

## Alternative Solutions

The purpose of this bulletin is to explain the City of Coquitlam's requirements and procedures relating to the British Columbia Building Code 2006 (BCBC) requirements for alternative solutions. Depending on the complexity and/or magnitude of the alternative solution under consideration, it may be addressed either through the formal process described in this bulletin, or directly by the Building Inspector through an informal process. For guidance as to which process applies in your circumstance please inquire of Building Permits Division.

### ***What is an alternative solution?***

The provisions of the BCBC are not intended to limit the means and methods for designing and construction a building that meets the communities standards for safety, health, accessibility for persons with disabilities, and fire protection of buildings and facilities. Where BCBC compliance cannot be achieved by complying with the acceptable solutions specified in the BCBC's Division B, the proponent may seek to achieve compliance through an alternative solution. An alternative solution incorporates into a building, materials, appliances, systems, equipment, methods of design and construction and/or processes not specifically described in the code or which vary from the specific requirements of the code if it can be shown that these alternatives are suitable on the basis of past performance, tests or technical evaluations.

If an alternative solution is proposed as a means to satisfy a requirement of the Code, BCBC Clause 1.2.1.1.(1).(b) requires the alternative solution to achieve at least the minimum level of performance required by the BCBC's Division B in the areas defined by the objectives and functional statements attributed to the applicable acceptable solution(s) that the alternative solution seeks to supplant. Specifically, BCBC Sentence 1.2.1.1.(2) requires that the objectives and functional statements attributed to the acceptable solutions be the objectives and functional statements identified in Sections 3.9., 4.5., 5.11., 6.4., 7.2., 8.3. and 9.36. Division B establishes the basis for the quantitative performance targets that alternative solutions must meet.

Further guidance regarding the nature of alternative solutions may be obtained by reference to BCBC Division B, Appendix A Articles A-1.2.1.1.(1)(b).

A proponent seeking acceptance of an alternative solution must submit sufficient evidence to demonstrate that the alternative solution will provide at least the level of performance required by the acceptable solution he/she seeks to replace. BCBC Subsection 2.3.1 specifies the requirements for documentation of alternative solutions. In complying with Sentences 2.3.1.1.(3) and (5), particular care should be taken that the argument supporting the alternative solution not be reduced to an opinion, but that it provide adequate reasons for its acceptance. The proponent's proposal must explicitly address the relevant objectives and functional statements and must be comprehensive, logically presented by incorporating the following:

- A definition of the applicable code performance requirements by analysis of the code's requirements for the acceptable solution (i.e., define code performance requirements by addressing, for example in the case of a fire safety alternative solution, considerations of fuel load, fire scenarios, occupant load, fire fighting access, fire spread mechanisms, etc. implicit in the code's acceptable solutions);
- A description of how these performance requirements are being compromised in the proposed design (i.e., define the code non-compliance issues in the same terms used to define code performance requirements);and
- A definition of the alternative solution in terms of the offsetting design measures that are being proposed (i.e., describe the design elements/systems that offset the code non-compliance and demonstrate how this substitution provides the level of performance required by the acceptable solution).

Further guidance regarding documentation of alternative solutions may be obtained by reference to BCBC Division C, Appendix A Articles A-2.3.1.

## Alternative Solutions (continued)

### **What is Coquitlam's Alternative Solutions process?**

Alternative solutions should be submitted at the preliminary stages of a project. City acceptance of all required alternative solutions is generally a condition of building permit issuance.

An alternative solution proposal is assigned to the file manager for the Building Permit Application. The proposal is circulated to departments and divisions within the City for assessment and comment. Comments from the committee members are related to their particular expertise. Comments are assembled by the file manager and forwarded to the proponent for the purposes of clarification or proposal amendment. Complex or difficult alternative solutions may require a committee meeting sometimes with the proponent's involvement. This process could entail a number of iterations. It is the proponent's responsibility to plan and schedule the alternative solution process within the context of his project's time-line.

The City will endeavor to assist and facilitate the alternative solution process, but may, in the end, reject a proposal if it feels the proposal fails to demonstrate an alternative solution. Throughout this process City comments and observations shall be understood as constructive, and shall not be construed as permissive. There are no interim or preliminary decisions, and the alternative solution will stand or fall in its final form entirely on its own merits. Strict code compliance is the fall-back requirement for all alternative solutions.

Upon completion of the City's review of an alternative solution the proponent will be notified and will be required to prepare a Record of Alternative Solution – Form 005a (see Appendix A for guidance in completing this form). The City will countersign this form attesting to the alternative solution's acceptance or rejection.

The alternative solution process is not completed until the registered professional provides assurance that the alternative solution has been installed in a manner satisfactory to him and in compliance with the accepted alternative solution. An occupancy certificate will not be issued until this process is completed.

