~~~~~ ***PROJECT NOTE*** ~~~~~~

ARCHITECT OF RECORD/ENGINEER OF RECORD IS RESPONSIBLE FOR REVIEWING THIS SPECIFICATION SECTION IN DETAIL FOR COORDINATION WITH THE PROJECT SCOPE OF WORK.

ALL “PROJECT NOTE” TEXT IS TO BE REMOVED FOLLOWING REVIEW OF THE CONTENT OF EACH NOTE BY THE ARCHITECT OF RECORD/ENGINEER OF RECORD.

EDIT THE DOCUMENT FOOTER TO INCLUDE THE PROJECT NAME AND NUMBER.

EDIT THE DOCUMENT HEADER TO INDICATE THE ARCHITECT OF RECORD PROJECT ISSUE” DATE. THE “CPS CONTROL” DATE SHOULD NOT BE EDITED.

ANY MODIFICATIONS TO THE TECHNICAL STANDARDS IN THIS SECTION - INCLUDING THE REMOVAL OR ADDITION OF MANUFACTURERS - MUST BE APPROVED BY CPS. REQUESTS FOR MODIFICATION ARE TO BE SUBMITTED TO THE DESIGN MANAGER DURING THE DESIGN PHASE FOR REVIEW AND APPROVAL.

~~~ ***END OF PROJECT NOTE*** ~~~~

SECTION 28 13 03
ACCESS CONTROL SYSTEMS - KEYLESS ACCESS

~~~~~ ***PROJECT NOTE*** ~~~~~~

REVISE THIS SECTION – BY DELETING AND INSERTING TEXT – AS REQUIRED TO ALIGN WITH PROJECT-SPECIFIC REQUIREMENTS.

MODIFICATIONS TO TECHNICAL CONTENT REQUIRE APPROVAL FROM OSSS.

COORDINATE CAMERA REQUIREMENTS WITH PROJECT AND INCLUDE SECTION 28 23 07 - DVS SYSTEM - EXISTING SCHOOL

~~~ ***END OF PROJECT NOTE*** ~~~~

PART 1 GENERAL

1.01 SUMMARY

A. The scope of work is to provide a card reader with keypad at one [or two] single door and connect to new Genetec software at Office of School Safety and Security (OSSS) at Chicago Public School (CPS) HQ. The card reader shall be provided by the front door at existing Aiphone or as indicated on the drawings and at the inside of the door location adjacent to the Intrusion Alarm Keypad. The Access Control System (ACS) shall interface with the existing Aiphone door entry system to release the door and shunt the Intrusion detection system alarm by an override/shunt relay.

B. Section includes the materials and components, including programming, for a complete and functional Access Control System (ACS) to include but not limited to:
   1. Software
   2. Hardware
   3. Readers

4. Smart Cards
5. Keypads
6. Wire and Cable

C. The ACS module shall integrate with Digital Video System, located at OSSS.
D. Board provided components include the following:
1. Security Smart Cards

1.02 PRE-BID REQUIREMENTS

A. Pre-Bid Review Meeting: Prior to issuing documents to prospective bidders/subcontractors. A pre-bid review meeting, at CPS's Office, to review the proposed system design in its entirety. Attendees shall include representatives from OSSS, CPS Office of Information, Facilities and Operations, CPS Office of Assets Management, the Contractor, the Architect/Engineer of Record, the system designer (if other than the Architect/Engineer of Record), and any other trades whose work would be effected by installation of the ACS.
B. Review the proposed system design in the entirety, including but not limited to, riser locations, raceway routing, exterior device mounting heights and pull box locations.
1. OSSS and CPS Office of Information Technology reserves the right to modify the system design and establish installation procedures and protocols, prior to the documents release for bidding to ensure a secure installation and to limit the damage within an existing building.

1.03 PRE-AWARD QUALIFICATION INFORMATION REQUIREMENTS

A. The following information, as prepared by the submitting Subcontractor, shall be included as attachments to the Bid Form.
1. Statement of Qualifications: A brief history of the firm and its responsible personnel, including technicians proposed for the project, and a summary of experience record, describing particular projects of similar scale and scope to the project, as they pertain to their ability to perform the work required for the Project.
2. Project List: A listing of major projects, similar in scale and scope to the Project, completed in the last three (3) years. Include the project address and phone numbers of the facility director and Architect/Engineer of Record, if any, responsible for the project.

