

SECTION 28 00 00

BASIC SECURITY SYSTEM REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general administrative and procedural requirements for Sections numbering 28 xx xx, and is intended to supplement, not supercede, the requirements specified in applicable SECTION of Division 01 – General Requirements.
- B. The requirements described herein include the following:
 - 1. References
 - 2. Definitions
 - 3. System Description and Existing Conditions
 - 4. Submittals & Shop Drawings
 - 5. Quality Assurance
 - 6. Delivery, Storage and Handling
 - 7. Scheduling
 - 8. Warranty
 - 9. Preventative Maintenance
 - 10. Project Management and Coordination Services
 - 11. Cutting, patching, painting and sealing
 - 12. Field quality control
 - 13. Project Closeout and Record Documents
- C. Products Supplied But Not Installed Under This Section:
 - 1. None
- D. Products Installed But Not Supplied Under This Section:
 - 1. None
- E. Products Specified But Not Installed Under This Section:
 - 1. None
- F. Products Furnished and Installed Under Another Section:
 - 1. 120V power
 - 2. Conduit and junction boxes
 - 3. CAT 6A cabling and PoE switches for IP cameras
 - 4. Door hardware
- G. Unit Prices:
 - 1. Submit unit pricing (material, labor, shipping, taxes, and markups) for equipment supplied under this section.
- H. Alternates:
 - 1. ALT-28 00 00-01: Renewable Annual Maintenance Agreement

- a. Submit a renewable annual maintenance agreement proposal for the servicing and adjustment of the existing security system equipment.
- b. Perform bi-annual examinations by trained personnel including necessary measurements, adjustments, and parts replacement to keep the equipment in efficient and proper operation.
- c. Perform maintenance work, except emergency repairs, during regular working hours of regular working days.
- d. Perform emergency repairs on an immediate basis (4 hour response time maximum, 7 days a week, 24 hours a day) when a system or component malfunctions during use.
- e. Do not subcontract or assign maintenance work unless the Owner has approved such assignment in writing.

I. Related Sections:

1. Consult 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 installation.
2. Section 28 13 00: Access Control and Alarm Monitoring System
3. Section 28 23 00: Video Surveillance System
4. Section 28 05 13: Security System Cabling
5. Section 28 05 53: Security System Labeling
6. Section 28 08 00: Security System Commissioning
7. Section 26 05 19: Low-Voltage Electrical Power Conductors and Cables
8. Section 26 05 33: Raceway and Boxes for Electrical Systems
9. General and Supplementary Conditions: Drawings and general provisions of Contract and applicable SECTION of Division 01 the Specifications, apply to 28 xx xx series Sections.
10. Earthwork: Include trenching, backfilling, boring and soil compaction as required for the installation of underground conduit, in-grade pull boxes, vaults, and bollard foundations. Refer to Division 2, Earthwork.
11. Concrete Work: Include forming, steel bar reinforcing, cast-in- place concrete, finishing and grouting as required for underground conduit encasement, pedestal foundations, and curbs. [Also includes saw-cutting of existing slabs and grouting of conduits in saw-cut.] Refer to Division 3, Concrete.
12. Miscellaneous Metal Work: Include fittings, brackets, backing, supports, rods, welding and pipe as required for support and bracing of raceways, equipment enclosures, cameras, and similar devices. Refer to Division 5, Metals.
13. Miscellaneous Lumber and Framing Work: Include wood grounds, nailers, blocking, fasteners, and anchorage for support of security materials and equipment. Refer to Division 6, Rough Carpentry.
14. Moisture Protection and Smoke Barrier Penetrations: Include membrane clamps, sheet metal flashing, counter flashing, caulking and sealant as required for waterproofing of conduit penetrations and sealing penetrations in or through fire walls, floors, ceiling slabs and foundation walls. Tape and make vapor tight penetrations through vapor barriers at slabs on grade. Refer to Section 078413 Firestopping, and Section 079200 Sealants.
15. Locking Hardware: Include interface to electronic hardware and door controllers on security related doors. Refer to Section 08 71 00 Door Hardware and Section 08 31 13 Doors and Frames.

