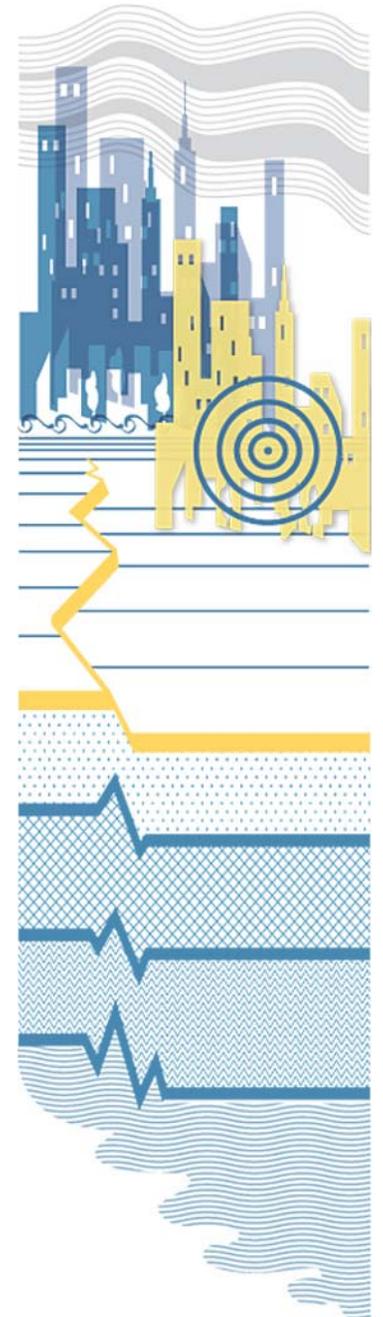


PROVIDING PROTECTION TO PEOPLE AND BUILDINGS

Risk Management Series Publications



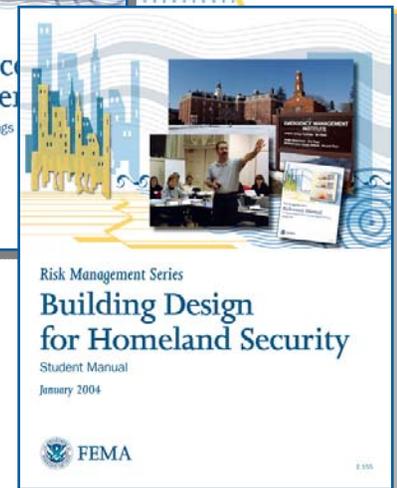
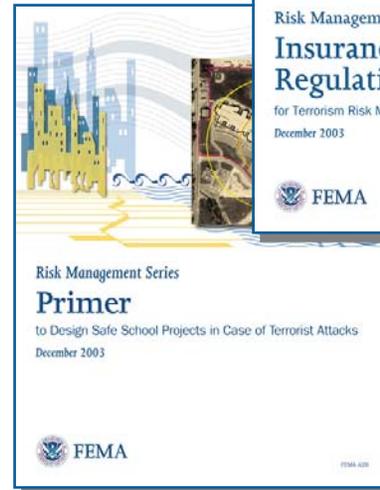
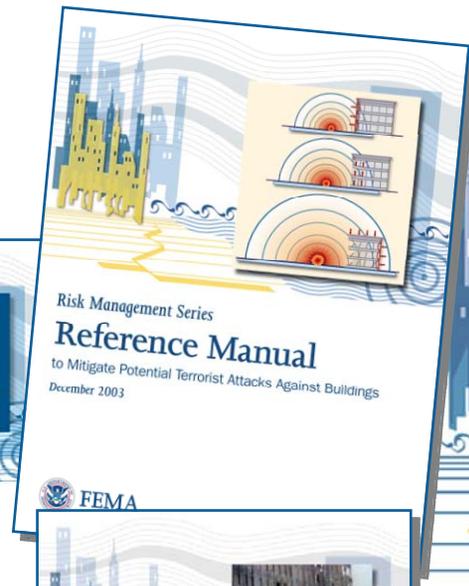
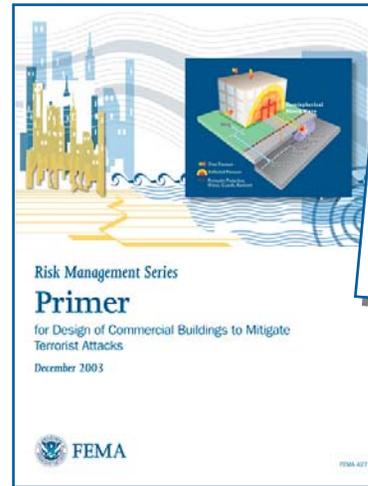
FEMA



RMS Publications

CONTENTS

- RMS Publications
- Existing RMS Publications
- Future RMS Publications
- FEMA Risk Assessment Projects
- Final Thoughts



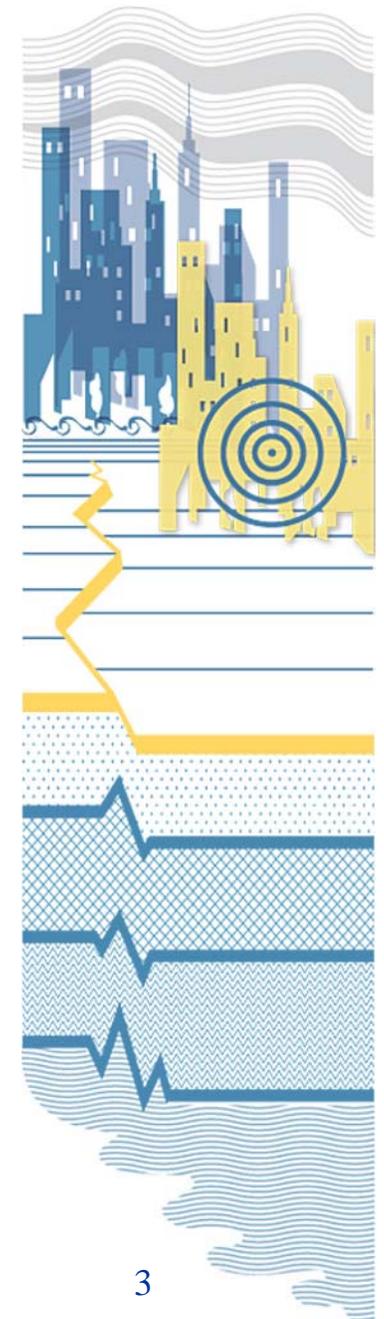
FEMA

RMS Publications

Purpose: To mitigate the effects of natural and manmade hazards against buildings.

Type of buildings: New and existing; commercial, retail, industrial (light), manufacturing, health care, and schools

Audience: Building science community of architects and engineers, state and local governments



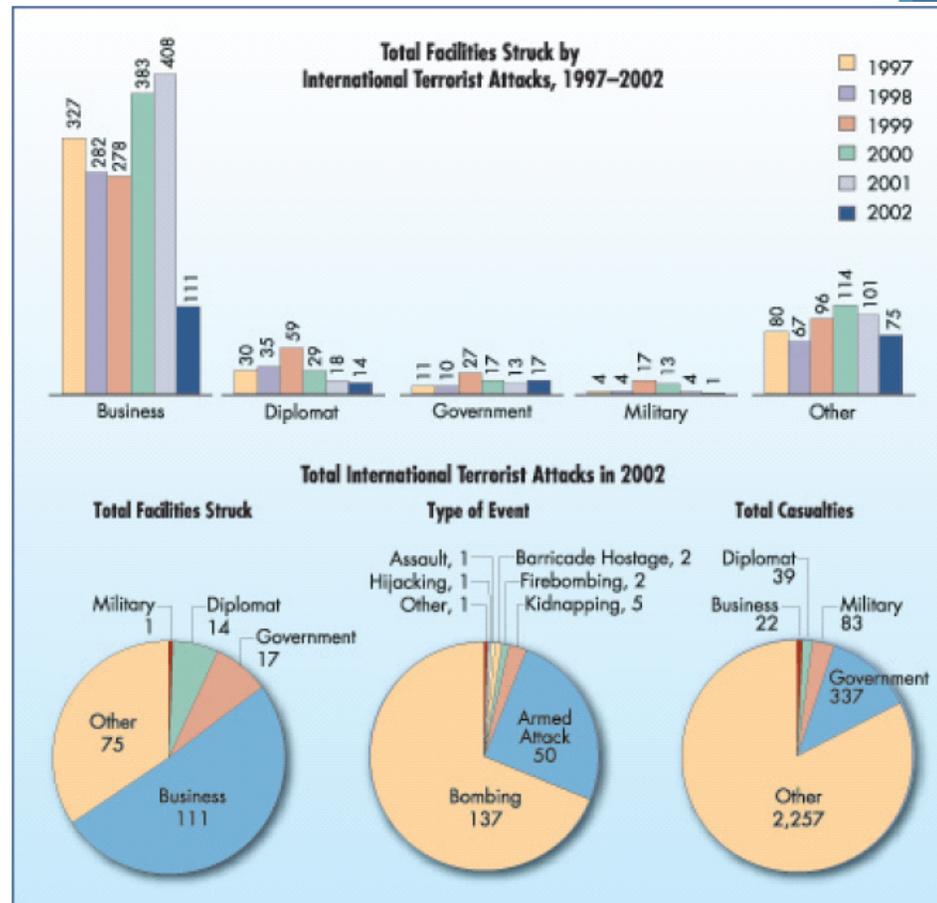
FEMA

RMS Publications

Why Buildings?

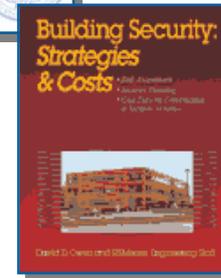
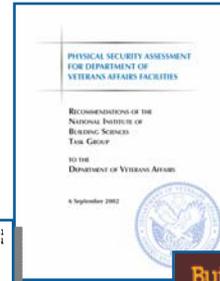
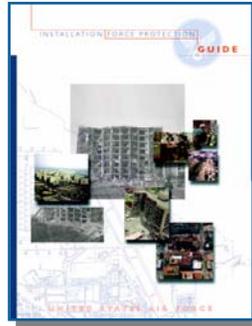
- Can be iconic targets
- Can host special tenants
- Contain critical support systems
- Contribute to injury and loss of lives
- Effect in the economy and key operations
- Serve for protection in case of CBR attacks

Why Commercial Buildings?



