

This primer, FEMA 429, *Insurance, Finance, and Regulation Primer for Terrorism Risk Management in Buildings*, is a part of the Multihazard Risk Management Series of publications that addresses terrorism risk in buildings. The objective of this primer is to introduce the building insurance, finance, and regulatory communities to the issue of terrorism risk management in buildings and the tools currently available to manage that risk. Insurance, finance and regulation are considered the 'change levers' of the built environment. They are the principal mechanisms for the evaluation and management of risk exposure in buildings. These change levers play a critical role in introducing and maintaining standards for risk management and public safety.

CHANGE LEVERS FOR TERRORISM RISK REDUCTION

Risk management in the built environment is a complex issue that involves a range of decision-makers in all phases and at all levels in the building development, design, construction, and management process. The traditional market mechanisms for estimating, pricing, and distributing risk are the insurance and finance industries. The established mechanism for defining society's acceptable risk levels in the physical environment is the public regulation of development, including zoning and building regulation.

Risks related to hazards such as fire, earthquake, flood, asbestos, and lead paint have been dealt with through these mechanisms. These risks have been identified and assessed, and applicable actuarial data has been collected. Physical measures for risk reduction have been developed and defined. Residual risks have been quantified and mechanisms for risk transfer are in place.

The process of understanding and managing of terrorism risk is at its very beginning. All of the mechanisms of the traditional

Change Levers:

Insurance—those entities that will share some or all of the risks that a building owner faces.

Finance—lenders (such as banks and corporate entities) and fiduciaries (such as pension funds and trustees), which provide the resources for owner investments in buildings.

Regulation—governmental entities (federal, state, and local) that regulate building design, construction, and use in order to achieve public health, safety, welfare, and other social objectives.

TERRORISM

The term 'terrorism' refers to intentional, criminal, malicious acts. There is no single, universally accepted definition of terrorism. Officially, terrorism is defined in the Code of Federal Regulations as "...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (28 CFR, Section 0.85). The Federal Bureau of Investigation (FBI) further characterizes terrorism as either domestic or international, depending on the origin, base and objectives of the terrorist organization. However the origin of the terrorist causing the threat is less relevant to terrorism risk management than the hazard itself and its consequences.

The categories of terrorism threats are varied. The principal threats that have been considered in the available literature include:

- Armed Attack
- Arson/Incendiary Attack
- Biological Agents
- Chemical Agents
- Conventional Bomb
- Cyber Terrorism
- Hazardous Material Release
- Nuclear Device
- Radiological Agents
- Surveillance
- Unauthorized Entry

Management of terrorism risk includes the assessment and consideration of this range of threats and their varied delivery modes.

building risk management process must be engaged to address the issue of terrorism risk. They must understand the threat, develop the measures for risk reduction, and motivate the implementation of appropriate risk reduction measures. The building design and management communities must develop the physical and operational solutions. But it is the change levers of finance, insurance, and regulation that can motivate and reward the implementation of those solutions.

INTERVENING IN THE BUILDING INVESTMENT PROCESS

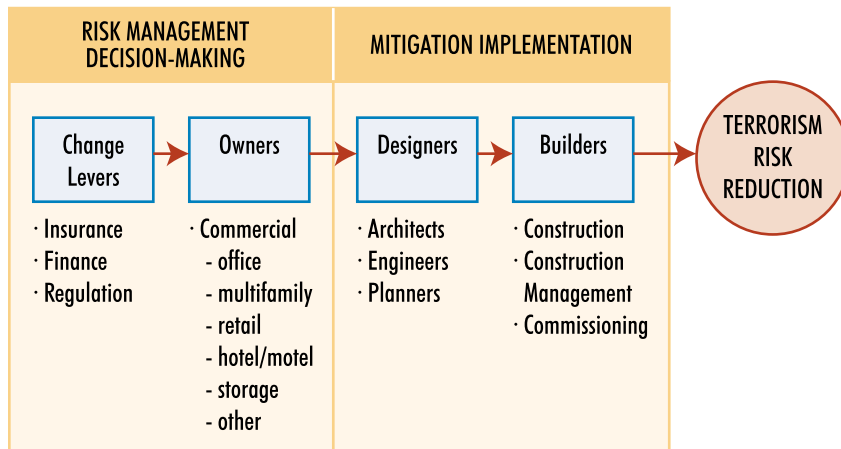
It is necessary that guidance on the design, construction, and rehabilitation of buildings to reduce terrorism risk be made available to architects, engineers, and constructors. The other publications of the FEMA *Multihazard Risk Management Series* provide this guidance. However, architects, engineers, and constructors implement the programs and directives of their clients—building developers and owners—who must be aware of the opportunity and the benefits of investing in terrorism risk reduction measures before they decide to make such investments.

What motivates building owners to make investment decisions about their buildings? Most owners view their buildings as revenue generators, not as instruments of social policy. Owners invest in buildings in order to realize an economic re-

turn. How can owners be persuaded that investments to reduce their vulnerability to terrorist attack will make business sense?

