Collapsing Schools

A LOOMING EARTHQUAKE THREATENS TO TOPPLE OREGON SCHOOLS

by Amy Schneider

It happened on a typical school day with no warning. As the 7.9 magnitude earthquake started shaking the ground, students were crushed and killed inside their own schools when the buildings collapsed on top of them. According to CNN, 5,335 students died or went missing after the 2008 earthquake, with even more left disabled. While this particular earthquake happened in southwestern China, the same thing could happen in Lane County to old school buildings like Edison Elementary.

In China, thousands of deaths were attributed to instability of school buildings. Many were built decades before national building codes took effect, and even then, a 2008 article from *The New York Times* suggests that application of the code to school buildings was not always enforced. This lack of preparation was a poor excuse to the devastated parents who sent their kids to school, only to have them never come back.

PHOTO BY TRASK BEDORTHA

Oregon, like China, has a long history of seismic events. While China is riddled with fault lines that trigger earthquakes, the Pacific Northwest also has a looming threat — the Cascadia Subduction Zone, where two tectonic plates intersect off the West Coast. The last mega-earthquake in Oregon happened in 1700, but geological records show that the Cascadia Subduction Zone produces mega-earthquakes on a recurring basis, about once every 500 years. According to Yumei Wang, a geotechnical engineer for the Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon is due for a massive earthquake, one that could rival the 9.0-magnitude earthquake and tsunami in Japan two years ago.

"It's 100 percent certain that a very big earthquake will occur on the Cascadia fault," says Wang, who helped pass legislation in Oregon to propel earthquake preparedness. "The question is exactly when it will occur. But we're guaranteed to have that earthquake."

So, are Oregon schools ready? The answer, largely, is no. In 2007, DOGAMI published the Statewide Seismic Needs Assessment, which evaluated the seismic readiness of Oregon public schools and emergency services buildings. It used the Federal Emergency Management Agency's system of rapid visual screening to give a quick, preliminary estimate of building safety. The study turned up some grim results — of the 2,018 K-12 public school buildings surveyed, 12 percent were rated at a very high risk, meaning they are very likely to collapse in a major earthquake, while 35 percent were rated high risk, with a more than 10 percent likelihood of collapsing.

And the study found that Lane County's schools are no exception. According to the needs assessment, six schools in the 4J School District — Edison Elementary, Coburg Elementary (now Coburg Community Charter School), South Eugene High, Twin Oaks Elementary, Willagillespie Elementary and Winston Churchill High — have buildings that are at high risk of collapse in the event of a major earthquake.

The 4J School District received a $170 million voter-approved bond measure in May to use for facilities improvements. 4J plans to replace Howard Elementary, River Road Elementary and Roosevelt Middle School, with extensive remodeling to the Arts and Technology Academy and a small addition to Gilham Elementary. All of these schools were rated at moderate risk of collapse in the needs assessment. Ben Brantley, manager of the capital improvement program for 4J, says these buildings were chosen for renovation based on a 2012 report by MGP of America, a consulting company that evaluated 4J's buildings and scored them in terms of building condition, educational suitability and other criteria.

Earthquake safety was not factored into the decision-making for building renovation. Brantley says this is because the 2007 seismic needs assessment did not take into account 4J's previous work in seismic retrofitting of its buildings. In 1993, after the Scott Mills earthquake in Portland, the 4J School District used bond money to have its buildings evaluated in terms of seismic deficiencies. These evaluations were then used to prioritize life-safety retrofitting in the event of a moderate earthquake,