
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

Section 28 00 00 Security Systems

- 1.1. Provide a complete security system as described herein and in DC350 Part 1, Section 2 28 00 00 in accordance with DOE current policy. Provide riser diagrams for each system on the drawings.
- 1.2. Intrusion Alarm
 - 1.2.1. Keypads shall be wall mounted 48" AFF and located as follows in accordance with DOE current policy:
 - 1.2.1.1. Main entrance vestibule.
 - 1.2.1.2. Designated service entrance(s).
 - 1.2.2. Main intrusion alarm control panel to be located in the main communication room.
 - 1.2.3. Audible signals/alerts are to be provided through the installed PA system.
 - 1.2.4. Provide a Graphic LED annunciator panel in the administration area which will activate a specific LED and sound a local alarm when any exterior door other than the main entrance door, designated service entrance(s) and Exterior Entrance Door from the Sports Field is opened.
- 1.3. Video Surveillance
 - 1.3.1. The system shall consist of a complete functioning digital, IP based network security video surveillance system which meets or exceeds the requirements identified in DC350 Part 1 Section 2 28 00 00.
 - 1.3.2. This system shall operate on its own sub-net utilizing additional optical fibre pairs installed between communication rooms, co-ordinate installation with school board IT personnel and provide a firewalled connection to the school LAN.
 - 1.3.3. The video surveillance system shall include a means via hardware / software to synchronization the systems time with UTC (adjusted to local time) and to automatically update the video surveillance system / camera time stamps.
 - 1.3.4. Signs are to be posted at all entrances indicating that the premises are under video surveillance.
 - 1.3.5. Exterior Video Surveillance cameras
 - 1.3.5.1. Provide exterior IP cameras complete with pendant wall arm mounted weather proof / vandal proof domes (domes are to be complete with heaters and blowers) per DC350 Part 1 Section 2 28 00 00.
 - 1.3.5.2. Locate the cameras and determine focal length ranges based on the following requirements:
 - 1.3.5.2.1. One camera is to view the parent drop off area with a sufficiently high level of clarity to differentiate activities occurring at this location.
 - 1.3.5.2.2. One camera is to provide a wide angle view of the entire bus loop.
 - 1.3.5.2.3. One camera is to be aimed and focused to provide sufficient detail to determine the license plate number of every vehicle exiting the parking lot / bus loop.
 - 1.3.5.2.4. One camera is to be aimed and focused to provide sufficient detail to

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- determine the license plate number of every vehicle exiting the service driveway.
- 1.3.5.2.5. Provide additional cameras as required by a risk assessment performed by DoE.
- 1.3.6. Interior Video Surveillance cameras
- 1.3.6.1. Provide interior IP cameras per DC350 Part 1 Section 2 28 00 00.
- 1.3.6.2. Locate the cameras and determine focal length ranges based on the following requirements:
- 1.3.6.2.1. Cameras (two) are to be located to view people entering and exiting via the main entrance.
- 1.3.6.2.2. Cameras (two) are to be located to view people entering and exiting via a designated alternate entrance(s).
- 1.3.6.2.3. Cameras are to be located at each exit door viewing people exiting the building. Wall mount cameras 2m A.F.F.
- 1.3.6.2.4. One camera is to be located in the administration reception area viewing visitors within the reception area.
- 1.3.6.2.5. Wide angle view, high resolution, cameras (two) are to be located in the cafeteria providing coverage of the seating area(s).
- 1.3.6.2.6. Provide additional cameras as required by a risk assessment performed by DoE.
- 1.3.7. Network video recorder
- 1.3.8. Provide and configure a new Network video recorder per DC350 Part 1 Section 2 28 00 00.
- 1.3.9. Remote monitoring software
- 1.3.9.1. Provide remote monitoring software for five owner supplied workstations, co-ordinate installation with school board IT personnel.
- 1.3.10. The video Surveillance System design is to be coordinated with each school board's standard.
- 1.3.10.1. During the Design development phase, the consultant will coordinate with the individual school board to ensure the specified equipment will meet or exceed the board's standard for these systems.
- 1.4. Access Control
- 1.4.1. The use of Maglocks is not permitted.
- 1.4.2. Provide a complete Access Control System which will meet the following requirements as a minimum standard.
- 1.4.3. The Access Control System (ACS) shall consist of software and hardware components that provide monitoring and control of access points.
- 1.4.4. The ACS shall be Microprocessor-based, fully scalable, shall support up to 32 access points, and shall support Ethernet communication via TCP/IP protocols.
- 1.4.5. The system shall use a fully distributed architecture. The ACS architecture shall place key access decisions, event/action processing within the door control module(s), allowing offline operation where the application software is not communicating with the door control modules.
- 1.4.6. The battery backup for controllers and strikes (or other electrically operated door locking