1.04 REFERENCE STANDARDS

A. City of Chicago Building Code - Chicago Construction Codes, Title 14B; Current Edition.
B. City of Chicago Electrical Code - Chicago Construction Codes, Title 14E, based on the National Electrical Code with amendments; Current Edition.
C. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.
D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
E. TIA-569 - Telecommunications Pathways and Spaces; 2019e, with Addendum (2022).
F. TIA-606 - Administration Standard for Telecommunications Infrastructure; 2021d.
G. UL (DIR) - Online Certifications Directory; Current Edition.

1.05 PERFORMANCE REQUIREMENTS

A. Design and operation of the system shall conform to the following referenced codes, regulations, and standards as applicable:
1. National Electrical Code (NEC).
2. FCC Rules and Regulations:
a. Part 15, Radio Frequency Devices.
3. National Electrical Manufacturers Association (NEMA):
a. NEMA EN 10250.
4. Applicable Federal, State, and Local laws, regulations, and codes.
5. CE mark as and where applicable.

6. City of Chicago Building Code
7. Electrical Components, Devices and Accessories: Listed and labeled as defined in City of Chicago Electrical Code, by a qualified testing agency, and marked for intended location and application.

1.06 GENERAL PROJECT DESCRIPTION

A. The Access Control System (ACS) shall be capable of integrating multiple building functions including digital video surveillance, intrusion detection, video imaging and badging, database partitioning, and system database sharing of employee personal information.
   1. Operate in conjunction with Board's existing Genetec software to integrate reporting features.

B. The system shall be modular in nature and shall permit expansion of both capacity and functionality through the addition of network controllers, card readers, and sensors.

C. The system shall incorporate the necessary hardware, software, and firmware to collect, transmit, and process alarm, tamper and trouble conditions, access requests, and advisories in accordance with the security procedures of the facility. The system shall control the flow of authorized personnel traffic through the secured areas of the facility.
   1. System shall be able to process other system alarms and distribute notifications via e-mail, phone, and pager as directed by specific alarm procedures.
   2. System shall be capable of processing alarm requests from other systems as identified and implement specific procedures for identifying and resolving alarms and requests.
      a. Digital Video Surveillance System (DVS)

D. The software platform shall be compatible with the CPS designated version of Genetec system. Verify with OSSS.
   1. The system software shall be accessible via Web browser based and not require specific client login software. For standard tasks such as monitoring, altering privileges, IT shall support multiple accounts allowing separate simultaneous access to the card database, badge layout, operator access, and reporting. Access levels and time zones shall be global to allow for easy administration.
   2. Multi-user multitasking to allow for independent activities and monitoring to occur simultaneously at different workstations.
   3. System license shall be for the entire system and shall include capability for future additions that are within the indicated system size limits specified in this Section.
   4. System shall have open architecture that allows importing and exporting of data and interfacing with other systems that are compatible with Microsoft Windows operating system.
   5. Password-protected operator login and access.

E. Network connecting the access control system, controllers and workstations shall be LAN based using Microsoft Windows-based TCP/IP.

F. The ACS shall support both manual and automatic responses to alarms entering the system. Each alarm shall be capable of initiating a number of different actions, such as camera switching, alarm initiation/notification, video pop-up, activation of remote devices, door control, and activation of WAV files.
   1. The ACS shall provide both supervised and non-supervised alarm point monitoring. Upon recognition of an alarm, the system shall be capable of switching and displaying a view from either the DVS camera that is associated with the alarm point. The system shall be capable of arming or disarming alarm points both manually and automatically, by time of day, and by day of week.

G. Notification:

1. Alarm events with defined priorities shall be able to pop-up automatically in an alarm event window for OSSS operator attention. The pop-up shall display the name of the event (reader, alarm point, cardholder or system alarm), time, date, site, account, if a card event the card number, type of event and cardholder name. A history report to show how many times an event has happened. An event counter shall also display the number of times the event was reported to the Alarm event monitor prior to Acknowledgement or Clearing the event. Event instructions shall be made available by double clicking on the event. The event shall also display an icon to indicate that video is available for events so programmed.
2. The Alarm event window shall allow the OSSS operator to initiate a physical response to the event as well as a written response. Responses shall include but not be limited to: acknowledge, clear, open a pre-programmed floor pan, energize, de-energize, pulse, time pulse, add comment, retrieve event video, and bring up live video, shunt or un-shunt.

H. Password Operation:
1. Assigned passwords shall be possible to define the levels of system operation for each individual operator. System operation for individual operators shall include, but not be limited to, restricted time periods for login, available accounts and default language selection at login. OSSS Operator actions range from no view or control rights to basic monitoring including the ability to block the viewing of card and or personal identification numbers, to full control of the system including programming.

