SECTION 28 2000 – security surveillance systemS:

PART 1 – GENERAL

1.01 SECTION INCLUDES:

1. Surveillance security systems.
2. Cameras
3. Power supplies
4. Lenses
5. Mounting and ancillary equipment.

1.02 RELATED SECTIONS:

1. Section 270502 – Required Submittals for Communications

B. Section 270504 – Communications Contractor Qualifications

1. Section 270528- Pathways for Communications Systems
2. Section 270553 – Communications Identifications and labeling
3. Section 271500 intrabuilding Communications Horizontal Cabling

1.03 REFERENCES:

A. NFPA 70 – National Electrical Code (NEC).

B. NIST – National Institute of Standards and Technology.

1.04 SYSTEM DESCRIPTION:

A. IP based Video Surveillance security system shall be complete, ready for operation and shall include all conduit, boxes, wiring, testing, programming licenses and auxiliary material required to fulfill the above objective whether or not specifically indicated.

1.05 SUBMITTALS:

A. Submit under provisions of Section 01 3300, and/or 270502

B. Shop Drawings:

1. Layout drawings showing accurately scaled components and spatial relationship to associated equipment. Include rack elevation with all equipment labeled.

C. Product Data:

1. Detailed list of each piece of equipment with model numbers for each system component.

2. Manufacturer’s specification sheets on each item of equipment.

3. Additional storage calculations based on owner specified parameters.

4. Confirmation that the manufacturer's representative will provide job site supervision during the installation of the system, perform the final testing of the system and instruct/perform training of the operating personnel on the operation of the system.

5. Provide cut sheets of surge arrestors and isolation transformers for exterior cameras.

D. Provide record drawings and operation and maintenance manuals in accordance with Section 01 7700.

1. Manuals shall contain the system block diagram, basic system operation outline, equipment owner’s manuals, test reports, equipment service and repair manuals, system layout, date of installation, and contact person and phone number. Provide laminated copy of virtual camera numbering and description list.

1.06 QUALITY ASSURANCE:

* + 1. Installer Qualifications:

1. Firms regularly engaged in the installation of IP based surveillance security systems. Contractor shall have successfully completed at least 6 reference projects similar in size and scope within the last 5 years. A reference list shall be submitted upon request.

2. Include resume, qualifications, and certifications of all installation, testing and training personnel. Work to be performed shall be indicated for each individual. Documentation shall be included indicating that workers employed on this project have completed manufacturer's training courses and are certified on the equipment being installed.

3. Each supplier shall hold current, valid franchises for the major lines of equipment furnished by them.

B. Codes and Standards:

1. National Electrical Code

2. Underwriters Laboratory

3. ISO/IEC 14496-2 MPEG-4

4. H.264

5. TIA-568,569,606,607 Standards and BICSI TDMM

C. Cat-6 cabling and connectors and patch cords to cameras and PoE (power over Ethernet) switches and patch cords shall meet all the standards specified in sections 27 1000, 272100 and 271619 and be tested to same standards and subject to the same reports.

1.07 WARRANTY:

A. Provide a two year parts and labor warranty.

1.08 MAINTENANCE SERVICE:

A. Provide service and maintenance of complete system, including parts and labor, for one year from Date of Substantial Completion.

PART 2 – PRODUCTS

2.01 RECORDER EQUIPMENT:

A. Cameras shall be connected to owner Milestone head end and owner central storage server.

B. Contractor shall provide camera licenses.

C. Contractor shall inform owner of additional required storage per the following:

Recording parameters: Exterior 10 FPS 24/7, Interior 7 days a week at 15FPS, 24 hours. Compression H.264, Resolution per camera schedule and 30 days storage. Contractor shall confirm storage requirements and provide required storage based on the parameters listed plus 25% spare capacity.

D. Management Software – Configure cameras to be viewed on owners existing Milestone Systems head end. Provide all licensing as required. Configure viewing parameters to match owner’s standards.

2.02 CLIENT VIEWER:

A. Client Viewer – From the client viewer the user shall (with proper authentication) be able to do the following:

1. Setup cameras

2. Define live viewing, recording rates and quality settings.

3. Define recording programs and schedules.

4. View live video in either single or quad views.

5. Search and playback recorded video.

6. Download selected recorded video.

7. Control connected PTZ cameras.

B. Provide connections ad setup of cameras to owners existing viewer.

2.03 CAMERAS:

1. Cameras shall use a Dual Streaming Codec with JPEG and MPEG-4 Part 2, H.264 Video Compression. Camera shall be capable of streaming up to 60fps

B. The power source shall be IEEE802.3af compliant (without operation of heater unit) 24VAC or 12VDC, and shall be Power over Ethernet (PoE) capable without optional heater unit.

