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BuildingName
The Description of the Project
P00000000 0000

SPECIFICATION DIVISION 28

NUMBER SECTION DESCRIPTION

DIVISION 28 ELECTRONIC SAFETY AND SECURITY
SECTION 281300 - ACCESS CONTROL & MONITORING SYSTEM

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DIVISION 28 ELECTRONIC SAFETY AND SECURITY
SECTION 281300 - ACCESS CONTROL & MONITORING SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections including the Related Sections listed below, apply to this Section.

B. Related Sections:

1. Section 018113 – Sustainable Design Requirements
2. Section 019100/019110 - Commissioning
3. Section 017823 - Operation and Maintenance Manual
4. Section 260513 - Medium, Low & Control Voltage Cables
5. Section 260526 - Grounding and Bonding for Electrical
6. Section 260533 - Electrical Materials and Methods
7. Section 260800 - Electrical Acceptance Tests
8. Section 281600 - Security Systems

1.2 SUMMARY

A. This section refers to new work and work that will be performed to modify existing systems. The Security Contractor shall provide all equipment, materials, labor, and services necessary to furnish, install, connect, activate, and test a complete Access Control and Monitoring System. All materials, equipment fabrication, installation, and tests shall conform to applicable Codes and authorities having jurisdiction. Access Control and Monitoring System shall include, but is not limited to, the following:

1. Provide a complete Access Control and Monitoring System. A complete system is defined as all conduit, raceways, junction boxes, cables, card readers, controllers, alarm contacts, and programming needed to achieve a complete and functional system connected to the existing University central system. Also included are all required power supplies, power filtering, mounts, housings, equipment stands, and interfaces to existing equipment.
2. The Access Control and Monitoring System shall be an expansion of the existing University of Michigan campus wide Software House system. Work includes adding system panels, card readers, and associated access control devices in locations identified on Drawings.
3. Provide all 120VAC power wiring and low-voltage work to the system and all necessary components.
4. Coordinate system requirements with the University of Michigan’s project management team.
5. Establish system communication with the Access Control System Server and panels via the Owner’s LAN/WAN network.
6. Provide system administrative support throughout the installation process to meet the specific needs of the project scope of work.

7. Furnish and any install required interface relays, materials, and cabling to the fire alarm control panel.
8. Coordinate with the Owner's Representative and the U-M key office to provide installation, testing, adjustment, and initial programming for all equipment.
9. Provide written documentation and instructions for system as installed.

1.3 RELATED SECTIONS

A. Section 281600 articles including, but not limited to:

1. References
2. Quality Assurance
3. Submittals
4. Warranty
5. Record Documents
6. Commissioning / Acceptance Testing
7. Training

1.4 QUALITY ASSURANCE

A. Pre-programming conference: Prior to programming new doors in Owner's existing access control systems, conduct conference at Project Site to be attended by Owner's Representative, security contractor, Architect, and representatives from Owner's key office.

B. Qualified Installers:

1. Cabling Concepts (Tim Grady, 248-363-4200)
2. The Fontanesi and Kann Co. (Chris Wyskiel (T) 248-543-0095 cell 248-467-7389)
3. JCI (Ed Keiser 947-275-3168)
4. Siemens (Chris Tingley, 734-456-3800 main, 734-386-6741 cell)

PART 2 - PRODUCTS

2.1 ACCESS CONTROL PRODUCTS

A. System Specifications

1. Manufacturer’s catalog and system numbers of equipment listed in this specification indicate type, quality, and functions of the equipment required, and represent the minimum acceptable standards. Provide all compatible parts for the submitted system. The Access Control system work shall integrate with Owner's existing Software House C-Cure 9000 system.

2.2 ACCESS CONTROL EQUIPMENT

A. Access Control panels shall be Software House Edge G2 (4-card reader) or iStar Ultra G2 SE (8- or 16- card reader) Series only. Access Control panels shall include, at a minimum, the following:

1. I/O boards, and power supplies for DC locks with battery back-up sufficient to maintain full operation of monitoring junctions for a minimum of 4 hours, plus a minimum of 25 lock activations in the event of power failure.
2. Interfacing relays between Access Controller Panel (ACP) outputs and locks being controlled.
3. Sufficient input boards to accept all monitored points on the Access Control System and sufficient output boards to accept all outputs on the Access Control System. All input and output boards shall include 20% extra points for future connections to the system.
4. Reed tamper switches.
5. Output contacts that open on AC power failure and low battery conditions from power supplies. Low battery monitoring must be unique to each power supply.

B. Card Readers (CR)

1. Provide one reader at each new card reader access control door opening noted on the Drawings:
   a. Consult with UM Key Office on specific card reader make/model design currently available
2. Mount readers on shallow depth double-gang electrical boxes.
3. Provide manufacturer's standard thermostatically controlled heater for exterior installations powered from power supply located at access control panel assembly.
4. Provide reed tamper switch.

C. Door Switch Monitor (DSM)

1. Provide low-voltage magnetic position sensor with SPDT switch. Utilize recessed door monitors wherever possible.
   a. Recessed door monitors: ABS plastic enclosure. Provide GE/Sentrol 1078 series switch.
   b. Surface mounted door monitor: Anodized alloy housing with stainless steel armored cable. Provide GE/Sentrol 2500 series switch.
   c. Overhead door monitor: Heavy-duty anodized aluminum housing with stainless steel armored cable. Provide GE/Sentrol 2202 series switch.
   d. Connect Door Switch Monitor (DSM) to the RM/Reader input number 1.

