

CAPSS Advisory Committee Policy Workshop

Summary of Participants Comments

Introduction

The CAPSS Project sponsored a workshop on December 10, 2008 in the City of San Francisco, Department of Transportation meeting room at 100 Van Ness Avenue, San Francisco. The purpose of the workshop was to present the results of CAPSS team analyses and to seek comments and insight into appropriate policy intervention to reduce the risk to the City and its residents from damage to multi-story residential and mixed use wood frame buildings. About 50 persons attended the workshop representing the CAPSS Advisory Committee, community groups, City government departments and the ATC-CAPSS contractors.

Laurence Kornfield, Chief Building Inspector, Department of Building Inspection led the workshop that ran from 10:00 AM until 2:45 PM. CAPSS team members made presentations in the morning. Three breakout sessions and a brief plenary session were held in the afternoon during which each participant briefly stated his/her most important point.

The presentations and this summary of participants' comments, drawn from notes taken at the breakout sessions and comments received on a feedback form, are available on the CAPSS web site < <http://www.sfcaps.org/advcommittee.shtml>>. This memorandum summarizes comments and is meant to serve as the basis for discussion to assure the project properly considers the valuable contributions of those participating in the workshop.

Public comments on any aspect of the CAPSS program and response to the ideas summarized below are invited and can be submitted via email to <info@capss>

Breakout Sessions

Breakout session participants were asked to address five questions:

1. Are wood frame buildings with three or more stories and five or more units the right set of buildings to focus on first?
2. What performance objectives should the City adopt for retrofitted buildings?
3. What type of policy intervention should the City pursue (from voluntary to mandatory)?
4. Which subset of these buildings should be addressed first?
5. What incentives or financing options should the City offer building owners?

This summary is organized around these five questions and includes a general category at the end for other important comments received during and after the workshop.

Question 1: Scope of the Policy

Are wood frame buildings with three or more stories and five or more units the right set of buildings to focus on first?

There was a general agreement to focus on three or more story wood frame buildings, at least for the initial phase of a retrofit program because they are more vulnerable than two story buildings and represent a significant portion of the City's building stock. Because this group represents a large number of buildings, participants recommended phases during which the buildings that constitute the greatest risk would be addressed. The first phase of the retrofit program should have achievable scope and objectives while acknowledging that not all vulnerable buildings were being addressed in the early phases of the program.

Several participants questioned the rationale for focusing on buildings with five and more residential units. Some suggested expanding the scope to include buildings with fewer units because of the large number of these buildings and large number of residential units they provide. One participant explained that there is a large number of four-unit buildings with three stories in the Richmond and Sunset districts that are on soft soils. He advised that these buildings provide a large number of residential units and should not be overlooked. Some suggested the limit might encourage owners to combine two units to escape the five-unit threshold.

Several participants expressed concern about the criteria used to select buildings studied by the CAPSS team. The cohort studied were 2,800 (of 4,600 wood frame buildings with three or more stories, five or more residential units) that had significant openings on the ground floor as defined by 80-percent or greater openings on one wall and 50-percent or greater on two walls. Participants expressed concern that buildings with smaller openings were still vulnerable and should be addressed. The mitigation program should require evaluation by an engineer to determine whether a building, regardless of its percentage of openness on the ground floor, is vulnerable and those that are vulnerable should be retrofitted.

Participants advised to "research the edges" to better identify buildings that might collapse due to ground floor weaknesses, especially those that house large numbers of people. Participants advised to not lose track that other buildings were at risk—such as other wood frame buildings with fewer units and buildings built with materials other than wood. Participants advised that the CAPSS report must discuss the reasons for the criteria to choose the buildings included in the program.

While accepting the project that corner wood frame buildings were generally the most vulnerable, participants expressed concern about the earthquake performance of mid-block buildings that are generally considered less vulnerable because of the support provided by adjacent buildings. Some participants observed that many mid block buildings were not constrained by adjacent buildings, either due to lot line setbacks or vacant lots, or parking areas. One participant commented that it was important to have adjacent conditions at least on the ground floor, the floor that is displaced to the greatest extent in wood frame buildings by earthquake shaking.

Question 2: Performance Objective

What performance objectives should the City adopt for retrofitted buildings?