1. Fixed cameras shall be Axis with lenses, mounting hardware, heaters, housings and domes as required for a complete installation. See attached list for part numbers.

1. Axis p3374-LV. Vandal resistant 1280x720, day/night, 1/3 image sensor,

3-10mm varifocal, digital pan/tilt, audio support, ONVIF and built in IR.

1. See Appendix “A” for product part numbers and manufacturers.

2.04 CAMERA LENSES:

A. See drawings for desired viewing angles/focal length. Coordinate exact lenses with desired view, camera CCD, and manufacturer’s recommendations. Lenses shall be by the camera manufacturer or their recommended compatible manufacturer.

2.05 CAMERA MOUNTING HARDWARE

A. Recessed ceiling mount. Type to match camera.

B. Outdoor wall mount. Axis T91A61.

2.06 POWER SUPPLIES:

1. PoE shall be utilized for camera power. Where PoE is not practicable (PTZ cameras, heater units, etc.) utilize 24V, 12.5A, 16 output rack or wall mountable (as indicated), supplies. Power supplies shall be by Altronix, Life Safety Power or Pelco.

2.07 COMPONENTS:

A. Outlet box shall be a standard 2-gang deep box with ~~a~~ single-gang plaster ring and 3/4" non-metallic conduit nipple (Arlington #NM502) installed or 1"C stubbed up and out per Section 270528.

B. Faceplate shall be a single-gang, one (1) port stainless steel faceplate (Hubbell #SSF11) with one (1) Cat-6 data jack (blue) installed as per the project standard.

C. Plenum Rated Biscuits: In lieu of the outlet box contractor may utilize a plenum rated biscuit, (Hubbell ISB1 Series).

D. Data Jacks one (1) Category-6 data jack (blue) installed as per Section 271500.

E. Cabling shall be one (1) plenum rated, Category-6, unshielded twisted pair (blue) as per Section 271500.

F. See Appendix A for manufacturers and part numbers.

PART 3 – INSTALLATION

3.01 INSTALLATION:

A. Label all cables in the equipment rack at or near all connectors to indicate what device they are connected to.

B. Aim, focus and position cameras as shown on the drawings and under the direction of the Engineer and Owner.

C. Field verify camera lensing for exact view desired with Engineer/Owner. Camera lensing shown on the drawings shall be the starting point and shall be adjusted up or down in field as required.

D. Program record times, frame rates, etc. as indicated. Coordinate with owner and adjust as required based on owner’s parameters.

E. Set up and program video analytics windows for motion recording and alarms as determined by the owner.

F. Integrate the system with the Access Control and Security systems per owners requirements.

G. Activate tampering settings on cameras.

H. Activate image stabilization for outdoor pole mounted cameras.

I. Furnish complete gasket sealing and Teflon pipe thread tape around all pipe threads and housing mount accessories. Seal all exterior cameras, including those under roof, with RTV or silicone sealant at locations where mounting contacts wall surface.

J. Furnish a dedicated power source and wiring for each outdoor camera and housing combination. Observe manufacturer’s recommendation for maximum allowable voltage drop keeping within a 5% voltage drop. Verify voltage drop and cable requirements with manufacturer prior to installation. Obtain manufacturer’s written approval of cable plan prior to proceeding.

K. Treat acrylic domes and windows after installation with approved plastic cleaner and polish.

L. At exterior locations within 8’ above grade, use tamper resistant fasteners.

M. Install video isolation transformers as required to eliminate hum and noise.

N. Install surge arrestors and isolation transformers on all video cables originating from the exterior of the building.

O. Supervision, all final connections and all functional tests shall be by the manufacturer's representative.

3.02 TESTING:

A. Test the video signal from each camera for Sync, Luminance, Composite Signal, Color Burst Amplitude and Focus.

1. The Sync measurement measures the amplitude of the video synchronization pulse to determine the correct video level, cable continuity and terminating impedance.

2. The Luminance measurement determines the white level of the video to adjust proper camera iris setting.

3. The Composite Signal measurement determines the overall video signal level.

4. The Color Burst Amplitude measurement determines the correct equalization of the cable for best transmission of color and detail.

5. The Focus measurement determines the sharpest image.

B. Adjust the color and white balance to NIST standards.

C. Perform testing according to test instrument manufacturer’s recommended practices. Test instruments approved for these tests are units as manufactured by Leader, Sencore, or FM Systems.

D. All testing shall be performed by personnel certified by the test instruments manufacturer as qualified to operate said equipment.

E. Submit a bound test report indicating the values of all the measurements with associated device identification. The report shall indicate date of test, personnel conducting test and test equipment used.

END OF SECTION 28 2000