

## Building Code Analysis – Guide

### For Part 3 and Part 9 Buildings – For Other than Single, family dwellings (Commercial, Industrial, Multi-Family)

#### OVERVIEW

The purpose of this document is to provide guidance in completing the Building Code Analysis to be submitted with a building permit application. The Building Code Analysis is required for NEW **commercial, industrial, multi-family**, and EXISTING commercial/industrial/multi-family buildings with a change of major occupancy or with a substantial addition/alteration.

The completed [Building Code Analysis Guide](#) will assist in processing your application by providing a detailed code analysis and supporting drawings. These Code references are not a complete list of items relevant to your building project.

#### PROJECT DESCRIPTION GUIDE

**Date:** Date of application for the building permit.

**Project Name:** Proposed name of building, e.g. ABC Building Supplies & Office Space

**Project Address:** Self-explanatory.

**Architect:** Architect's name and company name.

**Type of Work** - (Division A 1.1.1.1.) Identify the project type as either New Construction, Addition, Addition & Alteration, Alteration or Change of Use.

**Project Description:** Provide a detailed description of the project (e.g. New, 2-storey, mixed-use building on a sloping site with 1 surface parking lot. The lower storey is of non-combustible construction with the upper storey of combustible construction. The building is designed to accommodate an E occupancy in the commercial space and D occupancy above.

**Building Code Version:** Confirm the building code version to which the project is designed, the regulation for the issued building code and the last amendment regulation.

**Basis for Code Analysis:** Identify the part of the code applicable to the project (Part 3 or Part 9).

**Building Classification:** (3.2.2.20. – 92.) or (9.10.8.) Identify the classification of the building according to **3.2.2. Building Size and Construction Relative to Occupancy**. A building may have different major occupancies but generally has one classification based on the most restrictive governing article; however, superimposed occupancies may be separately classified. If the analysis is for an existing building with a change of major occupancy, identify the existing and proposed building classification.

The following drawing components are to be included as part of the Building Code Analysis in the building permit application package. Label the **Occupancy type** on each floor and floor area of the plans and provide a BUILDING CODE OCCUPANCY LEGEND and a RATED ASSEMBLIES LEGEND along with colored lines denoting the ratings and their assemblies on both the floor plans and section views. Show TRAVEL DISTANCE to exits on the floor plans and provide Spatial Separation Tables for all elevations and fire compartments.

In red print, reference to additional information is provided for clarification; see pages 4 to 6 of this document.

DRAWING COMPONENT	ABBREVIATION	DESCRIPTION
BCBC Analysis:	BCBCA	<p>Summary of all pertinent code information. Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Application of Division B (Part 3 or Part 9)</li> <li>• Alternative solutions to building code compliance and effect on design - Analysis Guide item # 01</li> <li>• Building area - Analysis Guide item # 02</li> <li>• Building height - Analysis Guide item # 03</li> <li>• Number of storeys</li> <li>• High building confirmation N/A - Analysis Guide item # 04</li> <li>• Building classification listing all major occupancies and most restrictive classification - Analysis Guide item # 05 &amp; Building Classification (see page 1) <ul style="list-style-type: none"> <li>▪ Number of streets facing building - Analysis Guide item # 06</li> <li>▪ Permitted construction - Analysis Guide item # 07</li> <li>▪ Max building area</li> <li>▪ Required fire resistance ratings for floors, mezzanines, roofs and supporting structure - Analysis Guide item # 08</li> </ul> </li> <li>• Superimposed major occupancies - Analysis Guide item # 09</li> <li>• Storage garage as separate building - Analysis Guide item # 10</li> <li>• Fire walls - Analysis Guide item # 11</li> <li>• Sprinkler requirements &amp; NFPA standard - Analysis Guide item # 12</li> <li>• Fire alarm requirements - Analysis Guide item # 13</li> <li>• Importance category - Analysis Guide item #14</li> <li>• Confirmation of accessibility standard applied (detail if alternate standards used in different portions of the building)</li> <li>• Confirmation of accessibility exemptions if applicable</li> </ul>
Area Summary:	AS	<p>Description of building area by floor. Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Area by occupancy type - Analysis Guide item # 15</li> <li>• Total area by floor - Analysis Guide item # 16</li> <li>• Total area for building - Analysis Guide item # 17</li> </ul>
Spatial Separation  Analysis:	SSA	<p>Summary of spatial separation calculations for all exterior building faces/fire compartments. - Analysis Guide item # 19</p> <p>Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Wall area</li> <li>• Length to height ratio (if not sprinklered)</li> <li>• Opening area</li> <li>• % Opening</li> <li>• Limiting Distance (allowed and proposed)</li> <li>• Construction Requirements: <ul style="list-style-type: none"> <li>▪ Required fire resistance ratings</li> <li>▪ Construction type (combustible or non-combustible)</li> </ul> </li> </ul> <p>Cladding type (combustible or non-combustible)</p>

