ARCHITECTURAL SPECIFICATION

SECURITY INTERLOCKING DOOR SYSTEM – AACS Series 400

PART I - GENERAL

1.01 SUMMARY

A. Furnish complete Interlocking Security Door System, as specified, that has been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

B. The security interlocking door systems shall be furnished and installed by a single entity solely responsible for the security door systems

B. Related work performed by others and specified elsewhere:
   1. Electric Power Supply
   2. Access Control Systems
   3. Power and Communications Cabling
   4. Adjacent Construction

   The integration of the building security system into the security interlocking door systems is required; the contractor provider of the interlocking door systems shall be responsible for the total coordination of the system requirements with the providers of related work specified under B., above.

1.02 QUALITY ASSURANCE

A. MANUFACTURER'S QUALIFICATIONS: The manufacturer shall have a minimum of (5) five years successful experience in the fabrication of door systems of the type required for this project. The manufacturer shall be capable of providing field service representation during installation, of providing an acceptable installer and of approving installation methods. The manufacturer shall be capable of providing the warranty service specified.

B. INSTALLERS QUALIFICATIONS: The installer shall have a minimum of (3) three years successful experience in the installation of door systems of the type required for this project, shall have specialized in the installation of work similar to that required for this project, and shall be acceptable to product manufacturer. The installer shall demonstrate capability of providing service to the project within 24 hours of service call initiation.

1.03 SUBMITTALS

A. Qualifications: Materials indicating the Manufacturer's, Distributor's and Installer's ability to fulfill all the terms of this specification.

B. Product Data: Manufacturer's technical product and performance data, substantiating that the submitted products comply with the project requirements, including
   1. Manufacturer's standard details and fabrication methods
   2. Data on finishes, hardware, and accessories
   3. Data on all mechanical operators and electrical components
   4. Sample copies of the Manufacturer's and Distributor's Warranties

C. Shop Drawings: including
   1. Plans and elevations, 1/4"=1' scale. Show all components, accessories & construction
   2. Installation details, including floor pan
   3. Rough-in diagrams
   4. Wiring diagrams
   5. All anchors, and relationship to and coordination with adjacent work

D. Operations and Maintenance Manuals: Upon completion of the work but prior to acceptance of the work, provide one (1) bound manual including operating, maintenance and cleaning instructions, parts listings, emergency instructions, recommended maintenance schedules, and wiring diagrams. Include complete instructions for programming, calibration, adjusting and operating the equipment.

E. Warranties: Upon completion of the work but prior to acceptance of the work, provide completed warranty documents as follows:
   1. Manufacturer's Warranty: Provide Manufacturer's Warranty against defects in materials and workmanship under normal use. Units are to be warranted for a period of two years from the date of substantial completion of installation. The Manufacturer's Warranty is in addition to, and not in limitation of other rights Owner may have under Contract Documents.
   2. Distributor's Warranty: Provide a one year Distributor's Warranty covering shipping, return and restocking charges and transportation, installation and other labor charges, for equipment repairs and replacement of defective parts.

1.04 PROJECT CONDITIONS

A. Product Handling:
   1. Deliver components in manufacturer's original protective packaging
   2. Manufacturer shall pack components appropriately for selected transport. Distributor shall arrange to unload, store and protect the components to avoid abuse, damage, and defacement from any source, including harmful weather conditions and vandalism
   3. Store components vertically, off of the ground or floor so that water cannot accumulate on or within components. Use wood or plastic shims below and between components to provide water drainage and air circulation
   4. Cover components with tarpaulins or plastic hung to provide air circulation and to prevent containment from contacting finished surfaces
   5. Keep water away from stored components
   6. During and following installation, protect components from lime, mortar, run-off from concrete and copper, careless handling of tools, weld splatter, acids, roofing tar, solvents, abrasive cleaners and other materials or actions likely to cause damage

B. Field Verification: Verify actual dimensions, openings, adjacent construction, and other conditions and record dimensions on shop drawings. Proper installation and operation require that the finish floor shall be level within 1/8" across the diameter of the Portal.

C. Fabrication: Coordinate fabrication and construction schedule to avoid construction delays.

PART II - PRODUCTS

2.01 EQUIPMENT (

A. Security Interlocking Door System: AACS Series 400, comprised of two pairs of curved bi-parting glass door leaves within a rectangular frame. One pair on the secure side and one pair on the non-secure side.

