

SECTION 28 00 00  
BASIC SECURITY SYSTEM REQUIREMENTS  
Construction Specification

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes general administrative and procedural requirements for Sections numbering 28xxxx, and is intended to supplement, not supersede, the requirements specified in Division 1.
- B. Related Sections
1. General: Consult all other Sections, 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. Related Sections:
    - a. Section 01 81 13: Sustainability
    - b. Section 07 84 00: Firestopping
    - c. Section 08 71 00: Door Hardware
    - d. Section 08 11 1 3: Hollow Metal Doors and Frames
    - e. Section 14 20 00: Elevators
    - f. Section 26 05 48: Supporting Devices
    - g. Section 26 05 34: Boxes
    - h. Section 28 13 00: Access Control & Alarm Monitoring System
    - i. Section 28 23 00: Video Surveillance System
    - j. Section 28 05 13: Security System Cabling
    - k. Section 28 05 53: Security System Labeling
    - l. Section 28 08 00: Security System Commissioning
    - m. Section 28 31 00: Fire Detection Alarm System
  3. General and Supplementary Conditions: Drawings and general provisions of Contract and Division 1 of the Specifications, apply to 28xx series Sections.

1.2 REFERENCES

- A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
- B. Codes: Perform work in accordance with all applicable requirements of the latest edition of all governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:
1. National Electric Code (NEC), NFPA 70.
  2. California Code of Regulations (CCR) Title 24, California Building Standards Code Part 2, Basic Building Regulations and Part 3, California Electrical Code (CEC).

3. California Building Code (CBC).
  4. Uniform Fire Code (UFC).
  5. National, State, Local and any other binding building and fire codes.
  6. FCC Regulations:
    - a. Part 15 – Radio Frequency Devices & Radiation Limits
  7. Underwriter's Laboratories (UL): Applicable listing and ratings.
    - a. UL 294: Access Control System Units
    - b. UL 1076: Proprietary Burglar Alarm Units and Systems
  8. EIA testing standards
- C. Make a copy of each document readily available during the course of construction for reference by field personnel.

### 1.3 DEFINITIONS

- A. The Definitions of Division 1 shall apply to the 28xxxx sections.
- B. In addition to those Definitions of Division 1, the following list of terms as used in this specification shall be defined as follows:
1. "Furnish": To purchase, procure, acquire, and deliver complete with related accessories.
  2. "Install": To set in place, join, unite, fasten, link, attach, set up or otherwise connect together and test before turning over to the University, all parts, items, or equipment supplied by contractor. Installation shall be complete and ready for regular operation.
  3. "Provide": To furnish, transport, install, erect, connect, test and turn over to the Owner, complete and ready for regular operation.
  4. "Connect": To install all required patch cords, equipment cords, cross-connect wire, etc. to complete an electrical or optical circuit.
  5. "As directed": As directed or instructed by the Owner, or their authorized representative.
  6. "Cabling": A combination of all cables, wire, cords, and connecting hardware [e.g., cables, conductor terminations, connectors, outlets, patch panels, blocks, and labeling].
  7. "ACAMS": Access Control & Alarm Monitoring System
  8. "SEC": Security Equipment Panels
  9. "VSS": Video Surveillance System

### 1.4 SYSTEM DESCRIPTION

- A. Overview
1. Reference project specific scope.
- B. Drawings
1. Layout: Follow the general layout shown on the Drawings except where other work may conflict with the Drawings.

2. Accuracy: The Drawings show a diagrammatic representation of the system within the constraints of the symbology applied.
  3. The Drawings do not fully represent the entire installation for the Security System. Drawings indicate the layout and location of control components, as well as location of security devices, i.e. card readers, door locks and contacts, glass break detectors, etc. The Drawings do not show all conduits, wire and cabling between every system component, equipment, device, etc.
  4. Provide detailed point-to-point diagrams that allow the Contractor to achieve desired results using their own procedures and methods. Submit CAD shop drawings for review prior to installation
- C. Contractors Design Requirements
1. The Project Drawings represent the level of system design to be provided by the engineer. Contractor shall provide all additional system design work required, including:
    - a. Conduit layout and sizing
    - b. Wire and cable layout and sizing including type and quantity
    - c. Distance power calculations
    - d. Point-to-point wiring and equipment hook-up information
    - e. Equipment wall equipment mounting and installation details
    - f. Design of equipment cabinets and interface components
    - g. System block diagrams
    - h. Other detailed design work required
    - i. Enlarged room plans
    - j. Floor and reflected ceiling plans for devices installed in ceiling
  2. Obtain shop drawings of other related systems that require integration and coordinate means and methods to complete the system as described and specified in these sections.

