# Changes to Division 28:

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<td>8/18/06</td>
<td>General revision</td>
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PART 1 – GENERAL

1.1 TERMS AND CONDITIONS

A. It is the intent of the Drawings and Specifications to provide a complete, workable, and ready for the Owner’s use: 1) Networked CATV video surveillance and recording system, and, 2) Electronic door control system. Any item not specifically shown on the Drawings or called for in the Specification, but normally required for a complete system, are to be considered a part of the installation.

B. Consideration other than cost alone will be used in making the determination of the successful contractor. These factors will include financial stability, availability, design support, project management, field supervision, training and service.

1.2 CONTRACTOR QUALIFICATIONS

A. The project contractor will have experience in the installation of low voltage applications such as, but not limited to, data, voice and imaging network systems. The contractor will possess these minimum qualifications:
   1. Personnel trained and certified in the design and installation of the proposed system.
   2. Provide references from other educational institutions.
   3. Personnel knowledgeable in local, state, and national codes, and regulations. All work shall comply with the latest revision of the codes or regulations. When conflict exists between local or national codes or regulations, the most stringent codes or regulations shall be followed.
   4. Be in business a minimum of five (5) years.
   5. Must have personnel fluent in the use of Computer Aided Design and possess and operate CAD software using .DWG or .DXF format.
   6. Personnel trained and knowledgeable in the design and installation of Ethernet networks.

1.3 INSTRUCTIONS TO THE BIDDER

A. The bid shall include all costs deemed necessary to cover all contingencies essential to the installation of the specified system.

B. Total cost for installation, materials, labor project management, permit fees, and other miscellaneous items must be listed separately.

C. A complete materials list, including description, manufacturer, part number, quantity, unit price and total price must also be included.

D. A statement of estimated labor hours and prevailing hourly labor rates must be included.

E. All products and materials shall be new, clean, free of defects and free of damage and corrosion.

F. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

G. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

H. Any cost encountered, which is not specifically itemized in the bid, shall not be incurred unless specifically agreed upon, in writing.
I. No additional compensation will be allowed for extra work incurred on the part of the contractor due to the bidder’s failure to notice any existing condition, which may cause the additional labor.

J. Bid responses shall be concise following the format and numbering of this specification.

K. Bidders must notify the Owner as soon as detected any omissions or errors in the specification so corrective addenda may be issued. Such notification must be received by the Owner prior to the bid opening.

L. The Owner reserves the right to consider bids that exceed these requirements.

M. Freight costs must be included on all materials.

1.4 RIGHTS OF THE OWNER

A. Reserves the right to accept and bid or, at its discretion, reject any bids for whatever reasons it deems appropriate.

B. Reserves the right to purchase ALL or PART of the materials and hardware needed for the project.

C. Receipt of a bid response does not obligate the purchaser to pay any expenses incurred by the bidder in preparation of the bid response or obligate the Purchaser in any other respect.

D. Reserves the right to modify the specifications anytime during the bidding period through addendum.

E. Only changes issued as an addendum will be binding upon the Owner. No verbal instructions or interpretations of requirements shall be accepted.

1.5 SCOPE OF WORK

A. Networked CATV Surveillance System

1. The networked CATV Video Management, Surveillance and Recording system shall be installed

2. The system will be TCPIP based, offer multiple simultaneous accesses via a web browser interface to any camera in the system, and use the latest compression technology. The system will support black and white video surveillance for the exterior and interior of the building. The construction contractor will provide raceways and the data cabling contractor will provide data cabling to the cameras and server(s). The bidder will provide all other components to connect the video surveillance system into the existing network.

3. Related sections include but not limited to the following sections:
   a) Division 16 Section "Basic Electrical Materials and Methods".
   b) Division 16 Section “Grounding and Bonding”.
   c) Division 16 Section “Seismic for Electrical Work”.
   d) Division 16 Section “Electrical Identification”.
   e) Division 16 Section “Electrical Testing”.
   f) Division 16 Section “Conductors and Cables”.
   g) Division 16 Section “Fire Alarm System”.

