Card Access Control Specifications

1.0   Qualifications

1.01   Pre-qualified vendors for card access on the SHSU campus are: Tyco, IAS, Kratos, Entech

1.02   All integrators and their employees working on the Sam Houston State University (SHSU) campus shall meet the following qualifications and must submit evidence accordingly:

    a) Achieved the status of Advanced Integrator or higher certification from Tyco/Software House approved training centers. Photocopies of certification should be submitted with package response. Certification must be current

    b) Provide detailed customer references for projects performed within 2 years of purchase order date that reflect similar scope and size of SHSU project.

2.0   General Requirements and Notes

2.00   SHSU requires that all exterior doors (including each operable leaf) have active electronic card access

2.01   SHSU has purchased and installed the CCURE 9000 server software, database and licensing. The University has completed installation of door access hardware components at existing campus locations.

2.02   It is the intent of SHSU to maintain consistent and standardize access control installations throughout all SHSU campus' by dictating design, door hardware, wiring, and electronic devices/controllers used in construction. SHSU will have final approval of the fore mentioned components in construction where work has been subcontracted to 3rd parties.

2.03   It is the responsibility of the access control integrator or company to generate an exceptions list prior to bidding or installation that itemizes exceptions taken with door hardware schedules, components or designs being used which may hamper their ability to provide a secure and compliant access control product.

2.04   The SHSU Access Control Shop in the Physical Plant Department and or Residence Life reserves the right to approve or reject final design and/or scope of work for access control on new construction and existing structures.

2.05   When any project or work is declared fully complete, a final walkthrough will take place with the integrator (and general contractor where applicable). A SHSU representative, project manager(s) and customer must participate in a final walk thru prior to acceptance of any access control work. All doors must be functioning properly in the field as well as within the access control software.

2.06   Coordination and hardware review meetings will be held with the integrator and the SHSU Access Control or Residence Life personnel prior to start-up of any access control project.

3.0   Base Specifications

3.01   The system must fully and completely integrate with the most current version of CCURE 9000 door access system purchased from Software House/Tyco Electronic Product Group.

3.02   Allow or deny the unlocking of a locked entrance based on criteria established in the software for individual cardholders.

3.03   Record a log file of all system activity, including door access granted, access denied, alarms, system messages, and data maintenance.

3.04   Allow monitoring of the overall system for functionality and alarms from multiple points. System will require and record alarm acknowledgments by operator.

3.05   Utilize the campus TCP/IP network for communications between controllers and the central database.

3.06   Provide interfaces with other systems, including burglar alarm, panic alarm, fire alarm, and CCTV systems.

3.07   Provide security of the door, even in the event communication is lost to the main database, allowing the door to continue to recognize which cards to grant access to, and continuing to record access transactions.

3.08   Allow proper egress in emergency situations such that no special knowledge or card is required to exit a space.

3.09   Must comply with ADA standards.

3.10   Allow for central administration of the access control database for purposes of populating and maintaining the overall database, while allowing numerous secured users to grant or deny access for individuals from multiple workstations around the campus.

3.11   Allow for unattended scheduled unlocking of individual doors for a sustained period of public access.

3.12   All hardware mounted in exterior locations must be weather resistant and designed to maintain the aesthetic beauty of the campus. The finish of the access control hardware should match the finish of the other door hardware.

3.13   Hardware must be durable enough to withstand high traffic locations without frequent failure.

3.14   Hardware must continue to fully function in the event that communication to the central database is lost.

3.15   All access control system equipment (controllers and readers) must be fully warranted against defects in workmanship for a minimum of one year from date of installation, with an optional four-year extended warranty quote. All hardware must be fully supported for a minimum of five years from date of installation (non-obsolescent), or replaced at no cost to SHSU with supported hardware.

