

TH306: Designing for Today's Threats into the Built Environment with CPTED

Thursday, June 21, 2018
8:45 AM – 9:45 AM
1 Learning Unit

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Speakers List

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Course / Learning Objectives

- Identify the defining elements of a CPTED Risk Assessment
- Discover the balance between designing in security measures, security technologies, and meeting security standards
- Learn how to apply the techniques of CPTED in your practice
- Develop strategic design methods that can assist in reducing the vulnerability, fear, and opportunity of crime and terrorism in buildings

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The Challenge

- Provide a consistent, reliable, and graceful boundary of public spaces, and flexible to the evolving security needs.
- Set the standards for public spaces in the 21st-century to restore our public confidence that we can safely and securely enjoy the public domain and reduce the opportunities for crime and acts of terror.



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Public spaces, plazas, sidewalks:

- Are attractive magnets for activity
- Can be Magnets for legitimate activities – walking, sitting, eating, rec
- Can be Magnets for illegitimate activities: Loitering, crime, terrorism, vandalism

Definition of CPTED

- The proper use and design of the built environment can lead to a reduction in the fear of crime and crimes of opportunity, and improve the quality of life.
- By including CPTED principles in new construction, from the design stage, we can make the built environment safer from the start.

Designing Safe Cities needs to balance:

- Security
- Accessibility
- Functionality

Examples of recent vehicle attacks:

- Nice, France
- London Bridge, England
- Barcelona, Las Ramblas Ave.
- NYC – Time Square
- NYC – Bike path
- Muenster, Germany
- Toronto, CAN

Las Ramblas Van Attack was Plan B, Plan A was to use 3 vans with explosives

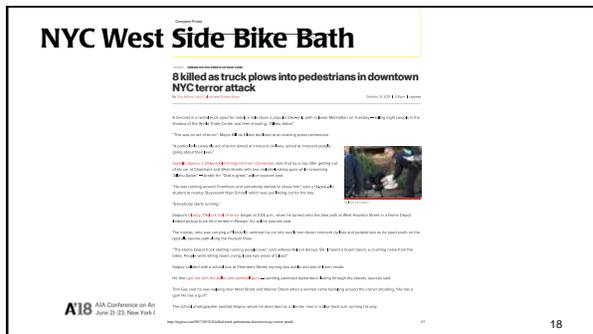
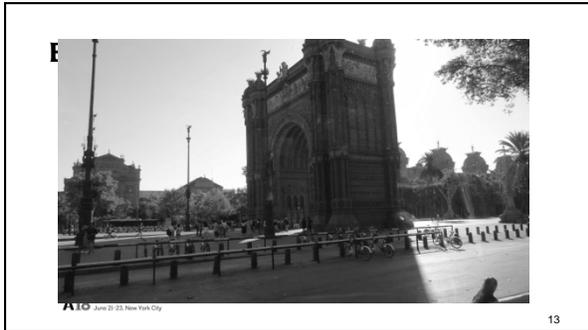
Police in Spain: Extremists had planned massive bomb attack

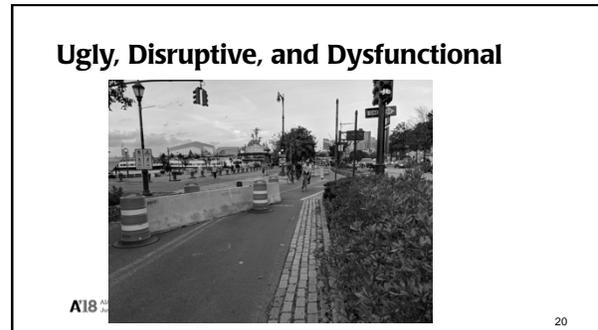
By JOSEPH WILSON AND LORE HENDRY
 BARCELONA, Spain — Police put up scores of roadblocks across the city on Sunday in hopes of capturing a fugitive suspect from the 12-member Islamic State cell that staged two vehicle attacks and police say apparently planted rough, deadlier car bomb explosives. Several by Islamic State cell.

that police have so far been unable to identify with certainty which he targeted. While police have narrowed the list of 12 members of the cell, three people including a suspected assassin, were believed killed when the bomb exploded. The 12-member Islamic State cell that staged two vehicle attacks and police say apparently planted rough, deadlier car bomb explosives. Several by Islamic State cell.

Cambidó, another attack killed one person and injured others. Another police official confirmed that three wanted to the investigation were retired with Albuja's credit card-the one used in the Las Ramblas car bomb, another found in the northeastern town of Ripoll, where all the main suspects lived, and a third found in Vic, on the road between the two.