DRAWING COMPONENT	ABBREVIATION	DESCRIPTION
Energy Compliance Summary:	ECS	<p>Summary of energy compliance path. - <b>Analysis Guide item # 20</b></p> <p>Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Energy standard or code</li> <li>• Climate zone 5</li> <li>• Heating degree days - 3300</li> <li>• Compliance path type (performance)</li> <li>• If performance path applicable, date and author of energy model</li> <li>• Provide a Part 3 or Part 9 <i>Pre-Construction Compliance Checklist</i> (whichever is applicable) from: <a href="https://energystepcode.ca/">https://energystepcode.ca/</a></li> </ul>
Occupant Load & Washroom Count Analysis:	OLWCA	<p>Summary of occupant load calculation as per Table 3.1.17.1. broken out per type of use of floor area. - <b>Analysis Guide item # 21</b></p> <ul style="list-style-type: none"> <li>• Area per person by type of use</li> <li>• Area per type of use</li> <li>• Occupants by type of use</li> </ul> <p>Summary of required water closets calculation as per Section 3.7. broken out by occupancy type. - <b>Analysis Guide item # 22</b></p> <p>Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Required and proposed washrooms by gender</li> <li>• Required and proposed universal washrooms</li> </ul>
Door Schedule:	DS	<p>Summary of all doors and hardware. Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Unique reference number for each door or door type</li> <li>• Required fire resistance rating</li> <li>• Door height and width</li> <li>• Hardware to include as a minimum: <ul style="list-style-type: none"> <li>▪ Exit (panic) device or handle style</li> <li>▪ Deadbolt</li> <li>▪ Closer</li> <li>▪ Hold opens</li> </ul> </li> <li>• Glazing area and type</li> </ul>
Fenestration Schedule:	FS	<p>Summary of all fenestration. Minimum information to include:</p> <ul style="list-style-type: none"> <li>• Unique reference number for each window or window type</li> <li>• Height and width of total unit and openers</li> <li>• Operation of openers</li> <li>• Special glazing (tempered, fire resistant, other)</li> <li>• Restrictors</li> </ul>

DRAWING COMPONENT	ABBREVIATION	DESCRIPTION
Wall, Floor & Roof Assemblies:	WFRA	Summary of all wall, floor and roof assemblies. Minimum information to include: <ul style="list-style-type: none"> <li>• Unique reference number for assembly type</li> <li>• Actual fire resistance rating with BCBC or tested assembly reference (if applicable)</li> <li>• Actual STC rating with BCBC or tested assembly reference (if applicable)</li> <li>• Effective R – Values for exterior assemblies</li> <li>• Detailed listing of all assembly components</li> </ul>

The following items provide additional information corresponding to the **red text** and numbers in these documents:

