CASCADIA REGION EARTHQUAKE WORKGROUP
CREW AHEAD OF THE WAVE

Preparing Schools for Earthquakes
Schools in Oregon

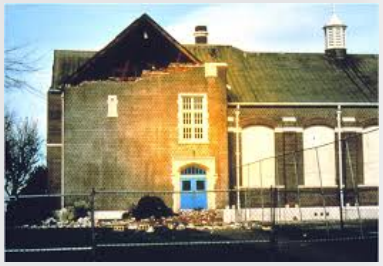


Photo: DOGAMI

Above: Oregon's Scotts Mills earthquake in 1993 caused parts of Molalla High School to collapse. Fortunately, no students were present when the quake hit. The building itself was a total loss and had to be torn down and rebuilt.

In this fact sheet:

- **Why many Oregon schools are vulnerable**
- **What state laws require school districts to do**
- **Resources to help school districts improve earthquake safety**
- **The benefits of investing in the seismic safety of schools**

Action is Required

- **State law requires K–12 schools to conduct earthquake drills at least twice per year; schools in tsunami hazard zones must hold earthquake and tsunami drills at least three times annually.**
- **Whether newly built or retrofitted, all public schools must meet life-safety earthquake standards by 2032.**

Why Oregon Schools Need to Prepare

Oregon's greatest earthquake hazard is the Cascadia subduction zone along the coast, which is expected to produce a quake as large as magnitude 9.0 followed by a tsunami. Smaller shallow faults pose a more localized threat to nearby schools. The magnitude 5.6 Scotts Mills earthquake in 1993, for instance, came from a shallow fault in the northern Willamette Valley. It seriously damaged Molalla High School, where bricks fell and blocked the front entrance. This could have caused injuries and even deaths had students been at school when the earthquake struck.

How Can Schools Improve Earthquake Safety?

Children are required by law to attend school and have a right to expect safe school buildings. A big challenge for most school districts is the continued use of schools built long before the state's earthquake hazard was recognized and seismic design codes were adopted. The solution is to retrofit or replace these older buildings, but the task can seem daunting, given the number of vulnerable buildings and limited resources. Oregon passed laws in 2001 requiring public school buildings to meet life-safety earthquake standards by 2032. To support this objective, Oregon conducted a state-wide seismic needs assessment of K–12 public schools and community colleges to evaluate vulnerabilities and identify high-risk buildings. The results, available in an online database, guide school districts and Oregon's Seismic Rehabilitation Grant Program as they make plans and funding decisions.

Bandon School District in Coos County used an $824,496 grant from the state's Seismic Rehabilitation Grant Program to retrofit Bandon High School (below). In April 2016, the district received a second grant of nearly $1.5 million to upgrade Ocean Crest Elementary School.

—See p. 2 to learn more

Photo: Bandon High School, Bandon Oregon

Did You Know?

FEMA grants are available through two programs administered by Oregon's Office of Emergency Management:

- **Pre-Disaster Mitigation (PDM) program**
- **Hazard Mitigation Grant Program (HMGP).**

To apply, a school district must have an active hazard mitigation plan.

—*See* Featured Links

Resources to Help School Districts Upgrade Buildings

School districts in Oregon can apply to the Seismic Rehabilitation Grant Program (SRGP) for funds to help pay for retrofits. Districts have received as much as $1.5 million per project. To be eligible, the district's proposed retrofits must upgrade buildings to meet life-safety earthquake standards. The application must also include an engineering assessment and benefit-cost analysis.

If school districts need help funding assessments of school buildings, they can apply to the Oregon Department of Education's Technical Assistance Program (TAP), which offers seismic assessment grants of up to $25,000 per district.

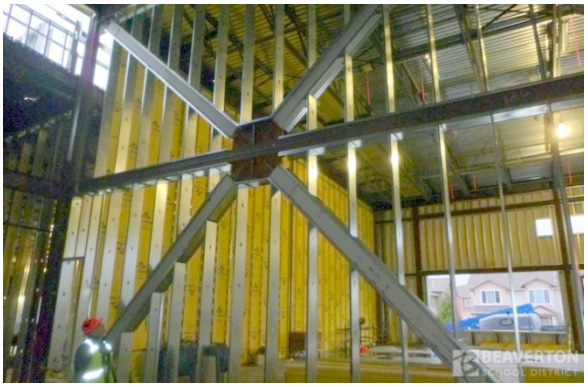
—*See* Featured Links *to learn more*

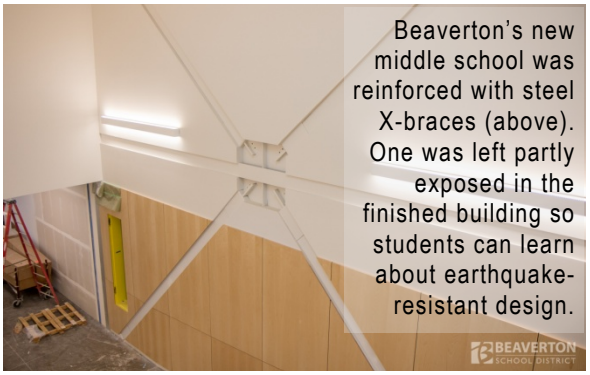
New and Improved in Beaverton

New school buildings constructed in earthquake-prone areas must meet minimum life-safety seismic (earthquake) standards; some districts are choosing to aim higher.

In 2016, Beaverton School District opened a new middle school that exceeds life-safety seismic standards. This $61 million investment will not only keep students and staff safe in an earthquake, it will allow the building to be used as an earthquake-relief shelter. It also permits classes to resume within 30 days of the earthquake.

The new school is part of the district's larger resilience plan, which includes construction of seven schools with similar resilience features. Building the schools to meet the higher seismic design standard improves the resilience of the whole community. (To fund the seven new schools, Beaverton voters passed a $680 million bond in 2014.)





Beaverton's new middle school was reinforced with steel X-braces (above). One was left partly exposed in the finished building so students can learn about earthquake-resistant design.

Photos: Beaverton School District

Featured Links

Oregon Office of Emergency Management: www.oregon.gov/OMD/OEM/Pages/plans_train/earthquake.aspx
Seismic Rehabilitation Grant Program: www.orinfrastructure.org/Infrastructure-Programs/Seismic-Rehab/
Technical Assistance Program: www.oregon.gov/ode/schools-and-districts/grants/Pages/Office-of-School-Facilities.aspx
FEMA mitigation grants: www.fema.gov/hazard-mitigation-assistance
Oregon Department of Education—Quake Safe Schools: www.ode.state.or.us/search/page/?id=2061
Oregon Department of Geology and Mineral Industries (DOGAMI): www.oregongeology.org/sub/default.htm
National Clearinghouse for Educational Facilities: www.ncef.org/content/earthquakes-and-schools
Readiness and Emergency Management for Schools: rems.ed.gov