WIRELESS ACCESS CONTROL HARDWARE AND COMPONENTS

PART 1 - GENERAL

1.1 SUMMARY:

A. Work Includes: Access Control Hardware and related components for door openings, except as otherwise specified herein. All materials shall be FURNISH AND INSTALLED.

1. Division 26 Section “Electrical”
2. Division 28 Section “Access Controls”

1.2 SUBSTITUTIONS:

A. Only Owner pre-approved substitutions will be considered.

1.3 SUBMITTALS:

A. Special Submittal Requirements: Combine submittals of this Section with Sections listed below to ensure the "design intent" of the system/assembly is understood and can be reviewed together.

B. Product Data: Manufacturer's specifications and technical data including the following:

1. Detailed specification of construction and fabrication.
2. Manufacturer's installation instructions.
3. Wiring diagrams for each electric product specified. Coordinate voltage with electrical before submitting.
4. Submit 6 copies of catalog cuts with schedule.

C. Shop Drawings - Submit 6 complete reproducible copy of detailed schedule in a vertical format.

1. List groups and suffixes in proper sequence.
2. Completely describe door and door number.
3. Manufacturer, product name, and catalog number.
4. Function, type, and style.
5. Explanation of abbreviations and symbols used within schedule.
6. Detailed wiring diagrams, specially developed for each opening, indicating all electric hardware, security equipment and access control equipment, and door and frame rough-ins required for specific opening.

D. Templates: Submit templates to others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.

1. Templates, wiring diagrams of electrical terms to electrical for coordination and verification of voltages and locations.

E. Contract Closeout Submittals: Comply with Division 1 including specific requirements indicated.

1. Operating and maintenance manuals: Submit 3 sets containing the following.

    a. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
    b. Catalog pages for each product.
    c. Parts list for each product.

2. Copy of final schedule, edited to reflect, "As installed".
3. Copy of final keying schedule
4. As installed “Wiring Diagrams” for each piece of hardware connected to power, both low voltage and 110 volts.
5. One set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.4 QUALITY ASSURANCE

1. Installer's Qualifications: Firm with 3 years experienced in installation of similar hardware to that required for this Project, including specific requirements indicated.
2. Regulatory Label Requirements: Provide testing agency label or stamp on hardware for labeled openings.

    a. Provide UL listed hardware for labeled and 20 minute openings in conformance with requirements for class of opening scheduled.
    b. Underwriters Laboratories requirements have precedence over this specification where conflict exists.

3. Single Source Responsibility: Except where specified in hardware schedule, furnish products of only one manufacturer for each type of hardware.

B. Review Project for extent required to complete the Work. Where there is a conflict between these Specifications and the existing hardware, notify the owner in writing and furnish hardware in compliance with the Specification unless otherwise directed in writing by the owner

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Comply with Division 1.

1. Deliver products in original unopened packaging with legible manufacturer's identification.
2. Package hardware to prevent damage during transit and storage.
3. Mark hardware to correspond with materials schedule.

B. Storage and Protection: Comply with manufacturer's recommendations.

1.6 PROJECT CONDITIONS:

A. Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information.

B. Review Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.7 WARRANTY:

A. Manufacturer's Warranty:

1. Wireless WiQ Locksets : One Year
2. Electronic Electrical Components: One Year

1.8 OWNER'S INSTRUCTION:

A. Instruct Owner's personnel in operation and maintenance of hardware units.

1.9 MAINTENANCE:

A. Extra Service Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals Section.

1. Special Tools: Provide special wrenches and tools applicable to each different or special hardware component.
2. Maintenance Tools: Provide maintenance tools and accessories supplied by hardware component manufacturer.
3. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra service materials.

B. Maintenance Service: Submit for Owner's consideration maintenance service agreement for electronic products installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. The following manufacturers are approved subject to compliance with requirements. Approval of manufacturers other than those listed shall be in accordance with Division

1. The specifications as outlined in this document are designed to meet a need for a Wireless Access Control Solution where the reader(s) is combined with the associated locking hardware to provide a battery powered wireless security access control solution at door(s) or portal(s). Any alternate approaches using hardwired solutions will not be acceptable unless otherwise specified.

