

**SECTION 28 13 00  
ACCESS CONTROL**

**PART 1 GENERAL REQUIREMENTS**

**1.1 GENERAL**

- A. Drawings and general provision of the Contract, including General and other Conditions and other General Requirements sections, apply to the work specified in this section.
- B. This section and all related sections shall be performed by a qualified Contractor as outlined in the specifications.

**1.2 SECTION INCLUDES**

- A. Access Control Software
- B. Access Control System Hardware
- C. Access Control Hardware Devices
- D. Access Control Interfaces
- E. Access Control Identification Management Systems

**1.3 RELATED SECTIONS**

- A. Division 01, General Requirements
- B. Section 27 05 28, Pathways for Communications Systems
- C. Section 27 15 00, Communications Horizontal Cabling

**1.4 SUBMITTALS**

- A. Product Data
- B. Product Data submittal shall only be required if the Contractor requests a substitution or a particular brand product is not specified or recommended.
- C. Procedures
  - 1. Provide submittals to Evergreen Public Schools Project Manager.
  - 2. Submit one (1) hardcopy and (1) electronic copy of each submittal.
- D. Manufacturers Installation and Programming Instructions
  - 1. Provide Manufacturers Installation and Programming Instructions as requested in the various Specification Sections.

**1.5 WARRANTY**

- A. Contractor warrants that all Work furnished (material and labor) under this Contract will be of good quality, free from faults and defects, and in conformance with the Project Drawings and Specifications.
- B. Contractor shall provide a parts and labor guarantee on all Work. Unless otherwise specified herein, Contractor's guarantee shall be for a period of two (2) years from date of Acceptance, except where any specific guarantees from a supplier or equipment manufacturer extends for a longer time.

- C. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including costs of labor, transportation, lodging, materials, and equipment.
- D. Guarantee shall not cover any damage to material or equipment caused by accident, misuse, unauthorized modification or repair by Evergreen Public Schools, or Acts of God.

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. All products not provided by Evergreen Public Schools shall be new and unused, and shall be of manufacturer's current and standard production.
- B. Where two or more equipment items of the same kind are provided, all shall be identical and provided by the same manufacturer.
- C. Drawings and Specifications indicate major system components, and may not show every component, connector, module, or accessory that may be required to support the operation specified. Contractor shall provide all components needed for complete and satisfactory operation.
- D. Product Availability
  - 1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.
  - 2. Certain products specified may only be available through factory authorized dealers and distributors. Contractor shall verify his ability to procure the products specified prior to submitting a proposal.

### 2.2 ACCESS CONTROL SOFTWARE

- A. Access Control Software shall be **Access It! Universal.NET** from RS2 Technologies LLC no substitutions shall be acceptable.
- B. Access Control Software provided by owner. No additional software or software licensing is required for this project.
- C. The ACS shall use a single seamlessly integrated Microsoft SQL relational database for all functions utilizing a fully multi-tasking multi-threading Microsoft Windows operating system.
- D. Annual Software Maintenance Fees shall not be acceptable. Access Control Software shall be supported by the manufacturer to the authorized reseller at no annual fee. The current major version of the released version and the previous released version of the software and all sub-versions of the current and previous major version shall be supported.
- E. Reader License charges. There shall be no Reader License Fees, software having Reader License Fees based on the number of readers supported by the software package shall be unacceptable.
- F. Upgrades or expansion of the ACS to a larger size system in scale shall not require installation of a different and or new ACS application or require the administrator / operator to learn a different and or new interface from the previous version.