FEMA

RMS Publications



- Air Force
- Army
- CDC-NIOSH
- DOJ
- FEMA
- GSA
- Navy
- NIBS
- R.S. Means
- VA



FEMA

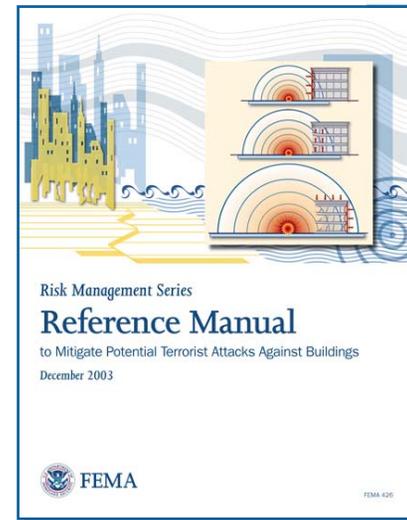
Existing RMS Publications

FEMA 426

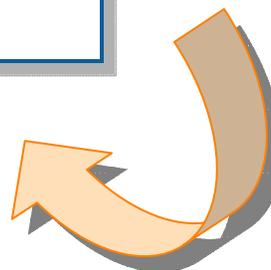
- Threat and Vulnerability Assessment
- Site and Layout Design
- Building Design
- Explosive Blast
- Chemical, Biological, and Radiological

FEMA 426 - Appendices

- Acronyms
- General Glossary
- Glossary (CBR)
- Electronic Security Systems
- Bibliography
- Associations and Organizations



FEMA



RISK MANAGEMENT SERIES

Existing RMS Publications

FEMA 427

- Terrorist Threats
- Weapons Effects
- Building Damage
- Design Approach
- Design Guidance
- Occupancy Types
- Cost Considerations

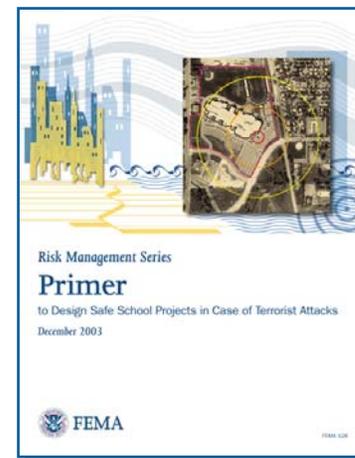


Schools

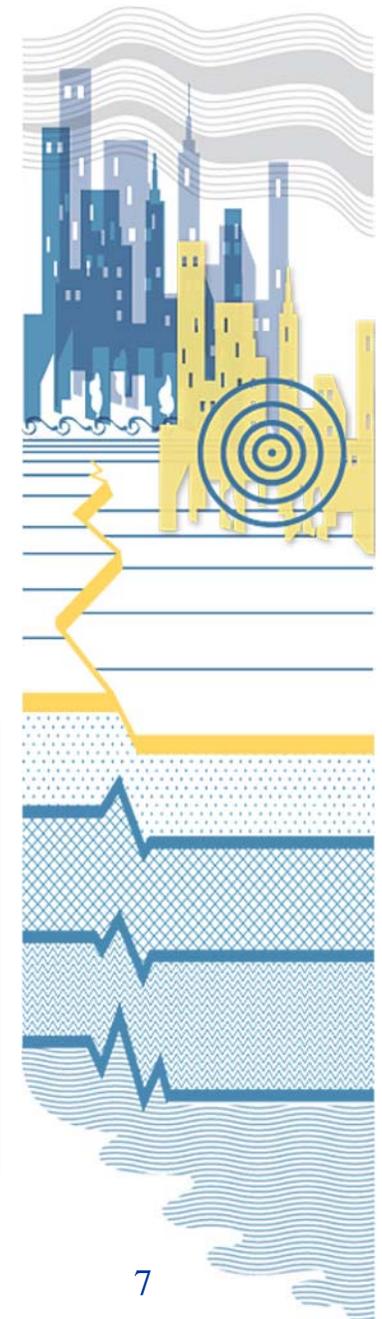


FEMA 428

- Threat and Vulnerability Assessment
- Site and Layout Design
- Building Design
- Explosive Blast
- Chemical, Biological, and Radiological
- Safe Rooms



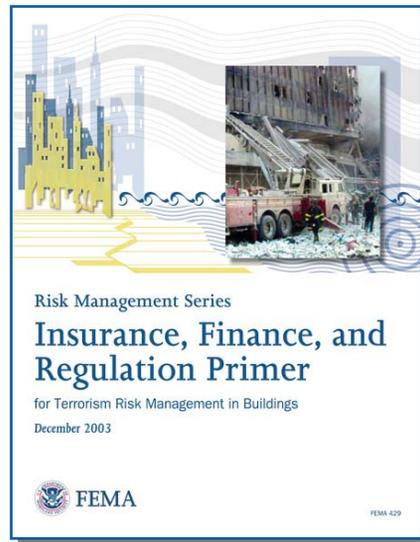
FEMA



Existing RMS Publications

FEMA 429

- Insurance and Terrorism Risk
- Finance Building Regulation and Terrorism Risk
- Guide to Expertise and Tools
- Terrorism Risk Insurance Act of 2002



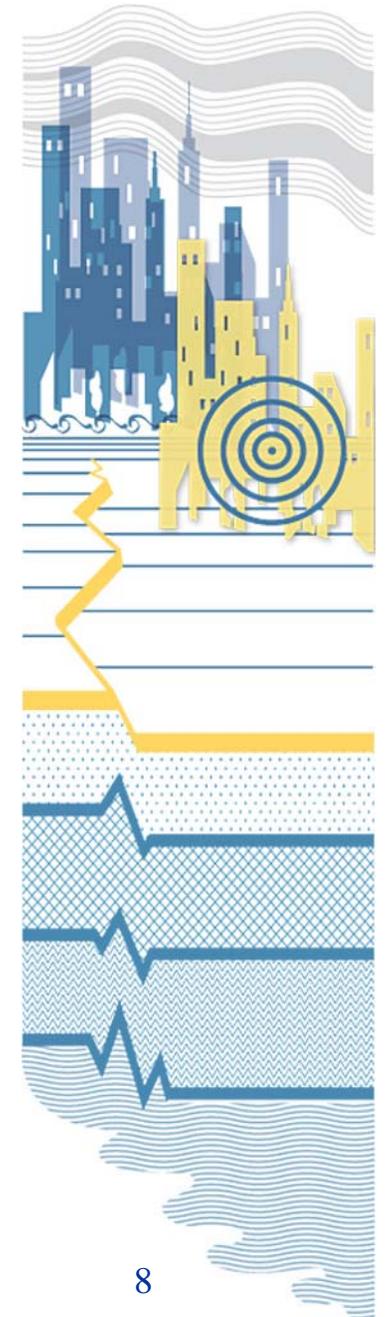
Insurance



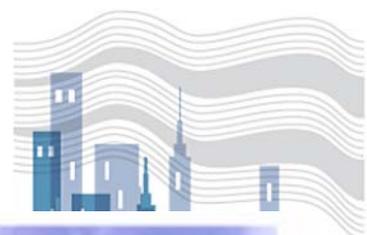
FEMA

RISK MANAGEMENT SERIES

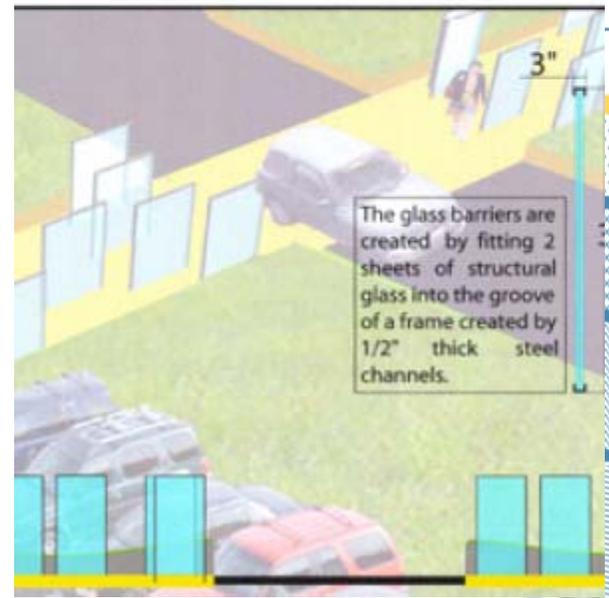
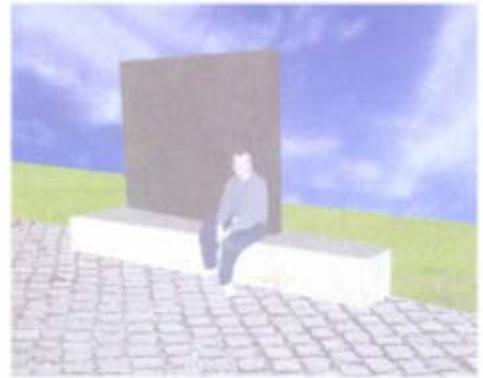
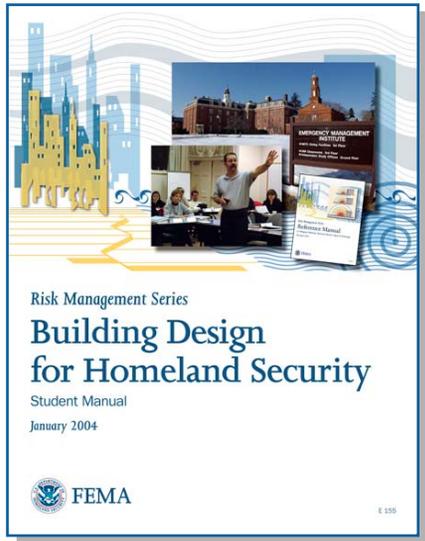
8