## 1.5 SUBMITTALS

- A. General: Submit required submittal(s) in accordance with General Conditions of the Contract, and Division 1 Submittal Procedures Section 013300
- B. Submittal schedule to include 10 working days for owner's team review.
- C. Cover Letter: Include a cover letter stating that the submittal is in full compliance with the requirements of the Contract Documents. List in full the items and data submitted, signed (and stamped, if applicable) by the person who prepared the submittal. Failure to comply with this requirement shall constitute grounds for rejection of submittal.
- D. Submittal Description: Product Data
  1. General: Product data submittals must be approved by the Owner prior to release of order for equipment and prior to installation.
  2. Quantity: As noted in Division 1 (minimum of four).
  3. Format:

- a. Provide each product data submittal digital copy and hard copy in a 3-ring binder with front cover and spine clear pockets for insertion of the submittal information.
  - b. Clearly label the cover and the spine of each submittal with the following information:
    1. Client Name (e.g., "CSM").
    2. Project Number and Contract Number.
    3. Project Name and Address (e.g., "Building 9").
    4. Contractor's Submittal Number.
    5. Submittal Title (e.g., "Product Data Submittal For ACAMS System").
    6. Specification Section Number (e.g., "Section 13710").
    7. Date of Submittal. Format: <month> <day>, <year> (e.g., "January 1, 2015").
    8. Contractor Name.
  - c. Include a Table Of Contents at the beginning of the submittal that lists materials by article and paragraph number found in the section and in the order outlined in the specification (e.g., "2.03-b Card Reader").
  - d. Include tabbed separators for improved navigation through the submittal.
  - e. Delivery dates for all equipment.
4. Content:
- a. Product Information:
    1. Include product data consisting of manufacturer's technical data, product literature, "catalog cuts", data sheets, specifications, and block wiring diagrams (if necessary). This data shall clearly describe the product's characteristics, physical and dimensional information, electrical performance data, materials used in fabrication, material color & finish, and other relevant information such as test data, typical usage examples, independent test agency information, and storage requirements.
    2. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories, which are included and those which are excluded.
    3. Include delivery dates for equipment.
- E. Submittal Description: Shop Drawings
1. General: The Owner must approve shop drawings prior to release of order for equipment and prior to installation.
  2. The Owner will provide electronic files via e-mail or via CD-ROM containing the contract documents drawing files for use in preparing shop drawings.
  3. Quantity & Media: Furnish quantity and on media specified in Division 1.
  4. Format:
    - a. Use AutoCAD 2012 or later.

- b. Use the same sheet size and project title block as the Drawings.
  - c. Text a minimum of 3/32" high when plotted at full size.
  - d. Use identical symbols as those in the Design Drawings.
  - e. Screen background information.
  - f. System components (devices, cable routes, etc.) and text shall be plotted at a sufficient line weight to stand out against background information.
  - g. Each sheet in the shop drawings set shall be labeled with the Specification Section Number (e.g., "282300").
  - h. Scaling:
    - 1. Floor plans shall be scaled at 1/8"=1'-0".
    - 2. Enlarged room plans shall be scaled 1/4"=1'-0".
    - 3. Wall elevations shall be scaled 1/2"=1'-0".
5. Content:
- a. Floor Plans:
    - 1. Floor and site plans showing the locations of all devices and door furniture associated with each door locations (ex: contacts, rex locks, card readers) and cable routing paths with cable type and quantity called out. Prepare cable schedule if required to simplify sheet plan notation
    - 2. Provide termination information for each device on the plans or in a schedule that identifies the physical connections to the equipment panels. Include the panel address, and the termination point ID that is consistent and reflective of the programming fields.
  - b. Point-to-Point Diagrams: Include all wiring, points of connection and interconnecting devices.
    - 1. Include all miscellaneous control relays.
    - 2. Include all devices connected to the system.
    - 3. Identify all conductors on the point-to-point diagrams with the same tag as the installed conductor.
  - c. Block Diagram/Riser Diagram: Show the system components and all conduit and wire types and sizes between them including all cabling interties between termination hardware.
  - d. Installation Details: Include installation details for all devices.
  - e. Seismic Calculations: As part of the shop drawings submittal where applicable, the manufacturer shall provide anchorage calculations for floor mounted fully loaded distribution frames such that it shall remain attached to the mounting surface after experiencing forces in conformance with CCR, Title 24, Table 23P, Part II and with Section 2312 "Earthquake Regulations" of the "Uniform Building Code" for Seismic Zone 4 Area, Importance Factor of 1.25. Structural Calculations shall be prepared and signed by a California Registered Structural Engineer. Specify proof loads for drilled-in anchors, if used. Seismic calculation shop drawings shall be wet stamped and signed by a registered structural engineer.

