Buildings: Commercial, Unreinforced Masonry

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Questions for South Napa Earthquake Field Team

Group:

1. Please broadly summarize what you saw today in the field. What conclusions can you draw from what you've seen?
   Most URM structures performed sufficiently well. Some known vulnerabilities were highlighted including bed-joint sliding, inadequate parapet and chimney bracing, and insufficient positive connection at roof diaphragm to out of plane URM walls. Structures with diaphragm ties performed reasonably well. Most damage was limited to non-structural components including windows, parapets and architectural finishes. Additional structural concerns include captive columns and short spandrels that demonstrated cracking.

   With respect to post earthquake response numerous building outside of the downtown vicinity were not immediately tagged. Property owners were observed cleaning the building with hopes to sway the building officials' opinion when placarding the structure.
2. What in this area should investigators study tomorrow? Are their obstacles that we need to overcome (i.e. access) to study this area or topic tomorrow?
   Further study/concentration should be provided upon interior non-structural components as many of the properties provided restricted access. While conducting a more detailed investigation upon the interior of the building, special attention should be paid to out-plane bracing of URM walls over their clear height and whether or not such bracing exist. A more concrete understanding of the lateral force resisting systems configuration (i.e. plan layout) should be developed as numerous structures show potential for plan/torsional irregularities.

   Observations regarding cordoning off damaged areas include lack of obeying caution tape by pedestrians. Fencing appeared to be the best means of keeping the public at a safe distance. However at times the distance at which the cordon was provided, with or without fencing, did not appear to be systematic.
3. What future research needs do you see from this area? What comprehensive studies would be helpful? What data would be useful for these studies?
   Future research needs include some correlation study between seismic performance and effectiveness of retrofit efforts. Field information provided thus far would be a reasonable start for such a study. In general the retrofitted structures performed well. Another possible study could be correlating the performance of building and/or building damage with the anticipated torsional response for buildings with plan irregularities. Additional studies upon resiliency (i.e. business and re-occupancy) would be beneficial.
4. Have you seen items in other areas or disciplines that need further study or investigation new or as a longer term topic?
   Further study should be provided for positive connection to URM walls. Numerous instances existed in which walls "zipped away" from exterior perpendicular walls.

   Study for proficient barricades and ways to better provide info to the public would be beneficial.