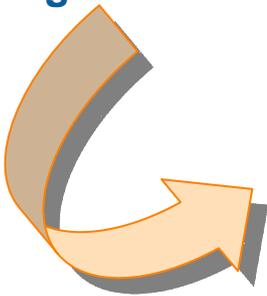
Existing RMS Publications



- E I55**
- Based on FEMA 426
 - Offer Yearly at EMI
 - To be Offered in New York City on May 2004
 - Hosted by Virginia Tech February 13-15, 2004
 - Followed by Charrette/competition



Training

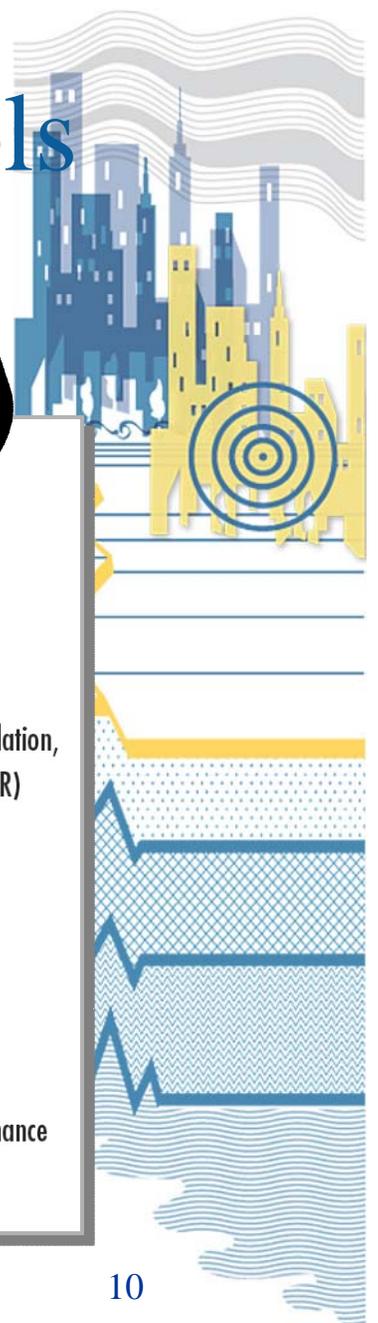
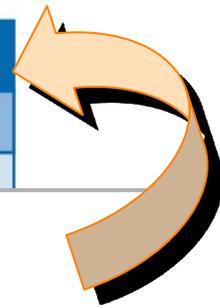


FEMA



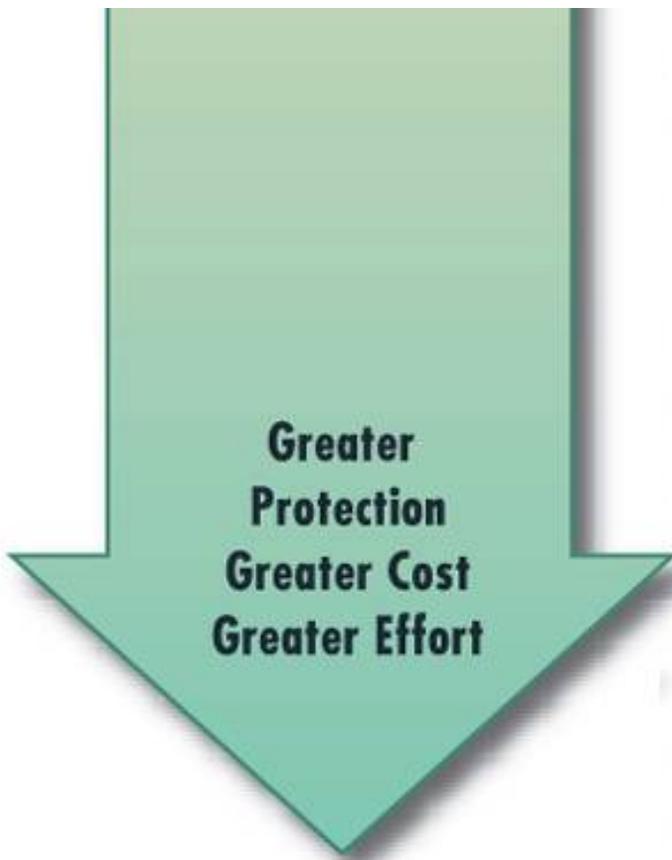
Existing RMS Publications: Tools

Section	Vulnerability Question	Guidance	Observations
1	Site		
1.1	<p>What major structures surround the facility (site or building(s))?</p> <p>What critical infrastructure, government, military, or recreation facilities are in the local area that impact transportation, utilities, and collateral damage (attack at this facility impacting the other major structures or attack on the major structures impacting this facility)?</p> <p>What are the adjacent land uses immediately outside the perimeter of this facility (site or building(s))?</p>	<p>Critical infrastructure to consider includes:</p> <p>Telecommunications infrastructure</p> <p>Facilities for broadcast TV, cable TV; cellular networks; newspaper offices, production, and distribution; radio stations; satellite base stations; telephone trunking and switching stations, including critical cable routes and major rights-of-way</p> <p>Electric power systems</p> <p>Power plants, especially nuclear facilities; transmission and distribution system components; fuel distribution, delivery, and storage</p> <p>Gas and oil facilities</p> <p>Hazardous material facilities, oil/gas pipelines, and storage facilities</p>	<p>Site</p> <p>Architectural</p> <p>Structural Systems</p> <p>Building Envelope</p> <p>Utility Systems</p> <p>Mechanical Systems (heating, ventilation, and air conditioning [HVAC] and CBR)</p> <p>Plumbing and Gas Systems</p> <p>Electrical Systems</p> <p>Fire Alarm Systems</p> <p>Communications and Information Technology (IT) Systems</p> <p>Equipment Operations and Maintenance</p> <p>Security Systems</p>



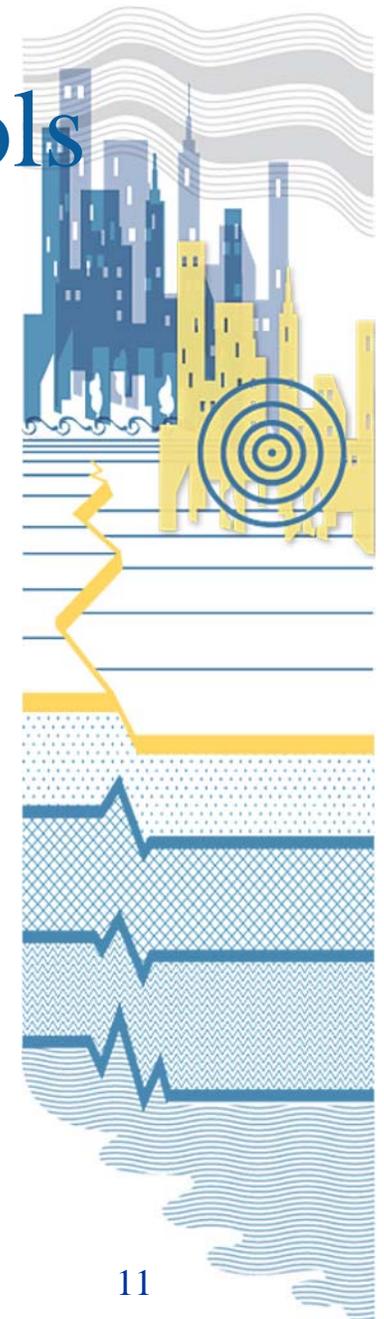
FEMA

Existing RMS Publications: Tools



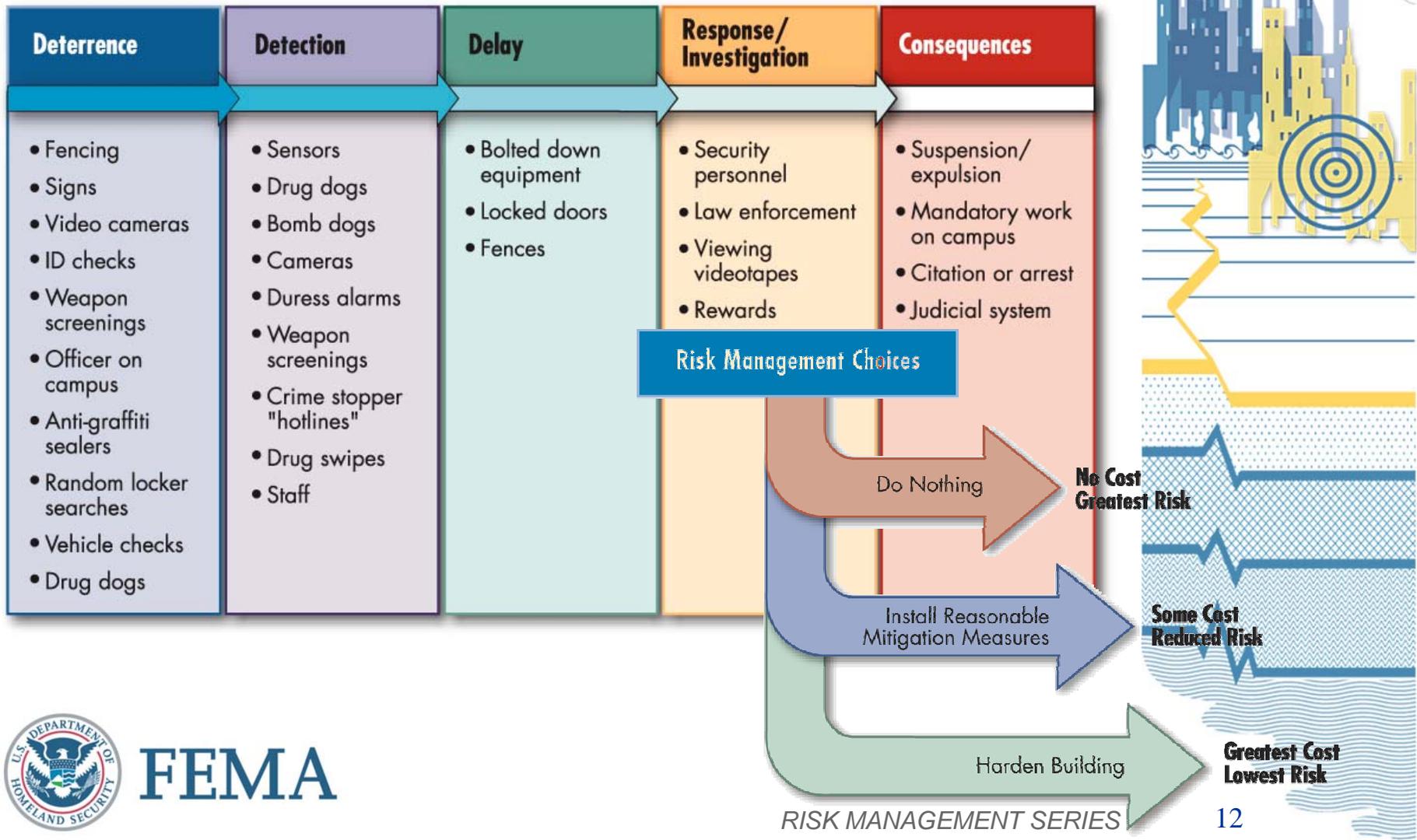
**Greater
Protection
Greater Cost
Greater Effort**

