

SECTION 28 10 00**ACCESS CONTROL****PART 1 - DESIGN DIRECTIVES****1.1 OVERVIEW**

- A. The access control, surveillance, and intrusion detection system implemented for use at Dartmouth College is a Lenel International Systems, Inc HID proximity card system and all parts and components shall be compatible with this system. The Dartmouth campus has a variety of structures with a variety of uses making blanket statements misleading. However, a typical system includes:
1. Typical access-controlled door system includes:
 - a. A Request to Enter Device (CR)
 - b. A Request to Exit device (REX)
 - c. An Electronic Locking Device (EL) with manufacture's recommended power supply
 - d. An Electronic Power Transfer Device (EPT)
 - e. A local audible device (PIEZO)
 - f. A Door Position Switch (DPS)
 - g. An Access Control Panel (ACP) composed of appropriate devices and power supplies
 2. An access-controlled door system may include:
 - a. An interface to the building fire alarm system
 - b. An interface to a door power operator
- B. All of the above are linked together electronically, door device cables are gathered in a junction box and run back to a central location in the building where they are connected to an access control panel (ACP).
- C. Interior doors: Access control for Interior doors will be identified by Dartmouth College
- D. Exterior doors: The intent is to monitor through the Access Control system all exterior doors. Access Control (either card readers or exit only alarm monitoring) will be provided on all exterior doors.
- E. A connection to the Dartmouth College access control VLAN
1. In extreme circumstances DSL and Dial-up connections are possible
 2. DSL and Dial-up redundant communication if required
- F. Intrusion detection shall be applied to provide protection of persons and assets as required.
- G. Digital CCTV systems shall be applied to provide surveillance of persons and assets as required.

- H. 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 will be considered for interior space renovations

1.2 DESIGN CRITERIA

- A. Design Review Meeting: During the Schematic Design phase of the project, the consultant(s) shall meet with the designated representative of Safety and Security, departmental representatives, and FO&M Access Control Shop Supervisor to review access control system, surveillance, and intrusion detection needs for the project. The function of the system will be reviewed at this meeting with the consultants to gain an understanding of how the system will work. The spatial considerations for the system shall be identified and located.
- B. For pathway requirements, refer to DC Standards 26 00 10 Basic Electrical Requirements, 26 05 33 - Raceways and Boxes for Electrical Systems, and 26 05 32 - Cabinets, Boxes and Fittings. All wiring shall be in conduit or cable tray.
- C. Where power operated doors are utilized, they will be integrated as in the Detail "lcn4600.pdf. When power operator does not have integration capability, a BEA br3 or approved equivalent will be used.
- D. 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.
- E. The consultant, in conjunction with DC representatives, shall determine the number of events anticipated for 6 – 8 hours of battery back-up. If the building is served by an emergency generator, the access control system shall be powered from backup power system.
- F. Door Alarm sequences
 - 1. All exterior access-controlled doors shall provide for Forced and Held door alarm function
 - a. Held open alarm sequence. A door position switch change of state (NC) with a valid request to enter or exit shall start a door held open sequence. Sixty (60) seconds (programmable) from a door position change of state, the system shall activate the local audible device. Ninety (90) seconds (programmable) from door position change of state a door held open alarm will be generated, logged to the system database and reported to the Department of Safety and Security
 - b. Door Forced alarm sequence. A door position switch change of state (NC) without a valid request to enter or exit shall start a forced door sequence. The system shall immediately activate the local audible device, generate a forced door alarm, logged to the system database and reported to the Department of Safety & Security

2. Interior doors are not required to provide for alarm function but may include such function if requested.
- G. Access Control Room contents and environment:
1. Access control (and door hardware) power supplies
 2. Lenel system controller and IO devices
 3. Adequate electric power on dedicated circuits to power all devices
 4. Sufficient lighting to provide 60 foot-candles on the panels
 5. Temperature control: 45° - 95°
 6. Humidity control: noncondensing
- H. Enclosure Monitoring:
1. Access control panels (ACP), ACP power supplies and door power supplies shall be provided with cabinet tamper alarm monitoring
 2. ACP power supplies shall provide AC power and battery failure alarm monitoring
- I. Enclosures Containing Security Systems: As determined by the Authority Having Jurisdiction (Town of Hanover), comply as follows:
1. Require independent laboratory testing (i.e. UL)
 2. Shall be labeled as follows:
 - a. Date of manufacture
 - b. Maximum allowed voltage (24 volts AC)
 - c. Manufacturer's name
- J. Request to Enter Devices (CR)
1. The HID iClass SE 13.56 MHz reader with keypad is standard for the campus.
 2. Exception -The Tuck School of Business uses the HID Mini Prox or Thinline II readers
- K. Request to Exit Devices (REX)
1. Exit card readers are required where access is controlled/monitored in both directions
 2. REX switches mounted within panic hardware or equivalent locking devices i.e. mortise
 3. Specific project requirements may require alternate devices
- L. Electronic locking devices (EL)
1. Requirements for electronic locking devices and appurtenances are specified in Section 087100, Door Hardware.
- M. Local Audible Device (PIEZO)
1. The PIEZO may be combined with the REX device.
- N. Door Position Monitoring(DPS)
1. A magnetic operated switch mounted in the door header is the preferred device. Exit only doors require a DPDT

