



January 31, 2020

Construction Industry, Designers, Contractors and Suppliers providing services in Sooke

### **Advisory #9 – Alternative Solutions**

The British Columbia Building Code 2018, (BCBC) which is adopted in Sooke, by the District of Sooke Building Bylaw, contains several provisions that apply to Proposing Alternative Solutions. We are alerting you to the need for building owners, as well as their designers, builders and material suppliers on their behalf, to comply with the requirements of the 2018 BCBC.

This enclosed Advisory #9 includes a summary of the significant 2018 BCBC provisions that apply when providing a proposal for an Alternative Solution to a required Acceptable Solution.

We hope that this advisory will help eliminate confusion regarding the Intent of what is required when proposing an Alternative Solution to a required Acceptable Solution and will encourage conformance with the 2018 BCBC requirements. Please feel free to make copies of this advisory available to your customers as you see fit. Your assistance in achieving these goals will be greatly appreciated.

**The BC Building, Plumbing and Fire Codes are available to read online at:**

<https://www.bcpublications.ca/BCPublications/>

A handwritten signature in blue ink, appearing to read "Stan Dueck". The signature is fluid and stylized, with a long horizontal line extending to the left.

Stan Dueck CRBO  
Chief Building Official  
Building Safety  
District of Sooke  
Phone: (250) 642-1634



## **Building Safety – Advisory #9**

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### **Advisory #9 – Alternative Solutions**

Compliance with the Building Bylaw are addressed in this advisory. The British Columbia Building Code 2018, (BCBC) which is adopted in Sooke, by the District of Sooke Building Bylaw.

Words in *italics* are defined in the 2018 BCBC.

Note: This advisory applies to the requirements of the 2018 BCBC regarding the Intent of what is required when providing a proposal for an Alternative Solution to a required Acceptable Solution in the 2018 BCBC:

#### **Alternative Solutions**

Article 1.2.1.1 of Division A of the British Columbia Building Code (BCBC) 2018, states that compliance with the Code shall be achieved by complying with the applicable Acceptable Solutions in Division B or through the use of an Alternative Solution.

An Alternative Solution is required to demonstrate that the proposed method of compliance will achieve at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the applicable Acceptable Solutions. Section 2.3 of Division C outlines the documentation required to demonstrate this level of performance.

#### **What is an Alternative Solution?**

The provisions of the 2018 BCBC are not intended to limit the means and methods for designing and construction of a building that meets the 2018 BCBC requirements for safety, health, accessibility for persons with disabilities, and fire protection of buildings and facilities. Where the 2018 BCBC compliance cannot be achieved by complying with the acceptable solutions specified in the 2018 BCBC, 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 2018 BCBC, Division A 1.2.1.1.(1).(b) (see Note A-1.2.1.1.(1)(b)) requires the alternative solution to achieve at least the minimum level of performance required by the 2018 BCBC, 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, 2018 BCBC Division A 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 3.10., 4.5., 5.10., 6.10., 7.2., 8.3., 9.38 and 10.3. Division B establishes the basis for the quantitative performance targets that alternative solutions must meet.

**A-1.2.1.1.(1)(b) Code Compliance via Alternative Solutions.** Where a design differs from the acceptable solutions in Division B, then it should be treated as an “alternative solution.” A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions – certainly far less precisely than would be the case with a true performance code, which would have quantitative performance targets and prescribed methods of performance measurement for all aspects of building performance. Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B – not “well enough” but “as well as.”





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In this sense, it is Division B that defines the boundaries between acceptable risks and the “unacceptable” risks referred to in the statements of the Code’s objectives, i.e. the risk remaining once the applicable acceptable solutions in Division B have been implemented represents the residual level of risk deemed to be acceptable by the broad base of Canadians who have taken part in the consensus process used to develop the Code.

Further guidance regarding the nature of alternative solutions may be obtained by reference to 2018 BCBC Division B, Appendix A Articles A-1.1.2.1.(1), inserted above.