1.07 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract, Division 01 Specification Sections and Division 28 Sections.
B. Submittals shall be simultaneously (concurrently) submitted to the Architect/Engineer of Record and to the attention of OSSS.
C. Product Data: For each type of product specified. Including detailed manufacturer's specifications, data on features, ratings, dimensions, electrical characteristics, performance and finishes.
D. Shop Drawings: For access control system, include plans, elevations, sections, details and attachment to other work.
1. Detail installed features and devices.
2. Functional Block Diagram: Show single-line interconnections between components for signal transmission and control. Show cable types and sizes.
3. Floor plans, prepared at 1/8 inch scale, indicating the following:
a. Location of all ACS devices with identification numbers.
b. System layout, including, but not limited to, routing of conduit and raceways, locations of concentrator boxes, both existing and new, and other components required as part of the complete system.
c. Riser and Connection diagrams.
d. Location of door controllers, power supplies, termination, termination racks and backboards.
e. Point-to-point raceway routing, identifying number and type of cables in each Raceway. Include pull box locations and sizes.
f. Conduit fill calculations, indicating cross-section area percent fill for each raceway.
4. Dimensioned plan and elevations of equipment racks, control panels, and consoles.
5. Programming documentation using manufacturer's programming form and system layout work sheets approved by OSSS or Programming documentation using OSSS approved programming forms and system layout worksheets. Contact CPS Office of School Safety and Security at (773) 553-3093 or (773) 553-3335 or general programming requirements.

6. Programming submittals must be reviewed and approved by OSSS prior to starting any work.
7. Programming and documentation shall include the following:
    a. Install and configure software on workstation, servers and storage.

E. Equipment List: Include every piece of equipment by model number, manufacturer, serial number, location, and date of original installation.

F. Operation and Maintenance Data: For access control system components and equipment, to include in emergency, operation, and maintenance manuals. Include the following:
1. Programming instructions.
2. Programming disk.
3. Contact information for programming assistance.
4. Lists of spare parts and replacement components recommended to be stored at the site for ready access

G. Installer Qualifications.
1. Identify Contract/Sub-contractor actually doing the work.
    a. Installer/Programmer shall be a certified Genetec Access Control programmer (Synergis).
2. Provide a list of references for projects of similar Scope of Work.
3. Provide Training Certificate indicating person trained and certified by manufacturer.

1.08 OPERATIONAL REQUIREMENTS

A. Scope of Work for this Project:
1. Card Access network controller shall be installed with associated card readers.

B. Communication between ACS workstation, network controllers and workstations shall be over the districts Ethernet network. Functional Description of System:
1. Automatic Control of Related Systems: Alarm or supervisory signals from certain intrusion detection devices shall be capable of control the following functions in related systems:
2. Switch signal to selected monitor from closed-circuit television camera in vicinity of sensor signaling an alarm.
3. Programmed Secure-Access Control: System shall be programmable to automatically change status of various combinations of protected zones between secure and access conditions at scheduled times. Status changes may be preset for repetitive, daily, and weekly; specially scheduled operations may be preset up to a year in advance. Manual secure-access control stations shall override programmed settings.
4. Manual Secure-Access Control: Coded entries at manual stations shall change status of associated protected zone between secure and access conditions.

C. System Component Requirements:
1. Compatibility: Detection devices and their communication features, connecting wiring, and central-station control unit shall be selected and configured with accessories for full compatibility.

D. ACS Interface Capabilities:
1. General: All ACS software and firmware required to provide the following system functions shall exist and fully tested
    a. Access privileges added, deleted, or changed.
2. Input point monitoring: Collect and process status information from the door monitored.
3. Operator Menu Access: The operator password shall control which menu items that the individual operator may access. It shall also be possible to restrict operators such that certain specified menu commands do not appear on the screen, or are grayed-out (disabled) for a given operator. All user passwords are fully encrypted, even while being stored and transmitted across the network.

E. Alarm Handling: The alarm handling portion of the system, which consists of the point contacts, and the Alarm monitoring Window shall provide the following functions:
   1. Event Processing:
   2. Panel Card Events: The ACS shall provide the capability for the user to define a panel card event, which may be executed by a cardholder at a reader equipped with a keypad. For each 'card event' the user may define the following data:
   3. Unlock door control relay.
   4. Lock door control relay.
   5. Enable timed override of door control relay.
   6. Enable reader override.
   7. Disable reader override.
   8. Lock all doors.
   9. Unlock all doors.
   10. Set controller relay.
   11. Reset controller relay.

F. Communications:
   1. Should the network controller(s) lose communications with the Host, the network controllers shall continue to control access and monitor inputs for all connected points. Local history of all transactions shall be buffered at the network controller and automatically uploaded to the Host for alarm reporting and long-term historical storage once communications is re-established.

