BSD Technical Standard
Division 28: Electronic Safety and Security

1. PURPOSE

This is the Beaverton School District (BSD) Technical Standard for Division 28 Electronic Safety and Security. This document, in coordination with BSD's Educational Specifications and Technical Standards, outlines the minimum acceptable standards of products, materials, systems, and documentation of design and construction for District facilities. The BSD Technical Standards are not project specifications and will not be accepted as unedited project specifications.

2. GENERAL

2.1. RELATED TECHNICAL STANDARDS

2.1.1. Coordination with other divisions is required, including but not limited to the following:

2.1.1.1. Division 8 – Door hardware, including ADA operators, that are monitored or controlled by the access control system.

2.1.1.2. Division 26 – Power source connections to equipment, surge protection, power supplies for electrified panic hardware, ADA operators, and access control headend equipment, wiring and installation.

2.1.1.3. Division 27 – Wiring and installation; integrate with paging system for VOIP telephones on network, BSD mass notification public announcement systems, text and audio announcements, clock and bell schedule management system.

2.1.1.4. Technical Standards Appendix A for Category Cabling (5e, 6, 6a)

2.1.1.5. List of Brand Name Products as approved via School Board Resolution 14-409 in accordance with ORS 279c.345.

2.2. AS-BUILTS FOR ELECTRONIC SAFETY AND SECURITY

2.2.1. Contracted firms shall provide shop drawings for construction of their designated systems, as well as complete and accurate final as-built drawings containing graphics and information necessary for control and operation of the systems including, but not limited to plans of the system design with correct room numbers and device locations, identification and numbering, as well as schematics, wiring diagrams, schedules, etc.

2.2.2. Throughout installation, contractor shall redline drawings to record changes or additions, and these changes shall be incorporated into the contractor's final as-built set. Drawings shall be available to BSD and A/E to verify.

2.2.3. As-built drawings are required prior to substantial completion for use in commissioning. Provide corrected as-builts in PDF and DWG format.

2.2.4. Access Control, Intrusion, and Video Surveillance System As-Builts - Provide to District

Representative and BSD Public Safety Office for review and approval.

2.2.5. Label intrusion devices with “BA-” and the burglar alarm point on the District’s remote programming software (RPS). (Ex. BA-42) Coordinate with BSD Public Safety Office for point numbers of existing devices.

2.2.6. Fire-Alarm As-Builts – Provide one printed hard copy delivered to location on site designated by District Representative.

2.3. WARRANTIES FOR ELECTRONIC SAFETY AND SECURITY

2.3.1. Provide 3-year warranty for equipment, manufacturer installation, and labor unless otherwise stated.

2.4. TRAINING FOR ACCESS CONTROL, SURVEILLANCE, AND INTRUSION ALARM SYSTEMS

2.4.1. Contractor shall provide training to District personnel including, but not limited to, how to monitor status readouts and history logs of systems, video surveillance management, required maintenance, and troubleshooting.

2.4.2. Training will also include the review of complete as-built drawings, operation and maintenance (O&M) manuals, contact names and phone numbers for factory support.

2.4.3. Provide minimum 1-day training session for School Staff. Provide the following training sessions for Maintenance and Public Safety Staff:

2.4.4. Minimum 1-day session during commissioning to include software as well as system training

2.4.5. Minimum 1-day session post commissioning

2.4.6. Minimum 1-day session three (3) months after building opens

2.4.7. Minimum 1-day session eleven (11) months from commissioning

2.5. POWER SOURCES FOR ACCESS CONTROL

2.5.1. Power supplies shall be compatible with the access control equipment installed. Provide a quick disconnect (male/female connection) on the primary side of the device’s transformer. Provide Altronix eFlow series or approved equivalent.

2.5.2. Input: 120VAC, 60Hz 3.5A input.

2.5.3. Output: Power limited outputs, 2A continuous supply current, filtered and electronically regulated, over-voltage protection, 12V/24V selectable output voltage

2.5.4. Battery Backup: Built-in charger for sealed lead acid or gel type batteries. Automatic switch over to stand-by battery when AC fails. Transfer to stand-by battery power is to be instantaneous with no interruption (UL 924).

