SECTION 16760
INTEGRATED SECURITY SYSTEM
(Addendum)

PART 1.0 GENERAL

1.01 SCOPE & RELATED DOCUMENTS

A. The work covered by this section of the specifications include the furnishing of all labor, equipment, materials and performance of all operations associated with the upgrade of the Security Alarm System as outlined. All items required to complete the installation whether detailed here in the specification or on the drawings shall be included in this contract.

B. The requirements of the conditions of the Contract, Supplementary Conditions, and General Requirements apply to the work specified in this section.

C. Related work in other sections or divisions:
1. HVAC Systems Monitor.
2. Electrical (Section 16000).

D. The entire installation, including materials and equipment shall meet or exceed the minimum standards and requirements of the following:
1. Underwriters Laboratory Inc.
2. 2010 Building Standards Administrative Code, Part 1, Title 24 C.C.R.
3. 2010 California Building Code (CBC), Part 2, Title 24 (1997 UBC Volumes 1-3 and 2010California Amendments).
4. 2010 California Electrical Code (CEC), Part 3, Title 24 C.C.R. (2002 NEC and 2004 California Amendments).
5. 2010 California Fire Code (CFC), Part 9, Title 24 C.C.R. (2002 UFC and 2001 California Amendments).
6. 2010 California Mechanical Code (CMC), Part 3, Title 24 C.C.R. (2002 UMC and 2001 Amendments).
7. 2010 California Referenced Standards Code, Part 12, Title 24, C.C.R. Title 19, C.C.R. Public Safety, State Fire Marshall Regulations.
8. Manufacturers Specifications.

1.02 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. The Contractor shall utilize the copies attached project site drawings to prepare record drawings for the project. These drawings will be submitted as the As-Built drawings required to close the project.

B. The following shall be included on all drawings:
1. Building floor plan shall show location of all devices, conduit and routing.
2. Voltage drop using point to point or OHMS Law calculations. Voltage drop shall not exceed 10% per circuit.

3. Battery calculations with batteries used:
   - Normal - 100% for applicable equipment and devices for a period of 24 Hours.
   - Alarm - 100% for applicable equipment and devices for a period of 5 Minutes.
4. Wiring riser diagram including but not limited to, devices, wiring, zoning, EOL'S, etc.
5. Sequence of operations schedule.
6. General notes pertaining to this project.

C. The following shall be included in the submittal book:
1. Cover Sheet: Project Name, Project Location, System Supplier/System Installer with C-10 License Number, UL Listing Number with Expiration Dates.
2. Table of Contents:
3. Specification Sheets for each piece of equipment.
4. CSFM Listing Sheets.
5. Letter or Certificate from the Security Manufacturer stating that the Security Alarm Contractor is an authorized distributor of specified Security Equipment at time of bid.

1.03 EQUIPMENT QUALIFICATION

A. The specification is based upon equipment as manufactured by Edwards Systems Technology – EST as approved by the District. The equipment specified is a District Standard (per Public Contract Code 3400), is established, in order to communicate with the **EXISTING Fireworks C**entral Monitoring System at the District School Police Headquarters (EST Fireworks was provided under separate contract and is not part of this contract). The EDWARDS EST-3 control panel shall communicate with the **EXISTING Fireworks** via District's LAN network. Coordinate with District's IT department for configuring LAN network to communicate with Security Fireworks. The system supplied shall be a microprocessor-based direct wired, multi-priority peer-to-peer networked system. The system shall utilize independently addressed, microprocessor-based Security Systems Detectors, Devices and Modules as described in this specification. It shall be complete with all necessary hardware, software and memory specifically tailored for this installation.

B. All equipment shall conform to all applicable codes and ordinances, and shall be listed by Underwriters Laboratories and the California State Fire Marshall.