G. Real-Time System Activity Window: A real time system activity monitor window shall be available for display on any OWS screen whenever the ACS host is on-line. The real time window shall have the following capability:
   1. Be able to selectively display the following items at the operator's discretion:
   2. Input point alarms.
   3. System Exception messages.
   4. Access Grant.
   5. Access Deny.
   6. Access Trace.
   7. Entry/Exit Central Mode of operation.
   8. Audit Trail.
   9. Be able to toggle the display on and off.

H. Alarm Routing: The ACS shall provide the ability for the user to define which input points or groups of input points are displayed on specific SMS Operator Workstations. The system shall provide a report showing which input points are routed to each OWS.

1.09 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Engage firms experienced in manufacturing systems and equipment similar to those indicated for this Project and that have a record of successful in-service performance for a minimum of two years.

B. Supplier's Qualifications:
   1. Engage an experienced product supplier who is a factory-authorized sales and service representative regularly engaged in the design and installation of such systems to oversee the installation, trouble-shoot and make final connections at head end equipment.
   2. Supplier shall have represented the product and components being installed for a minimum of five (5) years.

C. Installer Qualifications:
   1. Award the access control work to a single firm that specialized in the installation of ACS, who has successfully completed system installations in not less than three (3) projects of

similar size and complexity, to the satisfaction of the Architect/Engineer of Record and Board Representative, in the last two (2) years, and whose work has resulted in a record of successful in-service performance. The installer shall be a factory trained authorized by the manufacturer(s) to install the products and components required for a complete system; capable of performing diagnostic testing and servicing of the system components; and maintain a current P.E.R.C. (Permanent Employee Registration Card – Blue) through the Illinois Department of Professional Regulation.

2. Installer/Programmer shall be a certified Genetec Access Control programmer (Synergis).
3. The installer shall provide telephone response within one hour and onsite service response within eight (8) hours of the initial call, with the system restored within twenty four (24) hours of the initial call ninety percent (90%) of the time.
4. The installer shall maintain and provide a 24-hour help desk telephone number.

D. Electrical Component Standard: Provide work complying with applicable requirements of NFPA 70, NEC and City of Chicago Electrical Code.

E. All system and components shall be Underwriters Laboratories listed and labeled.

F. EIA Compliance: Comply with the following Electronics Industries Association Standards:
1. UL Compliance: Comply with requirements of UL (DIR).

G. Pre-installation Conference: New School: Not less than 14 days prior to starting the ACS work. Existing School: Within 5 days of receipt of Purchase Order, conduct a reinstallation conference at the Project site to comply with requirements in Division 01. Attendees shall include representatives from OSSS, CPS Office of Information Technology Services, Facilities and Operations, the Public Building Commission (when applicable) the Architect/Engineer of Record, the Installer, and representatives of other trades whose work must be coordinated with the camera work. Review methods and procedures related to the ACS installation including, but not limited to, the following:
1. Review construction schedule and verify availability of materials, equipment, installer Personnel and facilities needed to make progress and avoid delays.
2. Review preparatory work and procedures, including roughing-in of electrical and data wiring, to be performed by other trades.
3. Review and confirm locations for both interior and exterior devices, and all other devices that are part of the system.
4. Confirm ACS device models and mounting hardware.
5. Review requirements for MDF and/or IDF room(s) and equipment installation.
6. Review routing of conduit and locations of concentrator boxes.
7. Review required testing, inspections, and certifying procedures and anticipated dates.
8. Review training procedures for the Board's designated personnel and coordinate dates/times for training sessions.
9. Submit a request for a non-employee account for certified installer to the OSSS Technology Manager.
10. Review Software configuration documentation with OSSS Technology Manager.
11. Review preparatory work and procedures for software installation.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside, protected from weather, in a secure location, and according to manufacturer's written instructions. Protect materials from construction activity and other potential sources of damage.

1.11 FIELD CONDITIONS

A. Do not deliver or store materials until building is enclosed and mechanical systems are operational and maintaining interior environment in accordance with manufacturer's requirements.

B. Do not install electronic components until major construction work in the area is complete. Do not install in areas where dust or moisture can contaminate the working parts or where finish can be marred by construction work.
C. Do not install ACS components exposed to view until after finish work, including painting, is complete.

~~~~~ ***PROJECT NOTE*** ~~~~~~
RETAIN THIS ARTICLE IF INTERRUPTION OF EXISTING SECURITY SYSTEM IS REQUIRED. DELETE IF NOT APPLICABLE.
~~~ ***END OF PROJECT NOTE*** ~~~~

D. Interruption of Existing Security Service: Do not interrupt security service to facilities occupied by the Board or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
   1. Notify Architect/Engineer of Record and Board Authorized Representative no fewer than ten working days in advance of proposed interruption of security service.
   2. Do not proceed with interruption of security service without Architect/Engineer of Record's and Board Authorized Representative's written permission.
   3. Guard Services shall be provided for 24 hours each day for the duration of the Security system interruption. Security watch personnel shall make rounds on hourly intervals.