2. The system shall use a Stanley Wi-Q™ Technology Wireless Access Management System from Stanley. The system shall consist of elements as described in the following document.

B.

Item:	Manufacturer:
Cylinders/Cores	Best
Stand Alone Wi-Q Cylindrical	Best
Stand Alone Wi-Q Mortise	Best
Exit Device WiQ Trim	Best
WiQ Equipment and training	Best

2.2 MATERIALS:

A. BEST EX TRIM EXEQ Series for various existing exits and for Precision Exit Device using Stanley Wi-Q™ Technology. Model - EQX-7EV14MS PATD RM

1. Tested and approved by BHMA for ANSI 156.3, Grade 1
2. Provide a deadlocking latchbolt
3. Non-fire rated exit devices shall have cylinder dogging.
4. Touchpad shall be “T” style
5. Wireless Trim will communicate on an 802.15.4 frequency allocated so as not to be affected by standard traffic on 802.11 systems.
6. Exposed components shall be of architectural metals and finishes.
7. Lever design shall match lockset lever design
8. Provide strikes as required by application.
9. Fire exit devices to be listed for UL10C
10. UL listed for Accident Hazard
11. Provide Door Position Switch
12. Provide Request to Exit (RQE) switch and Door Position switch Trim
13. Provide Trim with 7-pin removable and interchangeable Cormax cores
14. UL Listed A Label for GYQS
15. Battery pack for primary power
16. Visible and audible user indicators
17. 2000 G’s RMS shock resistance
18. Weatherproofed for exterior applications
19. Operating temperature of -22 to +140 degrees Fahrenheit
20. Coordinate model with exit hardware manufacturer installed.

B. BEST 9KQ Series Cylindrical Type Locks and Latchsets using Stanley Wi-Q™ Technology. Model - 9KQ3-7DV14MS PATD S3

1. Certified by BHMA for ANSI A156.2, Series 4000, Operational Grade 1, Extra-Heavy Duty.
2. UL10C Listed.
3. Fit modified ANSI A115.2 door preparation
4. Locksets to have anti-rotational studs that are thru-bolted
5. Each lever to have independent spring mechanism controlling it
6. 2-3/4 inch (70mm) backset
7. 9/16 inch (14mm) throw latchbolt
8. Provide locksets with 7-pin removable and interchangeable Cormax cores
9. Core face must be the same finish as the lockset
10. Functions and design as indicated below
11. Provide electric operation as defined and required
12. Provide Request to Exit (RQE) switch and Door Position switch
13. Wireless Locks will communicate on an 802.15.4 frequency allocated so as not to be affected by standard traffic on 802.11 systems

C. Reader Lock/Trim

1. Fit modified ANSI A115.2 door preparation
2. Integrated smart locking device with its own database.
3. Capability to make all decisions at the door.
4. Reader / Lock/ Trim to be installed within the existing door ANSI cut out. There shall be no need to route out the door to drive additional power through any electric transfer hinge. All requirements will be met within the reader / lock itself.
5. Wireless Reader shall use an AA battery pack; no AC power shall be required at the door.
6. The doors with monitor status only will transmit a wireless signal from the door contact to the WAC to monitor door status. No Card access is possible thru these doors.
7. Wireless Locks will communicate on an 802.15.4 frequency allocated so as not to be affected by standard traffic on 802.11 systems.
8. The reader / lock shall also be able to operate as a fully stand alone intelligent device making all the decisions in real time. In the unlikely event that the reader/lock is offline from the host, it shall continue to operate, storing and recording accesses until it is re-connected and back online to the host. The wireless reader/ lock shall be offered in one of four modes.

    A. As a supplemental exit device trim to be added to an existing exit devices.
    B. As a wireless access controller interfaced to a hardwired reader and ancillary door devices such as an electric locking device, Request to Exit (RQE) switch, a Door Switch Monitor and a Door lock sense input.