B. Electronic Door Access System
1. The building shall have electronically controlled doors. Complete with magnetic stripe card reader to allow after hours access to authorized personnel.

2. The system will include the installation of devices at locations as shown. The system will include software to control the doors for scheduled locking and unlocking, user access configuration, and reporting. The software will run on a Windows-based PC system to be provided by the Contractor. The system will interface with the security alarm system to disengage building alarms.

C. The Contractor will provide:

1. Card Access System
2. CATV System
3. Perimeter Security system
4. Training
   a) The Contractor will provide the Owner’s representatives any and all training necessary to administer, maintain, support and operate the system. This includes but is not limited to:
   b) Owner’s technical staff will work closely with installer during system installation and receive at least two full days of instruction on the system, including system administration, configuration, and installation of additional cameras, system upgrades.
   c) The technical training is to be completed three (3) months prior to start-up
   d) End-user training will be conducted two weeks prior to building occupancy, and a knowledgeable representative will be on-site for a minimum of two days during the first two weeks of building occupancy.
   e) End-user training will include up to 6 staff members and will adequately prepare the staff to use the system to monitor live video, play back recorded video, save video segments to hard drive and archive video to tape.
   f) Manuals for all system components will be provided at the time of training.
   g) Drawings of the entire system with appropriate labeling of all devices will be submitted on paper and electronically in Visio format.

5. Warranty
   a) The Contractor will warranty the entire system for a minimum of one (1) year from the time of acceptance. All parts, labor, shipping and service calls will be included in the warranty.
   b) Additionally, the DVR system hardware will have a minimum warranty of three years on all parts. Replacement parts will be shipped via next day air for any failed component.
   c) During the first year of operation, the Contractor will respond on-site within 24 hours of notification of system failure.

6. Approved Contractors
   • List Vendors Here

D. Approved Systems
BYU INSTRUCTIONS TO ARCHITECTS & ENGINEERS
DIVISION 28: ELECTRONIC SAFETY AND SECURITY

- Software House C-Cure (Access Control)
- Pelco (CATV equipment)

E. Administration Documentation

1. Labeling Cameras: Cameras will be labeled and identified according to location within the building. All inputs to the DVR will be appropriately labeled for ease of identification.

2. Drawings: As-built drawings shall be supplied by the contractor showing the locations of and identifiers for all system components.

3. Records: All records shall be created by the installation contractor and turned over at the completion of work. The format shall be computer based (Visio format preferred) and both soft copies and hard copies shall be part of the As-built package.

END OF SECTION 13715
# BYU INSTRUCTIONS TO ARCHITECTS & ENGINEERS
## DIVISION 28: ELECTRONIC SAFETY AND SECURITY

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May 2009

13.5
PART 1 – GENERAL

1.1 SCOPE OF WORK

A. Introduction:

   The Contractor shall provide, install, and program a functionally complete, integrated CATV System per Manufacturer's guidelines, codes described, and these specifications with all equipment being UL listed.

B. Work include under this section:
   1. Complete Functional System and it’s Components.
   2. Complete System Wiring.
   3. Mounting Panels, Accessories, etc. as required for a complete installation.
   4. System Programming and Integration.
   5. Services as required for a complete functional system.
   6. Training, 4 Hours minimal.

C. Related work specified under other sections of these Specifications:
   1. Provision for 120 volts power as required for the entire system.
   2. Provision for 24 VDC as required for the entire system.
   3. Grounding

D. Related sections include but not limited to the following sections:
   1. Division 16 Section "Basic Electrical Materials and Methods".
   2. Division 16 Section “Grounding and Bonding”.
   3. Division 16 Section “Seismic for Electrical Work”.
   4. Division 16 Section “Electrical Identification”.
   5. Division 16 Section “Electrical Testing”.
   6. Division 16 Section “Conductors and Cables”.
   7. Division 16 Section “Fire Alarm System”.