B. Materials, Finishes and Fabrication
   1. Construct unit of 3/16" steel or optional Stainless steel.

2. In-booth dimensions: 35 in. wide x 87 in. high cabin entrance, interior of cabin 59" floor space.
3. Glazing for doors and sides: Vandal resistant glass 9/16" vandal resistant laminated glass, Bullet resistant (BR) is optional in levels BR1, BR2, and BR2 with optional film for a BR3 equivalent.
4. Top Canopy: 14" high, containing motors and gears
5. Finish for all framing, doors, sides, header, canopy and other exposed metal elements shall be specified by architect
7. All exposed fasteners shall be pin-reject Torx head type

C. Operations

1. Operators and Power Supplies: Provide UL listed motorized operators mounted and concealed within the low side vertical post. Provide a 120 VAC input, 24 VDC output, 10 watt, UL listed power supply mounted and concealed within the canopy or optional high security side vertical post.

a. Provide UL Listed 126 Watt, 24 VDC, 7 Amp motors.

b. Provide cabin trolley shaft of due strength suitable to a long working life under continuous operation.
c. Provide UL Listed 24 VDC Regulated Power Supply, 120 VAC, 60 Cycle, 1 phase input with 24 VDC output.
d. Provide unit with battery back-up system to maintain a four hour operation period (500 passages) The back-up batteries shall be concealed within the canopy or optional high side vertical post. The battery charging system shall have a supplemental charge from excess energy derived from the mot or breaking and reversal system (a "Green" element).

2. Controllers : Provide a Master Control and a Remote Control Panel.

a. Provide a PLC Control MCT Located in the top Low side vertical post.
1) Provide Master Control with adjustable parameter values for Door Open Speed, Door Close Speed, Door Starting Force, Acceleration Door Open, Acceleration Door Close and Number of Passages Counter.
2) Provide Master with Password Protection to prevent unauthorized adjustments.
3) Master Control is to have the capability to be programmed on site by authorized personnel.
4) Provide a Master control that the capability to communicate via 256 BIT AES Encryption if option is selected.
5) Provide a Master control that has the capability to facilitate remote trouble shooting and adjustments (requires the selection of #4)
6) Provide a Master Control that has the capability to allow all data to be transferred to a USB Memory Stick which can then allow the information to be sent to the manufacturer for trouble shooting / adjustment purposes and then be transferred back to the Memory Stick and transferred to the Main Control. (if #4 is not selected).
7) Provide a Master Control that is capable of operating in a ADA mode when a ADA Access Card is presented for entry.
8) Provide a Master Control with an Override capability during False Fire Alarms.
9) Provide a Master Control that is capable of communication with the portal for distances in excess of 4000 feet without amplification.
10) Provide a Master Control that records 16,000 cycles of events.
11) Provide a Master Control that sends alarms for impending mechanical failures.

b. Provide a multi-functioning remote Control Panel that interfaces directly to the Master Controller via RS-485. The remote Control Panel shall allow the unit to be controlled remotely and provide diagnostic and programming functions as specified elsewhere in this Section. Provide all required cabling to interconnect locations indicated in the drawings.
1) The remote Control Panel shall function without amplification up to 4000 foot cable length distance from the Master Controller.

2) Provide a Control Panel with an automatic audio/video link to the portal in the event of an alarm or emergency call (Optional)
3) Provide a Control Panel that is capable of monitoring and controlling up to 8 individual portals.
4) Provide a Control Panel with touch screen control and visual graphic displays providing the status of all portals connected to the Control Panel
5) The remote Control Panel shall annunciate any breach or attempted breach of the following Security Functions or features:
    i. Forced Door
    ii. Door Held Open
    iii. Left Object, Presence Sensor
    iv. Tail-gating, multi-person
    v. Tamper at any door or cover
    vi. Metal Detection (when Metal Detection is provided)
    vii. Emergency Call
    viii. System Malfunction

3. Traffic Control Function: Provide units controlling access for both directions of travel, incorporating interlocking door leaves to ensure that a clear opening is never presented.
    a. Normal operation: The unit shall keep both door leaves closed and locked to maintain optimum security.
        1) A signal from the Access Control System activates the controller, which in turn activates the first door for passage from either direction. The first door shall be activated by means of depressing a button, a proximity sensor or an integrated device supplied by the access control contractor. The first door is the door on the side of the approaching person, which may be either side during normal operation. The person requesting passage then enters the cabin and shall not be granted further passage until the internal security system confirms that security criteria are met as described below. The first door then closes and locks and the second door then opens automatically. The person then leaves the cabin, the internal security system confirms that security criteria are met as described below, and the second door closes and locks.
        2) If any of the security sensors are activated at any stage, an alarm will sound at the remote Control Panel and the unit shall prevent further progress. Any security violation will also result in voice annunciation requesting that the person(s) exit the cabin in the direction from which they entered, or announcing that an item has been left in the cabin after the person exited.

