

Seismic Evaluation & Upgrading of Existing Buildings

Change of occupancy under the BC Building Code triggers the requirement to upgrade the building's seismic restraint systems (the building's ability to withstand an earthquake). The BC Building Code uses the occupancy classifications (A) Assembly, (B) Institutional, (C) Residential, (D) Business/service, (E) Retail and (F) Industrial. Changing between classifications such as from Bank (D) to Restaurant (A) initiates the requirement to upgrade while changing within a classification such as from Bank (D) to Office (D) or Hair Salon (D) does not.

In November 2001, the City of Nanaimo Council adopted the National Research Council (NRC) *Guidelines for Seismic Evaluations of Existing Buildings* as its standard for evaluation of existing buildings and determination of upgrading required.

NRC *Guidelines for Seismic Evaluations of Existing Buildings* is a technical manual to guide engineers in evaluating existing buildings to determine potential earthquake hazards and to identify buildings or building components that present unacceptable risk to human lives.

A building does not meet the life-safety objective of the guidelines if one or more of the following occurs in an earthquake:

- The entire building collapses.
- Parts of the building collapse.
- Components of the building fail or fall.
- Exit/entry routes are blocked, preventing evacuation or rescue.

The guideline establishes an acceptable level of compliance to current BC Building Code standards regarding life-safety (i.e., though the building may suffer considerable damage in an earthquake, the major objective is to ensure that the occupants are safe and can still exit the building).

An evaluation of the building is made by a Structural Engineer licensed in BC. Any building component unable to withstand 60% of the current building code's seismic loading criteria is targeted for upgrade. The format for evaluation reports and an evaluation checklist is included in the NRC Guidelines. Seismic Reports/Evaluations provided to the City of Nanaimo are to be in the form specified in the NRC Guidelines.

Required upgrades specific to the building are determined by the engineer's evaluation and must be completed as part of the building permit to change the building's occupancy classification.

A list of local structural engineers is available at the City Hall Annex, 238 Franklyn Street.