

## SECTION 282000 - VIDEO SURVEILLANCE SYSTEM

### PART 1 - GENERAL

#### 1.1 QUALITY ASSURANCE

##### A. Specifications, Standards, and Codes

1. All work shall be in accordance with the following:
  - a. The current edition of the National Electrical Code (NFPA 70) with current Georgia Amendments.
  - b. The current edition of the International Building Code with Amendments.
  - c. The current edition of the Life Safety Code (NFPA 101).
  - d. The National Electrical Safety Code (ANSI C-2).
  - e. Americans with Disabilities Act (ADA)
  - f. Local city and county ordinances governing electrical work.
2. In the event of conflicts, the more stringent provisions shall apply.

#### 1.2 DESCRIPTION

- A. This section includes furnishing and installing all materials and providing all labor and supervision pertaining to the installation of new Video Surveillance equipment.
- B. The requirements of the Security Surveillance System shall include all raceway, cabling, and equipment required to provide a fully functional system. Provide all labor, materials, equipment, and supervision to install, check out, adjust, and calibrate the expansion. Reference contract drawings for complete requirements.
- C. This division of the Specifications covers the complete Video Surveillance system as indicated on the Drawings and specified herein. The contractor shall provide all labor, materials, equipment, and supervision to install the specified system. The installation of all equipment shall be the full responsibility of the Security Surveillance Contractor for this project.
- D. As part of the scope of this contract, the contractor shall configure client monitoring software on an Owner provided monitoring station for viewing the new cameras. The monitoring post shall be able to view all respective cameras.
- E. The Contractor shall be responsible for configuring the IP Address for the Network Video Recorders (NVRs), servers, workstations, cameras, and any other components that are installed as part of this project. The Contractor shall coordinate with owner I.T. for provision of IP addresses.
- F. All conflicts between the drawings and specifications shall be brought to the attention of the owner as soon as possible. In general, specification requirements shall take precedence over drawing requirements. All pricing shall take the higher cost option of discrepancy.

#### 1.3 INSTALLER'S QUALIFICATIONS:

- A. Firm with at least 5 years of successful application, installation, and testing experience on specified systems and equipment. All supervisors and installers assigned to the installation of this system or any of its components shall have factory

certification from each equipment manufacturer that they are qualified to install and test the provided products. All installers assigned to the installation of this system or any of its components shall have a minimum of 3 years' experience in the installation of the specified equipment.

- B. Video Surveillance Contractor must be a certified installer of the manufacturer of the specified NVR and Network Video Monitoring Software (NVMS).
- C. The Contractor must be licensed in the State of Georgia as a Low Voltage Telecommunications (LV-A) or Low Voltage Unlimited (LV-U) class certification.
- D. The responsibilities of the Video Surveillance Contractor shall include but not be limited to the following:
  - 1. Shop drawings on all Video Surveillance Systems and equipment.
  - 2. Installation of all new Video Surveillance Systems and equipment as documented in the drawings and specifications.
  - 3. Wire and wiring termination for all Video Surveillance and control systems and equipment.
  - 4. Testing and check-out of all Video Surveillance systems and equipment.
  - 5. Training for all Video Surveillance systems and equipment.
  - 6. Warranty for all Video Surveillance systems and equipment.
  - 7. As-Built drawings, operations, and maintenance manuals for the complete Video Surveillance System.

#### 1.4 RELATED DOCUMENTS

- A. Contract drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section and shall be considered a part of this section and shall have the same force as if specified herein full.