C. A pre-approved equipment suppliers, installation and service organizations for the equipment specified is Enko Systems 909-885-7771, TRL Systems 909-.390-8392, Building Electronic Controls 909-305-1600

1.04 QUALIFICATION OF BIDDERS

A. To qualify as an acceptable bidder, whether the bid is submitted to the Owner, his agent, a general contractor or a sub-contractor, the system bidder or contractor shall be a qualified U.L. Listed Security contractor (at time of bid) and shall hold a valid C-10

License issued by the Contractors State License Board of California. The system bidder or installing contractor shall herein be referred to as the Contractor. The Contractor shall also hold a State of California Consumer Affairs License - Bureau of Collection and Investigative Services. The Contractor shall also have on staff, a minimum of Three Nicet Certified Technologists (at time of bid). This is to insure that licensed installers familiar with this type of installation will be used on this project. The Contractor shall be the factory authorized distributor (at time of bid), for the brand of equipment being installed. The Contractor shall have been in the business of supplying, installing and servicing Addressable Security Systems for the past 15 years, in the State of California. The Contractor shall be able to refer to at least **10 projects** of this nature rendering satisfactory service with contact persons, phone numbers and addresses. The Contractor shall maintain a fully equipped service organization capable of furnishing adequate repair service to the equipment. The Contractor shall maintain an inventory of all major components in stock at all times. The Contractor shall maintain on staff for the duration of the project a minimum of two EST-3 and Fire Works Certified Installers. Contractors named in 1.03C above, are considered to be pre approved for this project, and will be able to satisfy warranties already in place, when adding onto the Fire Works Central Monitoring System Program.

B. The responsibility of the installing Contractor is to provide all drawings, submittals, wire, devices, equipment, installation to conduit system furnished and installed under Section 16000, programming, final test out and certification. All specialty Security System Back-boxes for the conduit system installation provided under Section 16000, shall be provided under this section. Terminal cabinets, pull boxes, etc. shall be furnished and installed under section 16000.

PART 2 SYSTEM LAYOUT

2.01 SYSTEM DESCRIPTION

A. The Security Alarm System as outlined on the drawings, shall be a Life Safety, Security System as manufactured by Edwards. It shall be complete with all necessary hardware, software and memory specifically tailored for this project.

B. Provide a new Network System, Remote Panels, Remote Keypads Printers, Devices, etc. in accordance with specifications and drawings. Counts for devices to be in accordance with engineers drawings.

C. All equipment needed for a complete operable system, (whether specifically indicated or not) shall be included in this section. It shall be the Installing Contractors responsibility for a COMPLETE AND OPERABLE SYSTEM upon completion of this project.

2.02 AUTOMATIC ALARM OPERATIONS

A. The security alarm system operation subsequent to the alarm initiation via motion detector, door contact, tamper switch, etc., shall be as follows:

1. Individual device in alarm shall display on partition keypad, in which zone device is located.
2. Display type and location of alarm per point on the Main Control Panel.
3. Display type and location of alarm per point on Remote LCD Keypad.
4. List on printer the time, date, type and user defined message for each event printed.
5. Graphically display on the Fire Works Station, school diagram showing whole school, with graphic scrolling thru system prompts, down to point of alarm activation.
6. Subsequent alarms are to report to the Keypad, Control Panel, and Fire Works and indicate to the operator that a subsequent alarm is present, and also indicate the number of subsequent alarms.

2.03 AUTOMATIC SUPERVISORY OPERATION

A. All data, initiating, indicating and supervisory lines shall be constantly monitored for integrity. Indicate opens, shorts, grounds, at Main Control Panel, Remote Keypad and Fire Works Station.

2.04 OPERATION

A. During the normal state, the NORMAL LED (green) shall flash. The first line of the LCD shall display the time in (HH:MM:SS) as well as the number of active points (AP) and the number of disabled points (DP) in the system.

B. When the control panel goes into alarm condition, the NORMAL LED (green) extinguishes and the ALARM LED (red) shall light, the buzzer pulsates and the LCD indicates the time, the number of messages waiting, the type of alarm, the point ID number of device, and the time that the alarm occurred. The second line is dedicated to the user specified message.

C. To silence the panel buzzer, the operator shall press the LOCAL SILENCE button and the buzzer will silence.

D. To silence the audible devices, the operator shall press the ALARM SILENCE button. A new alarm shall cause the audibles to resound.

E. During the TROUBLE condition, the amber TROUBLE LED shall light, the NORMAL LED shall go out, and the buzzer shall pulsate. The display shall indicate the point ID number of the device, the time the event occurred and up to a 40 character custom user description.

