

**SECTION 28 20 00**  
**VIDEO SURVEILLANCE EQUIPMENT**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. 47 CFR 15 - Radio Frequency Devices; current edition.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- 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.

**1.02 1.01 SECTION INCLUDES**

- A. A. Video surveillance system requirements.
- B. B. Cameras.
- C. D. Accessories.

**1.03 1.02 REFERENCE STANDARDS**

- A. A. [47 CFR 15](#) - Radio Frequency Devices; current edition.
- B. B. [NECA 1](#) - Standard for Good Workmanship in Electrical Construction; 2015.
- C. C. [NECA 303](#) - Standard for Installing Closed-Circuit Television (CCTV) Systems; 2005.
- D. D. [NFPA 70](#) - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 1.04 ADMINISTRATIVE REQUIREMENTS**

- A. A. Coordination:
  - 1. 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. 2. Coordinate the work with other installers to provide power for cameras and equipment at required locations.
  - 3. 3. Notify NYCHA and Architect/Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
  - 4. 4. Coordinate all work related to software upgrades which may result in downtime or interruption to existing system operation with NYCHA CM and NYCHA IT.
  - 5. 5. Coordinate specific requirements for any existing deployment with Genetec Security Center that requires a two-step upgrade to the current software version (older than Genetec Security Center V 5.8). Review existing conditions during the existing system revalidation meeting and determine specific hardware/software upgrade requirements with NYCHA CM and NYCHA IT. Refer to specification 013100 for additional information on revalidation meeting.
- B. B. Preinstallation Meetings:
  - 1. 1. Conduct meeting with facility representative to review camera and equipment locations and camera field of view objectives.
  - 2. 2. Conduct meeting with facility representative and other related equipment manufacturers to discuss video surveillance system interface requirements.

**1.05 1.05 SUBMITTALS**

- A. A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. 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. 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. D. Certify that proposed system design and components meet or exceed specified requirements.
- E. E. Evidence of qualifications for installer.
- F. F. 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.
- G. G. Manufacturer's detailed field testing procedures.
- H. H. Field quality control test reports.
- I. I. Project Record Documents: Record actual locations of system components and installed wiring arrangements and routing as per NYCHA requirements.
- J. J. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
  - 1. 1. Include contact information for entity that will be providing contract maintenance and trouble call-back service.
- K. K. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.
- L. L. Maintenance contracts.
- M. M. Refer to NYCHA CCTV Turn Over Checklist for additional requirements.

#### **1.06 1.06 QUALITY ASSURANCE**

- A. A. Comply with the following:
  - 1. 1. [NFPA 70](#).
  - 2. 2. Applicable TIA/EIA standards.
- B. B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- D. 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. Installer shall be an authorized manufacturer's representative of the camera's being installed.
  - 1. 1. Contract maintenance office located within 100 miles of project site.
- E. E. Maintenance Contractor Qualifications: Same entity as installer.
- F. F. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
- G. G. Please note: NYCHA reserves the right to update and modify design in accordance with new products and updated design requirements.

#### **1.07 1.07 DELIVERY, STORAGE, AND HANDLING**

- A. A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions and [NECA 303](#).

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

#### **1.08 1.08 FIELD CONDITIONS**

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

#### **1.09 1.09 WARRANTY**

- A. A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship. The warranty period shall begin when the system is installed, operational, and recording (IOR). Contractor shall notify NYCHA PM in writing with the data of IOR.

### **PART 2 PRODUCTS**

#### **2.01 2.01 MANUFACTURERS**

- A. A. Video Recording and Viewing Equipment Software - Basis of Design: Genetec Security Center 5.10 or approved equal.
- B. B. Cameras - Basis of Design: Panasonic as indicated under product descriptions below.
- C. D. Substitutions: See Section 016000 - Product Requirements.
- D. E. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer and NYCHA. 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.
- E. F. Source Limitations: Where possible, furnish system components and accessories produced by a single manufacturer and obtained from a single supplier.

