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Structural Engineers Association of California Responds to American Canyon Earthquake

By Michael Cochran, SEAOC Board President, Reinhard Ludke, and Ken O'Dell

As the Napa region works to recover from the strongest California earthquake in 20-plus years, the rest of the State should be on notice that Sunday's 6.0M American Canyon earthquake did not let us off the hook. Instead, this and every other recent earthquake should be taken as a wakeup call for residents and business owners in California and other seismically active regions of the US. Now is the time to act with forethought and common sense, and not just wait for the next ground shaking to knock us out of bed at 3:20 in the morning.

Almost immediately following Sunday's temblor, Structural Engineers – all of them members of the Structural Engineers Association of California – took action in response to calls from clients and City Officials. A number of national and regional businesses throughout the region activated robust disaster preparedness plans and enlisted engineering experts to conduct post-event damage assessments.

In addition, the Governor's State of Emergency Declaration activated the state's Safety Assessment Program (SAP). Volunteer members of SEAOC and its Disaster Emergency Services Committee, alongside others with structural expertise and SAP certification, were assigned support roles to Napa's Chief Building Official, adding capacity to the city's inspection staff. These inspection teams are now seen throughout the City and region conducting rapid and detailed building safety assessments, leading to the "tagging" of buildings defining their post-event status: RED-Unsafe, Do not Enter or Occupy; YELLOW-Restricted Use, GREEN-Inspected, Lawful Occupancy Permitted.

Many of the codes that help reduce building hazards, limit injuries, and avoid loss of life, as well as the SAP and other resources deployed in the aftermath of disasters, have been developed and nurtured with the support of structural engineers. SEAOC members serve in many active committees dedicated to protecting the public welfare by designing safe buildings and structures. These committees, such as the Existing Buildings, Seismology, and Structural Standards Committees, are on the forefront of developing codes, technical guidelines and most importantly, effective mitigation solutions for building owners (large and small, business and residential) to reduce their earthquake hazard risks. While damage does occur, the American Canyon

Earthquake and other recent events highlight the fact that these solutions can be and are effective. Indeed, they save lives.

Why does this matter now?

Despite the lengthening damage reports from Napa and the prospect of hundreds of millions of dollars in economic losses, we know that the magnitude 6.0 earthquake is small compared to what can and will happen. The U.S. Geological Survey's (USGS) Working Group on California Earthquake Probabilities estimated in 2007 that there is a 63% probability of at least one magnitude 6.7 or greater quake, capable of causing widespread damage, striking the San Francisco Bay region before 2030. There is a 67% probability of a similarly sized earthquake striking the Southern California region within the same period (<http://www.seec.org/ucrf2/>). Because earthquake magnitude is reported on a logarithmic scale, a magnitude 6.7 quake could be as much as seven times larger than Sunday's American Canyon event. There is no question of "if," only "when." And the odds are not in the favor of an unprepared owner or community.

In the aftermath of any earthquake, Structural Engineers are uniquely qualified to bring the necessary solutions to bear for damaged buildings and their repair needs. More importantly, the Structural Engineering community is the best resource available to building owners in assessing possible building performance and potential losses ahead of time, so that informed risk-management decisions can be made.

Structural Engineers are the primary design professionals that will now lead the repair and recovery effort in Napa, Vallejo and nearby communities. Beyond that, California's 3,500 Structural Engineers stand ready to prepare all of our communities for the next event. Solutions exist today, and others can be developed to meet specific building needs, that building owners can implement now to control costs and outcomes instead of letting earthquakes dictate their fate.

Along with building owners, building officials and governing agencies, the Structural Engineers Association of California pursues the shared goal of having every inspected building receive a "Green Tag" the first time an inspector is on site.

Founded in 1932, the Structural Engineers Association of California (SEAOC) seeks to advance the state-of-the-art and the state-of-the-practice of structural engineering to provide the public with structures of safe and dependable performance. Membership consists of four regional associations, the Structural Engineers Associations of Southern California, Northern California, San Diego and Central California.

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