Figure 1-1 is a schematic representation of the building process as it addresses the issue of terrorism risk reduction. Buildings are the final product of this process. Designers and builders are key actors in the implementation of physical mitigation of risk, but

Figure 1-1: Terrorism Risk Reduction Decision-Making



building owners and change levers are the key decision-makers regarding management of risk in buildings. In order to introduce physical or operational change in buildings (to reduce terrorism risk), it is necessary to intervene at several points.

Builders who actually construct the buildings must be guided by the plans and specifications developed by the design professionals (architects and engineers). The design professionals are, in turn, guided by the programs and demands of their clients, the owners. Building owners have functional, financial, and esthetic objectives that may or may not specifically include risk management. It is the change levers that are most sensitive to risk management needs and are in a position to effectively leverage owner interests that are communicated to designers and builders.

It is of key importance that owners demand appropriate mitigation measures in design, that designers have the specific technical guidance to provide required mitigation measures, and that builders have the technical capability to implement appropriate designs. However, highest in this causative chain of decision-making are the change levers that influence the entire process that ultimately determines the end product.

If investments cannot result directly in added profit in the form of increased rents or reduced operating costs, they will not be

made, unless owners are induced or forced to make them by the change levers. The change levers must create an environment that demands and rewards investment in safety.

Regulators force such changes through laws that mandate terrorist resistant building design and construction. Lenders induce such changes by requiring them as conditions of the loan to acquire or construct the building, or by adjusting interest rates or other terms of the loan. Insurers can motivate such changes by relating premiums to risk and rewarding effective mitigation

In order to introduce these changes, it is necessary for the change levers to understand the character of terrorism risk, understand available risk reduction measures, and be able to evaluate related costs and benefits. This primer provides this information.

PRIMER ORGANIZATION

Insurance

Chapter 2 of this primer provides information on terrorism risk management for the insurance industry.

The insurance industry consists of three primary segments, each of which has a unique role in the assessment of terrorism risk, and therefore can benefit from familiarity with the information in this primer:

- Direct insurers
- Reinsurers
- Agents/brokers

The industry is supported by a complex infrastructure, each component of which will be able to use this information:

- Overseers/regulators
- Technical support
- Think tanks (risk modelers)

- Lobbying groups
- Independent advisors and consultants

The industry also segments itself by product lines. Some of these lines have a direct relationship to building safety features, and others may have an indirect relationship:

- Property, liability, and business interruption
- Workers' compensation
- Health (and health maintenance organizations)
- Life

Buyers of insurance are represented by various associations such as the Risk and Insurance Management Society (RIMS), and the Apartment and Office Building Association (AOBA).

Finance

Chapter 3 of this primer provides information that will be of use to both commercial and multifamily lenders, including:

- Loan originators
- Loan servicers
- Secondary markets
- Bond markets

Regulation

Chapter 4 provides information on terrorism risk management for the building regulatory community.

There are four categories of building regulation that have the potential to address terrorism risk reduction, and each has its own array of audiences:

- Zoning and planning regulations
- Property maintenance codes
- Building rehabilitation codes

FEDERAL RESOURCES FOR TERRORISM RISK MANAGEMENT

Terrorism risk in the past has primarily been the concern of the Department of Defense and Federal intelligence agencies. Before the attacks of September 11, 2001 the bulk of terrorism experience was outside the United States. The Federal Emergency Management Agency of the Department of Homeland Security is now providing broad public access to available materials and methods previously developed for the assessment and management of terrorism risk. Much of this material was originally intended for "Official Use," but is now deemed to be of critical value for the management of terrorism risk in the domestic civilian sector.

The core reference document of the FEMA *Multihazard Risk Management Series* is FEMA 426, *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings*. FEMA 426 includes reference to the terrorism risk management and mitigation materials developed by:

- General Services Administration
- Naval Facilities Engineering Service Center
- Naval Facilities Command Criteria Office
- U.S. Army Corps of Engineers Protective Design Center
- Department of Veterans Affairs
- National Institute for Occupational Safety and Health
- Department of Justice, Office of Domestic Preparedness
- U.S. Air Force, Civil Support Agency

- Construction codes (building, mechanical, plumbing, electrical)

All four categories of building regulation include extensive reference to voluntary standards that are developed by a wide array of organizations.

These regulations are enforced by a variety of local and/or state agencies, each represented by trade associations, including:

- Building officials and building departments
- Fire marshals and fire prevention bureaus
- Health departments
- Planning and community development departments and agencies

Due Diligence for Terrorism Vulnerability Assessment

Chapter 5 provides information on due diligence for terrorism vulnerability assessment for individual buildings and facilities.

Methods for threat assessment and vulnerability assessment are described and a framework for a qualitative terrorism risk 'vulnerability estimate' is presented.

Guide to Expertise and Tools

Chapter 6 provides reference to resources, including:

- The Terrorism Risk Insurance Act of 2002
- Building Vulnerability Assessment Screening
- A general glossary
- A chemical, biological, and radiological glossary
- A list of acronyms

- A list of associations and organizations related to terrorism risk management
- A bibliography