2.5.5. Supervision: Low Power Shutdown/Disconnect shuts down DC output terminals if battery voltage drops to operating voltage that can be damaging to card readers. Refer to “Low Voltage Protection on Smart Card Readers Technical Note” PLT-02604, Rev. A.1. May 2016 issued by HID Global or most current revision at time of product procurement. No external module to be used, only the onboard power supply function for this feature.

2.5.6. Power Supplies for Electrified Panic Hardware: Design to minimize the quantity of power

supplies used, maximum of eight doors per power supply, centrally located. Size wiring from power supply to electrified panic hardware based on length of wire per manufacturer's recommendation. Do not install equipment above doors. Provide Von Duprin PS914 with battery backup or approved equivalent.

2.6. SURGE PROTECTION FOR ELECTRONIC SAFETY AND SECURITY

2.6.1. Protect components from voltage surges from external origin to equipment housing that may enter through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor-entry connection to components.

2.7. SURGE PROTECTION FOR ACCESS CONTROL

2.7.1. Provide power/signal line surge protection for wiring from access control panels/power supply to card reader. Ditek or approved equivalent.

2.7.2. Provide low power disconnect power supplies to prevent damage to end point devices, such as card readers, due to power outage conditions. Follow end point device manufacturer's recommendation for protection of devices and equipment. Altronix or approved equivalent.

2.7.3. Provide surge protection for circuits powering access control power supplies and power supplies for electrified panic hardware. Surge protection to be provided on the primary side of the equipment. Minimum requirements:

2.7.3.1. Service Voltage: 120VAC – Single phase (2W+G)

2.7.3.2. MCOV: 130V

2.7.3.3. Protection modes: L-G, L-N, N-G

2.7.3.4. Voltage Protection Rating: 700V L-N, L-G; 600V N-G

2.7.3.5. Surge Current Rating: 18000A

2.7.3.6. Ditek DTK-120HWLOK is basis of design product

2.8. NETWORK COMMUNICATIONS POE SWITCHES

2.8.1. BSD provides network switches that provide POE to end devices at Class 6 POE, 60w or below.

2.9. FASTENERS AND BACKBOARDS FOR ELECTRONIC SAFETY AND SECURITY

2.9.1. Tamper-resistant fasteners: Use only stainless-steel screws with approved head design for exposed fasteners on security system devices and equipment in unsecured interior areas and outdoors.

2.9.2. Corrosion protection: All materials including bolts, straps, and screws shall be inherently corrosion resistant or protected against corrosion by corrosion-resistant materials approved for the purpose.

2.9.3. Mounting backboards: Install interior wall mounted equipment on mounting backboards. Provide 3/4" fire retardant treated plywood, or paint exposed surfaces of 3/4" plywood with two coats light gray fire-retardant sealant/primer.

2.10. COMMISSIONING OF ELECTRONIC SAFETY AND SECURITY

2.10.1. Consult District Representative for project commissioning needs for access control, video surveillance, and security detection, alarm, and monitoring.

2.11. SCHEDULES FOR ELECTRONIC SAFETY AND SECURITY

2.11.1. Schedules for Security Detection, Alarm, and Monitoring

2.11.2. See Table 1 for control point association. BSD may select additional points to accommodate site operation and use.

TABLE 1: CONTROL POINTS BY LOCATION

Location	Contact Switches	Motion Sensors	Outputs
Security Panel			Refer to Control Matrix
Designated Entry Doors	Door Switch		
Other Exterior Doors	Door Switch		
Roof Hatches	Door Switch		
First Floor Rooms with Windows on Exterior Wall		Mount sensor by window at opposite end of room from door to look into the room and along window	
First Floor Classrooms with Windows on Exterior Wall		Mount sensor by window at opposite end of room from door to look into the room and along window	
Corridors / Hallways		Provide adequate sensors to allow for any movement	
Computer Labs		Provide even if interior space	
Gyms		Use large coverage sensor – with guard	
Cafeteria		Use large coverage sensor	
Offices		Coordinate internal point locations with owner	

3. ACCESS CONTROL

3.1. GENERAL REQUIREMENTS FOR ACCESS CONTROL

3.1.1.Contractor Requirements

3.1.1.1. Bid documents shall require submittal to include the number of qualified personnel provided for the work and copies of professional certifications as required below. All certified personnel to be based in Portland metro area.

