

Chapter 1

WHY SEISMIC REHABILITATION?

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The core argument for the seismic rehabilitation of buildings is that rehabilitated buildings will provide increased protection of life and property in future earthquakes, thereby resulting in fewer casualties and less damage than would otherwise be the case. It is a classic mitigation strategy not unlike preventive medicine. On the human level, more earthquake-resistant buildings will mean fewer deaths and injuries in an event and therefore lower demand on emergency medical services, urban search and rescue teams, fire and law enforcement personnel, utilities, and the providers of emergency shelter. In the commercial sector, less damage to structures will mean enhanced business survival and continued ability to serve customers and maintain markets or market shares. More specifically, for commercial enterprises seismic rehabilitation will better protect physical and financial assets; reduce inventory loss; shorten the business interruption period; avoid the need for relocation; and minimize secondary effects on suppliers, shippers, and other businesses involved in support services or product cycles. For governments, less damage to government structures will mean continued services and normal processes or at least minimal interruptions. If government structures come through an earthquake with little or no damage, agencies will not have to relocate services, and public officials can respond to the immediate and long-term demands placed on them by the event. In short, seismic rehabilitation as a pre-event mitigation strategy actually will improve post-event response by lessening life loss, injury, damage, and disruption.

Seismic rehabilitation also will help achieve other important goals, that contribute to business and community well-being. For example, seismic rehabilitation will:

- Reduce community economic and social impacts (e.g., less loss of employment and increased blighted areas resulting from an earthquake and less loss of tax revenues to support public services).

- Minimize the need for and the process management time required to obtain disaster assistance as well as the financial impacts of filing insurance or disaster assistance claims, seeking loans or grants, and liquidating savings or contingent reserves.
- Help to protect historic buildings, structures, or areas that represent unique community values and that provide the residents with a sense of their unique histories.
- Minimize impacts on such critical community services as hospitals and medical care facilities, whether or not such services are provided by private, nonprofit, or government entities.
- Support the community's post-earthquake need to return to a pattern of normal activities by helping to ensure the early reopening of business and civic facilities (e.g., functioning schools, stores, and government offices). In addition to reducing demands for immediate assistance, such as providing emergency shelter and food, restoring normal activities as soon as possible contributes greatly to the psychological well-being of a community – e.g., children return to school, parents return to work, businesses reopen, and links with the broader "outside world" are restored.
- Minimize the many and often subtle direct and indirect socioeconomic impacts of earthquakes, some of which emerge slowly but often last a long time. For example, after a disaster, low-income residents often become displaced which adds to any existing homeless problem and increases the burden on community services and charitable organizations, often reducing their abilities to provide regular services. Further, marginal businesses may not be able to reopen, thus weakening a community's economic and social fabric and reducing tax revenues, which may result in a shift in the tax structure to pay for public services. Finally, the distribution of impacts may mean that adjacent areas gain at the expense of the damaged areas.

- Reduce the difficult environmental impacts of earthquakes. These include, for example, the need to dispose of large quantities of debris, the release of asbestos in damaged buildings, and the contamination of the air and water with spilled hazardous materials.

In sum, the rehabilitation of existing buildings to better resist future damaging earthquakes truly is “preventive medicine.” While seismic rehabilitation costs money, it can significantly reduce future losses and, in economic terms, can be considered an investment to protect assets currently at risk. Emergency response capabilities, as good as they are in U.S. communities, are no substitute for amelioration of the direct and indirect losses to each citizen’s physical assets and each community’s infrastructure.

WHAT FOLLOWS?

Completing this *Societal Issues* volume are five additional chapters plus an appendix to help the reader achieve the multiple goals of seismic rehabilitation.

Chapter 2 provides a decision-making guide to support the analysis and implementation of efforts to seismically strengthen buildings. Chapter 3 describes the broad context in which seismic rehabilitation occurs, explains how different approaches involve various complexities and degrees of conflict, and provides guidance and case study examples of various approaches and tactics to achieve seismic rehabilitation. Chapter 4 examines a wide range of typical societal problems and explores various ways of addressing them. Chapter 5 presents three application scenarios designed to help the user understand his or her situation and the factors that may be involved in initiating a seismic rehabilitation effort. Chapter 6 points the reader toward some of the socioeconomic literature related to seismic rehabilitation while the Appendix provides a detailed discussion of the four-step process for solving problems. The report concludes with an overview of the purpose and activities of the Building Seismic Safety Council and a list of those involved in the *Guidelines* project.