1.2 GENERAL CONDITIONS

A. Submittals at bid time: For bid evaluation, bid submittals shall include three (3) sets of the items described below:
   1. Specification sheets (cut sheets) of all proposed equipment.
   2. Equipment list identifying:
      a. Model number of each unit.
      b. Quantities of each type of device.
   3. Specification compliance: A letter submitted with the bid, responding to specification sub-sections individually, indicating exceptions, substitutions, and alternates. The Contractor shall submit requests for substitutions (as well as all relevant technical data pertaining to the substituted equipment) to the specifier 20 days prior to the close of bid for evaluation and approval.

B. Submittals after award of contract:
   1. Drawings: Shop drawings to provide details of proposed system and the work to be provided. These include point-to-point drawings of systems and wiring diagrams of individual devices.
2. The Contractor must be Currently Licensed by the State of Utah as a Burglar Alarm Company. All persons installing any portion of the CATV System must be Currently Licensed by the State of Utah as a Burglar Alarm Company Agent. The Qualifying Agent of the Licensed Burglar Alarm Company must supervise the job.

C. Documentation to be submitted by the Contractor upon completion of system installation:
1. "As-builts": Upon completion of installation, the Contractor shall prepare "as-built" drawings of the system.
2. "As-built" shall be submitted to the Owner for approval prior to the system acceptance walkthrough.
3. Operation and maintenance manuals: Three (3) sets of operating manuals shall be provided explaining the operation and maintenance of the system.

D. On-site security personnel training: the Contractor upon completion of installation shall furnish Training in the complete operation of the systems. A minimum of one (1), four (4) hour Class.

E. System approvals:
1. The system shall be a product of one or more of the approved manufacturers. The manufacturer(s) shall have been in business manufacturing similar products for at least 5 years.

F. Quality assurance: All equipment, systems, and materials furnished and installed under this section shall be installed in accordance with the applicable standards of:
1. National codes: NEC, NFPA, UBC
2. Approvals and listings: UL
3. Local authorities having jurisdiction

G. Warranty: All components, parts, and assemblies supplied by the Manufacturers and installed by the Contractor shall be warranted against defects in material and workmanship for a period of at least 12 months (parts and labor), commencing upon date of acceptance by Owner. A qualified factory-trained service representative shall provide warranty service.

H. Service/Maintenance:
1. System repair due to workmanship defects during the warranty period shall be provided by the Contractor free of charge (parts and labor).
2. Periodic testing of the system shall be carried out on a monthly or quarterly basis to ensure the integrity of the system. The owners’ maintenance personnel may perform this testing. A yearly test of the system shall be performed by the Contractor within a window of 14 days of the annual completion date of the system.
3. The installer shall correct any system defect within six (6) business hours of receipt of call from the Owner.
4. The Contractor for shall offer extended service/maintenance agreements up to four years after the warranty expires. The agreement shall be renewable monthly, quarterly, or yearly.

1.3 WARRANTY: When warranties are required, verify with Owner's counsel that special warranties stated in this Article are not less than remedies available to Owner under prevailing local laws. Coordinate with Division 1 Section "Product Requirements."

A. Special Warranty: Manufacturer's standard form in which manufacturer and Installer agree to repair or replace intrusion detection devices and equipment that fail in materials or workmanship within specified warranty period. Verify available warranties for units and components and insert number below. One-year warranty is industry standard for intrusion detection devices and equipment; some manufacturers provide two-year warranties if requested.

B. Warranty Period: One year from date of Substantial Completion.
1.04 INSTRUCTIONS TO THE BIDDER

A. The bid shall include all costs deemed necessary to cover all contingencies essential to the installation of the specified system.

B. Total cost for installation, materials, labor project management, permit fees, and other miscellaneous items must be listed separately.

C. A complete materials list, including description, manufacturer, part number, quantity, unit price and total price must also be included.