How do we protect our streets from

- Errant cars
- Trucks
- Deliberate vehicle ramming attacks
- Accidental accidents

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The CPTED approach is

- Access control – to the sidewalks, streets, plazas
- Surveillance – to increase situational awareness to make unusual activity stand out and be noticed, reported and challenged
- Territoriality – boundary definition to create layers and support legitimate activities

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The CPTED approach:

We Must provide access to public streets and spaces by:

- Service vehicles
- Street cleaning
- Vendors
- EMS
- Pedestrians – ADA compliant

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The first step is always:

- The security risk assessment to determine what activities am I trying to stop or prevent?
- Develop security functional requirements
- Develop a basis of design
- Then, and only then, can you determine if you need bollards, barricades, or barriers!

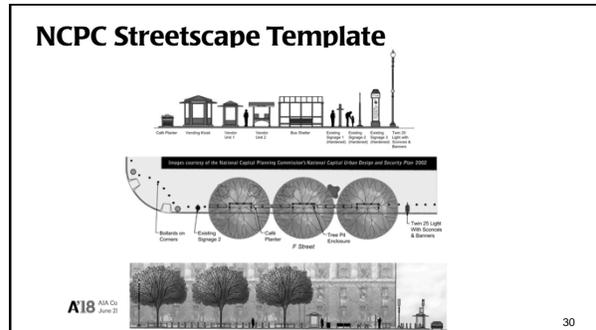
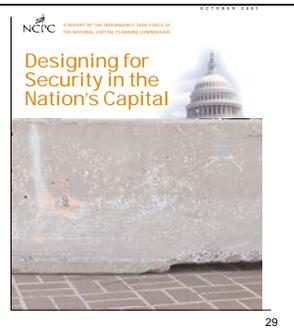
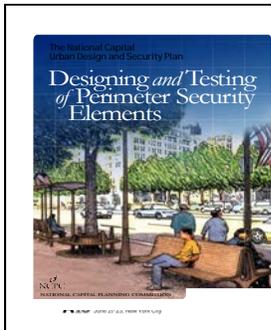
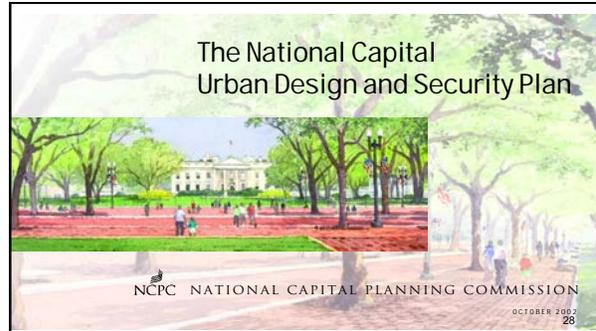
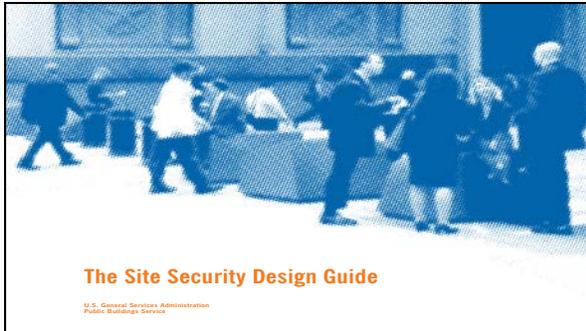
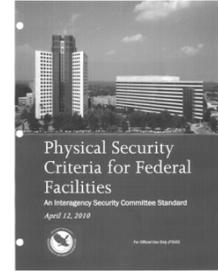
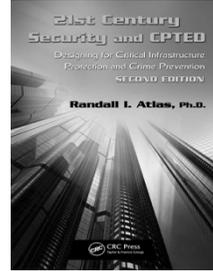
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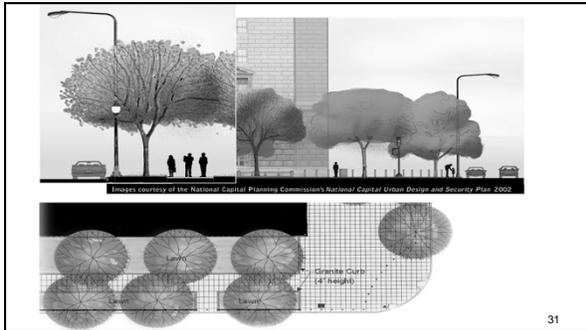
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Barriers Provide:

- **Psychological Deterrent -Thinking of unauthorized entry – Don't even think about it!**
- **Physical Deterrent by delaying, denying and deterring unwanted or illegal entry onto protected areas.**

Use Standards of Care





Architectural Security Design Solutions

Barriers can be divided into 2 groups and 2 types

- **Groups**
Physical or Passive: do not require activation to be effective
Operational or Active: require activation
- **Types**
Natural: bodies of water, cliffs, boulders, etc.
Man-made: fences, bollards, walls, CPTED, etc.