- G. The ACS shall be written using recognized standard software coding techniques. The ACS shall be written to support multiple languages without re-engineering. The ACS software shall be written to Microsoft's published standards for User Interface Design, Secure Coding Practices and Database Implementation Guidelines.
- H. The ACS software developer shall be a Microsoft Certified Independent Software Vendor.
- I. The ACS shall support N-Tier architecture where the expansion of the system architecture will allow for end-user deployment based upon their system architectural needs. The ACS shall allow but not require the separation of the database, application server, web server, and client interface. The ACS shall require that all connections to the database are performed through a trusted link from the client or internet browser interface.
- J. The ACS shall support Centralized distribution (publishing) of applications using Windows Terminal Server, Citrix, or utilizing IIS for the web client using a standard internet browser such as Internet Explorer, Mozilla Firefox, Google Chrome, Apple Safari, and/or by means of a mobile computing platform using a Tablet PC, PDA device, or Smart Phone.
- K. The ACS architecture shall support Microsoft Windows Clustering, Hot-Standby, Fault Tolerant Servers, Fault Tolerant Hot Standby Servers, and Virtual Servers.
- L. The ACS shall only be able to connect to and interface with data sources utilizing a Windows Service.
- M. The ACS shall be capable of importing or updating Cardholder data using the following source types.
  - 1. Microsoft Access
  - 2. Microsoft Excel
  - 3. Microsoft SQL Server
  - 4. ASCII Text (delimited file)
- N. The ACS (RS2 Access It! Universal.NET) shall support:
  - 1. 1000 System Control Panels (SCP)
  - 2. Support for 256 Tasks per SCP
  - 3. 64,000 Access Control Readers, 64 readers per SCP.
  - 4. 512,000 Inputs, 512 per SCP
  - 5. 512,000 Outputs 512 per SCP
  - 6. Supports multi-drop OSDP readers with EP/LP SIO devices.
  - 7. Unlimited Cardholders
  - 8. Multiple Cards per Cardholder
  - 9. 32,737 Access Levels
  - 10. 128 Access Levels per Card
  - 11. 255 Timezones, with 12 start/stop intervals each
  - 12. 255 Holidays, across 8 Holiday Groups/Types
  - 13. Elevator Control using 64 Floors with 255 Floor Codes
  - 14. Support for KONE destination dispatch elevator control.
  - 15. Support for OTIS destination dispatch elevator control
  - 16. Support for Schindler destination dispatch elevator control.

17. Anti-Passback with Occupancy Counting
18. Virtualization Support
19. Video Integration Support
20. Zenitel Intercom integration support.
21. Biometric Integration Support
22. Web Client / Thin Client Support
23. Fully Integrated Graphical Mapping (Floor Plans with Active ICONs)
24. Definable Report Support, with the ability to Hyperlink recorded video directly from with-in a Report to play back recorded video in a single step operation.
25. Workstation can be used for other tasks while reports are being generated.
26. User Definable Macro Support.
27. Macro Utilization report.
28. Calendar display on Macro screen.
29. Outlook ICS files may be imported for Macro Schedules
30. Macros may be set to automatically delete after scheduled execution.
31. Macros may be pinned to the Ribbon Bar for immediate access.
32. Macros may be placed on Graphic Floor Plans (Maps) for immediate access.
33. Unassigned Access Level Interval and Timezone report assists with system organization and clean up.
34. Windows Authentication allows log in without entering separate password.
35. Diagnostics permits viewing all Access It! Universal.NET messages in Windows Event Viewer.
36. System Status screen has direct links to filtered views such as Unlocked Doors, Active Cards, Installed SCPs, SIOs, Readers, Inputs, Outputs, Unlocked Doors, and other System Status Categories.
37. Ability to create a mandatory custom drop-down database field for cardholder information
38. Advanced Hardware Filter Views.
39. Dynamic Search capabilities
40. Life safety power integration
- O. Lock Integration support for:
  1. ASSA ABLOY
  2. Allegion – Schlage AD-300/301 and AD-400/401
  3. Salto – Sallis SX4 & SVN (The SX4 line and the Salto Virtual Network - Data on Card line).
- P. ACS Software and Field Hardware Warranty. The ACS Software shall be warranted for a period of 90 Days from the date of shipment from the manufacturer to be free of defects and will function in substantial accordance to the published specification.
  1. ACS Field Hardware shall be warranted for a period of three (3) years from the date of shipment from the manufacturer, will be free