D. A statement of estimated labor hours and prevailing hourly labor rates must be included.

E. All products and materials shall be new, clean, free of defects and free of damage and corrosion.

F. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

G. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

H. Any cost encountered, which is not specifically itemized in the bid, shall not be incurred unless specifically agreed upon, in writing.

I. No additional compensation will be allowed for extra work incurred on the part of the contractor due to the bidder’s failure to notice any existing condition, which may cause the additional labor.

J. Bid responses shall be concise following the format and numbering of this specification.

K. Bidders must notify the Owner as soon as detected, any omissions or errors in the specification so corrective addenda may be issued. The Owner prior to the bid opening must receive such notification.

L. The Owner reserves the right to consider bids that exceed these requirements.

M. Freight costs must be included on all materials.

1.5 RIGHTS OF THE OWNER

F. Reserves the right to accept and bid or, at its discretion, reject any bids for whatever reasons it deems appropriate.

G. Reserves the right to purchase ALL or PART of the materials and hardware needed for the project.

H. Receipt of a bid response does not obligate the purchaser to pay any expenses incurred by the bidder in preparation of the bid response or obligate the Purchaser in any other respect.

I. Reserves the right to modify the specifications anytime during the bidding period through addendum.

J. Only changes issued as an addendum will be binding upon the Owner. No verbal instructions or interpretations of requirements shall be accepted.
PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

The CATV system specified herein shall include:
  Digital Video Recorder, 16 Channels Color Duplex Digital Multiplexer Exterior Vandal Resistant Color Cameras (PTZ as required), Interior Vandal Resistant Color Cameras, Power Supplies, converters, joy sticks, racks, etc as required for a complete system and as shown on the plans.

2.2 The following describes the general functional requirements of the CATV system:

A. The CATV System shall be used to provide video documentation of the actions of the residents, guests, employees and any others observed/recorded by the CATV system.

B. The CATV System shall provide a means of training by resident and/or employee(s) reviewing of the actions of the residents, guest, employees and any others recorded by the CCTV system.

C. All Cameras of the CATV System must be able to be recorded simultaneously on one Video Tape for up to 168 hours.

D. Any or All Cameras of the CATV System must be able to viewed at all times while recording.

2.3 SYSTEM FEATURE/CAPABILITY SUMMARY

The following indicates system software/hardware capabilities, capacities, and formats:

A. Pelco - Digital Video Recorder (Model based upon application requirements)

B. Pelco - 16 Channel Color Duplex Digital Multiplexer (Model based upon application requirements)

C. Pelco - Interior and exterior vandal resistant camera body, lens and enclosure selected for application

N. Power Supply: Pelco product sufficient for application, plus 20% extra capacity.

K. Cable: RG6/RG59 w/18g 2c encased as required.

L. All mounting accessories as required for proper installation.

2.4 SYSTEM INTERFACE REQUIREMENTS

A. Grounding: The Electrical Contractor shall properly earth ground the CATV Power Supply to prevent electrostatic charges and other transient electrical surges from damaging the CATV System.

B. Primary power: The Electrical Contractor shall provide a dedicated 120VAC power circuit to the CATV system. This circuit shall be connected to the emergency power system.

C. Wiring: The contractor shall provide cables consistent with the manufacturer’s recommendations. The following general guidelines shall be followed for wiring installation:

1. Wiring shall be appropriately color-coded with permanent wire markers. Stranded Copper conductors shall be used.

2. All cables provided under this contract shall be Class II. Where subject to mechanical damage, wiring shall be enclosed in metal conduits or surface metallic raceway as per NEC.

3. Wires shall not be enclosed in conduit or raceways containing AC power wires.
2.5 MANUFACTURERS:

A. Manufactures: Subject to compliance with the requirements, provide video surveillance system products of one or more of the following.
   1. Pelco.