F. Submittal Description: Labeling Sample

1. Quantity & Media: Furnish quantity indicated in Division 1.
  2. Submit two sets of physical product samples for review and comment by Owner prior to the installation of equipment:
  3. Content:
    - a. Provide panel label
    - b. Provide cable label on a cut length of cable.
- G. Submittal Description: Record Drawings
1. Quantity & Media:
    - a. Submit a single set of digital and hardcopy full size prints of record drawings for review by the Owner.
    - b. Upon receipt of the Owner's review comments, make corrections and furnish the following record drawings:
      1. One full-size sets on bond
      2. One CD-ROM.
      3. One 11x17 set in the Record Documents Manual.
    - c. Drawings become Owner's property and shall maintain all ownership rights.
  2. Format:
    - a. Prepare record drawings using AutoCAD 2012 or later.
    - b. Use the same sheet size and project title block as the Drawings.
    - c. Text a minimum of 3/32" high when plotted at full size.
    - d. Use identical symbols as those in the Drawings.
    - e. Screen background information.
    - f. All system components (devices, cable routes, etc.) and text shall be plotted at a sufficient line weight to stand out against background information.
  3. Content:
    - a. Fully represent actual installed conditions and incorporate all revisions made during the course of construction.
    - b. Include drawings submitted as part of the Shop Drawing package, plus any additional information required to accurately document installed conditions.
    - c. Device schedules including device addresses and IP address information.
    - d. Floor plans shall show:
      1. Locations and identifiers of all devices.
      2. Size, quantity, location, and routes of all pathways (such as cable trays, conduits, J-hangers, and other cable support devices).
    - e. Equipment room floor plans scaled at 1/2"=1'-0" showing exact placement of all equipment cabinets/frames, rack bays, and other equipment.

- f. Wall elevations scaled at 1"=1'-0" showing exact placement of all security system hardware (e.g., SECs).
  - g. Installation details.
- H. Submittal Description: Operation and Maintenance Manuals
- 1. Quantity: Furnish four O & M Manuals.
  - 2. Format:
    - a. Furnish each O & M Manual in a white, 3-ring binder with front cover and spine clear pockets for insertion of the project information and digital copy on CD-ROM/DVD. Clearly label the cover of each O & M Manual with the following information:
      - 1. Client Name.
      - 2. SMCCCD Project and Contract Numbers.
      - 3. Project Name and Address.
      - 4. Manual Name (e.g., "Operation And Maintenance Manual for ACAMS System).
      - 5. Date of Submittal. Format: <month> <day>, <year> (e.g., "January 1, 2012").
      - 6. Contractor Name.
    - b. Include a Table Of Contents at the beginning that lists the contents.
    - c. Include tabbed separators for improved navigation through the manual.
  - 3. Content:
    - a. Functional Design Manual: Includes a detailed explanation of the operation of the system.
    - b. Hardware Manual which includes:
      - 1. Pictorial parts list and part numbers.
      - 2. Pictorial and schematic electrical drawings of wiring systems, including devices, control panels, instrumentation and annunciators.
      - 3. Telephone numbers for the authorized parts and service distributors.
      - 4. Include all service bulletins.
    - c. Operator's Manual which full explains all procedures and instructions for the operation of the system and includes:
      - 1. System start up and shut down procedures.
      - 2. Use of system.
      - 3. Equipment recovery and restart procedures.
      - 4. Reader command functions
    - d. Maintenance Manual which includes:
      - 1. Instructions for routine maintenance listed for each component, and a multi-page summary of all components' routine maintenance requirements.

2. Detailed instructions for repair of the security system.
  3. A summary of the TCP/IP address used and which system component they are associated with. Include the gateway address, subnet mask, DNS server, and host name information.
  4. Manufacturer's warranty certificates.
- e. Record Drawings Manual: 11"x17" prints of Record Drawings, as described above.
- I. Resubmittals: Include a cover letter listing the action taken and revisions made to each product submittal in response to Submittal Review Comments. Resubmittal packages will not be reviewed unless accompanied by this cover letter. Failure to include this cover letter will constitute rejection of the resubmittal package.