1.12 WARRANTY

A. Manufacturer's Warranty: All equipment furnished under this contract shall be warranted for a period of twelve (12) months from the date of Final Acceptance of the system.
B. Special Warranty: Manufacturer's standard form, executed by the manufacturer and installer, in which the manufacturer agrees to repair or replace components of the digital video surveillance system that develop defects in materials or workmanship within the specified warranty period. Warranty period shall begin on date the system is approved, and noted as complete, by the designated representative of OSSS.
   1. Provide 3 year Warranty Period for ACS System Components and DVS System Components (except cabling/wiring) from date of acceptance by CPS Office of School Safety and Security.
   2. Warranty Period for System Cabling/Wiring: 25 years from date of acceptance by CPS Office of School Safety and Security and ITS.

~~~~~ ***PROJECT NOTE*** ~~~~~~
RETAIN ARTICLE BELOW FOR MAINTENANCE SERVICES AS AN ALTERNATE BID AFTER APPROVED BY OSSS IN WRITING. DELETE IF NOT APPLICABLE
~~~ ***END OF PROJECT NOTE*** ~~~~

1.13 MAINTENANCE SERVICE: ALTERNATE

A. Continuing Maintenance Proposal: Beginning at date of acceptance of installation by CPS Office of School Safety and Security, provide a continuing maintenance proposal from the Installer for extended service and maintenance for the DVS system, starting on date initial Maintenance service is concluded. Include the following:
   1. Format: The continuing maintenance proposal shall be in the form of a standard 3-year maintenance agreement. The agreement shall clearly outline services, obligations,

conditions, and terms for agreement period and future renewal. Include all necessary parts, labor and service equipment. Include the following basic services:

a. Repair: Repair or replacement of any equipment that fails to perform as initially installed, as specified, or as determined by the manufacturer's performance criteria.
b. Preventive Maintenance: Semi-annual preventive maintenance on the installed equipment including, but not limited to, cleaning, realignment, inspection, and testing of all devices. The Board shall receive a written report of these inspections that identifies each device's status and, if required, a list of all required repairs or replacements.
c. Software Maintenance: Installer shall install and configure, at no cost to the Board, any software updates that the manufacturer provides. Any additional software features, upgrades, or enhancements purchased by the Board shall be installed. The cost of Board requested software upgrades shall be outside of this service contract.
d. Firmware Upgrades: Provide flash, EEPROM or other firmware upgrades as required.

2. The Installer shall be compensated for any repairs or maintenance provided as a result of abuse, misuse, intentional damage, or accidental damage by either the Board or the Board's personnel, or power fluctuations exceeding specified equipment tolerances.
3. System defects or failures shall be responded to within four (4) hours on the same business day if the Board makes a service request before 11:00 a.m. or before 12:00 p.m. the next business day if the Board makes the request after 11:00 a.m. If requested by the Board, the Installer shall respond or remain at the site after normal business hours, and the Board shall reimburse the Installer for the incremental cost difference between premium labor rates and standard labor rates. This reimbursement applies to premium labor rates that do not exceed time-and-one-half rates after normal business hours, and double-time rates for Sundays and holidays. The Installer's services shall be performed in a professional manner and remain free from defects for a period of three (3) years.

B. Provide complete terms and conditions of warranty and services.

PART 2 PRODUCTS

2.01 SOFTWARE REQUIREMENTS

A. New software shall be compatible with the CPS designated version of Genetec system. Verify with OSSS.

2.02 PRODUCT -- GENERAL

A. Manufacturers:
1. Basis of Design:
a. Axis A1210 Powered by Genetec network door controller for one door with full integration with local school servers and servers located at CPS Data Center (COLO).
b. Axis A1610 Powered by Genetec network door controller for up to two doors in proximity of 200 feet with full integration with local school servers and servers located at CPS Data Center (COLO).