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If you are going to use bollards then:

- What am I trying to stop?
- Is it a traffic deterrent or stopping oncoming vehicles?
- How heavy is the vehicle?
- How fast is it going?
- Will the bollards need to be removed sometimes to allow service and other vehicle entry?
- Do the bollards need to be very visible or match design features?

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Bollard Basis of Design

- What type of footing or embedment ? Fixed, retractable, high security, K-Rated?
- What type of materials can be used or desired for bollard? carbon steel, stainless steel, reinforced concrete
- How far apart should the barriers be? Maximum of 5', Min. 3'

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What do you need to know?

- Dimensions of barrier? 4" – 12", or greater?
- Quantity? How many sides are you protecting?
- Cap style? Flat, peaked, dome
- Bollard type? Embedded, fixed with flat or round base, bollard sleeves, cover plates?

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What do you need to know?

- Removable/bends/or unlocks?
- Permanent/fixed in place?
- Operable/retractable?
- Height above ground?
- Embedded bollard depth?
- Powered, lighting?

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What happens when there is no planning?



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Not very strong or attractive



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Non anchored road bumps – ugh!



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Just an illusion....



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Inconsistent application



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Jersey Barriers – Ugh!



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Ugh!



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Ugly and dysfunctional



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Interesting?



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Cigarette trash bins as barriers?



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Jersey barriers as welcome mat?



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Having barriers as an illusion



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It's an illusion!!

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Non-retractable bollards



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Fixed bollards as protection



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Darth Vader bollards???



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Protecting the sidewalks



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Lot's going on here....



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Oklahoma City Fed. Courthouse



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Fixed bollards with screening



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Attractive fixed stone bollards



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Front Door Protection



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Plaza protection



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Now that is a real bollard for safety



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Separation of functions is good



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Separate movement of People & Services, But how do we protect the them?



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Bollards separating uses and users



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Protecting buildings and pedestrians



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Fixed concrete barriers



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Benches as barriers



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Barriers that look like landscaping



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Blended bollards with plantings



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CPTED Exterior Barriers



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The boulders are imbedded below



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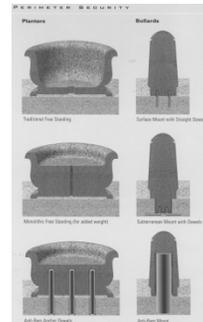
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Really?



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Planter barriers



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The White House



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Berms and low walls for protection



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Retractable bollards



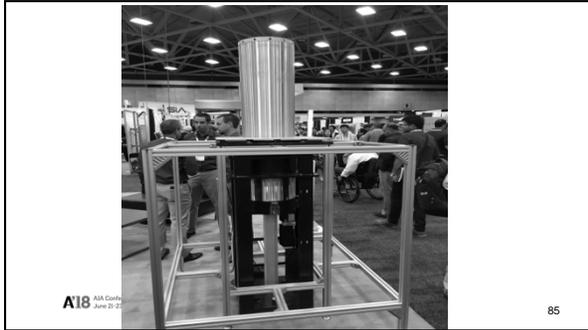
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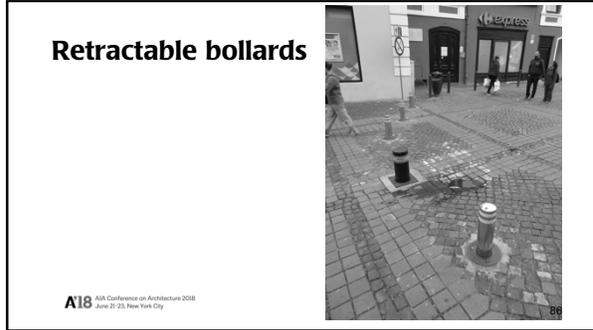
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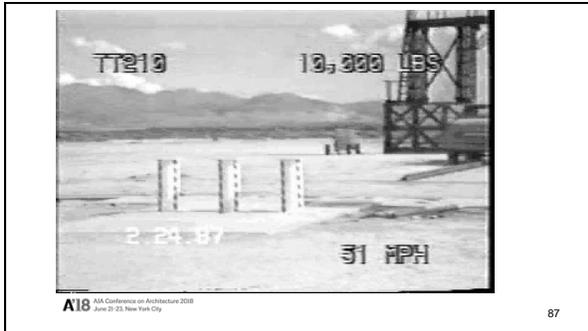
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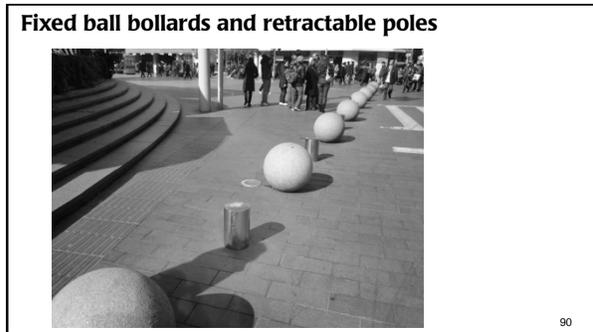
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Real or illusion of security?



