

# Alternative Solutions

The purpose of this brochure is to explain the City of Burnaby's requirements and procedures relating to submission for Alternative Solutions.

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*"This information is provided for convenience only and is not in substitution of applicable City Bylaws or Provincial or Federal Codes or laws. You must satisfy yourself that any existing or proposed construction or other works complies with such Bylaws, Codes or other laws."*

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## What is an Alternative Solution?

Article 1.2.1.1., Part 1, Division A of the British Columbia Building Code states that compliance with the code shall be achieved by complying with applicable *acceptable solutions* in Division B or using *alternative solutions* that will achieve at least the minimum level of performance required by Division B in the areas defined by the objectives and function statements attributed to the applicable *acceptable solutions*.

## How to apply for an Alternative Solution?

Applications for alternative solutions can be submitted in hard copy or electronically.

Hard copy application packages can be submitted to:

Chief Building Inspector,  
Building Division, City of Burnaby  
2<sup>nd</sup> Floor, 4949 Canada Way  
Burnaby, B.C. V5G 1M2.

For electronic submissions, the application package can be uploaded onto the Alternative Solution portal: [City of Burnaby File Transfer Server](#)

Submission of alternative solution in advance of the building permit application may not be reviewed immediately.

The City's final response to the submission may be withheld until the building permit application has been reviewed.

## Fees for Alternative Solutions

An application fee is charged for each proposed alternative solution in accordance with the current fee schedule.

It should be noted that many projects have more than one alternative solution submitted in a single report. As each alternative solution is site specific and must be reviewed and responded to on an individual basis, the fee will be levied for each alternative solution referred to in a report.

There is no charge for revising the Alternative Solution(s) prior to City acceptance.

A revision fee will be charged for already accepted alternative solutions and for already accepted alternative solutions provided for a different location within the same project.

## Submission Requirements

### Hard Copy Submission

Applications must include the following for each proposed Alternative Solution submission:

- 1 completed Alternative Solution Application Form (the applicant must be the registered professional responsible for the proposed alternative solutions).
- payment of the appropriate fee
- 2 original signed and sealed hard copies of an alternative solution(s) report complete with all supporting documentation
- 1 Alternative Solution Submission and Sign Off Form for each alternative solution signed and sealed by the registered professional and initialed by the project's Coordinating Registered Professional (CRP)

### Electronic Submission

- 1 completed Alternative Solution Application Form (the applicant must be the registered professional responsible for the proposed alternative solutions).
- 1 original digitally signed and sealed copies of an alternative solution(s) report complete with all supporting documentation
- 1 Alternative Solution Submission and Sign Off Form for each alternative solution digitally signed and sealed by the registered professional and digitally initialed by the project's Coordinating Registered Professional (CRP)
- the application package is to be uploaded to the Alternative Solution portal: [City of Burnaby File Transfer Server](#)

One hard copy of the Alternative Solution(s) report and Building Code Report are required for the Building Permit Application package.

## Alternative Solutions Reports

Alternative solutions reports must be prepared, sealed, signed and dated by a professional engineer or architect licensed to practice in British Columbia and experienced in the preparation of alternative solutions.

The report shall include a high level code analysis of the building to provide context for the Alternative Solutions. Alternative solutions reports shall limit detailed Code review and analysis to only those aspects of Code compliance that have a direct bearing on the alternative solutions being proposed. Reports that provide an approach to Code compliance or that constitute a summary of Code requirements for the purpose of providing guidance to the development team are not acceptable.

A single submission may contain multiple alternative solutions but each alternative solution must be documented separately.

For each proposed Alternative Solution provide:

**Compliance Baseline**

- specification of a Code compliant solution using acceptable solutions (should an alternative solution not be accepted this is the compliant solution that must be implemented)
- the objectives, functional statements applicable to the acceptable solutions
- a specification of the level of performance required by the acceptable solutions

**Proposal**

- the proposed alternative solution

**Demonstration**

- the analytical methods and rationales used to demonstrate that the proposed alternative solution will achieve at least the level of performance required by the acceptable solution
- an explanation of all assumptions, limiting or restricting factors, application of testing procedures, test data, engineering studies, modeling, and building performance parameters that support the Code compliance assessment cross referenced to any supporting material provided in the report
- specification of any special maintenance or operational requirements, including any building component commissioning requirements, that are necessary for the alternative solution to achieve compliance with the Code after the building is constructed

**Credentials**

- information about the qualifications, experience and background of the person or persons taking responsibility for the design, and

**Supporting Materials**

- reduced floor plans, sections, and / or details highlighting and identifying the locations and scope of the proposed alternative solution (sufficient drawings must be provided for the report to be read without reference to the permit drawings)
- reference materials

Upon an initial screening of the alternative solution report additional copies may be requested to facilitate review.

## **Compliance Letter**

If the alternative solution(s) are accepted, a specific Letter of Compliance signed and sealed by the registered professional responsible and initialed by the project's Coordinating Registered Professional must be submitted to the building inspector upon completion of the project and prior to the final inspection by the building inspector.

## **Engineering Judgements**

There may be occasions when specific conditions do not lend themselves to the direct application of a listed assembly or system. This may arise, for instance, during design or installation of listed

fire assemblies or fire stop systems. In these cases, the designer or installer may propose installing the listed assembly with modifications. These alternative solutions are often referred to as “engineering judgements”. An engineering judgement shall be submitted and will be processed as an alternative solution; it requires a demonstration that a particular assembly or detail not strictly conforming to the listing will nevertheless provide the same level of performance as that of the listing.

Engineering judgements on fire stop systems for non-rated curtain wall shall be based on the “Best Practice Guide on Fire Stops and Fire Blocks and Their Impact on Sound Transmission” published by NRC dated June 2007.

The following provide general guidance to those preparing engineering judgements:

1. All submissions shall be prepared by a knowledgeable registered professional in fire stop systems and is independent of the manufacturer.
2. Engineering judgement shall include:
  - a. the details of the listed assembly or system and the proposed variations to the listed assembly or system signed and sealed by a registered professional,
  - b. the reason for the variations,
  - c. test data or equivalent documentation to demonstrate how the Alternative Solution provides the same level of performance as the listed assembly or system, and
  - d. detail instructions on the installation and any special instructions related to long term performance.
3. Engineering judgements are not substitutes for available listed assemblies or systems. They should not be used to avoid having a new assembly or system to be tested and listed.
4. Engineering judgements shall be based upon extrapolation from tested systems that are sufficiently similar in nature to the condition under consideration. All aspect of the tested assembly that are germane to its performance must be addressed and reflected in the proposed solution.
5. An engineering judgement shall be accepted only for a specified location within the subject building of a project and cannot be transferred to other locations within the same building or any other jobs without an accepted revision or new submission respectively.

## Further information

Please call the Building Department at 604-294-7130.