- Install an internal public address system.
- Stagger interior doors and offset interior and exterior doors.
- Eliminate hiding places.
- Install a second and separate telephone service.
- Install radio telemetry distributed antennas throughout the facility.
- Use a badge identification system for building access.
- Install a CCTV surveillance system.
- Install an electronic security alarm system.
- Install rapid response and isolation features into HVAC systems.
- Use interior barriers to differentiate levels of security.
- Locate utility systems away from likely areas of potential attack.
- Install call buttons at key public contact areas.



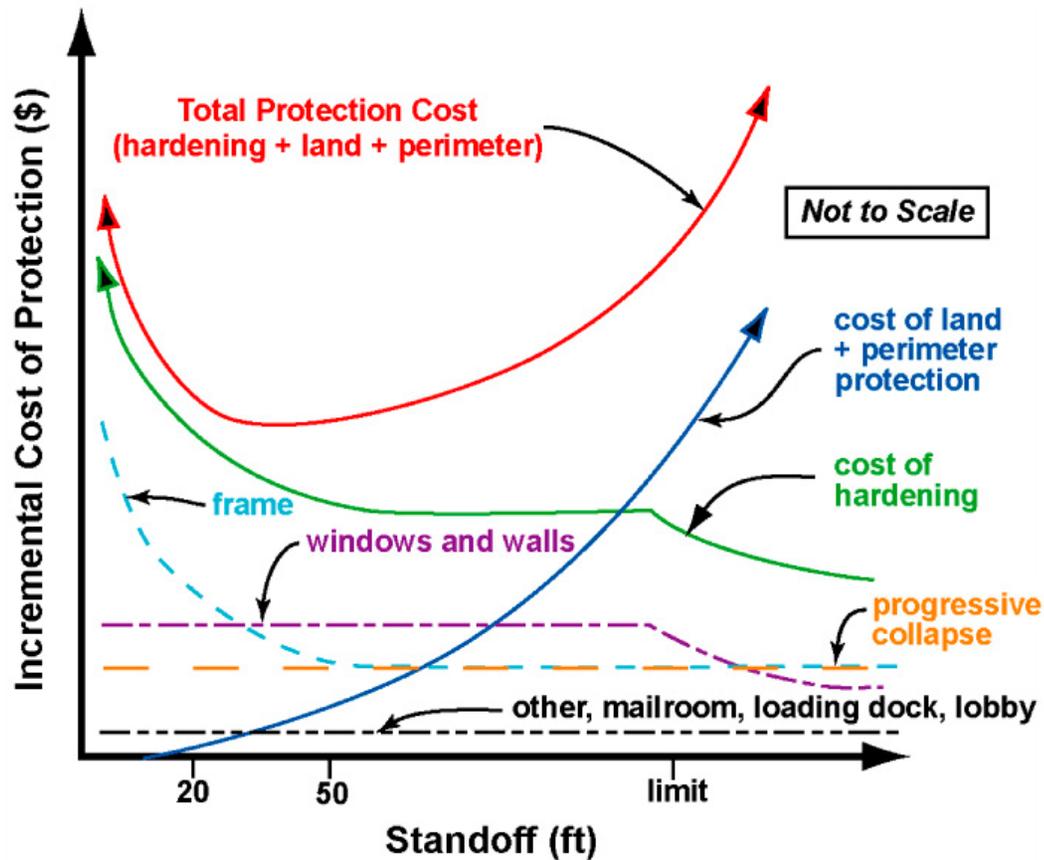
FEMA

Existing RMS Publications: Tools

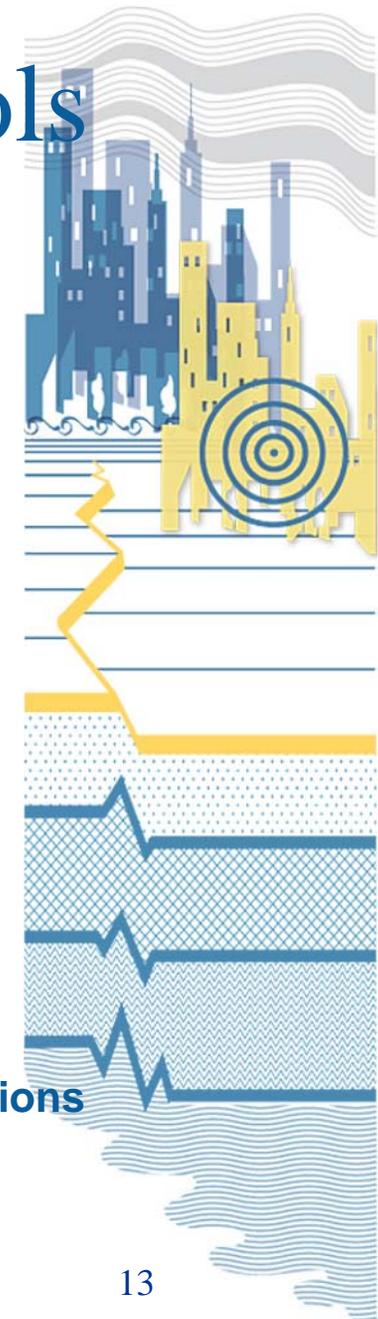


FEMA

Existing RMS Publications: Tools



Cost Considerations



FEMA

Future RMS Publications

FEMA 430 - Primer for Incorporating Building Security Components in Architectural Design

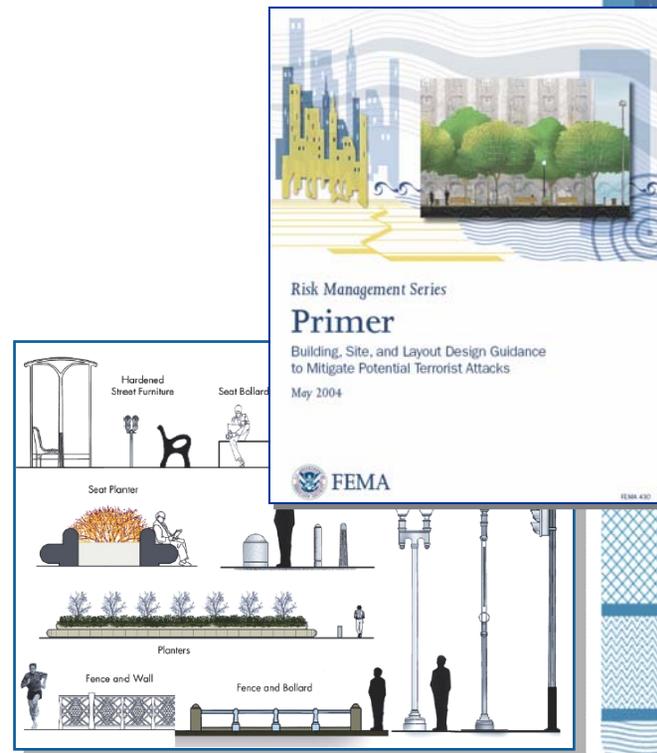
- Site Location and Layout
- Standoff Distances
- Architectural Design
- Building Envelope
- Guidance for the Disabled