- from defects and will function in general accordance with the product specifications.
2. ACS Third Party Device warranties are transferred from the manufacturer to the contractor, which may then transfer third party warranties to the owner. Specific third-party warranty details, terms and conditions, remedies and procedures, are either expressly stated on, or packaged with, or accompany such products. The warranty period may vary from product to product. These products include but are not limited to devices that are directly interconnected to the SMS field hardware or computers and are purchased directly from the SMS manufacturer. Examples may include but not be limited to; Credential Printers, Reader Heads, Biometric Devices, Computers etc.
- Q. The Access Control System shall use one of the following Operating Systems, Windows 7 Professional, Windows 8 Professional, Windows 8.1 Professional, Windows 10 Professional, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, Windows Server 2016. Other Operating Systems such as but not limited to - Windows Home editions, Linux, Unix, Sun, or Apple shall not be acceptable.
1. The ACA shall use Microsoft SQL Server Express 2008 R2 or higher as the database engine. Substitutions shall not be acceptable.
- R. The ACS shall be capable of utilizing a Web client. The Web client shall be capable of being utilized via any standard Browser to include but not limited to Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, Opera, Apple Safari, IOS Browser, and Android Browser. The Web client shall be device aware such that it shall display according to the device it is being used from with larger buttons on a mobile device such as a Tablet or Phone. The Web client shall require the User to log in and shall utilize User Groups to allow commands / functions available to the User if at a Desktop (i.e. change reader mode, find, a cardholder/card, interact with cardholder/card, execute a Macro, change an Access Level.
- S. ACS Software Interface - The ACS Software shall be Microsoft Windows compliant having a Microsoft "Outlook" type structure, having the following features / functions:
1. The ACS Software shall be Microsoft Windows compliant having a Microsoft "Outlook" type structure, having the following features / functions:
  2. The ACS shall display a "Ribbon Bar" (Tool Bar) at the top of the screen containing buttons for the functions which may be utilized pertaining to the current selected Menu / screen.
  3. When the Advanced Window Control is enabled the ACS shall allow all screens to be moved independently. The ACS shall support multiple monitors when Windows is utilizing an Extended Desktop and has multiple display monitors present.
  4. The ACS shall permit advanced device commands to be shown or to be hidden at the option of the user.

5. The ACS shall have a user selectable setting to determine the number of Traced Card/Cardholder/Reader events to pull from the database for display in the tracking screen on startup from 1 – 100.
6. The ACS shall permit Users to select that screens to be displayed in a Tab format (Advanced Window Control) permitting a User to quickly and easily move between screens without requiring one screen to be closed prior to moving to the next screen.
7. The ACS shall permit a User to relocate Tabs and to separate Tabs (screens) for most efficient use.
8. The ACS shall be capable of allowing a User to only work with a single Site (Segment) at a time or to work with multiple Site(s) (Segments) at the same time, as the User's password permissions dictate.
9. The ACS shall be capable of permitting the use of "Non-Modal dialogs" via a menu selectable check box.
10. The ACS shall be capable of tracking Cardholders, Cards, or Readers in a separate Tracking Screen/Window for those items being Tracked (watched).
  - a. The ACS shall be capable of permitting a User to set the number of historical Tracking events to search for and display when the workstation is started (signed in/logged in) allowing the User to immediately view the last X (up to 100) Tracked / Watched item events without creating and running a report.
- T. The ACS shall have a User selectable real time "Mustering" screen. This screen shall permit the User to select the "Ares(s)" of interest, the Refresh Interval (which will continue to update the selected area(s) of interest every X selected seconds, Omit cards not used in X hours from being shown, and Print Reports from the Mustering screen.
- U. The ACS shall be capable of having Digital Video Recording / Network Video Recording integrations.
- V. Biometric Integration
  1. Allegion – HandKey
  2. Suprema BioConnect – FingerPrint / Facial Recognition
  3. SAFRAN Morpho – FingerPrint
  4. ZKAccess – FingerPrint
  5. Invixium - FingerPrint
- W. IP - Wireless and POE Locksets
  1. Allegion
  2. Assa Abloy
  3. Salto
  4. Simon Voss
- X. Intrusion Detection System Integration
  1. Bosch (7412 & 9414 ver. G, GV2, GV3 (8.05 & 8.13) & GV4, & B series panels)