#### 1.5 SUBMITTALS

- A. Within 30 days of notice to proceed, the contractor shall deliver all required submittals.
- B. All submittals shall be prepared in a line-by-line format corresponding to these specifications and shall indicate compliance with each requirement specified herein and indicated in the contract drawings.
- C. Contractor shall complete the equipment submittal form (see last page of this specification) and attach to each item submitted. The awarded contractor may request the equipment submittal form in Word format.
- D. Product Data: Submit the manufacturer's technical product data, including specifications and installation instructions, for each type of system equipment.
- E. Shop Drawings: Submit shop drawings that contain complete wiring and schematic diagrams and other details required to demonstrate that the system has been fully coordinated and will function properly as a system. All drawings shall be produced with Autodesk AutoCAD compatible with version 2004. All floor plans, large scales, and elevations are to be scaled. Drawings shall include but not be limited to the following:

1. Site plan layout identifying all exterior mounted devices, and outdoor/underground cable routing.
  2. Floor plan layouts showing device, equipment locations, and cable/conduit routing.
  3. Functional one-line diagrams showing all devices and cable infrastructure.
  4. Equipment rack/cabinet details and elevations identifying sizes and types. Identify equipment placement in equipment racks/cabinets and enclosures.
  5. Elevations for wall-mounted equipment racks, cabinets, and enclosures.
  6. Device mounting details identifying mounting procedures/requirements.
- F. Contractor is responsible to maintain a full size set of drawings on site throughout the project. These drawings shall be updated daily identifying installation progress and any changes to work.
- G. Test Plan: Contractor shall submit a test plan that defines the tests required to ensure that the system meets technical, operational, and performance specifications. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested and include detailed instructions for the setup and execution of each test and procedure for evaluation and documentation of the results.

#### 1.6 DRAWINGS

- A. The Drawings indicate the arrangement of Video Surveillance equipment. Coordinate installation of equipment with the structural, mechanical and electrical equipment and access thereto.
- B. Raceway home runs as shown on the security and Security Surveillance System shall be installed as shown on the Drawings, and as required by the associated equipment manufacturers.

#### 1.7 RECORD DRAWINGS (AS-BUILTS)

- A. Contractor shall submit as-built / record documentation for approval 30 days prior to final inspection. Provide three (3) sets of complete data on the video surveillance system equipment used in this project. This data shall be compiled and sent to Engineer for approval prior to turning over to owner. Provide three (3) copies of the Operation and Maintenance Manuals including any equipment provided under this contract that can be operated or maintained by the customer.
- B. All record drawings shall include "as built" system interconnection diagrams with major components identified by manufacturer and part number and the system wiring identified by number and type of interconnecting conductors. As-built drawings are to show wiring for all installed equipment. Head end equipment details shall be included with wiring interconnection properly identified as the system has been installed. Three (3) sets of full size (30"x42") As-built drawings must be provided. Corrected point-to-point drawings for all systems to show the actual as-built conditions. Original content from the contract documents (key notes, one-lines, device details) will not be accepted.
- C. The As-built drawings must be provided with the Contractor's title block on all sheets identifying the installation company and the project specific details.

- D. All drawings shall be produced with Autodesk AutoCAD compatible with version 2018 or newer. Provide two (2) usb thumb drives with all drawings in electronic format.
- E. Provide a Warranty Letter in each O&M Manual Binder (2 copies total).
- F. Provide two (2) copies on usb thumb drives of the training session. Manufactures training videos will not be accepted in place of recorded training sessions at the facility.
- G. Document and provide two (2) copies of network configuration (such as a list of IP addresses and the devices the addresses belong to, line diagram demonstrating network topology, etc.).
- H. The final pay application will not be approved until the post final inspection is completed, all Construction Observation items have been satisfied, and all the above requirements for record documents are submitted and approved.

#### 1.8 ACCEPTABLE MANUFACTURERS

- A. Reference products section of specifications for acceptable manufacturers.