3.1.1.2. For database and programming provide minimum two Lenel certified experts (LCE).

3.1.1.3. For field hardware application and installation provide minimum of two Lenel certified professionals (LCP).

3.1.1.4. For field installation provide appropriate number of Lenel certified associates (LCA). LCP to verify LCA work, including proper termination in field hardware and wiring.

3.1.2.Installer Qualifications

3.1.2.1. Employees must be trained and certified by manufacturer.

3.1.2.2. Employer must be a value-added reseller (VAR) certified by the manufacturer.

3.1.2.3. Minimum of five (5) years verifiable experience successfully completing jobs of similar nature.

3.1.2.4. Throughout the project there must be at least one employee in the Portland area with Lenel Expert and Professional certification, or with Oregon Class A limited energy license.

3.2. ACCESS CONTROL SYSTEMS

3.2.1.System Requirements for Access Control Systems

3.2.1.1. Provide Lenel, no exceptions per List of Brand Name Products (section I.A.1.e).

3.2.1.2. The system shall include, but not be limited to, a system controller, input control modules, output control modules, reader interface modules, IP Network connectivity.

3.2.1.3. Develop, install, and test software and hardware to ensure the complete and proper operation of systems. Prior to system programming, verify programming specifics with BSD Representative for each school.

3.2.1.4. Install equipment in central locations, preferably IT frame rooms. Install a single master controller and all downstream controls for access control in the centralized location for the headend (not applicable to card readers).

3.2.1.5. Do not install control boards or controls outside, with the exception for card readers.

3.2.1.6. Do not install equipment above doors that are controlled by access control controllers or power supplies.

3.2.2.VOIP Interface

3.2.2.1. Provide interface module and fully integrate District's VOIP phone system (Mitel) to the access control system to program Lockdown/Secure initiation from the District's VOIP handsets.

3.2.2.2. Provide Stentofon TKIS-2, minimum two per school. Locate with access control system headend.

3.2.3.ADA Interface

3.2.3.1. All ADA operators identified by BSD, whether new or existing, shall be integrated with access control system for proper operation of systems.

3.2.4.Secure and Lockdown Programming

3.2.4.1. Program Secure and Lockdown functions to be initiated by pressing physical buttons on Mitel phones integrated with VOIP Interface, or in instance of phone system failure, by pressing wall-mounted pushbuttons located in the office.

3.2.4.2. SECURE – safeguard people within the building.

3.2.4.2.1. All exterior and identified access-controlled doors to go into a locked state.

3.2.4.2.2. All programmed schedules are disabled.

3.2.4.2.3. ADA controllers specified by BSD are disabled.

3.2.4.2.4. All card readers placed into card only mode.

3.2.4.2.5. Reset Secure: Resetting the Secure to be done by BSD Public Safety Office's Lenel Alarm Monitoring software.

3.2.4.2.6. When the Secure is reset, doors return to their schedule reader mode and locked state.

3.2.4.3. LOCKDOWN – secure individual rooms and keep occupants in place.

3.2.4.3.1. All interior and other doors identified by the district shall be placed into a locked position.

3.2.4.3.2. ADA controllers specified by BSD are disabled.

3.2.4.3.3. Request to exit (REX/ RTE) devices are disabled.

3.2.4.3.4. Reset Lockdown: Resetting the Lockdown to be done by BSD Public Safety Office's Lenel Alarm Monitoring software.

3.2.4.3.5. When the Lockdown is Reset, doors return to their schedule reader mode and locked state.

3.3. ACCESS CONTROL HARDWARE

3.3.1.Access Control Door Controllers

3.3.1.1. For door hardware required to be monitored or controlled by the access control system, coordinate and comply with BSD Technical Standards Division 8 Door Hardware requirements.

