HVAC DESIGNERS OF CANADA
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F.A.Q.

Question:
Do Building Codes Require the use of verified CSA-F280-12 Software?

Quick Answer:
Yes, all Canadian Building Codes require the use of CSA F280-12 to select Heating & Cooling equipment. CSA F280-12, requires that any software claiming to provide results according to the standard be verified according to the procedure set out in the standard. A listing of verified software can be found at: www.hvacdc.ca/Software

Detailed Answer:
The use of CSA F280-12 is required to determine the capacity of residential heating and cooling equipment by:

Ontario Building Code-2024: 9.33.4.1.(1) & 9.33.5.1.(3)
National Building Code-2020: 9.33.5.1, 9.36.3.2., 9.36.5.15(5) & 9.36.8.9.(1)
National Building Code-2015: 9.33.5.1, 9.36.3.2. & 9.36.5.15
British Columbia Building Code: 9.33.5.1.(1)
Quebec Building Code: 9.33.5.1.(1)

All of the Codes refer to the F280-12 version of the standard.

The CSA F280-12 standard contains the following sentence:
8.1.2.(a) Software systems that claim to conform to the CSA F280 calculation procedure shall be verified according to the procedure set out in Clause 8. (Clause 8 is the verification section of the Standard).

CSA decided to include the verification section after testing showed that several Software Systems in use in Canada which claimed to conform to the F280-12 Standard did not produce results consistent with the standard. For heat loss, whole house errors of up to 30% were observed, with individual rooms showing up to 50% differences. For cooling, the differences between software and expected results could to result in the selection of incorrectly sized equipment

A verification system was established in 2024 and now lists eight verified software. Additional software is in the process of being verified. Verified Software may be identified by going to the web listing at www.hvacdc.ca/Software and can be recognized by the three page results form attached to this FAQ. The cover page will cite the verification stasis of the software and may include the 'Verified" logo

HVAC DESIGNERS OF CANADA
VERIFIED F280 SOFTWARE

Issued July 22nd 2026
HVAC Designers of Canada
www.HVACDC.ca

CSA STANDARD F280-12 COMPLIANCE

NBC 2015: 9.33.5.1.; 9.36.3.2. & 9.36.5.15; NBC 2020; 9.33.5.1.; 9.36.3.2.; 9.36.5.15 (5); 9.36.8.9. (1);

CSA F280-12
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PROJECT # 2

BUILDING LOCATION

Model: 3	Site: 6
Address: 4	Lot: 7
City & Province: 5	Postal Code: 8

COMPLIANCE

(See page 2 for input summary and page 3 for room by room values)

Submittal is for: ☐ Whole house aw ☐ Room by Room ar

Units: ☐ Imperial ☐ Metric b

HEATING

Minimum Heating Capacity: _____ btuh (total building heat loss as per 5.2.7) c

5.3.1 The total heat output capacity of all heating systems installed in a building shall not be less than 100% of the total building heat loss as determined in Clause 5.2.7.

5.3.2 The combined heating delivery of the heating systems that serve a room or space shall not be less than 100% of the space heat loss , as determined in Clause 5.2.6.. (If room by room submittal, see page 2 for individual space heating requirements)

COOLING

Nominal Cooling Capacity: _____ btuh (Nominal Cooling Capacity as per 6.3.1) d

Minimum Cooling Capacity: _____ btuh e **Maximum Cooling Capacity:** _____ btuh f

6.3.2 Except as provided in Clause 6.3.3., the cooling system capacity shall not be less than 80% of the nominal cooling capacity for the building, as determined in Clause 6.3.1.. In no case shall it be less than the nominal cooling capacity of the building minus 1800 W (0.51 tons)

6.3.3 Where the cooling system is added to an existing heating system, it's capacity in Watts shall not exceed 18 times the capacity of the air-handling capacity of the existing system in L/s. (Cooling capacity in Tons not more than 1.0 per 400 CFM of air handling capacity)

6.3.4 Except for ground-source and water source heat pumps used for cooling, and as permitted in Clause 6.3.5, the installed cooling capacity shall not exceed 125% of the nominal cooling capacity for the building, as determined in Clause 6.3.1.

6.3.5 If the nominal cooling system capacity for the building, as determined in Clause 6.3.1. is less than 6,000 W (1.7 tons), the installed cooling system capacity may exceed the nominal cooling system capacity for the building by up to 1750 W (0.49 tons).

ATTACHED DOCUMENTS

☒ Design Summary g ☐ Room by Room Results h Other: i

Other: i

Notes: _____ j

CALCULATIONS PERFORMED BY

Name: 55	Designers Signature, Stamp Imprint or other certification mark 68	I, _____ have reviewed and take responsibility for the design work described in this document & I am qualified in the appropriate categories. 63
Company: 56		Accreditation Reference 1 64
Address: 57		Accreditation Reference 2 65
City & Prov.: 58		Issued for: (date) 66
Postal Code: 59		Issued for: (date) 67
Phone: 60		**Page: 1 of**
Fax: 61		
E-mail: 62		

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CSA F280-12 INPUT SUMMARY

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PROJECT # 2

BUILDING LOCATION

Model: 3	Site: 6	Lot: 7
Address: 4	City/ Prov 5	Post. Code: 8

CALCULATION BASED ON (See Following Page For Results)

Dimensional Info Based On: 9		
Attachment: 10	Front Facing: 16	Assumed? 17
# of Stories: 11	Air Tightness: 18	Assumed? 19
Weather Location: 12	Internal Shading: 21	Assumed? 21a
Wind Exposure, Site: 20	Occupants: 22	Assumed? 22a
Wind Sheltering, Building 20a	Ventilated? Yes/No 13	HRV/ERV? Yes/No 14
Units: ☐ Imperial bi ☐ Metric bm	ASE %: 15	ATRE %: 15a

HEATING DESIGN CONDITIONS

Outdoor Temp: 24	Indoor Temp: 25	Mean Soil Temp: 26	
Soil Conductivity 26a	Water Table Depth: 26b	Slab Fluid Temp: 26c	

COOLING DESIGN CONDITIONS

Outdoor Temp: 27	Range: 29
Indoor Temp: 28	latitude: 30

ABOVE GRADE WALLS

Style A: 31
Style B: 32
Style C: 33

BELOW GRADE WALLS

Style A: 34
Style B: 35
Style C: 36

CEILINGS

Style A: 40
Style B: 41
Style C: 42

FLOORS ON SOIL

Style A: 37
Style B: 38
Style C: 39

WINDOWS

Style A: 49
Style B: 50
Style C: 51

EXPOSED FLOORS

Style A: 43
Style B: 44
Style C: 45

SKYLIGHTS

Style A: 52
Style B: 53
Style C: 54

DOORS

Style A: 46
Style B: 47
Style C: 48

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ROOM by ROOM CALCULATION RESULTS

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PROJECT # 2

BUILDING LOCATION

Model: 3	Site: 6	Lot: 7
Address: 4	City/ Prov 5	Post. Code: 8

70 **CALCULATION RESULTS - ROOM by ROOM**

#	Room Name 71	Heating (Btu/h) 72	Cooling (Btu/h) 73
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
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39			
Ventilation Loss (if separate)74 **& Latent Gain** (if separate, value or multiplier)75		**Btu/h**	**Btu/h**
Total Building Loss (5.2.7) **& Nominal Cooling Capacity** (6.3.1.)		**Btu/h**	**Btu/h**
See page 1 for heating & Cooling System Capacity Limits		issued: 76	**Page: 3 of 3**

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