

12.1 Physical Security

Physical security is actually a multifaceted topic. The main target of physical security is to physically secure machines, as well as securing issues such as controlling access to your building and knowing how to respond to fires. Monitoring systems such as alarms and cameras are also a part of physical security.

12.1.1 Equipment Security

Physical security begins with controlling access to the building and to key rooms within the building. It must firstly include having a locked door on the server room. In addition to that, you must also have some way of controlling who has access to that room.

A highly recommended approach is a swipe card or a password key entry system that records who enters the room and when. You should also consider the room itself. It should not have a window, or if it does, it should be a reinforced window and someone outside should not be able to easily view inside the room. The room should also be fireproof as a potential fire inside the server room would be a significant disaster.

The server room is one of the main places that should be secure, but it is not the only item that needs securing. If routers or switches are distributed in the building, they must be in locations that are not easily accessible by unauthorised personnel. Locked closets make a good location for these items. Locking down workstations so they are secured to the desk is also a common practice. This makes theft of those computers significantly more difficult.

Essentially any device that is itself valuable or contains data that is valuable must be physically secured. Equipping mobile business phones with the ability to remotely wipe them is also becoming common practice. That way if they become stolen or lost, the administrator can remotely wipe all data on the phone.

12.1.2 Securing Building Access

After you have secured the equipment you must also control access to the building itself. A common method is to have a locked door or barrier that requires an employee ID to enter. A sign-in sheet is also a

good way to track who enters and exits your office. The level of effort put into securing physical access to the building will vary depending on the organisation's security needs.

A mantrap is an often-used security mechanism in high-security environments. A mantrap consists of two doors with a short hallway between them. The second door cannot open until the first door is closed. This prevents tailgating, which is the process of an unauthorised person following an authorised person through a secure door. This can be further enhanced by having each door using a different authentication method. Perhaps the first door would require a key and the second would require a passcode. This two-factor authentication system would be difficult for an intruder to circumvent.

Other methods of securing building access include the external areas of a building. For example, a parking lot can be designed so that a person must make turns every 50 feet or so to exit. This prevents a thief or intruder from "speeding away". This makes it more likely that someone will be able to note their license plate or police arriving before they escape.

Fences are also important. Having some level of fencing is essential. High-security environments might use a tall fence, even topped with concertina wire. This might not be appropriate for many organisations, but even a decorative hedgerow provides some level of barrier to slow down intruders.

Lighting is also important. Intruders usually prefer to enter in the dark to reduce the chance of being noticed or even caught. A well-lighted external building impedes intruders' intentions to enter surreptitiously. Furthermore, internal lighting can also be helpful. You probably notice that many retail stores leave the store lights on after closing. This allows passing police officers to easily see whether someone is in the building.

12.1.3 Monitoring

Video monitoring is becoming more affordable and more sophisticated. High-definition video cameras, including cameras with night vision capability, are now fairly inexpensive. Retail stores often find that by placing cameras in highly visible areas, the incidence of theft declines. Stoplights equipped with cameras usually reduce the number of people who run red lights.

Placing cameras in or around your facility requires a thought before installing them. First and foremost, the cameras must be placed so that they have an unobstructed view of the areas you want to monitor. At a minimum, all entrances and exits should have camera monitoring.

You might also want cameras in main internal hallways, just outside critical areas (that is, server rooms), and possibly around the perimeter of your building. The cameras also need to be placed so that they are not easily disabled by an intruder. This usually means placing them at a height that is difficult for someone to reach.

You should also consider the type of cameras you are going to place. If you do not have adequate external lighting, then night vision-capable cameras are important. You might want cameras that transmit their signal to a remote location for storage. If you choose to transmit the camera feed, make sure the signal is secure so that someone cannot easily tap into the signal.

12.1.4 Fire Protection

Obviously, a fire will destroy servers and other equipment. Having adequate fire alarms and fire extinguishers in your facility is important. Fire extinguishers can be classified by what types of fire they are able to put out:

- **Class A:** Ordinary combustibles such as wood or paper
- **Class B:** Flammable liquids such as grease, oil, or gasoline
- **Class C:** Electrical equipment
- **Class D:** Flammable metals

Fire suppression systems are common in larger office buildings. These systems are divided into three categories:

- **Wet Pipe**
- Always contains water
- Most popular and reliable
- 165-degree fuse melts
- Can freeze in winter
- Pipe breaks can cause floods
- **Dry Pipe**
- No water in pipe
- Preferred for computer installations
- Water held back by clapper

- Air blows out of pipe, water flows
- Pre-action
- Usually recommended for computer rooms
- Basically operates like a dry pipe
- When a certain temperature is reached, water goes into the pipe, then is released when a higher temperature is reached

Having a plan to address fires is important. Depending on budget and security needs, your plan can be as simple as well-placed smoke alarms and a fire extinguisher or as complex as a series of fire suppression systems with an alarm system that automatically notifies the fire department.