

## City of Cranbrook

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### Bulletin – 02: New Requirements for Cooling Homes – 2024 Building Code

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#### Forward:

#### Excerpt from Building & Safety Standards Branch Information Bulletin No. B24-08:

Recent extreme heat events in the summer of 2021 in British Columbia had devastating impacts, attributing to 619 deaths. Similar weather episodes are projected to become hotter, longer, and more frequent as B.C.'s climate changes. In the Report to the Chief Coroner of British Columbia, titled "Extreme Heat and Human Mortality: A Review of Heat-Related Deaths in B.C. in Summer 2021" a recommendation was made to "...ensure that the 2024 release of the BC Building Code incorporates both passive and active cooling requirements in new housing construction...".

In response, the Building Code 2024 introduced a maximum design temperature limit (26°C) for a single living space in each dwelling unit to minimize the risk to health and safety from overheating. Maintaining a safe temperature in a living space in each dwelling unit can involve a combination of mechanical cooling systems and passive design measures. The designated living space provides a place of reprieve for occupants of the dwelling unit from elevated temperatures, helping increase community resiliency and saving lives. The designer can designate a living space that makes sense for the circumstances of the dwelling unit (climate, configuration, building systems, etcetera), but it must be a living space that is designated. Unfinished basements, service rooms, and crawlspaces are not considered as living spaces.

See the following link for the complete B24-08 Bulletin: [b24-08\\_overheating.pdf \(gov.bc.ca\)](https://www.gov.bc.ca/b24-08_overheating.pdf)

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**Purpose:**

➤ To inform permit applicants of new recent requirements (code context) for a cooling room within a dwelling unit.

➤ Impacts/requirements to applicants.

➤ CSA F280 Additional Information

➤ Next Steps

**Code Context for a Cooling Room:**

On March 8, 2024 the new 2024 BC Codes become active. Of note, one significant change included the requirement for a cooling room for all new residential buildings that must provide one living space that is designed not to exceed 26 C. See the following code excerpts:

**9.33.3.1. Indoor Design Temperatures**

2) At the outside summer design temperature, required cooling facilities shall be capable of maintaining an indoor air temperature of not more than 26°C in at least one living space in each dwelling unit.

**9.33.5.1 Capacity of Heating and Cooling Appliances**

1) The required capacity of heating and cooling appliances located in a dwelling unit and serving only that dwelling unit, shall be determined in accordance with CSA F280, "Determining the required capacity of residential space heating and cooling appliances" except that the design temperatures shall conform to Subsection 9.33.3.

**Table C-2**  
Climatic Design Data for Selected Locations in British Columbia  
Forming Part of Appendix C

Province and Location	Elev., m	Design Temperature				Degree-Days Below 18 C	15 Min. Rain, mm	One Day Rain, 1/50, mm	Ann. Rain, mm	Moist. Index	Ann. Tot. Ppn., mm	Driving Rain Wind Pressures, Pa, 1/5	Snow Load, kPa, 1/50		Hourly Wind Pressures, kPa	
		January		July 2.5%									S <sub>s</sub>	S <sub>r</sub>	1/10	1/50
		2.5% C	1% C	Dry C	Wet C											
Cranbrook	910	-26	-28	32	18	4400	12	59	275	0.3	400	100	3.0	0.2	0.25	0.33

**So, what does this currently mean for building permit applicants (Contractors and Homeowners):**

At this time, building permit application submissions for detached single family dwellings, secondary suites, accessory dwelling units (including duplex's) that do not identify a space cooling appliance will be required to provide the CSA F280 calculation to demonstrate the passive cooling strategies utilized. All other multi-dwelling unit prototypes (triplex and beyond) will require a complete CSA F280 compliant report submission to demonstrate heating and cooling system design (this will be consistent will all permit submissions effective July 1, 2024).

Approved software, verified as per Section 8 of CSA F280, may be used for these calculations – where required. A list of these software programs is shown below for clarity and can be found on the HVAC Designers of Canada website via the following link: [https://hvacdc.ca/?page\\_id=406](https://hvacdc.ca/?page_id=406).

**HVAC Designers acceptable CSA F280 software programs:**

**F280-12 Software Verified according to the procedure set out in F280-12, Section 8.**

COMPANY NAME	SOFTWARE NAME	ROOM BY ROOM	WHOLE HOUSE	CONDITIONS	WEBSITE
Building Technology Services	Building Tech F280			Click Here	
Avenir Software Inc	HeatCAD/LoopCAD			Click Here	
Thermal Environmental Comfort Association	Teca Heat Loss & Heat Gain Calculator			Click Here	
Volta Research Inc	Volta Snap			Click Here	
MiTek Inc	Right-Suite Universal			Click Here	<a href="http://www.wrightsoft.com">www.wrightsoft.com</a>
Sustainable HVAC Design Inc	Sustainable HVAC F280			Click Here	
McCallum HVAC Design Inc	Mecha F280			Click Here	

## A little more info on CSA F280

F280 is an industry recognized methodology designed to calculate heat loss and heat gain in a building. Its main usage is to properly size heating and cooling within a home. By accurately assessing the amount of heat that a building gains and loses under specific conditions, the F280 methodology enables the selection of heating and cooling equipment that meets the precise requirements of the building.



## Next Steps:

Effective July 1, 2024, **all** building permit submissions for new housing shall demonstrate that the required capacity of heating and cooling appliances located in a dwelling unit or houses with a secondary suite including their common spaces shall conform with CSA F280. This shall also include that sufficient information is provided to validate that a minimum of one living space in each dwelling unit meets the 26°C requirement.

Designers and contractors will need to use one of the acceptable software programs verified as per Section 8 of CSA F280 standard - noted above and provide the subsequent verification documentation at time of permit submission.



Engineering & Development Services Building Department

For more information, please contact:

Building Department Services

City of Cranbrook

250-489-0207

[Click here to contact a member of our staff and select 'Building and Bylaw Services'.](#)