

Chapter 10. Seismic Retrofitting

Context & Character

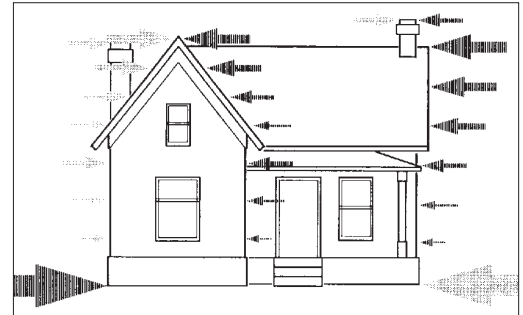
Many historic structures were built during times when there was less knowledge of seismic design and building codes were less restrictive. This may make them vulnerable to damage or destruction in earthquakes. However, today there are methods of reducing the risk of earthquake damage. If carefully planned and executed, these retrofitting techniques can upgrade the safety of the home, while at the same time being sensitive to the historic fabric of the house. By upgrading such features as foundations, floors, ceilings, walls, columns, and roofs, homeowners can improve the resiliency of their historic houses. This will ensure increased personal safety and protection of their investments.

The first step in retrofitting a historic house is to investigate the premises and identify its weak points and features that can be strengthened and reinforced. For an inspection checklist and more information, see “Bracing for the Big One: Seismic Retrofit of Historic Houses,” published by the State of Utah’s State Historic Preservation Office. Alternatively, consult a structural engineer with experience in assessing older buildings.

Design Objective

Retrofitting a historic structure in Salt Lake City to improve its ability to withstand seismic events can be carried out while minimizing negative impacts upon historic features and building materials.

CONTEXT & CHARACTER	10 : 1
DESIGN OBJECTIVE	10 : 1
ADDITIONAL INFORMATION	10 : 2



Horizontal forces of earthquakes cause damage to historic structures . (Courtesy of Utah Division of State History, Office of Historic Preservation).

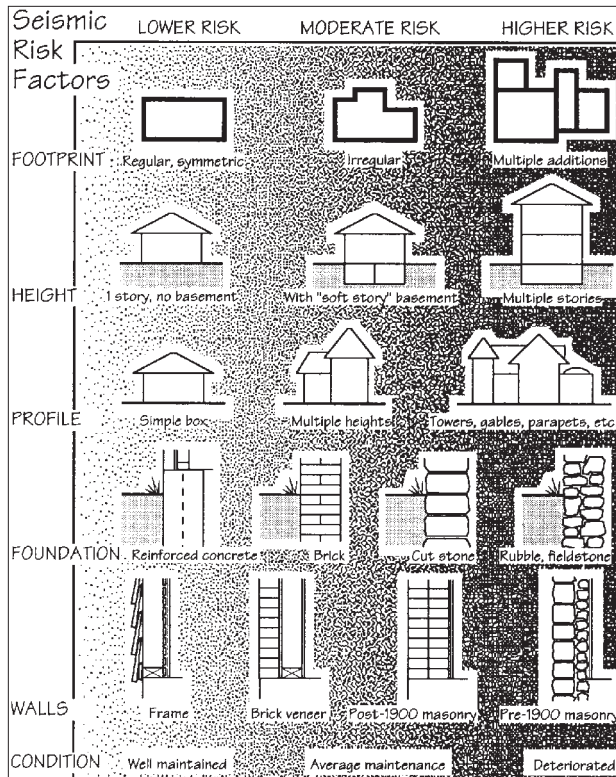


Salt Lake City lies within an area regarded as seismically active.



The Stanley F. Taylor building, a residence dating to c. 1906, was recently seismically upgraded as part of an extensive rehabilitation.

PART II Design Guidelines



Seismic Risk Factors (Courtesy of Utah Division of State History, Office of Historic Preservation).



Vista from the Avenues highlighting architectural variety in historic and topographic contexts.

10.1 Seismic retrofitting of a historic building should be designed in a way that has the least impact on the architectural integrity of the building.

- Building materials used in seismic retrofitting should be located on the interior and/or blended with existing architectural features.



Seismic bracing on one of the many decorative chimney stacks in the city.

Additional Information

Utah Division of State History, Office of Preservation. "Bracing for the Big One: Seismic Retrofit of Historic Houses," 1993
<http://heritage.utah.gov/history/earthquake>

"Controlling Disaster: Earthquake-Hazard Reduction for Historic Buildings." *Information Series*, National Trust for Historic Preservation, 1785 Massachusetts Avenue, NW, Washington DC 20036. 1992
<http://www.preservationnation.org/resources/technical-assistance/disaster-recovery/earthquakes.html#UbZJ1p3nYXw>

Look David W., Terry Wong, PE & Sylvia Rose Augustus, *Preservation Briefs 41: The Seismic Retrofit of Historic Buildings: Keeping Preservation in the Forefront*. Washington, DC: Technical Preservation Services, National Park Service, U.S. Department of the Interior. 1997
<http://www.nps.gov/tps/how-to-preserve/briefs/41-seismic-retrofit.htm>