



JIH
JACUNSKI HUMES
ARCHITECTS, LLC

*Specializing in
Public Safety Facility Design*

Safety vs. Security

- Safety
 - Mandated by Building Codes
 - Standards on how buildings are to perform during abnormal conditions (fire, hurricane, floods, earthquakes, etc.)

Safety vs. Security

- Safety
 - Mandated by Building Codes
 - Standards on how buildings are to perform during abnormal conditions (fire, hurricane, floods, earthquakes, etc.)
- Security
 - How assets can be protected (people, information, property) from the effects or acts carried out by individuals or groups.

Security in Design

- Perfect security is an unattainable goal.
- Security measures are expensive.
- There is no 100%, absolute protection.
- Prioritize concerns so the most critical function can be stabilized first.
- For a criminal or a terrorist, easy targets are preferable to more difficult targets.
- Successful security solution for a project is the establishment of an overriding security concept that is incorporated into the overall building design.

Basic Components of Security

- Detection
- Deterrence
- Response

Basic Components of Security

- Detection
 - Threat must first be detected or perceived
 - Rely on observation by users or security personnel
 - Use of monitoring and detection devices

Basic Components of Security

- Detection
- Deterrence
 - Delay an occurrence by physical or operational methods, or combination of both
 - Need to extend the time
 - Maintain distance

Basic Components of Security

- Detection
- Deterrence
- Response
 - Ability to respond to a threat
 - Determined by what occurs in Detection Phase and amount of time created in Deterrence Phase

Basic Components of Security

Detection and
Deterrence are
WORTHLESS if
there is no one to
respond!

Basic Components of Security

With the absence of
Detection and
Deterrence, security
can be breached
without a response!

Basic Components of Security

Deterrence measures
without a Detection
component give no
advance warning of a
problem!

Basic Components of Security

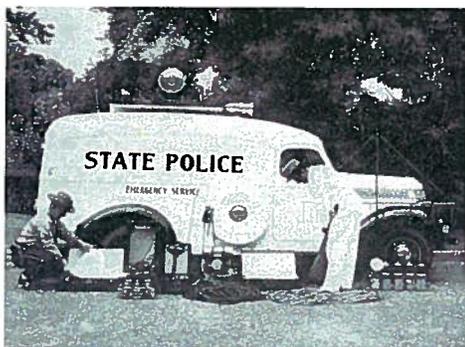
Comprehensive security
plans integrate:
Detection / Deterrence /
& Response

Public Safety Facility Design

- Detection / Deterrence Phase:
 - ✓ Surveillance
monitoring, observing, recording
 - ✓ Access Control
controlling individuals, vehicles,
property as they enter / exit /
move about a facility
 - ✓ Building Hardening
Ballistic Hardening (BR)
Forced Entry Protection (FE)
- Response Phase:
 - ✓ Law Enforcement response!

Public Safety Facility Design

Historical Review of Public Safety Facility Design in CT



Public Safety Facility Design

Feb. 13, 1970 – Pardue Brothers bombed the Danbury Police Dept.

Milford, CT Police - 1977



Milford, CT Police - 1977



Danbury, CT Police - 2009



Danbury, CT Police - 2009



Danbury, CT Police - 2009



Concepts of Security Design

Building Hardening

Milford, CT Police - 1977



Concepts of Security Design

Building Hardening

(Comprehensive Design Solutions to mitigate the effects of attacks)

Concepts of Security Design

Building Hardening

- Forced Entry (FE) Protection
- Ballistic (BR) Hardening

Concepts of Security Design

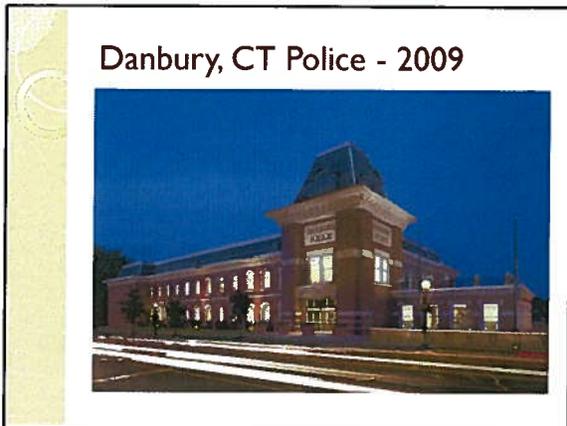
Forced Entry (FE) Protection:

- The level of protection (time to penetrate) chosen for a property is often coordinated with the time required for an appropriate response.

