PART 1 - GENERAL

1.01 GENERAL

A. Furnish and install a complete PC based Access Control / Security detection monitoring and control system tied to the data network with the performance criteria detailed in this specification. The system shall provide connections over a standard NT network. The system shall be inclusive of all necessary functionality, monitoring and control capability as detailed herein and as shown on the plans.

B. The base bid system shall be the standard product of the system integrator as an addition to the Networked Informational System with the same functionality as described below. Alternate add / deduct equipment must also have the following features and functions as a minimum.

C. The system shall be operable from any card reader with programming access determined by the system computer. All IP networked panels and workstations shall retain their own information and be fully operational at all times irrespective of network connection conditions. All actions which occur on the system shall be logged by the system computer for later analysis. All Panel equipment shall have an IP address for connection to the network. Any workstation and server shall also have an IP address for connecting. Provide standard software from the system manufacture for as least 12 workstation connections at time of bid. This is to ensure for future expansion.

D. The system supplier shall be a company specializing in the manufacture and supply of security and access control systems with at least (5) ten years of experience and shall have employees available for support during installation and for final hook-up and acceptance testing.

E. The catalog numbers specified herein are those of Vanderbilt Industries and constitute the type, quality, required operating features and equipment to be furnished.

1.02 QUALITY ASSURANCE

A. Regulatory Requirements: Installed products shall meet standards of a recognized testing laboratory (UL. or comparable).

1.03 SUBMITTALS

A. Shop Drawings: Detailing all connected devices, of sufficient detail to adequately communicate that recommended software meets access system requirements, including:
   1. System device locations on architectural floor plans.
   2. Full schematic wiring information for all devices. Wiring information shall include cable type, conductor routings, quantities, and connection details at devices.
   3. A complete access control system one-line block diagram.
   4. System sequence operation description.
B. Product Data:

1. Manufacturer’s data for all material and equipment, including terminal devices, local processors, computer equipment, access cards, and any other equipment required for the complete access management and alarm monitoring system.

2. System description, including analysis and calculations used in sizing equipment, and also indicating how equipment will operate as a system to meet the performance requirements of the access control and alarm monitoring system.

3. A description of the operating system and application software.

C. Contract Close-out Submittals:

1. Operating instructions.

2. Recommended maintenance required and maintenance intervals.

3. Parts list, including: wiring and connection diagrams.

4. Record Documents: Maintained on a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the access control and alarm monitoring system, accurately reflecting all changes and additions to the access control and alarm monitoring system.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

B. Store materials protected from exposure to harmful environmental conditions and at temperature conditions recommended by manufacturer.

C. Handle products and systems in accordance with manufacturer’s instructions.

1.05 SYSTEM DESCRIPTION

A. Input/Output Capacity: The Base Bid system shall be capable of controlling as many card access control locations as shown on the plans with up to 64 monitoring supervised points with virtually unlimited expansion of both card access locations and alarm monitoring points. Also, including 3 arming / disarming locations. The Software shall be capable of supporting multiple building locations from the main server location to take care of the present Districts needs and support any future expansion of the district. The Base Specified System DSX can support up to 32,000 locations with 128 card readers per location. Connections to multiple site shall be via standard network connections. Alternate systems must have global input to output between field control panels and multiple site control panels that are independent of the main server software. Alternate systems which do not support this must provide an online back-up server / database to comply with the upcoming “Condition Orange” guideline.
B. Provide an integral photo ID badge software as part of the base bid and any alternate bids. Provide for control and operation from an off site workstation via the network. (Note: The network cabling, network connection, network hardware and workstations are provided by others.) System must be capable of expansion for future connectivity to off site locations / monitoring workstations / readers via standard IP protocols. Provide one (1) workstation / server PC with keyboard / mouse / 17" LCD monitor to operate on the buildings network with this system.

