**PART 1 - GENERAL**

* 1. **SCOPE**
     1. Provide all labor, materials, appliances, tools and equipment necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the Intrusion Alarm System.
  2. **REFERENCE**
     1. Examine all other specifications and drawings for related work required.
     2. All general provisions and requirement for electrical work.
  3. **DESCRIPTION**
     1. Included but not limited to as principal work.
        1. Control Panels
        2. Initiating Devices
        3. Dedicated Conduit System
        4. Wiring
        5. Accessories
     2. System shall consist of motion devices and door contacts where indicated to detect intrusion into covered areas. Zone as indicated on drawings and have control-panel provide alarm and trouble signals, by point and area, communicated to district central office.
  4. **QUALITY ASSURANCE**
     1. To qualify as a acceptable bidder, whether the bid is submitted to the owner, his agent, a general contractor or sub-contractor, the system bidder or contractor shall be a qualified Security Alarm contractor and shall hold a valid C-10 license issued by the Contractors State License Board of California. The Contractor shall also hold a valid ACO license from the State of California of Consumer Affairs Collection and Investigative Services for the purpose of installing security systems. The system Bidder or Contractor shall hereinafter be referred to as the Contractor. The Contractor shall hold all other licenses required by the legally constituted authorities having jurisdiction over the work. The Contractor shall be a factory authorized distributor/installer and service facility for the brand of security equipment specified.
     2. Minimum Contractor Qualifications:
        1. Five Years experience with comparable installations.
        2. Shall be able to refer to at least 20 projects of this type rendering satisfactory service with contact persons, phone numbers and addresses.
        3. Maintain an inventory of all major components in stock at all times.
        4. Be able to provide service within 48 hours of notification.
     3. References:
        1. National Electrical Code.
        2. State and Local Regulations.
  5. **SUBMITTALS**
     1. Meet with representatives of the District at a time and location convenient to the District. Advise the District of programming options and incorporate all requirements on shop drawings before submittal to the Architect. Submit evidence of having met with the District.
     2. Submit product data sheets for all switches, keypads, wiring devices, device mounting, controllers, power supplies, cabinets, etc.
     3. Submit detailed shop drawings including dimensioned plans, elevations, details schematic and point-to-point wiring diagrams and descriptive literature for all component parts and cabinets.
     4. Submit six (6) copies of redrawn building floor plans showing all components of the intrusion detection system including interconnecting cabling and conduits. Drawings shall be prepared to scale and show all exterior glass, exterior door, all interior and exterior building walls, roof hatches, architectural and structural elements relevant to the installation of the system. Each Zone shall be shown on the plans. Indicate on the submittal drawings where conduit will be provided and where cabling will be run without conduit.
  6. **PERFORMANCE REQUIREMENTS**
     1. Provide main control panel, terminal cabinets, keypads and site underground conduits as indicated.
     2. Provide motion sensor(s) in each room having exterior doors, exterior glass or skylights. Quantity of sensors in each room shall be as required to detect entry through exterior doors, exterior glass or skylights, and/or any other opening from the building exterior to the building interior. All sensors shall be installed to manufactures specifications and in a "corner" of the room for maximum detection of intrusion. All motion sensors shall be identified by point with a lable (p-touch, or equivillant) on the outside front of the motion sensor.
     3. Provide a magnetic switch at entry doors to each building, near its respective keypad. Connect to the system to initiate a timed circuit for keypad arming and disarming.
     4. Provide magnetic switches at all roof hatches and annunciate with a day zone to indicate open/close of all hatches during daytime. Program roof hatch to be non-bypassable at master keypad when arming.
     5. Provide a magnetic switch on all electrical, data, custodial and mechanical room doors who’s sole access is through an exterior door.
     6. Provide a dedicated system of conduits, cabling and outlet boxes required for a complete and operable intrusion alarm system.