16. Access Panels and Doors: Required in walls, ceilings, and floors to provide access to security devices and equipment. Refer to Division 8, Openings; also, Division 5, Metals.
17. Elevators: Include interface to elevator floor and hall call on security related elevators. Refer to Division 14, Conveying Equipment.
18. Painting: Include surface preparation, priming and finish coating as required for security cabinets, exposed conduit, pull and junction boxes, and devices where indicated as field painted in this Division. Refer to Section 099000 Painting and Coating.

1.2 REFERENCES

- A. Reference to codes, standards, specifications and recommendations of technical societies, trade organizations and governmental agencies 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 executed under this Section in accordance with applicable requirements of the latest edition of 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. Uniform Building Code (UBC)
 4. Uniform Fire Code (UFC)
 5. National, State, Local and other binding building and fire codes.
 6. FCC Regulations:
 - a. Part 15 – Radio Frequency Devices & Radiation Limits
- C. Standards: Perform Work and furnish materials and equipment under Sections 28 xx xx in accordance with the latest editions of the following standards as applicable:
 1. Underwriter's Laboratories (UL): Applicable listing and ratings.
 - a. UL 294: Access Control System Units
 - b. UL 1076: Proprietary Burglar Alarm Units and Systems

1.3 DEFINITIONS

- A. The Definitions of Division 1 apply to the 28 xx xx sections
- B. In addition to those Definitions of Division 1, the following list of terms as used in this specification defined as follows:
 1. "Owner": Sharp Grossmount Hospital
 2. "General Contractor":
 3. "Engineer": TEECOM Design Group
 4. "Furnish": To purchase, procure, acquire, and deliver complete with related accessories.
 5. "Install": To set in place, join, unite, fasten, link, attach, set up or otherwise connect together and test before turning over to the Owner, parts, items, or equipment supplied by contractor or others. Complete installation and make ready for regular operation.

6. "Provide": To furnish, transport, install, erect, connect, test and turn over to the Owner, complete and ready for regular operation.
7. "Connect": To install required patch cords, equipment cords, cross-connect wire, etc. to complete an electrical or optical circuit.
8. "As directed": As directed or instructed by the Owner, or their authorized representative.
9. "Cabling": A combination of cables, wire, cords, and connecting hardware [e.g., cables, conductor terminations, connectors, outlets, patch panels, blocks, and labeling].
10. "Security System": The Access Control, Intrusion Monitoring and Video Surveillance
11. "SEC": Security Equipment Enclosure
12. "CEC": CCTV Equipment Enclosure
13. "ACAMS": Access Control & Alarm Monitoring System

1.4 SYSTEM DESCRIPTION

A. Overview

1. Sharp Grossmont Hospital (SGH) is constructing a new 3 story Diagnostic and Treatment building. The new building will consist of a loading dock area, a pharmacy, Hematology and a surgical unit.
2. Security at the new facility to consist of video surveillance and access control and alarm monitoring.
3. The hospital will require access control and alarm monitoring (ACAMS) to automate opening and closing the buildings, restrict access after hours by cardholder privileges, and monitor specific spaces for intrusion.
4. The video surveillance system will monitor main point of entrances, pharmacy, and departmental areas.
5. The new system will connect to the Sharp Grossmont Health existing head end located at an off site location over the Sharp Grossmont Hospital LAN/WAN.
6. The pharmacy area will require additional card readers with biometrics to control access to the narcotic storage area.
7. The System includes integration to the Fire/Life Safety system to disconnect power to designated path of egress doors.
8. Refer to individual sections for detailed description of systems.