#### **2.02 2.02 VIDEO SURVEILLANCE SYSTEM**

- A. 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. B. System Description: IP system with connection to network (IP) cameras.
  - 1. 1. Video Storage Capacity: Suitable for storing video from all cameras for 21 days. Video storage servers shall be configured such that stored video is deleted after a period of 21 days.
  - 2. 2. Video Recording Framerate: 15 frames per second.
  - 3. 2. Surge Protection:
    - a. a. Provide surge protection for exterior cameras.
    - b. b. Provide equipment power surge protection where electrical distribution system surge protection is not provided.

#### **2.03 2.03 CAMERAS**

- A. 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. B. Where not factory-installed, provide additional components (e.g. lenses, mounting accessories, etc.) as necessary for complete installation.
- C. C. Network (IP) Cameras (General):
  - 1. 1. Signal-to-Noise Ratio: Not less than 50 dB.
  - 2. 2. Provide the following standard features:
    - a. a. The IP camera shall deliver H.265 stream and H.264 stream.

- b. b. The IP Camera shall generate multiple simultaneous video streams of up to four (4) H.265 (Main profile) or H.264 (High profile) streams and JPEG streams. 360-degree IP dome cameras shall only generate up to two (2) streams.
  - c. c. The IP Camera shall be equipped with intelligent auto mode, the technology for shooting license plate and person's face more clearly.
  - d. d. The IP Camera shall be equipped with GOP control and Smart Facial coding which control an image quality of a stationary area, a moving area and a face, as bitrate reducing technology.
  - e. e. The IP Camera shall produce encrypted stream.
  - f. f. The IP Camera shall realize SSL / TLS communication with CA certificate.
  - g. g. A user shall be able to view video on a PC using a browser.
  - h. h. A user shall be able to view video on a smart-phone and tablet using viewer software for iPhone and Android.
  - i. i. The IP Camera shall offer Video Motion Detection (VMD) with four (4) programmable detection areas, 15 steps sensitivity level and 10 steps detection size.
  - j. j. The IP Camera shall have Fog compensation function.
  - k. k. The IP Camera shall have High light compensation (HLC) function.
  - l. l. The IP Camera shall provide up to eight (8) areas of electronic privacy masking. PTZ Dome Cameras shall provide up to thirty-two (32) areas of electronic privacy masking.
  - m. m. The IP Camera shall offer the prioritized stream control which transmits a video stream to a specified client PC or recorder preferentially.
  - n. n. The IP Camera shall conform to the ONVIF standard. PTZ cameras shall conform to ONVIF profile S and profile G.
3. 3. Network (IP) Fixed Dome Camera - Basis of Design: Panasonic Model #: WV-S2536LN or NYCHA approved equal.
- a. The Fixed Dome Camera shall produce a resolution of 1,920 x 1,080 pixels (Full HD 1080p) at up to 60 fps with a 16:9 aspect ratio.
  - b. The Fixed Dome Camera shall produce a resolution of 2,048 x 1,536 pixels at 30fps with a 4:3 aspect ratio.
  - c. The Fixed Dome Camera shall utilize an approximate 1/3 type high sensitivity MOS image sensor.
  - d. The Fixed Dome Camera shall feature a 144dB wide dynamic range based on Enhanced Super Dynamic and Adaptive Black Stretch technology (ABS).
  - e. The Fixed Dome Camera shall produce a color image with a minimum illumination of 0.007 lux and a monochrome image with 0.006 lux at F1.3, maximum shutter of 1/30s and High gain mode.
  - f. The Fixed Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 70m 230 feet irradiation distance.
  - g. The Fixed Dome Camera shall be equipped a special coated cover for increasing the operational utility of outdoor cameras in rain weather.
  - h. The Fixed Dome Camera shall have Super Chroma Compensation (SCC) which realizes a better color reproducibility in the low illumination.
  - i. The Fixed Dome Camera shall have a SD memory card slot that supports SD, SDHC and SDXC memory card for local storage.
  - j. The Fixed Dome Camera shall offer full-duplex bi-directional audio communication capability between the camera and monitoring site.
  - k. The Fixed Dome Camera shall have four (4) alarm sources of terminal input, VMD, command alarm and audio detection alarm that activate the processes such as SDXC/ SDHC/SD memory recording, E-mail notification, HTTP alarm notification, Indication on browser, FTP image transfer and Panasonic alarm protocol output.
4. 4. Network (IP) Fixed Dome Camera - Basis of Design: Panasonic Model #: WV-S3531L or NYCHA approved equal.;