2.03 HARDWARE REQUIREMENTS

A. Network Controllers: Axis A1210 Powered by Genetec or Axis A1610 Powered by Genetec
1. The Network Controllers shall be a fully stand-alone processor capable of making all access control decisions without the involvement of the Host Server based on a set of parameters passed to the sub-controller from the host. Additional Genetec licensing is required if the existing system is not a part of City Wide server.

~~~~~ PROJECT NOTE ~~~~~~

AOR/EOR TO VERIFY THE AVAILABLE SPACE FOR ADDITIONAL WALL MOUNTED CABINET AND ELECTRICAL CAPACITY FOR SAME EQUIPMENT WITHIN THE MDF AND IDF ROOMS.
~~~ END OF PROJECT NOTE ~~~~

2. The door access control panel shall support two (2) iClass card readers in addition to 4 discrete inputs and 2 outputs (clock and auxiliary). Mounted in plenum enclosure. Dimensions 5.7 inches x 4.8 inches x 2.0 inches. Modulars to be locatedin MDF or IDF rooms or close to the door.
    a. Provide auxiliary relay output to Intrusion Detection Panel for Alarm override.
    b. Provide cables in 1 inch conduit to Intrusion Detection panel and coordinate termination of cables and programming panel with IDS vendor.
    c. Provide labels on cables terminated inside the Network Controller cabinet.
    d. Provide install dates on the batteries located inside the Network Controller Cabinet
3. The controller shall require no firmware changes and shall use flash memory modules to provide non-volatile storage of both data and operational code.
4. Each controller shall be provided with built-in hardware to support hard-wired communications between the controller(s) and readers of up to 4000 feet.
5. Communications between the controller(s) and the host server shall be via Ethernet TCP/IP at 10Mbps as a minimum.
6. Other models may be applicable pending OSSS APPROVAL

2.04 READERS – VERIFICATION DEVICES

A. General:
1. All readers shall be configured with the reader electronics mounted separately, on the "secure" side of the door such that only the reader head/keypad and pilot lights are mounted in the reader housing to be mounted directly adjacent to the Aiphone door station enclosure and next to the Intrusion Detection system keypad.
2. All readers shall support the following technologies:
    a. HID Proximity.
    b. HID iCLASS SE.
3. All readers shall be in compliance with the following standards:
    a. ISO 14443A.
    b. ISO 14443B.
    c. ISO 15693.
4. All readers shall be multi-frequency capable.
    a. 125 KHz.
    b. 13.56 MHz

B. Smart Card Technology with Proximity Capability - Furnish and install the reader style as shown on the drawings or as called for in this Specification:
1. Exterior Card Reader with Keypad - to be mounted directly adjacent to the Aiphone door station enclosure: HID SIGNO 40K or 20K for slim-mounting on frame.
    a. Provide proximity reader with integrated keypad in polycarbonate enclosure for outdoor use. An LED shall flash green and a beeper shall sound indicating that the card number and keypad passcode has been successfully read. Integral tamper switch shall provide notification of reader tampering. Dimensions 3.16 inch by 4.79 inch by 0.85 inch. Read range shall be up to 4.5 inches, depending on card selected. Power 15-26 VDC. The reader shall be rated for normal operation from minus 31 to 150 degrees F.
    b. Other models may be applicable pending OSSS APPROVAL

~~~~~ PROJECT NOTE ~~~~~~
RETAIN PARAGRAPH ABOVE AS A BASIS OF DESIGN. SELECT BELOW ONLY WITH OSSS WRITTEN APPROVAL. EDIT AS REQUIRED TO COORDINATE WITH THE PROJECT REQUIREMENTS.
~~~ END OF PROJECT NOTE ~~~~

2. Interior Proximity Card Reader to mounted directly adjacent to the Intrusion Detection system keypad: HID SIGNO 40 or 20 for slim-mounting on frame.
    a. Provide proximity reader without integrated keypad in polycarbonate enclosure for outdoor use. An LED shall flash green and a beeper shall sound indicating that the card number and keypad passcode has been successfully read. Integral tamper switch shall provide notification of reader tampering. Dimensions 3.15 inch by 4.78 inch by 0.77 inch. Read range shall be up to 4.5 inches, depending on card selected. Power 15-26 VDC. The reader shall be rated for normal operation from minus 31 to 150 degrees F.
    b. Other models may be applicable pending OSSS APPROVAL

2.05 SMART CARDS
A. Provided by CPS
B. System shall provide full compatibility with contactless Smart Cards read/write technology.

2.06 ELECTRIC STRIKE/LOCK RELEASE
A. Electric strike/lock release provided by door hardware manufacturer. Connections by Division 26. Interface door electrical strike release system to local card access control panel at the local doors terminal cabinet serving that area.

2.07 INTRUSION DETECTION KEYPADS AND DOOR CONTACTS
A. As specified in Section 28 31 11 - Building Intrusion Detection

2.08 DOOR CONTROLLER
A. Powered by Gentec: Axis A1610 for 2 card readers; or Axis A1210 for single card reader
B. Provide Door Controller security enclosure:
    1. Louvered hard plastic transparent cover.
    2. No lock required.