**PART 2 - PRODUCTS**

1. **SYSTEM FUNCTIONS**
   * 1. Provide a complete and operable supervised (EOL resistor at device) intrusion detection system as shown on the plans including but not limited to master control panel, keypad station motion detectors, and connections to door switches. Panel shall be Bosh or approved equal by Honeywell.
     2. Upon detection of an intrusion by initiation of any device in the system, the system shall cause the annunciator to display and sound an alarm signal on the keypad. Alarm information shall be sent by digital dialer to the District's Central monitoring dispatch center, as identified by District personnel.
     3. Systems shall detect the motion of a body taking not more than four steps in any direction of an area secured with motion detection equipment where entry doors or windows are possible access.
     4. Each building area shall be on a separate area with each controlled separately so that each building area may be secured while others remain unsecured. Said areas to be identified by District Security Personnel, in either the bid documents, prints, plans, job walk instructions, subsequent addendas or any other legally recognized manner of communication.
     5. Provide two(2) form 'A' contacts for the interface with the EMS system.
     6. The system shall be capable of off-site computerized access for remote access programming and control. System computerized access must be compatible with the District's existing system and equipment, and/or Contractor to include all necessary equipment and diagnostic equipment necessary to maintain the complete system at no additional cost to the District.
2. **CONTROL PANEL**
   * 1. Each Control/Communicator panel shall be a Bosch Model B9512G constrol panel with an intregal digital communicator or approved equal by HoneyWell and must be Underwriters Laboratories Listed. All external circuit connections shall be UL listed as power limited in accordance with the provisions of article 760 of the National Electrical Code (NFPA Standard #70).
     2. Provide Point of Protection (POPEX) modules at the control panel for Popitmodule supervision (Bosch D8125) or approved equal by Honeywell.
     3. Provide Point of Protection indentification transponders (Popit) modules at building terminal cabinets to individually identify each detector or device in the system (Bosch D9127U) or approved equal by Honeywell.
     4. The control/Communicator shall be microprocessor based.
     5. System shall include the following features:
        1. Real time clock and test timer.
        2. Battery charging circuit.
        3. Battery voltage supervision.
        4. Supervised automatic reset circuit breakers.
        5. Onboard warning buzzer and diagnostic LEDS.
        6. Automatic answer modem.
        7. Lightning and RFI protection.
        8. Central Station reporting formats.
        9. Printer/CRT interface module for on-site serial data printer recording or CRT display of events.
        10. Quad serial output module for enhanced serial data interface capability for specific accessory modules and devices.
        11. Individual zone responses.
        12. Custom annunciator text.
        13. Audible alarm output, programmable steady or pulsed.
        14. Automatic silencing.
        15. Attack-Resistant enclosure and lock meeting Underwriters Laboratory Local Burglary requirements.
        16. Transformer enclosure for internal mounting of class 2 transformer.
        17. Two telephone numbers with selective signaling options.
        18. Individual point responses.
        19. Automatic test reports.
3. **KEYPADS**
   * 1. Master and zone keypads shall be Bosch D1255W or approved equal by Honeywell capable of displaying system status and controlling the alarm system. Keypads shall receive its operating power from the main control panel. Keypads shall be surface or flush-mounted on a wall near the main entry of the Administration building, or required workspace entries. Keypads to be mounted at location to be determined by School Police. Keypad Bosch D56 Backbox to be used for surface mounting of keypad when needed.
4. **INITIATING DEVICES**
   * 1. Motion sensors shall be a Bosch model ISC-CDL1-W15G or approved equal by Honeywell, TriTech motion sensor for classrooms less than 50x80 feet. For rooms greater than 50x80 feet, motion sensor shall be Bosch model DS720I or approved equal by Honeywell. Sensor coverage patterns shall be as required for optimum coverage at each individual location.
     2. Magnetic switches shall be fully concealed where possible in door frames using GE 1078TW, at roof hatches GE 2505A, or other required areas surface mount Amseco AMS39CV/AMS51CV. Amseco, GE or Equal.
5. **TERMINAL CABINETS**
   * 1. Each intrusion detection system terminal cabinet, where needed, shall contain a Altronix SMP3 power supply with an Amseco XP1640 transformer and 12v 7ah battery for the motion sensors and a wood back board for mounting the POPIT modules. A Popit for each device and point ID programming to be installed.
     2. Cabling and Conduiting shall be as required for a dedicated alarm system operation. All Cabling for data to devices shall be shielded. Cabling shall be as follows:
        1. WEST PENN 240: 4 Conductor 22 GA Unshielded solid wire for all runs to sensors and keypads.
        2. WEST PENN 244: 4 Conductor 18GA Unshielded stranded wire for all data runs from panel to aux cabinets.