#### 1.9 WARRANTY

- A. The contractor shall warrant the Video Surveillance System for one year from the date of start-up against defects in equipment or workmanship. Failed equipment shall be replaced by the contractor at no cost to the owner. Owner's personnel may perform initial trouble investigation but replacement of failed equipment and escalated problem support will be handled by the contractor.
- B. The Contractor shall provide a Warranty Letter indicating the start date of the warranty. The Warranty Letter shall also provide contact information (Company name, Service Supervisor's name, and phone numbers for normal working hours and Emergency Service requests). The warranty period will not start until the Warranty Letter has been reviewed, approved, and agreed upon by Grady Health System.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Materials or equipment specified by manufacturer's name shall be provided unless approval of other manufacturers is listed in addendum to these Specifications. Any materials or equipment approved in addendum shall function the same as the equipment specified.

#### 2.2 VIDEO SURVEILLANCE CAMERAS

- A. All cameras shall be U.L. listed and shall be the standard product of one manufacturer complying with not less than the specifications contained herein. Installation of each camera shall include mounting brackets and/or camera housings fully compatible with the camera provided and as required by Security Surveillance System camera schedule.
- B. All camera installations shall be securely attached to the mounting surface. Use lead shields on solid masonry, toggle bolts for hollow masonry, and machine bolts for

steel. All anchoring devices shall be rated to support not less than five times the total equipment weight. Reference mounting details in contract documents.

- C. Network Specifications (All Cameras):
  - 1. Network: 10 Base-T/100BASE-TX
  - 2. Cabling: CAT6
  - 3. Connector: RJ-45
  - 4. Security: SSL
- D. Electrical Specifications (All Cameras):
  - 1. Power Source: PoE: IEEE 802.3af Class 2 compliant
  - 2. Power Consumption: Max 6.49 W
- E. All cameras shall include a minimum of 36-month warranty.
- F. Acceptable camera manufacturers shall be:
  - 1. Avigilon
- G. 270 Degree View Multi-sensor Camera Avigilon Model Alta H5A Multisensor
  - 1. 3 x 5 MP Imagers
  - 2. 60 days of on-board camera storage
  - 3. 5-year Camera License
  - 4. 3 Image Sensors: 1/1.8" CMOS
  - 5. Minimum Illumination: With IR; 0 lux, Without IR; 0.020 lux in color mode and 0.018 lux in monochrome mode
  - 6. Dynamic Range: WDR Off 80dB, WDR On 120dB
  - 7. Lens: 3.3 – 5.7 mm
  - 8. Angle of View: 53° - 97° Horizontal, 29° - 50° Vertical
  - 9. Image Compression Method: H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG
  - 10. Day/Night Control: Automatic, Manual
  - 11. White Balance: Automatic, Manual
  - 12. Power Source: PoE: 30 W IEEE 802.3at Type 2 (PoE+), 12VDC Aux
  - 13. Mounting Adapter Recessed Ceiling: H5AMH-AD-CEIL1
    - a. When located in lay-in tile provide part: CLPNL-1001
  - 14. Mounting Adapter Wall Arm Pendant: H5AMH-AD-PEND1 and WLMT-1001
  - 15. Mounting Adapter Corner: Pelco Mount SMR2-004852
  - 16. All Wall and Corner mounts shall be painted to match wall finish.
- H. 360 Degree View Multi-sensor Camera Avigilon Model Alta H5A Multisensor
  - 1. 4 x 5 MP Imagers
  - 2. 60 days of on-board camera storage
  - 3. 5-year Camera License

