SECTION 28 1300 - ACCESS CONTROL

These specifications provide basic minimum criteria to be met in preparing the final specifications for this Section, which is the responsibility of the Designer. Revise this Section by deleting and inserting text to meet Project-specific requirements.

Maintain Section format, including the UH Master Spec designation and version date in bold in the center columns in the header and footer. Complete the header and footer with Project information.

Designer is required to adhere to the University's "Electronic Access Control Design Guide" and "Network Infrastructure Design Standards" available in Owner's Design Guidelines on the Facilities Planning and Construction web site.

This Section uses the term "Architect" or "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work of this Section.

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:

1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
2. The University of Houston's Supplemental General Conditions and Special Conditions for Construction.

1.2 SUMMARY

A. Section Includes:

1. Access Control System (ACS) Software
2. Access Control Head End Equipment
3. Access Control Field and Monitoring Devices

B. Pre-Qualification

1. Contractor is required to be an AccessNSite Access Control System (ACS) Certified Vendor.

C. Division of Scope

1. ACS Contractor

    a. AccessNSite is the existing access control system for the University of Houston, UH at Sugar Land and UH at Katy campuses. The System uses existing Cougar One Cards tied to the University's student and employee database.
    b. Provide and install all specified components for access-controlled doors including the following:

        1) Non-IP-based cabling, card readers,
        2) Intelligent door controller
        3) System enclosures,
        4) Card reader panels,
        5) Input panels,
        6) Output panels,
        7) Interface relays,
        8) Power distribution modules,
        9) Door contacts,
        10) Egress motion detectors,
        11) Exit buttons,
        12) Door prop horns,
        13) Key switches,
        14) System power supplies,
        15) Fused relay outputs,
        16) Back up batteries
        17) Power distribution modules for fail-safe locks only (to be tied into the building fire alarm system).

    c. Adjust existing system programming as required to enroll all new controlled and monitored elements, without hardware changes (except for database, operating system, or technology upgrades by Owner).
    d. Provide door lock power supplies in Section 08 7100 "Door Hardware" (except for power supplies for latch retraction exit devices, which shall be provided by the door hardware supplier and shall be by the same manufacturer as the exit devices).
    e. Provide ACS client software and licenses as required to support the Project.

2. ACS Contractor (Electrified Door Hardware):

    a. Provide electrified door hardware for all card access doors and for doors to be electronically locked and unlocked on a time schedule for all door leaves.
    b. Provide request to exit switches (REX) on all electrified locking hardware and on all electrified exit devices. All exterior "Exit Only" doors shall have the capabilities for door position monitoring and shut capabilities (REX sensor shall be installed)
    c. Provide electrified mortise locksets as 24VDC.
    d. Provide electrified latch retraction for all electrified exit devices.
    e. Provide exit device power supplies for all electrified exit devices. Exit device and power supply shall be by same manufacturer.
    f. Provide electric through wire devices or harness cabling for all electrified door hardware.

g. Provide all electrified door hardware as fail-secure entry with free mechanical egress, except where required to be fail-safe entry according to NFPA life safety code and University of Houston Fire Marshal.
h. Ensure that exterior "Exit Only" doors do not have exterior door hardware.

3. Electrical Contractor:

a. Provides dedicated 120VAC power circuits, conduit, raceways, back boxes, j-boxes, fittings, hardware and earth grounds as necessary to provide a complete working system for the access control system. Provides 120VAC connections to access control head end equipment and access control system power supplies and door locking power supplies.
b. Provides conduit to all access control and security devices, including but not limited to:

1) Card readers
2) Electrified door hardware
3) Door contacts
4) Request to exit devices
5) Audible alarm devices
6) System power supplies
7) Door release buttons
8) ADA door operators push plates
9) Door hold open devices
10) Power supplies for electrified door hardware and electrified exit devices
11) Automatic door operators and associated controls
12) Vehicle gate operators and associated controls
13) All other access control and security related devices.

c. Provides homeruns from the security closet to the access-controlled doors.
d. Provides necessary masonry coordination for the back-box installations.
e. Coordinates patching and painting of all items relating to conduit, raceways, J boxes, fittings hardware and earth grounds, conduit, and conduit installations.
f. Attends final walkthrough and system commissioning to resolve any electrical issues.

RETAIN SUBPARAGRAPH AND RELATED SUBPARAGRAPHS BELOW WHEN THE ELEVATOR CONTRACTOR IS RESPONSIBLE FOR INSTALLING CARD READERS FOR ELEVATOR ACCESS.

4. Elevator Contractor (only where card access is specified):

a. Provides demarcation box(s) in elevator room.