2.6 APPROVED CONTRACTORS:

- List approved vendors here

PART 3 - EXECUTION

3.1 INSTALLATION

Install all equipment and materials in accordance with the "current" recommendations of the manufacturer. The work shall also be in accordance with:

A. Installation criteria defined in these specifications and in the construction documents.

B. Approved submittals.

C. Applicable requirements of referenced standards.

3.2 SUPERVISION

The contractor shall provide the following services as part of the contract:

A. Supervision of sub-contractors.

B. Coordination of other contractors for system-related work (electrical contractor, finish hardware contractor, architect, and general contractor).

C. Attending site construction/coordination meetings.

D. Keeping updated construction drawings at the construction site.

E. Meeting construction deadlines per the construction schedule.

3.3 PROGRAMMING

Programming of the system shall include the following tasks:

A. Programming system configuration parameters (hardware and software)

3.4 TESTING

Operational Testing: The contractor shall perform thorough operational testing and verify all system components are fully operational.

3.5 COMMISSIONING

The contractor shall certify completion in writing and schedule the commissioning walk-through. The contractor shall provide all the tools and personnel needed to conduct an efficient commissioning process.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. The system will include the installation of a complete functional, workable and ready for the owner for use, the card access system shall be electronic door control system, modular, microprocessor-based controls, intrusion sensors and detection devices, and communication links to perform monitoring, alarm, and control functions.

2. Any item not specifically shown on the drawings or called for in the Specification, but normally required for a complete system is to be considered a part of installation.

3. Responsibility for integrating new and existing electronic and electrical systems and equipment as specified in this bid document.

4. Related sections include but not limited to the following sections:
   a. Division 16 Section "Basic Electrical Materials and Methods"
   b. Division 16 Section “Grounding and Bonding”.
   c. Division 16 Section “Seismic for Electrical Work”.
   d. Division 16 Section “Electrical Identification”.
   e. Division 16 Section “Electrical Testing”.
   f. Division 16 Section “Conductors and Cables”.
   g. Division 16 Section “Fire Alarm System”.

1.3 DEFINITIONS

A. LCD: Liquid-crystal display.

B. LED: Light-emitting diode.

1.4 SUBMITTALS

A. Product Data: Components for sensing, detecting, systems integration, and control, including dimensions and data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: Detail assemblies of standard components that are custom assembled for specific application on this Project.
1. Functional Block Diagram: Show single-line interconnections between components including interconnections between components specified in this Section and those furnished under other Sections. Indicate methods used to achieve systems integration. Indicate control, signal, and data communication paths and identify programmable logic controller networks and control interface devices and media to be used. Describe characteristics of network and other data communication lines.

2. Raceway Riser Diagrams: Detail raceway runs required for intrusion detection and for systems integration. Include designation of devices connected by raceway, raceway type, and size, and type and size of wire and cable fill for each raceway run.

3. Site and Floor Plans: Indicate final outlet and device locations, routing of raceways, and cables inside and outside the building. Include room layout for local control-unit console, terminal cabinet, racks, and UPS.

4. Local Control-Unit Console Layout: At full scale, showing required artwork and device identification.

5. Device Address List: Coordinate with final system programming.

6. System Wiring Diagrams: Include system diagrams unique to Project. Show connections for all devices, components, and auxiliary equipment. Include diagrams for equipment and for system with all terminals and interconnections identified.

7. Details of surge-protection devices and their installation.

8. Sensor detection patterns and adjustment ranges.

C. Equipment and System Operation Description: Include method of operation and supervision of each component and each type of circuit. Show sequence of operations for manually and automatically initiated system or equipment inputs. Description must cover this specific Project; manufacturer's standard descriptions for generic systems are not acceptable.

D. Samples for Initial Color Selection: For control panels with factory-applied color finishes.

E. Samples for Color Verification: For each type of exposed finish required for control panels.

F. Qualification Data: For Installer manufacturer intrusion detection systems integrator.

G. Field quality-control test reports.

H. Operation and Maintenance Data: For intrusion detection system to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Closeout Procedures, Operation and Maintenance Data," include the following:

1. Include data for each type of product, including features and operating sequences, both automatic and manual.
2. Central-station control-unit hardware and software data.

