SECTION 28 13 00
ACCESS CONTROL & ALARM MONITORING SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

   A. General: Furnish engineering, labor, materials, apparatus, tools, equipment, transportation, temporary
      construction and special or occasional services as required to make a complete working Access Control &
      Alarm Monitoring system installation, as described in these specifications.

   B. Section Includes:
      1. ACAMS head-end software and ACAMS software for client workstations
      2. ACAMS control panels, reader interface boards, input/output modules, devices, and card
         readers
      3. ACAMS power supplies
      4. Interface to new and existing electric door hardware and ADA door operators
      5. Interface to fire/life-safety system
      6. Software integration to security subsystems

   C. Products Installed But Not Supplied Under This Section:
      1. Electric feed-through power transfer hinges
      2. Electrified locking hardware cable and termination to transfer hinge and security system

   D. Products Specified but Not Installed Under this Section:
      1. None

   E. Products Furnished and Installed Under another Section:
      1. 120V power
      2. Conduit, junction boxes, and telecom cable trays
      3. ADA door operators and push buttons
      4. Fire/life-safety system interface relays
      5. Electromagnetic door holders
      6. Door hardware
      7. Network connectivity for ACAMS devices via Owner’s local/wide area network

   F. Related Sections:
      1. Consult other Divisions, determine the extent and character of related work and properly
         coordinate work specified herein with that specified elsewhere to produce a complete and
         operable system.
      2. Section 28 00 00 – Basic Security Requirements: for submittal formats, warranty, general
         product requirements, and installation requirements.
      4. Section 28 08 00 – Security System Acceptance Testing: for testing requirements.
5. Section 28 23 00 – Video Surveillance System: for integration requirements with the ACAMS.

1.02 SYSTEM DESCRIPTION

A. Overview of the Access Control & Alarm Monitoring System

1. The ACAMS is a distributed network of Ethernet control panels connected to and programmed from a host server and client workstations.

2. The ACAMS is utilized for electronically controlling access to visitors, delivery personnel, members, and employee entrances to the building.

3. The ACAMS consists of a host server located in the basement of New Main Building M in room BMTD1, client workstations, control panels, card readers, and alarm initiating devices. The host server communicates with the field panels via the Owner’s local/wide area network.

4. Provide new rack mounted ACAMS server, client workstations and software licenses to support the security work shown for the BB1, SBR, and exiting building drawings.

5. Provide badging software and peripherals to process, print, and manage cardholder photo IDs at four locations. Locate the badging workstation in the Parking Garage building N, first floor Building H, and in two other locations. Coordinate final location with the Owner to provide appropriate space and lighting for the photo ID process.

6. The ACAMS system shall have the capability to print custom badging information and picture on one side of badge and individual bar codes on back of access control card.

7. Provide ACAMS interface software to the new VSS network video recorders to enable alarm event recording and automatic call up of associated cameras upon alarm activation (forced door, door held open, etc).

8. Provide ACAMS control panels located in the IDF, MDF, and security equipment rooms as indicated on project drawings. Panels support up to 16 card readers with locking control outputs and multiple general purpose input/output modules for automation.

9. The Access Control system control panels will have the ability to read 260 bits of data in compliance with the FIPS 201 and HSPD-12 standards. The system controllers will read the full CHUID 260 bit format when the controllers are off-line from the rest of the system and store entry events. When the system restores communications to the controller all buffered entry events (valid or invalid) along with any alarms will be automatically uploaded to the system.

10. The access control panels will utilize a 32 bit processor capable of addressing 128 Mb of on board memory.

11. The access control panels will utilize dual on-board Ethernet communication ports and provide peer to peer Ethernet communication between panels when unable to communicate with host/server.

12. The access control panels will contain global anti-pass back capabilities between access control panels when unable to communicate with host/server.

13. The Access Control system will be seamlessly integrated into the facilities CCTV system to allow bi-directional integration. Alarm information from the Access Control system will be able to trigger events within the CCTV system and alarm information from the CCTV system will be able to trigger events within the Access Control system.

14. The access control system will support system partitioning to allow individual system administrator’s to uniquely program the security controls for their secure departmental space.
15. Provide multi-technology card readers wire optical tamper switches as supervised points.

16. Provide local audible alarms at monitored special card reader doors as indicated on project drawings. Local audible alarms to sound upon alarm activation (forced door, door held open, etc). Provide monitoring of the keyswitch and remote reset through the ACAMS.

17. Provide interface to ADA automatic/power assist door operator and corresponding actuator push plates.

18. New 12 and 24VDC ACAMS device and lock power supplies as indicated on project drawings.

19. Provide a minimum of 4 hours battery backup for all system components and power supplies including locks.

20. The ACAMS system will support multiple zones of system partitioning which will allow individual department heads to act as a system administrator and uniquely program the security controls for their secure departmental space.