1) One dry contact per floor for remote elevator actuation by access control system.
2) One input per floor for elevator indication to access control system.
3) Other inputs/outputs as specified in the Drawings and Specifications.

b. Provides wiring to the Cab
c. Installs Card Readers furnished by the Contractor
d. Performs life safety, software and testing

1) Responsible for following all code requirements.

2) Responsible for all software necessary to interact with all input/output points connected to the access system relating to elevator.
3) Provides an elevator technician for testing of the interfaces to access system.

5. Automatic Door Installer:

a. Provides input interface for the control of the automatic door by card reader.
b. Provides one contact from each ADA button for interface with ACS for “individual” ADA button controlled by card reader and/or time schedule.
c. Provides integral electrified door locking mechanisms for automatic “sliding” doors.
d. Provides integral door monitoring contacts for automatic “sliding” doors.

6. Fire Alarm Contractor:

a. Provides one fire alarm relay with a dry contact at each ACS Head End for input to power distribution module(s) that control emergency door release when/if “fail-safe” locks are used.

7. Technology Contractor:

a. Provides network connections to each ACS Intelligent Controller.

8. UIT Project Manager:

a. Coordinates assignment of static IP addresses .

## 1.3 ACTION SUBMITTALS

A. Contractor’s Vendor and Programming Certification from ACS Manufacturer.

B. Product Data: Provide Manufacturer’s Data and Catalog Cut Sheets for all access control equipment.

C. Device Schedules: Submit a schedule of access control devices and security equipment per door and per access control head end.

D. Shop Drawings: Provide locations of access control devices on floor plans; elevations of each unique door type; elevations of Security panel layout; wiring schematics; and other pertinent data. Note: submitting copies of design documents is not acceptable.

## 1.4 QUALITY ASSURANCE

A. Contractor's Qualifications.

1. Certified as an authorized dealer and installer of the AccessNSite System.
2. A minimum of 1-year experience installing and programming the AccessNSite System.
3. Provide programming only by factory trained technicians.

B. Arrange a Submittal Coordination Meeting with all subcontractors and material suppliers involved with access control including doors, frames and door hardware supplier(s), elevators, automatic doors, entrances, and electrical. Include UIT Project Manager, Owner’s Campus Safety

Representative and Owner's Electronic Access Control (EAC) Representative. Refer to 3.1.A "COORDINATION" below.

1.5 WARRANTY

A. Warranty materials, fabrications, and installation for a period of 12 months after Substantial Completion using factory-authorized service representatives.

B. Warranty requirements:

1. Respond via telephone and email to Owner requests within 2 hours of contact
2. For emergency requests, provide an onsite technician response within 4 hours of notification, including holidays and weekends.
3. For non-emergency requests, provide an onsite technician response within 24 hours of notification, during normal working hours, 8 am to 5 pm, Monday through Friday, excluding holidays or weekends.
4. Warranty Exclusions: Repair or troubleshooting of any equipment provided by or physically damaged by others.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Reference System Components List Below.

2.2 SYSTEM COMPONENTS

A. Access Control Software: Existing.

1. Access Control Client Software:

a. Provide optional cost per client license Area Access Manager Software – Provide optional cost per client license
b. Training – Provide optional costs for software training.

B. Access Control Head End Equipment – All equipment to be AccessNSite compatible and installed in Security Room that is secured by card reader.

1. Intelligent Dual Reader Controllers (IDRC) – Mercury 1502 Dual Reader Controller:

a. On-board Ethernet 10/100Base-T port, RS232 port, and RS485 port.
b. Two Reader ports.
c. Two Electric Lock Output (one per door), Form-C outputs, 5 A at 30 VDC.
d. Two Auxiliary Output (one per door), Form-C outputs, 5 A at 30 VDC.
e. Two Door Contact supervision (open/closed) (one per door).
f. Two REX (request to exit) Monitor (one per door).
g. Individual extended held open and strike times (ADA required).
h. 6 MB of available on-board, non-volatile flash memory.

i. Provide one controller per Security Room or connect to existing ACS controller if applicable.

2. Single Reader Interface Panels (SRI) – Mercury MR50 Single Reader Panel

   a. One Reader port.
   b. One Electric Lock Output (one per door), Form-C output, 5 A at 30 VDC.
   c. One Auxiliary Output (one per door), Form-C outputs, 1 A at 30 VDC.
   d. One Door Contact Supervision (open/closed).
   e. One REX (request to exit) Monitor.
   f. Individual extended held open and strike times (ADA required).