I. Warranties: Special warranties specified in this Section.

J. Other Information Submittals:

1. Test Plan and Schedule: Test plan defining all tests required to ensure that the system meets technical, operational, and performance specifications within 60 days Insert number of date of Contract award.
2. Examination reports documenting inspections of substrates, areas, and conditions.
3. Anchor inspection reports documenting inspections of built-in and cast-in anchors.
1.5 QUALITY ASSURANCE

A. Installer Qualifications: A NICET certified technician who is an authorized service representative of installation contractor.

B. Manufacturer Qualifications: A qualified manufacturer. Maintain a service center capable of providing training, parts, and emergency maintenance repairs for overall system at Project site with eight hours maximum response time.

C. Systems Integrator Qualifications: An experienced intrusion detection equipment supplier and installer who has completed systems integration work for installations similar in material, design, and extent to that indicated for this Project, and whose work has resulted in construction with a record of successful in-service performance.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of detection devices and central-station control units and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. FMG Compliance: FMG-approved and labeled intrusion detection devices and equipment.

G. Comply with NFPA 70.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:

1. Altitude: Sea level to 5000 feet.
2. Local Control Unit: Rated for continuous operation in an ambient of 60 to 85 deg F and a relative humidity of 20 to 80 percent, noncondensing.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer and Installer agree to repair or replace intrusion detection devices and equipment that fail in materials or workmanship within specified warranty period.

B. Warranty Period: One year from date of Substantial Completion.

1.8 INSTRUCTIONS TO THE BIDDER

O. The bid shall include all costs deemed necessary to cover all contingencies essential to the installation of the specified system.

P. Total cost for installation, materials, labor project management, permit fees, and other miscellaneous items must be listed separately.
Q. A complete materials list, including description, manufacturer, part number, quantity, unit price and total price must also be included.

R. A statement of estimated labor hours and prevailing hourly labor rates must be included.

S. All products and materials shall be new, clean, free of defects and free of damage and corrosion.

T. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

U. Where discrepancies are found during the bid process, the most stringent requirements must be included in the bid.

V. Any cost encountered, which is not specifically itemized in the bid, shall not be incurred Unless specifically agreed upon, in writing.

W. No additional compensation will be allowed for extra work incurred on the part of the contractor due to the bidder’s failure to notice any existing condition, which may cause the additional labor.

X. Bid responses shall be concise following the format and numbering of this specification.

Y. Bidders must notify the Owner as soon as detected any omissions or errors in the specification so corrective addenda may be issued. Such notification must be received by the Owner prior to the bid opening.

Z. The Owner reserves the right to consider bids that exceed these requirements.

AA. Freight costs must be included on all materials.

### 1.9 RIGHTS OF THE OWNER

M. Reserves the right to accept and bid or, at its discretion, reject any bids for whatever reasons it deems appropriate.

N. Reserves the right to purchase ALL or PART of the materials and hardware needed for the project.

O. Receipt of a bid response does not obligate the purchaser to pay any expenses incurred by the bidder in preparation of the bid response or obligate the Purchaser in any other respect.

P. Reserves the right to modify the specifications anytime during the bidding period through addendum.

Q. Only changes issued as an addendum will be binding upon the Owner. No verbal instructions or interpretations of requirements shall be accepted.
PART 2 - PRODUCTS

2.1 PRODUCTS

A. The access controller shall be 'smart' to the entry and be able to operate in a 'stand-alone' mode or within a network of other like controllers. All decisions regarding the user access, alarms, and automatic timed functions are made at the controller, independent of a computer.