2.09 CAMERAS
A. As specified in Section 28 23 07 - DVS System - Existing School

2.10 WIRE AND CABLE
A. Comply with requirements of Section 26 27 26 - Wiring Devices with stranded copper conductors. Size conductors as indicated, but not less than recommended by system manufacturer.
B. Provide composite cable for Card Reader, 22/2 cable for Electric Lock, Request-to-Exit and Door Contact. All cabling shall be installed in the conduit system.
C. Furnish and install standard manufacturer's cable assemblies for components, as recommended by the system manufacturer specifications. Include connections for electric door strikes, card reader connections and all required peripheral devices.

2.11 SYSTEM SIGNAGE
A. Provide a plan that shows the location of the MDF/IDF. Mount in a frame on the wall next to the entrance.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways, cable trays and other elements for compliance with space allocations, installation tolerance, hazards to cable installation, and other conditions affecting installation.
B. Examine roughing-in for LAN and control cable conduit systems to PCs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 GENERAL INSTALLATION

A. Install all equipment and components in accordance with manufacturer's written instructions, in compliance with NEC, and with recognized industry practices, to ensure that all items comply with specifications and service intended purposes.
B. Record serial numbers of all items furnished that are serialized. Serial numbers to be included in warranty manual.
C. Pulling Cable: Do not exceed manufacturer's recommended pulling tensions. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between indicated termination, tap, or junction points. Remove and discard cable where damaged during installation and replace it with new cable.
D. Cables:
    1. Identify system components, wiring, cabling, and terminals. Subject to compliance with requirements in Section 27 05 53 - Identification for Communication Systems, and Section 26 05 53 - Identification for Electrical Systems.
    2. Power supply and equipment used shall be labeled "Class 2."
    3. Outlets: Label cables within outlet boxes.
    4. Cables, Generally: Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
    5. Provide labeling for all ACS devices.
    6. Utilize label equipment that is professional grade.
E. Sealing of Penetrations: All penetrations for and at wiring, cabling, conduit, raceway, and outlets shall be tightly sealed with elastomeric sealant or fire stopping compound, as required, at the completion of the Work. No gaps or openings shall remain.
    1. Refer to Section 07 92 00 - Joint Sealants for elastomeric sealant.
    2. Refer to Section 07 84 00 - Firestopping for fire stopping compounds and materials.

3.03 INSTALLATION REQUIREMENTS

A. All consoles, terminals, and controllers shall be factory wired before shipment to the job site.
B. Cabinet doors shall open a minimum of 170 degrees to avoid blocking personnel movement. Each door shall be equipped with a cylinder lock, a tamper switch and a piano-type hinge with welded tamperproof pins.
C. Provisions shall be made for field wiring to enter the cabinet via standard knock-outs at the top, bottom and sides of controller cabinets.
D. Each wire shall be identified at both ends with the wire designation corresponding to the wire numbers shown on the wiring diagrams.
E. All exposed wiring within the cabinets, consoles, and terminals shall be formed neatly with wires grouped in bundles using non-metallic, flame-resistant wiring cleats or wire ties.
F. All ferrous metal work shall be painted, in accordance with the manufacturer's standards.
G. Coordinate installation of door contacts with door/door hardware manufacturer. All wiring shall be concealed within door-frame and fished/routed within building walls, where not accessible with conduits.

~~~~~ PROJECT NOTE ~~~~~~
RETAIN TWO PARAGRAPHS BELOW FOR RENOVATION PROJECTS OR PROJECTS THAT EXTEND AN EXISTING SECURITY SYSTEM. EDIT AS REQUIRED TO COORDINATE WITH THE PROJECT REQUIREMENTS.
~~~ END OF PROJECT NOTE ~~~~