B. Custom Device Requirements

1. General: Provide a high level of coordination services to ensure the proper installation and functioning of the security system. Coordinate the installation of the security system with other trades. This may include: review of other's subcontractor's shop drawings, attendance at meetings, providing samples for mockup, and preparation & distribution of written documentation.

1.5 SUBMITTALS

A. General

1. Provide 5 copies of the required submittals to the General Contractor.
2. Format: Furnish submittal data neatly bound in an 8-1/2" x 11" folder or binder for each specification section with a table of contents listing materials by Section and paragraph number.

3. Submittals to consist of detailed shop drawings, product specifications, block wiring diagrams, "catalog cuts" and data sheets containing physical and dimensional information, performance data, electrical characteristics, materials used in fabrication, and material finish. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories which are included and those which are excluded.
 4. Label each submittal with the Specification Section Number and provide a cover letter or stamp stating that the submittal has been thoroughly reviewed by the Contractor and complies with the requirements of the Contract Documents. Failure to comply with this requirement will constitute grounds for rejection of data.
 5. Resubmittals: Provide a cover letter with the resubmittal that lists the action taken and revisions made to each product submittal in response to Submittal Review Comments. Failure to include this cover letter will constitute rejection of the resubmittal package and no review will occur.
 6. Prepare diagrams using AutoCAD 2000 compatible software. The following are requirements for drawings:
 - a. Drawing Size: Same size as the project contract drawings with the project title block.
 - b. Text Size: Minimum 3/32 inches high when plotted at full size.
 - c. Symbology: Identical to the symbols used on the Contract Drawings.
 - d. Backgrounds: Screen background information to allow pertinent drawing information to stand out.
 - e. Line Weights: Use appropriate line weights for devices, raceways, and text to stand out against background information.
- B. Contractor Qualifications: Submit the following for review and comment at the beginning of the project.
1. Resumes of the Project Manager, General Foreman, and Lead Technician(s) indicating role, years of experience, product certifications and training, listing of similar projects the individual performed the role proposed for this project along with client contact information for each.
 2. Certification letters from manufacturers of major system components stating the Contractor is an authorized reseller, installer, and extended warranty provider for the specified security systems.
- C. Product Data: Submit the following for review and comment prior to the purchase and installation of equipment:
1. Product data for products furnished. Include, for each product, the manufacturer, part number, accessories & options selected, color (if applicable), and a brief product description.
 2. Estimated delivery lead times for products.
- D. Shop Drawings
1. Obtain electronic files containing the contract documents drawing files for use in preparing the shop drawings from the Engineer.
 2. Submit the following for review and approval prior to the installation of equipment:
 - a. Floor Plans: 1/8 inch scale floor and site plans showing the locations of devices and cable routing paths with cable types and quantity called out.
- E. Samples

1. Provide samples as required for proper coordination and installation of custom mounted equipment.

1.6 QUALITY ASSURANCE

A. General

1. Provide new and unused materials, equipment, and parts comprising the units specified herein of current manufacturer and of highest grade.
2. Only use products and applications listed in this Division on the project.

B. Substitutions

1. Conform to the general requirements and procedure outlined in Division 1 in the Request For Substitution.
2. Where products are noted as "or equal", a product of equivalent design, construction, and performance is considered. Include in the Product Data submittal: catalog cuts, product information, and pertinent test data required to substantiate that the product is in fact equivalent to that specified.
3. Only one substitution allowed for each product specified. Do not provide substituted material, processes, or equipment without written authorization from the Engineer. Assumptions on the acceptability of a proposed substitution, prior to acceptance by the Engineer, are at the sole risk of the Contractor.
4. The burden of proof rest with the Contractor that the substituted product is equivalent to the specified product. When the Engineer accepts a substitution in writing, it is with the understanding that the Contractor guarantees the substituted product, component, article, or material to be equivalent to the one specified and dimensioned to fit within the construction according to contract documents. Approved substitutions do not relieve the Contractor of responsibilities for the proper execution of the Work, or from provisions of the Specifications.
5. Manufacturers' names and model numbers used in conjunction with materials, processes or equipment included in the Contract Documents are used to establish standards of quality, utility and appearance. Materials, processes or equipment that, in the opinion of the Engineer, are equivalent in quality, utility and appearance will be approved as substitutions to that specified when "or equal" follows the manufacturers' names or model number(s).
6. Whenever material, process or equipment is specified in accordance with a Federal specification, an ASTM standard, an ANSI specification, UL rating or other association standard, present an affidavit from the manufacturer certifying that the product complies with the particular standard specification. When requested by the Engineer, submit support test data to substantiate compliance at no additional cost.
7. Pay expenses, without additional charge to the Owner, in connection with substitution materials, processes and equipment, including the effect of substitution on self, subcontractor's or other Contractor's work.