21. The ACAMS system shall have the ability to do a global lock down of the buildings from the Security Operation Center (SOC).

B. Existing ACAMS System

1. The contractor is required to survey existing conditions to familiarize themselves with the site, select products which will meet the project requirements, design equipment layouts for each specific location, develop an implementation schedule with input from SCVMC, and design/provide a completely functional system. Replacement of the ACAMS system consist of replacing the entire system, including existing headend servers, control panels, expander boards, card reader interface module boards, power supplies, card readers, access cards, etc.

2. Utilize the existing wiring, electric locks, alarm contacts, Request-to-exit devices, and electrical power.

3. Provide new multiformat card readers, above door reader interface boards, access control panels, power supplies, junction boxes with terminal strips, and gutters between equipment cabinets. The timeline for transition from the existing ACAMS system to a new ACAMS system is scheduled to take three years.

4. As the cutover of the security system takes places, down time for specific areas being cut over is limited to four hours. If down time is greater than four hours a hired guard paid by the contractor will be required to monitor the unsecure area until the ACAMS is up and running.

5. With the replacement of the ACAMS, the contractor is responsible to duplicate the existing ACAMS data base and recreate the employee data base, set access levels, and re-issue access card to the approximately 6000 employees. In-depth review meetings are required with the Owner’s team to determine: clearance codes, employee groups, schedules, time zones, etc.

6. Power for the existing security system will be utilized for the new replacement security system. The contractor is responsible for obtaining OSHPD approval for changes to electrical system. This work includes testing and monitoring of electrical loads, development of documentation, submittal to OSHPD, and obtaining approval from authorities having jurisdiction (IOR, OSHPD, etc.).

7. The contractor is responsible for obtaining OSHPD approval of structural calculations for anchorage details.

8. Perform functional test of 100% of the existing security system and devices. Provide a written list to the Owner and Engineer of all deficiencies including any items which will
impact the implementation of the new security system prior to the commencement of work. Security work not identified is assumed as functional and contractor will repair at no additional cost to the Owner. All door hardware issues/deficiencies will be repaired by SCVMC.

9. Some locations may require working in areas where the contractor will be responsible for containment of work area debris. If such areas require infection control tenting, it is the responsibility of the contractor to provide, set up and use them. The contractor is required to work with SCVMC to verify the tenting procedures are acceptable.

C. BB1

1. Bed Building 1 (BB1) consists of one six level (with a basement level) multi-specialty building totaling approximately 485,000 square feet.

2. The Bed Building 1 is new construction that requires the contractor to provide a completely new system including equipment, devices, interfaces, coordination, labor, programming, acceptance testing, and materials required for a completely functional system.

3. Security system cabling will be provided by the cabling contractor who is already part of the construction team. In-depth review with the construction team is required to ensure all required cabling is provided.

4. The new project will not utilize above door interface modular boards and all cabling for card readers, door contacts, request-to-exit sensors will be home ran back to the main control panels in the IDF rooms.

5. The project design was completed as a design-bid-build project with the design team. In addition, power, structural calculations, door hardware coordination, elevator & fire interfaces, and network cabling for the new IP VSS camera system are coordinated. It requires coordination with the existing construction team, including construction team meetings, safety meetings, project schedule, etc.

D. SBR

1. SBR consists of one four level (with a basement level and tunnel) multi-specialty building totaling approximately 127,000 square feet.

2. The SBR is new construction that requires the contractor to provide a completely new system including equipment, devices, interfaces, coordination, labor, programming, acceptance testing and materials required for a completely functional system.

3. The new project will not utilize above door interface modular boards and all cabling for card readers, door contacts, request-to-exit sensors will be home ran back to the main control panels in the IDF rooms.

4. The project was completed as a design-bid-build project. It requires additional work to coordinate power, door hardware coordination, elevator & fire interfaces, and network cabling for the new IP VSS camera system with the construction team. It requires coordination with the existing construction team including construction team meetings, safety meetings, project schedule, etc.

E. Elevator Interface for BB1 and SBR

1. Elevator card reader to control access to individual floors based on access levels.

2. Provide interface between access control system and elevator controls for passenger elevator.

3. Furnish proximity card readers to elevator contractor for installation inside the elevator cab of elevators as shown in drawings.
4. Provide an output from the ACAMS system to the elevator control system.

5. Route control cable between elevator machine room to access control equipment located in the IDF Rooms.

6. Provide coordination during installation of card reader and cable terminations. Elevator contractor responsible for installing cable in elevator cable raceway and the card reader into the elevator cab panel. ACAMS contractor to provide wiring connections at the reader and in the elevator machine room include landings, terminations, terminal blocks, and final hook ups.