- 2. DMP (XR-100N, XR-150N, XR-500N, XR-550N versions 100 and 200)
- Y. Mobile Access Control / Mustering
  - 1. Telaeris - XpressEntry
- Z. Destination Dispatch Elevator Control
  - 1. Otis – Compass Destination Entry

### **2.3 ACCESS CONTROL SYSTEM HARDWARE**

- A. Access Control Network Controllers
  - 1. The ACS shall communicate with, monitor, and use open architecture System Control Processor (SCPs), which shall support 64 controlled openings per, EP – 1502, EP – 2500, EP – 4502 EP-4502 with Auxiliary Authentication Module (AAM), the LP4502, LP2500, LP1502, LP1501 SCPs. The EP – 1501 and LP-1501 (SCP) shall support a total of 17 openings. The ACS shall be capable of communicating with a minimum of 1,000 SCPs concurrently for a minimum of 64,000 controlled openings. The ACS shall not employ reader licenses which limit the number of Readers the ACS shall control. The ACS shall be capable of communicating with the SCPs using Hardwire (direct RS-232, or RS-485), Dialup modem using POTS (Plain Old Telephone system), and TCP/IP network communications. Each SCP shall be capable of maintaining in its memory a Real-time clock, 256 Holidays, 128 TimeZones each having 12 start\stop Time Intervals, 32,000 Access Levels, 256 Tasks (predefined routines with 256 steps per Task), 8 Card Formats (up to 19 digit card codes, 8 Facility (Site) codes, supports Open Supervised Device Protocol (OSDP) multi-drop support with series 3 Mercury hardware, supports Anti-Passback (areas, hard, soft, timed, nested), occupancy count rules, device configurations for the devices (Readers, Inputs, Outputs) controlled by the SCP, and a minimum of 50,000 event transactions if the SCP is unable to communicate to the ACS, the SCP stores Card numbers for entry decisions.
- B. Access Control Door Controllers
  - 1. System Input Output (SIO), Reader Interface Modules (RIM), such as the MR-50 single (opening) reader interface, MR-52 dual opening or single opening with in out reader interface control, and MR-51E single opening control supports dual readers for IN \ OUT control or the Series 3 MR-50, MR-52, MR-62e.
- C. Access Control Inputs and Outputs
  - 1. System Input Output (SIO), 16 dry contact Input modules with 2 Form C output relays, and 16 form C relay Output modules, such as the MR-16IN, or the MR-16OUT or the series 3 MR-16IN, MR 16-OUT, SIO devices.
- D. The ACS shall also have the capability to integrate \ communicate with wireless \ IP locksets, Intrusion Systems, and Biometrics.
- E. Access Control Printers and Encoders

1. The ACS shall be capable of utilizing PVC badge printer having a Windows compliant \ capable Windows Driver for the Operating System being utilized for the ACS Workstation Software. The ACS shall utilize standard Dot Matrix, Laser, and Ink jet printers for report purposes having a Windows Driver for the workstation the printer is connected to.
- F. Access Control Enclosures
  1. The RS2 NCL12UL enclosure is the only approved Access Control Enclosure.