4.0   Standardized Hardware

4.00   The following hardware is specified hardware for access control integrations. No substitutions are allowed.

4.01   Controllers
iSTAR Intelligent Network Controllers
STAR008W-64ANPS - 8-reader controller without power supply.
STAR 016W-64ANPS - 16-reader controller without power supply.
ESTAR002 iSTAR Edge – 2-reader controller

4.02   **Readers**

Schlage MTM S15 Card Reader/ Multi-tech and mag reader track 3 with XF7710 proximity sticky disk

4.03   **Exit Devices (Mechanical)**
Von Duprin 98/99 Series

4.04   **Electric Strikes**
Von Duprin Series 6000 24 Volt
HES 1006 Strike
HES 9600 RIM Strike or HES 9500 RIM for fire rated applications

4.05   **Electric Power Transfer**
Von Duprin
EPT-10

EPT-5

Armored cable door loops – used on pivot hinge doors in place of GVUX power transfer.

Alarm Lock AL271
Keedex K-DLA12

4.06   **Power Supplies and Batteries**
Altronix AL600 Series Power Supplies
Altronix Batteries
Base Electronics LVPC201144-24 - 8 Door Power Distribution Enclosure with Aux Power Output for auxillary door components (REX motion detector, sounders, etc.)

Base Electronics LVPC201181-24 - 16 Door Power Distribution Enclosure with Aux Power Output for auxillary door components (REX motion detector, sounders, etc.)

Von Duprin PS914 to include 900 battery back-up kit and an additional 900 2RS 2 relay EL panic device control board.

4.07   **Relays**
        Altronix Relay
        Altronix 6062 – Time delay relay (for ADA doors.)
        IDEC
        IDEC RHU1B and RHU2B Relays (in Base Power Distribution Enclosures)

4.08   **NOT USED**

4.09   **Request to Exit (REX)** Request to exit

        Detection Systems :   BOSCH DS 150i Request to Exit Motion Detector

4.10   **Cabling:** *Composite Cabling*

4.11   **Device Servers**

4.12   **Personality Module and Housing**
        RM4 Reader Module

4.13   **Door Switches**
        Sentrol (GE)
        Sentrol 1078C – Flush Mounted Door Position Switch (Color Match)
        Sentrol AL2505 – Surface Mounted switch with Armored Cable

4.14   **Input/Output Module**
        Software House (Tyco)
        AS0073-00 – RM Module I8 Inut Module
        AS0074-00 – RM Module R8 Output Module

4.15   **Horns/Alarms:** Detect Systems DS-4200KI – Door Prop Alarm

4.16   **Emergency Push Button Covers w/Horn:** SDC
        491 – Break Glass Station with Horn

5.0   Network Topography

5.01   SHSU uses a star configuration with each access/alarm point being a 'home run' back to the access control panel from the personality module located above the door or the card reader. The cabling between the personality module (RM Reader) and the access control panel will be the composite cabling outlined in the section 4.10. All communication and power to the individual doors will come from the access control panel location. An exception to this will be made when

specific hardware requires a localized power supply. When possible a trunk conduit/raceway should be established in common hallways to accommodate multiple 'home run' composite cables.

6.0   Installation Requirements

6.01   Not Used

6.02   Panel and any network device server will be wired through a dedicated power supply with battery backup.

6.03   Power is to be access control panels is to be hardwired utilizing EMT or rigid conduit in accordance with section 6.10 of this specification.

6.04   Not Used.

6.05   A circuit from Fire Alarm panel must be installed to each Lock Power Distribution panel. In applications that include mag-locks, contractor will connect to a Fire Alarm circuit provided at the controller backboard by the Fire Alarm Contractor.

6.06   Access control panels are to be installed in network or electrical closets as approved by the SHSU Access Control Shop or Residence Life. All panels and boards must be installed in NEMA 4 enclosure(s) (within the electrical closet) that are of sufficient size and orientation to include all card access system components. All enclosures must be lockable and located in a manner that the enclosures will be accessible by maintenance personnel.

6.07   Each panel will be labeled accordance with SHSU standards. The label for each panel will be posted on the exterior of the panel door.

6.08   Each panel will have a list of readers (university door numbers) connected to it located on the inside cover. A detailed door and reader layout drawing will be located on the inside of the panel door in an appropriate sleeve and keeper.