9. For exit device applications the wireless reader shall provide support for an integral Request to Exit (RQE) switch, Door Position switch (DS) and Latchbolt Position switch (LS) if available with device.
10. The reader Trim / lock shall support as a minimum the following “reader” technologies:

    A. Support for Track 3 of magnetic stripe cards reader

B. As standard, the reader shall support exterior applications
C. Each reader / lock shall have battery power to meet 100,000 lock / transaction.
D. Each reader lock shall come with a minimum of 2,000 ID capacity, and be able to store locally, if offline, up to 10,000 transactions

D. Reader Trim/ Lock database

1. The reader shall support 2,000 unique ID's in its standard configuration and be expandable to 65,000. Expansion shall not require a field upgrade at the reader but rather a software key shall be downloaded from the host that shall increase the database size and support up to 65,000 cardholders. The reader shall support up to 8,000 transactions in the event the lock cannot communicate to the portal gateway.
2. Up to 512 Time Zones per user group with up to 6 time intervals per time code.
3. Up to 32 types of unique user defined holidays shall be supported. Each holiday shall be capable of supporting a different time code.
4. A unique set of Access privileges shall be available for each cardholder per reader / lock
5. The memory allocation on the reader / lock shall be dynamic such that the user may maximize the size of the available memory to meet their requirements for either ID's or transaction storage
6. Time zones shall be able to cross midnight such that a shift beginning at 10:00 PM and ending at 9:00 AM the next morning, will be considered as a single time zone
7. The reader/lock shall be able to support an auto-enroll mode where the user may select a reader to be used to enroll a large group of cardholders. This shall be achieved by either bulk loading card ID numbers between a specific range or by presenting a card to a reader that then reads the card data and enrolls the card into the database.

E. Reader Trim/ Lock Operation Modes

1. The reader will support Access control for a single door with one reader and free egress on the same door
2. The reader will monitor a door position status such that it is able to detect door open and door locked and secure. In no event will a separate contact be required to be mounted to the frame of the door and wired back to a separate contact monitoring device. All alarm monitoring at the door / portal will be monitored by the reader / lock itself and shall not require any additional controller support
3. The reader shall report any access transaction with the date and time of the event in Hours: Minutes and Seconds
4. The reader locks database shall support up to 7 unique shunt times for specific groups of individuals and meet ADA compatibility requirements for extended shunt times for any single or groups of physically impaired cardholders
5. The reader will support an RQE (Request to Exit) status that will be reported separately as a separate auditable transaction. In the event that an attempt to exit is made, but the door /portal remains closed (secure), then the transaction will not be recorded as a valid RQE and will time out after the shunt time has expired
6. The reader/ lock shall support and transmit a signal if the power to the reader / lock drops below 10%

7. The reader shall support different operation modes based on time zones. Thus a reader may be in a Card only mode in the daytime, but require Card plus PIN after hours. This shall be fully user programmable from the host
8. The reader / lock shall be able to operate in a fully stand alone mode or as a distributed fully intelligent reader/ lock holding the transactions until they are polled
9. The reader / lock shall communicate via spread spectrum radio transmission at 2.4 GHZ
10. The reader / lock shall use as a standard, AES 128 bit encryption between to the nearest non-dedicated Portal Gateway. Portal Gateways shall provide redundant communications capability so that a wireless reader can report to another Portal Gateway if primary reporting path is lost
11. The reader / lock shall report multiple incorrect PIN attempts (greater than 3) as an alarm attempt
12. The readers read / response time to an access request shall not exceed 250 Milliseconds worse case
13. Each reader lock shall have its own unique MAC address.

F. Wireless Access Controller

1. The reader will support Access control for a single door with one reader and free egress on the same door
2. A wireless access controller shall be capable of interfacing with a token reader utilizing a standard Wigand protocol to unlock various electrified locking hardware such as electric strikes, exit device trim, electro-magnetic locks and other low voltage applications. It shall also serve as a retrofit kit to replace an existing wired infrastructure with a local wireless reader PCB that has the ability to slave to a wired reader and local peripherals at the door
3. Support an existing Request to Exit switch (RQE), Door Position switch and Latchbolt Position switch (LS).
4. Support a locally powered locking device rated up to 4 AMPS at 12/24V DC
5. Auxiliary relay output will be available to drive other door related outputs. This relay shall be rated at 2 AMPS 12/24 V DC
6. The wireless access controller will also have the same feature set of software capabilities as the standard wireless reader for up to 65,000 ID’s, 144 Time Zones, variable shunt times for different staff groups, and ADA compliance
7. The wireless access controller will be able to support any Wigand card format from 16 to 128 bits and shall be able to serve as a log on or enrollment reader where an individual or group of individuals may “badge” into the system and the system will identify their card data so the card can be auto-enrolled
8. The wireless access controller shall provide wireless communications back to a Portal Gateway such that no separate controllers will be required for decision making. All door related decisions will be made at the wireless access controller local to the reader(s) it serves
9. All terminations to the wireless access controller shall be through plug in wired block terminals – no special tools will be required to install the unit(s)
10. The reader shall be able to operate in different modes such that it is able to serve as a smart I/O module supporting I/O functions either as ancillary services to it’s primary role as an access control device or as it’s sole role. In this mode the wireless access controller shall be able to provide the following:

A. As a wireless reader module with support for a dedicated Door Position switch (DS), Latchbolt Position switch (LS), Request to Exit (RQE), and key by pass override with two onboard relays, one rated at 4 Amps for 12/24V DC operation, the other at 2 Amps for 12/24V DC operation
B. Wireless module with 4 supervised inputs, 4 non-supervised inputs, two onboard relays with one rated at 4 Amps for 12/24V DC operation, the other at 2 Amps for 12/24V DC operation
C. As a wireless module with 4 supervised inputs, two onboard relays with one rated at 4 Amps for 12/24V DC operation, the other at 2 Amps 12/24V DC operation plus 4 additional logic driven outputs. In this mode no wireless readers would be supported.

11. Wireless Access Controller shall come boxed and standard with half wave dipole antennas and a ceiling mount omni-directional antenna with 20' of cable and all required connectors.

G. Portal Gateways: The portal gateways shall operate in a non-dedicated mode such that any reader / lock shall be able to report to and through any portal gateway. The portal gateways shall accept data from any of the addressed readers and transmit bi-directional encrypted data to the host for archiving and data management. Each portal gateway shall have the following capabilities.

1. Each portal gateway, in base configuration, shall support a minimum of 16 reader / locks in it's antenna range and via system options, be able to support up to 128 reader / locks in a maximum system configuration
2. Each portal gateway shall have it's own unique MAC address such that, on boot up, the host will find and identify those portal gateways that belong to the system
3. Every portal gateway shall encrypt the data using 128 BIT AES encryption and send and receive data via spread spectrum RF transmission to and from the host
4. Nominal transmissions distances between the reader / locks and the portal gateway(s) shall be 250 feet line of sight. Extended ranges exceeding 1000' shall be available, if required, using standard commercially available high security RF transport sub-systems
5. Each portal gateway shall, as an option, have the support of a stand-by power supply
6. Each portal gateway shall support three transmission paths to the host. The user may elect to use standard Ethernet cabling between the portal gateway and the host using a cross over cable. Standard Ethernet using local hubs and routers, or they may elect to use a wireless (MESH) network infrastructure to provide a wireless, redundant communications backbone
7. Each portal will have its own static IP address
8. The portal Gateway shall support secure socket communications between the host(s) / server and any associated Portal Gateway. This shall be user selectable
9. The portal gateway shall come boxed with half wave dipole antennas and a ceiling mount omni-directional antenna with 20' of cable and all required connectors.

H. Hosts / Web Services: The Host's software will run on industry standard, commercially available, computer platforms offered from multiple PC vendors. There shall be no constraints on the PC platform if it meets the minimum specifications listed. The host,

Stanley Wi-Q software and B.A.S.I.S., shall use Microsoft Windows as the operating system with a SQL Database and run on a standard, off the shelf computer platform with the following minimum operating specifications

1. A Pentium 4 or equivalent with a 2.0 GHZ processor
2. A minimum of 512MB RAM and 80GB hard disk shall be required for storage and data management
3. A USB or Wireless hub with minimum of: 10/100BaseT
4. The system shall have help screen support for all major functions
5. The system shall support Multi byte character sets such that translations into non -standard ASCII characters above 128 are fully supported
6. The system shall support web services such that non-administrative tasks shall be able to be serviced through a standard web browser

