SECTION 28 13 00 - ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. The system shall be an extension of the Owner's existing system: PremiSys, by Identicard, Access Control System.

B. Provide one enterprise system administrated via one or more networked PC on the District's network.

C. Provide accessibility by means of Apple or Android powered smartphone, either via cellular connection or via the District's network.

D. The Contractor shall provide a Card Access System (CAS) that shall provide all personnel recognition, access, monitoring and control. The system shall provide standard card access functionality allowing electronic control of the doors indicated, as well as integration to the Video Surveillance System, Intrusion Detection and the entry Intercom Systems. In addition to the required hardware to provide these functions, the Contractor shall provide as may be required, individual servers or building controllers, reporting to a centralized server that shall provide the required access to administer the system, as well as a minimum of eight thick remote client software licenses to be installed and configured as directed by the Owner.

E. Contractor shall provide all licenses needed for a 100% fully functional system.

F. The system shall provide local and remote operational control of all access points and alarm sensors.

1.2 SECTION INCLUDES

A. Servers and Software

B. Local Control Panels

C. Credential Readers

D. Credentials

E. Credential Printer/Encoder

F. Request To Exit Pushbuttons

G. Remote Release Pushbuttons

H. Request to Exit Motion Detectors

I. Door Position Switches

J. Power Supplies

K. Driver's License Scanner

L. Visitor Management System

1.3 PRODUCTS INSTALLED BUT NOT SUPPLIED BY THE CONTRACTOR

A. The Contractor shall provide all cabling, system I/O, programming, and related hardware to control electric strike hardware or other door control hardware provided by the door hardware supplier. Coordinate exact requirements with door hardware supplier.

1.4 RELATED WORK SPECIFIED ELSEWHERE

A. Section 27 05 00 – Communications Common Work Results

B. Section 27 05 24 – Firestopping

C. Section 27 05 26 – Technology Grounding System

D. Section 27 05 28 – Pathways for Communications Systems

E. Division 1 – General Requirements

1.5 DESCRIPTION

A. The Contractor shall provide a completely functional card access system, for the purposes of controlling and monitoring of all indicated potential means of entry, or other point of alarm. Items specified but not drawn, or drawn but not specified shall be considered to be within the scope of the Documents. The Documents show the intent of the system, and the Contractor shall provide all required devices, cabling and equipment to fulfill the intent of the Documents

B. The system shall provide controlled access into areas and through doors as indicated on the Drawings, utilizing proximity sensors, keypads, mag locks, electric strikes, door contacts and push buttons.

C. The system shall be capable of monitoring the exterior doors equipped with door contacts. The Contractor shall provide client software in the high school office and that shall be loaded onto school district provided PC's that shall annunciate the status of the doors, i.e. indicate if these doors are open, based on the status of the door contacts.

D. The Contractor shall provide a dedicated credential reader in the new school to be utilized for user enrollment.

E. The system shall initiate communication to the Video Surveillance System to trigger events related to both authorized and unauthorized entry into any given door that is either monitored or controlled.

F. The system shall integrate the viewing of triggered events on a common graphic user interface allowing for the visual review of the location, as well as the logged event of the card access system.

G. The system shall provide remote release of select doors as indicated on the plans.

H. The system shall be wired, where the contacts are available in the door hardware, to provide latch monitoring functionality in addition to the door position monitoring.

I. Where an exterior or other door is monitored by both access control and intrusion detection, the Contractor shall provide two pole door contacts to facilitate individual monitoring by each system

while minimizing modifications to the door framing.

1.6 GENERAL CONDITIONS

A. After-Sales Support
1. The Contractor shall be a factory-authorized and trained dealer of the system and shall be factory-trained and certified to maintain/repair the system after system acceptance.

B. Quality Assurance
1. All equipment, systems, and materials furnished and installed shall be new and installed in accordance with the applicable standards of:
a. National codes: NEC, NFPA, UBC
b. Approvals and listings: UL 1076 listed
c. Security Industry Association (SIA)
d. Local Authorities Having Jurisdiction

C. Warranty
1. All components, parts, and assemblies supplied by the Manufacturer and installed by the Contractor shall be warranted against defects in material and workmanship for a period of at least (3) three years (parts and labor), commencing upon date of substantial work. A qualified factory-trained service representative shall provide warranty service.

PART 2 - PRODUCTS

2.1 DESCRIPTION OF SYSTEM

A. Provide an extension of the District's existing PremiSys, by Identicard, Access Control System

B. The system hardware and software shall be a commercial off the shelf product of a reputable manufacturer with a history of providing systems designed for this purposes for a minimum of at least 5 years.