4. 4 Image Sensors: 1/1.8" CMOS
  5. Minimum Illumination: With IR; 0 lux, Without IR; 0.020 lux in color mode and 0.018 lux in monochrome mode
  6. Dynamic Range: WDR Off 80dB, WDR On 120dB
  7. Lens: 3.3 – 5.7 mm
  8. Angle of View: 53° - 97° Horizontal, 29° - 50° Vertical
  9. Image Compression Method: H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG
  10. Day/Night Control: Automatic, Manual
  11. White Balance: Automatic, Manual
  12. Power Source: PoE++
  13. Mounting Adapter Recessed Ceiling: H5AMH-AD-CEIL1
    - a. When located in lay-in tile provide part: CLPNL-1001
  14. Mounting Adapter Wall Arm Pendant: H5AMH-AD-PEND1 and WLMT-1001
  15. Mounting Adapter Corner: Pelco Mount SMR2-004852
  16. All Wall and Corner mounts shall be painted to match wall finish.
- I. 360 Degree Surround View Fisheye Camera Avigilon Model – ALTA H6A Fisheye
1. 8 MP Imager
  2. 60 days of on-board camera storage
  3. 5-year Camera License
  4. Image Sensor: 1/1.8" Progressive Scan CMOS
  5. Active Pixels: 2048 x 2048
  6. Fixed Focal, Fisheye Lens
  7. Lens: 1.4 mm
  8. Minimum Illumination: 0.10 lux in monochrome mode; 0.20 lux in color mode
  9. Field of View: 360°
  10. Maximum Aperture F2.0
  11. Image Compression Method: H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG.
  12. Day/Night Control: Automatic, Manual
  13. White Balance: Automatic, Manual
  14. Power Source: PoE++ Switch
  15. When located in lay-in tile provide part: H5A-FE-DC-CPNL1
- J. 6 Megapixel Fixed Indoor Dome Cameras Avigilon Model - ALTA H6A
1. 6 MP Imager
  2. 60 days of on-board camera storage

3. 5-year Camera License
4. Image Sensor: 1/2.8" progressive scan CMOS
5. Minimum Illumination: With IR; 0 lux in monochrome mode, Without IR; 0.01 lux in color mode and 0.005 lux in monochrome mode
6. Dynamic Range: WDR Off 83dB, WDR On 126dB
7. Lens: 3.4 mm – 10.5 mm
8. Angle of View: 101° - 31° Horizontal, 53° - 17° Vertical
9. Image Compression Method: H.264 HDSM SmartCodec, H.265 HDSM SmartCodec, Motion JPEG
10. Day/Night Control: Automatic, Manual
11. White Balance: Automatic, Manual
12. Power Source: PoE:IEEE802.3af Class 3 compliant, 12VDC Aux
13. Mounting Adapter Recessed Ceiling: SLSPCIL-1001
  - a. When located in lay-in tile provide part: DCLPNL-1001

## 2.3 CAMERA LENSES

- A. Camera lenses shall be compatible with the camera construction and iris control circuit. The lenses shall be compatible with remote control devices as specified herein. The lenses shall be supplied with the camera by the same manufacturer.

## 2.4 CAMERA HOUSINGS AND SUPPORTS FOR FIXED CAMERAS

- A. All camera housings and support brackets shall be compatible with camera specified herein. Housings shall be provided with cable entrance facilities for camera control and power and shall be adaptable to mounting devices used with cameras. All mounts shall be "Feed Through" type to ensure that power, signal, and data cables are concealed. All camera housings and support brackets shall be securely attached to mounting surfaces. Escutcheon plates attached with security screws shall be used to conceal holes in walls or ceilings. Manufacturer guidelines for mounting devices and support brackets shall be adhered to unless contract details exceed manufacturer guidelines.
- B. The camera housings or unitized camera housing assemblies must incorporate the following as a minimum:
  1. Mounting hardware with security screws that allow access into the camera housings or units with only special tools.
  2. Impact resistant domes or viewing ports.
  3. Cable routing for power and video signal routed through the mount or back of the camera so that no cable is exposed after the installation.
- C. Interior Domes: All dome style cameras shall be surface mount, installed in lay-in tile ceilings and shall be supported by T-bar Support Kits.
- D. Reference camera details and/or schedule for housing and mount types required.

## 2.5 NETWORK VIDEO RECORDER (NVR)

- A. NVR system shall be Avigilon Cloud ALTA solution. Coordinate with Grady Security Group for incorporating into Grady Enterprise system. All Cameras to be provided with 5-year
- B. Acceptable manufacturers shall include:
  - 1. Avigilon

## 2.6 VIDEO STORAGE REQUIREMENTS

- A. Utilize existing storage setup configurations on ALTA cloud storage server.