I. Host Software:

1. Support, as standard, 16 readers expandable to unlimited number of readers
2. Requires a software key generated at the time of installation
3. Software shall have multiple levels of password protection, such that, Card ID files may restrict visible data to certain approved levels of users
4. The system shall support 100,000 card holders and be expandable to a virtually unlimited number of cardholders, depending on hard disk storage
5. The system web services will use industry standard tools and formats such as .NET, SOAP and XML
6. Software shall support canned reports that are pre-formatted and set up to handle most report tasks. This shall include:

    A. All alarms at a reader trim / lock
    B. All accesses at a reader Trim/ lock by date, by time
    C. All cardholders in a reader trim / lock
    D. All cardholders at a wireless reader during a certain time frame

7. The Stanley Wi-Q software shall support a system diagnostic mode that shall be able to monitor in real time the systems wireless reader/locks and Portal Gateways: most report tasks.

    A. This diagnostics tool shall be within the standard Wi-Q application and not require the purchase of additional hardware or components.

8. The Diagnostic tool shall be able to address and monitor, as well as allow the user to select, at anytime, a diagnostic mode and capture statistical data on any one of these parameters:

    A. Firmware in the wireless reader trim / lock
    B. Battery strength in the wireless reader trim / lock
    C. RF signal strength between the wireless reader trim/ lock and it’s closest associated Portal Gateway
    D. RF signal packet data strength
    E. Beacon time

9. Owner will provide Server PC, Network Drops for connections to Portal Gateways and Hardware to support this Wi-Q system. System Administration is required by the owner.

J TRAINING

1. The Owner and its representatives shall be trained to use the system software, programming devices, magnetic card encoder and locks by authorized factory-trained personnel.
2. Initial training will be conducted at a owner facility. Training shall consist of two (2) four hour sessions. Cost of this training and travel shall be included in quotation. Owner will provide 30 days written notice for exact dates and location of training.
3. Any training required after the initial training will be quoted by the manufacturer.
4. Electronic Lock Manufacturer must be able to provide long term on-site training agreement plan and cost to accommodate anticipated turnover of software management personnel. Agreement must address the cost and plan to re-train new individuals upon request on an as needed basis.
5. Manufacturer must provide factory training, either on-site of manufacturer or via Web-based training programs.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verification of conditions: Examine doors, frames, related items and conditions under which Work is to be performed and identify conditions detrimental to proper and or timely completion.

3.2 HARDWARE LOCATIONS:

A. Mount hardware units at heights indicated in the following publications except as specifically indicated or required to comply with the governing regulations.

3.3 INSTALLATION:

A. All bidders are required to FURNISH AND INSTALL all specified and proposed items. Field verification of existing conditions will be necessary in order to provide a turn-key system, complete and functional.

B. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

C. ADA Standard: Conform to ANSI A117.1 for positioning requirements for disabled.

D. Installed hardware using the manufacturers fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use “Riv-Nuts” or similar products.

3.4 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

A. Contractor/Installers, Field Services: After installation is complete, contractor shall inspect completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final shop drawings.

1. Check Latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
   a. Verify levers are free from binding.
   b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.

3.5 EQUIPMENT SCHEDULE

A. Schedules and locations, lockset type, trim types and quantities.

B. System Components and Support:

1. (12 Each) Portal Gateways Model WQX-PG-C-BP
2. (12 Each) Omni-Directional Antenna, Model WQD-ACMO
3. (1 Each) Magnetic Card Encoder, Model MSR20633BA
4. (12 Each) Power Over Ethernet supply/inserter, Model WQD-12927-001
5. (12 Each) Power Over Ethernet active splitter/w isolation , Model WQD-12928-001
6. (1 Each) B.A.S.I.S Software and upgrade, Model WQS-SWAT
7. (2 Each) Reader License, Model SWG-WIQ-32
8. (200 Each) Un-Encoded Cards, Model OMD-10983-001
9. (1 Each) Wireless Controller, Model WQX-WAC-C-B
10. (1 Each) Reader, Model 36012OWBK
11. (1 Each) Shelf Stock Lockset 9KQ3-7DV14MS S3 L/C
12. (1 Each) Shelf Stock Portal Gateway, Model WQX-PG-C
13. (10 Each) Battery Pack, Model 2P-VDPBB
14. Complete Installation, Programming, Data Storage and software.
15. Operating Manuals and on-site training for staff.