3. Dual Reader Interface Panels (DRI) – Mercury MR52 Dual Reader Panel,

   a. Two Reader ports.
   b. Two Electric Lock Outputs (one per door), Form-C outputs, 5 A at 30 VDC.
   c. Four Auxiliary Output (one per door), Form-C outputs, 5 A at 30 VDC.
   d. Two Door Contact Supervision (open/closed) (one per door).
   e. Two REX (request to exit) Monitor (one per door).
   f. Individual extended held open and strike times (ADA required).

4. Input Modules (IM) – Mercury MR16IN Input Panel,

   a. Line Supervision.
   b. Sixteen programmable supervised or non-supervised contacts.
   c. Two Form-C 5 A, 30 VDC Relay output contacts.
   d. Two dedicated inputs for tamper and power failure status.
   e. Door Monitoring, Alarm Monitoring, and Elevator Control inputs.

5. Output Modules (OM) – Mercury MR16OUT Output Panel,

   a. Sixteen Form-C 5 A, 30 VDC programmable relay outputs.
   b. Two dedicated digital inputs for tamper and power failure status.
   c. Door Control and Elevator Control outputs.

6. System Power Supplies (SPS) – Life Safety Power (model number as required)

   a. Amperage based on connected equipment.
   b. Provide with 25percent spare capacity.
   c. Provide fused outputs.
   d. Provide battery backup for up to 4 hours.
   e. Provide lockable enclosures as required.
   f. Provide system power supplies separate from lock power supplies.

7. Interface Relays (IR) – Altronix, GE, or Honeywell

   a. 12 or 24VDC relay coil.
   b. Output voltage and current rating as required for interface.
   c. For use with automatic door, elevator, or vehicle gate controls interface.

8. Lockable System Enclosures (Head End) – Life Safety Power

   a. Lockable Metal Enclosure.
   b. Supports up to six (8) Mercury panels per enclosure.

c. Provide sufficient enclosures for connected equipment.

9. Power Distribution Modules (PDM) – Life Safety Power

a. Five (5) Individual Outputs (one per locking device).
b. Input from fire alarm system disables power to all connected devices.
c. For use with “fail-safe” locking devices only.
d. Fire Alarm Relay provided by others next to Head End.

C. Access Control Field and Monitoring Devices – as shown on Drawings.

1. Card Readers--DesFire EV1 (CR-EV1)

a. HID iClass SE R10 Thin Line Readers for use with single gang back boxes. Model # 900NMNNEKEA129
b. HID iClass SE R 15 Mini- Readers for use when mounted on aluminum mullions. Model # 910NMNNEKEA129
c. HID iClass SE R40 Wall Reader Model # 920NMNNEKEA129
d. Maximum 500 feet (152 m) distance from reader interface panel.
e. Proximity readers may be used only at ADA entrances (in addition to magnetic stripe readers). Proximity readers are for use with special Owner- formatted HID proximity cards issued to disabled students, faculty, and/or employees in order to operate automatic openers for after-hours access. (Installation must be approved by Owner’ s EAC Representative).

2. Egress Motion Detectors (EMD) – Bosch, GE, Optex, or Honeywell

a. Passive infrared detector.
b. Adjustable zone detection for egress.
c. Unlocks or shunts door automatically.
d. Hands free.
e. Provide only when integral request to exit function is not provided with electrified door hardware.

3. Exit Buttons (EB) – Alarm Controls, Locknetics, or Securitron

a. Double pole (DP) contacts – connect one pole directly to magnetic lock power and connect one pole as request to exit to AccessNSite System.
b. Provide 30 second pneumatic delay (not dependent on electronics to operate).
c. Provide 2 inch minimum. red mushroom button with exit signage “Push Button to Exit.”
d. Provide only for use with magnetic locks, in addition to egress motion detector.

4. Door Contacts (DC) – Bosch, GE, or Honeywell

a. Concealed 3/4 or 1inch diameter (surface mount where concealed is impractical).
b. Self-lock mounting.
c. Rugged construction.

5. Door Prop Horns (DPH)—Piezo

a. 105 Decibel level.
b. 12VDC power.

6. Key Switches (KS) – Best Access (no substitutions)
    a. Maintained or momentary key switch functions.
    b. Accepts Best Access key-removable core (Owner's keying system standard).
    c. Single, double, or triple pole, depending on the interface.
    d. Voltage and current rating, depending on the interface.
    e. Used for interface with door prop horns, automatic doors, emergency override.

