



SAUNDERS
COMMERCIAL SEISMIC RETROFIT
www.saundersseismic.com
California [License: 616856]
Oregon [License: 193670]
Washington [License: SAUNDCI953ND]

Southern California
1760 Monrovia, Unit #A-1
Costa Mesa, CA 92627
Phone: (949) 646-0034

Northern California
3710 A Charter Park Dr.
San Jose, CA 95136
Phone: (408) 267-3876

Washington
232 SW 43rd Street
Renton, WA 98057
Phone: (206) 521-3774

Seismic Retrofit (Typical Scope of Work)

Assumptions Used in the Budget to Develop a Scope of Work

Measures that would enhance the building's performance during due diligence and site investigation for the structure. The proposed retrofit measures would include some or all including the following in order to reduce the risk to building occupants and to lower the estimated losses that may develop as a result of structural damage from an earthquake. These recommendations have not been finalized as no formal calculations or design investigation has been undertaken at this time. These are general but typical recommendations for this type of structure:

1. The anchorage of the walls to the roof diaphragm shall be provided to ensure that the walls do not separate from the roof diaphragm. This can be achieved by wall anchors or tie rods being symmetrically placed at the beams, purlins, and sub-purlins at no more than eight (8)-feet on center.
2. In order to adequately ensure that wall anchorage loads at the wall to roof connections are distributed into and across the roof diaphragm, it is recommended that continuity ties be symmetrically placed at not more than 24-feet on center in both directions across the entire roof diaphragm.
3. Improved roof diaphragm nailing (not assumed for this project) will be investigated and upgrades provided on the construction documents for implementation at a later date when a re-roof of the structure is performed.
4. Any collectors at existing walls or re-entrant corners, and chord elements required will be designed and detailed for installation.

Abstract

Two common scenario loss ratios are used when calculating Probable Maximum Losses from earthquakes: Scenario Expected Loss (SEL) and Scenario Upper Loss (SUL). Analyses of seismic loss ratios prepared by five seismic consulting firms, four loan pools securitized in the capital markets, two very large loans with many properties, two large hospitality portfolios and a general account portfolio indicate that use of SUL rather than SEL would yield significantly larger numbers of loans with loss ratios in

excess of 20%. When using SEL, the percentage of loans in the four large pools exceeding a 20% loss ratio was 3.8%. When SUL was used on this same data set, 47.8% of these properties had SUL values above 20%. Common industry practice has been to use SEL. Some of the implications of tightening seismic underwriting standards to apply a 20% threshold to the SUL, rather than SEL, may include: lower loan production, properties may lose value, properties may be costlier and more difficult to finance, existing loan portfolios may appear more seismically risky, and demand for insurance and seismic retrofit could go up. Equally undesirable effects could be that seismic consultants and lenders who do more *rigorous* analysis will be less competitive than those who *do not*. Copyright © 2010 John Wiley & Sons, Ltd.