C. The system shall be UL listed and approved for the application intended and shall be compliant with all standards and regulations that may apply. These listing and approvals shall include, but not be limited to, FCC, CE, UL 1950, UL 294, and UL 1076. The latter UL 1076 will be applied only to the overall system, including the host when available.

D. The Local Control Panels (LCP) shall be extensible to seamlessly interface to a dedicated Web based Central Card Administration System (CCAS) or host computer. The CCAS shall allow a central point of administration and reporting of all personnel records and activities, and shall be accessible by means of both thick clients in a client/server environment.

E. Lockdown
1. A Lockdown shall be initiated in the following ways:
a. Physical pushbuttons located in the building
b. Software initiated over main PC based administrative console
c. Utilizing the Access Control System's mobile based software
2. This Contractor shall program and coordinate the Lockdown's sequence of events as directed by the District. At a minimum, the Contractor shall provide the following functionality:
a. The Access Control system shall send a signal to the Fire Alarm system that a Lockdown has occurred
b. All magnetically held open doors will release, latch and lock

c. All access-controlled doors will lock.
d. All video surveillance cameras will continuously record at 5 f/s for the entire length of the Lockdown
e. The Access Control system shall send a signal to the Paging System.
1) Paging System shall play a pre-recorded message. This message shall be created as directed by the District.
f. The Access Control system shall send an email to recipients as directed by the District.
3. This Contractor shall provide and verify how the District will lift a Lockdown.

2.2 CCAS HARDWARE AND SOFTWARE SYSTEM REQUIREMENTS

A. General
1. The Web based CCAS shall operate on a dedicated server system or host computer. This dedicated server shall run network and Internet services for industry standard web browsers to use in order to administer personnel records. For reporting purposes a browser-accessible reporting package shall be used. Dynamic on-line help shall be available within the software with step-by-step instructions available for common administration tasks.
2. A copy of all personnel records from the individual LCP's shall be stored in the CCAS and shall be available to all authorized operators. All hardware components/modules shall be commercial off-the-shelf products offered by recognized industry manufacturers. Systems utilizing proprietary hardware shall not be acceptable.
3. The client Web browser PC shall be 100% IBM compatible PC running Microsoft IE and network enabled. No proprietary or advanced computer hardware, i.e. high end video graphics cards, etc. shall be necessary in order to retrieve and/or edit personnel records.
4. The system shall support multiple operator permission levels.

B. Minimum Server/Host Specifications
1. Computer hardware defined within shall be used as a guideline and minimum level of expectation. Contractor shall verify optimal hardware configurations with the system manufacturers and provide system as recommended by the manufacturer that provide the best performance for the project specific system being provided, having capacity sufficient for 100% of the day 1 configuration with a growth potential of 50% including, but not limited to storage capacity for transactions and records, as well as throughput for an increase in overall system size and complexity.
2. The ACSDB CPU shall be a 100% Intel x64 based architecture running either Microsoft Windows Server 2012 R2 or greater (version as recommended by the ACSDB manufacturer) or Linux. As referenced above, these component requirements shall only act as a minimum guideline. Provide either the manufacturer recommended optimum configuration or that which is indicated below, whichever is greater.
a. Processor: Xeon Quad Core, 2.4 Ghz
b. Ram: 16 Gb RAM, 2133 MHz minimum
c. Hard Drive: RAID 5
1) OS Drive: Sized as recommended by ACS manufacturer based on selected OS
2) Data Storage: Sized as recommended by ACS manufacturer based on Quantity of portals, size and complexity of system with a 50% growth factor.
d. Optical Drive: 8x Recordable DVD drive
e. Workstation Monitor: 21" SVGA monitor (1920 x 1080 resolution @ 65,536 colors)
f. I/O: (4) USB
g. Mouse: USB mouse
h. Keyboard: Standard US 101 keyboard, USB
i. Network Adapter: 1000 Mbps Ethernet Adapter
j. Display Adapter: HDMI

3. Acceptable manufacturer:
   a. Dell
   b. HP
   c. Lenovo
   d. As supplied and configured by the CCAS manufacturer

C. Software requirements
1. In addition to the required hardware specified elsewhere, the following software components shall be used in the CCAS.
   a. Provide PremiSys, by Identicard, Server Pro version on a dedicated PC.
2. Contractor shall provide all licenses to integrate into Owner's existing ExacqVision Video Surveillance servers.

