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National guidelines and commentary for the seismic rehabilitation of buildings

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The ultimate in seismic mitigation is damage reduction through rehabilitation. In the Standards of Seismic Safety for Existing Federally Owned or Leased Buildings historic buildings are not treated differently on the premise that earthquakes do not differentiate between the general building stock and historic buildings and hence seismic rehabilitation procedures must be universally applicable.

However, there are aspects of seismic rehabilitation of historic buildings that may be unique and the Guidelines will direct design professionals' attention to these aspects.

The Guidelines will be one of the first documents to introduce performance-based design. This will provide flexibility not available in current codes and standards to tailor designs to specific performance objectives.

Performance-based design, including descriptions of damage states corresponding to the performance levels, is described in the Guidelines. Levels are:

- Collapse prevention
- Life safety
- Immediate occupancy

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A Basic Safety Objective has been established for the Guidelines. It is defined as meeting the life safety performance level for the standard design earthquake (presently defined as an earthquake with a 10% change of exceedence in 500 years) and meeting the collapse prevention performance level for the maximum expected earthquake (presently defined as an earthquake with a 10% chance of exceedence in 2,500 years). However, a designer may select other design objectives which may be either enhanced or limited, offering the designer a spectrum of choices to suit his or her requirements.

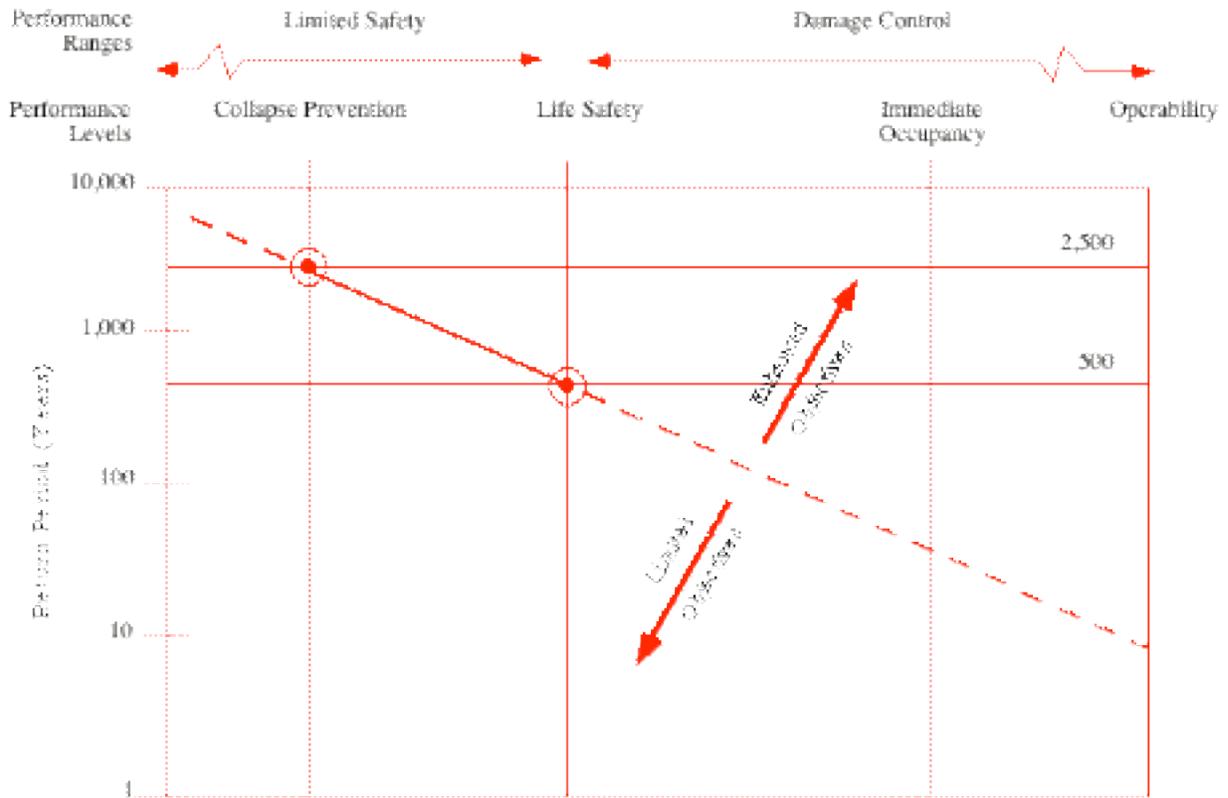


Figure 15.1 Basic safety performance objectives