SECTION 28 00 00

SECURITY SYSTEMS ENGINEERING GUIDELINES

PART 1 - GENERAL

1.1 DEFINITION OF INTENT

A. This section is intended to provide general information and guidance on the overall system architecture of the security systems deployed at Dartmouth College for contractors directly working for, or consultants designing a new building for Dartmouth College.

B. In addition to the information provided herein, the consultant or contractor shall reference the following specification sections as appropriate for the project.

1. Section 28 05 00, Common Work Results for Electronic Security.
2. Section 28 05 13, Conductors and Cables for Electronic Security.
3. Section 28 05 28, Pathways for Electronic Security.
4. Section 28 08 00, Commissioning of Electronic Security.
5. Section 28 10 00, Access Control.
6. Section 28 20 00 Video Surveillance.
7. Section 28 31 00 Intrusion Detection.

1.2 OVERVIEW OF SYSTEMS

A. Dartmouth College (DC) security management systems currently consist of an Access Control System (ACS), Intrusion Detection Systems (IDS) and Video Surveillance Systems (VSS).

B. The current system implemented for access control is Lenel OnGuard using HID proximity card readers. This current system is currently slated to be replaced and the access control functions integrated into the Dartmouth CBORD CS Gold system. To support this transition, all new Mercury controllers installed will be Series 3 and all new card readers will be OSDP V2 HID Signo Smart Card readers with Bluetooth LE and NFC capabilities.

C. Intrusion Detection Systems currently used are either Bosch or Ademco. Bosch IDS controllers are currently integrated into the Lenel OnGuard platform via a network interface. Ademco controllers are integrated via output boards connected to input boards on the Lenel system Mercury controllers. The future CBORD CS Access does not support network-based integration of the Bosch IDS control panels, therefore for all newly installations the intrusion detection integration will have to be provided as hardwired output to input links.

D. The currently used Video Surveillance System is a Tyco Exacq IP based Video Management System (VMS) using Axis or Sony PoE IP cameras. The existing Exacq VSS is not integrated with the ACS or IDS. Dartmouth is currently evaluating options for VSS integration with CS Access/CS Gold. Until the final selection is made, all video cameras and recording server hardware will need to be an expansion of the existing ExacQ VMS.

1.3 DESIGN DIRECTIVES

A. Design Review Meeting:

1. During the Schematic Design phase of the project, the contractor or consultant shall meet with the designated representative of Safety and Security, departmental representatives, and FO&M Access Control Shop Supervisor to review access control system, video surveillance, and intrusion detection requirements for the project. The function of the system will be reviewed at this meeting with the contractor or consultant to gain an understanding of how the system will work. The spatial considerations for the system shall be identified and located.

1.4 ACCESS CONTROL SYSTEMS

A. Access Control System panels shall be provided with a dedicated secured room if possible. Access Control equipment room requirements:

1. Dedicated 120V-20A circuits to each access controller.
2. Terminate power inside access control enclosure 120VAC connection point.
3. Sufficient lighting shall be provided to allow 60 fc lighting level on the panels.
4. Temperature control between 50-75 degrees Fahrenheit.
5. Humidity control: noncondensing.

B. Back-up power will be provided for the security system components as follows:

1. If available, all security system components shall be provided with power from optional standby circuits that are backed-up from via an onsite engine-generator set:

2. The following security system components shall be provided with uninterruptable power supply systems:

   a) Security system servers (including those for the intercom, ACS, IDS, and VSS systems).
   b) Security system workstations (including those for the ACS, IDS and VSS systems).
   c) Security network switches.

3. The following security system components will be provided with either battery back-up or uninterruptable power supply systems:

   a) Access control system (ACS) controllers, card reader modules, input/output boards and network interface boards.
   b) IDS controllers, input/output modules, and network interface boards.

4. Sufficient battery will be provided to maintain the system in an operational mode for 8 hours or as determined during the design review meeting.

C. Exterior doors:

1. The intent is to monitor / control all exterior doors through the Access Control System. Card readers and/or exit only alarm monitoring will be provided on all exterior doors.
2. Where card readers are installed at exterior doors, at least one main door shall have a phone placed at the doorway. Refer to Section 10 17 00 - Telephone Specialties, for details.

D. Interior doors:

1. Telecommunication rooms.
2. Additional access control for interior doors will be as identified by Dartmouth College for each specific project.
3. Interior doors are not required to provide for alarm function but may include such function if requested.

E. Typical access-controlled door system door includes:

1. A Request to Enter Device (CR).
2. A Request to Exit device (REX).
3. An electrified locking device with integrated RX switch and as applicable a manufacturer's recommended power supply.
4. A Power Transfer Device (EPT).
5. A local audible device (PIEZO).
6. A Door Position Switch (DPS).
7. An interface to a door power operator (as applicable)

F. All door devices cables shall be gathered in a junction box and extended back to an access control panel (ACP), typically to be located in the telecommunication room. Each door shall be independently cabled back to the access control panel in a "Star Configuration".