Working Closely with NCPC



FEMA

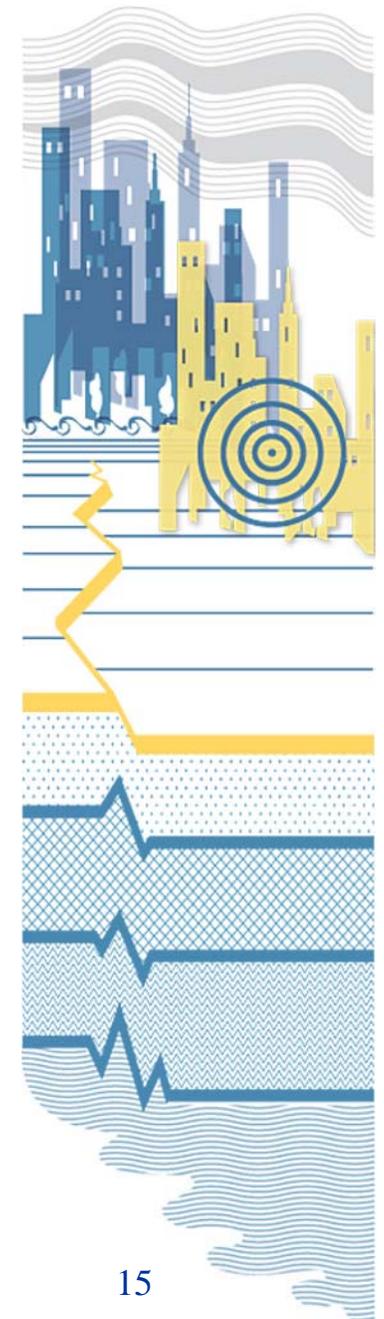
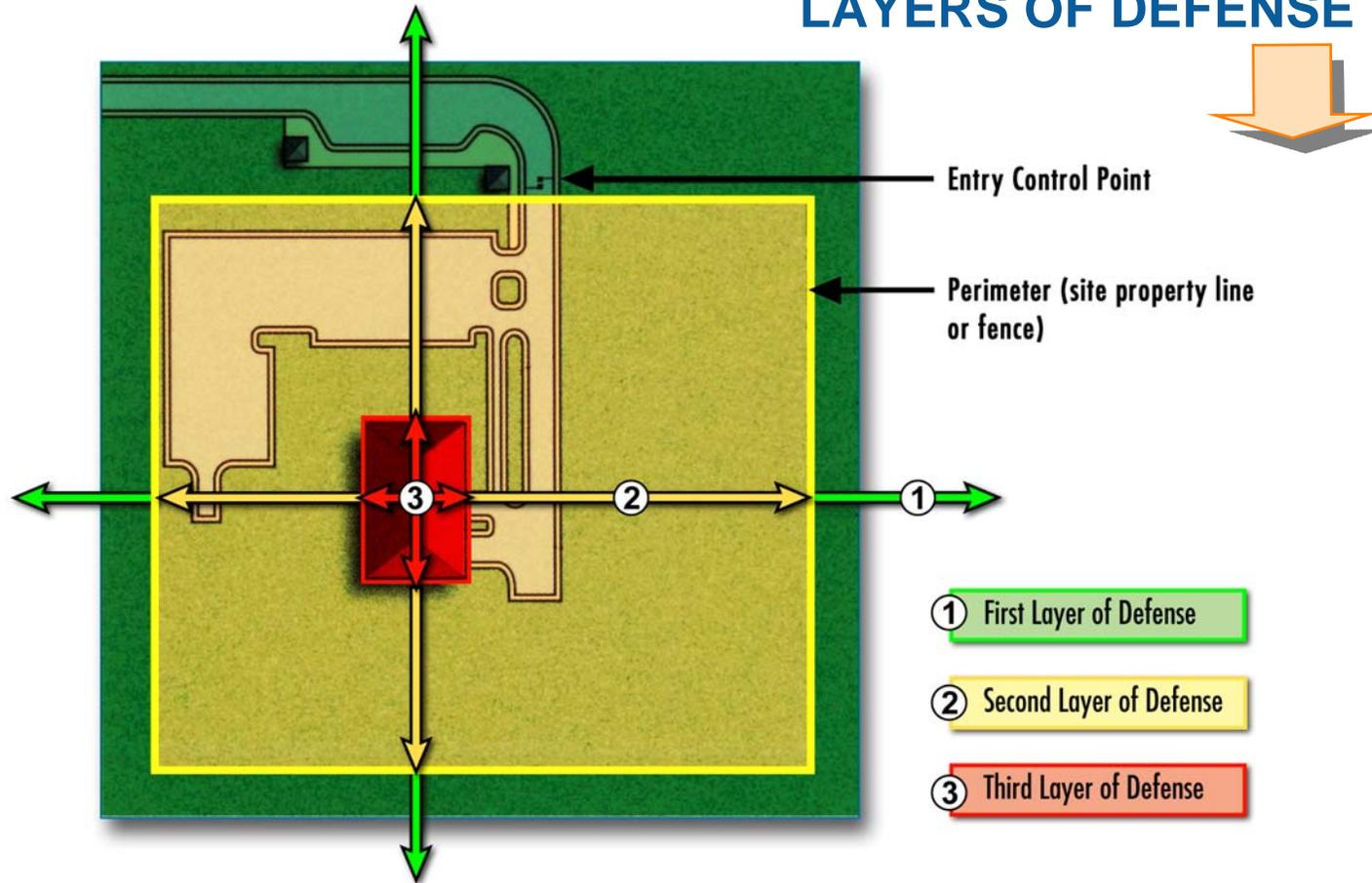


RISK MANAGEMENT SERIES

14

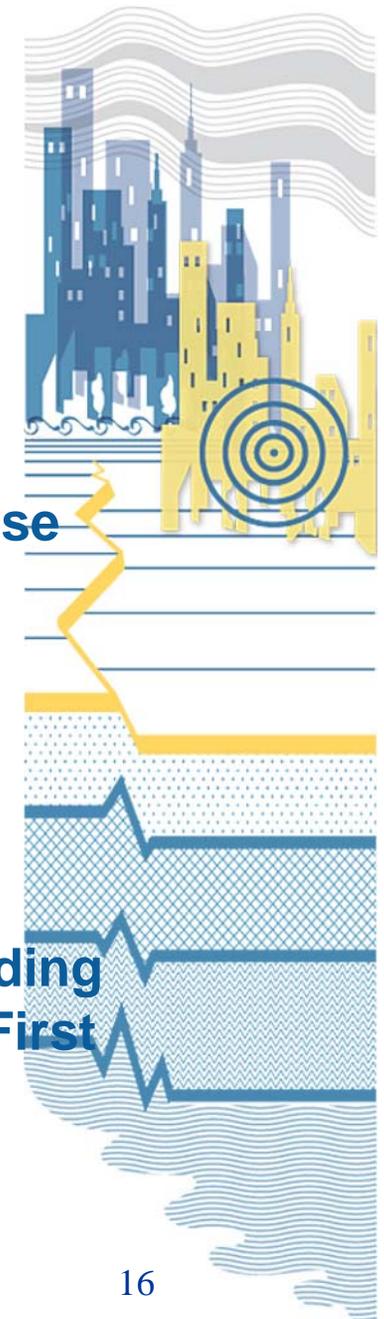
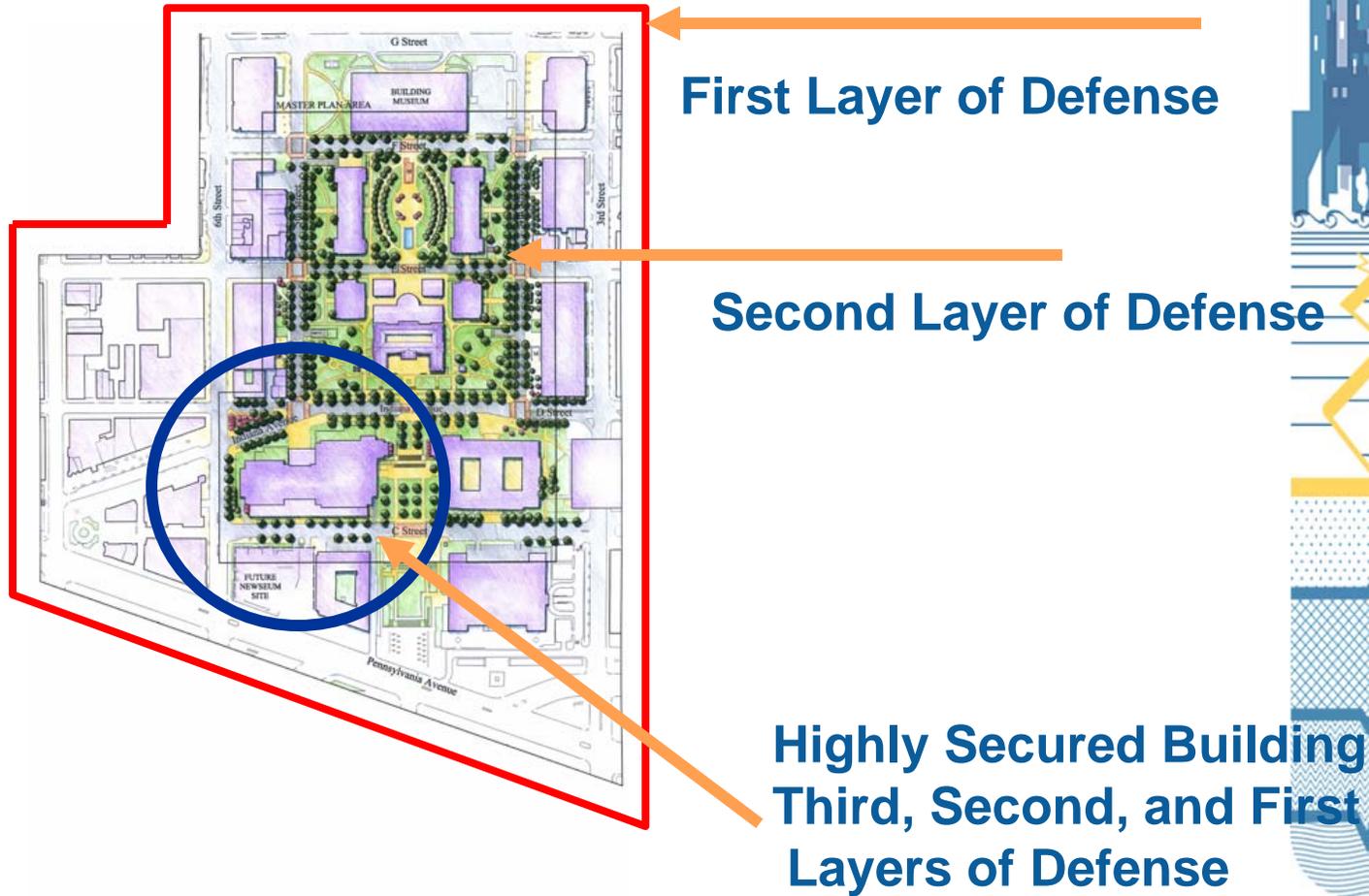
FEMA 430: Tools