hardware) shall be sized for 8 hours of operation. The door controllers shall have, in addition to the input / outputs required to operate the doors, two supervised Inputs and two Form C, supervised Output Relays per door for future use.

- 1.4.7. Monitored points will be supervised for such conditions as alarm, short circuit, ground, open and normal conditions.
- 1.4.8. Each of the door controllers shall be supplied with its own AC power supply. Step down transformer(s) shall be CSA approved. Each of the stand alone controllers will control / supply power for all electrically operated door locking hardware.
- 1.4.9. The access control software shall be compatible with the operating system provided by the owner. The owner shall supply a suitable computer workstation for the installation of the access control software.
- 1.4.10. The ACS shall support up to 10,000 cardholders. A comprehensive Cardholder Record shall provide detailed information regarding a Cardholder's access control, work, personal, and vehicle-related data. The ACS shall allow the operator to customize 8 user-defined data fields.
- 1.4.11. ACS Application Software shall support a means of extracting historical data, allowing event reports to be produced. A Custom Report Builder shall allow the user to modify the reports or create new reports to suit specific applications and then print or export in text, Paradox, dBase or Excel formats.
- 1.4.12. This system shall support 26 bit Weigand format, proximity type card readers and PIN key pads.
- 1.4.13. The card readers shall meet the following specifications: a minimum reading distance of 4 inches, and an operating temperature range of -30 Celsius to +65 Celsius.
- 1.4.14. Provide the initial system software programming, customizing and data entry. Provide for two eight hour days of training, 30 days apart.
- 1.4.15. Provide 100 system compatible proximity cards to the owner.
- 1.4.16. All electrically operated door locking hardware shall be fail secure.
- 1.4.17. Provide and install all access control equipment and door hardware required to meet the following theory of operation for each door.
 - 1.4.17.1. Main Entrance Door (Exterior).
 - 1.4.17.1.1. The door shall be controlled by the access control system and shall be operable manually and with a power door operator. This controlled door shall be operable both manually and with the power door operator from the interior for egress purposes at all times; pushing the interior power door operator push button shall disengage the electrically operated door locking hardware and activate the power door operator. During normal operating hours (hours of operation to be determined in conjunction with the school Principal) the access control system shall not control this door; the door shall be operable both manually and with the power door operator. After normal operating hours the access control system shall control all access via the door; the door shall be operable from the exterior by presenting a valid proximity card to the card reader or by entering a valid PIN in the key pad. Upon successful card read or when a valid PIN is entered

in the key pad, the access control system shall disengage the electrically operated door locking hardware, and enable the exterior power door operator push button and permit entry to the building. Provide a keyed lockset to bypass the electrically operated door locking hardware / access control system. Provide hardware which will permit the door to be dogged open. The door hardware shall provide unimpeded egress at all times.

1.4.17.2. Vestibule / Lobby Door

1.4.17.2.1. The door shall be controlled by the access control system at all times and shall be operable manually and with a power door operator. This controlled door shall be operable both manually and with the power door operator from the lobby for egress purposes at all times; pushing the power door operator push button, located in the lobby, shall disengage the electrically operated door locking hardware and activate the power door operator. The door shall be operable from the Vestibule by presenting a valid proximity card to the card reader or by entering a valid PIN in the key pad. Upon successful card read or when a valid PIN is entered in the key pad, the access control system shall disengage the electrically operated door locking hardware, enable the power door operator push button located in the Vestibule and permit entry to the lobby. Provide a keyed lockset to bypass the electrically operated door locking hardware / access control system. Provide hardware which will permit the door to be dogged open. The door hardware shall provide unimpeded egress at all times.

