Proposed Best Practice

Inventorying Multi-family Soft-Story Buildings

*Cities of Berkeley, Campbell, Fremont, San Leandro*

**Description**

“Soft-story” buildings are buildings with unusually weak stories, which can easily collapse in an earthquake. The ground floor is the most common location for a soft-story, which is usually due to tuck-under parking or large commercial spaces. Inventorying multi-unit buildings with soft-stories allows local governments to assess their exposure to collapse and housing losses after earthquakes. Jurisdictions can then target information and retrofit incentives to building owners.

**Problem**

Following the collapse of many soft-story buildings in the 1989 Loma Prieta and 1994 Northridge earthquakes, many cities realized the need to identify the numbers, locations and conditions of these seismically vulnerable buildings. Soft-story buildings often have large openings for garages, storefronts, or windows that make them more likely to sustain damage in a major earthquake. Soft-story buildings often house a substantial number of residents living in affordable or low-income units. These residents are often displaced during earthquakes. Low income residents must depend more on emergency housing, and have less options for recovery than those with higher incomes. Because these buildings often have off-site owners, retrofit programs that address single-family homeowner concerns rarely apply. Also, many soft story buildings have first floor commercial/office space, often occupied by small businesses with limited recovery resources.

**Solution**

Several Bay Area cities have taken the initiative to inventory their soft-story apartment buildings in order to understand their vulnerable characteristics and formulate policies that promote strengthening by owners.

**Examples**

- **City of Berkeley** – Through the Disaster Resistant Berkeley Program and additional funding from FEMA, Berkeley has developed a preliminary list of approximately 400 multi-story residential buildings containing almost 5,300 units. The survey was performed with the help of structural engineers from EERI and UC Berkeley engineering graduate students volunteered their time to conduct a “walkabout” - a visual assessment of 150 soft-story multi-family buildings, represent 3,200 dwelling units. City staff and the City Council are working on a program for financial, technical and educational materials to encourage retrofitting. A measure has been placed on the November 2002 ballot to provide funding for the new earthquake safety program. The City Attorney’s Office has been involved in the program’s development.

- **City of Campbell** – Santa Clara County has a relatively large number of soft-story apartment buildings. An inventory for the City of Campbell has been completed by the Collaborative for Disaster Mitigation (CDM) at San Jose State University. This countywide project by CDM surveys soft-story apartment buildings and provides the cities with mapped locations of building density and the number of residents potentially affected. Cities can then decide how to proceed with their mitigation efforts. CDM is creating a database of the surveyed buildings that contains information on address, number of stories, units and occupants, and owner’s
name and contact information. A copy of the City of San Jose Apartment Owner’s Guide will be mailed to building owners.

- **City of Fremont** – The City’s Building Department conducted an inventory in late 1999, identifying approximately 22 buildings containing about 1,000 units. Most of the units are concentrated in three buildings having 150 - 250 dwellings each, with seven buildings containing 25 – 75 units, and the remaining small buildings containing 25 units. Fremont adopted a voluntary retrofit ordinance, followed by sending a notification to the owners and encouraging them to retrofit. One 7 to 8 unit building has been retrofitted to date. Legal constraints were not an impediment to this effort.

- **City of San Leandro** – The City’s Building Department has conducted a preliminary “draft” inventory of 350 multi-family residential, commercial/office, and mixed-use buildings containing approximately 4,000 units. City staff met with the Apartment Owners Association and the Chamber of Commerce while conducting this inventory. Staff believes that many of the buildings are not actually soft-story buildings and is currently developing a “validation” form to be mailed to building owners that will discuss options for having their buildings further evaluated and taken off the list. Legal constraints were not an impediment to this effort.

**Resources**

Funding is needed to provide assessments of building vulnerability and appropriate retrofit options. Staff is required for administration of building data, as well as developing and implementing mitigation programs. Political will is needed to address seismic risk issues and create momentum for change.

**Adaptability/Sustainability**

Walkabouts and building inventory techniques can be readily adapted to other jurisdictions and are available upon request from the cities above. Local governments must learn where the balances of incentives and disincentives fall in their own communities. Sustainable soft-story retrofit programs can be tied to other related programs such as preserving affordable housing or possibly redevelopment. Outreach activities and recognition of safer residential housing may positively affect market value for both tenants and owners.