- a. The Compact Fixed Dome Camera shall produce a resolution of 1,280 x 720 pixels at up to 60 fps with a 16:9 aspect ratio.
  - b. The Compact Fixed Dome Camera shall produce a resolution of 1,280 x 960 pixels at up to 30 fps with a 4:3 aspect ratio.
  - c. The Compact Fixed Dome Camera shall utilize an approximate 1/3 type high sensitivity CMOS image sensor.
  - d. The Compact Fixed Dome Camera shall feature a 134dB wide dynamic range based on Enhanced Compact and Adaptive Black Stretch technology (ABS).
  - e. The Compact Fixed Dome Camera shall produce a color image with a minimum illumination of 0.02 lux and a monochrome image with 0.01 lux at F2.3, shutter speed of 1/30s and AGC11.
  - f. The Compact Fixed Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 15m (49feet) irradiation distance.
  - g. The Compact Fixed Dome Camera shall with corridor mode enables the capture of a more vertically-oriented area than the normal format would allow.
  - h. The Compact Fixed Dome Camera shall offer an optional intelligent VMD (i-VMD) which provides intruder detection, loitering detection, direction detection, scene change detection, object detection and cross line detection.
  - i. The Compact Fixed Dome Camera shall have up to 4x digital zoom function.
  - j. The Compact Fixed Dome Camera shall have three (3) alarm sources of VMD, Panasonic alarm command and audio detection alarm that activate the processes such as microSDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, HTTP alarm notification, Indication on browser, and Panasonic alarm protocol output.
  - k. The Compact Fixed Dome Camera shall have a microSD memory card slot that supports microSD, microSDHC and microSDXC memory card for local storage.
5. Network (IP) Fixed Dome Camera - Basis of Design: Panasonic Model #: WV-S3131L or NYCHA approved equal.;
- a. The Compact Fixed Dome Camera shall produce a resolution of 1,920 x 1,080 pixels at up to 60 fps with a 16:9 aspect ratio.
  - b. The Compact Fixed Dome Camera shall produce a resolution of 2,048 x 1,536 pixels used by super resolution techniques at up to 30 fps with a 4:3 aspect ratio.
  - c. The Compact Fixed Dome Camera shall utilize an approximate 1/3 type high sensitivity CMOS image sensor.
  - d. The Compact Fixed Dome Camera shall feature a 144dB wide dynamic range based on Enhanced Compact and Adaptive Black Stretch technology (ABS).
  - e. The Compact Fixed Dome Camera shall produce a color image with a minimum illumination of 0.03 lux and a monochrome image with 0.015 lux at F2.3, shutter speed of 1/30s and AGC11.
  - f. The Compact Fixed Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 15m (49feet) irradiation distance.
  - g. The Compact Fixed Dome Camera shall with corridor mode enables the capture of a more vertically-oriented area than the normal format would allow.
  - h. The Compact Fixed Dome Camera shall offer an optional intelligent VMD (i-VMD) which provides intruder detection, loitering detection, direction detection, scene change detection, object detection and cross line detection.
  - i. The Compact Fixed Dome Camera shall have up to 4x digital zoom function.
  - j. The Compact Fixed Dome Camera shall have Lens Distortion Compensation to compensate the barrel distortion.
  - k. The Compact Fixed Dome Camera shall have three (3) alarm sources of VMD, Panasonic alarm command and audio detection alarm that activate the processes such as microSDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, HTTP alarm notification, Indication on browser, and Panasonic alarm protocol output.