LAYERS OF DEFENSE



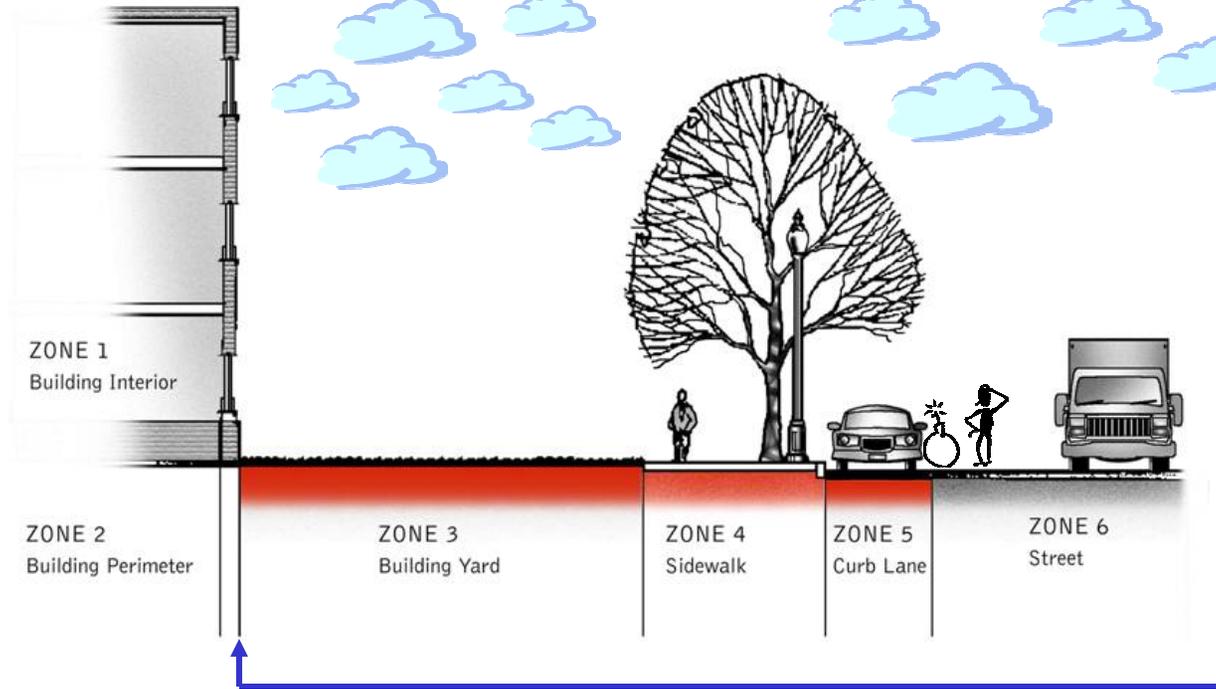
FEMA

FEMA 430: Tools

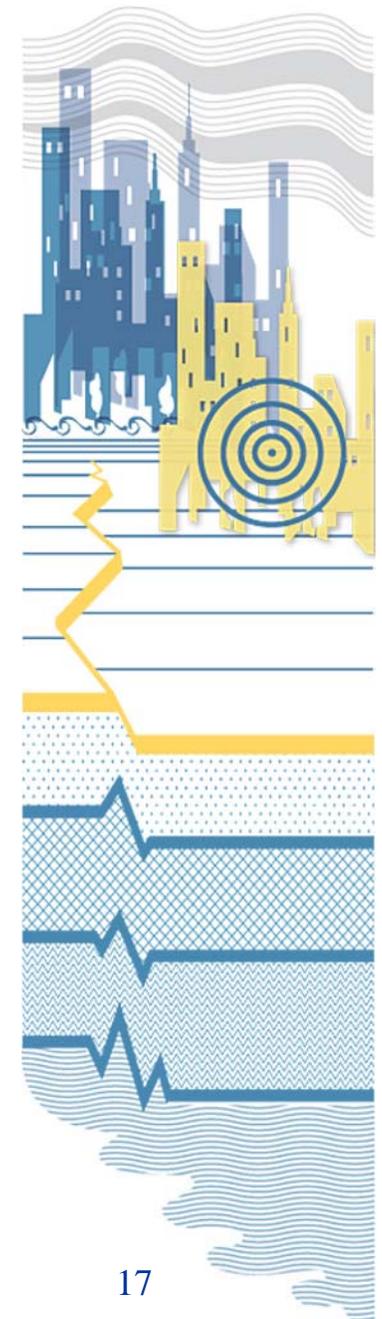


FEMA

FEMA 430: Tools



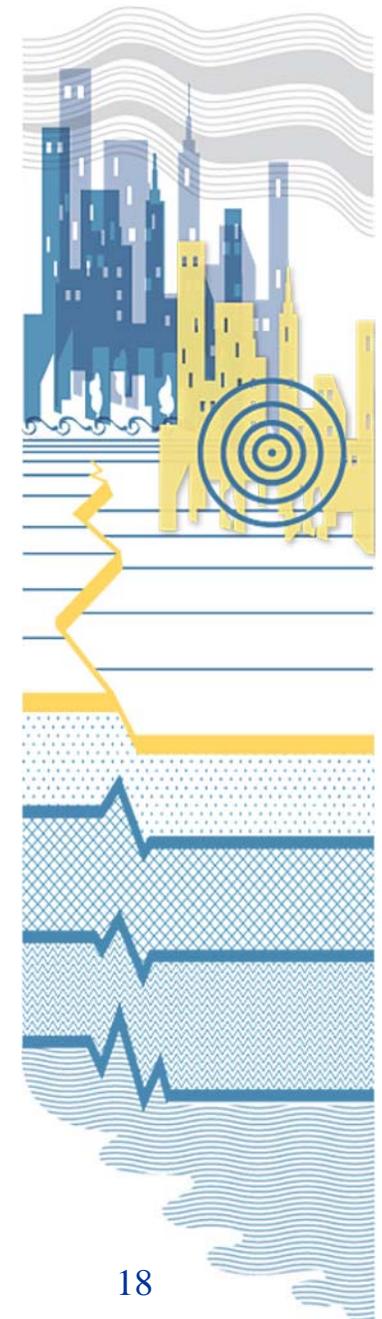
Example of a Second Layer of Defense in an Urban Setting



FEMA

FEMA 430: Tools

Catalogue of Bollards, Barriers, and Street Furniture in compliance with NCPC



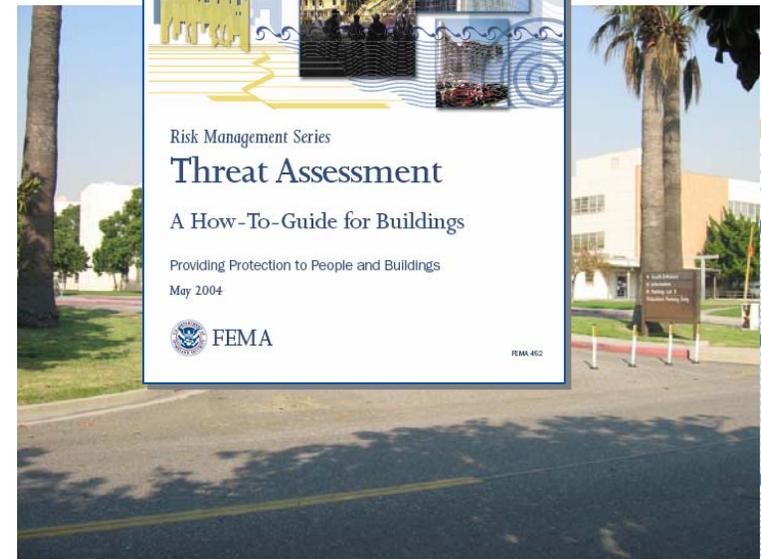
FEMA

Future RMS Publications

FEMA 452- Threat and Vulnerability Assessment for Commercial Buildings

- Identify and quantify the value of assets
- Determine potential threats
- Evaluate the vulnerability of critical assets
- Determine risk of critical assets
- Determine mitigation measures

Function	Cyber Attack	Armed Attack (single gunman)	Vehicle Bomb	CBR Attack
Administration	280	140	135	90
Asset Value	5	5	5	5
Threat Rating	8	4	3	2
Vulnerability Rating	7	7	9	9
Engineering	128	128	192	144
Asset Value	8	8	8	8
Threat Rating	8	4	3	2
Vulnerability Rating	2			
Warehousing	96			
Asset Value	3			
Threat Rating	8			
Vulnerability Rating	4			



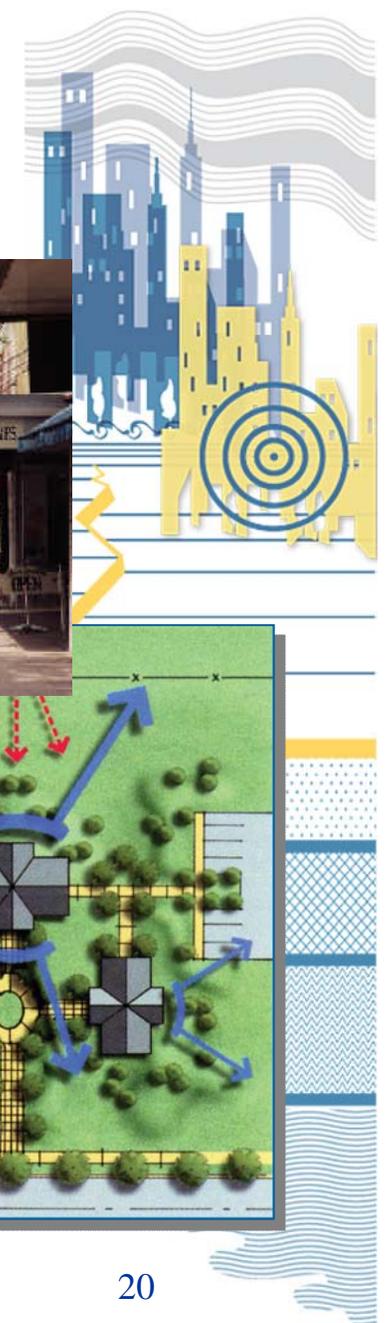
FEMA

**Working Closely
with VA**

Future RMS Publications

FEMA 455 – Rapid Screening for Building Security

- To evaluate potential damage to explosives and CBR
- Based on principles of Rapid Visual Screening for Earthquakes
- Large use by State and Local Governments