D. Access Control Cards

1. Existing University of Michigan identification cards will be utilized. NIC.

E. Request-to-Exit (RTE) Motion Sensors

1. Request to exit motion sensors: Bosch DS-150 series or equal by Software House. Light gray or black color to match adjacent finishes.
2. Relay output will be connected to the RM/Reader input number.
3. Power for RTE from the power supply at the panel.
4. Mount device on ceiling or door frame. Exact location will depend on existing conditions and the required coverage area. Unless noted otherwise on Drawings, conceal wireways and junction box.

F. Lockdown button

1. Safety Technology International (STI) Stopper Station
   Blue Indoor Only Flush or Surface Momentary (Illuminated)
   Stopper Station with "LOCKDOWN" Label
   Model number SS2425LD-EN

G. Power Supplies and accessories

1. Power at panel assembly:
   a. Lock and Access Control Panel power: Provide 24VDC power supplies for all electrically controlled door locks and 12VDC power supplies for Access Control Panels. (Lock power will be wired back to the power source at the panel. Do not use the RM/Reader output relay for the electric locking device.) Power supplies shall permit simultaneous continuous-duty activation of all door locks with an additional minimum 30% capacity on each supply. Provide battery back-up sufficient for 25 activations for all DC locks. A single power supply may be used for two doors when the power supply is located near both doors. Provide battery-backed power supplies.
      1) For new Edge G2 panel installations, provide Software House PSX-FPO75-UOM02.
      2) For new iStar Ultra G2 SE panel installations, provide Software House PSX-DUAL-UOM03.
      3) For retrofit applications/power supply replacements, provide Software House PSX-DUAL-UOM04.
      4) At existing panel assemblies modified to connect new doors but maintain existing capacity, provide additional power supply capacity to serve new doors.

PART 3 - EXECUTION

3.1 SYSTEM INTERRUPTIONS

A. Coordinate with the U-M Fire Protection Shop (734-647-2046) and UMHHC Facility Command Center (734-936-4000) before performing any work affecting an existing fire alarm system. Operating, programming, modifying, or impairing an existing system without approval of the U-M Fire Protection Shop and UMHHC Facility Command Center is strictly prohibited.

B. Coordinate with the U-M Key Office (734-764-3481) before performing any work affecting existing electrically controlled doors, existing control panels, or other access control components.

C. Coordinate door hardware installation with panel work, system programming, Owner's Representative and Owner's key office such that each door is fully operational with 24 hours of hardware modifications.

3.2 PROGRAMMING

A. Special coordination is required with the U-M Key Office regarding programming requirements. Meet with Owner representatives and submit proposed labels for all input and output points for review and comment. Software labels shall be consistent between various integrated systems. Refer to 281600.

B. Program automatic door unlock, time specifications, and access levels as directed by the Owner.

3.3 INSTALLATION

A. All electrical power work, conduit work, and wire pulling shall be by licensed electricians, and all card reader installation and interconnection work shall be Tyco Software House CCure 9000 certified technicians.

B. Provide all wiring in conduit in accordance with Sections 260533 and 260513, and Manufacturer's instructions.

C. Method and routing of any exposed raceways or wiring shall be approved by the owner prior to installation.

D. Wiring shall be grouped and harnessed to facilitate access to all equipment, as well as maintenance and replacement of equipment.

E. All cable shall be labeled at origin and termination, referencing to a master legend schedule shown on submittal drawings. Labeling and any splice locations shall be noted on Record Drawings.

F. Provide 120V receptacle outlets dedicated to the reader heating elements.

G. For all card readers, provide 1#14 AWG minimum THHN green stranded wire from the card reader to the nearest earth ground.

3.4 WIRE AND CABLE PRODUCTS

A. Wire and Cable Specifications

1. Security Contractor shall follow the manufacturers' recommendation for cabling or the minimum requirements of the Specifications, whichever provides for the most stringent requirements.
2. Cables are to be shielded as necessary to preclude any outside noise or interference from entering the cable and degrading system performance. All cables shall be UL Listed, and appropriate for the application.
3. Coordinate with the Owner's IT department connections to offsite monitoring.
4. Cables run underground, under slab, or in slab shall be installed in conduit and rated for direct-burial application. Cables exposed to weather shall be rated for that use.
5. Mixing of low-voltage cables with telephone/data cables is not permitted.
6. All cables shall be run in unbroken lengths of 1,000 feet or less. No coaxial or power cables less than 1,000 feet shall be spliced. When cable cannot be run in unbroken lengths due to cable spool limitations, coax splices shall be made in junction boxes with crimp-type BNC connectors, power cable splices shall made using solder and tape. For coaxial cable, the center conductor tip shall be a crimp-on style; the ferrule shall be a hexagonal crimp with a minimum ferrule length of 3/8 inch. All splices and junction boxes shall be clearly marked on the "As-Built" Record Drawings.
7. The use of all screw type connectors i.e. snap caps, wire nuts, and the "twist and tape" method are prohibited.

8. All 24VAC power cabling shall be of stranded construction. Terminal strips and fork spade lugs shall be utilized for all terminations.
9. Wiring shall be grouped, bundled, harnessed, and dressed neatly to facilitate access to all equipment, as well as maintenance and replacement of equipment.
10. All cable shall be labeled at origin and termination, referencing to a master legend schedule as shown on "As-Built" Record Drawings. Labeling and any splice locations shall be noted on "As-Built" Record Drawings. All labels shall be done using machine generated cable tags in the "flagged" position. Hand written labels are not acceptable.

3.5 COMMISSIONING

A. Perform Commissioning activities per Related Sections above.

3.6 TRAINING

A. Provide a qualified service technician from the Manufacturer's staff to provide training.

B. Train Owner's maintenance personnel on equipment operation, start-up and shutdown, trouble-shooting, servicing and preventative maintenance procedures. Review the data contained in the Operating and Maintenance Manuals with Owner's personnel. Training shall occur separate from startup activities.

1. Provide 2 hours of training minimum.

END OF SECTION 281300