General support, but not unanimous, was voiced for the SPUR recommendation that 95-percent of San Franciscans should be able to stay in their homes following earthquakes, at least until repairs are commenced. Participants commented on the need to keep emergency shelter requirements to a manageable level and to prevent displacement of residents who are forced to move because their homes were damaged to the extent that habitation was unsafe. Others argued that keeping residents and businesses in the neighborhoods was critical to recovery, the resilience of the City, and to protect the special architectural and cultural character of the City. One participant said a shelter-in-place objective was critical, especially for buildings housing low-income residents.

Many of the discussions were complicated by the interchangeable use of the terms “objective” and “standard.” For the purposes of the CAPSS project, the term *objective* is an overall goal for a large number of buildings, and the term *standard* refers to technical specifications that apply to individual buildings. Objectives and standards need not have the same name. Individual buildings retrofitted to the same standard could respond differently—some might suffer little damage, while others might collapse. Buildings respond differently because the intensity of ground shaking varies and building conditions vary. However, the overall performance achieved by retrofitting many buildings to a specific standard should meet the citywide performance objective.

Sentiment was voiced that a standard was needed that, as a minimum, would assure that buildings must not collapse. Participants overwhelmingly agreed that the lives of people on the ground floor should not be threatened by collapse, but that better performance was expected. One breakout group agreed the required retrofit standard should be based on current code performance level and that there should be substantial additional incentives to encourage owners to retrofit to an even higher standard. Advice was given that the City’s performance objective could be “tiered” based on building use and location. The City could require a minimum standard and encourage owners through incentives to voluntarily seek higher standards, for example, by doing additional work in the upper floors.

Philosophical views were expressed as well as professional opinions. One participant argued that the City has authority to require owners of buildings so vulnerable that expected damage would threaten lives to retrofit to a standard that would protect against life loss, but lacks authority to require measures to limit damage. He argued that such a standard would encroach on property rights. Others argued that the City has the authority to limit property damage to protect the community from other unacceptable consequences (loss of affordable housing, damage to neighborhood-serving businesses and loss of architectural and cultural attributes). It was pointed out that provisions of the current code protect property in most buildings, even though the code only guarantees safe egress following earthquakes of an intensity that recurs on average once every 500 years.

Although there were dissenting opinions, many, perhaps a majority of, participants argued that earthquake performance is a community issue that outweighs individual concerns. The desired higher level of performance would result in the stock of buildings approaching the

SPUR citywide objective that 95-percent of San Francisco residents should be able to remain in damaged buildings until repair. There was consensus that retrofit work should not be required in the upper floors because of the disruption to residential tenants and cost. This limitation and the nature of multi story wood frame residential buildings imply that some retrofitted buildings might not be occupiable following earthquakes. Thus, the standard written would, as a minimum, seek buildings that are repairable (useable after repair) following earthquakes, with many buildings reaching a higher (shelter-in-place) level of performance. A standard based on these limitations might not meet the citywide SPUR objective of 95 percent occupiable units, but it would contribute achieving SPUR's objective.

Participants commented that owners and tenants expect retrofitted buildings to survive large earthquakes, and did not accept or understand standards that resulted in buildings damaged so badly they could not be repaired. One participant argued a matter of equity and that renters, especially those of lesser means, should not have to live in lower performing units. He argued they should not be subject to more risk or have to relocate after earthquakes. Several participants argued that historic and architecturally important buildings, as a minimum, must be repairable following earthquakes. Participants cautioned that buildings housing child and elder care, medical facilities, and private schools should meet higher standards, allowing them to continue operation after an earthquake.

Question 3: Intervention Strategy

What type of policy intervention should the City pursue (from voluntary to mandatory)?

There was consensus that a mandatory program is the only policy to reduce the earthquake risk in these buildings. There were a few dissenting opinions. One participant believes a voluntary policy was appropriate for buildings other than buildings that posed a danger to the public, such as corner buildings. Several participants argued for a mixed strategy that requires owners of high-risk buildings to meet a minimum standard and encourages them to meet higher standards, and owners of lower risk buildings would be encouraged and incentivized. Some argued requiring engineering analysis of a wide range of buildings, but requiring retrofit for selected buildings.