- l. The Compact Fixed Dome Camera shall have a microSD memory card slot that supports microSD, microSDHC and microSDXC memory card for local storage.
6. Network (IP) Fixed Dome Camera - Basis of Design: Panasonic Model #: WV-S353IL or NYCHA approved equal.;
  - a. The Compact Fixed Dome Camera shall produce a resolution of 1,920 x 1,080 pixels at up to 60 fps with a 16:9 aspect ratio.
  - b. The Compact Fixed Dome Camera shall produce a resolution of 2,048 x 1,536 pixels used by super resolution techniques at up to 30 fps with a 4:3 aspect ratio.
  - c. The Compact Fixed Dome Camera shall utilize an approximate 1/3 type high sensitivity CMOS image sensor.
  - d. The Compact Fixed Dome Camera shall feature a 144dB wide dynamic range based on Enhanced Compact and Adaptive Black Stretch technology (ABS).
  - e. The Compact Fixed Dome Camera shall produce a color image with a minimum illumination of 0.03 lux and a monochrome image with 0.015 lux at F2.3, shutter speed of 1/30s and AGC11.
  - f. The Compact Fixed Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 15m (49feet) irradiation distance.
  - g. The Compact Fixed Dome Camera shall compatible with Railway applications since these cameras comply with ECE-R10.
  - h. The Compact Fixed Dome Camera shall with corridor mode enables the capture of a more vertically-oriented area than the normal format would allow.
  - i. The Compact Fixed Dome Camera shall be rated to IP66 and NEMA 4X standard against water and dust ingress.
  - j. The Compact Fixed Dome Camera shall be rated to IK10 vandal resistance.
  - k. The Compact Fixed Dome Camera shall offer an optional intelligent VMD (i-VMD) which provides intruder detection, loitering detection, direction detection, scene change detection, object detection and cross line detection.
  - l. The Compact Fixed Dome Camera shall have up to 4x digital zoom function.
  - m. The Compact Fixed Dome Camera shall have Lens Distortion Compensation to compensate the barrel distortion.
  - n. The Compact Fixed Dome Camera shall have three (3) alarm sources of VMD, Panasonic alarm command and audio detection alarm that activate the processes such as microSDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, HTTP alarm notification, Indication on browser, and Panasonic alarm protocol output.
  - o. The Compact Fixed Dome Camera shall have a microSD memory card slot that supports microSD, microSDHC and microSDXC memory card for local storage.
7. Network (IP) 360-degree Dome Camera - Basis of Design: WV-S4556L / S4556LM or NYCHA approved equal.;
  - a. The 360-degree Outdoor Dome Camera shall produce a resolution of 2,192x2,192 pixels at up to 30 fps with a fisheye mode.
  - b. The 360-degree Outdoor Dome Camera shall produce a resolution of 1,920x1,080(Full HD) pixels at up to 30fps with a double panorama mode.
  - c. The 360-degree Outdoor Dome Camera shall utilize an approximate 1/3 type high sensitivity MOS image sensor.
  - d. The 360-degree Outdoor Dome Camera shall compliant IP66 and NEMA 4X for water and dust resistance and also feature dehumidification device for use in various weather conditions.
  - e. The 360-degree Outdoor Dome Camera shall compliant 50J and IK10 vandal resistance
  - f. The 360-degree Outdoor Dome Camera shall feature a 108dB wide dynamic range based on Enhanced Super Dynamic and Adaptive Black Stretch technology (ABS).