D. Integrated IP Enabled Access Control Devices

1. IP Enabled Wireless Integrated Card Reader Mortise Locks – Sargent Manufacturing (SA):
    a. SA – IN120- Series: "70/72 IN120-82278 IP/IPS LNP"
    b. Wireless access control mortise locks interface using field replaceable wireless radio connection to an Ethernet Local Area Network (LAN).
    c. Locks shall continue to operate independently of an Ethernet (LAN) connection slowdown or failure.
    d. Power Source: 6 AA alkaline batteries with LED indication of locked, programming mode and low capacity warning status conditions.
    e. Complete installation to include Software Development Kit (SDK), and network and lock configuration for initial lock set-up.

2. IP Enabled Power-over-Ethernet (PoE) Integrated Card Reader Mortise Lock – Sargent Manufacturing (SA):
    a. SA – IN220 Series: "70/72 IN220 82278 IP/IPS LNP"
    b. Integrated locking unit with Ethernet power and communication connection capability directly from the locking unit back to the central system host server without additional access control interfaces or components PoE enabled network.
    c. Real-time software accessible alarms for forced door, unknown card and door held open, with inside lever handle (request-to-exit), battery status, tampering, and door position (open/closed status) monitoring.
    d. Network and lock configuration for initial lock setup and programming via a USB connection.
    e. Power and communication from one Ethernet (CAT5e or higher) cable.
    f. Real-time system lockdown capabilities.
    g. Network Cabling Requirements: Reference Section 27 1500 "Communications Horizontal Cabling."

3. IP Enabled Wireless Exit Hardware – Sargent Manufacturing (SA):
    a. SA – IN120-80/79 Series
    b. Wireless access control mortise locks interface using field replaceable IEEE 802.11b/g/n 2.4 GHz wireless radio connection to an Ethernet Local Area Network (LAN), facilitating central control via a Software Development Kit (SDK). Locks will continue to operate independently of an Ethernet (LAN) connection slowdown or failure.
    c. Power Source: 6 AA alkaline batteries with LED indication of locked, programming mode and low capacity warning status conditions.

d. Complete installation to include Software Development Kit (SDK), and network and lock configuration for initial lock set-up.
e. Acceptable Manufacturers:

4. IP Enabled Power-over-Ethernet (PoE) Integrated Card Reader Exit Hardware – Sargent Manufacturing (SA):

a. SA – IN220 80/79 Series
b. Integrated locking unit with Ethernet power and communication connection capability directly from the locking unit back to the central system host server without additional access control interfaces or components via PoE enabled network.
c. Real-time software accessible alarms for forced door, unknown card and door held open, with push rail (request-to-exit), battery status, tampering, and door position (open/closed status) monitoring.
d. Network and lock configuration for initial lock setup and programming via a USB connection.
e. Power and communication from one Ethernet (CAT5e or higher) cable.
f. Real-time system lockdown capabilities
g. Network Cabling Requirements: Reference Section 27 1500 "Communications Horizontal Cabling."

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. Coordination – Required Submittal Coordination Meeting:

1. Coordinate meeting with all subcontractors and material suppliers involved with access control including doors, frames and door hardware supplier(s), elevator, automatic doors, entrances, and electrical. Include UIT Project Manager, Owner's Campus Safety Representative and Owner's EAC Representative. Review and coordinate submittals from the following Sections prior to submittal for approval:

EDIT THE LIST BELOW TO COORDINATE WITH PROJECT REQUIREMENTS.

a. Section 08 1113 "Hollow Metal Doors and Frames"
b. Section 08 1216 "Aluminum Door Frames"
c. Section 08 1416 "Flush Wood Doors"
d. Section 08 3213 "Sliding Aluminum-Framed Glass Doors"
e. Section 08 4113 "Aluminum-Framed Entrances and Storefronts"
f. Section 08 3229.23 "Sliding Automatic Entrances"
g. Section 08 3229.33 "Swinging Automatic Entrances"
h. Section 08 7100 "Door Hardware"
i. Section 14 2100 "Electric Traction Elevators"
j. Section 14 2400 "Hydraulic Elevators"
k. Section 26 0501 "Electrical Basic Materials and Methods"
l. Section 27 1500 "Communications Horizontal Cabling"

B. INSTALLATION STANDARDS

1. Install access control system components per manufacturer's instructions and recommendations.

C. ACCESSIBILITY

1. Comply with ANSI A117.1 Accessibility Standard requirements for disabled.

D. CABLING

1. Hardwired Doors: Install properly rated cabling and wiring in conduit without damaging conductors, shield, or jacket.
2. PoE Doors: Data cabling to door shall be installed per Section 27 1500 " Communications Horizontal Cabling."