### **Note:**

1. In the event of disagreement, the City's decision is final. The City may consider an independent professional review of the alternative solution in order to assist it in making its final decision.
2. Alternative solutions applied for after issuance of building permit which arise, for example, to correct faulty design or construction, may not be considered by the City.
3. Minutes of meetings with the City prepared by the proponent will not form a part of the record and may not be appended to an alternative solution as supporting documentation.
4. Full code analyses and consolidated Code requirement documents are often prepared to facilitate the work of other consultants to the project. They do not form part of the alternative solution and will not be formally reviewed by the City under the alternative solution process. Code analyses incorporated into an alternative solution submission should be limited to only those code issued germane to the alternative solution under consideration.

### **Where do you apply for an alternative solution?**

Applications for alternative solutions shall be made to:

City of Coquitlam  
Planning and Development, Building Permits Division  
Attention: Alternative Solution Review Committee  
3000 Guildford Way  
Coquitlam BC V3B 7N2

## Alternative Solutions (continued)

### ***What are the submission requirements?***

Unless otherwise agreed to by the Manager Building Permits of the City of Coquitlam, submissions shall be prepared, sealed and signed by a registered professional consultant with experience in the discipline to which the alternative solution pertains (e.g., expertise in fire protection systems where the fire and life safety provisions of the BCBC are being addressed, structural expertise where the structural provisions of the code are being addressed), a thorough understanding of the BCBC and a demonstrable history of dealing with alternative solutions (Equivalents under previous codes). All communications relating to the alternative solution will be addressed to this registered professional.

Application submissions shall consist of the following:

- Two sealed originals of each submission;
- A covering letter providing a synoptic description of each alternative solution pertaining to the project;
- Supporting documentation;
- A Record of Alternative Solution form incorporating an undertaking for field review by the registered professional; and
- Payment of application fee.

Supporting documentation shall include but not be limited to:

- Alternative solution report;
- Reduced drawings (floor plans, elevations, sections, etc.) that portray the extent of the alternative solution in its entirety, and its relationship to the remainder of the project (documents provided to the City under other permit or information processes will not be admitted);
- Supporting literature including articles, calculations; test results;
- Specific design parameters required of subsequent design (e.g., special sprinkler wetting requirements that may not be specified in the standard literature);
- Citations shall include title, author and publication data including date of publication; and
- Statement indicating that the alternative solution will provide a level of performance equal to or greater than that required by BCBC.

### ***What happens next?***

Upon completion of the alternative solution review:

- The City will countersign the Record of Alternative Solution form attesting to the alternative solution's acceptance or rejection. and return a copy of the form to the proponent. (If required, due to changes in the alternative solution or documented items occasioned by the review process, the proponent will submit an updated Record of Alternative Solution form for countersignature.)
- Full code analyses and consolidated code requirement documents (incorporating accepted alternative solutions as applicable) should be submitted with the building permit application.

Upon completion of the alternative solution:

- A letter from the registered professional shall be submitted to the City providing assurance that the alternative solution has been installed in a manner satisfactory to the registered professional and in substantial compliance in all material respects with the approved alternative solution. Complex alternative solutions may occasion the submission of the registered professional's field review reports during the course of construction in addition to the final assurance letter.

### ***What are the fees for alternative solutions?***

In order to recover some of the costs associated with reviewing alternative solutions, a minimum administration fee is charged for a each group of alternative solutions that will be processed at one time. This fee covers two hours of staff's time to review the alternative solutions. Many projects have more than one alternative solution submitted in a single application. As each

**Alternative Solutions (continued)**

alternative solution is unique it must be reviewed and responded to on an individual basis. Staff review often exceeds this allowance and an additional hourly charge for each hour or part thereof beyond the first two hours will be levied. The minimum fee is taken with the submission of the alternative solution, and the outstanding fees are due upon acceptance or rejection of the alternative solution. Proponents should refer to Schedule B of the City's current Fees and Charges Bylaw for rates.

Should independent engineering review become necessary to satisfy the City regarding the viability of a proposal, the costs of such a review will be borne by the proponent.

***Where can I get further information?***

Please call the Alternative Solution Review Committee Coordinator, Perry Halabuza, Senior Plans Examiner at the Permits Section of the Planning and Development Department at 604-927-3422.