There was a consensus that owners of all buildings should be required to inform tenants and post informational warning signs on their buildings. Vulnerability should be disclosed and tenants notified in writing. Many participants suggested that owners should be required to disclose earthquake performance expectations to all interested parties including visitors, customers, tenants and potential purchasers.

Participants suggested that owners with commercial uses (e.g., retail and restaurants) on the ground floor should have additional time to complete retrofit work, but that a vacancy on the ground floor should trigger completion of retrofit measures.

It was recognized that owners were responsible for paying for engineering analyses and design and construction, but the City could provide incentives if funds are available.

Participants generally thought critical aspects should be mandatory with a voluntary program to encourage higher levels of performance or to address less important buildings.

A majority argued that only mandatory programs work—incentives alone never spur work, but incentives might facilitate the work and/or lower costs, Incentives were seen as a gesture by the government given in return for the many community benefits from retrofitting.

Question 4: Priorities

Which subset of these buildings should be addressed first?

Many participants agreed that larger corner buildings in areas with poor soils should be the first priority, and that smaller and mid-block buildings abutting other buildings were a lower priority. However, a variety of opinions were expressed regarding priorities. Some suggested that buildings with affordable housing, mixed uses and neighborhood-serving uses should be the highest priority. Other suggested buildings in areas with poor soils and a high potential for liquefaction, those with neighboring-serving social services and critical businesses should be highest priority. One participant mentioned the importance of addressing vulnerable historic buildings.

Some suggested deadlines such as two years to complete analysis of buildings and retrofit completion in five years. They recognized extensions could be granted for cause. Others suggested allowing ten years for completion believing five years too short and cautioned about the availability of capable engineers and contractors.

Question 5: Incentives

What incentives or financing options should the City offer building owners?

There was a consensus that incentives alone would not result in the amount of retrofitting needed to protect San Franciscans in earthquakes, but that incentives were an important component of a retrofit program. Many argued that incentives should be offered to the extent that San Francisco can afford them because benefits from retrofitting accrue to the City and the community in general.

The apartments in most multi unit wood frame buildings with a soft story are subject to rent control. Helping owners with financing by offering lower cost loans, especially to owners of buildings that provide affordable units, or facilitating commercial loans, was suggested. Participants endorsed seeking the approvals needed to allow use of the existing general obligation bond authority, originally established to fund loans for retrofitting unreinforced masonry buildings, to be used for wood frame buildings housing the lowest income population. This could lead to the retrofit of these properties. Participants cautioned that the conditions imposed on the use of bonds for retrofitting unreinforced masonry buildings, which made the program unattractive, must be avoided.

Participants commented that 100-percent of retrofit costs should eligible be passed through on rent controlled apartments.

There was a suggestion to rebate permit and review fees for about \$3,000 to \$5,000 to those who successfully complete retrofits.

One participant suggested reducing “soft costs” associated with various fees and code up grade requirements.

There was a suggestion to reduce or eliminate the transfer tax, presumably on retrofitted buildings.

Some suggested creating a matching grant program, offering help to owners to offset the cost of relocating tenants or obstructing businesses.

Some participants mentioned the need to provide incentives to help owners with the relocation costs of displaced residential and commercial tenants.

Some participants suggested that the City's General Plan and zoning ordinances should be revised to offer density increases, such as an additional floor or conversion of parking to residential use, in turn for retrofitting.

One participant suggested that the City offer a break in the property tax to owners who retrofit in recognition that these buildings would require fewer services following earthquakes. It should be noted that, by state law, the cost of seismic retrofit work does not add to the assessed value of property for tax purposes, but that many owners do not know of this incentive.

One participant suggested that the City establish a new annual assessment, "a post earthquake emergency fee," on seismically deficient buildings until they are retrofitted. The fee, initially set at an amount, such as \$1,000 per residential unit per year, would escalate yearly. Once retrofitting is complete, the owner would be exempted from the assessment. Money collected could be deposited in a fund that would be invested and grow over time. The funds could be used for earthquake preparedness, upgrade of selected buildings and earthquake emergency expenditures.

Participants expressed the need for insurance companies to recognize the importance of mitigation and respond with more attractive policies.