F. Patient Care Cabinet Locks in BB1

1. In the BB1 project there are 168 patient care rooms with locking cabinets/drawers and a hallway door.

2. Each location consist of 4 drawings that can be opened from the hallway corridor and from within the room.

3. The drawers are behind a regular door on the corridor side that is controlled with a card reader.

4. The drawers are controlled by two card readers. One card reader located on the corridor side enable the drawings to be opened from the exterior of the room, while a card reader on the interior of the patient room allows for the drawings to be open on the interior side.

5. At every location of the patient care cabinet each drawer is required to be independently controllable so that separate access level can be programmed allowing the drawers to be locked independently through programming.

6. A keyswitch on the corridor side drops the power to all four drawers and hallway card reader door.

7. Additional work is required from the security contractor to complete a mock up of patient care cabinet and to work with the Owner and BB1 project team prior to ordering the parts and starting the work in the BB1 space.

8. Room List
   a. Second floor: 2A031, 2A033, 2A035, 2A037, 2A041, 2A043, 2A045, 2A047, 2A049, 2A055, 2A057, 2A059, 2A111, 2A113, 2A115, 2A117, 2A119, 2A121, 2A123, 2A125, 2A131, 2A133, 2A137, 2A139, 2A171, 2A175, 2A177, 2A179, 2A181, 2A183, 2A185, 2A187
   b. Third floor: 3A031, 3A033, 3A035, 3A037, 3A041, 3A043, 3A045, 3A047, 3A049, 3A055, 3A111, 3A113, 3A115, 3A117, 3A119, 3A121, 3A123, 3A125, 3A131, 3A133, 3A137, 3A139, 3A143, 3A145, 3A171, 3A175, 3A179, 3A181, 3A183, 3A185, 3A189
   c. Fourth floor: 4A031, 4A033, 4A035, 4A037, 4A041, 4A043, 4A045, 4A047, 4A049, 4A055, 4A111, 4A113, 4A115, 4A117, 4A119, 4A121, 4A123, 4A125, 4A131, 4A133, 4A137, 4A139, 4A143, 4A145, 4A171, 4A175, 4A179, 4A181, 4A183, 4A185, 4A189
   d. Fifth floor: 5A013, 5A015, 5A017, 5A021, 5A031, 5A033, 5A035, 5A037, 5A041, 5A043, 5A045, 5A047, 5A049, 5A055, 5A057, 5A059, 5A111, 5A113, 5A115, 5A117, 5A119, 5A121, 5A123, 5A125, 5A133, 5A137, 5A139, 5A143, 5A171, 5A175, 5A177, 5A179, 5A181, 5A183, 5A185, 5A189
   e. Sixth floor: 6A013, 6A015, 6A017, 6A021, 6A031, 6A033, 6A035, 6A037, 6A041, 6A043, 6A045, 6A047, 6A049, 6A055, 6A057, 6A059, 6A111, 6A113, 6A115, 6A117, 6A119, 6A121, 6A123, 6A125, 6A133, 6A137, 6A139, 6A143, 6A171, 6A175, 6A177, 6A179, 6A181, 6A183, 6A185, 6A189

G. Tamper Monitoring
1. Provide additional monitor input points for monitoring the following:
   a. Tamper switches located within each security equipment enclosure and wireway (use unsupervised inputs for this purpose).
   b. Supervision of power supplies and batteries (use unsupervised inputs for this purpose).
   c. Tamper switches located within each door junction box.

1.03 SUBMITTALS

A. Contractor Qualifications: Submit certification letters for the manufacturer of the ACAMS.

B. Product Data: Submit product information for components specified herein.

C. Shop Drawings:
   1. Device placement on floor plans
   2. Point-to-Point Diagrams: Include wiring, points of connection and interconnecting devices between the following:
      a. ACAMS control panel
      b. ACAMS card reader and input/output modules
      c. ACAMS power supplies
      d. Card Readers
      e. Interface to electrified door hardware
      f. Interface to fire/life-safety system
      g. Interface to elevator controller
      h. Cable conductors (identify conductors on the point-to-point diagrams with the same tag as the installed conductor)
   3. Schedules: Provide schedules for ACAMS control panels that show each point ID with a description of the connected devices.
   4. Block Diagram/Riser Diagram: Show the ACAMS components, conduit, wire types, and sizes between them, including cabling interties between termination hardware.
   5. Custom mounting details

1.04 EXTRA MATERIALS

A. Provide 10% spare parts of total installed the following: (Round up to the next complete device)
   1. Card Readers
   2. Door Contact
   3. Request-to-Exist Sensors
   4. Controller Boards
   5. Patient Care Cabinet Magnetic Lock
   6. Patient Care Cabinet Keyswitch
   7. Fuses (Place five (5) of each type of fuse inside each SEC and power supply housing).