1.4.17.3. Exterior Entrance Door from the Sports Field

1.4.17.3.1. During normal operating hours (hours of operation to be determined in conjunction with the school Principal) the door shall be operable from the exterior by presenting a valid proximity card to the card reader. Upon successful card read, the access control system shall disengage the electrically operated door locking hardware and permit entry to the building. Outside of normal operating hours, the door shall not be operable via the access control system. Provide a keyed lockset to bypass the electrically operated door locking hardware / access control system. Provide hardware which will permit the door to be dogged open. The door hardware shall provide unimpeded egress at all times.

1.4.17.4. Exterior Staff Entrance Door

1.4.17.4.1. During normal operating hours (hours of operation to be determined in conjunction with the school Principal) the door shall be operable from the exterior by presenting a valid proximity card to the card reader. Upon successful card read, the access control system shall disengage the electrically operated door locking hardware and permit entry to the building. Outside of normal operating hours, the door shall not be operable via the access control system. Provide a keyed

lockset to bypass the electrically operated door locking hardware / access control system. Provide hardware which will permit the door to be dogged open. The door hardware shall provide unimpeded egress at all times.

1.4.18. Electric Vehicle Charging Stations

1.4.18.1. Provide and install PIN / Prox readers on for all Electric Vehicle Charging Stations, the access control system is to provide an initial (non-latching) signal to the charging station associated with the PIN / Prox reader on successful card read /PIN input.

1.5. Lockdown Annunciation System

1.5.1. Provide a fully supervised annunciation system with synchronized blue strobe lights, battery backup for 48 hours, and CSA / ULC certified for life safety (i.e. a separate fire alarm panel). Locate this panel in the main communications room.

1.5.2. Provide a remote annunciation panel complete with reset in the administration area.

1.5.3. Provide a remote annunciation panel complete with reset in a secondary initiation location (typically the staff room(s)) typically remote annunciation panels are provided at each PA system master console location. The secondary initiation location is to be determined in consultation with DTIR, and DoE.

1.5.4. Provide pushbuttons per the following

1.5.4.1. Provide blue mushroom head pushbuttons complete with protective covers in the administration office area (2 per the School Security Planning document), student services and/or guidance, staff room(s), kitchen, gym offices, itinerant offices, PLC rooms and other offices distributed throughout the facility. Zone these activation buttons logically by area to minimize activation zones as required.

1.5.5. Provide weather-proof blue strobe lights (110cd minimum output) at the main entrance to the building, the staff entrance, all other identified entrances and at the entrance from the sports field.

1.5.6. Provide blue strobe lights (110cd minimum output) in all corridors, in the gymnasium, in the cafeteria, and areas with high levels of ambient noise. Do not provide blue strobe lights in classrooms. Ensure the blue strobe lights are separated from the fire alarm system strobe lights by a minimum of 3000mm.

1.5.7. Provide a digital display on the building exterior clearly visible on approach to the main entrance.

1.5.8. Theory of operation

1.5.8.1. Lockdown Annunciation System activation

1.5.8.1.1. Lift protective cover and push button:

1.5.8.1.2. Blue strobe lights (located at exterior entrance (main entrance), corridors, cafeteria, gymnasium, staff room and areas where high levels of ambient noise are present) are activated and remain on until system is reset.

1.5.8.1.3. The digital display mounted on the building exterior automatically displays the message "School in Lockdown, Do Not Enter".

1.5.8.1.4. The access control system is placed in restricted access mode –

specific PIN numbers or proximity cards only will have access granted to the building.

