

Parking Structure Security

In recent years, there has been a noticeable increase in the number of multi-level parking structures being built throughout North America. As many communities have depleted their supply of available land for surface parking lots, the most feasible means of accommodating motor vehicle parking needs has been to build more parking structures.

The two types of crimes occurring most frequently in a parking facility are thefts and crimes against persons. While these dangers can never be totally eliminated, the opportunity for such crimes can be significantly reduced by developing good security into the structure, preferably at the architectural design stage.

The following are a series of security design recommendations for parking structures. Deciding which of these recommendations to adopt should be based upon a crime risk analysis to the environment and how the structure is to be utilized. While all of the following recommendations are valid, it would be difficult to perceive a parking structure where they would all be adopted. Employment of these recommendations should be selective, based upon perceived and actual risk and utilization of the structure.

1. The number of access points to the facility should be minimized. Comprehensive access control is an obvious and effective method of reducing the criminal opportunity. From a security standpoint, the most advantageous number of motor vehicle access points is a single set of ingress and egress points located bilaterally.
2. If the parking structure is staffed with personnel, the attendant booth should actually be positioned out from the parking structure to give the attendant a better line of sight.
3. The exterior walls surrounding the first floor (ground level) parking should be at least three to four feet high. Decorative grill work or metal screening should be in place between the top of the wall (crash barrier) and the flooring of the second parking level. An open mesh type of screening would provide maximum visibility from the exterior while eliminating the opportunity of access by someone climbing over the wall.
4. Elevator cabs serving the parking structure should have glass exterior and glass backing to provide unobstructed observation from the outside.
5. Stairwells serving the facility should be totally open and have a glass exterior.
6. It is recommended that a minimum of 10 footcandles of lighting be installed throughout the parking structure. To define spatial relationships, lighting in the lobby area and stairwells could be high pressure mercury vapor (white tint) while high pressure sodium vapor (yellow tint) could be used throughout the remainder of the parking structure.
7. It is recommended that light cores (openings in the center of the parking structure) be introduced into the design of the facility whenever possible. The light cores may be as narrow as eight feet wide or as wide as 24 to 36 feet. The only criteria is that as much natural light as possible gets through the light cores to the lower floors.
8. It is recommended that the height between the floor surface and the ceiling level be at least 8'6" throughout the parking structure. This can be compared to 7'6" in many parking structures. The 8'6" height provides a much greater feeling of space and safety.
9. Within the interior of the parking structure, white reflective paint should be used on shear walls and solid walls to increase brightness within the facility.
10. From a security standpoint, the ideal design of a parking structure is to have a series of flat floors with the sloping floor at one end. This serves to increase the patron's visual

perception of the facility. It further avoids an effect referred to as “chambering” which results when vehicle ramps are located in the interior of the structure.

11. Ideally, parking spaces within the structure should be defined at 90° instead of 45°. A 90° parking space is easier to observe than 45°. A 90° parking space, however, requires a wider driving lane and fewer parking spaces are realized.
12. The exterior of the parking structure should be well lighted on all sides (consideration should be given to specifying lighting fixtures that resist breakage) and should be as symmetrical as possible. Avoid architectural designs that provide hiding places where individuals could easily conceal themselves. This is an area where safety and security should not be sacrificed for architectural aesthetics.
13. If possible, the parking structure should be built in such a manner that it can be patrolled 360° around the outside perimeter.

Further caution should be taken to locate the structure so that access cannot be gained from another building to an upper parking level. Downspouts or decorative architectural designs that would facilitate an intruder’s attempt to climb into the parking structure should also be avoided.

14. Vegetation, plant growth and landscaping around the perimeter of the parking structure should be minimized or maintained at a height of no more than two feet to avoid providing concealment.
15. Stairwell entrances and exits should be to the interior of the structure. If local life safety codes dictate there must be ground level exit from the stairwell to the exterior as well as interior, the exterior door should be a “one way” door with hardware on the inside only. This door should further be marked “Emergency Exit Only” and equipped with a local alarm.
16. The crash barriers around the perimeter of the parking structure and the shear walls throughout the interior could actually be 1/2" steel cables instead of solid walls. This would allow for more natural light and an unobstructed line of sight.
17. Closed-circuit television (CCTV) cameras located on each floor of the parking structure (as well as monitoring access points, stairwells the lobby, etc.) is an active security measure employed in many parking structures. The monitoring and control of the CCTV cameras should be at a central monitoring office or booth. The CCTV cameras should also be monitored by a VCR. For parking structures employing CCTV as a control technique, it should be posted at all access points that the facility is being monitored. Signs such as “For Your Own Protection, This Facility Is Monitored by Closed-Circuit Television” can be especially effective.

When CCTV is used for security in parking structures, it is important that the placement of the cameras be in the same orientation on every floor to the greatest extent possible. This enables the person monitoring the cameras to be able to quickly determine in which direction they are looking.

CCTV cameras should be solid state chip and have heated, environmentally controlled housings.

18. A voice activated (or noise threshold) sound system can also be employed in a parking structure. This is most effective when the sound system is linked to CCTV coverage. Thus, when the voice activated sound system picks up a loud sound, the CCTV operator is alerted and he/she can immediately monitor the most adjacent camera to the location of the sound. The VCR should also be automatically triggered to record both audio and visual.
19. Each level of the parking structure should be equipped with well-marked, direct-ring emergency telephones. These telephones should terminate at a central monitoring office or station or booth. This can be an effective method of emergency communication to summon police, fire or medical aid (or request an escort).

20. Elevators within the parking structure should be equipped with emergency two-way communication. This can be beneficial from both a security and maintenance standpoint.
21. Active patrolling by uniformed officers should be an important part of the overall security program for a multi-level parking structure. Recently, officers on mountain bicycles have proved to be a particularly effective way of patrolling the interior of parking structures.

Because of their traditional design (low ceilings, weak lighting, concealment, etc.), there has often been an aversion to the use of parking structures, particularly by women. Much of the traditional perceptions and actual threat can be eliminated or minimized by good architectural design. *Under no circumstances* should the lack of money in the budget prevent adequate provisions for security. As the saying goes, "You can pay me now or your can pay me later." The dollars spent for good security in the design stage will clearly help to reduce the potential for civil litigation pay-out in the event of an incident in the future.