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Access Control & Alarm Monitoring System
   1. Software House
   2. Or Equal

2.02 ACAMS HARDWARE & COMPONENTS
   A. ACAMS Server
      1. Document the cost of this hardware at time of bid due to price reductions and advancements in technology. Prior to placement of order, provide upgrades to the most current model as requested by the Owner up to the cost of the specified system.
      2. Provide complete prepackaged unit containing:
         a. Processor: Quad-core Intel Xeon X5550 2.66Ghz, 8M Cache, 6.40 GT/s
         b. Memory: 4GB 133MHz (4x1GB), Single Ranked DIMMs
         c. Hard Drive Configuration: RAID 1
         d. Hard Drive: Minimum of two 400GB 10K RPM, serial attached SCSI hard drives
         e. Provide 40GB Microsoft OS partition override for primary hard drive
         g. 24x IDE CD-RW/DVD ROM drive
         h. Network Adapter: Dual embedded gigabit Ethernet NIC
         i. Chassis Configuration: Rack chassis with sliding rails and cable management arm
      3. Manufacturer
         a. Dell # PowerEdge R710 series server
         b. HP # ProLiant DL380 series server
         c. Or Equal

   B. ACAMS Workstation
      1. Document the cost of this hardware at time of bid due to price reductions and advancements in technology. Prior to placement of order, provide upgrades to the most current model as requested by the Owner up to the cost of the specified product.
      2. Provide complete prepackaged unit containing:
         a. Processor: Quad-core Intel Xeon X5520 2.66GHz, 8M L3Cache, 6.4GT/s
         b. Memory: 4GB, 1066MHz FSB, DDR3 SDRAM, ECC (2 DIMMS)
         c. Video Card: 512MB NVIDIA Quadro FX 580, dual monitor compatible
         d. Hard Drive: 250GB SATA, 7200 RPM and 8MB DataBurst Cache
         e. OS: Microsoft XP Professional, or latest OS supported by manufacturer
         f. Optical Drive: 16xDVD-RW
         g. Network Adapter: Gigabit Ethernet NIC
      3. Manufacturer
         a. Dell # Precision T3500 series workstation
            1) Dell # 2009W 20” widescreen monitors, 1680x1050 resolution, 2000:1 contrast ratio
            2) Dell # USB Multimedia Pro keyboard
            3) Dell # USB 6-button laser mouse
         b. HP # Z600 series workstation
1) HP # L2045w 20” widescreen monitors, 1680x1050 resolution, 1000:1 contrast ratio
2) HP # ED707AA USB keyboard
3) HP # GW405UT USB laser mouse
4) Or Equal

C. ACAMS Software

1. Provide ACAMS head-end software that meets the following requirements
   a. Card reader licenses to support a minimum of 800 card reader capacity
   b. Client software licenses to support a minimum of 8 concurrent users
   c. VSS integration

2. Include software licenses:
   a. Integrated CCTV client software for specified network video recorder, refer to Section 28 23 00 – Video Surveillance System
   b. Badging software license

3. Manufacturer
   a. Software House # C-Cure 9000 client software
   b. Or Equal

D. KVM Console with Integrated LCD Monitor, Keyboard, Mouse

1. Features
   a. Integrated 1x8 KVM switch
   b. 17” LCD monitor, 1280 x 1024 resolution minimum
   c. Trackball or touchpad mouse
   d. Rack mount chassis in a 1U sliding tray

2. Provide cables required for connection to ACAMS and other rack mountable security devices.

3. Manufacturer
   a. Dell # PowerEdge 180AS KVM with Dell # XT912 LCD monitor, keyboard, and touchpad
   b. HP # 336044-B21 KVM with HP # TFT7600 LCD monitor, keyboard, and touchpad
   c. Or Equal

2.03 ACAMS CONTROLLERS

A. General

1. An intelligent controller with integrated battery backup, database, and communication ports that supports 16 card readers.