## 1.6 QUALITY ASSURANCE

### A. Contractor Qualifications

1. Primary business locations from which project management, installation technicians, and service personnel are dispatched must be within 30 miles of the city of San Mateo, to ensure response time for technical assistance within 4 hours.
2. At least 5 years of experience, and a minimum of five satisfactory completed projects similar in scope and cost.
3. Provide a resume of satisfactory evidence of project manager, foreman, and lead technician's qualifications and certifications by the manufacturer for the work.
4. A current AMAG "Enterprise Security Management" Certification indicating that contractor has attended training and successfully completed the training course.
5. A current, active, and valid C7 or C10 California State Contractors License.
6. Authorized reseller/dealer, warranty provider, and a factory certified installer of the AMAG security system at the Enterprise Level.

### B. Permits and Inspections

1. Obtain and pay for permits and inspections required for the work.
2. Furnish materials and workmanship for this work in conformance with applicable legal and code requirements.

### C. Perform tests required herein, or as may be reasonably required to demonstrate conformance with the Specifications or with the requirements of any legal authority having jurisdiction.

### D. Obtain review from compliance officials responsible for enforcement of applicable codes and regulations to establish that the work is in compliance with all requirements of reference codes indicated herein.

### E. Materials

1. Provide new and unused materials, equipment, and parts of current manufacturer, and without defects for the units specified herein.
2. Furnish only specified products and equipment, or products and equipment that have been approved in writing.

### F. Regulatory Requirements



1. Work and materials shall conform to the latest rules of National Board of Fire Underwriters wherever such standards have been established and shall conform to the regulations of the State Fire Marshal, OSHA and the codes of the governing local municipalities. Nothing in these specifications is to be construed to permit work not conforming to the most stringent of the applicable codes.
2. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Consider such codes or standards a part of this Specification as though fully repeated herein.
3. When codes, standards, regulations, etc. allow work of lesser quality or extent than is specified under this series of Sections, nothing in said codes shall be construed or inferred authority for reducing the quality, requirements or extent of the Drawings and Specifications. The Contract Documents address the minimum requirements for construction.

#### 1.7 PROJECT MANAGEMENT AND COORDINATION SERVICES

- A. Overview: Provide a project manager/engineer for the duration of the project to coordinate the security system work with all other trades. Coordination services, procedures and documentation responsibility shall include, but shall not be limited to the items listed in this section.
  1. Obtain copies of all shop drawings and product data for equipment provided by others that require security connections or interface with the security system work.
  2. Prepare and maintain a shop drawing review log indicating the following information:
    - a. Shop drawing number and brief description of the system/material.
    - b. Date of your review.
    - c. Indication if follow-up coordination is required.
- B. Request for Information (RFI)
  1. Thoroughly review the contract documents prior to the preparation and submission of an RFI. If an RFI is submitted, attach 8 1/2" x 11" copies of all relevant documents to clarify the issue.
  2. Prepare and maintain an RFI log using a Microsoft Excel spreadsheet indicating the following information:
    - a. RFI number and brief summary of the issue.
    - b. Date of issuance and receipt of response.
- C. Scheduling of Work
  1. Prepare work schedules for each floor indicating the following information:
    - a. Cable installation dates.
    - b. SEC build out dates.
    - c. Device installation dates.
    - d. Programming dates.
    - e. Testing dates.

D. Role of the Engineer

1. During the construction phase of the project, the Engineer will work with the Contractor to provide interpretation and clarification of project contract documents, reply to (and 'process') relevant Requests for Information (RFIs), and act as an interface between the Contractor and the Owner.
2. The Owner has retained the Engineer's services to observe the Work for general compliance with the Contract Documents and to ensure that the installation meets the design intent of the system.
3. In summary, the Engineer will perform the following specific services during the construction phase:
  - a. Review product submittals and shop drawings for general compliance with the contract drawings and specifications.
  - b. Review changes as they arise, and confirm that the proposed solutions maintain the intended functionality of the system.
  - c. Interpret field problems for Owner, and translate into understandable language.
  - d. Review the testing procedures to confirm compliance with industry-accepted practices.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Delivery

1. Do not deliver products to the site until protected storage space is available. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at jobsite.
2. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels (name of the manufacturer, product name, type, grade, UL classification, etc.) intact.
3. Replace materials damaged during shipping at no cost to the Owner.

B. Storage

1. Store materials in clean, dry, ventilated space free from temperature and humidity conditions (as recommended by manufacturer) and protected from exposure to harmful weather conditions.
2. Comply with manufacturer's requirements for each product. Comply with recommended procedures, precautions or remedies as described in the Material Safety Data Sheets (MSDS) as applicable.
3. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris, and traffic.
4. Storage outdoors covered by rainproof material is not acceptable.
5. Provide heat where required to prevent condensation or temperature related damage.