2.3 SYSTEM HARDWARE

A. The System shall consist of Local Control Panels, peripheral I/O Cards, Door Position Switches (Door Contacts), Credential Readers and related hardware and cabling.

B. The Contractor shall interface the Fire Alarm System with the Access Control System. Contractor shall coordinate exact requirements with Fire Alarm System Contractor.

C. Local Control Panels
1. The system shall utilize Local Control Panels that,
   a. have processing capabilities so as to remain completely operational in an offline mode should the communications link become non-functional,
   b. have a battery backup to provide a minimum of four hours of continuous operation during power outages,
   c. have the capability to interface standard Wiegand devices, as well as provide I/O to various serial protocols, including but not limited to RS-485, RS-422 and RS-232,
   d. have as a part of their standard package the ability to communicate with servers and other local controllers via an Ethernet based TCP/IP protocol,
   e. and, have peripheral I/O panels that provide additional digital I/O both logic level and form-C contacts.
   f. Acceptable Manufacturers shall be:
      1) PremiSys, by Identicard
2. The Contractor shall provide sufficient cabinets, card and related hardware to control all doors, door contacts and other related devices indicated on the drawings, plus spare capacity of 25% per Telecommunications Room (TR). This spare capacity shall be distributed throughout the system control panels on a TR by TR basis, i.e. each TR shall contain the available spare capacity as defined above.
3. The Contractor shall provide the appropriate cards required to fill each LCP to 100% utilization, and shall provide the required cards to be completely capable of speaking both the protocol of the devices cabled to the port, and to allow the LCP to communicate over a standard Ethernet network utilizing standard TCP/IP protocol.
4. The Contractor shall include all power supplies, batteries and other peripheral devices required to provide a fully functional system as described herein, and indicated on the Drawings.
5. Contractor shall provide a NIC card and dedicated UTP cabling for each panel.

D. Credential Readers and Credentials
1. Credential Reader
   a. The Credential Reader shall be legacy 125kHz based proximity sensor.

1) The sensor shall read encoded data from the fob and/or transponder and transmit the data back to the host panel, giving an audible and visual indication of a properly read card.
2) The sensor shall be no larger than 5.0" x 5.0" x 1.0" (12.7 X 12.7 X 2.54 cm).
3) The sensor shall have a typical read range of 5.5" to 8" (14 - 20 cm), when used with a HID Corporation ProxCard II™ proximity card.
4) The sensor shall be provided with an internal tamper switch that will indicate an alarm condition if an unauthorized attempt is made to disassemble the unit.
5) The sensor shall be a single unit with properly sized mounting holes that allow it to be attached directly to a single gang electrical box.
6) The sensor shall be sealed to a NEMA rating of 4X, and all internal electronics will have conformal coating to provide a high degree of environmental protection.
7) The sensor shall be listed under UL 294 as an access control system accessory, and shall be FCC and DTI certified.
8) The sensor shall have separate terminal control points for the green LED, the red LED, and the audible indicator.
9) The sensor shall have a hold line that will buffer a card read until the panel has asserted that the information can be sent up line.
10) The sensor shall have a re-present mode in which the card must be taken from the reader field for one second before being read again.
11) The sensor shall be fully weatherized, and shall have an operating temperature of -22 to 150 degrees Fahrenheit (-30 to 65 degrees Celsius), and shall have an operating humidity of 5-95% noncondensing.
12) The sensor shall have a lifetime warranty.
13) The sensor shall be made from polycarbonate material, and shall be charcoal gray or beige.
14) The sensor shall transmit at a 125 kHz frequency.
15) The cable requirements of the sensor shall be a minimum five- (5) conductor, 22 AWG, stranded cable with overall shield (for a Wiegand protocol interface). A six- (6) conductor cable is required when controlling the red and green LED individually. A seven- (7) conductor cable is required when both the red and green LED's are controlled by the Host. A 22 AWG twisted pair, shielded, stranded cable is required for use of the tamper switch.
16) The sensor shall have the following configuration options which are user selectable by dip switch settings:
    a) Sensor beeps and flashes green on a card read, LED normally red, single line control of LED.
    b) Sensor flashes green on a card read LED normally red, single line control of LED.
    c) Sensor beeps on a card read, LED normally red, single line control of LED.
    d) Sensor and LED are controlled by host only, LED normally red, single line control of LED.
    e) Sensor beeps and flashes green on a card read, LED normally off, red and green LED's controlled individually.
    f) Sensor flashes green on a card read, LED normally off, red and green LED's controlled individually.
    g) Sensor beeps on a card read, LED normally off, red and green LED's controlled individually.
    h) Sensor and LED are controlled by host only, LED normally off, red and green LED controlled individually.