## **2.4 ACCESS CONTROL HARDWARE DEVICES**

- A. SCP/SIO Enclosures
  1. NCL-12UL
- B. SCP/SIO Interfaces
  1. System Control Processors (SCP shall be EP-1502)
  2. System Input Output (SIO) units shall be MR-52-S3
  3. System Input/Output module (SIO) 16 Inputs shall be MR-16IN-S3
  4. System Input/Output module (SIO) 16 Outputs shall be MR-16OUT-S3
  5. Communications Multiplexer RS-485 shall be MUX-8
  6. The following SCP's are NOT approved: EP-1501, EP-2500, LP-1502
  7. The following SIO's are NOT approved: MR-50
- C. Communications Dialer
  1. RS2 SEADS (Serial Enabled Auto Dialer)
- D. Keypads
  1. MR-DT Display Terminal
- E. Door Power Supplies – Head-End
  1. Von Duprin – PS914
- F. Ancillary Power Supplies – Head-End
  1. Altronix - eFlow102NX16D, w/ eFlow102NB, D8ULCB, BAT 12V7AH
- G. Card Readers
  1. Card Reader - HID® multiCLASS SE® RP40, wall mounted.
  2. Card Reader - HID® multiCLASS SE® RP15, mullion mounted.
- H. Proximity Cards
  1. 1326 standard proximity cards
  2. 1386 ISO series proximity cards
- I. Request-to-Exit Devices – Field Verify Requirements
  1. Touch sense bars
  2. Electronic push bars
  3. Passive infrared
- J. Motion Detectors
  1. Optex CX-502 or approved equal for wall mounted applications.
  2. Optex FX-360 or approved equal for ceiling mounted applications.
  3. Kantech T.REX-LT w/T.REX-PLATE for Request-to-Exit applications.
- K. Lockdown Push-Button

- 1. STI UB-1-LTUL Universal button w/ STI-6518 Clear Cover
- L. Door Contacts
  - 1. ¾" GE/Interlogix-Security 1078CT Series or approved equal
  - 2. Surface mount GE/Interlogix-Security 2500 Series or approved equal
  - 3. Overhead Door GE/Interlogix-Security 2200/2300 Series or approved equal
- M. E.O.L. End-Of-Line Resistors/Resistor Packs
  - 1. End-Of-Line Resistor Packs consisting of two (2) 1K 1% resistors shall be used on all SCP/SIO inputs.
    - a. GRI 6644-1

## **2.5 ACCESS CONTROL INTERFACES**

- A. Video Surveillance Interfaces:
  - 1. The ACS shall be capable of having the following integration interfaces at a minimum.
    - a. CCTV – The ACS shall have the ability to send an ASCII command via RS-232 to a video switcher.
    - b. DVR / NVR – The ACS shall have the ability to have an interface to authorized DVR / NVR units listed below, to pull live video or recorded video to the ACS. The ACS shall not store or manipulate the video, the ACS shall only request the video stream, in order to maintain any watermarking, and or chain of custody for legal uses.
    - c. American Dynamics
    - d. Avigilon (Avigilon Control Center version Client\Server v.5.x)
    - e. Bosch
    - f. Digital Watchdog (Digital Watchdog Spectrum 2.5 and up)
    - g. eXacq (eXacqVision Enterprise VMS-Hybrid Z Server Client 7.0.1.81045 / Server7.0.1.81035)
    - h. Genetec (Omnicast 4.7)
    - i. Hikvision
    - j. March networks (8000 Series Hybrid NVRs Command VMS)
    - k. Milestone (Milestone XProtect XProtect 2016)
    - l. OnSSI (OnSSI Ocularis PRO / Ent / ULT 4 and 5)
    - m. Panasonic
    - n. Pelco (Digital Sentry DSNVS, DSSRV, Endura)
    - o. Salient Systems (CompleteView ONE CompleteView 4.3.0.88)
    - p. VideoInsight (Video Insight Software 5.5.36.4)