2. Specific project requirements may require alternate devices.

O. Video Surveillance

1. Cameras shall be compatible with the Exacqvision Video Management Software platform. AXIS cameras are the preferred product, commercial grade Sony cameras may be considered an acceptable alternate

P. Intrusion Detection

1. Intrusion detection panels must be IP Addressable panels capable of communicating with the installed Lenel Systems International, Inc. system
 - a. Bosch Radionics Intrusion Panels
2. Intrusion Devices
 - a. Glass Break sensors
 - b. Motion intrusion detection
 - c. Manually operated distress devices
 - d. Door position switches
 - e. Beam detectors
 - f. Specific project requirements may require alternate devices.

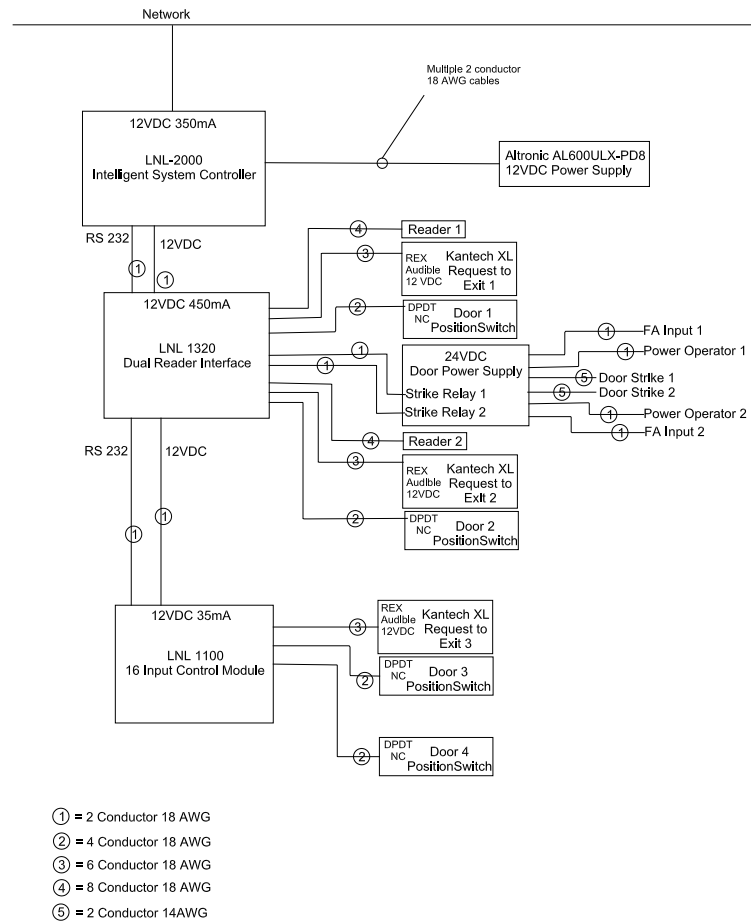
1.3 COORDINATION

- A. In order to minimize confusion in determining the appropriate trade, or specification division, the following is a recommendation of responsibility:

Equipment Description	Responsible specification section
Lenel Products, including controllers & IO devices	Division 28
Lenel Component Enclosures	Division 28
Power supply and battery backup for the Lenel system	Division 28
Door contact	Division 28
Door card reader	Division 28
Door motion sensor	Division 28
Cable for the Lenel system	Division 28
Exterior telephone	Division 10
Electric power transfer device	Division 8
Electric mortise lock	Division 8
Electric panic device	Division 8
Electric strike	Division 8
Power supply & battery backup for the lock devices.	Division 8
Electromagnetic Shear Locks	Division 28

1.4 TYPICAL DIAGRAMS

A. System Schematic



B. See attached installation schematics, also available from FOM Access Control Shop Supervisor:

Door Detail	Description
Detail _A	Single Door, Panic Device, Exit Only
Detail _A3	Single Door Mortise, Exit only
Detail _B	Single Door, Electrified Strike
Detail _C	Single Door, Electrified Panic Device
Detail _C_AO	Single Door, Electrified Panic Device w/ Power Operator
Detail _C_ORL	Single Door Electrified Panic Device w/ REX Switch in Panic Device