Concepts of Security Design

Forced Entry (FE) Protection:

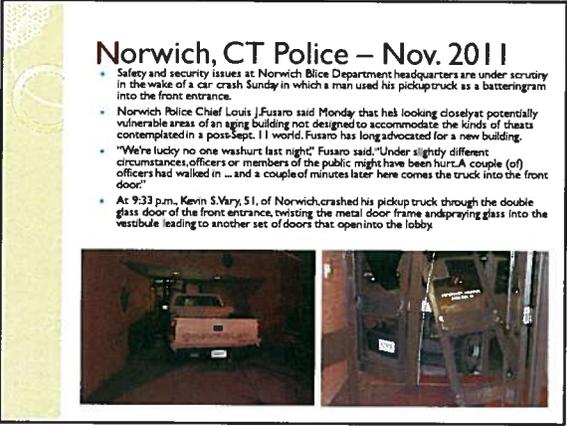
- Layered or Tiered Defense
 - Site Perimeter
 - Building Envelope
 - Internal Building Areas



Blast Resistant Hardening

Standoff Distance:

- The greater the standoff distance, the less hardening a property needs.
- In federal government buildings, a **50-foot** standoff distance is now the requested norm.
- In congested or urban areas, the standoff distance is nearly impossible to achieve.



Facade Hardening

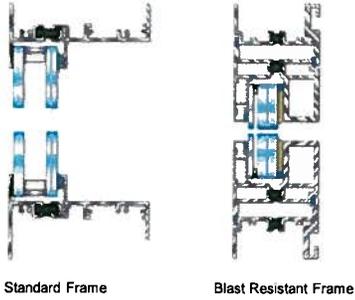
- The most vulnerable to blast loads and penetration threats is the building envelope.
- Conventionally designed glazing has been one of the highest contributors to human casualties in almost every terrorist bombing.



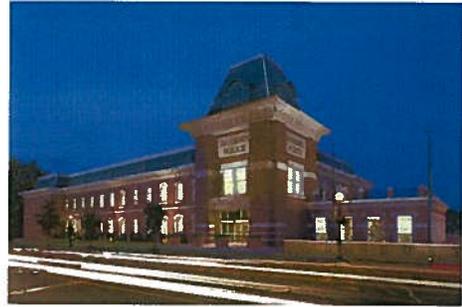
GSA Glass Conditions 1-5

Condition	Description	Notes
1	Existing glass and glazing that meets or exceeds the performance of the following:	None
2	Existing glass and glazing that does not meet the performance of the following:	Replacement is required to the extent that the glass is damaged or the performance is degraded. The replacement shall be in accordance with the performance of the existing glass and glazing.
3	Existing glass and glazing that does not meet the performance of the following:	Replacement is required to the extent that the glass is damaged or the performance is degraded. The replacement shall be in accordance with the performance of the existing glass and glazing.
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Blast Resistant Window Frames



Danbury, CT Police - 2009



Ballistic Hardening

- #1 – Minimize number of openings
- #2 – Provide a high level of protection

Farmington, CT Police



Chatham, MA Police



Danbury, CT Police - 2009



Bullet Resistant Fiberglass

- UL listed according to thickness
- Installation with conventional tools
- Reduces overall wall thickness



U.L. 752 Ballistic Standards:

Ratings	Ammunition	Grains	Weight	Velocity		Number of Shots
				MIN/MAX (FPS)	(FPS)	
LEVEL 1	9mm Full Metal Copper Jacket with Lead Core	124	8.0	1175-1293	358	3
LEVEL 2	.357 Magnum Jacketed Lead Soft Point	158	10.2	1250-1375	385	3
LEVEL 3	.44 Magnum Lead Semi-Whisper Gas Checked	240	15.6	1350-1485	411	3
LEVEL 4	30 Caliber Rifle Lead Core Soft Point (30-06 caliber)	180	11.7	2540-2794	774	1
LEVEL 5	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball (308 caliber)	150	9.7	2750-3025	838	1
LEVEL 6	9mm Full Metal Copper Jacket with Lead Core	124	8.0	1400-1540	427	5
LEVEL 7	5.56mm Rifle Full Metal Copper Jacket with Lead Core (223 caliber)	55	3.56	3080-3388	939	5
LEVEL 8	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball (308 caliber)	150	9.7	2750-3025	838	5

Bullet Resistant Products

- Bullet Resistant Fiberglass Panels
- Custom Fabrics & Textiles
- Bullet Resistant Steel & Aluminum Windows
- Bullet Resistant Wood, Steel & Aluminum Storefront Doors
- Bullet & Blast Resistant Aluminum Window Systems (up to 42 psi, and 30 cal. Armor Piercing)
- Blast Resistant Steel & Aluminum Storefront Doors
- Forced Entry / Bullet Resistant Windows & Doors

Bullet resistant wood door w/ glazing



Landscaping



Landscaping



Landscaping:

- Minimize areas to hide or obscure surveillance (detection)
- Reduce threat of attacks



Integrated Technology

- Access Control
- Surveillance (CCTV)
- Intercoms
- Radio Communications
- Recording Devices

Integrated Technology

- Requires adequate space for system integration
- Recommend professional assistance



Integrated Technology



Questions & Answers

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