## 2.7 COPPER WIRING REQUIREMENTS

- A. Grady Health System for cable jacket color shall be pink.
- B. Data cables shall be 100 Ohm, 0.5mm, unshielded twisted pair (UTP), 23 AWG, plenum rated with solid copper conductors. Cables shall exceed ANSI/TIA/EIA-568-B.2 Category 6 requirements and the spool shall be labeled as such. Cables shall be tested to 350 MHz. Cables shall be UL or ETL verified to exceed Category 6 requirements and cable jackets shall be labeled to indicate verification.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. System components and appurtenances shall be installed in accordance with NFPA 70, manufacturer's instructions, and as shown. Necessary interconnections, services, and adjustments required for a complete and operable signal distribution system shall be provided. Penetrations in fire-rated construction shall be fire-stopped in accordance with specifications. Conduits and raceways shall be installed in accordance with the National Electric Code (NEC). Cables shall not be installed in the same cable tray, utility pole compartment, or floor trench compartment with AC power cables. Metal conduits shall not be continuous between buildings. Contractor to provide ground isolation between buildings by breaking continuous copper cabling and metal conduit runs.
- B. Equipment: All monitor support brackets shall be securely attached to mounting surfaces. Use lead shields on solid masonry, wood screws on wood, and machine bolts on structural steel. All anchoring devices shall be rated to support not less than five times the total equipment weight.
- C. Surge Protection:
  - 1. All copper cables and conductors which serve as control, power, or data conductors shall have surge protection devices installed at each end that complies with electrical and security specifications.
  - 2. Protect all video and data equipment from surges induced on all control, power, and data cables. All copper cables and conductors which serve as control, power, or data conductors shall have surge protection circuits installed at each end that meet the IEEE 472 surge withstand capability test. Fuses shall not be used for surge protection.



- D. All holes in ceilings and walls resulting from this project must be weather sealed and fireproofed by the Contractor.

### 3.2 TESTING

- A. Materials and documentation to be furnished under this specification are subject to inspections and tests. All components shall be terminated prior to testing. Equipment and systems will not be accepted until the required inspections and tests have been made, demonstrating that the Video distribution system conforms to the specified requirements, and that the required equipment, systems, and documentation have been provided.

### 3.3 LABELING

- A. Cable labeling:
  - 1. All cable and wire installed for Video Surveillance Systems shall be properly tagged. Use the following standard labeling scheme to identify the physical location of both ends of each cable.
    - a. A100 -C1
    - b. Camera #: Use one number per cable.
    - c. Example: Room number where camera is installed Room Number: A100, Camera Number: C-1. Format Example A100-C1
- B. Complete two (2) labels for each cable, one for each end. Secure label to end of cable, within view of the termination of the cable at each end. Labels shall be white with a protective wrap-around plastic transparent cover that will serve to protect the ink from smearing and secure the label to the cable. All labels shall be typed with black ink.

### 3.4 TRAINING

- A. The Contractor shall include in the base Contract all costs required to train Grady Health System operating and maintenance personnel in the use and maintenance of systems provided under this section of the Specifications. Training sessions shall be conducted by instructors certified in writing by the manufacturer of the specific system.
- B. Sessions shall be conducted for not less than four-hour periods during normal working hours, i.e., Monday through Friday, 8:00 AM to 5:00 PM. Training session schedules shall conform to the requirements of Grady Health System; therefore, such schedules shall be submitted to the owner for approval not less than two weeks before the training session. All training sessions shall be video-recorded for future use. At the owner's discretion, provisions shall be made to allow up to 2 owner personnel to participate in the final system checkout of all systems.
- C. Videos shall be of professional quality both for video and audio and must be approved by the Owner/User. Provide two copies to the Owner/User. Time to be included in base Contracts for specific systems shall be as follows:
  - 1. Video Surveillance System - 2 hours

### **END OF SECTION**