



BSI Standards Publication

**Buildings and civil engineering works —
Seismic resilience assessment and strategies —
Compilation of relevant information**

National foreword

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Technical Report

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Buildings and civil engineering works — Seismic resilience assessment and strategies — Compilation of relevant information

*Bâtiments et ouvrages de génie civil — Evaluation de la
résilience sismique et stratégies — Compilation des informations
pertinentes*

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Foreword

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Introduction

With the issue of the "Sendai Framework for Disaster Risk Reduction 2015–2030"^[1], resilience for disaster risk reduction has become a global consensus. Seismic resilience, as a critical capacity for built assets, needs to be prioritized. It considers the social, environmental and economic aspects based on conventional seismic design, ensuring the desired recovery time, tolerable losses and minimal casualties while preventing collapse.

As a typical example, the conventionally designed building shown in [Figure 1 a\)](#) underwent severe damage and lost key functions during an earthquake. By contrast, the building in [Figure 1 b\)](#), which was designed for seismic resilience, sustained minimal damage and rapidly regained full postearthquake functionality.

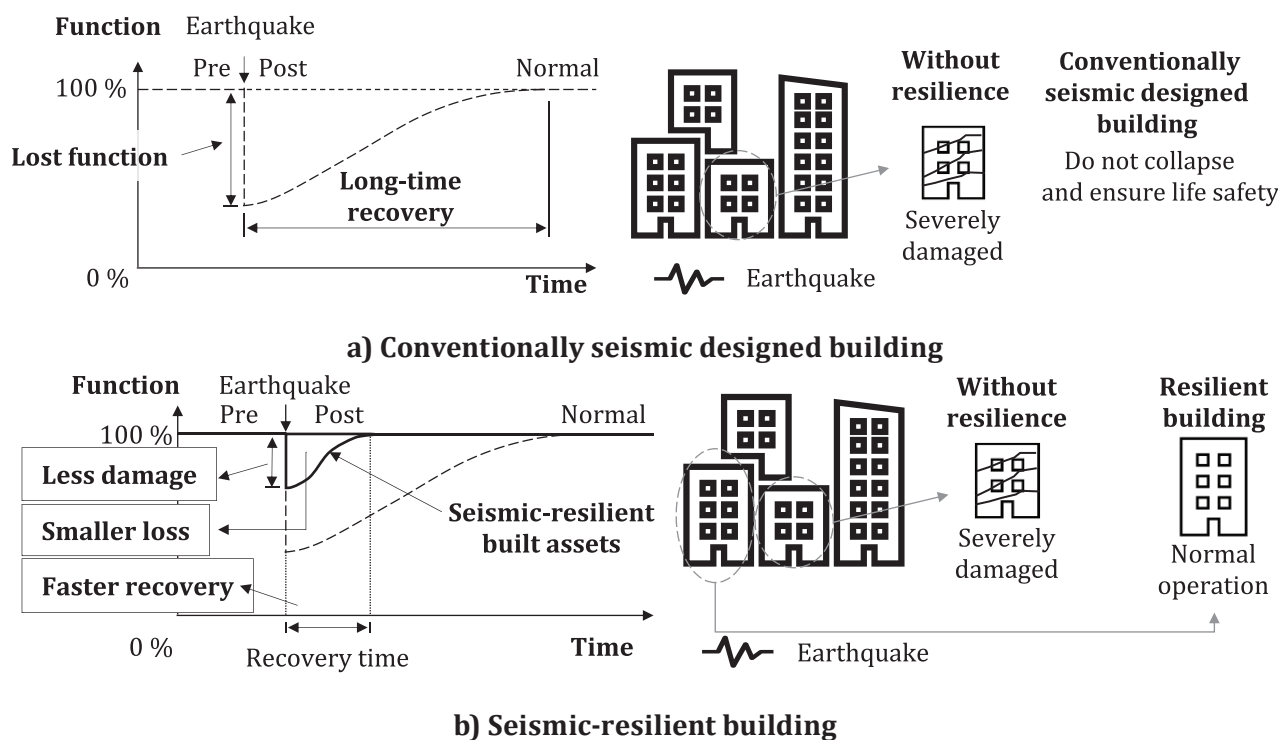


Figure 1 — Comparison between buildings designed based on conventional seismic design and seismic-resilient design concepts

Consequently, seismic resilience has emerged as a critical global concern that necessitates prioritization. Some countries have standards for assessing and boosting resilience; however, many still overlook its importance because of inadequate knowledge sharing. ISO documents on the seismic resilience of buildings and civil engineering works play a critical role in raising awareness worldwide. The development of this document assists in gathering information on assessment frameworks, metrics and guidelines for improving seismic resilience.

The collated information includes the following:

- concept of seismic resilience and its development history; recent earthquake disasters have underscored the need for seismic resilience, as evidenced in a typical case;
- assessment tools for seismic resilience levels; standards, codes and documents were collected from various entities; these tools assess earthquake-related economic impacts, recovery times and casualties by providing assessment methods, data, information-acquisition methods and indicators;
- strategies for enhancing seismic resilience; these were collected from investigative documents focusing on constructing newly built resilient assets and retrofitting existing assets.