17) The sensor shall communicate in a Wiegand protocol interface, and be compatible with all standard access control systems.
18) The sensor shall also be available in optional RS232 and RS422 serial interfaces.
19) The voltage requirements of the sensor shall be 10-28.5 VDC.
20) The current requirements of the sensor shall be:
    a) Current (DC)Average Peak
        (1) Wiegand 100 mA 160 mA
        (2) Serial100 mA 160 mA
21) Acceptable Manufacturer and Model
    a) HID – ProxPro
    b) Equal by PremiSys, by Identicard

2. Mullion Style Credential Reader
    a. The Credential Reader shall be legacy 125kHz based proximity sensor.
        1) The sensor shall read the encoded data from the access card and/or transponder and transmit the data back to the host panel, giving an audible and visual indication of a properly read card.
        2) The sensor shall be no larger than 6.0" x 1.7" x 0.75" (15.2 X 4.3 X 1.91 cm).
        3) The sensor shall have a typical read range of 4" to 5.5" (10 - 14 cm), when used with a HID Corporation ProxCard II™ proximity card. (See attached chart for read ranges with other HID Corporation proximity cards and transponders.)
        4) The sensor shall be a single piece unit, narrow enough to be mounted onto a 1.75" (4.45 cm) metal doorframe or mullion.
        5) The sensor shall be listed under UL 294 as an access control system unit accessory, and shall be FCC and DTI certified.
        6) The sensor shall have separate terminal control points for the green LED, the red LED, and the audible indicator.
        7) The sensor shall have a hold line that will buffer a card read until the panel has asserted that the information can be sent up line.
        8) The sensor shall have a re-present mode in which the card must be taken from the reader field before being read again. This feature is required to eliminate multiple reads from a single card presentation.
        9) The sensor shall have a built in anti-passback delay of one second.
        10) The sensor shall be fully weatherized, and shall have an operating temperature of -22 to 150 degrees Fahrenheit (-30 to 65 degrees Celsius), and an operating humidity of 5-95% noncondensing.
        11) The sensor shall have a lifetime warranty.
        12) The sensor shall be made from polycarbonate material, and shall be charcoal gray or beige.
        13) The sensor shall transmit at a 125 kHz frequency.
        14) The cable requirements of the card reader shall be a minimum five- (5) conductor, 22 AWG, stranded cable with overall shield (for a Wiegand protocol interface). A six- (6) conductor cable is required when controlling the red and green LED individually. A seven- (7) conductor cable is required when both the red and green LED’s are controlled by the Host. A 22 AWG twisted pair, shielded, stranded cable is required for use of the tamper switch. The card reader shall be provided with a 9-wire pigtail connector.
        15) The sensor shall have the following reader configuration options:
            a) Sensor beeps and flashes green on a card read, LED normally red, single line control of LED.
            b) Sensor flashes green on a card read, LED normally red, single line control of LED.
            c) Sensor beeps on a card read, LED normally red, single line control of LED.

d) Sensor and LED are controlled by host only, LED normally red, single line control of LED.
e) Sensor beeps and flashes green on a card read, LED normally off, red and green LED's controlled individually.
f) Sensor flashes green on a card read, LED normally off, red and green LED's controlled individually.
g) Sensor beeps on a card read, LED normally off, red and green LED's controlled individually.
h) Beeper and LED are controlled by host only, LED normally off, red and green LED controlled individually.

16) The sensor shall communicate in a Wiegand protocol interface, and be compatible with all standard access control systems.
17) The voltage requirements of the card reader shall be 4.75 to 16 VDC.
18) The current requirements of the card reader shall be:
a) Current (DC)
b) Voltage Average Peak
c) 5 VDC 50 mA 70 mA
d) 12 VDC 60 mA 140 mA
19) Acceptable Manufacturer and Model
a) HID – MiniProx
b) Equals by PremiSys, by Identicard,