FEMA

Future RMS Publications

FEMA 453 – Safe Havens

Design Guidance for High Occupancy Buildings

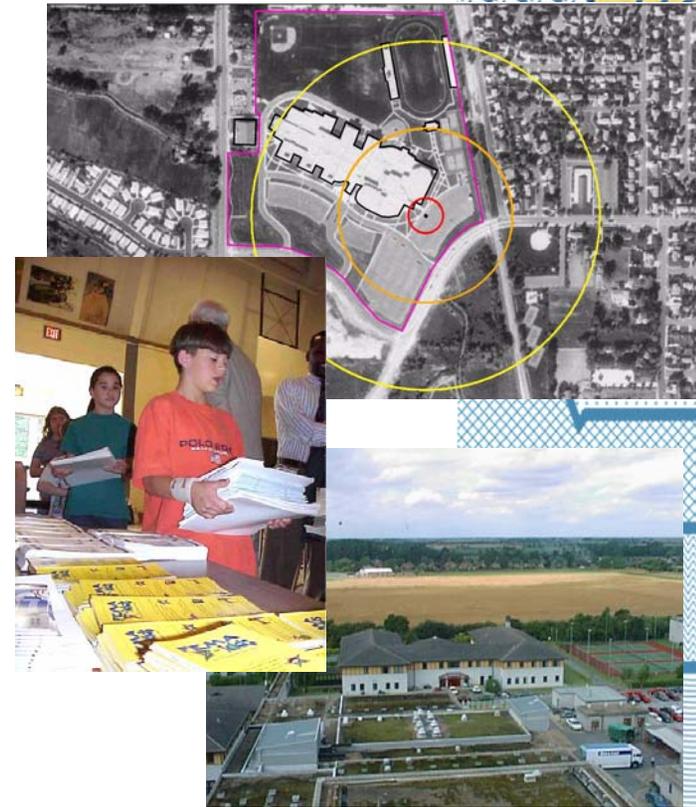
- Characteristics of the threats
- Shelter types
- Structural design criteria
- Impact and blast design
- HVAC design criteria
- Emergency management
- Case studies



**Working Closely with Red
Cross, DoD and State
Department**

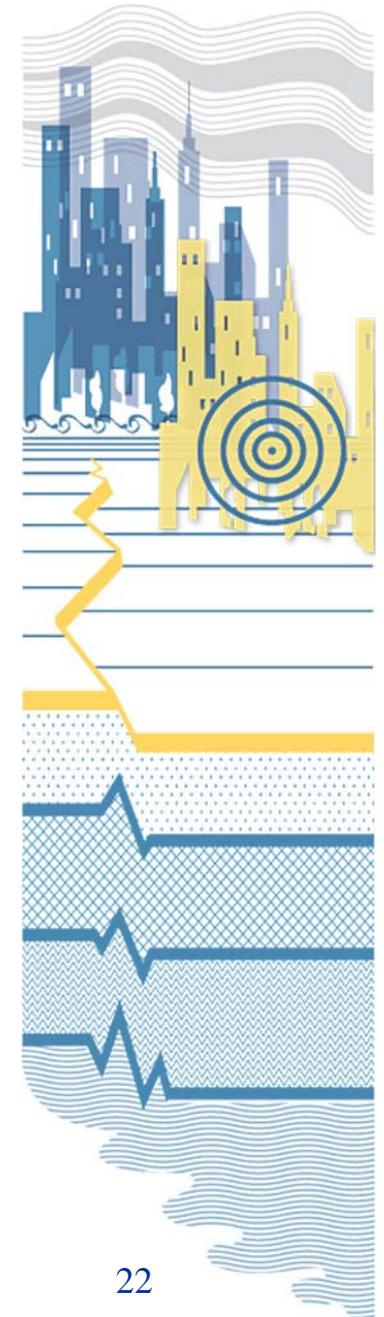
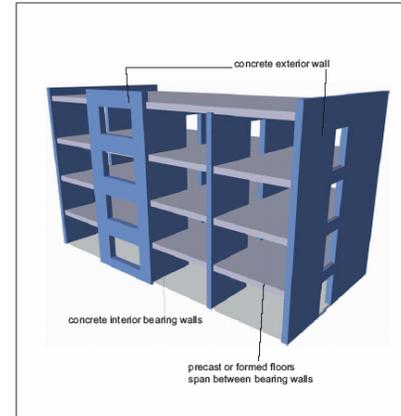
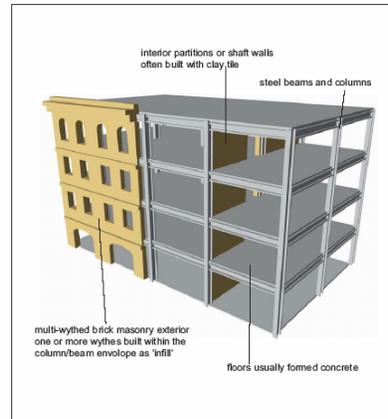
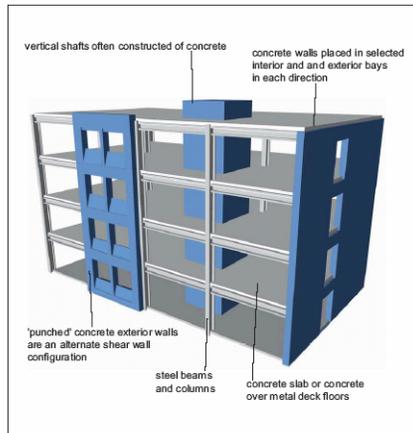
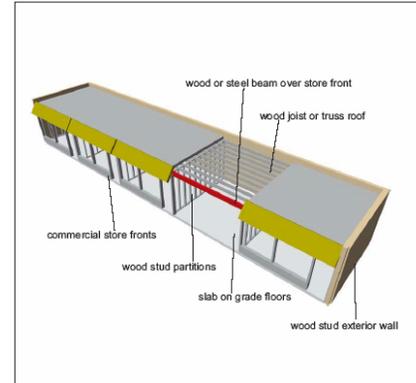
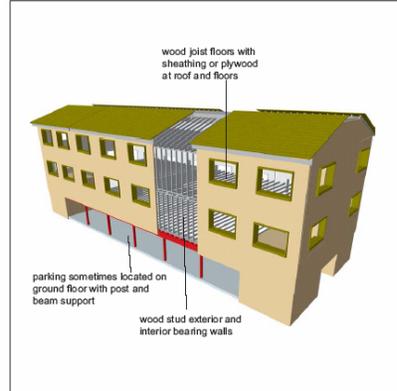
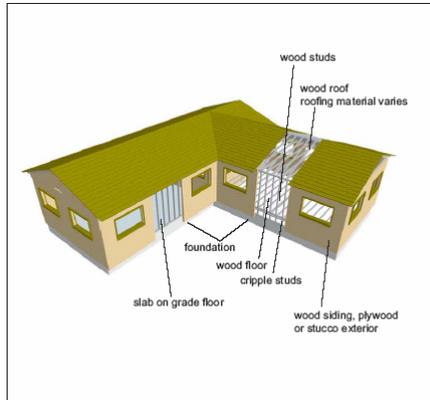


FEMA



Future RMS Publications

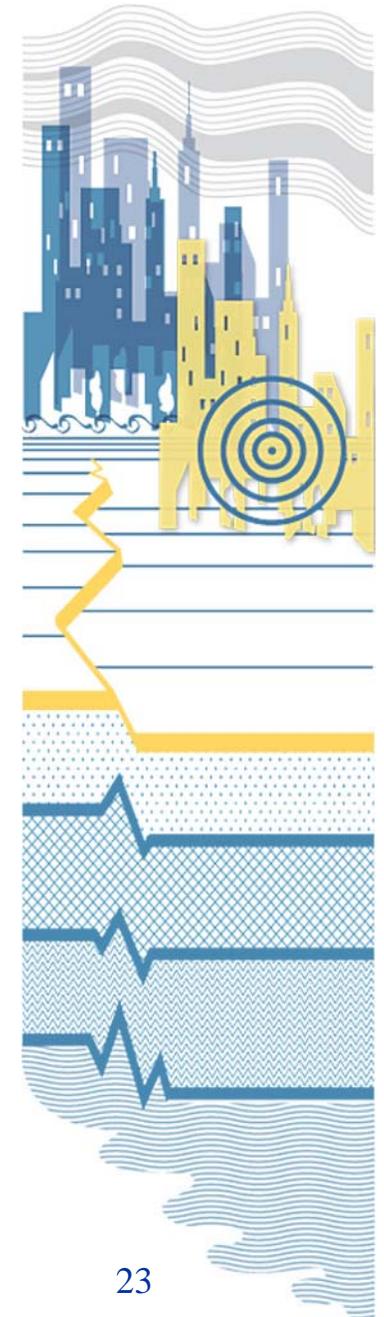
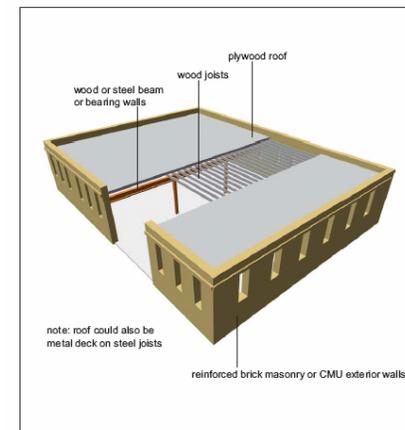
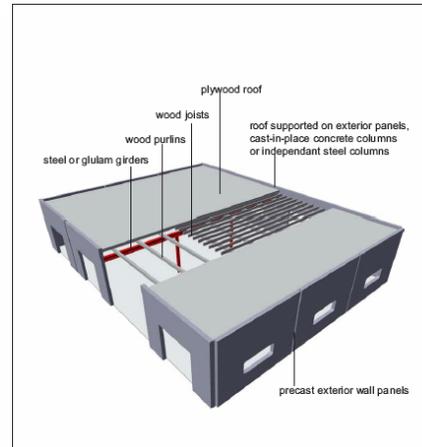
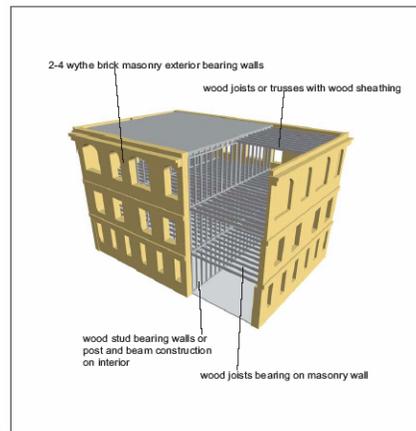
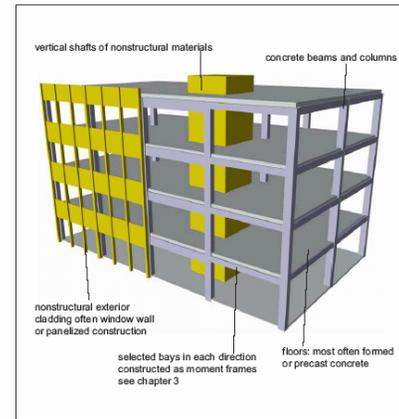
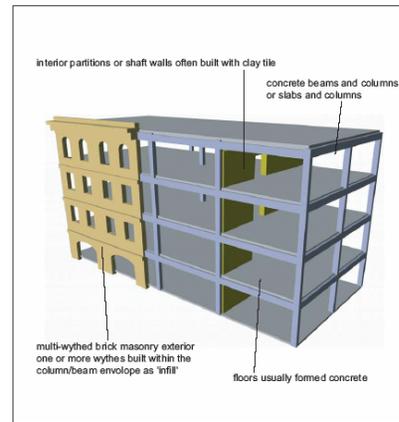
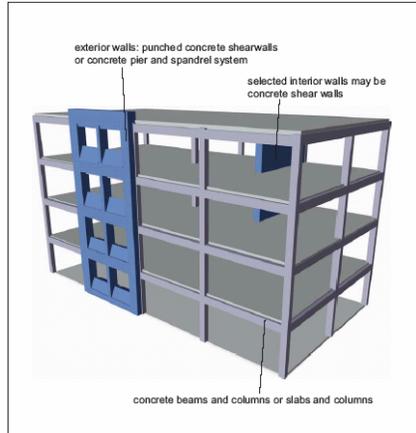
FEMA 453 – Shelter Types