3.3.1.2. Electrical characteristics of controllers shall match the signal and power requirements of door hardware.

3.3.1.3. Request-to-Exit Devices (RTE/REX): Bosch, no exceptions per List of Brand Name Products (section I.A.1.e).

3.3.1.4. Door Position Switches: Sentrol DPDT switch or approved equivalent.

3.3.1.5. Electric Door Strikes: Use end-of-line resistors to provide power-line supervision. Signal switches shall transmit data to controller to indicate when the bolt is not engaged and the strike mechanism is unlocked, and they shall report a forced entry. Power and signal shall be from the controller.

3.3.1.6. Electric Strikes: Von Duprin, no exceptions per List of Brand Name Products (section I.A.1.e). Fail secure feature, BHMA A156.31, Grade 1, with faceplate to suit lock and frame. No surface mounted strikes.

3.3.2. Card Readers

3.3.2.1. The card reader shall read proximity cards in a range from direct contact to at least 6 inches from the reader. Mount on walls with covers.

3.3.2.2. Do not install on or behind doors, or on door frames. If not possible due to site conditions, get approval from the district for acceptable locations.

3.3.2.3. Provide HID, no exceptions per List of Brand Name Products (section I.A.1.e).

3.3.2.4. Cover exterior card readers to protect against weather and damage, use 16ga steel shroud model Hood-CS-4.5x61 or approved equivalent.

3.3.3. Access Control Cards

3.3.3.1. Proximity cards are iClass cards, provided by BSD, no exceptions per List of Brand Name Products (section I.A.1.e).

3.3.4. Audio Video Intercom (IP) Entry Systems

3.3.4.1. Front entrances shall be equipped with a camera intercom entry system.

3.3.4.2. Use IP based Aiphone Door Station Camera Intercom System Model IX or approved equivalent.

3.3.5. Hardwire all workstations

3.3.5.1. Provide additional 10’ of serviceable loop at each workstation location

3.3.6. Remote trigger for access and lock control

3.3.6.1. Green pushbutton to override intercom office door in case of system failure. Match type and locate with Secure and Lockdown pushbuttons.

3.3.7. Secure and Lockdown Controls

3.3.7.1. Pushbuttons – Provide wall-mounted, hard-wired pushbuttons, one of each color: green, red, and blue. Verify location per site.

3.3.7.1.1. Red: Assign to Lockdown programming

3.3.7.1.2. Blue: Assign to Secure programming

3.3.7.2. LEDs – Provide two LEDs, one of each color: red and blue. Wall or ceiling mounting to be determined per site. Hard wire so that LED on provides visual indication that Secure or Lockdown is active.

3.3.7.2.1. Red: Assign to Lockdown programming

3.3.7.2.2. Blue: Assign to Secure programming

3.3.7.3. Provide programmable relays for multi-output signaling when Secure or Lockdown is initiated, with the following outputs:

3.3.7.3.1. Secure LED activate.

3.3.7.3.2. Access control system

3.3.7.4. Strobes – Provide red and blue flashing strobes, 24V AC/DC, minimum light output 20 candela, flash rate 60 fpm. Edwards 89 Series Xenon or approved equivalent. Wall or ceiling mount at entrances, covered play, cafeterias, and gyms. Number and locations determined per site. Provide weather protection cover on exterior strobes.

3.3.7.4.1. Red: Assign to Lockdown programming

3.3.7.4.2. Blue: Assign to Secure programming

4. VIDEO SURVEILLANCE

4.1. GENERAL

4.1.1.Qualifications, Certifications

4.1.1.1. Bid documents shall require submittal to include number of system engineers and technicians provided for the work, as well as copies of profession certifications as described below.

4.1.1.2. Contractors must be a Certified Dealer and Value-Added Reseller (VAR) for Milestone.

4.1.1.3. For system engineers, provide minimum two engineers with current Milestone Certified Integration Engineer certification.

4.1.1.4. For technicians, provide minimum two technicians with current Milestone Certified Integration Technician certification and current Class A Limited Energy License (LEA).