C. Installer Qualifications

1. A current, active, and valid and C7 or C10 California State Contractors License
2. Minimum five years experience in installation and service of access control, video surveillance, and intrusion detection systems.
3. Minimum five completed projects similar to scope and cost.
4. Evidence of technicians qualified for the work in the form of current manufacturer's training certification.
5. IBEW / CWA union affiliation.

- D. Materials
1. Provide new materials and equipment without defects.
 2. Provide only specified products and equipment, or products and equipment that have been approved in writing.
- E. Regulatory Requirements
1. Work and materials to conform to the latest rules of National Board of Fire Underwriters wherever such standards have been established and to the regulations of the State Fire Marshal, OSHA and the codes of the governing local municipalities. Conform Work under these specifications to the most stringent of the applicable codes.
 2. Provide the quality identified within these specifications and drawings when codes, standards, regulations, etc. allow Work of lesser quality or extent. The Contract Documents address the minimum requirements for construction.
- F. Project Management And Coordination Services
1. Provide a project manager for the duration of the project to coordinate this Work with other trades. Coordination services, procedures and documentation responsibility include, but are not limited to, the items listed in this section.
 2. Review of Shop Drawings Prepared by Other Subcontractors:
 - a. Obtain copies of shop drawings for equipment provided by others that require telecommunication service connections or interface with Work.
 - b. Perform a thorough review of the shop drawings to confirm compliance with the service requirements contained in the Division 28 contract documents. Document discrepancies or deviations as follows:
 - 1) Prepare memo summarizing the discrepancy.
 - 2) Submit a copy of the specific shop drawing, indicating via cloud, the discrepancy.
 - c. Prepare and maintain a shop drawing review log indicating the following information:
 - 1) Shop drawing number and brief description of the system/material.
 - 2) Date of the review
 - 3) Name of the individual performing the review
 - 4) Indication if follow-up coordination required
- G. 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. Detail: The Drawings do not fully represent the entire installation for the Security System. Drawings indicate the layout and location of control console(s) components, as well as location of security devices, i.e. card readers, door locks and contacts, and duress stations. The Drawings do not show conduits, wire and cabling between every system component, equipment, or device.
 4. Complete the details necessary for point-to-point design. This allows the Contractor to achieve desired results applying their own procedures and methods. Submit shop drawings for review prior to installation.
- H. 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, process and reply to relevant Requests for Information (RFI), 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.
3. In summary, the Engineer will perform the following specific services during the design 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.

1.7 PERMITS AND INSPECTIONS

- A. Obtain and pay for permits and inspections required for the work.
- B. 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 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 requirements of reference codes indicated herein.