E. Request To Exit Pushbuttons
1. All button stations shall be mounted on a standard size single gang or narrow plate.
2. All buttons shall have a square 2" exit button, mounted on a stainless steel single gang plate.
3. All buttons shall provide a spring loaded momentary closure.
4. All button stations shall be capable of operating at 12 or 24 VDC, and provide a 30 second lock release signal.
5. All button stations shall be UL listed.
6. All button stations shall have a lifetime warranty.
7. Acceptable Manufacturer and model:
a. Securitron EEB2
b. Or equivalent product by Safety Technology International or Security Door Controls
c. Provide cabling as required by manufacturer

F. Door Contacts
1. Contacts shall be recessed, round, magnetic contacts that shall be .75" and shall be manufactured by Ademco, GE, or Sentrol.
2. Contacts shall be DPDT

G. Request to Exit Motion Sensors
1. The sensor shall have a pick up pattern specifically designed to limit the coverage tight to the exit way.
2. The sensor shall be capable of operating in a range from 12 to 28 volts DC.
3. The sensor shall contain a form C relay integral to the unit.
4. The sensor shall have a lifetime warranty.
5. Acceptable Manufacturer and model shall be:
a. Securitron XMS
b. Or equivalent product by GE or Bosch
c. Provide cabling as required by manufacturer

H. Power Supply
1. The power supply shall utilize a nominal 120VAC input.
2. The power supply shall provide switch selectable fail safe/fail secure for each of 8 fuse protected outputs.
3. Provide power supplies for all door hardware specified elsewhere.
4. All power supplies shall be provided in the nearest Telecommunication Rooms to the door hardware that it is serving.
5. The power supply shall provide an interface to the fire alarm system to react to fire alarm triggers.
6. The power supply shall provide internal LED indicators for AC input, DC output and fire alarm triggered.
7. The power supply shall provide a sealed lead acid battery and an integral battery charger.
8. The power supply shall have a supervisory circuit for battery present and battery fail.
9. Acceptable Manufacturer and Model:
   a. Altronix AL400ULACM
   b. Equal by Honeywell or Securitron

I. Door Hardware Power Supplies
1. For all controlled doors, the Contractor shall remote all electrified door hardware power supplies within the MTR or TR's. Contractor shall provide all power supplies and associated low voltage powered cabling as directed by door hardware manufacturers.
2. Refer to Architectural Door Hardware Schedule and Specifications for additional information.

J. Driver License Scanner System
1. Provide a scanner and associated software that shall scan a driver's license and/or state issued ID and immediately check against a national database and a user-created Deny List.
2. Scanner and software shall be compatible with the Visitor Management system and Access Control System
3. Provide (1) Scanner system at each of the (3) Reception Desks.

K. Visitor Management System
1. Provide (1) Visitor Management system at each of the (3) Reception Desks.
2. Acceptable Manufacturer and Model:
   a. HID EasyLobby.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The Contractor shall provide all hardware and cabling to install all devices and equipment as indicated on the plan, and to suite location and environment. These devices shall include, but not be limited to, Z-brackets, to provide proper installation of devices as required by the field conditions.

B. Cabling shall be installed in metallic conduits in exterior or unsecure areas or run open cable where applicable. Cabling shall be continuous from device to termination point without splices. Termination of cables shall be at equipment locations only. Install cabling without sharp bends and terminate only with approved connectors. (Underground may be installed in PVC conduit. Direct burial cable is not acceptable.)

C. The Manufacturer's installation procedures shall be considered part of these specifications, though not explicitly indicated here, and shall be adhered to during the entirety of the project.

D. Contractor is responsible for mounting all exterior mounting brackets and devices (either pole mounted or mounted to the building).

E. All outside components, i.e. power supply, surge suppressers, receiver drivers, shall be mounted in weatherproof boxes (NEMA 3R) with stainless steel or galvanized hardware.

F. Special care in cable installation shall be exercised to avoid grounds due to careless termination or damage to the jacket over the shield. Take special care to ensure that random contact of shield of adjacent cables does not occur in consoles and at junction boxes. Provide a minimum of one layer Scotch #33 electrical tape or equivalent.

G. Exterior units shall be protected from accidental contact and vandalism. Provide all required mounting hardware.

H. All low voltage cable shall be isolated from all line voltage equipment. Contractor shall coordinate with Contractor and the EC to separate low voltage cables from line voltage wiring conductors.

I. All installations shall be installed in a professional and workman like manner.

J. Data collection panels and other related hardware shall be mounted as indicated on the Drawings. Contractor shall verify that all equipment is mounted within manufacturer's recommended distances to prevent unwanted voltage drops, or other abhorrent behavior.

K. All cables (coax, data, fiber and power circuits) shall be identified with proper tagging and labels as indicated elsewhere in these specifications.