4.1.2.Warranties

4.1.2.1. 5-year Milestone support license

4.1.2.2. 3-year manufacturer warranty for all cameras

4.2. SURVEILLANCE CAMERAS

4.2.1.Analog Camera

4.2.1.1. Analog cameras are not compatible with the District system and will not be accepted.

4.2.2.IP Cameras

4.2.2.1. Provide IP cameras from Samsung or approved equivalent meeting the following specifications.

4.2.3.Single-Sensor Cameras

4.2.3.1. Supports 5MP

4.2.3.2. Single lens providing the following resolutions: 16:9 aspect ratio: 2560x1440, 1920x1080, 1280x720, 800x448, 640x360

4.2.3.3. Supports H.265; H.265 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously; H.265 - maximum 30 fps at all resolutions.

4.2.4. Dual-Sensor Cameras

4.2.4.1. Supports 5MP

4.2.4.2. Multi-directional camera with two lenses providing the following resolutions: 16:9 aspect ratio: 2560x1440, 1920x1080, 1280x720, 800x448, 640x360

4.2.4.3. Supports H.265; H.265 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously; H.265 - maximum 30 fps at all resolutions.

4.2.5. Quad Multi-Sensor Cameras

4.2.5.1. Supports 5MP lenses for each sensor

4.2.5.2. Able to configure various resolution selections: 2560x1920, 2560x1440, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240

4.2.5.3. Supports 30 fps; H.265 and MJPEG compression, each derived from a dedicated encoder and capable of streaming independently and simultaneously; H.265 - maximum 30 fps at all resolutions

4.2.5.4. Uses Varifocal Lenses (20MP fixed); Lens: Focal length 4.13 ~ 9.4mm (2.3x) Motorized Varifocal

4.2.5.5. Supports PTRZ Lenses and Remote Adjustment of the camera shall support Pan/Tilt/Rotate through Remote adjustment by 200 cycles.

4.2.5.6. Supports advanced digital image stabilization with a built-in gyro sensor. The camera shall be able to measure movements in three axes and accurately enhance images from distortions caused by instability.

4.2.6. Outdoor and Indoor Dome Quad Multi-Sensor Cameras

4.2.6.1. Supports 5MP to 6MP Resolution with WDR

4.2.6.2. Able to configure various resolution selections: 16:9 aspect ratio: 3328x1872, 3072x1728, 2688x1520, 1920x1080, 1280x720, 800x448, 640x360

4.2.6.3. Supports H.265 at 30 FPS with WDR enabled; H.265 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously; H.265 – frame rates to maximum 30 fps (60 Hz) / 25 fps (50 Hz) at all resolutions

4.2.6.4. Motorized remote zoom/focus lens

4.2.6.4.1. Lens: 2.8 ~ 8.4 mm(3x) motorized varifocal

4.2.6.4.2. Max. Aperture Ratio: F1.2 (Wide) ~ F2.8 (Tele)

4.2.6.4.3. Angle of View: H: 114° ~ 40.2° / V: 62.0° ~ 22.5° / D: 133.0° ~ 46.3°

4.2.6.4.4. Focus Control: Simple focus (Motorized Varifocal), Remote control via network

4.2.6.4.5. Lens Type: DC auto iris, P-Iris

4.2.6.4.6. Mount Type: Board-in Type

4.2.6.5. Modular design for ease of support and ability to upgrade

4.2.7. Analytic Packages for IP Cameras

4.2.7.1. Cameras shall have a suite of integral intelligent operations and analytic functions including

4.2.7.2. Motion detection with 8 definable detection areas with 8 point polygonal zones, and minimum/maximum object size.

4.2.7.3. Detection of logical events of specified conditions from the camera's video: Defocus detection

4.2.7.3.1. Fog detection

4.2.7.3.2. Directional detection

4.2.7.3.3. Motion detection

4.2.7.3.4. Digital auto tracking

4.2.7.3.5. Appear/disappear

4.2.7.3.6. Enter/exit

4.2.7.3.7. Loitering

4.2.7.3.8. Tampering

4.2.7.3.9. Virtual line

4.2.7.3.10. Shock detection

4.2.7.3.11. Face/upper body detection

4.2.8. Installation

4.2.8.1. For cameras installed on poles or away from building, provide a fiber cable to a single input on a media convertor.