Additional Important Points

Need for a Standard

Participants generally agreed that the City needs an enforceable building code standard to determine which buildings are seismically deficient and to guide design of retrofit measures to achieve the agreed upon objective for the stock of residential buildings.

The traditional engineering "force-based" practice, begun in the 1970s of reducing current code base shear by 25-percent ($0.75 \times$ base shear) was based on an assumption that additional strength would improve building performance and probably reduce chances of collapse. However, some engineers at the workshop argued that this traditional practice is not rational, is not based on dynamic analysis and displacement, and does not serve as a reliable standard to assure that building perform (resist damage) to the point that they are repairable, or would shelter residents following earthquakes. The forced-based approach often leads to more expensive retrofit measures. San Francisco needs a more modern standard to determine if an existing building needs to be retrofitted and for engineers to use for design of retrofit measures.

DBI needs to articulate a standard based on a simplified deformation model. The American Society of Civil Engineers publication, ASCE 41, provides some guidance, as does

International Existing Building Code, IEBC Appendix 4. This standard could be written by DBI staff, by ATC, or by volunteers working under the aegis of the Structural Engineers Association of California. The language would take six months to draft and then progress through the City's process to amend the San Francisco Building Code.

Need for a Screening Tool

Need an inexpensive screening tool to determine for less than \$500 that would be used to determine if building does not need to be further analyzed and retrofitted. Because engineers' personal opinions regarding what are needed in terms of performance can vary, the guidance has to be firm. At least one participant argued that this could be achieved.

Implementation Proposal

Some argued that the timing for a program that imposes demands on owners is unfortunate, during the worst economic meltdown—federal, state and City—since the 1930s. However, it appears that the President-elect Obama team will develop a WPA type infrastructure program to create jobs and revitalize the economy. A much-needed residential seismic retrofit program that has the potential of saving many lives and protecting the city economy would be a good candidate for support. It would provide many needed construction jobs. It was recommended that the City should outline a proposal to the federal government that would also help other cities and states.

CAPSS Retrofit Analysis and Cost Estimates

CAPSS engineers designed three retrofit solutions for each building and estimated the cost of construction. Some participants were skeptical that retrofit scheme three, which used cantilever columns with shear walls, would be less expensive and more effective than scheme two, which used steel frames and shear walls. They cautioned that these results need additional scrutiny before being used.

Small Ground Floor Businesses

Concern was expressed for small businesses located on the ground floor where retrofit measures would be constructed. Participants described the difficulty businesses have with temporary closings and long-term impact on viability.

Additional Costs

Concern was expressed that "soft costs" not associated directly with earthquake safety might be added to the proposed ordinance as it evolves, and that these costs would substantially increase owners' cost. Soft costs were seen as a disincentive to retrofitting. It was suggested that the program separate hard costs (construction, relocating people, cars and storage during construction), from soft costs (engineering and permit fees, triggered up grades, etc.) added for other reasons.

Pace and Scope of the Program

Participants expressed concern that the program considers the availability of design professionals and contractors when establishing the implementation schedule.

Public Outreach

Participants advised that a strong public outreach effort is needed to inform owners about seismic deficiencies and the program, and to inform tenants of the risks they face. This outreach program should be begun as soon as possible so that building owners and tenants are not taken by surprise when the ordinance is first released. A representative of the City's Department of Emergency Management expressed interest in helping with an outreach program.

General Comment

One participant voiced strong concern that about other building types, such as unreinforced masonry single room occupancy hotels, that are highly vulnerable to earthquakes and house thousands of low-income and disabled people. Because many low-income and disabled live in subsidized housing and in other housing subject to rent control, it is imperative that prophylactic mitigation efforts focus on shelter-in-place performance objective first and foremost. It is imperative to focus on effects of the loss of low income housing subject to rent control because if these properties have to be rebuilt, they would not be protected by rent control. Thousands of people could be displaced as a result of this kind of loss.

One participant suggested that the City work with owners to conduct highly publicized retrofit demonstration retrofit projects on typical buildings. Buildings could be selected following a competition and the City could share costs in return for the lessons learned (real costs and related problems) and publicity. A competition could be held to create interest and publicity for the program. FEMA mitigation funds could provide the City's share of the costs.