

Soft Story Collapse

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For anyone who remembers the 1989 Loma Prieta Earthquake one of the lasting images is the collapse of numerous apartment buildings in the San Francisco Marina District. This relatively small area of San Francisco suffered the collapse of 7 buildings, was left with 35 buildings beyond repair, and had another 150 buildings damaged. The 1994 Northridge earthquake left us with imagery of whole apartment buildings collapsed onto the cars parked on the ground floor. In both earthquakes, many buildings, over a wide area, suffered significant damage; however, a high percentage of the collapsed or destroyed buildings in both cities were what are known as soft story buildings.

Soft story buildings can be found all over Alameda. For the most part we don't give them a second thought. A soft story building is typically a multi-story structure where the ground floor has wide doors, large unobstructed show windows, or parking spaces. One of the most common soft story buildings is a multi-story apartment building located over a parking garage or a series of retail businesses. Soft story buildings are vulnerable to collapse in moderate to severe earthquakes and is a phenomenon known as soft story collapse. Soft story failure was responsible for nearly half of all the housing units that became uninhabitable following the Loma Prieta Earthquake.

The City of Alameda, as well as many other California jurisdictions, has a significant number of soft story buildings. In the interest of protecting the residents and the housing stock, the City enacted a soft story retrofit ordinance. A number of cities in California have looked at adopting their own soft story ordinance and many other California jurisdictions are working on developing their own ordinance to deal with this threat.

Prior to the enactment of Alameda's Soft Story Ordinance, the Alameda Planning and Building Department staff researched how other jurisdictions handle soft story buildings. Staff wanted to find out what was working and what should be done differently. While researching, staff discovered ordinances covering the gamut of solutions. Locally, Fremont has a very aggressive ordinance that requires soft story buildings be retrofitted within a strict timetable. Fremont was able to enact such an ordinance because vulnerable buildings had already been identified, owners had received

notification, and necessary building evaluations had already occurred. Berkeley, in comparison, was still in the process of identifying incentives, funding sources, and the extent of any required retrofit before a mandatory retrofit standard was passed.

In Alameda, staff has identified approximately 300 buildings containing over 3000 housing units; whereas Berkeley, has counted 400 soft story buildings containing nearly 5000 units. Since the passage of Alameda's Soft Story Ordinance, 71 of the identified buildings containing over 700 housing units have been retrofitted

The ordinance for Alameda is modeled after the Berkeley ordinance. When adopted by the City Council, Alameda's ordinance established clear soft story retrofit standards through the adoption of Chapter A4 2006 of the International Existing Building Code. The work program established under the ordinance required the City to:

- Identify buildings subject to the ordinance through research of permit records as well as site visits by Planning and Building staff and verified by licensed engineers,
- Notify property owners that the building has been identified as a potentially hazardous soft story building,
- Establish a process to allow property owners an opportunity to appeal the potentially hazardous soft story building determination,
- Require the property owner to complete a structural assessment within 18 months of notification,
- Require the tenants to allow inspections,
- Notify tenants and interested parties through the posting of a warning sign,
- Establish a 15-year exemption from a new potentially hazardous designation once retrofit work is completed.

The ordinance includes incentives to property owners to submit the engineering report early and to begin retrofit work within 18 months of receiving notification. Reports submitted prior to the 18 month due date will have the review fee reduced. The City will waive all plan review and inspection fees for property owners who obtain a retrofit permit within 18 months of receiving notification that the building is a soft story structure.

Retrofitting structures that are subject to significant damage, up to and including collapse, is beneficial to all; property owners will have buildings that, while damaged,

will be able to be repaired at a cheaper rate and more quickly than non-retrofitted buildings. Tenants will be able to live in buildings with the peace of mind that the building is relatively safe, and the community will not be faced with numerous uninhabitable housing units and the need to find emergency shelter at a time when availability will already be scarce.

The last thing any city wants after a major disaster is to be remembered for what went wrong or what fell down. It is believed that with the enactment of the soft story ordinance, Alameda will not only become a safer place to live, but will avoid becoming the next set of indelible disaster images.

A copy of Alameda's soft story ordinance can be found at the following link
<http://www.cityofalamedaca.gov/City-Hall/Seismic-Retrofit>