1.8 COORDINATION

- A. Discrepancies
 1. In the event of discrepancies within the Contract Documents, notify the Engineer within 5 days prior to the Bid Opening to allow the issuance of an Addendum.
 2. If, in the event that time does not permit notification or clarification of discrepancies prior to the Bid Opening, the following applies: The drawings govern in matters of quantity, and the specifications govern in matters of quality. In the event of conflict within the drawings involving quantities, or within the specifications involving quantities, or within the specifications involving quality, the greater quantity and higher quality apply. Note such discrepancies and clarify in the Bid. We will make no additional allowances because of errors, ambiguities, or omissions, which reasonably should have been discovered during the preparation of the Bid.
- B. Job Conditions
 1. Protection: Keep conduits, junction boxes, outlet boxes and other openings closed to prevent entry of foreign matter. Cover equipment, devices, apparatus and protect them against dirt, paint, water, chemical or mechanical damage, before and during construction period. Prior to final acceptance, restore to original condition fixture, apparatus or equipment damaged including restoration of damaged factory applied painted finishes. Protect bright finished surfaces and similar items until in service. No rust or damage will be permitted.

2. Supervision: Personally, or through an authorized and competent representative, supervise the work from beginning to completion and, within reason, keep the same foreman and workmen on the project throughout the project duration.

1.9 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 other trades. Coordination services, procedures and documentation responsibility include at a minimum, the items listed in this section.
 1. Obtain copies of shop drawings 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 relevant documents to clarify the issue.
 2. Submit RFIs with your recommended solution.
 3. 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. Clarification Confirmation Memo (CCM)
 1. CCM memos will be prepared by either the Contractor or the Engineer to confirm a decision clarifying the contract documents that does not impact cost or affect other trades.
 2. Prepare and maintain a CCM log using a Microsoft Excel spreadsheet indicating the following information:
 - a. CCM number... use CCM-C1, C2, etc. for memos issued by the Contractor and CCM-E1, E2, etc. for memos issued by the engineer.
 - b. Brief summary of issue and date issued.
- D. Scheduling of Work
 1. Prepare work schedules for each floor indicating the following information:
 - a. Cable Installation
 - b. SEC Build Out
 - c. Device Installation
 - d. Programming
 - e. Testing
 - f. Other tasks included under the alternate work section of these specifications
- E. Weekly Status Reports
 1. Prepare weekly status reports throughout the entire course of the project containing the following information:
 - a. Updated 2-week look ahead schedule

- b. Progress during prior week
- c. Work expected to be completed during the upcoming week.
- d. Delivery dates for equipment
- e. Coordination status for each device requiring coordination with other subcontractors
- f. Summary of the information owed to the Contractor, who is responsible for providing the information, and due date for the information.

F. Weekly Meetings

- 1. Conduct or attend weekly coordination meetings with the electrical and other specialty subcontractors to coordinate the installation of the security systems.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery

- 1. Do not deliver security system components to the site until protected storage space is available. Storage outdoors covered by rainproof material is not acceptable.
- 2. Replace equipment damaged during shipping and return to manufacturer at no cost to the Owner.

B. Storage

- 1. Store materials in a clean, dry, ventilated space free from temperature extremes.
- 2. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris, and traffic.
- 3. Provide heat where required to prevent condensation or temperature related damage.

C. Handling

- 1. Handle in accordance with manufacturer's written instructions.
- 2. Prevent internal component damage, breakage, denting and scoring. Do not install damaged equipment. Replace damaged equipment and return equipment to manufacturer.

1.11 WARRANTY

- A. Warranty begins when system commissioning is completed, punchlist items resolved, and Owner provides in writing acceptance of system.
- B. 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.
- C. 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.
- D. 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.

E. Base Bid Warranty

1. ACAMS equipment

a. Provide a one-year parts and service warranty at no additional cost to the Owner for the ACAMS equipment as listed below

- 1) LENEL Controllers, Input/Output modules, and Reader interface boards.
- 2) Power Supplies
- 3) Field Devices including card readers, Request-to Exit units, alarm contacts, motion detectors, and local alarms.

2. VSS equipment

a. Provide a one-year parts and service warranty at no additional cost to the Owner for the VSS equipment as listed below

- 1) CCTV cameras including fixed and PTZ.
- 2) LENEL network video recorders
- 3) Power Supplies

F. Bid Alternate No.1 – Extended Warranty

1. Provide separate pricing for the following extended warranty including credit from the base bid three-year warranty.

G. Provide a total of 5-years parts and service warranty at no additional cost to the owner for the “Computer Hardware and Operating Software Support” listed above in paragraph E.

