

## **450,000 B.C. kids face quake danger in schools**

800 buildings in B.C. need seismic upgrading, expert says

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As many as 450,000 B.C. schoolchildren spend their days in buildings more likely than almost any other kind of structure to collapse in an earthquake, a delegate to a world earthquake conference said Tuesday.

Andy Mill, chairman of the Association of Professional Engineers and Geoscientists of B.C.'s Seismic Risk Task Force, told a news conference at the 13th World Conference on Earthquake Engineering that 800 schools in the two-thirds of the province where seismic activity is strongest are in need of upgrading.

And while Mill couldn't put an exact number on how many students that represents, he said it would be fair to suggest that two-thirds of B.C.'s total student population might be affected.

He estimated the cost of upgrading all 800 schools at \$1 billion.

In June, Premier Gordon Campbell announced \$89 million in funding for seismic upgrading, but that money will not be forthcoming until 2006 at the earliest, after the next provincial election.

During the same month, several B.C. candidates in the federal election expressed concern about potentially faulty school structures, but no federal money has been committed to the problem.

Mill's association is conducting a \$2-million comparative assessment of B.C.'s most at-risk schools with a view to prioritizing where and when the most urgent upgrades should occur. That assessment should be completed by October.

"We want to get a better handle on how bad the problem is and how we need to fix it," Mill said.

"I think quite frankly that we've been lucky to date in this province," he added when asked about how pressing the problem is.

Schools are particularly vulnerable because of three factors, Mill explained:

- Most were built before the 1970s, the time when current earthquake building codes were enacted.

- Schools are usually built of brittle materials such as unreinforced masonry or brick that don't withstand earthquakes well.

- Because of the nature of earthquake wave motions, low-rise buildings are much more likely to be damaged than high-rise buildings.

The City of Vancouver is about 10 years behind Seattle when it comes to preparing its schools for an earthquake, said Dr. Tracy Monk, a director of the parent group, Families for School Seismic Safety. In the last 14 years, only 11 Vancouver schools have been fully upgraded, she said.

Monk further estimates that 47 schools containing 30,000 students remain in need of upgrading.

"At that rate, it would take the city until 2064 to finish the rest," she said.

By contrast, said Monk, Seattle is scheduled to complete retrofitting all its public schools by 2008.

Les King, director of facilities for the Vancouver school board, said the number of Vancouver schools identified by the province as needing some kind of refit is as high as 100.

But he couldn't say when that upgrading would take place.

"All our funding for this comes from the province, so we're on the province's timetable for funding," King said. "We are working as fast as we can, given the resources of the province, to get going."

Typically, he said, it costs \$2 million to \$5 million to upgrade one school, but the cost can be significantly higher, depending on the school's size.

For example, estimates to upgrade Vancouver Technical School run as high as \$30 million.

However, King said that while full-scale upgrades are necessary in many schools, non-structural upgrades have been completed on most school properties. This includes anchoring cabinets so they won't fall over, repairing gymnasiums, which, because of their big-box shape are particularly dangerous in earthquakes, and bracing covered play areas.

In Surrey, school district communications manager Doug Strachan said following the sudden closure of an elementary school in White Rock last November because of seismic concerns, the district undertook a survey of 45 schools deemed by engineers to require investigation.

The results of that investigation are complete, Strachan said, but he can't say what they

were, or how many of the 45 schools require attention.

That information has been sent to the ministry of education for consideration, he said.

Mill's announcement coincided with the release of a report by the Organization for Economic Cooperation and Development (OECD) that says schoolchildren the world over face unacceptable risks and even death in earthquakes due to the faulty design and construction of school buildings.

The report, entitled Keeping Schools Safe in Earthquakes, recommends that all OECD member countries, including Canada, require implementation of programs ensuring the seismically safe design and construction of schools.

The OECD will vote on that proposal this fall.

The report, which was compiled by earthquake experts in 12 countries, followed recent serious earthquakes in Italy, Algeria and Turkey in which hundreds of children died when their school buildings collapsed.

"The outrageous thing is that these were modern schools," said Brian Tucker, speaking on behalf of the OECD at Tuesday's meeting.

#### VANCOUVER'S MOST VULNERABLE:

The 10 city schools most in need of seismic upgrading, in order of urgency:

Lord Byng secondary  
Vancouver Technical secondary  
John Oliver secondary  
Van Horne elementary  
Kerrisdale elementary  
Dickens elementary  
Sexsmith elementary  
Prince of Wales secondary  
Lloyd George elementary  
Maple Grove elementary

Ran with fact box "Vancouver's Most Vulnerable", which has been appended to the end of the story.

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