F. During the MONITOR or SUPERVISORY condition, the appropriate LED shall light, the NORMAL LED shall go out, and the buzzer shall pulsate. The display shall indicate the point ID number of the device, the time the event occurred and up to a 40 character custom user description.

PART 3 MATERIALS

3.01 MAIN or REMOTE CONTROL PANEL EST-3 W/CAB7/CAB14/CAB21

A. Control Panel construction shall be modular with solid state, micro - processor based electronics. It shall display only those primary controls and displays essential to operation during an alarm condition.

B. A local audible device shall sound during Alarm, Trouble, Monitor or Supervisory conditions. This audible device shall sound differently at each condition, to distinguish one condition from another without having to view the panel.

C. Primary Keys, LED's, LCD Display

1. The following primary controls shall be visible through a front access panel:

- 8 Line by 21 Character LCD display
- Individual System ALARM LED and Switch
- Individual SUPERVISORY LED and Switch
- Individual TROUBLE LED and Switch
- Individual MONITOR LED and Switch
- Individual RESET LED and Switch
- Individual ALARM SILENCE LED and Switch
- Individual PANEL SILENCE LED and Switch
- Individual DRILL LED and Switch
- Individual LED'S For Power, Test, CPU Fail, Gnd Fault, Disable
- NEXT/BACK Switch Per Condition

D. The Master Controller shall be capable of supporting up to 64 supervised system nodes per single line network without any change in hardware. Each controller shall contain a RS-232 Printer/Programming Port for programming locally via an IBM PC.

E. Each controller shall support up to 10 Intelligent Loop Cards (SDCs). Each card shall support (125) Intelligent Sensors and (125) Intelligent Modules. Systems which only monitor the presence of a conventional detector in an addressable base shall not be acceptable.

F. The Master Controller shall have the following additional features without any changes in hardware or firmware:

1. Auto Programming and Electronic Addressing of Field Devices.
2. Logic Statements.
3. Time Controls.
4. Sequences.
5. Actions.
6. Analog Value Reporting of all analog sensors and traditional zones.
7. Maintenance Reporting by Intelligent Sensor.
8. Alarm Verification by point or zone. (0-60 Seconds).
9. Print a history of Sensors Activating the Verification Cycle.

10. On demand system condition printouts (status).
11. Enabling and Disabling of any system device or function.
12. Ground Fault Detection by Panel, by Signature Data Circuit, and by Device Module.
13. Normal and Silent One Man Test.
14. Windows Based Programming.
15. Network Response Time Under 3 Seconds.
16. Loop Response Time Under 750 Milliseconds.
17. Device Mapping Feature for As-Builts.
18. Up to 1750 History Events
19. Remote Systems Diagnostic via Phone Line

3.02 KEYPADS – KPDISP

A. Provide keypads at each building, as indicated on drawings.
1. Keypads to be backlit 128 x 64 dot matrix LCD Display.
2. Units to support bilingual operation.
3. Keypad shall be electronic addressing. Jumpers or dip switch addressing shall not be considered equivalent. Each Keypad shall support up to 200 users, with unique PIN numbers.

3.04 PRINTER - PT-1S

A. Provide printer for the life safety system, if indicated.

B. The event and status printer shall be a 9 pin, impact, dot matrix printer with a minimum print speed of 232 characters per second. Printer parameters shall be set up with a menu drive program in the printer. The printer shall be capable of serial or parallel communications protocol.

C. The communications speed for RS-232 communications protocol shall be adjustable from 300 - 9600 Baud. The serial cable shall be supervised.

D. The printer shall list the time, date, type and user defined message for each event printed.

SIGNATURE SERIES DEVICES - GENERAL

A**.** Each remote device shall have a microprocessor with non-volatile memory to support its function and serviceability. Each device shall store as required for its functionality the following data: device serial number, device address, device type, personality code, date of manufacture, hours in use, number of alarms and troubles, time and date of last alarm, amount of environmental compensation left/used, last maintenance date, job/project number, current detector sensitivity values, diagnostic information (trouble codes) and algorithms required to process sensor data and perform communications with the loop controller.

B. Dependent on its functionality, each device shall be capable of monitoring up to 32 diagnostic codes. This data shall be stored at the device and available for system maintenance.