Door Detail	Description
Detail_D_D	Double Door, Electrified Panic Device both doors
Detail_D_D_AO	Double Door, Electrified Panic Device both doors /w Power Operator
Detail_D_S	Double Door, Electrified Panic Device single door
Detail_D_S_FA	Double Door, Electrified Panic Device single door /w Fire Alarm input
Detail_D_S_AO	Double Door, Electrified Panic Device single door /w Power Operator
Detail_E	Single Door Electronic Delayed Egress Device (Von Duprin Chexit) In Reader, REX
Detail_E_2	Single Door Electronic Delayed Egress Device (Von Duprin Chexit) In/Out Reader
Detail_G	Single Door Electrified Mortise Device
Detail_G_FA	Single Door Electrified Mortise Device /w Fire Alarm input
Detail_G_AO	Single Door Electrified Mortise Device /w Power Operator
Detail_H_S	Single Door Electromagnetic Device / unlock at power supply
Detail_H_S1	Single Door Electromagnetic Device /unlock at device
Detail_LCN4600	Power Operated Door System Integration

PART 2 - MATERIALS

2.1 EXTERIOR COMPONENTS

- A. Prox Card Reader: Readers shall have both Pin and Prox capabilities. Color: Black Readers to be mounted at 34" to center above finish floor.
1. HID Corp., iClass SE RK40/RPK40 13.56 MHz readers
 2. HID Corp., Mini Prox Classic Reader – thin style #5365-EGP00
 3. HID Corp., Thinline II Pro Prox Reader without keypad #5395-CG100

2.2 INTERIOR COMPONENTS

- A. Intelligent System Controller
1. Base unit Lenel LNL 3300 S3
- B. Input / Output Devices (All manufactured by Lenel)
1. Dual reader interface device: LNL 1320 S3
 2. Single reader interface device: LNL 1300 S3
 3. Sixteen-point input control board: LNL 1100 S3
 4. Sixteen-point output control board: LNL 1200 S3

C. Component Enclosures

1. Lifesafety FP075-D8PE4M. Lenel products also acceptable.

D. Power source

1. 12/24 VDC Power supply – 6 amp with 8 independent circuits: Altronics #AL600ULACM
2. Provide battery backup, quantity as described in Section One of this Standard section.

E. Wire

1. Wire type shall be minimum 18 gage, plenum rated PVC coated, stranded copper conductors, with overall shield and ground wire. Wire thickness for power supplies is heavier than 18 gage varying with manufacturers and length of wire run.
2. Composite cable can be used only in buildings that have no other access or intrusion systems (new installations). Manufacturers:
 - a. CSC: 112 & 113 series
 - b. Clifford of Vermont
 - c. Beldon

F. Request to exit / audible alarm devices:

1. Door header combination devices.
 - a. Kantech T-Rex #T.Rex-XL
2. Piezo only devices:
 - a. Amseco P.A.L - 328
 - b. Moose MPI47E

G. Door position switch:

1. Security Door Controls (SDC) – SDC MC-4 preferred

H. Pin Plunger:

1. Sentrol recessed pin plunger #3012 or similar

2.3 SPECIALTY ITEMS

- A. All devices in the access control system, including electric box cover plates, shall be fastened with ' . Tamper resistant torx

PART 3 - EXECUTION**3.1 GENERAL REQUIREMENTS / QUALITY ASSURANCES**

- A. All wiring and enclosures shall comply with DC Standards:
 1. Section 26 00 10 - Basic Electrical Requirements

2. Section 26 05 33 - Raceways
 3. Section 26 05 32 - Cabinets, Boxes, and Fittings
 4. Section 26 90 10 - Class Two Wiring.
- B. Access control wire from multiple doors may share common conduit providing the conduit size is adjusted per NEC.
- C. Splices in wire are not acceptable.
- D. Component enclosure requirements:
1. Cylinder lock shall be furnished & installed by FOM.
 2. Each box shall be equipped with a pin plunger for alarm purposes.
- E. Contractor shall be responsible for appropriate wire size for all power supplies.
- F. Proximity readers are to be place 34" above finish floor to centerline of the reader.
- G. Line voltage serving the power supplies shall not be 'daisy chained' between supplies. Rather, distribute power from an appropriately size junction box.
- H. A separate, dedicated electrical circuit is required for each enclosure and power supply.

3.2 COORDINATION

- A. The door hardware supplier and the access control supplier must coordinate with each other.

END OF SECTION 28 10 00