6.09   Installation of network connection drop is to be coordinated through SHSU IT office. Drop termination is to be inside of access control panel to prevent tampering. The MAC address and IP address for each panel/device will be posted on the inside panel door. All panel boxes are to have functioning locking hardware with keys. Keys will be submitted to the Physical Plant Access Shop Office or Residence Life upon completion of install.

6.10   Wiring and Conduit

6.10.1   All communication and power to the individual doors will come from the access control panel location. An exception to this will be made when specific hardware requires a localized power supply.

6.10.2   A trunk conduit/raceway should be established in common hallways to accommodate multiple 'home run' composite cables.

6.10.3   All wiring runs will be in a star configuration or home run from RM board to the panel box. **Daisy-Chain reader communication loops are not permitted.** Each door will have an RM Reader board for inputs/outputs and future expansion of door devices.

6.10.4   All devices must be hardwired. Unless approved by the SHSU Access Control Shop or Residence Life, all wiring must be installed in EMT, cable tray or rigid conduit. Conduit must be installed square and plumb to building structure in a good workmanship manner. Installation of conduit must be in accordance with the National Electrical Code and SHSU written standards for 110-120 VAC circuits. NOTE: When approved by the SHSU Access Control Shop or Residence Life, only plenum rated low cable wiring may be run without conduit provided the cable is run square and plumb with the building structure. Plenum cable must be supported by an SHSU approved means on 4 ft. centers.

6.10.5   Power to the access control panel power supplies will be concealed hard wired, on a dedicated circuit with a proper ground. This circuit will be on emergency power where available.

6.10.6   All wire terminations in the panel and field devices must be clearly labeled. All labels must be manufactured for low voltage wiring and the information on the labels must include both source and designation terminal information.
        A. All wires are to include the following information
            1. A number to correspond to what panel wire is connected to
            2. A number on the wire to correspond to panel schedule
            3. A location of final destination of the wire termination in relation to true north
        4. Door number assigned to the door as designated by the card reader addressed and which in turn will be assigned in the software and designated on the door by the assigned number (label)
        B. All panels are to include a panel schedule which will include the following
information
            1. The terminal block number at which the wire is terminated followed by the above mentioned information.

6.10.7   Wiring which contacts metal edges will be buffered with bushings or rubber grommets to prevent damaged wires and shorts. Examples include wiring meeting conduit ends, panel and junction box holes.

6.10.8   Conduit must be strapped within 24" of junction boxes.

6.10.9   All junction boxes must be covered, painted green, labeled with destination and source. Contents shall be included on the label when appropriate (ex. junction box with relay for handicap button).

6.10.10   Gang boxes must match device being mounted (ex. double gang reader mounted on a double gang box).

6.10.11   Setscrew conduit fitting are not allowed. Compression fitting must be used.

6.10.12   Maximum usage for conduit will be 40% of total square inch internal capacity. Minimum conduit size is ¾ inch.

6.10.13   The card access-conduit system and cabling installed must be distinct and separate from the wire way/conduit system housing voice/data cables in campus buildings.

6.10.14   Connections to devices must be secured, so that no cords may be easily disconnected from the devices and no cords are left exposed to unauthorized tampering.

6.10.15   Wiring will be done in strict accordance with manufacturer's guidelines with the following exception; wire diameter will be one gauge size larger than the minimum required in the manufacturer's guidelines.

6.10.16   Low voltage shields will be terminated in accordance with manufacturer's guidelines. Should "noise" in the building ground reference interfere with or prevent the device from operating properly, the Contractor will install a dedicated ground for the card access system in that particular building. FLOATING SHIELDS WILL NOT BE ALLOWED.

6.10.17   Isolation relays will be used for all outputs to field devices.

6.10.18   Field wiring must be one piece from source terminal to destination terminal. Splices in field wiring will NOT be allowed.