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. The 2018 BCBC Division C, 2.3.1 specifies the requirements for documentation of alternative solutions. In complying with Division C, 2.3.1.2.(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, firefighting 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. inserted below.

A-2.3.1. Alternative Solutions. Beyond the purposes of demonstrating compliance and acquiring a building permit, there are other important reasons for requiring that the proponent of an alternative solution submit project documentation (i.e. a compliance report) to the authority having jurisdiction and for the authority having jurisdiction to retain that documentation for a substantial period following the construction of a building:

- Alternative solutions made possible by objective-based codes may have special maintenance requirements, which would be described in the documentation.
- Documentation helps consultants perform code compliance assessments of existing buildings before they are sold and informs current owners or prospective buyers of existing buildings of any limitations pertaining to their future use or development.
- Documentation provides design professionals with the basic information necessary to design changes to an existing building.
- An alternative solution could be invalidated by a proposed alteration to a building. Designers and regulators must therefore know the details of the particular alternative solutions that were integral to the original design. Complete documentation should provide insight as to why one alternative solution was chosen over another.
- Documentation is the “paper trail” of the alternative solution negotiated between the designer and the regulator and should demonstrate that a rational process led to the acceptance of the alternative solution as an equivalency.
- It is possible that over time a particular alternative solution may be shown to be inadequate. It would be advantageous for a jurisdiction to know which buildings included that alternative solution as part of their design: documentation will facilitate this type of analysis.
- Project documentation provides important information to a forensic team that is called to investigate an accident or why a design failed to provide the level of performance expected.

This subject is discussed in further detail in “Recommended Documentation Requirements for Projects Using Alternative Solutions in the Context of Objective-Based Codes,” which was prepared for the CCBFC Task Group on Implementation of Objective-Based Codes and is available on NRC’s Web site.



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### **Advisory #9 – Alternative Solutions**

#### **What is the District of Sooke's (District) Alternative Solutions process?**

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

An alternative solution proposal is assigned to the Chief Building Official. The proposal is circulated to departments and divisions within the District for assessment and comment. Comments from the department and division members are related to their particular expertise. Comments are assembled by Building Safety and forwarded to the proponent for the purposes of clarification or proposal amendment. Complex or difficult alternative solutions may require a 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 the project's timeline.

The District will endeavour 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 District 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 2018 BCBC compliance is the fallback requirement for all alternative solutions.

Upon completion of the District's review of an alternative solution, the proponent will be notified and will be required to prepare a Record of Alternative Solution form. The District 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 them 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 District's decision is final. The District may consider an independent professional review of the alternative solution in order to assist it in making its final decision, at the proponent's cost.

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 District.

3 Minutes of meetings with the District 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 2018 BCBC 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 District under the alternative solution process. 2018 BCBC 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:

District of Sooke, Building Safety, 2205 Otter Point Road, Sooke, British Columbia, V9Z 1J2

Email: Building Safety @ [Building@sooke.ca](mailto:Building@sooke.ca)

Website: [www.sooke.ca](http://www.sooke.ca)





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

Unless otherwise agreed to by the District of Sooke's Chief Building Official, submissions shall be prepared, sealed and signed by a registered professional consultant with knowledge and experience in the discipline to which the alternative solution pertains (e.g., expertise in fire protection systems (Fire Protection Engineer) where the fire and life safety provisions of the 2018 BCBC are being addressed, structural expertise (Structural Engineer) where the structural provisions of the 2018 BCBC are being addressed), a thorough understanding of the 2018 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(s).

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 District 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 2018 BCBC.

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

Upon completion of the alternative solution review:

The District 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.



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Upon completion of the alternative solution:

A letter from the registered professional shall be submitted to the District 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 occasionally require 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 each group of alternative solutions that will be processed at one time. Many projects have more than one alternative solution submitted in a single application. As each alternative solution is unique it must be reviewed and responded to on an individual basis.

Staff review often exceeds the allotted time covered by the minimum administration fee and an additional hourly charge for each hour or part thereof beyond the first three hours will be levied. The minimum administration 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 the current Fees and Charges Bylaw for rates.

