

**City of Seattle
Unreinforced Masonry Building Project
Technical Committee**

**MEETING NOTES
October 7, 2008**

Attendance: Terry Lundeen, Peter Somers, Mike Wright, Marty Smith, Joan Gomberg, Craig Weaver, Al Findlay, Vaughn McLeod, Tim Nordstrom, Richard Dethlefs, Rick Nishino, Mike Romine, Tom Kinsman, Dave Swanson, Erika Lund, Steve Pfeiffer, Maureen Traxler

Meeting notes of Sept 12 meeting: The notes from the September 12 meeting were approved without comment.

Discussion of scope of URM Technical Committee's work: Maureen distributed a draft document that specifies the questions the City is asking the URM Technical Committee to answer. The Committee suggested adding the question of what standards to apply to previously-retrofitted buildings. A large number of buildings have had seismic upgrades since the 1980s, but the standards used are now outdated.

Action: Maureen will revise the scope of the Technical Committee work to include the question of what standards should be applied to previously-retrofitted buildings.

Discussion of how to define "unreinforced masonry building": The committee had been provided definitions used by Los Angeles, San Francisco, Portland, the International Existing Buildings Code, ASCE 31, and ASCE 41.

The Los Angeles and San Francisco definitions were described as simple and relatively easy to apply. The major difference between the two is that San Francisco's says a wall is unreinforced if it has less than 25% of the steel required by current code, while Los Angeles' says 50%. Los Angeles is also more strict on the loading criterion.

The Portland definition requires building owners to show that their building is reinforced masonry or else it will be classified as unreinforced. An advantage of this definition is that it states what needs to be proven, but it requires a complicated analysis. It is very similar to the ASCE 31 definition.

A unique feature of the IEBC definition is that it doesn't have an axial trigger. A problem with the IEBC definition is that a seismic analysis is required before a building could be classified as a URM, and it often will be impossible to determine whether a building is a URM without destructive testing.

The ASCE definitions were described as hard to enforce because so much analysis is required, similar to the IEBC.

All the definitions include concrete masonry unit buildings of the type constructed in the 1950s. These buildings could be considered as hazardous as the buildings more typically considered as URMs. Peter Somers pointed out that all the definitions include concrete masonry unit buildings, so Seattle would have to justify leaving them out.

A Committee member commented that, if a definition with a numeric indicator is used, there will be “close calls” for buildings on the border of the definition. It was suggested that DPD could use a director’s rule to clarify and add specificity, although Maureen Traxler stated that she prefers the ordinance to be as specific as possible. Another Committee member concurred, stating that these are important issues that should be decided by the elected officials. Others noted that the main concern is for buildings with no reinforcement, rather than the close calls.

The committee discussed whether site and soil conditions would be considered, since they are the highest indicators of the potential for earthquake damage.

Some committee members noted that a “Bolts Plus” approach has advantages—it is a simple approach that would get the “low-hanging fruit”, and it is affordable enough that there is a higher probability that retrofits would be completed.

Conclusions: The Committee’s recommendations should include explanation of the ramifications of the differences between the definitions.

The Committee should recommend a definition used in another jurisdiction or in a model code or standard instead of creating a unique definition.

Action: Dave Swanson and Al Findlay will prepare a quantified comparison of the definitions before the next meeting.

Discussion of matrix of seismicity and building elements. Peter Somers presented a three-part matrix comparing the improvements to building elements that would be required at three different seismic forces, and on three different site classes. It shows that there is a smaller window of protection for Site Class E than the others, or that a smaller earthquake will cause more damage to buildings in Site Class E.

The committee discussed whether soft-story condition should be added to the matrix. Peter explained that the entry for “wall in-plane” includes soft stories.

The committee discussed the choice of seismic event. An earthquake with a 50% probability of recurring in 50 years is comparable to the Nisqually

Earthquake. The recurrence rate of 10% in 50 years is typically used for alterations to existing buildings, and the seismic event of 2/3 the maximum considered earthquake is used for new construction and for alterations using one of the ASCE standards. USGS can provide maps that will show where the Site Classes are located in Seattle.

Conclusion: The Technical Committee's recommendation will include information explaining the ramifications of different recurrence intervals on the choice of retrofit standard.

Action: Peter Somers will enhance the matrix before the next meeting.

Next meeting: October 28 at 9:00 am in Seattle Municipal Tower.