**PART 3 - EXECUTION**

* 1. **INSTALLATION**
     1. All connections throughout the system shall be soldered, crimped by means of AMP lugs, fastened with screw type terminals, made by spring tension clip "punch block" terminals or made by standard plugs and receptacles. Each wire twisted pair or cable shall be tagged throughout the site with EZ markers, with the room number it serves. All conductors in terminal cabinets shall be carefully formed and harnessed in a workmanship like manner.
     2. All systems cabling shall be installed in conduit except where wiring occurs above accessible ceilings. Wiring not in conduit shall be UL listed plenum type cable. All wiring in walls shall be in conduit. All conduits shall be run concealed. Where architecture precludes concealed conduits, run conduits on beams or trusses and minimize the exposure to view. Identify on the submittal drawings all locations where conduits must run exposed.
     3. All open or exposed wire to be secured to structure at intervals not to exceed 8ft.
     4. Locate motion sensors to provide optimum coverage of the space and mount sensors in corner of space where possible. All sensors shall be installed to manufactures specifications and in the “corner” of the room for maximum detection of intrusion. Submittal drawings to show exact locations and heights of all sensors.
     5. Coordinate concealed door switch installations with finish hardware manufacturer.
     6. All data loops (Zonex-1, Zonex-2, Keypad SDI-1, & SDI-2) shall be run seperatley in separate conduits minimum ¾ inch.
  2. **PROGRAMMING**
     1. Provide all system programming including the necessary product handlers so that all parameters are entered into the system and the annunciator displays a text which is customized to the facility.
     2. Program and connect the intrusion system to the telephone system for a complete and operational system as District requires.
  3. **TESTING**
     1. Test all cabling for opens, shorts, and ground faults.
     2. Actuate all motion, door and roof hatch sensing devices and verify that the system performs as specified.
     3. The Data/Communications loops shall be opened in at least two(2) locations per building to check for the presence of correct supervisory circuitry.
     4. Before the contract shall be considered complete, the Contractor shall program the system per District requirements and demonstrate the performance of the system in the presence of the District Security Personnel. The Contractor shall provide all test and reception equipment required to prove the performance as outlined.

**PART 4 - COMPLETION AND ACCEPTANCE**

* 1. **INSTRUCTION**
     1. Provide a minimum of Two(2) four-hour periods to instruct District personnel in the proper operation of complete security system. The first instructional period shall be held prior to final acceptance of the system. The second instructional period shall be within a period of one year after final acceptance of the security systems, upon request of the District.
  2. **WARRANTY**
     1. The entire system shall be warranted free of mechanical or electrical defects for a period of one(1) year after notice of completion. Any material showing mechanical or electrical defects shall be replaced promptly at no expense to the District.
     2. The Contractor shall deliver to the District, for the purpose of Warranty inventory:
        1. Four motion sensors.
        2. Two concealed magnetic switches and magnets.
        3. Two magnetic switches and magnets for roof hatches.
        4. Four Popits.
     3. Three (3) complete sets of As-Built plans with all Alarm Point of Protection devices and point numbers listed.
     4. Two CD’s containing: As-builts, Owner Manuals and Warranties per this specification section. CD is to have an index identifing all items on the CD.

END OF SECTION