ANALYSIS GUIDE:	
01	<b>Alternative solution(s)</b> - Describe any proposed alternative solutions and the effect on the proposed construction. e.g. Fire Alarm System – to reduce complete and unnecessary building evacuation due to false alarms, it is proposed to subdivide the fire alarm system into evacuation areas by individual building and allow alarm sounding in the building of origin and in sequence to other buildings in the event of fire spread.
02	<b>Building area m<sup>2</sup>:</b> (Division A 1.4.1.2., 3.2.2.5.) To determine the footprint (superimposed area over grade) of the building for the purpose of building classification. Defined in BCBC, <b>Building area</b> means the greatest horizontal area of a <i>building</i> above <i>grade</i> within the outside surface of exterior walls or within the outside surface of exterior walls and the centre line of <i>firewalls</i> . For additions and alterations, indicate the building area in m <sup>2</sup> for existing and new portions of the building and provide a total. Provide a simple description of the areas (e.g. existing building, east addition). If a portion of the building is to be demolished, provide the m <sup>2</sup> to be demolished.
03	<b>Building height:</b> (Division A 1.4.1.2., 3.2.1.1., 9.10.4., 9.10.8.9.) Identify the number of storeys above and below grade.
04	<b>High building: NOT APPLICABLE</b> (3.2.6.) As defined in BCBC. Include height in metres above grade to the floor level of the top storey. Note: For 3.2.2.50. & 3.2.2.58., no portion of the access route shall be more than 20m below uppermost floor level. <b>MAXIMUM height of buildings is 10 m (32.8ft) for most zones and 12m for P1 Zone.</b>
05	<b>Major occupancies classification:</b> (3.1.2.1., 9.10.2.) Identify each of the major occupancy groups in the building and describe their use. (e.g. D - Business and Personal Services/Medical Clinic). Refer to BCBC 3.1.2. and to Appendix A to the building code for definitions of multiple major occupancies.
06	<b>Number of streets:</b> (3.2.2.10., 3.2.5., 9.10.20.) Enter number of streets as defined in BCBC. A firefighting access plan can be provided with the information in graphic form.
07	<b>Construction type:</b> (3.2.2.20. - 92., 3.2.1.4., 9.10.6.) Identify the project construction restrictions (“combustible permitted”, “non-combustible required”) (refer to Building Classification). Indicate the construction proposed (“combustible”, “non-combustible”, “combination”) and whether heavy timber construction is used.
08	<b>Required fire resistance ratings:</b> (3.2.2.20. – 92., 3.2.1.2., 3.2.1.4., 9.10.8.) Identify the fire resistance rating required for floors, roofs and mezzanines, as well as the supporting members for these. Indicate where non-combustible construction is used in lieu of ratings (where permitted). Note that the fire resistance ratings required may change for different major occupancies.
09	<b>Superimposed major occupancies:</b> (3.2.2.7., 9.10.2.4.) If the building is designed with superimposed major occupancies, provide a brief description. (e.g. Three stories of Group C – Residential, superimposed over one storey of Group E - Retail) and include building classification and group/division in “Building Classification”. Information can be provided on building section.
10	<b>Storage garage:</b> (3.2.1.2., 9.10.4.3.) Identify if there is a storage garage and if it is to be constructed as a separate building or not. Identify the fire separation proposed.
11	<b>Fire walls:</b> (3.1.10., 9.10.11.) If incorporated into the design, provide location and the rating proposed.