- g. The 360-degree Outdoor Dome Camera shall produce a color image with a minimum illumination of 0.15 lux and a monochrome image with 0.02 lux at F2.4, maximum shutter of 1/30s and maximum gain mode 11.
  - h. The 360-degree Outdoor Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 10 m 33 feet irradiation distance.
  - i. The 360-degree Outdoor Dome Camera shall have Super Chroma Compensation (SCC) which realizes a better color reproducibility in the low illumination.
  - j. The 360-degree Outdoor Dome Camera shall have a SD memory card slot that supports SD, SDHC and SDXC memory card for local storage.
  - k. The 360-degree Outdoor Dome Camera shall offer full-duplex bi-directional audio communication capability between the camera and monitoring site.
  - l. The 360-degree Outdoor Dome Camera shall have three (3) alarm sources of terminal input, VMD, command alarm and audio detection alarm that activate the processes such as SDXC/ SDHC/SD memory recording, E-mail notification, HTTP alarm notification, Indication on browser, FTP image transfer and Panasonic alarm protocol output.
  - m. The 360-degree Outdoor Dome Camera WV-S4550LM shall include compliant Railway Application (EN50155-TX).
8. 8. Network (IP) 360-degree Dome Camera - Basis of Design: Panasonic WV-S4576L/S4576LM or NYCHA approved equal.;
- a. a. The 360-degree Outdoor Dome Camera shall deliver H.265 stream and H.264 stream.
  - b. b. The 360-degree Indoor Dome Camera shall produce a resolution of 2,992×2,992 pixels at up to 30 fps with a fisheye mode.
  - c. c. The 360-degree Indoor Dome Camera shall produce a resolution of 2,560 x 1,440 pixels at up to 15fps with a double panorama mode.
  - d. d. The 360-degree Indoor Dome Camera shall utilize an approximate 1/2 type high sensitivity MOS image sensor.
  - e. e. The 360-degree Outdoor Dome Camera shall compliant IP66 and NEMA 4X for water and dust resistance and also feature dehumidification device for use in various weather conditions.
  - f. f. The 360-degree Outdoor Dome Camera shall compliant 50J and IK10 vandal resistance.
  - g. g. The 360-degree Outdoor Dome Camera shall feature a 84dB wide dynamic range based on Enhanced Super Dynamic and Adaptive Black Stretch technology (ABS).
  - h. h. The 360-degree Indoor Dome Camera shall produce a color image with a minimum illumination of 0.3 lux and a monochrome image with 0.04 lux at F1.9, shutter of 1/30s and maximum gain mode 11.
  - i. i. The 360-degree Outdoor Dome Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 10 m 33 feet irradiation distance.
  - j. j. The 360-degree Outdoor Dome Camera shall have Super Chroma Compensation (SCC) which realizes a better color reproducibility in the low illumination.
  - k. k. The 360-degree Outdoor Dome Camera shall have a SD memory card slot that supports SD, SDHC and SDXC memory card for local storage.
  - l. l. The 360-degree Outdoor Dome Camera shall offer full-duplex bi-directional audio communication capability between the camera and monitoring site.
  - m. m. The 360-degree Outdoor Dome Camera shall have three (3) alarm sources of terminal input, and VMD, command alarm that activate the processes such as SDXC/ SDHC/SD memory recording, E-mail notification, HTTP alarm notification, Indication on browser, FTP image transfer and Panasonic alarm protocol output.
  - n. n. The 360-degree Outdoor Dome Camera WV-X4571LM shall compliant Railway Application( EN50155-TX).
10. Network (IP) Fixed Dome Camera - Basis of Design:

- Axis Communications Q35 Series; Model Q3505-SVE Mk II (Outdoor, Vandal-resistant) with 3-0.35 inch lens; [www.axis.com/#sle](http://www.axis.com/#sle).
9. 9. Network (IP) PTZ Dome Camera - Basis of Design: WV-S65340-Z4N or NYCHA approved equal.;
    - a. a. The PTZ Dome Camera shall deliver H.265 stream and H.264 stream.
    - b. b. The PTZ Dome Camera shall produce a resolution of 1,920 x 1,080 pixels (Full HD 1080p) at up to 60 fps with a 16:9 aspect ratio.
    - c. c. The PTZ Dome Camera shall produce a resolution of 2,048 x 1,536 pixels at 30fps with a 4:3 aspect ratio.
    - d. d. The PTZ Dome Camera shall utilize an approximate 1/2.8-inch type high sensitivity MOS image sensor.
    - e. e. The PTZ Dome Camera shall be equipped with 40 times optical zoom.
    - f. f. The PTZ Dome Camera shall feature an image stabilization by acquiring data from gyro sensors to capture stable images even when installing on the plenty-vibration place.
    - g. g. The PTZ Dome Camera shall feature a 144dB wide dynamic range based on Enhanced Super Dynamic and Adaptive Black Stretch technology (ABS).
    - h. h. The PTZ Dome Camera shall produce a color image with a minimum illumination of 0.015 lux and a monochrome image with 0.001 lux at F1.6, maximum shutter of 1/30s and High gain mode.
    - i. i. The PTZ Dome Camera shall be equipped with a special coated cover for increasing the operational utility of outdoor cameras in rain weather.
    - j. j. The PTZ Dome Camera shall offer an optional vehicle incident detection function which provides wrong-way detection and stopped vehicle detection.
    - k. k. The PTZ Dome Camera shall offer an optional intelligent VMD (i-VMD) function which provides intruder detection, loitering detection, direction detection, scene change detection, object detection and cross line detection.
    - l. l. The PTZ Dome Camera shall offer an optional face detection function.
    - m. m. The PTZ Dome Camera shall have Super Chroma Compensation (SCC) which realizes a better color reproducibility in the low illumination.
    - n. n. The PTZ Dome Camera shall offer the prioritized stream control which transmits a video stream to a specified client PC or recorder preferentially.
    - o. o. The PTZ Dome Camera shall have an SD memory card slot that supports SD, SDHC and SDXC memory card for local storage.
    - p. p. The PTZ Dome Camera shall offer full-duplex bi-directional audio communication capability between the camera and monitoring site.
    - q. q. The PTZ Dome Camera shall have five (5) alarm sources of terminal input, VMD, command alarm, audio detection alarm and auto track alarm that activate the processes such as SDXC/ SDHC/SD memory recording, E-mail notification, HTTP alarm notification, Indication on browser, FTP image transfer and Panasonic alarm protocol output.
  10. 10. Network Elevator Camera - Basis of Design: Bosch MCN-90022 or NYCHA approved equal.;
    - a. The Camera shall produce a resolution of 1,440 x 1,080 pixels at up to 30 fps.
    - b. The Camera shall utilize an approximate 1/2.7 inch CMOS image sensor.
    - c. The Camera shall feature a 69dB wide dynamic range.
    - d. The Camera shall produce a color image with a minimum illumination of 0.03 lux and a monochrome image with 0.015 lux at F2.0, shutter speed of 1/30s.
    - e. The Camera shall be rated to IP65.
    - f. The Camera shall be rated to IK10 vandal resistance.
    - g. The camera shall be provided with a corner-mount, vandal-resistant design intended for elevator car installation.

## 2.04 2.05 ACCESSORIES

- A. A. Provide components as indicated or as required for connection of video surveillance system to devices and other systems indicated.
- B. B. Provide cables as indicated or as required for connections between system components.
  - 1. 1. Data Cables for IP Network Connections: Unshielded twisted pair (UTP), minimum Category
- C. C. Provide accessory racks/cabinets as indicated or as required for equipment mounting.
- D. D. Ethernet Over Coax Transceiver - Basis of Design: NVT Phybridge NV-EC1701 or NYCHA approved equal.;
  - 1. 1. 10/100 baseT ethernet and PoE+ power to be transmitted over coax cable
  - 2. 2. 56 VDC distributed over coax to all connected equipment
  - 3. 3. Networking protocol support: UDP, TCP/IP, HTTP, Multicast with IGMP
  - 4. 4. Advanced 128-bit AES encrypted transmission