4. Security Functions:
    a. Access Control: The unit shall accommodate and coordinate with an electronic Access Control System provided by the Owner. The unit shall be capable of exchanging the following signals with the Access Control System, and shall operate as specified elsewhere in this section:
        1) Receive verified request to enter signal (initiated by sensor device outside cab, one on each side).
        2) Receive verified user profile (momentary override) of Stationary Object Detector.
        3) Send attempted security breach alarm.
        4) Send completion-of-cycle signal.
        5) Send door-held-open alarm signal, after repeated attempts to close.

    b. Single-passage checking system. Provide unit with a near infrared based Single-passage-checking-system covering the entire in-cabin volume, mounted in the top canopy. The system shall be capable of detecting two (or more) people simultaneously occupying the cabin(piggybacking)

c. Provide the unit with a Left Object Detector (LOD) system with sensors to cover the entire in-cabin volume, mounted in the top canopy. The LOD system shall be capable of detecting the presence of unattended objects inside the cabin. Provide the Master Controller with an alarm notification of left objects. LOD is active only in the event of metal detection.

d. Security Criteria: Provide logic control system capable of reacting to conditions detected by the in-cabin sensors and preventing piggybacking or tailgating. Piggybacking is defined as the act of an authorized person inviting or allowing another person to pass through with them. Tailgating is defined as the act of an unauthorized person forcing passage with an authorized person.
   1) Any attempt of passage by unauthorized persons or multiple persons shall be detected by the system and denied. This event will result in the door of entry re-opening and the voice annunciation requesting that all person(s) leave the cabin in the direction from which they entered and an alarm shall annunciate this condition at the Control Panel.
   2) Following the above, the cycle aborts and a new access verification signal must be sent to start a new passage cycle.
   3) Under normal transit conditions, when the second door has opened, the system will verify that all persons and materials have left the cabin, prior to accepting any further signals.
   4) Upon detection of any materials left in the cabin, the system will stop the cycle and an alarm will sound at the Control Panel. The cycle will not progress until all materials have been cleared from the cabin.

e. Door Status: Door status will be monitored through the Control Panel or optional security system interface

f. Metal Detection: Metal detection shall be CEIA 02PN8H1-PE/CN or equilviant.

5. Safety Systems:
   a. Panic Button: Provide an interior cab mounted "Call for Help" switch assembly, all factory installed by portal manufacturer. Provide all mounting hardware, associated raceway and other accessories needed for a complete installation. Locate center of switch assembly @ 48". Terminate and clearly identify wiring within the portal door control unit located in the portal canopy.
   b. Emergency Door Release: When the Emergency Release button is pushed in the cabin the door that was used to enter the portal will attempt to open, if the door fails to open the clutch will release and allow the door to be opened manually. The Control Panel will provide a release icon that will release the portal doors when activated.

c. In the event of a fire alarm, with the portal connected to the building fire alarm system (NC Contact, dry) the portal will open both sets of door allowing free passage.
   The Control Panel will be capable of overriding this input in the event of an attempted security breach. In the event of an attempted security breach the officer in charged can push the override and the interior doors will close, the portal will check for presence and once clear will then close the exterior doors.

d. Voice Annunciation System: Provide English language voice system capable of annunciating a security violation. This system will be capable of updating the message by use of an SD card.

e. Edge Detection: Provide an overhead system on the exterior and interior of each pair of doors capable of detecting a person or object in path of closing door. Detection shall result in automatic reversal (opening) of door, and sub-sequent attempt at closure. After three failed attempts at closure, the Master Controller shall send an alarm signal to the remote Control Panel.

f. Cabin Lighting: Provide integral cabin lighting, LED low energy lighting.

PART III - EXECUTION

3.01 EXAMINATION

A. Installer shall examine construction area conditions under which portals are to be installed. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer. The finished floor shall be smooth and level and the adjacent work in its proper place before the door shall be installed.

3.02 INSTALLATION

A. Comply with the manufacturer's specifications, recommendations, installation manual and approved shop drawings.

B. Set units plumb and level. Set the enclosure base in sealant and anchor securely in place. Provide specified floor pan immediately upon approval of shop drawings (if required), or provide a full size floor template to facilitate installation.

C. Coordinate installation with wall flashings and other components of construction.

D. General or electrical contractor to install all power wiring to portal on a separate circuit breaker.

E. Coordinate installation and testing with Access Control system installer.

3.03 CLEANING, ADJUSTMENT AND PROTECTION

A. CLEANING: After installation, programming and adjustment, the installer shall:
   1. Remove temporary coverings and protection of adjacent work areas.
   2. Remove construction debris from construction site and legally dispose of debris.
   3. Repair or replace damaged or non-functioning installed products.
   4. Clean product surfaces and lubricate operating equipment for optimum condition and safety, according to manufacturer's written requirements.

B. ADJUSTMENT: Adjust operator and controls for optimum operation and safety. Verify that all access, control and safety signals and systems are functioning.

C. PROTECTION: The contractor shall undertake precautions required throughout the remainder of the construction period to ensure that the portals will not be damaged or deteriorate prior to the time of acceptance.

3.04 INSTRUCTION

A. Provide four (4) hours of training to Owner's personnel. Training shall include complete coverage of normal and emergency operations, interpretation and response to all applicable alarms and diagnostic signals, routine service requirements, cleaning, lubrication, adjustments, inspection of major components and programming and operating of all user adjustable sensors, controls and safety devices.

END OF SECTION