1.12 MAINTENANCE

A. Extra Materials

1. Deliver extra materials to a secured location determined by the Owner.
2. Provide a complete Bill of Materials listing quantities, part numbers, and descriptions for each device for the Owner to sign indicating receipt of equipment.
3. Provide new and unused spare parts in their original packing materials upon delivery.

B. Maintenance Service

1. For the first year of service, conduct quarterly system performance review meetings to review system operation problems and/or defects that occurred during the preceding 3 months. During these performance review meetings, perform the following:

- a. Visual checks and operational tests of the central processor, local processors, monitors, keyboards, system printers, peripheral equipment, Access Control System equipment, power supplies, and electrical and mechanical controls.
- b. Clean system equipment, including interior and exterior surfaces.
- c. Perform diagnostics on equipment.
- d. Check and calibrate each ACS device.
- e. Run system software and correct diagnosed problems.
- f. Resolve previous outstanding problems.

2. Provide software and firmware updates issued free of charge by the manufacturer.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Material and equipment specified herein have been selected as the basis of acceptable quality and performance and have been coordinated to function as components of the included systems. Where a particular material, device, equipment or system is specified directly, the current manufacturer's specification for same is a part of these specifications, as if completely elaborated herein.
- B. Remove manufacturer identification marks from visible equipment. Provide materials permanently labeled with the manufacturer's name, model and serial number.
- C. Use standard, regularly manufactured, materials and equipment for this and/or other similar systems, and not custom designed especially for this project. Provide systems and components thoroughly tested and proven in actual use. Provide subsystems of one manufacturer.

2.2 EQUIPMENT ENCLOSURES

- A. Manufacturer: Hoffman, or equivalent.
- B. General: Provide cabinets with:
 1. Hinged and lockable door containing a lock kit (keyed alike with other security enclosures on the project)
 2. Panduit "F" type slotted duct for routing of individual conductors
 3. One tamper switch for each enclosure
- C. SECs
 1. Type: NEMA type 1 enclosure
 2. Size: 16" x 16" x 6" minimum
 3. Accessories:
 - a. Back panel for mounting of the relays, and terminal strips
 - b. One 5" electric muffin fan for each enclosure housing electrically powered devices.
 - 1) One exterior screen for each fan
 4. Manufacturer:
 - a. Hoffman #A-16N16BLP with #A-16N16MP back panel and #A-L12AR lock kit
 - b. SquareD
 - c. Or Equal
- D. Door Equipment Junction Boxes
 1. Type: NEMA type 1 enclosure
 2. Size: 10" x 10" x 6" minimum
 3. Accessories:
 - a. Back panel for mounting of the relays, and terminal strips
 - b. One 5" electric muffin fan for each enclosure housing electrically powered devices.
 - 1) One exterior screen for each fan

4. Manufacturer:
 - a. Hoffman #A-10N10ALP with #A-10N10MP back panel
 - b. SquareD
 - c. Or Equal

2.3 POWER SUPPLIES/BATTERY CHARGERS

- A. General:
 1. Provide power supplies with the following features:
 - a. AC power fail supervision (form "C" contact)
 - b. Low battery supervision (form "C" contact)
 - c. Low battery disconnect feature to prevent battery from deep discharge
 - d. Built-in charger for sealed lead acid or gel type batteries
 - e. Automatic switchover to battery when AC power fails
 - f. Thermal and short circuit protection with automatic rested
 - g. Fused battery protection
 - h. AC input and DC output LED indicators
 2. Size power supplies for maximum loading of 75% of rated continuous capacity.
 3. Size batteries to provide 2 hours of continuous power backup at the rated continuous current.
- B. Device Power Supplies:
 1. Provide a 120 VAC input 12 VDC output, continuous current, fully supervised power supplies for power to motion detectors, and other similarly power security devices.
 2. Manufacturer:
 - a. Altronix #AL600ULX
- C. Specialty Power Supplies: Refer to the individual system specifications for specialty power supply requirements for access control systems, intercoms, video surveillance, or long range card readers.