2. Supports multiple communication channels to which a variety of devices can connect.

3. Supports hardware modules used for additional memory and/or for future feature enhancements.

4. Functions provided include:
   a. Central control for attached devices and addressable modules
   b. Makes decisions for access
   c. Responds to monitor activity
d. Receives input to control its decision making  
  e. Reports activity to other devices  

B. Features  
1. Supports HID proximity, MIFARE, and DESFire card reader formats  
2. Supports flash upgrades for firmware updates  
3. Utilizes an onboard Ethernet NIC  
4. Global input/output and anti-passback functionality  
5. Capable of utilizing keypad commands to activate/deactivate events  
6. Separation of users into multiple groups to control access levels  
7. Capable of remote lock down of buildings  
8. The ability to read 260 bits of data in compliance with the FIPS 201 and HSPD-12 standards. The system controllers will read the full CHUID 260 bit format when the controllers are off-line from the rest of the system and store entry events. When the system restores communications to the controller all buffered entry events (valid or invalid) along with any alarms will be automatically uploaded to the system.  
9. Utilize a 32 bit processor capable of addressing 128 Mb of on board memory.  
10. Utilize dual on-board Ethernet communication ports and provide peer to peer Ethernet communication between panels when unable to communicate with host/server.  
11. Global anti-pass back capabilities between access control panels when unable to communicate with host/server.  
12. Support system partitioning to allow individual system administrator’s to uniquely program the security controls for their secure departmental space.  

C. Supports RS-485, or RS-422 connectivity to addressable modules:  
1. Input Module: Supports 8 Class A supervised input points  
2. Output Module: Supports 8 Form C dry contact relays  
3. Reader Interface Module: Supports 4 card readers with associated alarm contacts, request-to-exit devices, and lock outputs  

D. Manufacturer  
1. Software House # iSTAR Pro 64MB control panel  
   a. Accessories  
   1) Software House # I8 input module  
   2) Software House # R8 output module  
   3) Software House # RM-4E four-reader interface module  
   4) Software House # RM-2E two-reader interface module  
   5) Software House # RM-1E one-reader interface module  
2. Or Equal  

2.04 EQUIPMENT ENCLOSURES  
A. General  
1. Provide enclosures with butt hinged and lockable door containing a lock kit (keyed alike with other security enclosures on the project).
2. Provide perforated back panel for mounting control boards, relays, and terminal strips with enclosure.
3. Provide slotted wiring duct for routing security cabling within enclosure.
4. One tamper switch for each enclosure

B. Security Equipment Cabinets
1. Type: NEMA type 1 enclosure
2. Size: 36” x 24” x 6” minimum or size as required
3. Finish: ANSI 61 gray polyester powder paint finish inside and out
4. Manufacturer:
   a. Cooper B-Line # 36246-1PP enclosure with back panel and lock kit
   b. Hoffman # A36N24M enclosure with # A36N24MPP back panel and # A612AR lock kit
   c. Or Equal

C. Security Junction Boxes
1. Type: NEMA type 1 enclosure
2. Size: 12” x 12” x 6” minimum or size as required
3. Finish: ANSI 61 gray polyester powder paint finish inside and out
4. Manufacturer:
   a. Cooper B-Line # 12126-1PP enclosure with back panel and lock kit
   b. Hoffman # A12N126 enclosure with # A12N12PP back panel and # A612AR lock kit
   c. Or Equal

D. Slotted Wiring Duct
1. Type: Lead-free PVC with narrow finger design
2. Size: 1” x 1” minimum
3. Color: Light gray
4. Manufacturer:
   a. Panduit # Type-F narrow slot wiring duct
   b. Iboco # T1-1010 wiring duct
   c. Or Equal

2.05 WIREWAYS

A. General:
1. Provide screw cover wireway sections with open top assembly as shown on Security drawings.
2. Provide closure plates to secure end of wireway sections.

B. Screw Cover Gutter Wireways
1. Type: NEMA type 1 enclosure
2. Size: 4” x 4” x 48” minimum
3. Finish: ANSI 61 gray polyester powder paint finish inside and out
4. Manufacturer:
   a. Copper B-Line # 4448-G-NK lay-in painted wireway without knockouts
   b. Hoffman # F44T148GVP lay-in painted wireway without knockouts
   c. Or Equal

5. Accessories:
   a. Cooper B-Line # 44-E-NK closure plate without knockouts
   b. Hoffman # A44GCPNK closure plate without knockouts
   c. Or Equal

2.06 TERMINAL BLOCKS

A. General
   1. Provide terminal blocks inside SEC for demarcation of elevator traveler and security cabling.
   2. Provide DIN rails and other mounting accessories for a complete installation.