C. Provide for and furnish GUI DVR / NVR Software for camera call-up of live or recorder video at all camera locations on the same GUI map of the school that the door positions, (open or closed), motion detectors, card readers and door locks are shown and controlled.

D. Monitor all security locations not associated with card access.

E. User/Authorization Level Capacity: The system shall be capable of operation by 50,000 access codes and 32,000 time zone levels of authorization.

F. The system shall be capable of 50,000 cards as a minimum with 99 user-defined fields per location.

G. Readers shall be proximity with a minimum read distance of 4 inches. Provide 200 Printable Prox cards with the initial system. Cards are to be of the non-proprietary type.

H. Provide ID Badging software in the base bid and any alternate bid. Also a single side color card printer, 2-ribbon rolls-200 images per 200 lanyards, card hole punch, digital camera and 100 blank cards for printer training. The system must be able to handle any type of digital camera formats for inputting pictures already on file into the database.

I. Panel History buffer: The Command Processor shall contain a 5000 event history buffer which is downloaded to the system computer if in the off-line state. The event buffer shall log all card access, open/close events, alarms and troubles by time and date.

J. Lighting Suppression: The Command Center control panel primary power source and incoming telephone lines shall be protected from lightning, power surges, voltage spikes and transient or RF interference with a combination of zener overvoltage transient suppressors, R/C filters, ferrite beads and spark gaps.

K. Provide single sided card printer.

L. Provide a integration to a digital dialer for alarms listed in section for Security.

M. Provide a Fireman's Lock Box for door entry as shown on drawings.

N. Furnish and provide for fire alarm override of the access control doors controlled by this portion of the system.

O. Furnish and provide alarm documentation of any fire alarm override on the system as well as any door lock power supply being deactivated by any other means.

P. Furnish and provide for integration with security system and CCTV system.

Q. Provide IP door intercom system with remote door unlock capability. Integrate with VoIP telephone system as required.
R. Provide necessary connections to ADA motor operated doors and door locking hardwared as required for a complete system.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Equipment in these specifications has been taken from the catalogs of Vanderbilt Industries, and is intended to denote a standard of quality and type. All published specifications of the manufacturer shall be deemed as being a part of this specification Section, and shall have the same force and effects as if written herewith in full. In order to guarantee the Owner of all factory warranties, all equipment shall be obtained from a factory authorized vender / distributor that is capable of system integration with the CCTV Equipment.

B. The intent is to establish a standard of quality, function and/or features. It is the responsibility of the bidder to insure that the proposed product meets or exceeds every standard set forth in these specifications.

C. The functions and features specified are vital to the operation of this facility; therefore, inclusion in the list of alternate manufacturers does not release the contractor or manufacturers from strict compliance with the requirements of all sections of this specification, and in particular the CCTV Section.

2.02 EQUIPMENT

A. Control Panel

1. Furnish and install Vanderbilt VRCNX-R Control Panel and associated hardware, quantities as required. Including Vanderbilt VSRC Smart Reader Controller and necessary Vanderbilt VONX expansion boards.

