

Potential Parking Deck\Underground Garage Security Enhancements

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Overview: The United States National Crime Prevention Institute, (**NCPI**) a division of the University of Louisville, recommends and endorses the following tactics for making underground parking garages and above ground parking decks feel safer and also to make them actually safer. Be aware that the Illuminating Engineers Society of North America (IESNA) has changed its name to Illuminating Engineers Society (IES) when looking for a parking structure lighting standard. IES no longer uses the term “Standard” and has replaced it with Recommended Practice or RP. The current IES RP for parking structures is R.P.-20-14. If an expert lighting opinion is required after a serious incident in your parking structure contact IES, for the name of a local IES Engineer who after an in depth inspection can be an expert witness in court.

Lighting: (i) Wall Paint, Ceiling Paint and Floor Sealer Test Protocol. The late CPTED Guru, Timothy Crowe PhD advised that whenever he held normal user focus groups after very serious incidents such as homicides or sexual assaults in parking structures, the number 1 topic normal users wanted to talk about was lighting. Before

next repainting interior walls, ceilings and pillars or resealing the floor, consider purchasing 5 or more different **gloss** wall paints and 5 or more different **gloss** floor sealers and apply them to appropriate wall or floor tests areas. The selected wall test areas should be equal in humidity and ventilation. The floor sealer test areas should also both be equal in humidity and have no traffic flow for the duration of the test. Up 15% more reflected light can be gained by use of this protocol. Use a light meter to measure the amount of reflected light before and after the application of wall paint and floor sealers. Note: Light measurements should only occur after the paint or sealer manufacture's recommended drying time.

(ii) Ceiling Paint: If your parking structure routinely re-paints its ceilings the preceding paint or sealer test protocol should also be applied to test areas with samples of the ceiling paints being considered.

(iii) Floor Sweeping: Management should also review the frequency of floor sweeping especially on the level where vehicles enter and the level above and/or below it. DIRT FLOORS DO NOT REFLECT AS MUCH LIGHT AS CLEAN FLOORS.

(iii) White Pipe Dust Removal: This should occur at least annually. Removing the dust from on top of white pipes can also increase their amount of reflected light BY UP TO 10 % .

(iv) Luminaries: They require at least annual cleaning. This also can increase the amount of reflected light by 10% or more

(v) Choice of Gloss Wall Paint Colours: (a) Brown, Black, Dark Purple, Dark Blue, Dark Green, etcetera must be avoided as these colors reflect a minimum amount of light. Gloss Yellow, Light Blue, Light Green, Light Pink, etcetera reflect much more light and are preferable.

(vi) Special Note Re: Orange This color can create feelings of distress & upset in some people. In parking structures we recommend that it only be used in any areas where we do not want persons to loiter. This can include the interior of stair wells especially on the bottom level, which is often inhabited by homeless persons.

Sources: (i) Crime Prevention Through Environmental Design Volume 2 Timothy D. Crowe PHD

(ii) Environmental Psychology Francis T. Mc Andrew PHD

(vii) Alternate Way Finding: While directional wall signs with arrows, foot prints or arrows on the floor are useful in this regard additional lighting over the pathway or road ways leading to the elevator lobby or stairwells can also be useful as a wayfinding aid.

(viii) Warning Signage: The **NCPI** recommends the below warning signage or similar on all entrance gates or

control arms, beside all stairwell doors and on the wall closest to any elevator call buttons:

Lock your Vehicle

Take your Keys

Hide or Take Your Valuables

Suspicious ??? Need Help???

CALL Site Security 555 555 5555

Note: 1. If the subject garage has been the scene of numerous assaults of persons returning to their vehicle or when getting out of their vehicle CONSIDER including the following additional wording on the above signs: **“Please Back Into Your Spot.”** If the person parking is accosted before or as they get out of their vehicle it is much faster and safer to drive out than to back out of their parking spot. It is also easier to use the vehicle as a weapon if it has been backed in.