## **2.6 ACCESS CONTROL IDENTIFICATIONS MANAGEMENT SYSTEMS**

- A. The ACS shall have a seamlessly integrated ID Management System module capable of producing PVC credentials.
- B. The ACS ID Management System module shall use the same SQL database as the ACS uses.
- C. There shall be a minimum of 32 User Definable database fields for Cardholder Credential purposes. The ACS ID Management module shall have the capability to add an unlimited number of additional User Definable fields to the database.
- D. Each ACS ID Management module, User definable field shall be capable of being a Text field, Pull down list field, Date Combo field, or Text field with Required entry.
- E. The ACS ID Management module shall have the capability to capture Photo's from a web (USB) camera having a suitable windows driver, a camera or scanner with a TWAIN interface, import images from BMP, JPG, JPEG, GIF, and PNG file types.
- F. The ACS ID Management module shall have the capacity to have an unlimited number of Badge forms (templates). Badge forms (templates) may contain graphics, any and all Cardholder data fields, static text, photo (image), and may contain those items only when specific criteria is met as defined using a "IF" statement. Fields shall be capable of being printed as a Barcode when the Badge Type (template) is printed or viewed.
- G. The ACS shall be capable of integrating with the following Visitor Management Systems.
  - 1. STOPware
  - 2. EasyLobby

### **PART 3 EXECUTION**

#### **3.1 EQUIPMENT PRE-TEST**

- A. All equipment shall be bench tested prior to delivery to job site and prior to installation. Bench test per manufacturer's installation instructions.

#### **3.2 INITIAL PROGRAMMING AND CONFIGURATION BY OTHERS**

- A. Lockdown Sequence of operation.
  - 1. Lockdown initiation shall occur when any or all of the following occur.
    - a. Activation of Lockdown button in main office.
    - b. Activation of Lockdown at adjacent site.
    - c. Activation of Lockdown via software workstation
    - d. Activation of Lockdown via wireless device, (phone / tablet / iPad).
  - 2. Upon any of the conditions listed above the following shall occur.
    - a. Magnetic door hold-opens shall be released via disruption of power to door holders.
    - b. Card readers shall be disabled.
    - c. Doors on timed unlock shall be locked.

- d. Contact closure shall be sent to Intercom System to play pre- recorded tone and announcement of Lockdown condition.
  - e. Emails shall be sent to personnel as required by the District.
  - f. Monitoring company shall be notified via security panel dialer/network connection.
  - g. Monitoring company shall call school to verify need of response by First Responders. If there is no answer to calls from the monitoring company, First Responders shall be dispatched to the site.
3. In addition to the above if the site is located adjacent to another District site a remote Lockdown shall be initiated at the adjacent site.

**3.3 TRAINING BY OTHERS**

- A. Training shall cover all operating features of the system, including the following:
- 1. System set-up and cardholder database configuration.
  - 2. Access control features
  - 3. Alarm monitoring features
  - 4. Report generation and searches
  - 5. Card management and Badge Design/Printing
  - 6. Routine maintenance and adjustment procedures

END OF SECTION

**SECTION 28 23 00  
VIDEO SURVEILLANCE**

**PART 1 GENERAL**

**1.01 SUMMARY**

A. This Section includes:

1. Video Management System (VMS)
2. VMS Server
3. Surveillance Cameras
4. Mounting Accessories
5. Power Supplies
6. Surveillance Camera Cabling

**1.02 RELATED SECTIONS**

- A. Division 01, General Requirements
- B. Section 27 05 28, Pathways for Communications Systems
- C. Section 27 15 00, Communications Horizontal Cabling

**1.03 SUBMITTALS**

- A. Refer to the requirements of Section 28 05 00, Common Work Results for Electronic Safety and Security.
- B. Submit below items in conjunction with Division 01, Shop Drawings, Product Data, and Samples, and Division 02, Demolition Drawings.
- C. In addition, Provide the following:
  1. Qualifications:
    - a. Provide proof project superintendent with BICSI Certified Commercial Installer Level 1, Level 2, or Technician to provide oversight of the project.
    - b. Cable installer must have on staff a Registered Communication Distribution Designer (RCDD) certified by Building Industry Consulting Service International (BICSI). The staff member shall provide consistent oversight of the project cabling throughout design, layout, installation, termination, and testing.