6.10.19   The construction procedure for wiring routed thru door mullion will be submitted to SHSU for approval. All wiring in and around door mold will be done in a good workmanship type manner to minimize the visual impact on the appearance of the door. All holes drilled in the door mullion will be concealed using plastic manufactured hole-caps. The color of the hole-caps will be suitable for the application.

6.11   Door Switches

6.11.1   Door switches will be surface mounted or flush mounted on the opposing side of the door from the hinges. The switch will be mounted on the top of the door and will be no further than three inches from the interior portion of the doorframe.

6.11.2   Surface mount switches will have armored cable between the switch and the cable entrance hole in the door.

6.11.3   Surface mount switches will have tamper resistant screws to attach switch to door and doorframe.

6.11.4   A screw-locking adhesive such as 'Loctite' thread locker will be used to secure all screws. 'Loctite' thread locker #222MS or #242 only

6.11.5   Flush mount switches are to be mounted in the top portion (header) of the doorframe and in the adjoining portion of the door.

6.11.6   The holes for flush mounted door switches must be drilled the exact size for the switch being used. A tight friction fit must be achieved.

6.11.7   No hinge contacts are to be used.

6.12   Door Hardware

6.12.1   Door hardware will be fail-secure with <u>mechanical manual</u> egress from the secured side.

6.12.2   All electronic hardware will be 24V and powered via independent 24V power supply for door hardware.

6.12.3   Door switching and power will reside in the access control panel location.

6.12.4   Not Used

6.12.5   Power supply will be connected to building emergency circuits when possible.

6.12.6   Power supplies will have a 7amp hour battery backup or higher.

6.12.7   The location of power supplies when located away from access control panel will be fully documented via As-Built drawings.

6.12.8   No more than 2 doors with exit devices per independent 24v power supply.

6.12.9   The REX signals egress from the secured side. Unlocking will be a manual mechanical function following valid request to exit. The REX will electronically unlock hardware ONLY when used in conjunction with a handicap pushbutton/opener or magnetic locking hardware.

6.12.10   Door hardware is to be set so that 'dogging' functionality is not possible.

6.12.11   Door hardware will have blank cylinder or key override and capable of accepting Schlage lock full size interchangeable core.

6.12.12   Door hardware power supplies will have a locking junction box

7.0   Plans

7.01   Drawings and Specifications for the Access Control System shall have dedicated detail drawings in the construction plans. The detail drawings shall be provided electronically in a version of AutoCAD acceptable to the University on CD and shall include;

   a) a floor plan with a separate security layer (for each level) indicating the location and door label for all field devices,
   b) a detailed wiring plan showing termination to termination wiring,
   c) a complete set of manuals for all manufactured items provided as part of this project,
   d) control panel elevation,
   e) power wiring and conduit elevations,
   f) Security door matrix which includes door number, door size, hardware set/schedule, location, and drawing no. See following example;

Item#	Door #	Sheet#	Floor#	Swing Direction	Size	Existing Hardware	Hardware Schedule Heading#	Fire System Connection	Alternates	Comments
1	E100	E-10	B	Unprotected	Single	exit device	#2	Required	21 & 22	
2	E102	E-10	B	Unprotected	Double	exit device, mullion	#8		21	Biometric reader
3	G200	E-10	G	Unprotected	Double	exit device, mullion	#8		21	stair door
4	G201	E-10	G	Unprotected	Single	n/a	#7C	Required	21	existing hardware
5	102A	E-11	1	Unprotected	Single	n/a	#7C	Required	22	new hardware -doors need to be cored
6	105B	E-11	1	Unprotected	Single	n/a	#70B		21 & 22	new hardware -doors need to be cored
7	201	E-11	2	Protected	Single	n/a	#70B	Required	22	new hardware -doors need to be cored
8	E202	E-11	2	Unprotected	Double	n/a	#8		22	new hardware -doors need to be cored

     g) door detail and elevation for each security door.

     h) detailed control wiring diagrams for all readers and devices

     i) SHSU will review the plans for compliance to standards and functional requirements. When approved, SHSU will return a signed copy of the plans to the contractor for construction.