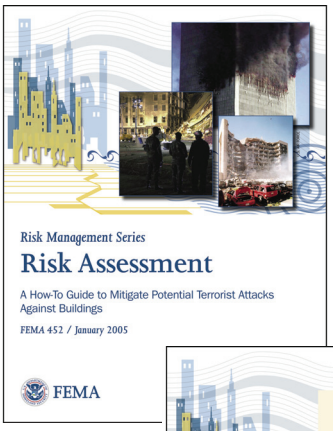
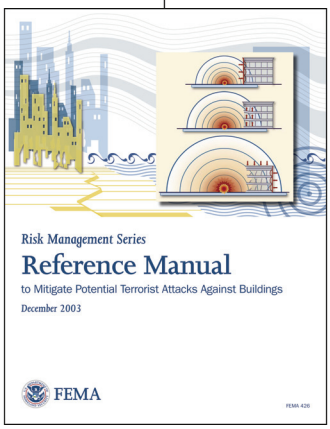
BACKGROUND





Implementation of FEMA 452, *Risk Assessment, A How-to Guide to Mitigate Potential Terrorist Attacks Against Buildings*, has demonstrated the need for a preliminary procedure to assess the risk of terrorist attack that is quick and simple to use. It has also shown that such a procedure needs to be usable by screeners who are knowledgeable about building systems, but not necessarily experts in anti-terrorism or structural design. This will reserve the use of experts for higher risk buildings requiring more detailed assessment when resources are limited.

In this document, the concepts for rapid visual screening are combined with a risk-based procedure for manmade threats defined in FEMA 426, *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings*, and FEMA 452, *Risk Assessment, A How-to Guide to Mitigate Potential Terrorist Attacks Against Buildings*, from the FEMA Risk Management Series of publications.

OBJECTIVES AND SCOPE

This handbook outlines a rapid visual screening procedure that quantifies the risk to a building due to a terrorist attack that is capable of causing catastrophic losses in terms of fatalities, injuries, damage, or business interruption. The primary purpose of this screening procedure is to prioritize the relative risk among a group of buildings in a portfolio or community but it can also be used to develop building-specific risk information. It is intended to be the first step in a tiered assessment process that includes successively more refined analyses when more detailed information is needed.

Terrorism is an unlawful act of force or violence against persons or property with the intent to intimidate or coerce a government or civilian population in furtherance of political or social objectives. In the context of this report, terrorism can take the form of armed intrusion, explosive attack, or chemical, biological, or radiological release.

Three generic types of terrorist threat are considered in this procedure. These include intrusion into the building, a vehicle borne improvised explosive device (VBIED), and a chemical, biological or radiological (CBR) release.

Quantification of relative risk is based on the methodology outlined in FEMA 426, in which risk is characterized as the product of three factors: consequences, threat, and vulnerability. In this rapid visual screening procedure, these three factors are evaluated using a Data Collection Form based on checklists and worksheets contained in

FEMA 426 and FEMA 452. To make the screening procedure rapid, the assessment is limited to the most dominant features governing the overall risk to a building given a terrorist attack. In this procedure there is an emphasis on the vulnerability factor, due in part to the relatively significant level of control that the owner has with respect to this factor for a given building compared with the other two factors: threat and consequences.

LIMITATIONS

This rapid visual screening procedure was developed based on assessing the risk of terrorist attack for office buildings in urban or semi-urban areas. The following limitations apply to the use of this procedure:

- The unique characteristics of non-building structures such as tunnels, bridges, transmission towers, dams, and monuments are not considered.
- The exceptionally high risk associated with one of a kind iconic buildings of symbolic value is not considered, such as the White House or the Pentagon. Risk to this class of buildings should be evaluated using more detailed assessment procedures.
- Second order collateral effects such as loss of functionality (e.g., loss of power) due to separate targeting of remote utility infrastructure systems is not considered.
- The design of mitigation measures to reduce the risk of terrorist attack is not addressed in this procedure. (However, a discussion of some basic mitigation concepts has been included).
- The threat rating defined in this report provides an indication of the buildings threat attractiveness rather than the probability of attack.

Rapid visual screening is designed to be performed using limited information from the visual inspection of the building exterior and public areas. Interior inspections or interviews with key stakeholders are highly desirable but not always practical. Consequently, conditions contributing to increased vulnerability will not always be visible, and high-risk buildings may not be identified as such. Conversely, buildings initially identified as high risk may prove to be otherwise based on additional information.

Also note that some of the building characteristics will require pre-field information gathering to obtain an accurate scoring. If such research is not performed, the quality of the risk assessment may not be completely accurate.

For buildings identified as having unacceptable levels of potential risk using this approach, additional study is warranted using a more refined assessment method.

INTENDED AUDIENCE

This handbook is intended for use by both technical and stakeholder audiences. Technical audiences include potential screeners and trained personnel knowledgeable about building systems, but not necessarily experts in anti-terrorism design. Stakeholder audiences include building owners/operators/decision makers involved with the planning, construction, and maintenance of the built environment. It is expected that interested technical and stakeholder groups would include the following:

- City, County and State Officials
- Emergency Managers
- Law Enforcement Agencies
- Lenders
- Insurers
- Facility Managers
- Security Consultants
- Engineers, Architects and other design professionals.

The procedure is primarily intended for office, commercial and government buildings, but also can be used for schools, hospitals, industrial buildings, and other types of buildings.

CONTENT AND ORGANIZATION

This handbook provides the information needed to rate a building or group of buildings that have been selected for rapid visual screening of their potential risk to terrorist attack. Screeners are guided through the details of how to evaluate and score key features contributing to the overall risk to the building, and how to develop an overall risk assessment rating based on three factors:

consequences, threat rating, and vulnerability rating. Stakeholders are provided guidance on how to use and interpret the results.

The information is arranged in chapters in the following order:

- Performing a Rapid Visual Screening. An overview of the screening procedure and its application, with discussion of screener qualifications, and an introduction to the Data Collection Form and Risk Scoring Worksheet.
- Consequences Assessment. Guidance on how to complete Section 1 of the Data Collection Form, which is used to evaluate building characteristics that affect consequences.
- Threat Assessment. Guidance on how to complete Section 2 of the Data Collection Form, which is used to evaluate building characteristics related to threat rating.
- Vulnerability Assessment. Guidance on how to complete Sections 3 through 8 of the Data Collection Form, which are used to evaluate the vulnerability of the building.
- Risk Assessment Rating. Guidance on how to complete the Risk Scoring Worksheet and how to interpret the risk rating scores.
- Mitigation Options. Outlines some mitigation design strategies that may be used to lower the risk.

In addition there are five appendices. Appendix A contains the Data Collection Form and Risk Scoring Worksheet. Appendix B contains a field version of the Data Collection Form to be used during the site inspection. Appendix C contains a description of the numerical derivation of the risk scoring procedure. Appendix D contains an abbreviated version of the taxonomy used by the Department of Homeland Security to define facility types. Appendix E contains guidance on the use of an electronic version of the procedure. A list of references follows.