B. Modular Terminal Strips
   1. Push-in style bridging system that utilizes the IDC termination method
   2. Feed through style, single level
   3. Modular design
   4. Capable of mounting on standard 35mm DIN rails
   5. Manufacturer:
      a. Phoenix Contact # QTC-1,5 terminal block
      b. Weidmuller
      c. Or Equal
   6. Accessories:
      a. Phoenix Contact # NS-35/7,5 DIN rail
      b. Weidmuller
      c. Or Equal

2.07 MULTIFORMAT CARD READERS

A. General
   1. Presenting an access card to the reader initiates a single transmission to the ACAMS controller.
   2. Rugged, weatherized polycarbonate enclosure, designed to withstand an operating temperatures of -22 to 120 degrees Fahrenheit (-30 to 65 degrees Celsius) and operating humidity of 5-95% non-condensing.
   3. Utilizes a Wiegand protocol for communication for compatibility with standard access control systems.
   4. Utilizes a multi-color LED and an audible sounder to indicate the status of the door.
   5. Connect and monitor internal tamper switch that will indicate an alarm condition if an unauthorized attempt is made to disassemble the unit.
   6. FCC and CE certified, and conform to the following ISO standards:
      a. 15693 (CSN read-only)
b. 14443A (CSN read-only)
c. 14443B (CSN read-only)

7. Capable of reading the following frequencies and card formats:
   a. 125kHz – HID, Indala, or AWID proximity
   b. 13.56MHz – MyD, ISO 15693 CSN (MyD, ICODE, Tag-it), ISO 14443A CSN (MIFARE, DESFire), ISO 14443B CSN, and US Government PIV

B. Manufacturer
   1. HID # multiCLASS series
      a. Wall mount: HID # RP40 multi-technology card reader
      b. Wall mount with keypad: HID # RPK40 multi-technology card reader with integrated keypad
      c. Mullion style: HID # RP15 multi-technology card reader
   2. Or Equal

2.08 DUAL TECHNOLOGY ACCESS CARDS

A. Cards
   1. Provide 6,000 proximity cards.
   2. Obtain written confirmation of access card format prior to ordering cards.

B. Programming Cards
   1. Provide custom programming card used to program card reader to read the Mifare secure sector and then read HID 125 KHz card formats.

C. PVC Skins
   1. Provide 6000 PVC skins for printing.
   2. Manufacturer: Fargo #81759-B, 14 mil adhesive backed

2.09 BADGE PRINTER

A. Badging System Printer
   1. Features
      a. Print Method: Dye-sublimation, resin thermal transfer
      b. Resolution: Up to 300 dpi
      c. Colors: Up to 16.7 million, 256 shades per pixel
      d. Accept card thickness from 0.020 inches to 0.060 inches
      e. Capable of utilizing custom watermarks for additional security
      f. Includes Ethernet NIC option
   2. Manufacturer
      a. HID # DTC550 card printer
      b. Zebra # P430i card printer
      c. Magicard # Tango 2e card printer
      d. ACAMS system software package for integration
      e. Or Equal
2.10 **BADGE CAMERA**

A. **Badging**

1. **Features**
   a. High resolution color camera with auto focus lens. Resolution: Up to 300 dpi
   b. Utilizes USB connectivity
   c. Provide tripod and wall mount brackets
   d. Provide back drop screen.

2. **Manufacturer**
   a. Valcam USB Zoom + Badging Camera and ACAMS system software for integration

2.11 **MAGNETIC CONTACT SWITCHES**

A. **Perimeter Doors**

1. **General**
   a. Mounting: Recessed
   b. Contacts: Double Pole, Double Throw
   c. Gap Distance: 12.7 mm maximum

B. **Manufacturer:**

   1. GE Security # 1076D alarm contact switch
   2. Or Equal

C. **Local Audible Alarmed Doors**

1. **General**
   a. Mounting: Recessed
   b. Contacts: Double Pole, Double Throw
   c. Gap Distance: 12.7 mm maximum

2. **Manufacturer**

   a. GE Security # 1076D 19 mm alarm contact switch
   b. Or Equal

D. **High Security Doors**

1. **General**
   a. Mounting: Surface
   b. Contacts: Single Pole, Double Throw
   c. Gap Distance: 12.7mm maximum
   d. Utilizes three independent Form C biased reed contacts
   e. Supervised loop with magnetic tamper feature

2. **Manufacturer**

   a. GE Security # 2707A high security alarm contact switch
   b. Or Equal

E. **Overhead Roll-Up Doors**

1. **General**
a. Mounting: Surface  
b. Contacts: Single Pole, Single Throw  
c. Gap Distance: 76 mm maximum  
d. Wiring: Armor Cable, 305 mm minimum  

2. Manufacturer  
a. GE Security # 2205 floor mounted contact switch with 1m armored cable lead  
b. Or Equal  

2.12 REQUEST-TO-EXIT MOTION SENSORS  
A. General  
1. Power: 12 or 24VDC, 35mA  
2. Relay Output: 2 form “C” contacts  
3. Adjustable relay latch time  
4. Programmable retrigger or non-retrigger mode  
5. Programmable Fail Safe or Fail Secure Modes  
6. Radio Frequency Interference (RFI) Immunity range from 26 to 1,000 MHz at 50 v/m  
B. Manufacturer  
1. Bosch #DS160 with TP160 trim plate  
2. Honeywell #IS320WH with IS310WHTP trim plate  
3. Or Equal  