E. LABELING

1. Label access control panels with access door information provided by Owner.

F. PROGRAMMING

1. Refer to Appendix A – Access Control Programming Form for required information. Request form from Owner's EAC Representative.
2. Prior to door enrollment programming, coordinate the following with Owner's EAC Representative:
    a. Final door labeling information for programming
    b. Default Access Level Assignments
    c. UH ACS System Programming Standards
3. Program all system and door set up information.
4. Owner will program all cardholders and access levels.

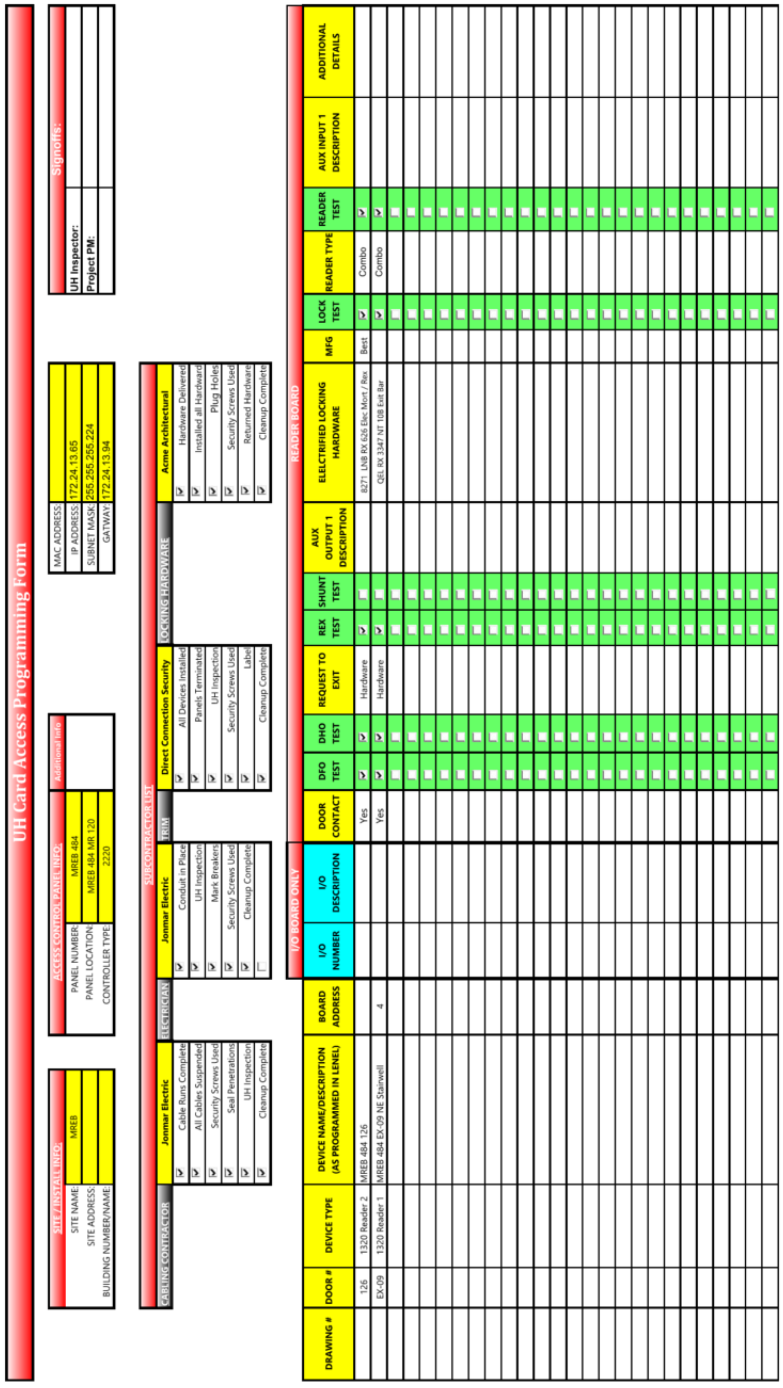
G. FIELD QUALITY CONTROL

1. Engage a factory-authorized service representative to test and adjust field-assembled components and equipment installation, including connections, and assist in field testing.

H. ACCEPTANCE TESTING

1. Operational Test and Acceptance: After installation of access control equipment, cables and connections, demonstrate system capability and compliance with requirements to Owner's EAC Representative.
2. Acceptance of access control system shall be independent of equipment or services provided in other Sections or by Owner.
3. Refer to Section 28 0600 "Testing for Electronic Safety and Security" for specific requirements.

APPENDIX A – ACCESS CONTROL PROGRAMMING FORM

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