1.5.8.1.5. The remote annunciator panels display the location of the button(s) which initiated the lockdown.

1.5.8.1.6. An automatic signal is sent to the alarm monitoring company indicating that the facility is in lockdown.

1.5.8.1.7. An automatic message is broadcast over the PA system notifying staff and students that the lockdown is in effect. The message shall consist of the following: "Attention all staff, initiate lockdown now. Attention all staff, initiate lockdown now. Attention all staff, initiate lockdown now. Teachers position your students for safety." This automatic message broadcast is to end after one minute.

1.5.8.1.8. A relay output in the Lockdown system control panel is to trigger an automated arming sequence in the door alarm graphic, to ensure that the door alarm system is automatically activated in a lockdown.

1.5.8.2. Lockdown Annunciation System is reset:

1.5.8.2.1. Blue strobe lights are automatically deactivated.

1.5.8.2.2. Access control system automatically returns to scheduled control.

1.5.8.2.3. A non automatic message is broadcast by school administration over the PA system notifying staff and students that the lockdown is ended.

1.6. Administration Reception Door Control / Intercom Systems

1.6.1. Theory of operation:

1.6.1.1. Administration Reception / Vestibule Door is to be locked from Vestibule access (free passage to Vestibule from Administration Reception. Visitor to call school reception using door bell or video intercom system; reception to grant access with door release button.

1.6.1.2. Administration Reception / Lobby Door is to be locked from Administration Reception access (free passage from Main Lobby to Administration Reception). Reception to grant access to Main Lobby with millwork mounted door release button.

1.6.1.3. Administration Reception / Student Waiting Door is to be locked from Administration Reception access (free passage from Student Waiting to Administration Reception). School secretary to grant access to Student Waiting with millwork mounted door release button.

1.6.2. Administration Door Control Systems:

1.6.2.1. Entrance from main entrance vestibule to the reception area:

1.6.2.1.1. Where sight lines from the reception desk have been provided, provide a door bell c/w push button; push button to be located in the main entrance vestibule, doorbell to be located in the administration reception area. Provide an electric strike (fail secure) complete with power supply in the door from the entrance vestibule to the lobby. This strike is to be operated from a door release button mounted in the millwork in school secretary workstation area.

1.6.2.1.2. Where sight lines from the reception desk have not been provided,

provide a colour video intercom system complete with an integral door release button on the intercom master station. Locate the intercom door station in the Vestibule adjacent to the entrance to the Administration reception area; locate the intercom master station on the desk in reception workstation area. Provide an electric strike (fail secure) complete with power supply (strike to be operated from the door release button in the intercom master station) in the door from the main entrance vestibule to the reception area. Provide and install all necessary door hardware in this door.

1.6.2.2. Entrance from reception area to main lobby:

1.6.2.2.1. Provide an electric strike (fail secure) complete with power supply in the door from the Administration Reception area to the lobby. This strike is to be operated from a door release button mounted in the millwork in school secretary workstation area.

1.6.2.3. Entrance from reception area to student waiting area:

1.6.2.3.1. Provide an electric strike (fail secure) complete with power supply in the door from the Administration Reception area to the Student Waiting area. This strike is to be operated from a door release button mounted in the millwork in school secretary workstation area.

1.7. Exit Door Local Alarms

1.7.1. Provide keyed local alarms c/w signage on all exit doors in the school and the corridor doors to the classroom wings. Do not provide these alarms at the main entrance doors, review the requirement to add local alarms to the exterior entrance door from the Sports Field, kitchen exit door and the access door from staff parking or any other door with access control with DTIR. Local alarms are to be fed from a 120v power source.

Section 28 31 00 Fire Detection and Alarm

- 1 Provide a complete fire alarm system as described herein and in DC350 Part 1, Section 2.
- 2 Provide strobe lights in all student washrooms and change rooms.
- 3 Small electrical closets, where the door(s) is used to obtain the code required 1m clearance in front of the panelboard(s), need not contain smoke detectors.
- 4 Provide a UV-stabilized, tamperproof protective polycarbonate cover complete with an integral 95 dB (minimum) warning horn at each pull station located in all areas accessible by students only. This cover shall comply with CAN/ULC-S528.

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