G. Wireless access control shall only be considered in buildings as a last resort given the following criteria:

1. All proposed systems require review and approval at a mandatory Access Control Design Review Meeting (see below)
2. Wireless network locks shall be considered for interior space renovation.
3. Wireless networked card reader locks shall be used for dormitories.

H. Each Access Control Panel (ACP) shall include:

1. Power supplies and power distribution boards with intelligent monitoring function and Mercury controllers in a unified single enclosure.
2. Cabinet tamper alarm monitoring.
3. An interface to the building fire alarm system.
4. A connection to the Dartmouth College access control VLAN. Two data drops to each access control cabinet.
5. Cabinet tamper alarm monitoring.

1.5 INTRUSION DETECTION SYSTEMS

A. Intrusion detection shall be applied to provide protection of persons and assets as required for each building.

B. Intrusion Detection System (IDS) control panels must be IP Addressable panels.

C. The IDS shall be integrated with the access control system via zone based hard wired I/O linking.

1. Intrusion Devices:
   a) Glass break sensors and/or dual technology motion detectors shall be provided where directed by DC in all rooms that have exterior glass up to 18 feet above finished grade.
   b) Manually operated duress devices shall be provided at all Point-of-Sale locations, reception desk, or locations otherwise directed by the Owner.

c) Door position switches for IDS will be shared with the Access Control System.
d) Photoelectric Beam detectors at locations where directed by the Owner.
e) Alphanumeric keypads shall be provided at locations where directed by the Owner.

1.6 VIDEO SURVEILLANCE SYSTEMS

A. Video Surveillance shall be provided to provide surveillance of persons and assets as required.

1. Cameras shall be compatible with the ExacqVision Video Management Software platform. AXIS cameras are the preferred product.
2. Network recorders are installed at the University's Data Center. All server hardware, provisioning of IP addresses and storage is provided by the University's IT Department. Contractor shall be required to provide software licenses for each camera.

TYPICAL DIAGRAMS

List of current installation details:

ACS Door Details	Description
ACS-GEN1	General Requirements
ACS-GEN2	Typical Door Contact
ACS-GEN3	Typical Access Control Panel
ACS-S1	Door Type S1 – Emergency egress only single door
ACS-S2	Door Type S2 – Egress only single door with RX motion/piezo
ACS-S3	Door Type S3 – Egress only single door with RX in hardware and local alarm sounder.
ACS-S4	Door Type S4 – Access controlled single door with electric mortise lock and optional local alarm sounder
ACS-S5	Door Type S5 – Access controlled single door with electrified exit device, optional local alarm sounder and door operator
ACS-S6	Door Type S6 – Access controlled single door with magnetic lock
ACS-S7	Door Type S7 – Access controlled single door with delayed egress exit device and free egress
ACS-S8	Door Type S8 – Access controlled single door with delayed egress exit device and card in/out
ACS-S9	Door Type S9 – Access controlled single door with electric strike, optional door operator and local door alarm sounder
ACS-D1	Door Type D1 – Emergency egress only double door
ACS-D2	Door Type D2 – Egress only double door with RX motion/piezo
ACS-D3	Door Type D3 – Egress only double door with RX in hardware and local alarm sounder
ACS-D4	Door Type D4 – Access controlled double door with electric mortise lock and local alarm sounder (optional)
ACS-D5	Door Type D5 – Access controlled double door with electrified exit device, options local alarm sounder and door

	operator
ACS-D6	Door Type D6 – Access controlled double door with magnetic lock
ACS-D7	Door Type D7 – Access controlled double door with delayed egress exit device and RX
ACS-D8	Door Type D8 – Access controlled double door with delayed egress exit device and card in/out
VSS Camera Details	**Description**
VSS-GEN1	General Requirements
VSS-CFM	Typical Flush Ceiling Mounted Camera
VSS-CSM	Typical Surface Ceiling Mounted Camera
VSS-WSM	Typical Surface Wall Mounted Camera
VSS-WPM	Typical Wall Pendant Mounted Camera
VSS-WPM	Typical Ceiling Pendant Mounted Camera
VSS-CRM	Typical Corner Mounted Camera
IDS Device Details	**Description**
IDS-GEN1	General Requirements
IDS-MD1	Typical Ceiling Mounted Motion Detector
IDS-MD2	Typical Wall Mounted Motion Detector
IDS-GB1	Typical Ceiling Mounted Glassbreak Detector
IDS-KP	Typical IDS keypad
IDS-CP	Typical IDS Control Panel
IDS-DB	Typical IDS Duress Button

END OF SECTION 28 00 00