.
 - 3. Image Sensor Size: 1/2.7 inch.
 - 4. Minimum Illumination/Light Sensitivity (Color): 0.035 lux.
 - 5. Lens: 2.8 ~ 12 mm, F2.0; horizontal field of view of 30 ~ 88 degrees, vertical field of view of 23 ~ 65 degrees; fixed iris.
 - 6. Features: H.265 Compression, Smart Stream III, day and night functionality, WDR PRO, Supreme Night Visibility (SNV), Video Rotation, Power over Ethernet (PoE), local storage, SD card life expectancy, Cybersecurity Antivirus (brute force attack, cyberattack, and quarantine events) IP66/IK10 housing, minus 22 to 140 degrees F (minus 30 to 60 degrees C) working temperature; 2 year warranty.

PART 3 EXECUTION

3.01 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.

3.02 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. Wiring Method for NFPA 70 Class 2 and Class 3 Circuits: Unless otherwise indicated, use cables (not in conduit), where permitted by code.

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.
 5. Conceal all cables unless specifically indicated to be exposed.
 6. Route exposed cables parallel or perpendicular to building structural members and surfaces.
- D. Provide grounding and bonding in accordance with Section 260526.
- E. Identify system wiring and components in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL

- A. Prepare and start system in accordance with manufacturer's instructions.
- B. Adjust cameras to provide desired field of view and produce suitable images under all service lighting conditions.
- C. Program system parameters according to requirements of Owner.
- D. Test for proper interface with other systems.
- E. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

3.04 CLEANING

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

3.05 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.

3.06 PROTECTION

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

END OF SECTION