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But once you look up close...



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A small metal bolt hold the ball???



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Security by bowling balls...ugh!



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What's involved in construction



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When it is done properly...ahhhh!



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Bollards and Barriers

- Are vehicle barriers needed?
- Choices in road design
- Using chicane effects
- Choices in site design
- Level changes



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Security of entry - chicaning

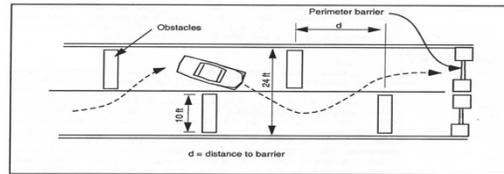


Figure 3-6. Serpentine Pattern

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Miami Beach Orders Barricades Following Barcelona Attack

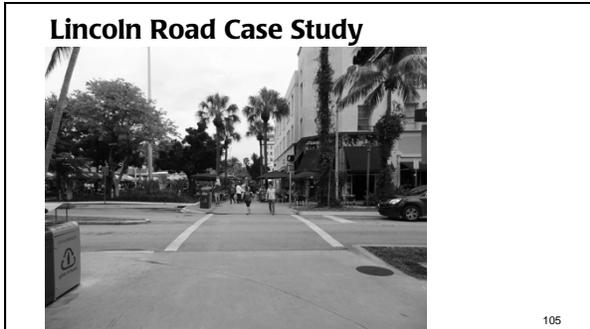
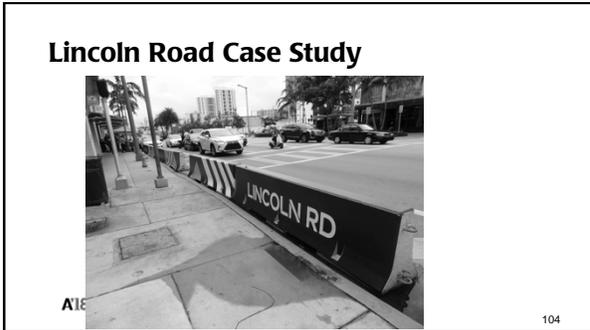
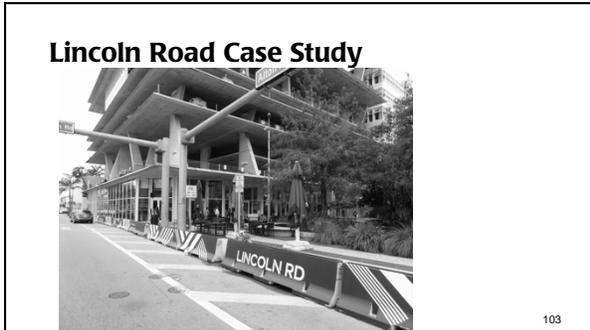
Miami Beach has ordered temporary concrete barriers along the entrances to its popular Lincoln Road outdoor pedestrian entertainment area.

By Paul Sicchitano (Patch Staff) - Updated August 22, 2017 12:18 pm ET

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Costs of making improvements

- Cost of bollard - material
- Cost of trenching – mat/labor
- Cost of foundation – mat/labor
- Cost of maintenance and upkeep

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Costs

- K-4 Defender Bollard - \$5K
- K-12 Titan Bollards - \$8.5K
- Global Retractable Bollards - \$6K
- Anti-Ram Barrier Arm - \$17-21K
- Jersey Barriers 10' - \$1200
- Costs don't include demolition of existing roadways, barriers, moving utilities, permits, non- union labor costs

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So, what is the experience that we are looking for?

- A sense of security
- Feelings of safety
- A perimeter that is useable and accessible
- A perimeter that is open, yet controlled
- A perimeter that avoids circulation conflicts
- A boundary that responds to the many user needs
- A perimeter that allows for changes in use and users

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Thank you!

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