



Seismic Retrofit of Soft-Story Woodframe Buildings using Cross Laminated Timbers

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Light Frame (Lumber+Panels)

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Summary:

Woodframe construction in the United States has, by and large, performed well with regard to life-safety over the decades. However, older woodframe buildings, typically two- to four-stories in Northern and Southern California (as well as elsewhere), may have a soft and weak story which makes them susceptible to collapse during even moderate shaking. These buildings often have parking and/or open fronts and very few interior walls resulting in first story stiffness that is sometimes as low as 30% to 40% of the story above. Figure 1 shows a photo of a soft-story building undergoing retrofit in San Francisco. Most local jurisdictions recognize this as a disaster preparedness problem and have been actively developing various ordinances and mitigation plans to address this threat. Some of the most visible efforts are taking place in San Francisco, Los Angeles, San Jose and other major metropolitan areas in the United States that have high seismic vulnerability. In 2008, the San Francisco Department of Building Inspection and the Applied Technology Council initiated the Community Action Plan for Seismic Safety (CAPSS) project with the main goal of identifying possible action plans for reducing earthquake risks in existing buildings. According to the CAPSS study, 43 to 80 percent of the multistory woodframe buildings in San Francisco will be deemed unsafe after a magnitude 7.2 earthquake and a quarter of these buildings would be expected to collapse.

Online Access: Free

Resource Link

https://www.fpl.fs.fed.us/documnts/pdf2013/fpl_2013_lindt001.pdf