FEMA

Future RMS Publications

FEMA 453 – Shelter Types



FEMA

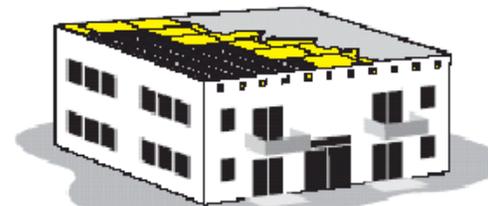
Future RMS Publications

FEMA 459 – Manual

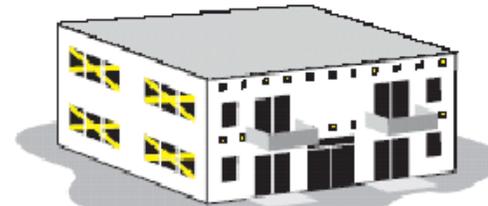
Incremental Rehabilitation to Improve Security in Buildings

- To incrementally modify existing buildings to deflect potential terrorist attacks
- Modifications take place during building reparations or rehabilitation
- Based on FEMA 395-402

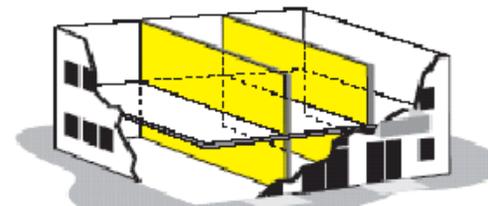
SCHEMATIC INTEGRATION OPPORTUNITIES



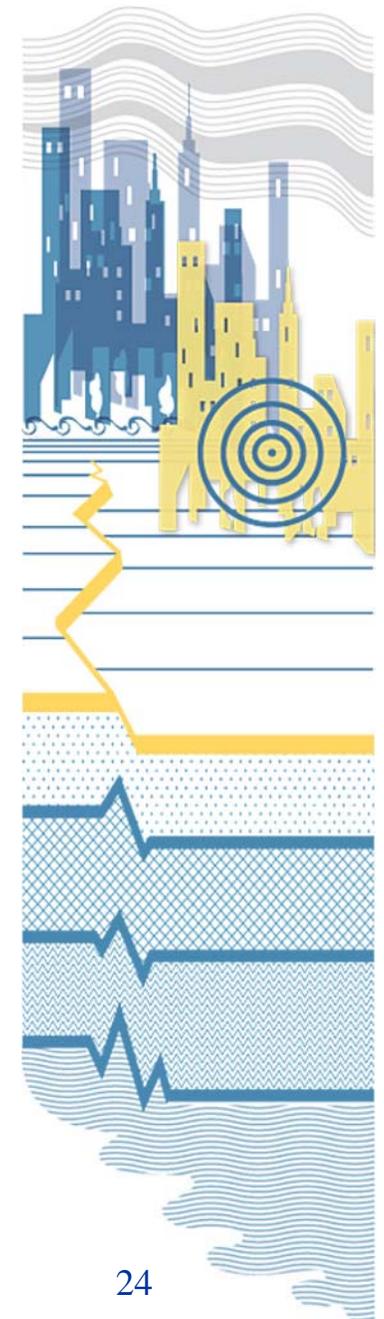
Roof Work



Exterior Wall Work



Interior Work

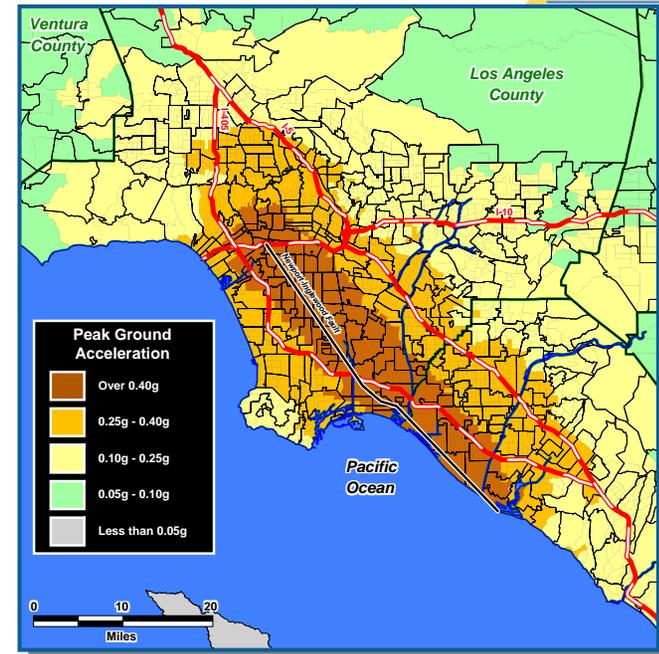


FEMA

FEMA Risk Assessment Projects

New functionality to access manmade and technological hazard models

- **ALOHA/CAMEO** (to predict hazardous material releases into the atmosphere)
- **FLDWAV** (a dam breach analysis model-formerly DAMBRK)



FEMA

FEMA Risk Assessment Projects

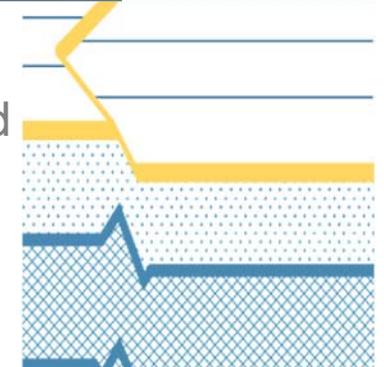
NAVSTA Bremerton and Puget Sound Naval Shipyard

- To prepare risk assessment for 32 navy installations.
- To test the value of HAZUS software as a strategic disaster-related decision support tool



Picatinny Arsenal

- To develop an integrated model interface to allow HAZUS and SERIS software to work together. SERIS is real time command and control tool to assist the management and deployment of critical resources



Smithsonian Institution

- To help the SI to assess 29 facilities or campuses.
- To determine potential for detrimental impacts of the hazards or threats



FEMA

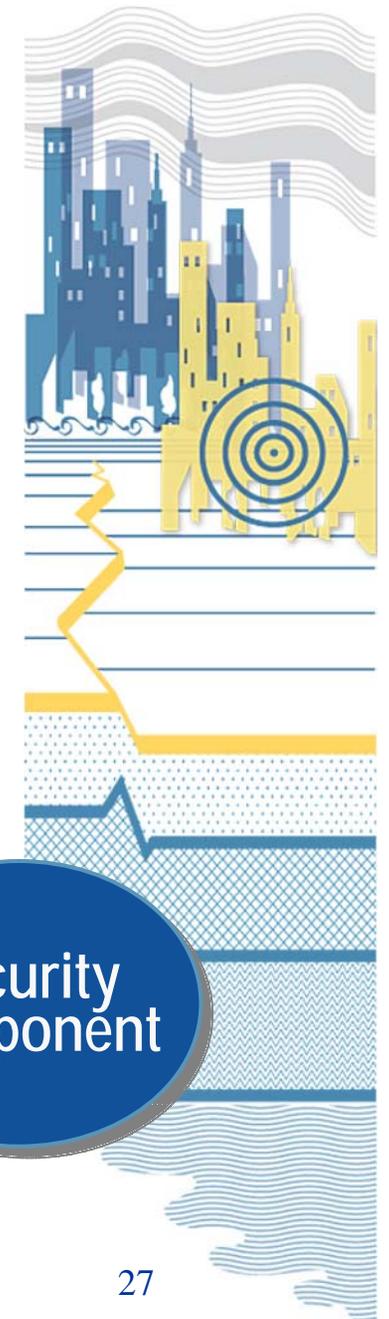
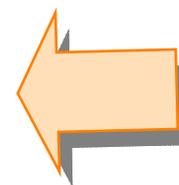
FEMA Risk Assessment Projects

FEMA has partnered with:

- State of Wyoming
- City of Portland, Oregon
- City of Indianapolis, Indiana
- City of Bowling Green, Kentucky
- City of Scottsdale, Arizona, to conduct comprehensive all-hazard risk assessments for natural and man-made disaster



FEMA



Final Thoughts

These existing and future publications and projects are helping FEMA and EP&R fulfill their mission to better prepare the Nation for the changing threat of terrorism.

To request additional information
or to provide comments, please write to:

riskmanagementseriespubs@dhs.gov



FEMA