**1.04 DEFINITIONS**

- |         |  |
|---------|--|
| A. AGC  | Automatic Gain Control   |
| B. B/W  | Black and White  |
| C. CCD  | Charge Coupled Device  |
| D. CIF  | Common Intermediate Format images are 352 pixels wide and 88/240 (PAL/NTSC) pixels tall (352 x 288/240). |
| E. 4CIF | Resolution is 704 pixels wide and 576/480 (PAL/NTSC) pixels tall (704 x 576/480).                        |

- F. H.264 (also known as MPEG4 Part 10): an encoding format that compresses video much more effectively than older (MPEG4) standards.
- G. IPS Images per second.
- H. MPEG Moving picture experts' group.
- I. MPEG4 Video encoding and compression standard that uses inter-frame encoding to significantly reduce the size of the video stream being transmitted.
- J. NTSC National Television System Committee
- K. UPS Uninterruptible Power Supply
- L. PTZ Refers to a movable camera that has the ability to pan left and right, tilt up and down, and zoom or magnify a scene.
- M. Service Qualifications Permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within four (4) hours of receipt of notification that service is needed. Submit name and address of service organizations.

### 1.05 APPLICABLE PUBLICATIONS

- A. The publications listed below (including amendments, addenda, revisions, supplement, and errata) form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA): (list format?)
  - 1. 330-09 Electrical Performance Standards for CCTV Cameras
  - 2. 375A-76 Electrical Performance Standards for CCTV Monitors
- C. Institute of Electrical and Electronics Engineers (IEEE):
  - 1. C62.41-02 IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
  - 2. 802.3af-08 Power over Ethernet Standard
- D. Federal Communications Commission (FCC):
  - 1. (47 CFR 15) Part 15 Limitations on the Use of Wireless Equipment/Systems
- E. National Electrical Contractors Association (NECA):
  - 1. 303-2005 Installing Closed Circuit Television (CCTV) Systems
- F. National Fire Protection Association (NFPA):
  - 1. 70-08 Article 780-National Electrical Code
- G. Federal Information Processing Standard (FIPS):
  - 1. 140-2-02 Security Requirements for Cryptographic Modules
- H. Underwriters Laboratories, Inc. (UL):
  - 1. 983-06 Standard for Surveillance Camera Units
  - 2. 3044-01 Standard for Surveillance Closed Circuit Television Equipment

### 1.06 COORDINATION

- A. Coordinate arrangement, mounting, and support of video surveillance equipment:

1. Allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. Provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate location of access panels and doors for video surveillance items that are behind finished surfaces or otherwise concealed.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Video Management System (VMS):
  1. Exacqvision Enterprise
- B. Surveillance Cameras:
  1. Exterior Cameras:
    - a. Axis
    - b. Hanwha
    - c. Sony
    - d. Or approved equal.
- C. Mounting Accessories:
  1. Axis
  2. Hanwha
  3. Sony
  4. Or approved equal.
- D. Surveillance Camera Cabling:
  1. Category 6, see Section 27 15 00 Communications Horizontal Cabling

### **2.02 GENERAL**

- A. Verify with the drawings for exact mounting locations and camera administration prior to installation.
- B. Verify camera views with Owner's Authorized personnel prior to installation completion.
- C. Provide the appropriate amount of camera licenses for all proposed cameras.

### **2.03 VIDEO MANAGEMENT SYSTEM (VMS)**

- A. Performance
- B. Server-based software application platform capable of monitoring, managing, viewing and recording video surveillance cameras.

- C. Centrally managed system for multi-building surveillance deployment.
- D. Open architecture compatible with MPEG-4, MJPEG, H.264 compression formats and ONVIF standards.
- E. Compatible with the IP transmission type cameras specified.
- F. Provides licenses for quantity of cameras specified.
  - 1. Upgradeable to support 3x quantity of cameras specified for future scalability.
  - 2. Ability to send event-based alarms/notifications.
  - 3. Capable of recording and storing a minimum of 30 days of 24/7 video at 12 frames per second 3 megapixel resolution.
  - 4. Software development kit tie capability to specified access control system.