2.13 DOOR RELEASE BUTTON
A. Under-Counter

1. General
   a. Actuating lever, housing, and cover plate made of ABS fire-retardant plastic
   b. Momentary latching circuit with integrated LED
   c. Contact: Normally Open or Normally Closed electrical loop, SPDT
   d. Operating Voltage: 12VDC

2. Manufacturer
   a. Securitron # PB3ER
   b. Or Equal

2.14 ACAMS POWER SUPPLIES

A. General

1. Provides a 120VAC to 12 and 24VDC output, fully supervised power supply to power ACAMS field devices.
2. Utilizes 16 PTC Class 2 rated power limited outputs.
3. Short circuit and thermal overload protection.
4. Integrated charger for sealed lead acid or gel type batteries.
5. Capable of providing a 10 amp supply current.
6. Supports a fire alarm disconnect to relay that individually selects any or all of the 16 outputs.

B. Manufacturer

1. Altronix # MAXIM75 power supply
2. Or Equal

2.15 BATTERIES

A. General:

1. Voltage: 12.00
2. Amps: 12.00
3. Chemistry: SLA or VRLA valve regulated
4. Termination: Spade protected terminals

B. Manufacturer:

1. Yuasa #RE12-12 sealed lead acid 12V 12Ah battery
2. Interstate Batteries #SLA1105 sealed lead acid 12V 12Ah battery
3. Or Equal

2.16 PATIENT CARE CABINET KEYSWITCH

A. Provide a Keyswitch that meets the following requirements

1. Provide a temporary output to unlock the Patient Care Cabinets and corridor card reader door.
2. Changeable key cylinder.
3. LED indicator light.

B. Manufacture:
   1. SDC # 705 –LT

2.17 PATIENT CARE CABINET AND CORRIDOR CARD READER MAGNETIC LOCK

A. Provide Magnetic lock that meets the following requirements
   1. Compact size to fit into a cabinet
   2. Operates on 12V or 24V

B. Manufacture:
   1. SDC # 1583

C. Accessories:
   1. Mounting Bracket

PART 3 - EXECUTION

3.01 INSTALLATION

A. ACAMS Server
   1. Rack mount server in the security equipment rack in basement of building M as indicated on project drawings.
   2. Provide extension cords, and line extenders if required, for keyboards, monitors, mice, etc. to connect to KVM console.
   3. Duplicate the existing ACAMS data base and recreate the employee data base, set access levels, and re-issue access card to the approximately 6000 employees.
   4. During the transition period both the existing ACAMS and replacement ACAMS systems are required to be operation. At the completion of the transition to the new system the contractor is required to clean the space and demo the existing equipment and provide it to SCVMC.
   5. Install ACAMS software.

B. ACAMS Control Panels
   1. Place power supply and associated hardware in same location.
   2. The existing building utilize the existing cabling, door contacts, and door hardware.
   3. Install supervisory and end-of-line (EOL) resistors as required. Refer to Section 28 00 00 – Basic Security Requirements for EOL supervision requirements.

C. Four-State End-of-Line (EOL) Supervision
   1. Provide designated resistors at device end of line per manufacturer’s EOL recommendation to provide four-state supervision of security device and cabling.
   2. Provide EOL supervision for alarm contacts, local alarm sounders, help/duress buttons, and other designated security devices connected to the ACAMS and IDS.
   3. Provide the following states of supervision:
      a. Contact closed = Secure
      b. Contact open = Alarm
c. Short circuit = Line fault
d. Open circuit = Line fault

D. Card Readers
1. Wire the card reader’s multi-color LED to indicate the following status of the door.
   a. Red status indicates the door is secure (locked).
   b. Green status indicates the door is unsecured (unlocked).
   c. Yellow status indicates the card reader is not functioning (off-line/trouble), is processing a read request, or has denied access.
2. Utilize configuration card to enable optical tamper.
3. Wire the card reader’s optical tamper to spare input on the ACAMS reader module.
4. The card reader to produce an audible beep tone to indicate to the user:
   a. The card was read and/or access was denied.
   b. Door is being held open and needs to be closed.

E. Video Badging System
1. Install video badging camera and peripherals as indicated on the project drawings.
2. Coordinate with Owner’s representative for exact mounting height and location of camera and photo backdrop.

F. Video Badging Printer
1. Provide ribbons to badge provide cards.
2. Run print test for the printer confirming communications between PC and printer, and for proper calibration for thickness of card being used.

