

# Seismic Risk of Building Types

Seismic Damage can be reduced or prevented.

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FRE provides seismic risk assessments (PML's / SEL's / SUL's) for pre-acquisition due diligence services and refinancing services. In evaluating a building's potential for seismic damage and stability against collapse, we consider six basic characteristics: Configuration, Condition, Compatibility, Continuity, Redundancy, and the Lateral Load Resisting System. In addition, building stability and site stability are evaluated. Below is a list of buildings that are susceptible to significant damage when subjected to large ground motions / earthquakes:

- *Concrete Tilt-Up Buildings: Pre-1976*
- *Tuck Under Parking Buildings; Multifamily; Wood Frame: Pre-1988*
- *Wood Frame Buildings with Crawl Spaces: Pre-1976*
- *Buildings with a Soft Story: Pre-1988*
- *Irregularity in Shape / Stiffness: Pre-1988*
- *Steel Moment Frame Buildings: Pre-1994*
- *Concrete Frame Buildings: Pre-1976*
- *Concrete Shear Wall Buildings: Pre-1980*
- *Precast Concrete Frame Buildings: Pre-1994*
- *All Un-reinforced Masonry Buildings*
- *All Hollow Clay Tile Buildings*
- *Masonry Buildings: Pre-1980*
- *Also, All Buildings Located on a Site with a Potential for Liquefaction, Landslides or in an Alquist-Priolo Special Studies Zone.*

Note equity owners, insurers and lenders are evaluating buildings with more and more intense scrutiny for the potential of seismic risk / damage. This is largely based on prior losses from significant historical earthquakes. For example, the 1989 Loma Prieta earthquake caused more than \$6 billion in damage and the 1994 Northridge earthquake caused over \$20 billion in damage. Financial institutions need specific and consistent measures of future damage loss for this decision process.



*Before & After Photo – Loma Prieta Earthquake 1989, San Francisco.*