2.4 BATTERIES

- A. General:
 1. Refer to specific sections for battery back-up requirements in the event of a power failure or emergency.
- B. Manufacturer: Yuasa #YA-NP12A

2.5 MISCELLANEOUS INTERFACE RELAYS

- A. Type: Standard industry control, plug-in type with LED indicator lights to indicate when the relay is energized.
- B. Contacts: Rated for 10 amps at 120VAC.
- C. Coil Operating Voltage: As required, with 24VDC as first choice
- D. Incorporate the following features
 1. Color-coded Test button
 2. Mechanical flag
 3. Snap-on label

4. Pilot light
 5. 2mm test jacks
 6. Dual contact markings
 7. Snap-on number & letter markers
 8. Solid bus-bar socket construction
- E. Mount relay bases on standard mounting rails
- F. Use these relays for lock power switching application and. Do not use the output contacts on the access controllers since their rating is not adequate.
- G. Manufacturer:
1. Turck #Releco
 2. Idec
 3. Or Equal

2.6 TAMPER RESISTANT HARDWARE

- A. Provide pinned-allen type hardware for exposed hardware in public spaces.
- B. Provide hardware used in specialty metal surfaces that posses a similar finish color.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Conditions: Verify existing conditions, which have been previously provided under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
- B. Pathways: Verify that pathways and supporting devices, which have been previously provided under other sections, are properly installed, and that temporary supports and devices have been removed.
- C. Field Measurements: Verify dimensions of pathways, including length of pathways. For example, "True Tape" the conduits to verify cable distances.

3.2 FIELD QUALITY CONTROL

- A. Staffing: Provide a qualified foreman who is in charge of the Work and who is present at the job site at times Work is being performed. Perform the Work using skilled technicians under the direction of the foreman. Supervise the work force executing the Work. Perform the installation within the restraints of the construction schedule. Do not change the supervisor during the project without prior written approval from the Owner.
- B. Inspection: Perform inspection after installation. Keep areas of work accessible and notify code authorities, or designated inspectors, of work completion released for inspection. Document completion, and inspection as required.

3.3 INSTALLATION

- A. Perform this work in accordance with acknowledged industry and professional standards and practices and the procedures specified herein.
- B. Provide a complete, operating system. Include devices specified including basic components and accessories, interconnecting wiring and other equipment and installation devices necessary for a complete system as specified.

- C. Manufacturer's Instructions:
 - 1. Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.
 - 2. Maintain jobsite file of Material Safety Data Sheets (MSDS) for each product delivered to jobsite.
- D. Boxes, Panels, and Enclosures
 - 1. Install boxes, panels, and enclosures square and plumb.
 - 2. Set "flush mounted" units with the face of the cover, bezel or escutcheon in the same plane as the surrounding finished surface.
 - 3. 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.
 - 4. Install insulating terminations in signal circuit boxes, panels, wireways or enclosures.
- E. 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, at not cost to the Owner.
- 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 Engineer for review prior to performing punch walk with the Engineer.
- C. Re-Installation:
 - 1. Make changes to the system such that defects in workmanship are correct and cables and the associated termination hardware passes the minimum test requirements.
 - 2. Repair defects prior to system acceptance.
- D. Painting: Repaint surfaces altered during installation of the security system to match previous conditions.

3.5 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas. Remove unused products, debris, spills, or other excess materials. Remove installation equipment.
- B. Leave finished work and adjacent surfaces in neat, clean condition with no evidence of damage.
- C. Repair or replace damaged installed products.
- D. Legally dispose of debris.
- E. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

END OF SECTION