2. The Intelligent Controller will communicate with the Communications Server via TCP/IP LAN communications.

3. The Intelligent Controller is an independent processing 16 door package designed to be a cost effective building block platform that allows expansion in a scaleable manner. Up to 16 doors can be controlled from 1 enclosure for an efficient space saving package. The controllers are strategically placed throughout. The Intelligent Controller may be used in conjunction with all other Vanderbilt Controllers as a Master or Slave in the panel network. Any controller may be designated as a Master or Slave panel. The Master or Slave mode of operation is determined by the panel’s dip switch settings. The first panel of each location is designated as the Master while all others would be considered Slaves. The Master is responsible for communications to the PC and to the Slave panels. Up to 16 Intelligent Controllers can be used in a single Location providing 128 readers. Multiple Locations can be grouped for systems that require more than 128 readers/keypads. Each Controller includes an Enclosure, a Communication Distribution Module and Intelligent Controllers. Each controller provides 8 Reader Ports, 32 Inputs, and 16 Outputs. Each controller has a 12 volt fused power output for its Card Readers and Keypads. The controller contains an AM186 processor, 512K of RAM, 512K of Flash ROM, and a Real Time Clock. The controller allows all door and field wiring connections to be made via removable terminal blocks. The controller receives RS-485 communications from a possible previous panel and regenerates the 4 wire-RS485 to the next controller. The controller also distributes Slave Controller communication to the Slave panels within the same enclosure.
4. The controller has 16 Programmable Outputs. Eight Outputs are Form-C, 5 Amp rated relay outputs used to control the locks for the reader controlled doors. Eight Outputs are the open collector type, both have an LED for status and are fully programmable. In addition to the 16 programmable output there are 8 Pre-Warn Outputs, (1 for each door) and are used to indicate the reader controlled doors are being held open and are about to go into alarm. If the door is locked, armed, and open the output pulses low starting at 1/3 of the door open too long time and changes to a steady low anytime the door is in alarm. Also provide and connect to dedicated phone line a digital alarm dialer.

B. Power Supply

1. The Vanderbilt SMS-20APS houses the panel and lock power supplies, backup batteries, and fused power distribution module. The power supply is comprised of an Enclosure, an AS-150 15V power supply for the Controllers, an AS-60-[15] or [24] for either 12V or 24V locks, and a Power Distribution Module. The power supply performs several critical functions. The Power Distribution Module has 2 N.O. relay outputs, one to signal Loss of AC and one to signal Low Battery.

2. These outputs can be connected to spare inputs in the controller. The module also has a Battery Test Input. This input when activated shuts off the charging circuit and load tests the battery for 1 minute. This input can be connected to a spare output in the controller and programmed by time zone to occur when desired. The power supply routes Lock Power through individual fuses for each of the 8 outputs. The module also has connection points for a Fire Override relay to break Lock Power. Provide power supplies with battery backup quantities as required for a complete and operational system.

C. Furnish and install Vanderbilt VSMS-SFT Enterprise Software.

1. Provide DVR / NVR Driver Software for integration of the specified in the CCTV Section of the Project.

2. Provide Set-up of interactive GUI map for display on PC's. Provide set-up on one of these other workstations for the district and provide training to the schools IT personnel on setting up and installation on other school districts PC’s. This Screen shall include icons for all outside door locations, motion detectors, and all cameras. These icon shall enable full control of doors for arming / disarming, realtime display of the door position (open or closed), locking / unlocking of all electronically controlled access doors, all card readers, and all cameras with live or recorded camera call-up functions

D. Provide 200 cards and provide training for printing Model # HID-ID1386.

E. Proximity Reader with keypad: Furnish and install where shown on the plans HID Model # 5355 THINLINE II PROX or approved equal.

1. Furnish and install Vanderbilt VRINX/VIONX reader interface modules at each door. Each reader in the system shall have a dedicated reader interface panel able to connect to the controller via RS-485 protocol, able to support proximity, smart card, magnetic stripe, biometric, bar code, and Weigand technologies. The reader interface panel shall have two form ‘C’ SP/DP 1 amp relay outputs, four supervised or unsupervised contact inputs.
F. Provide 120V emergency power to all door lock power. Supplies furnished by door hardware supplier. Coordinate voltage and hardware requirements with door supplier to activate / deactivate lock.

G. Door monitor switches shall be provided with intrusion detection system. Integrate with this access system as directed for installed door type.

H. REX – Request to Exit motion detectors as shown on drawings shall be Model# DS150i wired as directed.

I. Motion Detectors shall be provided with the intrusion detection system but integrated with this system as directed.

J. Fireman’s Lock Box for door entry as shown on drawings Knox Company part # 3262. The 3200 series box is hinged door surface mount and the color is black. Provide access control card as directed by local fire department.