4.2.8.2. Copper underground cable is not allowed without BSD approval.

4.3. VIDEO MANAGEMENT SYSTEM

4.3.1. Provide software compatible with the District's Milestone Video Management System (VMS) IP video surveillance system described below. Assign software licenses to BSD.

4.3.2. Software can view cameras locally and from any location on BSD network.

4.3.3. Client viewing software uses active directory for user sign on.

4.3.4. Appliance (server) based recording with network management capabilities

4.3.5. Recorders are located at BSD data centers.

4.3.6. Sites are based on 16 camera recording capacity at minimum. Sites exceeding the 16-camera minimum are designed according to quantity of cameras to be recorded.

4.3.7. Design shall confirm BSD servers are sufficient to meet project needs. Coordinate with District Representative.

4.3.8. Design shall provide a location for end-user computer station for viewing cameras. Computer is owner furnished and installed. Coordinate with District Representative.

5. SECURITY DETECTION, ALARM, AND MONITORING

5.1. BUILDING INTRUSION DETECTION

5.1.1. The building intrusion detection system shall be capable of reporting and communicating alarm or trouble event data by reporting to one, two, three, or four off-site remote systems via dial-up and IP dialer. Provide Bosch Intrusion Alarm System.

5.1.2. Wireless sensors are not accepted.

5.1.3. Controller: Bosch, Model 9412G Series or most current model

5.1.4. Keypad: Bosch, Model D1260 or most current model

5.1.5. Motion Detectors: Bosch, ISC-PPR1-W16 or most current model. They shall have all functional device lighting / alert features activated. They shall be labeled with a number which can be read when standing at ground level. The number on the device shall match that on the point map and on the as-built drawings.

5.1.6. Door Contacts: Bosch ISN-CTC75 or most current model. Meet both intrusion and access control operation: provide DPDT, Interlogix UTC 1078/1076 Series door contacts, or approved equivalent.

6. LIFE SAFETY

6.1. FIRE DETECTION AND ALARM

6.1.1. Fire-Alarm System

6.1.1.1. Provide addressable system, supervised 2-wire, Class B initiating and indicating circuits, programmed, and functional Fire Alarm System. Integrate sub-systems, such as an Ansul system for Type I hoods, so that activation triggers the main building fire alarm and notification system.

6.1.1.2. For remodels, additions, or other projects requiring the expansion of existing fire alarm systems, provide the enhancements necessary to meet these requirements and fully integrate into existing system.

6.1.1.3. Design to be provided by electrical engineering firm as contracted by A/E. Design in compliance with all required codes and regulations, including but not limited to, local codes, Oregon Structural Specialty Code (OSSC), National Fire Protection Agency (NFPA), Oregon Fire Code (OFC), and the International Fire Code (IFC). Initial design must be reviewed and approved by local AHJ prior to being released for public bid. Any conflict with BSD Technical Standards must be identified and addressed.

6.1.1.4. CAT 6 cabling to follow Appendix A: Category Cabling (5e, 6, 6e).

6.1.1.5. Label junction boxes and pull boxes. Legibly write on the cover with indelible ink pen the circuits contained in each box. Covers for all boxes containing fire alarm circuits shall be painted red.

6.1.1.6. Provide a complete test of the fire-alarm system including all initiating devices and notification devices. Provide a written report of the testing. Provide all testing as required by the permitting jurisdiction.

6.1.2. Fire-Alarm Control Panel

6.1.2.1. Provide Simplex systems, no exceptions per List of Brand Name Products (section I.A.1.e). The District currently has trained personnel, software, and hardware keys for Simplex 4100, 4100U, 4020, and 4010 Fire Alarm Control Panels (FACPs).