C. Handling

1. Handle in accordance with manufacturer's written instructions.
2. Damaged equipment shall not be installed.

3. Replace damaged equipment at no cost to the Owner.
4. Handle with care to prevent internal component damage, breakage, denting, and scoring

## 1.9 WARRANTY

- A. Provide an one-year parts and service warranty at no additional cost to the Owner.
- B. Warranty begins when system commissioning is completed, punchlist items resolved, and Owner provides in writing acceptance of system.
- C. The warranty package shall include but not necessarily be limited to the following:
  1. Emergency maintenance service on regular working hour basis.
  2. Service by factory trained and employed service representatives of system manufacturer.
- D. Maintain regular service facilities and provide a qualified technician familiar with this work at the site within four (4) hours of receipt of a notice of malfunction including weekends and holidays. Provide material, devices equipment and personnel necessary for repairs. Install approved temporary, alternate equipment if required by the Owner, complete and operational within twenty-four (24) hours after notification of a malfunction, at no additional cost.
- E. Conduct warranty repairs and service at the job site unless in violation of manufacturer's warranty; in the latter event, provide substitute systems, equipment and/or devices, acceptable to the Owner, for the duration of such off-site repairs. Transport warranty substitute and/or test systems, equipment, devices, material, parts and personnel to and from the job site at no additional cost.

## PART 2 PRODUCTS

Not used – refer to additional security sections for product detail

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
- B. Verify that all penetrating elements and supporting devices have been properly installed, and that all temporary lines, and markings, have been removed.

### 3.2 PREPARATION

- A. Staffing
  1. Provide a qualified foreman in charge of the work at all times and be present at the job site at all times during the installation of the work.
  2. Provide a supervised work force capable of performing the installation within the restraints of the construction schedule.
- B. Project Management
  1. Prepare an overall construction schedule based on the results of the planning meetings with the Owner.

2. Prepare updated schedules whenever there are modifications. Coordinate and attend weekly status meetings to review the overall progress and issues to be resolved throughout the course of construction. The Contractor is responsible for preparing and distributing meeting agenda prior to and meeting notes after all meetings in a format acceptable to the Owner.

### 3.3 INSTALLATION

#### A. General

1. Perform this work in accordance with acknowledged industry and professional standards and practices and the procedures specified herein.
2. The work shall be performed by skilled installers under the direction of experienced technician, all of whom shall be properly trained and qualified for this work.
3. A complete, operating system shall be provided. Include all devices specified including basic components and accessories, interconnecting wiring and other equipment and installation devices necessary for a complete system as specified.
4. Provide wire, system cabinets, system devices, etc., shall be in accordance with applicable codes for systems as specified. Label all wiring and equipment.
5. The control equipment and wiring shall be installed in a neat and workmanlike manner by trained mechanics or electricians.
6. Auxiliary and incidental equipment necessary for the operation and protection of the systems specified in this section shall be furnished and installed as if specified in full herein.
7. Install the Security System with the full support of the manufacturer of the system components.

#### B. Coordination

1. Maintain a competent supervisor and supporting technical personnel, acceptable to the Owner during the entire installation. Change of supervisor during the project shall not be acceptable without prior written approval from the Owner.

#### C. Boxes, Panels, and Enclosures

1. Install all boxes, panels, and enclosures square and plumb. Set "flush mounted" units so that the face of the cover, bezel or escutcheon shall be in the same plane as the surrounding finished surface. Mount boxes, panels and trim so that there are no gaps, cracks or obvious lines between the trim and the adjacent finished surface and ready them to receive final finish, as applicable.
2. Install insulating terminations in signal circuit boxes, panels, wireways or enclosures of this section.
3. Write the destination for every conduit entering a door junction box, SEC enclosure, or wireway using a black permanent ink marker next to the conduit inside the box
4. Provide tamper switches on all enclosures that are accessible and below the ceiling.

#### D. Painting

1. Custom paint devices as indicated on the drawings.

3.4 REPAIR/RESTORATION

- A. Replace or repair work completed by others that you deface or destroy. Pay the full cost of this repair/replacement.
- B. Punch List:
  - 1. Inspect installed work in conjunction with the General Contractor and develop a punch list for items needing correction.
  - 2. Provide punch list to Owner for review prior to performing punch walk with the Owner.
- C. Re-Installation:
  - 1. Make changes to adjust the system to optimum operation for final use. Make changes to the system such that any defects in workmanship are correct and cables and the associated termination hardware passes the minimum test requirements.
  - 2. Repair defects prior to system acceptance.

END OF SECTION