B. The controller shall contain and operate various outputs for controlling access:
   1. Cancellation transformers to an electric locking device, automatic gate, or door operator.
   2. An alarm output consisting of a 1.0 amp, Form C, dry circuit closure.
   3. The alarm output must be configurable to annunciate
      a. Door forced condition.
      b. Door held open condition.
      c. Both conditions.
      d. Neither condition.
   4. An RS485 network communications output capable of linking up to 128 controllers into one network.
   5. A serial RS232 output provided at a built-in DB-9M connector that is automatically configured for direct connection to a personal computer or to a modem without a PC attached to the remote site.

C. The controller shall contain and manage various inputs for controlling access:
   1. A door status input for sensing a normally closed switch.
   2. A request to exit, normally open input for remote operation of an electric locking device, automatic gate, or door operator.
   3. A general, normally open input that can provide a global release of all lock relays in the network.
   4. A special purpose, multi-pin connector for adding an auxiliary board for increasing the functionality of the main controller.
   5. Multiple magnetic swipe card inputs.

D. The controller shall contain special visual aids for viewing diagnostic tests and ID functions:
   1. An LCD display to be used as a programming and diagnostic aid.
   2. A segmented LED display to be used as a controller address display.

E. The controller's database memory shall be nonvolatile (supported by a lithium battery with an expected life of at least five years):
   1. The database shall maintain a memory capacity to manage 10,000 card or tag holders per controller and it shall be expandable to 50,000 card or tag holders per controller.
      a. Cards can be enrolled into the system using a block enrollment method. This method shall allow card enrollment by serial number.
      b. Card and tag enrollment can also be accomplished by a 'learn' method, requiring the card to be presented to an enrollment reader at the time of enrollment.
   2. The database shall maintain a memory capacity capable of storing at least 3,600 transactions.
      a. When the transaction memory becomes full, old transactions will be deleted on a first in, first out basis to make room for new transactions.
      b. The controller's transaction memory shall be a record of all transactions performed by the controller.
      c. The transaction memory shall operate independent of other controllers within the network of controllers.
   3. The controller shall be capable of communicating with a personal computer at a remote location via a telephone modem.
      a. The modem shall communicate at 9600 baud or faster.
b. The controller shall contact the host when the controller's buffer reaches a pre-programmed percentage of its transaction database memory capacity.

4. The controller shall be capable of automatically adjusting for daylight savings time on a per network basis if desired by the user.

F. The controller shall provide two reader inputs (ISTAR MODULE):
   1. Two readers can be operated simultaneously.
   2. The readers can be configured to indicate direction – ingress and egress.
   3. The second reader can be used to independently operate a second door.

G. The controller shall be programmed using a personal computer with the following requirements:
   1. The personal computer must use the Windows XP operating system. Provide Software House C-Cure 800, Version 8.1 (or the latest version).
   2. The personal computer must use a 3.2 GHz, Pentium microprocessor (or faster).
   3. The personal computer must have 120 Gbytes of available hard disk space.
   4. The personal computer must have a minimum of 1 GBytes of RAM.
   5. The personal computer must have an available COM port equipped with a 16550 UART.
   6. The personal computer must have a mouse or some similar pointing device.
   7. The personal computer must have a 3.5-inch floppy disk drive and CDRW.

H. The maximum dimensions for the controller within the enclosure shall be 9.25 inches high by 8.2 inches wide by 2.6 inches deep (24.65 cm H x 20.25 cm W x 6.60 cm D).

I. All cable/wiring connections shall be of quick disconnect type.

J. The controller shall operate using 12 volts DC with a current consumption of less than 500 mA.

K. The operating temperature range of the controller shall be no less than 32º F to 140º F (0º C to 60º C).

L. No splices allowed in L.V. wiring.

2.2 SOFTWARE: All configuration, programming, and monitoring of the controllers must be done through a software program that makes these tasks easy to perform.

