PORTLAND BUSINESS JOURNAL
PORTLAND, OREGON
BUSINESS NEWS FROM THE FOUR-COUNTY REGION
MAY 27, 2011

FOCUS

Northwest buildings vulnerable to quakes

GUEST COLUMN

Walter McMonies

Japan's horrific March 11, magnitude-9 earthquake and tsunami is a wake-up call to the Pacific Northwest.

The quake emanated from the Japan Trench Subduction Zone on the Pacific Ring of Fire. The Northwest has a similar subduction zone, also located on the Pacific Ring of Fire, namely the Cascadia Subduction Zone. Geologists consider Portland and Seattle to have a 10- to 14-percent chance of experiencing a magnitude-9 subduction earthquake in the next 50 years.

Besides initiating a major tsunami that would wipe out most low-lying structures on the Oregon and Washington coasts, modeling indicates that such a quake's shock waves would severely damage a substantial percentage of the buildings, homes and infrastructure in Portland, Seattle and points in between.

Unreinforced masonry and high-rise buildings built prior to 1994 — old high rises — are especially at risk. Quake shock waves at periods of one second or more can create a damaging resonance between the ground and the tall structures above, such that an old high rise that would easily survive a magnitude-6.5 crustal quake might be severely damaged in a magnitude-8 to -9 subduction zone quake.

In Portland and Seattle combined, there are close to 2,600 unreinforced masonry and 240 old high-rise buildings. In fact, an inventory of high-rise buildings (12 stories or higher) in the Pacific Northwest discloses that two-thirds of the 1,131 high-rise buildings along the Interstate 5 corridor (including Vancouver, B.C.) predate the mid-1990s building code changes, increasing the seismic risk in much of Oregon and Washington.

Unreinforced masonry buildings are vulnerable to quake damage because typically they lack adequate strength to resist horizontal, or shear, forces; lack structural connections; have weak roof and floor diaphragms; and have parapets, cornices, chimneys and stone ornamentation prone to breaking off.

In 2001, the city of Portland inventoried its unreinforced masonry buildings and identified about 1,750, including:

- Two hundred apartment buildings (including apartments converted to condos) totaling more than 3.8 million square feet and 5,200 units conservatively worth more than $350 million; and
- Among other categories: 49 schools; 38 hotels/motels; 49 churches; 85 restaurants; 26 child care, medical and nursing facilities; 43 assembly halls and theaters; and six public government buildings.

In 2007, Seattle conducted an unreinforced masonry building inventory that identified:

- Between 850 and 1,000 unreinforced masonry buildings in the city; and
- Some 2,200 unreinforced masonry buildings in King, Pierce and Snohomish Counties.

Clearly, unreinforced masonry buildings are a key component of close-in rental housing and commercial space and contribute to each city's historic fabric.

Currently, neither Portland nor Seattle mandate the seismic upgrading of seismically vulnerable structures except in special situations, such as when the owner is undertaking substantial alterations; making a change of occupancy to a more hazardous, people-intensive use; or the building suffers major damage or is deemed dangerous. However, the owners of unreinforced masonry buildings will be under increasing pressure from casualty insurers and mortgage lenders to seismically upgrade their buildings.

Seismic upgrades are costly. A retrofit of an unreinforced masonry building can often approach 20 percent of the building's value. In addition, there are few tax or other governmental incentives for such work. Aside from marginally lowering earthquake insurance premiums and mortgage interest rates, a retrofit rarely supports a rent increase and adds little to the cash flow of the building, resulting in recovery of the investment, at best, over a 20- to 25-year period.

Owners of unreinforced masonry and old high-rise buildings should consider the following suggestions:

1. Consult a structural engineer and commission a seismic risk assessment of the building.
2. Determine if the building has been identified by local government as unreinforced masonry or otherwise seismically deficient.
3. Review the relevant sections of leases with commercial tenants to determine if you as the landlord have the right to pass on voluntary or government-mandated seismic upgrade costs as a common-area maintenance charge or additional rent and, if you do not have this right, consider including such a provision in future leases.
4. Determine what governmental incentives, if any, are available for the seismic upgrading of the building. If the building is historic, there is a possible 20 percent federal historic income tax credit and a possible charitable deduction for a façade donation. An historic building in Oregon may be eligible for a 10-year property tax assessment freeze, potentially renewable for a second 10 years.

Walter W. McMonies is a shareholder at Lane Powell PC and a member of the law firm's real estate and land use practice group. He has a special interest in historic buildings and their renovation and seismic upgrading. He can be reached at 503-778-2157 or mcmoniesw@lanepowell.com.