



State of Utah

Utah
Seismic Safety
Commission

BARRY H. WELLIVER
Chair

NEWS RELEASE
November 10, 2003
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USSC Tackles Utah's Most Dangerous Buildings

The Utah Seismic Safety Commission (USSC) has been working to reduce the earthquake risk in the state since USSC's formation in 1994, and one of its main concerns has been an aging class of dangerous buildings called *unreinforced masonry* or URM's. These buildings are constructed with walls of varying thickness made of bricks held together by mortar. Floors and roofs rest in pockets or ledges in these walls with little or no attachment to prevent them from slipping off their support and collapsing. Earthquakes test these fragile connections and produce significant damage with alarming consistency. This building type is no longer allowed by the present building code due to its history of poor performance during earthquakes.

At its October 2003 meeting, Chairman Barry H. Welliver and the USSC expressed their belief that the problem can't be ignored. In May 1999, the Structural Engineers Association of Utah also recognized the danger and encouraged establishment of a uniform statewide approach to upgrading these structures.

Two 1993 studies in Salt Lake County funded by the U.S. Geological Survey report that commercial URM's, while representing 39 percent of the building stock, will account for 68 percent of the expected losses to such buildings in a 500-year earthquake. Likewise, residential URM's representing about 18 percent will produce between 39 to 45 percent of overall damage to residential buildings. Life loss estimates are similarly high because URM's are prone to collapse. Both studies conclude that URM's represent the most seismically vulnerable class of buildings in the Salt Lake Valley. Recent studies using the Federal Emergency Management Agency's Hazard U.S MultiHazard (HAZUS-MH) software program support these scenarios.

Given this sobering assessment, the USSC will highlight completed retrofit projects to promote seismic retrofit of URM's in the state, and engage support from the building community and others to increase both the awareness of this dangerous class of buildings and to affect changes.

The USSC is a 15 member volunteer commission dedicated to the review and assessment of earthquake-related hazards and risks to the state of Utah and its inhabitants. In addition, it acts as a source of information for individuals and groups concerned with earthquake safety and as a promoter of earthquake loss reduction measures.

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