

Systems & Equipment

4.1 ELEVATORS

Natural Access Control

- Limit access to elevators to authorized individuals.

Natural Surveillance

- Locate elevators adjacent to main circulation where they can be observed.
- Provide adequate lighting in elevator lobbies.

Territorial Integrity

- Provide electronic surveillance within elevator cabs when possible.
- Provide vandal resistant convex mirrors in elevator cabs.

Elevators should be centrally located adjacent to main circulation spaces, i.e., entry lobbies and primary corridors. A landing area that does not obstruct student traffic should be provided. Elevator lobbies should be well-lit to enhance surveillance and security.

The use of elevators for criminal activities can be significantly deterred by faculty/staff surveillance of lobbies and corridors coupled with the use of electronic surveillance, such as closed circuit television (CCTV), within the elevator cabs. Convex mirrors placed in strategic locations within elevator cabs can eliminate hiding places and greatly increase security. These mirrors should be made of vandal resistant materials.

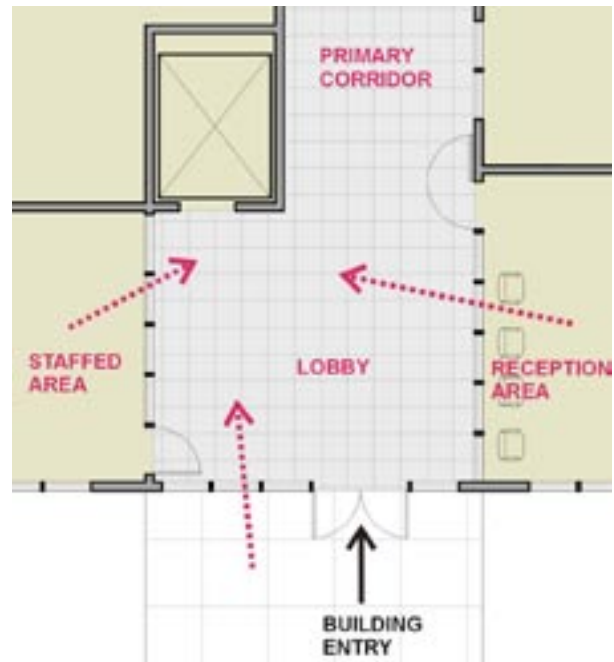


Figure 4.1.1
Plan Diagram
Elevator Location

Systems & Equipment

4.2 HVAC/MECHANICAL EQUIPMENT

Natural Access Control

- Locate heating, ventilation, and air conditioning (HVAC)/Mechanical equipment in a secured area accessible to authorized personnel only.
- Provide a lockable enclosure for equipment such as exterior condensing units.
- Install flush mounted vents in mechanical rooms.
- Identify all critical electrical and communication distribution rooms as “Equipment Room.”

Natural Surveillance

- Locate lockable equipment enclosures in areas where general lighting occurs when possible.

The location for heating, ventilation, and air conditioning (HVAC) equipment should be accessible only to authorized personnel, but should also allow for proper ventilation. Mechanical equipment storage should have flush mounted vents located out of reach. Spacing of vent slats should not allow persons to reach in or to pass objects through them, potentially causing damage to equipment or exhaust fans. Equipment should be protected with bollards when located adjacent to vehicular routes.

Secure exterior condensing unit with enclosures designed using materials that provide protection from thrown projectiles.

Fresh air intake, water and electrical supply, and backflow preventors should be secured to eliminate unauthorized access. Rooms containing electrical, telephone, computer distribution, security, fire, and other critical distribution rooms should be identified and labeled simply as “Equipment Room.” This makes it difficult for an intruder to shut down the school and its communication network.



Figure 4.2.1
HVAC/Mechanical Equipment Example



Figure 4.2.2
HVAC Equipment Example

Locating these structures in areas where general site lighting is used will make nighttime surveillance easier without having to install direct lighting.



Figure 4.2.3
Mechanical Equipment Example

Systems & Equipment

4.3 WATER FOUNTAINS

Natural Access Control

- Utilize wall-hung water fountains to prevent vandalism when possible.

Natural Surveillance

- Locate water fountains near group toilet rooms in areas with natural surveillance.

Water fountains need to be protected from vandalism. It is important to locate water fountains in areas where they can be monitored. Flush mounted water fountains provide protection for the cooling system, but do not provide access for handicapped persons. Floor mounted fountains are completely exposed, providing protection only to the side facing the wall. It is preferable to use wall-hung fountains that have in-wall cooling systems when possible. These fountains should have heavy duty mounts to prevent damage due to vandalism.

Water fountains in exterior locations should be able to be easily secured to limit access after school hours when necessary. Place water fountains in a recessed area and provide a roll-up type security grille to control access and prevent vandalism.



Figure 4.3.1
Typical Wall-hung Type Fixture



PROVIDE ROLL-UP TYPE SECURITY GRILLE TO LIMIT ACCESS AFTER SCHOOL HOURS

Figure 4.3.2
Provide Access Control for Exterior Water Fountains

Systems & Equipment

4.4 VENDING MACHINES & PUBLIC TELEPHONES

Natural Access Control

- Control student access to vending machines.
- Design exterior vending machine areas that can be easily secured after school hours.
- Locate public telephones in a centralized area.

Natural Surveillance

- Locate vending machine areas in well monitored areas with natural surveillance.
- Recess vending machines into alcoves to prevent hiding places.
- Locate public telephones in areas that facilitate supervision and surveillance.