Peter Kushnir, MAIBC  
Manager Building Permits

PK/pk

**Alternative Solutions (continued)**

**Appendix A – Preparation of Record of Alternative Solution Form 005a**

Alternative Solution Number	[insert tracking number to be provided by the City]
Project Address	[insert project’s civic address]
Owner	[insert owner’s name]
Owner Address	[insert owner’s civic address]
Subject Building	[insert project name]
Applicable Code	<b>British Columbia Building Code 2006</b>
Building Description	[insert <i>building area</i> , and <i>height</i> , proposed construction, number of <i>streets</i> faced, whether sprinkler and/or fire alarm are provided]
Occupancy Classification	[include details of multiple <i>occupancies</i> ]
Alternative solution	[insert generic description of proposed alternative solution]
Specific BCBC Reference	[insert acceptable solution code reference that the alternative solution is meant to address]
Submission	[provide: a code analysis outlining the analytical methods and rationales used to determine that the proposed alternative solution will achieve at least the level of performance required by Division B; information concerning any special maintenance or operational requirements, including any <i>building</i> component commissioning requirements, that are necessary for the alternative solution to achieve compliance with the code after the <i>building</i> is constructed; information about the qualifications, experience and background of the person or persons taking responsibility for the design; information in sufficient detail to convey the design intent and to support the validity, accuracy, relevance and precision of the Code analysis; where the design of a <i>building</i> includes proposed alternative solutions that involve more than one person taking responsibility for different aspects of the design, identify the single person co-ordinating the preparation of the design, code analysis and documentation; specify underlying principles, data, etc. identify any assumptions, limiting or restricting factors, testing procedures and results, scenario evaluations, risk analyses, engineering analyses, mathematical modeling, computer modeling, published standards, or <i>building</i> performance parameters that will support a Code compliance assessment]
Inclusions	[itemize inclusions such as reports, dated amendments to reports, drawings, test results, articles, etc. The foregoing “Submission” field may be filled out with a synopsis of the alternative solution with a reference to the complete report cited herein]

**Alternative Solutions (continued)**

**Assurance**

The undersigned hereby gives assurance that this alternative solution will provide a level of performance equal to or greater than that required by the British Columbia Building Code.

**Undertaking**

The undersigned hereby undertakes to be responsible for review of all relevant shop drawings for and for *field review* of the above referenced alternative solution and to submit:

1. *Field review* reports; and
2. A letter upon completion of this project, providing assurance that:
  - the undersigned has fulfilled his obligation for shop drawing review and *field review*, and
  - the alternative solution has been installed in a manner satisfactory to the undersigned as being in substantial compliance in all material respects with the above referenced alternative solution.

Name of <i>Registered Professional</i>	[insert name]	
Signature of <i>Registered Professional</i>	[insert signature]	
Address	[insert address of the registered professional]	
Telephone	[insert telephone number ]	
Date		
		(Affix PROFESSIONAL SEAL here)

(If the *registered professional* is a member of a firm, complete the following:)

I am a member of the firm \_\_\_\_\_  
and I sign this letter on behalf of the firm.

**Coquitlam Alternative Solution Review Committee**

Name [to be completed by the City] \_\_\_\_\_ Accepted

Signature [to be completed by the City] \_\_\_\_\_ Date \_\_\_\_\_ Rejected

**Conditions applicable to all relying on this Record of Alternative Solution**

1. Acceptance of this alternative solution is site specific and does not establish a precedent for acceptance of similar alternative solutions on other projects.
2. Matters not specifically addressed by the alternative solution must be in full compliance with the British Columbia Building Code.
3. The alternative solution addressed under this assurance constitutes an integral component of all currently active and all subsequent permit applications pertaining to the above referenced building and the provisions of this alternative solution may be superseded only by a Code compliant design or a design based on a new alternative solution.
4. Pursuant to Section 290 of the Local Government Act (RSBC 1996) Chapter 323, the City relies on this assurance.
5. Unless otherwise authorized by the Manager Building Permits of the City of Coquitlam, the termination of the engagement of the *registered professional* prior to his completion of the undertakings identified herein will nullify and make void this alternative solution.
6. In this document the italicized words have the same meaning as in the British Columbia Building Code.

Alternative Solution Number	
Project Address	
Owner	
Owner Address	
Subject Building	
Applicable Code	<b>British Columbia Building Code 2006</b>
Building Description	
Occupancy Classification	
Alternative solution	
Specific BCBC Reference	
Submission	
Inclusions	

Alternative Solution Number  
Project Address

**Assurance**

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1. *Field review* reports; and
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  - the undersigned has fulfilled his obligation for shop drawing review and *field review*, and
  - the alternative solution has been installed in a manner satisfactory to the undersigned as being in substantial compliance in all material respects with the above referenced alternative solution.

Name of <i>Registered Professional</i>		
Signature of <i>Registered Professional</i>		
Address		
Telephone		
Date		
		(Affix PROFESSIONAL SEAL here)

(If the *registered professional* is a member of a firm, complete the following:)

I am a member of the firm \_\_\_\_\_  
and I sign this letter on behalf of the firm.

**Coquitlam Alternative solution Review Committee**

Name \_\_\_\_\_ Accepted

Signature \_\_\_\_\_ Date \_\_\_\_\_ Rejected

**Conditions applicable to all relying on this Record of Alternative Solution**

1. Acceptance of this alternative solution is site specific and does not establish a precedent for acceptance of similar alternative solutions on other projects.
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