<b>ANALYSIS GUIDE:</b>	
12	<b>Sprinklers, standpipe:</b> (3.2.1.5., 3.2.2.18., 9.10.1.3.(8), 9.10.8.2.) Identify if sprinklers are required by BCBC, Bylaw 7224, not required or if they are existing. Identify the NFPA Standard and if a standpipe system is required.
13	<b>Fire alarm system:</b> (3.2.4., 9.10.18.) Identify if required BCBC or not required, and type of system, single stage or two stage.
14	<b>Importance category:</b> 4.1.2.1.(3) Identify the importance category for Part 3 buildings - Low (low human occupancy), (minor storage) or Normal (all building except those listed in other categories) or High (explosive or hazardous substances) (post-disaster shelter) or Post-disaster (buildings essential for provision of services in the event of a disaster)
15	<b>Area by occupancy type:</b> (Division A 1.4.1.2.) Floor area meaning the space on any storey of a building between exterior walls and required firewalls, including the space occupied by interior walls and partitions, but not including exits, vertical service spaces, and their enclosing assemblies. This information is used to determine occupant load, which in turn determines exiting capacity requirements and washroom requirements.
16	<b>Total area by floor:</b> The total area on each floor measured within the outside surface of exterior walls.
17	<b>Total area for building (GFA):</b> The total area on each floor of the building measured within the outside surface of exterior walls added together.
18	<b>Occupancy, code &amp; safety drawings:</b> A separate set of drawings helps provide simplicity and clarity in visual display of these code items. Scale of drawings to be appropriate to the building project while providing easy readability. Additional code items can be added as appropriate, e.g. cross - over floors identified on elevation drawings.
19	<b>Spatial separation:</b> (3.2.3., 9.10.14., 9.10.15.) Provide the spatial separation information for each building face/compartment as applicable. Provide a description of the exposing building face (e.g. "West Elevation", "North Wall, Fire Compartment 1") and identify the same on the drawings. Where calculations are complex (i.e. a wall face divided into smaller fire separated compartments), for clarity, calculations should be shown on an elevation drawing.
20	<b>Energy efficiency:</b> State the compliance path utilized in the design and any additional requirements from rezoning (if applicable).
21	<b>Occupant load:</b> (3.1.17., 9.9.1.3.) Provide design information for the occupancy and occupant load per floor and the method of calculation. Additional information is required if code design occupant loads are not used.
22	<b>Health requirements, plumbing facilities:</b> (3.7.2., 9.31.1.1.) Plumbing fixture calculations should confirm that the number of plumbing fixtures provided is not less than required by the occupant loads for the various occupancies. It may be necessary to provide a breakdown of the various occupancies in order to provide the required information with clarity. Where there is a change of occupancy or specific use, an adjustment of the number of plumbing fixtures may be required within an occupancy. Additional information is required if code design occupant loads are not used.
23	<b>Accessibility Requirements: Accessibility to meet 2024 BC Building Code 3.8 or CSA B651 Standards.</b> For further accessibility information see the <a href="#">BC 2024 Illustrated Guide on Accessibility V5-2024-05-22</a> (3.8.2.1. Application & exemptions to buildings; 3.8.2.3. Areas requiring access; 3.8.4.1. Application to existing buildings; 3.8.2.2., 3.8.4.2.(3) Entrances + 50% of all entrances; 3.8.2.5. Path of travel to parking areas; 3.8.2.6 Controls & outlets; 3.8.2.7. Power door operators; 3.8.2.10. Signs & indicators; 3.8.2.11. Counters & counters for telephones; 3.8.2.12. Sleeping rooms & bed spaces; 3.8.2.1.(1)(b) 3.8.2.12. Apartment/condominium buildings; Residential clubs, schools, colleges, dormitories, hotels & motels with sleeping or bed spaces; 3.8.2.3.(3) Assembly occupancy spaces designated for wheelchairs; 3.8.2.12.(5) Dwelling units in apart. & condos for senior citizens; 3.8.3.19. Business and personal services;

<b>ACCESSIBILITY (cont'd): BCBC 2018 3.8.</b>				<b>CSA B651</b>	
Interior accessible routes	3.8.3.2.			4.3. & 5.1.	
Exterior accessible routes	3.8.3.3.			8.2.1.-8.2.5. & 8.2.7.	
Ramps	3.8.3.5.			5.3. & 5.5	
Passenger pickup areas	3.8.3.6.			5.2.	
Doorways in accessible path of travel	3.8.3.6.			5.2.	
Passenger-elevating devices	3.8.3.7.			5.6.2.	
Controls and outlets	3.8.3.8.			4.2	
Washroom facilities	3.8.3.11-3.8.3.15.			6.2. & 6.3.	
Showers / Bathtubs	3.8.3.16-3.8.3.17.			6.5	
Counters	3.8.3.19-3.8.3.20			6.7.1.	
Spaces in seating areas	3.8.3.21.			6.7.2.	
<b>Parking:</b> Number of stalls required as per BC Building Code and Zoning Bylaw 484.					
<b>ENERGY COMPLIANCE PATH</b>		<b>ZONE 5</b>			
Energy conformance required	10.2.3.1.ESC	9.36.1.3.		9.36.5. Energy Step Code (ESC)	
Green gas emissions	10.3.1.1.	9.37.1.1.			