Vending machines are vulnerable to vandalism and theft, both during and after school hours. Provision should be made to protect vending machines located in schools and on school campuses. Public telephones can also provide opportunities for criminal activity. A common problem cited is the use of public telephones for bomb threats. Therefore, supervision of these areas is key to enhancing school security.

Controlling access to vending machines can be achieved in several ways. Providing a recess or alcove with a roll-up type security grille with hand openings can limit access to machines as well as eliminate hiding places. These recesses can also be provided with doors to secure vending areas after school hours when necessary. A less expensive alternative is to fit machines with hinged cages and hand openings that only allow students to reach in and make purchases. In either case, avoid placing vending areas in isolated areas. They should be located in well-lit areas where they can be monitored by faculty and staff in the course of their normal activities. Design wide corridors and walkways adjacent to vending machine areas to avoid conflicts and overcrowding.



Figure 4.4.1
Access Control for Vending Machines



Figure 4.4.2
Alternative Method to Provide Access Control of Vending Machines

Public telephones, especially on high school campuses, should be located in a centralized and highly visible location such as adjacent to the administration areas. Providing a window with unobstructed lines of sight of the telephones in these locations can significantly reduce vandalism. Design wide corridors and walkways in these areas to prevent congestion.



Figure 4.4.3
Public Telephone Location

Systems & Equipment

4.5 FIRE CONTROL & ALARMS

Natural Access Control

- Flush-mount sprinklers in ceilings.
- Avoid blocking or obstructing paths of travel with fire control equipment.

Natural Surveillance

- Locate fire extinguishers, fire alarms and standpipe cabinets where they can be easily monitored.

Fire control equipment includes such items as fire extinguishers, fire alarm pull stations, standpipe cabinets, and sprinklers.

Fire extinguisher and standpipe cabinets located in main circulation paths should be flush mounted in walls adjacent to classrooms. Fire alarm pull stations should be located in areas that allow for unobstructed surveillance. Like vending machine and telephones, isolated equipment is more susceptible to vandalism and misuse. Providing tamper-proof covers for fire alarm pull stations can also deter misuse of the device. Fire sprinklers should also be flush mounted in ceilings to avoid damage.

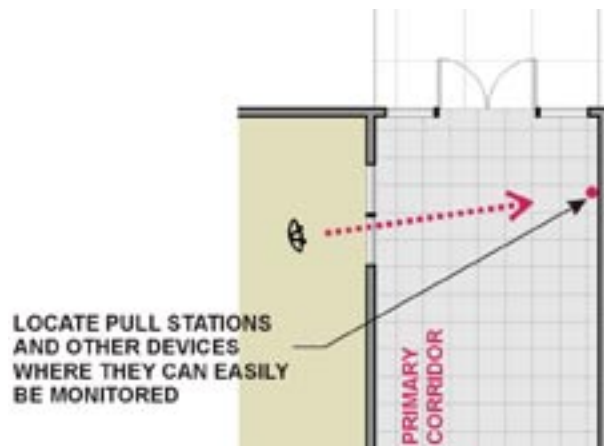


Figure 4.5.1
Plan Diagram



Figure 4.5.2

- 1) Fire Alarm Pull Station with Tamper-proof Cover
- 2) Recessed Type Fire Extinguisher Cabinet

Systems & Equipment

4.6 ALARM & SURVEILLANCE SYSTEMS

Mechanical Access Control

- Utilize audio and/or motion sensitive detection systems and alarm systems when possible.
- Locate detection devices at critical entry points and in rooms that contain valuable equipment.

Mechanical Surveillance

- Provide surveillance equipment in enclosed stairwells and other key locations when possible.

Management

- Maintained operational integrity of equipment.

Both survey data and site visits confirm that increased surveillance and access control continues to be a significant issue for schools. Electronic surveillance systems, such as closed circuit television (CCTV), are mentioned repeatedly by principals, facility managers, and school resource officers as a desirable addition to their campuses. Because the use of alarm and surveillance systems can greatly increase the safety and security of schools, serious consideration should be given to incorporating mechanical as well as natural access control and surveillance.

Typical locations and conditions cited as potential problem areas in need of increased control include: the lobby and main entrance, enclosed stairwells, courtyards, secondary access points, and blind corners and hidden areas along the building perimeter. Propped doors at secondary entrances are a particularly common occurrence and, since it is difficult for resource officers and staff to properly check these areas throughout the school day, providing alarms on these doors to alert staff should be a priority.

The use of sensor or alarmed security systems can reduce property loss and vandalism in schools after



CCTV SHOULD BE INSTALLED IN POTENTIAL PROBLEM AREAS IN NEED OF INCREASED CONTROL

Figure 4.6.1
Typical Wall Mounted CCTV Camera



CCTV STRATEGICALLY POSITIONED TO MONITOR VISITOR PARKING AND BUILDING PERIMETER

Figure 4.6.2
Electronic Surveillance of Building Perimeter and Parking

hours. Coordination with local police can help reduce response time, increasing the chances of apprehending persons while still on school grounds with property in hand. Installation of electronic surveillance systems should be handled by expert contractors. They will strategically locate detection devices at key points throughout the school.



**ELECTRONIC SURVEILLANCE SYSTEM
STRATEGICALLY PLACED TO MONITOR
BLIND CORNER AT PERIMETER OF
SCHOOL BUILDING**

Figure 4.6.3
Electronic Surveillance of Building Perimeter