H. Where exposed raceways or conduit are proposed, those installations shall be reviewed and approved, in writing, by O prior to the start of the Work.
I. Connecting to Existing Equipment: Verify that existing security system is operational before making changes or connections.
    1. Connect new equipment to existing control panel in existing part of the building.
    2. Connect new equipment to existing monitoring equipment at the supervising station.
    3. Expand, modify, and supplement existing control/monitoring equipment as necessary to extend existing control/monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.
    4. Conduit Installation: Raceways and conduit shall be fully concealed. Where exposed raceways or conduit are proposed, those installations shall be reviewed and approved, in writing, by OSSS prior to the start of the Work.
J. Wiring Method: Install cables in dedicated, concealed raceways for ACS cabling.
    1. Comply with requirements for raceways and boxes and their installation specified in Division 26.
    2. Comply with TIA-569 for pull-box sizing and length of conduit and number of bends between pull points.
    3. Utilize wide sweeping radius bends and elbows.
    4. ACS shall have dedicated conduit raceway system. No other system wiring shall be allowed in the ACS raceway.
K. Wiring within Enclosures: Bundle, lace, and train cables to terminal points without exceeding manufacturer’s limitations on bending radii. Provide Velcro straps – cable ties are not allowed. Provide service loop as required. Provide and use lacing bars and distribution spools.
L. Provide system and device wiring as recommended by the manufacturer. All wiring shall be concealed. Install in surface raceway in other areas.
M. Wiring within MDF and IDF: Bundle, lace, and train cables to terminal points without exceeding manufacturer's limitations on bending radii. Provide Velcro straps – cable ties are not allowed. Provide service loop as required. Utilize overhead ladder rack runway for cable routing within room(s).
    1. Coordinate installation of dedicated floor-mounted rack for ACS equipment. Coordinate location adjacent to structured cabling floor-mounted racks.
    2. Coordinate with contractor on installation of dedicated wall-mounted rack for ACS equipment. Coordinate location with OSSS and CPS Office of Information Technology before mounting.
    3. Where raceways or conduit are proposed to be exposed, those installations shall be reviewed, and approved in writing, by OSSS prior to the start of the Work.
N. Refer to Section 27 11 16 - Communications Cabinets, Racks, and Enclosures for ladder rack runways, cabinets, and racks. Drawings indicate general arrangement of pathways and fittings.
O. Comply with recommendations in SIA CP-01.

P. Comply with TIA-606.

3.04 TESTING AND COMMISSIONING

A. The Contractor shall be responsible for testing and commissioning of the installation in accordance with all applicable documents in the Contract set.
   1. Testing shall be comprehensive and sufficient to demonstrate compliance with each requirement.
   2. Proposed test plan shall be submitted to the Architect/Engineer of Recorder and Board Authorized Representative for approval before commencement of final test.
   3. Final tests shall be conducted in the presence of the Architect/Engineer of Record and Board Authorized Representative.

3.05 CLEANING

A. On completion of installation inspect exposed finishes. Remove burrs, dirt, paint spots, and construction debris. Repair damaged finish(es), including chips, scratches, and abrasions.
B. All equipment, hardware and finishes shall be cleaned prior to final acceptance. Unless otherwise indicated, clean shall mean free of dust, dirt, mud, debris, oil, grease, residues, and contamination.
C. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Preliminary Acceptance / Substantial Completion. Protect conduit and wireway openings against the entrance of foreign matter by means of plugs or caps. Cover fixtures, materials, equipment and devices furnished or installed under this section or otherwise protect against damage, both before and after installation. Hardware, materials, equipment, or devices damaged prior to final acceptance of the work shall be restored to their original condition or replaced.

3.06 TRAINING AND INSTRUCTION

A. General: Training shall be coordinated with OSSS and school Principal, as required, and shall be provided at mutually agreed on times, with not less than 7 days' notice provided prior to each training session. An outline agenda for each training session shall be provided and names of attendees recorded.
B. Upon completion of the work, and prior to signed acceptance of the same by the Board, the Contractor and major equipment manufacturer's qualified representative shall provide 8 hours of Board Authorized Representative instruction in two-hour sessions. Sessions shall include instruction on the operation and service of all closed circuit television system equipment and controls. This instruction shall be done at the facilities' location and convenience, and in the presence of the Architect/Engineer of Record representative.
C. 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.
   4. Written examinations.

3.07 WARRANTY

A. All equipment furnished under this contract shall be warranted for a period of twelve (12) months from the date of Final Acceptance of the system.
   1. Respond to service requests on-site, if required.
   2. Replace or repair defective components as required.
      a. Submittal for Review: Notwithstanding requirements of any other part of the Contract Documents, the Contractor is to submit sample copies of all warranties required under the Contract Documents to the Architect/Engineer of Record for review. Include a statement declaring the intended commencement date for each consistent with the

requirements of the Contract. Note any warranties requiring signature by the Board Authorized Representative.

3. Final Warranties shall be accepted only after the Architect/Engineer of Record's approval of the sample warranty
   a. Submission of Executed Warranties: Submit properly executed warranties no later than 5 days from the agreed-upon date of commencement of the warranty period.
   b. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
4. Bind warranties and guarantees in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 by 11-inch paper.
5. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
6. Identify each binder on the front and spine with the typed or printed title: "WARRANTIES," PROJECT NAME, AND NAME OF CONTRACTOR.

B. Provide additional copies of each warranty to include in operation and maintenance manuals.

END OF SECTION