G. Elevator Readers
1. Furnish card reader to elevator contractor for installation,
2. Coordinate the installation and termination of the card reader inside the cab and in the elevator machine room.
3. Coordinate with elevator contractor to connect ACAMS output relays to elevator controller. Install terminal blocks in security demarcation enclosure as indicated on project drawings to separate security from elevator cabling. Refer to Section 28 00 00 – Basic Security Requirements for terminal block specifications.

H. Door Hardware
1. Route power to electrically controlled locks on life-safety doors through fire alarm output to automatically unlock the door upon activation of Fire/Life-Safety system. Connect fire alarm output to the disconnect relay on the associated 24VDC lock power supply.
2. Setup and conduct a door hardware coordination meeting for SBR and BB1 projects.
3. Coordinate the installation and termination of the security cable with the installation of the electric door hardware and transfer hinge.
4. Provide cable and terminate wires to delayed egress devices for monitoring activation of delayed egress by the ACAMS system.

I. Patient Care Cabinets
1. Wire the card readers’ multi-color LED to indicate the following status of the door.
   a. Red status indicates the drawers are secure (locked).
b. Green status indicates the drawers are unsecured (unlocked).
c. Yellow status indicates the card reader is not functioning (off-line/trouble), is processing a read request, or has denied access.

2. The card readers to produce an audible beep tone to indicate to the user:
   a. The card was read and/or access was denied.
   b. Door is being held open and needs to be closed.

3. Wire the patient care cabinet drawer magnet locks to allow each drawer to be independently controlled based access group programming.

4. Program each of the four drawers into separate zones.

5. Wire the keyswitch to drop power to the four drawer magnetic locks and the corridor door magnetic lock.

3.02 PROGRAMMING

A. Prior to the completion of construction of each new and existing building, schedule a meeting with the Owner to determine the programming criteria. Discuss the following:

1. Migration of existing access card holder data base into new ACAMS.
2. Access card levels and door groupings
3. Alarm priority levels
4. Schedules and time codes
5. Holidays and holiday types (priorities)
6. Action/responses from individual input points
7. Standard and custom (expanded) reports
8. Defining alarm messages and standard response messages applicable to site
9. Routing of alarm points to selected pagers
10. Routing of alarm points to operator’s workstations, printers, and history files
11. Coordinate implementation of graphics with Owner. Develop sample graphic complete with icons and text. Alarms to appear on building floor plans depicting the nature and location of alarms. Review and revise graphic layout as required by Owner.
12. System data base backup to CD-ROM

B. Document the results of the meeting and perform necessary programming to achieve the Owner’s requests.

C. System Operation, Alarm and Reporting Function: Program door control panel tamper switches to immediately reported as a separate “tamper” point to the system resulting in an alarm condition displayed in both text and graphic form on the applicable workstation(s) and an alarm message transmitted to the appropriate pager(s).

D. Receive CAD drawing files of floor plans and perform the following relative to system graphics:

1. Delete non-applicable drawing layers and details to arrive at simple floor plans of the building as built.
2. Convert drawings to a graphic file format compatible with the Owner’s access control and alarm monitoring system.
3. Load drawing files into the system.
4. Apply new and predefined icons and other points on each graphic to indicate point and control status.

5. Link graphic images to reader, monitor and control points.

E. Program routing of monitor and control points. Route activations and restore messages to one or more of the following locations as directed by the Owner’s Representative:

1. One or more system workstations;
2. One or more system printers;
3. One or more alphanumeric pagers;
4. History files in addition to the above;
5. History files only.

F. Program the system such that reliance on a remote host for routine building operations, such as scheduled door commands and conditional events, are minimized to the greatest extent possible and decisions are made at the local building controller.

G. Program the system in a manner that minimizes the amount of time required for the users to make updates and maintain the system on a daily basis especially updates that impact card holder record updates. Nested programs, such as reader groupings used in access codes shall be used to the greatest extent possible such that single actions are required to update an entire card data population. If there is a question regarding the appropriate approach to programming, given the flexibility of most systems, contact the Engineer prior to any initial programming.

H. Complete other programming as required for system operation.

I. Program and setup the system such that no additional programming other than entering new access cards is required. Include setup of available features of the software.

J. Use the point names provided on the system point schedule.

K. Perform a full system back-ups at completion of each new and existing building of initial programming and deliver one copy to owner with letter of Transmittal explaining information included in back-up and brief description of recovery procedures. Label the second CD-ROM and store onsite. Perform back-ups on a regular bases through the remainder of the project.

L. Customize menus with the assistance of the factory to “gray-out” features not used on project (such as elevator control).

M. Perform field software changes after the initial programming session to "fine tune" operating parameters and sequence of operations based on revised operating requirements.

3.03 TESTING

A. Commission ACAMS in accordance with Section 280800.

END OF SECTION