No, B10-01
DATE January 18, 2010

British Columbia Building Code Amendments Related to Seismic Slope Stability and Technical Guidance

Effective February 1, 2013, the BC Building Code is amended with the new additions of Sentence 4.18.16.(8) and Sentence 9.4.4.4.(2).

With the new changes,

1) the consideration of potential for slope instability and its consequences at a building site becomes an explicit requirement in designs of structures and their foundations, and

2) the seismic hazard probability level to be used in the consideration, particularly in assessment of seismic slope stability, will be as referenced in Subsection 1.1.3 of Division B of the BC Building Code, namely a 2%-in-50 year probability of exceedance.

As a result, the Geotechnical Slope Stability (Seismic) Regulation, B.C. Reg. 358/2006 is repealed. The companion Commentary on Geotechnical Slope Stability (Seismic) Regulation issued by the Building and Safety Policy Branch in January 2007 is also withdrawn. As originally intended, the repealed B.C. Reg. 358/2006 served as an interim provision for specifying a seismic hazard probability level to be used for slope assessments for building sites. That level was a 10%-in-50 year probability of exceedance.

Copies of the Minister's Orders amending the BC Building Code and repealing the Geotechnical Slope Stability (Seismic) Regulation are available online at http://www.housing.gov.bc.ca/building/regs/codes/index.html - see Revision 7.

Technical guidance on seismic slope assessment to the 2%-in-50 year seismic hazard probability level can be found in the document Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia, published by the Association of Professional Engineers and Geoscientists of BC. These guidelines provide a risk-based approach for professionals to assess and mitigate building sites and to design structures at the sites. Authorities may also find the guide helpful in defining criteria for and evaluating results from professional geotechnical reports. The document is available online at http://www.apeg.bc.ca/practice/documents/ppguidelines/guidelineslegislatedlandslide1.pdf

The contents of this Bulletin are not intended to be provided as legal advice and should not be relied upon as legal advice. For further information contact the Building & Safety Policy Branch.
January 2, 2007

Commentary on Geotechnical Slope Stability (Seismic) Regulation

In order to accommodate a new understanding of seismic hazard and its subsequent effects on ground motion values, the 2006 British Columbia Building Code contains new seismic analysis parameters. One of the new parameters, the reference level of probability of exceedance for seismic design, has been changed to 2% in 50 years (1 in 2475 years) from 10% in 50 years (1 in 475 years). Peak ground accelerations have been revised to reflect the new probability level.

Using the new seismic analysis parameters (seismic forces) will result in limited change for the structural design of most buildings. However, when the new seismic forces are applied to geotechnical analysis for slope stability, the results can be substantially different when compared to the results using seismic parameters from the 1998 British Columbia Building Code. A full evaluation of the impact of application of the new seismic parameters to land development/building construction on or around steep slopes has not been completed. As an interim provision, a Geotechnical Slope Stability (Seismic) Regulation has been made to permit the continued use of the 10% in 50 year seismic hazard probability level for slope stability assessment only.

The Geotechnical Slope Stability (Seismic) Regulation is made pursuant to Section 692(d) of the Local Government Act. Using this enabling legislation restricts the application of the regulation to only those slopes that could impact the structural safety of a building. Slope stability concerns related to intended uses of land other than for buildings, or for slopes whose failure would not impact a building are outside of the scope of the regulation.

For convenience purposes, the following 10% in 50 year seismic peak ground acceleration (PGA) parameters are provided (median 50th percentile value is given in units of g):

<table>
<thead>
<tr>
<th>Community</th>
<th>PGA (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnaby (Simon Fraser Univ.)</td>
<td>0.2</td>
</tr>
<tr>
<td>Surrey (88 Ave. &amp; 156 St.)</td>
<td>0.22</td>
</tr>
<tr>
<td>Vancouver</td>
<td>0.21</td>
</tr>
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