

DWELLINGS – CSA F280 & RESIDENTIAL PROTECTION FROM OVERHEATING

This bulletin provides information about new provisions in the British Columbia Building Code 2024 (BCBC) related to minimizing the risks to health and safety due to overheating in dwelling units. These changes apply to new dwelling units in all large (Part 3) and smaller (Part 9) residential occupancies, including secondary suites. Coupled with this new design standard are the standing heating and cooling specifications in the BCBC to comply with either the City of Vancouver Energy Modeling guidelines or CSA F280 depending on your building type.

PART 9 DWELLINGS

Designs following Part 9 are required to provide sufficient information to demonstrate that a minimum of one living space within each dwelling unit meets the 26°C indoor design temperature requirement through mechanical and/or passive means. The BCBC requires CSA F280 is to be used to determine heating & cooling loads for dwelling units. Appropriate software, verified as per Section 8 of CSA F280, may be used for the calculations (see below for examples).

Calculations are required to be submitted to the City as part of building permit applications for buildings containing dwelling units and can be supplied by either a mechanical consultant/contractor or others competent in HVAC and mechanical design when mechanical heating and cooling is supplied. Due to the complex nature of calculating a passive cooling design, and the shortfalls in the F280 calculation method in determining the cooling needs of a single living space within a dwelling, a Registered Professional will be required to confirm and submit all cooling designs utilizing passive only cooling to meet the 26°C indoor design temperature requirement.

PART 3 DWELLINGS

As outlined for Part 3 buildings in the BCBC Clause 10.2.3.4.(1)(b) of Division B, Step Code projects (includes all residential) are to conform with the City of Vancouver Energy Modelling Guidelines (EMGs) for both mechanically and passively cooled buildings.

Section 4 of the City of Vancouver Modelling Guidelines speaks directly to passively cooled buildings however should a project have mechanical cooling for only one living space within each dwelling unit as opposed to mechanical cooling throughout, then Section 4 applies and an analysis following ASHRAE 55 is to be conducted.

PERMIT SUBMISSION REQUIREMENTS

Building permit submissions for new residential builds, including conversions of non-living space, shall demonstrate that the required capacity of heating and cooling appliances located in a dwelling unit shall conform with CSA F280. It is recommended that designers and contractors use one of the acceptable software programs verified as per Section 8 of CSA F280 standard - noted below and provide the subsequent verification documentation at time of permit submission for all Part 9 buildings containing dwellings.

Unless whole house cooling is proposed, modeling confirming compliance with the single living space maintaining a maximum temperature of 26°C is to be included separately from the whole building modelling, including rational/inputs.

Should passive cooling be selected as the means to maintain the dwelling unit single living space maximum temperature of 26°C, modeling shall be provided by a registered professional familiar with heating and cooling design utilizing the CSA F280 standard.

Part 3 Residential buildings shall be designed to the City of Vancouver Energy Modelling Guidelines with confirmation of this to be indicated on the appropriate registered professional's drawing set, no additional documentation is required.

Verified CSA f280 Software			
Company Name	Software	Room by Room	Whole House
Building Technology Services	Building Tech F280	✓	✓
Avenir Software Inc.	HeatCAD/LoopCAD	✓	✓
Thermal Environmental Comfort Assn. (TECA)	TECA Heat Loss & Heat Gain	✓	✓
Volta Research Inc.	Volta Snap		✓
MiTek Inc.	Right Suite Universal	✓	✓
Sustainable HVAC Design Inc.	Sustainable HVAC F280	✓	✓
McCallum HVAC Design inc.	Mecha F280	✓	✓
Properate Inc.	Stride & Studio	✓	✓

This bulletin is a summary for convenience purposes, if there is any contradiction between this guide and relevant municipal bylaws and/or applicable codes and standards, please refer to the bylaws and/or codes for legal authority.

For further information contact the Building Department at building@campbellriver.ca or 250-286-5757