L. All rack mounted units shall be spaced at minimum of 1 ¾-inch apart for ventilation purposes as recommended by manufacturer.

M. Coordinate for installation of all non-Controlled Access connections to the weatherproof equipment enclosures, switchers, monitors, and other equipment specified for use in this section. These connectors include grounding, coordination, and installation of 120 VAC power.

N. Refer to the Drawings for equipment quantities, locations, and installation details.

O. Contractor shall provide record drawings of complete system installation. The Contractor shall forward hard copies to the Engineer for the inclusion of these Record Drawings.

P. The Contractor shall determine the exact nature of the environment for the installation of all environmentally sensitive pieces of equipment, and substitute materials and devices consistent to the environment to which they are to be installed. Where devices being substituted are not already defined within these specifications, the Contractor shall submit the necessary cut sheets and product data for the Engineer to provide the necessary approvals prior to installation and rough-in. Any substitution required due to environmental, or field conditions shall be made at no additional cost to the Owner.

3.2 TRAINING AND INSTRUCTION

A. Operator training shall consist of (40) hours of classroom instruction conducted on-site by a factory trained professional instructor. Training conducted by installers, technicians, or project managers is unacceptable. Provide an additional (2) hours of individual hands-on training.

B. Training materials shall consist of the following:

1. Formal course outline and agenda
2. Operator training student guide for each student.
3. Hands-on practice with on-line equipment.

C. The training course shall be a minimum of two contiguous business days.

D. The Contractor shall video record the training, transfer it to a standard DVD formatted disk, and provide (2) digital videos to the Owner at no additional cost to the Owner.

E. Provide all materials required for the Operations and Maintenance Manuals.

3.3 MOUNTING HEIGHTS AND LOCATIONS

A. The equipment height shall be as noted on the drawings. Care must be taken to ensure that mounting heights set forth by the Americans with Disability Act (A.D.A.) for said items is met.

B. All cabinets and equipment installed in MCC's or TR's shall be installed per the room elevations indicated on the Drawings. Failure to comply with the room layouts shall cause the Contractor to remove and reinstall the devices and equipment in the proper location. Should a conflict arise due to unforeseen conditions, the Contractor shall contact the Engineer immediately for a resolution.

C. All door contacts shall be hidden within the door frames. Should this installation method be unavailable, the door contact must be surface mounted on the secure side of the door.

3.4 GUARANTEE

A. Contractor shall provide a three (3) year warranty on installation of the entirety of the CAS. Any defective material shall be replaced at no expense to the Owner (including labor).

B. The Contractor's guarantee shall cover all costs associated with the troubleshooting, repair, and replacement of defective work, including costs of labor, transportation, lodging, materials, and equipment.

C. The Guarantee shall not cover any damage to material or equipment caused by accident, misuse, unauthorized modification, or repair by the Owner, or acts of God.

3.5 COMMISSIONING

A. After all Work is completed, and prior to requesting the Acceptance test, Contractor shall conduct a final inspection, and pre-test all equipment and system features required for project. Contractor shall correct any deficiencies discovered as the result of the inspection and pre-test.

B. Contractor shall submit a request for the Acceptance test in writing to the Owner's Project Manager, no less than fourteen days prior to the requested test date. The request for Acceptance test shall be accompanied by a certification from Contractor that all Work is complete and has been pre-tested, and that all corrections have been made.

C. During Acceptance test, Contractor shall demonstrate all equipment and system features to Owner. Contractor shall remove covers, open wiring connections, operate equipment, and perform other reasonable work as requested by the Owner, Architect or Engineer.

D. Any portions of the Work found to be deficient or not in compliance with the Project Drawing and Specifications will be rejected. Owner's Project Manager will prepare a list of any such deficiencies

observed during the Acceptance test. Contractor shall promptly correct all deficiencies. Upon correction of deficiencies, Contractor shall submit a request in writing to Owner's Project Manager for another Acceptance Test.

E. At the conclusion of the Acceptance Test and all Work being found acceptable and in compliance with the Project Drawings and Specifications, Owner's Project Manager will issue a letter of Acceptance to Contractor.

3.6 SUBMITTALS

A. Submittals shall include bound brochures with data sheets for all equipment specified and installation drawings. Drawings shall indicate exact wiring requirements and shall include equipment locations shown on floor plans (1/16" scale, minimum). These drawings shall be dedicated solely to indicate the CA system and related wiring.

END OF SECTION 28 13 00