## PART 3 EXECUTION

### 3.01 3.01 EXAMINATION

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

### 3.02 3.02 INSTALLATION

- A. A. Install video surveillance system in accordance with [NECA 1](#) (general workmanship) and [NECA 303](#).
- B. B. Install products in accordance with manufacturer's instructions.
- C. C. Provide required support and attachment in accordance with Section 260529.
- D. D. Wiring Method: Unless otherwise indicated, use cables (not in conduit).
  - 1. 1. Use suitable listed cables in wet locations, including underground raceways.
  - 2. 2. Use suitable listed cables for vertical riser applications.
  - 3. 3. Use listed plenum rated cables in spaces used for environmental air.
  - 4. 4. Install all wiring in conduit for the following:
    - a. a. Where required for rough-in.
    - b. b. Where exposed to damage.
    - c. c. Where installed outside the building.
    - d. d. For exposed connections from outlet boxes to cameras.
  - 5. 5. Conduit: Comply with Section 260533.13.
  - 6. 6. Cables in the following areas may be exposed, unless otherwise indicated:
    - a. a. Equipment closets.
    - b. b. Recessed above ceilings.
    - c. c. Recessed within walls.
  - 7. 7. Route exposed cables parallel or perpendicular to building structural members and surfaces.
  - 8. 8. Include 30 foot service loop at camera location and at network switch location to allow for the relocation of camera and/or network equipment.
- E. E. Provide grounding and bonding in accordance with Section 260526.
- F. F. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.

- G. G. Identify system wiring and components in accordance with Section 260553.
- H. H. IP Camera Installation:
  1. 1. Installation of all IP cameras shall be in accordance with manufacturers installation instruction.
  2. 2. All cameras installed in exterior / wet locations shall be provided with weatherproof cable connectors, and weatherproof mounting hardware.

### **3.03 3.03 FIELD QUALITY CONTROL**

- A. A. See Section 014000 - Quality Requirements, for additional requirements.
- B. 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. C. Prepare and start system in accordance with manufacturer's instructions.
- D. D. Adjust cameras to provide desired field of view and produce suitable images under all service lighting conditions.
- E. E. Program system parameters according to requirements of Owner.
- F. F. Test for proper interface with other systems.
- G. G. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.
- H. H. Submit detailed reports indicating inspection and testing results and corrective actions taken.
- I. I. Contractor shall adjust viewing angle of all new IP cameras both on physical camera and in Genetec / camera configuration software as required to optimize camera viewing angle.

### **3.04 3.04 CLEANING**

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

### **3.05 3.05 CLOSEOUT ACTIVITIES**

- A. A. See Section 017800 - Closeout Submittals, for closeout submittals.
  1. 1. Contractor shall include all existing cameras and video equipment on final as-built drawings for buildings included in scope that have an existing CCTV system.
- B. B. See Section 017900 - Demonstration and Training, for additional requirements.
- C. C. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.
- D. D. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
  1. 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
  2. 2. Provide minimum of four hours of training.
  3. 3. Instructor: Manufacturer's authorized representative.
  4. 4. Location: At project site.
- E. E. Complete the NYCHA CCTV Turn Over Checklist and provide to NYCHA and engineer.

### **3.06 3.06 PROTECTION**

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

### **3.07 3.07 MAINTENANCE**

- A. A. See Section 017000 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.
- B. B. Provide to Owner, a proposal as an alternate to the base bid, a separate maintenance contract for the service and maintenance of video surveillance system for two years from date

of Substantial Completion; Include a complete description of preventive maintenance, systematic examination, adjustment, cleaning, inspection, and testing, with a detailed schedule.

- C. C. Conduct site visit at least once every three months to perform inspection, testing, and preventive maintenance. Submit report to Owner indicating maintenance performed along with evaluations and recommendations.
- D. D. Provide trouble call-back service upon notification by Owner:
  - 1. 1. Include allowance for call-back service during normal working hours at no extra cost to Owner.
  - 2. 2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

**END OF SECTION 28 20 00**