Should independent engineering review become necessary to satisfy the District regarding the viability of a proposal, the costs of such a review will also be borne by the proponent and these additional costs are also due upon acceptance or rejection of the alternative solution.

#### **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 2018 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:

*Field review* reports; and

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.





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Name of Registered Professional Signature of Registered Professional Address

name	
signature	
address of the registered professional	
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.

### Alternative Solution Project Address

Owner Address: \_\_\_\_\_

Subject Building Applicable

BCBC Building Description  
Occupancy Classification  
Alternative Solution Specific  
BCBC Reference Submission

tracking number
project's civic address
owner's name
owner's civic address
project name
<b>British Columbia Building Code 2018</b>
<i>building area, and height, proposed construction, number of streets faced, whether sprinkler and/or fire alarm are provided</i>
<i>details of multiple occupancies</i>
<i>generic description of proposed alternative solution</i>
<i>acceptable solution code reference that the alternative solution is meant to address</i>
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 coordinating 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
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

Inclusions



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**Building Permit #** \_\_\_\_\_

**Alternative Solution Information Sheet**

Building Address: \_\_\_\_\_

Building Name: \_\_\_\_\_

Building Number: \_\_\_\_\_ Date: \_\_\_\_\_

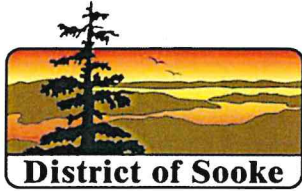
**Project Description:** Provide a brief description of the project, specify Major Occupancy (ies), and include applicable Construction Class Article(s) [3.2.2.\_\_\_\_] in Division B, of **B.C. Building Code 2018**.

Please enter description here

If more room is required, please attach an additional sheet.

**Note:** Submission of the applicable Code Compliance and Alternative Solutions report prepared by the Registered Professional shall include a Building Code analysis related to the proposal, this sheet, and payment of the applicable review fee. The report and documentation must satisfy the requirements of **Division C, Subsection 2.3.1. of the B.C. Building Code 2018**.





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**Building Code Compliance:** List each **B.C. Building Code - Division B** reference where direct compliance with applicable acceptable solutions are not provided, and indicate all related **objective(s)** and **functional statement(s)** of the **2018 BCBC**.

Please enter Building Code references, objectives and functional statements here.

If more room is required, please attach an additional sheet.



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**Alternative Solutions:** Identify each proposed alternative solution and briefly describe the analytical method and rationale used to determine that the proposed alternative solution will achieve at least the level of performance required by **Division B** of the **B.C. Building Code 2018**, in the areas defined by the objectives and functional statements attributed to the applicable acceptable solution.

Please describe alternative solutions here.

If more room is required please attach an additional sheet.





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**Applicant Information**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Firm: \_\_\_\_\_

Signature: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

AFFIX PROFESSIONAL SEAL

**This Section is for the District of Sooke Use Only:**

Date: \_\_\_\_\_ BP Number: \_\_\_\_\_

**Recommendation:**

☐ ACCEPTABLE  
(Subject to condition(s) noted below)

☐ ACCEPTABLE

☐ REFUSED  
(For the reason(s) noted below)

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Based on these recommendations the District of Sooke accepts the alternative solutions proposed. Registered professional of the proposed alternative solution(s) is to review all related shop drawing, provide field review and issue a signed and sealed written confirmation as part of the occupancy application.

Chief Building Official: \_\_\_\_\_ Date: \_\_\_\_\_



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#### **District of Sooke Alternative Solution Review:**

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
to be completed by the District

Accepted [ ]

Rejected [ ]

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

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

Matters not specifically addressed by the alternative solution must be in full compliance with the British Columbia Building Code (2018 BCBC).

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.

Unless otherwise authorized by the Chief Building Official for the District of Sooke, 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.

In this document the italicized words have the same meaning as in the British Columbia Building Code (2018 BCBC).