6.1.2.2. The system shall have a minimum of four facility specific control keys. These can be used to bypass items such as door holders, audible devices, and HVAC systems.

6.1.2.3. The system shall have the ability for District personnel to disable/enable addressable points, relays, control points, and notification circuits without the use of a laptop or system specific control keys.

6.1.2.4. The system shall have the ability to report trouble, supervisory, and fire alarm point device to a central monitoring station via a Single Communications Path (IP Dialer). If redundant communication paths are required by the Authority Having Jurisdiction, follow Multiple Communications Paths per NFPA. (For example, IP Dialer and one of the following: Analog Phone Line or Cellular Communicator.)

6.1.2.5. The FACP shall never be installed in a master and slave configuration. However, they can be networked together in a manner so that they appear to operate as a single system for both operation and programming.

6.1.2.6. The systems shall have separate alarm and trouble logs with a minimum of 200 events total.

6.1.2.7. Detector and control devices shall be addressable only using dipswitches.

6.1.3. Fire-Alarm Initiating Devices

6.1.3.1. Duct smoke detection sensors shall be addressable, photoelectric duct detectors with remote indicator and test key switch.

6.1.3.2. Mount test key switch with ceiling or wall mount in a public area near duct detector in readily accessible location.

6.1.3.3. Detector devices shall be addressable only using dipswitches.

6.1.3.4. Label initiating devices with circuit ID - device number. (ex. M## - ###)

6.1.4. Fire-Alarm Notification Appliances

6.1.4.1. Provide Simplex for all notification and annunciation components of the system. No substitutions.

6.1.4.2. Label notification devices with panel ID - NAC circuit number - device number. (ex. P## - N## - ##)

REVISION HISTORY

Note: **Bold** indicates new text; ~~strikethrough~~ indicates removed text; plain text indicates unchanged text; *italics* indicate summarized information.

Rev 2: 6/13/16

Section	Section Title	Revision
n/a	n/a	*Complete rewrite of Division 28: Electronic Safety & Security*
n/a	n/a	*Added HID Card Reader, Milestone Video Management System (software), Milestone Husky Video Surveillance System (hardware), Model M50, 16TB HD, and Axis Communications Network Door Station Camera Intercom System, Model A 8004-VE to Brand Name Approvals*

Rev 3: 4/30/17

Section	Section Title	Revision
IX.	IP BASED OVERHEAD PAGING	*Changed basis of design to Rauland IP based*

Rev 4: 4/30/18

Section	Section Title	Revision
II.E.	GENERAL; NETWORK	**Network switches will be provided by the District. All other network associated components called out in the bid documents are to be provided under contract. See the Technical Standards Appendix A for Category Cabling (5e, 6, 6a).**

Rev 5: 12/31/18

Section	Section Title	Revision
III. I.	Control Point Locations (Table 1)	*Modified Table 1 alarm point requirements in offices*
V.	CAMERA INTERCOM SYSTEM	*Removed brand name callout, updated approved mfr; modified requirements; reorganized per CSI MasterFormat*
VI.	VIDEO SURVEILLANCE	*Removed surveillance camera brand name callout; modified VMS callout; reorganized per CSI MasterFormat*
VIII. A.	FIRE DETECTION & ALARM: GENERAL	*Add duct smoke detection requirements; reorganized per CSI MasterFormat*

Various	Various	*Removed broken links from Brand Name Products footnote*

Rev 6: 11/19/2022

Section	Section Title	Revision
All	All	*Reorganized for better alignment with CSI MasterFormat, added Table of Contents, changed headers & footers, various edits for clarity*
All	All	*Incorporated Tech Standards Feedback comments, GDSR-97*
All	All	*Incorporated Public Safety Dept. updates: installer qualifications, surveillance camera specs, POE switches, secure and lockdown programming & devices, control equipment locations, Table 1, et al.*

Rev 7: 04/18/2025

Section	Section Title	Revision
IV.	Security Detection, Alarm, and Monitoring	*Delete B. Intrusion Alarm and Lighting Control Integration*
All	All	*Renumbered all sections of the Technical Standard; included other minor formatting and edits for clarity.*