## **2.04 SURVEILLANCE CAMERAS**

- A. Interior Cameras:
  - 1. IP transmission type.
  - 2. Minimum resolution of 3MP with wide dynamic range.
  - 3. Full color, day/night.
  - 4. ONVIF compliant and compatible with the VMS System specified.
  - 5. PTZ or fixed cameras per drawings.
  - 6. Minimum LUX Rating of 0.2.
  - 7. PoE powered.
  - 8. Dome style housing.
  - 9. Mount type per drawings.
- B. Exterior Cameras:
  - 1. IP transmission type.
  - 2. Minimum resolution of 5MP with wide dynamic range.
  - 3. Full color, day/night.
  - 4. ONVIF compliant and compatible with the VMS System specified.
  - 5. PTZ or fixed cameras per drawings.
  - 6. Vandal resistant and IP66 rated.
  - 7. Minimum LUX Rating of 0.2.
  - 8. PoE powered.
  - 9. Dome style housing.
  - 10. Mount type per drawings.

## **2.05 MOUNTING ACCESSORIES**

- A. Contractor is responsible for providing mounting hardware and accessories required to complete the video surveillance system as specified within the construction documents.
- B. Refer to the camera schedule located on the drawings for additional information concerning exact mounting hardware requirements and locations.
- C. Submittal supplied mounting hardware review in accordance with the guidelines set forth in Division 27, Communications.

- D. Seal conduits used for exterior installation from insect, rodent, water, and gas intrusion with reusable sealing systems. Permanent sealing systems are not permitted in the project for electronic security or communications use.
  - 1. Pole Mounts:
    - a. Construct pole mounts proposed for installation of stainless steel or other non-oxidizing material.
    - b. Provide securing straps.
  - 2. Corner Mounts
  - 3. Parapet: Black
  - 4. Pendant Mount: 1-1/2-inch pipe thread, standard.

## **2.06 POWER SUPPLIES**

- A. Power supplies to provide AC/DC power to exterior camera housings as needed.
- B. Wall mounted with locking panels.
- C. Label each panel with the designations of each of the cameras which are powered from it.
- D. Auto-resettable PTC circuit breakers for overload protection for the power supply.

## **2.07 SURVEILLANCE CAMERA CABLING**

- A. Cameras utilize the following specified cabling:
  - 1. Category 6 UTP network cable.
  - 2. Install cabling installed for its installed environment.
- B. Provide one Category 6 cable to all surveillance camera locations as shown on drawings.
- C. Provide power to exterior camera housings by appropriately sized two-conductor twisted-pair cabling.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Install cameras in the locations noted in the drawings or as required to meet the requirements of this specification.
- B. Camera drops to be coiled up inside flush mounted 4-inch by 4-inch backbox above the ceiling with a terminated RJ-45 jack.
- C. The Owner will provide PoE capable active network equipment to remotely power cameras.
- D. Install will include
  - 1. Installation of new cabling and terminations.
  - 2. Installation of mounting hardware.
  - 3. Installation of new cameras.
  - 4. Focusing of each camera.

5. Verify with the owner that the camera view is satisfactory to the Owner.
  6. Programming necessary on the servers to allow full operation.
  7. Programming of owner furnished IP addresses and camera names into the system.
- E. Installation Requirements
1. Review all proposed target capture areas with Owner prior at initial programming meeting prior to camera installation and adjustment.
    - a. Coordinate masking of any sensitive materials to prevent recording of undesired materials.
    - b. Review pan, tilt and zoom patterns and preset views.
    - c. Each camera will have a clear, unobstructed view of the indicated/intended capture scene, and be positioned so the person and/or object will be identifiable.
  2. Meet with Owner to determine initial recording rates, resolutions, motion activation, alarms, archiving and operation schedules, and camera/view labeling.

### **3.02 TRAINING**

- F. Conduct a minimum of two training sessions of two hours duration each minimum. Training sessions include a walk-thru of the completed facilities identifying the location, operation, and means of access to every device, as well as headend system management.

END OF SECTION