C. Each device shall be capable of performing its intended function dependent of the control panel, to lower loop data traffic. Each device shall immediately alert the loop controller of a status change to achieve a loop response time of less than 750ms.

D. Each device shall be capable of electronic addressing, either automatically or application program designed, to support physical/electrical mapping and supervision by location. Setting a device's address by physical means shall not be necessary. Each device shall be individually annunciated at the Main Control Panel and Remote Keypad.

3.05 SECURITY MODULE – SIGA-SEC2

A. Provide modules as indicated on the drawings or as needed to upgrade existing devices that are to remain to system compatible addressable devices.

B. The Dual Input Module shall provide two (2) input circuits, each capable of a minimum of 6 personalities, each with a distinct operation.

3.17 SECURITY MOTION DETECTORS – SIGA-MDS

A. Provide motion detectors as indicated on the drawings.

B. The passive infrared motion detector shall utilize adaptive signal processing with gliding focus mirror optics to analyze the size, speed and shape to determine the alarm threshold.

C. The unit shall be configurable for up to seven different curtain patterns, have a range of up to 34 ft. and a 90 degree field of view.

PART 4 EXECUTION

4.01 INSTALLATION

A. Wiring shall be installed in conduit as specified under the electrical section of the specification (Section 16000).

B. The sum of the cross-sectional areas of individual conductors shall not exceed 40% of the interior cross sectional area of the conduit. Minimum conduit size shall be 3/4 inch trade size.

C. Wiring shall be identified at terminal and junction locations to prevent unintentional interference with the circuits during testing and servicing.

D. Junction, pull and terminal boxes/cabinets shall be labeled. Labels shall be permanently affixed to covers/doors. Labeling to be Furnished and Installed under Section 16000.

E. Wiring color code shall be consistent throughout the system and shall allow for easy identification of initiating, indicating and auxiliary control circuits.

F. Wiring at building terminal cabinets shall be terminated to screw barrier strips, with circuits identified.

G. Wiring in control, terminal and junction cabinets shall be neatly arranged and bundled.

H. Wiring shall test free of earth grounds or shorts between conductors.

I. The contractor shall be responsible and assure the use of adequate numbers of skilled workmen, who are thoroughly trained and experienced, and completely familiar with the specified equipment and code requirements.

J. The contractor shall be responsible for assuring that conduit size, wire type and color coding meets the specification, manufacturers and code requirements.

4.02 SYSTEM VERIFICATION

A. Upon completion of the installation, the security alarm contractor shall place into operation and test all operational features, functions and devices.

B. Upon completion of testing, and after the system has been in operation for a minimum of 5 days without failure, the security alarm contractor shall schedule with the Authority Having Jurisdiction (DSA INSPECTOR), Architect and Engineer, a demonstration and field acceptance test.

C. All testing shall be conducted in accordance with contract documents, manufacturer's instructions and per the requirements of the District’s School Police.

4.03 GUARANTEE AND SERVICE

A. Security alarm system contractor shall provide written guarantees for all security alarm equipment and devices used on this project for a period of THREE (3) YEARS from the date of final acceptance.

B. During the guarantee period the contractor shall repair or replace any defective material at no additional cost to the Owner.

4.04 IN SERVICE TRAINING

A. The security alarm contractor shall provide factory trained representatives to demonstrate the operation of the security alarm system to the Owner's personnel. The representative shall have a thorough knowledge of the equipment and operation of the system. The contractor shall provide one (1) 4 hour in-service training session.

B. The security contractor shall provide to the District’s School Police a demonstration of system operation. Session shall consist of one (1) 4 hour in-service training.

4.05 OPERATION MAINTENANCE MANUALS

A. The security alarm contractor shall provide to the District, three (3) weeks after the field acceptance test, two (2) sets of operating/maintenance manuals and one (1) set of as-built drawings.

B. As-built drawings shall indicate the location of all devices, appliances, coding, zoning, wiring sequences, wiring methods, color coding, identification, labeling and connections of the components of the security alarm system as installed. The as-builts shall include a mapping sequence as generated by the Security Alarm Control Panel and connected computer. Systems not capable of this feature shall generate TRUE Device mapping sequences as-builts on Auto Cad 2014. These as-builts shall show the physical layout of all addressable devices as they were actually installed on the loop.