K. Provide Zebra Single Sided Card Printer model # P-110i with ribbons / cleaning supplies for at least 200 cards, plus provide 100 blank cards for training in addition to the 200 Prox Cards.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Wire sizes and types shall be per manufacturers recommendations.

B. Install system according to National Electrical Code standards.

C. Provide a dedicated 120 VAC power circuit with 20 Amp breaker for security system.

D. Wiring Installation

1. Wiring Within Enclosures: Install conductors parallel with or at right angles to the sides and back of the enclosure. Bundle, lace and train the conductors to terminal points with no excess. Mark each terminal according to the wiring diagrams of the system. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

2. System Wiring: For the low-voltage portion of the security system, install NO. 18 AWG conductors or size as required by system manufacturer and 75-deg C insulation in wet, damp, or dry locations. For line-voltage wiring, install No. 12 Awg size with insulation rated 75 deg C minimum.

3. Color Coding: Color-code security system conductors differently from the normal building power wiring.

E. Field Quality Control

1. Manufacturer’s Field Services: Provide services of a factory-trained service representative to supervise the field assembly and connection of components and the pretesting, testing and adjustment of the systems.
2. Pretesting: Upon completing installation of the system, align, adjust and balance the system and perform complete pretesting. Determine, through pretesting, the conformance of the system to the requirements of the Drawings and Specifications. Correct deficiencies observed in pretesting. Replace malfunctioning or damaged items with new and retest until satisfactory performance and conditions are achieved.

3. Final Test Notice: Provide a 10-day minimum notice in writing when the system is ready for final acceptance testing.

4. Minimum System test: Test the system according to the procedures outlined by the manufacturer. Minimum required tests are as follows:
   a. Verify the absence of unwanted voltages between circuit conductors and ground.
   b. Megger test all conductors other than those intentionally and permanently grounded with electric components disconnected. Test for resistance to ground. Report readings less than 1-megohm for evaluation.
   c. Test all conductors for short circuits utilizing an insulation-testing device.
   d. Verify the control unit is in the normal condition as detailed in the manufacturer's operating and maintenance manual.
   e. Test each initiating and sounding device for alarm operation and proper response at the control unit.
   f. Test the system for all specified functions according to the manufacturer's operating and maintenance manual. Systematically initiate specified functional performance items at each location including making all possible alarm and monitoring initiations and using all communication options. For each item, observe related performance items at all devices required to be affected by the item under all system sequences. Observe indicating lights, displays, signal tones, and annunciator indications.

5. Retesting: Correct deficiencies indicated by tests and completely retest work affected by such deficiencies. Verify by the system test that the total system meets the Specifications and complies with applicable standards.

F. Cleaning and Adjusting

1. Cleaning: Remove paint splatters and other spots, dirt and debris. Touch up scratches and mars of finish to match original finish. Clean unit internally using methods and materials recommended by the manufacturer.

2. Occupancy Adjustments: When requested within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels and adjusting controls and sensitivities to suit actual occupied conditions. Providing up to three visits to the site for this purpose.
G. Demonstration

1. Provide the services of a factory-trained service representative to demonstrate the system and train Owner's maintenance personnel as specified below.
   
   a. Train Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventive maintaining, of the system.
   
   b. Training shall consist of thirty-two (32) hours of classroom instruction and (2) hours of individual hands-on-training. Hands-on-training shall allow each person to operate system and practice as an operator.
   
   c. Schedule training with the Owner at least seven days in advance. Provide the Owner with a hard copy as well as an electronic copy of operation and maintenance manuals to be used in one (8-hour) day training seminar for the specific system installed under this Contract.
   
   d. Provide two (2) video copies of all training.

H. Warranty

1. The contractor shall warrant the completed security system wiring and equipment to be free from inherit mechanical and electrical defects for a period of three (3) years from the date of the completed and certified test.

2. The equipment supplier shall make available to the owner a contract proposal to provide ongoing maintenance of the system.

END OF SECTION