The software program must have the following features:
   1. Be able to manage up to 896 distinct time zones grouped by multiple time intervals and by days of the week.
   2. Be able to configure up to 1024 input monitoring points and 512 Form C, output relay points with the following features:
      a. All Form C, output relay points must be programmable to either follow the state of an associated input point or be latched to a state based on an input point.
      b. The operation of all Form C, output relay points must be assignable to time zones, such that the output relay points can have time periods when they are active/operational, and time periods when they are inactive/idle.
      c. All input monitoring points must be linkable to output relay points, allowing input events to initiate output relay responses.
   3. All input monitoring points and output relay points must be able to be used in multiple links, allowing any combination of inputs to drive any combination of outputs.
   4. Be able to configure up to 3, separately configurable, event monitoring windows, with each window capable of displaying event information from any individual controller or all controllers on the access control network.
   5. Be able to automatically unlock specific doors at a given time of the day and day of the week, with user defined overrides on user defined dates.
At user’s option, a ‘First Person In’ feature may be enabled, with or without 15 minute incremental delays, up to one hour.

6. Be able to disable the reporting of events that do not need to be tracked, to save event storage space on the controller.

The access control (iSTAR MODULE) network of controllers must be able to expand to meet future requirements as follows.

1. An access control (iSTAR MODULE) network must be able to expand to up to 256 doors in 1 door increments.
2. The access control software and host PC must be able to communicate with up to 256 remote access control networks via modem connections.

The primary reader shall be a numeric swipe type of reader with LCD screen. It shall be connected directly to the main controller without the need for an option card and it shall not require a special interface for data formatting. The reader shall read a unique identification number from each card or tag when the card or tag is presented in.

The controller will support a variety of reader styles:

1. A door frame reader (mullion reader) which can be mounted directly on a standard metal mullion doorframe (1.75 inches or 4.5 cm).
   a. The dimensions of the reader shall be 3.25 inches high by 1.40 inches wide by 0.375 inches deep (8.2 cm H x 3.5 cm W x 0.96 cm D).
   b. The reader shall be of a weatherproof, potted, rugged design for outdoor installation.
   c. The reader shall provide a multi-color LED and a sound alert for status annunciation.

2. A single gang mount, wall switch reader which will mount onto a metal or plastic electrical junction box. This reader cannot be mounted on a solid metal surface.
   a. The dimensions of the reader shall be 4.40 inches high by 3.00 inches wide by 0.375 inches deep (11.13 cm H x 7.62 cm W x 0.96 cm D).
   b. The reader shall be of a weatherproof, potted, rugged design.
   c. The reader shall provide a multi-color LED and a sound alert for status annunciation.

3. The operating temperature of all readers shall be at least -22º F to 150ºF (-30ºC to 65ºC).

4. Accidental or intentional transmission of radio frequency signals into the reader shall not compromise the security of the access control system.

5. The electrical connection between the reader and the controller shall be a color-coded, six conductor, #24 AWG or greater gauge, shielded cable. No coaxial cable or special connectors shall be required.

Cards shall be read when presented in any orientation or at any angle to the front of the surface plane of the reader. Cards shall be uniquely encoded and not sensitive to facility code matching or other limiting factors.

1. Presentation of a card to a reader will produce an audio 'beep' from the reader and will change the color of the reader LED.
   a. The audio beep shall be a single beep for access denied and a double beep for access granted.
   b. An Amber LED shall indicate power is on.
   c. A Green LED shall indicate access is granted.
d. A Red LED shall indicate access is denied.

Approved Contractors

- List approved vendors here

Approved Systems

- Software House C-Cure

Administration Documentation

2. Labeling Cameras: Cameras will be labeled and identified according to location within the building. All inputs to the DVR will be appropriately labeled for ease of identification.

3. Drawings: As-built drawings shall be supplied by the contractor showing the locations of and identifiers for all system components.

4. Records: All records shall be created by the installation contractor and turned over at the completion of work. The format shall be computer based (Visio format preferred) and both soft copies and hard copies shall be part of the As-built package.

END OF SECTION