2. Before erecting signs with the site security cellular phone number on them ensure that cellular phones work throughout parking. If they do not, either cellular phone antennae cabling and/or possibly cellular repeaters will be required throughout parking.

3. **Duress Station\Intercom Visibility**: Where \when they are to be installed or are already installed in a parking structure they should be located in the center of a floor to ceiling wall patch painted gloss yellow or on a pillar painted gloss yellow from floor to ceiling on all sides.

4. Wayfinding Cards: Consider erecting vandal resistant metal, paper card dispensers in all elevator lobbies. The printed cards should state the parking garage address and/or name, the floor & or zone number and the site security phone number.

5. Possible Abandoned or Unused Vehicles: They should only be removed after a letter advising owner is left on the vehicle for 2 days or more explaining that their vehicle may be towed soon and where it is\ will be towed to so they can peacefully recover it.

(ix) Duress Stations or Emergency Intercoms They should be located in highly visible locations in all areas regularly travelled by pedestrians. Also they should be located about 1 meter or 40 inches above the floor in the center of a floor to ceiling yellow wall patch about 5 feet or 1.5 meter wide. Duress stations require signage that states “Pull in an Emergency”. This should open an intercom channel to site security or an off site central station, activate a local siren and also activate a local strobe light. Intercoms require signage that state press here to contact site security with an appropriate arrow.

(x) Parking Deck Windows: The first and second floor windows of most parking decks are usually left open for ventilation and day lighting purposes. All the potential thief usually has to do is to climb over a low half wall about 1.25 meter tall and he or she gets inside without being detected. There are three basic methods to reduce this exposure.

1.Bars: Install them on all first and second floor windows. The first floor mounting hardware for bars should be steel at least 12.5 mm thick or thicker. First floor round bars will be a minimum of ½ inch (12.5 mm) thick or thicker and will be mounted in vertical steel plates at least 9mm thick and 3 inches/75 mm wide. The horizontal bars will be loosely mounted in holes in the vertical plates and will spin when attempts are made to cut them. Custom designs should be considered for the second floor & can include pictures of a sunrise, a sunset, the moon and stars etcetera.

2. Expanded Metal Mesh (EMM) : A low cost alternative to bars for the second floor and any other sensitive areas is expanded metal mesh. All mounting brackets should be mounted with one way screws or lag bolts to prevent unauthorized removal.

3. Hostile Vegetation: Thieves, vandals etcetera can be deterred from gaining access via the first floor windows by shrubs with thorns such as Russian Olive . A complete list of other suitable species follows at the end of this document. Very visible warning signage is recommended anywhere hostile vegetation is used.

(xii) Ambush Hazards: Even recently built parking decks or underground garages may have built in pedestrian ambush hazards. Tactics for eliminating or reducing these hazards follow:

- (a) **Stairwells Connecting Levels:** This is best remedied by ensuring that both stairwell doors have windows and that there is a ceiling mount, overhead mount convex mirror (OHMCM) that allows the stairwell user to see if a person is laying in wait beside the door on the next level up or down. Note: Use of vandal resistant polished stainless steel OHM convex mirrors is recommended. Plastic or glass OHM convex mirrors are easily broken.
- (b) **Alcoves and Miscellaneous Hiding Spots:** Where practical possible these areas can be addressed using one or more of the following tactics.
- (i) Fence the area with expanded metal mesh . To prevent removal by criminals it should be installed with 1 way screws or 1 way lag bolts and some very robust steel mounting brackets.
 - (ii) Place a very large , heavy “art object” in the area to ensure that a criminal cannot stand or hide in an alcove or in a space behind a pillar installed 3 feet or less from a wall.
 - (iii) Install a vandal resistant very bright motion activated light. Its sensor should be located\aimed so that it illuminates the potential hiding spot and part of the surrounding area.

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Attachment: Hostile Vegetation List from Barbara Spyropoulos