**Designated Structural Engineer (Struct.Eng.)**

**in British Columbia**

**What you need to know**

In British Columbia, the practices of professional geoscience and professional engineering are regulated by the provincial government, through the *Engineers & Geoscientists Act (*the *Act)*. The *Act* delegates the regulation of those professions to Engineers & Geoscientists British Columbia.

Produced by

Engineers and Geoscientists BC



Engineers & Geoscientists BC’s role is to protect the public and the environment through the licensure and the regulation of standards of practice, and admission of individuals practicing professional geoscience and professional engineering in the province.

The *Act* gives Engineers & Geoscientists BC’s Council, through Bylaws, approved by the membership, the ability to create Grades of Membership. Both Professional Engineer (P.Eng.) and Designated Structural Engineer (Struct. Eng.) are Grades of Membership. Both have stringent entry and practice requirements. To become a Designated Structural Engineer, a professional engineer must have senior structural engineering experience and successfully complete a series of technical and code examinations.

Currently there are over 100 Designated Structural Engineers registered with Engineers & Geoscientists BC.

**Is registration/licensure as a professional engineer mandatory?**

**Yes.** The *Act* requires that all individuals practicing engineering at a professional level in BC be registered or licensed with Engineers & Geoscientists BC. During the qualification process, Professional Engineers are evaluated through a discipline of engineering. Structural engineering is one of these disciplines.

**Is registration as a Designated Structural Engineer mandatory?**

**No**. Professional Engineers apply to qualify as Designated Structural Engineers on a voluntary basis. Many professional engineers in British Columbia who offer structural engineering services are not required by legislation to be registered as Designated Structural Engineers.

**When does a professional engineer need to become a Designated Structural Engineer to offer structural engineering services in British Columbia**?

Demand-side legislation, such as municipal and provincial legislation governing buildings, may require a Designated Structural Engineer for professional design and review services associated with the issuance of a building permit for a specified structure or situation. Currently, three municipalities, the City of Vancouver, the City of Burnaby and the City of Langley, require the service of a Designated Structural Engineer. Other municipalities may also require a Designated Structural Engineer for professional design and review services for complex buildings.

These municipalities may require that the designer responsible for the design of a Part 3\* building, carried out in accordance with Part 4, Division B of the BC Building Code or Vancouver Building Bylaw, be a *registered professional (*i.e. professional engineer), who is designated by Engineers & Geoscientists BC as a Designated Structural Engineer (Struct.Eng.)and who:

1. is retained to undertake the overall responsibility for the design work and field reviews of the primary structural components of the building;
2. shall apply his or her Struct.Eng*.* stamp, with signature and date to the plans and supporting documents prepared by, or under the supervision of the Designated Structural Engineerin support of the *building permit* application; and
3. shall apply his or her Struct.Eng*.* stamp, with signature and date to the Letters of Assurance.

\*Buildings under Part 3 of Division B of the BC Building Code are

1. classified as post disaster buildings
2. used for *major occupancies* classified as
	1. Group A, *assembly occupancies*
	2. Group B, *detention, treatment or care occupancies*
	3. Group F, Division 1, *high-hazard industrial occupancies,* or
3. exceeding 600 m2 in *building area* or exceeding 3 storeys in *building height* used for *major occupancies*, classified as
	1. Group C, *residential occupancies*
	2. Group D, *business and personal services occupancies,*
	3. Group E, *mercantile occupancies*
	4. Group F, Divisions 2 and 3, *medium- and low-hazard industrial occupancies.*

**It is important to note, that the Authority Having Jurisdiction has the final discretion in the interpretation and application of the Vancouver Building Bylaw or the BC Building Code**.

**Is there a list of construction that does not require the service of a Designated Structural Engineer?**

There is no exhaustive list of construction that does not require the services of a Designated Structural Engineer. By completing the following checklist, the reader can determine whether the service of a Designated Structural Engineer is required. It is important to check with the Authority Having Jurisdiction for this requirement when applying for building permits.

* An answer of ‘Yes’ to all of the following questions, means that the service of a Designated Structural Engineer is required.
* If any of the answers is ‘No’, the service of a Designated Structural Engineer is not required.
* Does the structure fall within the jurisdiction of the City of Vancouver, City of Burnaby, City of Langley or another municipality that requires a Designated Structural Engineer?
* Does the structure support a use or occupancy?
* Is the design work or field review 1 service being provided?
* Is the structure listed in the Buildings under Part 3\* of Division B listed in the previous section?
* Is the component or components being designed part of the building’s Primary Structural System?

1Design Work and Field Review apply to new design and construction, changes to occupancy, alterations, additions, rehabilitation, reconstruction, relocation, seismic upgrades or demolitions; and work necessary to ensure safety in a building.

**Example 1:**

**New Bleachers at Nat Bailey Stadium, Vancouver**

* Does the structure fall within the jurisdiction of the City of Vancouver, City of Burnaby, City of Langley or another municipality that requires a Designated Structural Engineer? *Yes*
* Does the structure support a use or occupancy? *Yes*
* Is the design work or field review service being provided? *Yes* - *new design and construction*
* Is the structure listed in the “Buildings under Part 3 of Division B” listed in the previous section?

 *Yes -* *Group A, assembly occupancy*

* Is the component or components being designed part of the building’s Primary Structural System?

 *Yes – the structure constitutes a building and its design includes the building’s Primary Structure.*

*Conclusion – All answers are ‘Yes’ –*

*Building requires a Struct.Eng.*

**Example 2:**

**Major Renovation to an Existing Tenant in the Metrotown Shopping Centre requiring Structural Design of Seismic Restraint for Non-Structural Building Components**

* Does the structure fall within the jurisdiction of the City of Vancouver, City of Burnaby, City of Langley or another municipality that requires a Designated Structural Engineer? *Yes*
* Does the structure support a use or occupancy? *Yes*
* Is the design work or field review service being provided?  *Yes* - *new design and construction*
* Is the structure listed in the Buildings under Part 3 of Division B (listed in the previous section of this brochure)?*Yes -* Group E, *mercantile occupancy exceeding 600 m 2*
* Is the component or components being designed part of the building’s Primary Structural System? *No*

*Conclusion – At least one answer is ‘No’–*

*Building does not require a Struct.Eng.*

**A note on Independent Reviews**

The Engineers & Geoscientists BC Quality Management Guidelines state that “the professional of record is required to ensure that an independent review of structural designs is completed before the final documents are issued for construction. The independent reviewer must be an Engineers & Geoscientists BC professional with “appropriate” experience with the type of structure being reviewed, but is not required to be registered as a Struct.Eng. To maintain independence, the independent reviewer must not have been involved in preparing the structural design. The independent reviewer may, however, be a member of the same organization.”

**Questions?**

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