

RESULTS

PROJECT #: TOWN1-U2-NORTH. 0 || CSA F280



These results have been generated by The TECA Heat Loss & Heat Gain Calculator (V5.08), which is CSA F280 Verified

With the permission of Canadian Standards Association, (operating as "CSA Group"), 178 Rexdale Blvd., Toronto, ON, M9W 1R3, material is reproduced from CSA Group's standard CSA-F280-12 (R2017) Determining the required capacity of residential space heating and cooling appliances. This material is not the complete and official position of CSA Group on the referenced subject, which is represented solely by the Standard in its entirety. While use of the material has been authorized, CSA Group is not responsible for the manner in which the data is presented, nor for any representations and interpretations. No further reproduction is permitted. For more information or to purchase standard(s) from CSA Group, please visit store.csagroup.org or call 1-800-463-6727.

The heating and cooling loads calculated with this calculator tool are the sole responsibility of the user. This tool is to aid the user in applying to the CSA F280-12 calculation methods. The Thermal Environmental Comfort Association of BC accepts no responsibility for damages whatsoever, and offers no guarantee of equipment sizing or configuration.

BUILDING INFORMATION

CALCULATIONS PERFORMED FOR: BC MINISTRY OF HOUSING

CALCULATIONS PERFORMED BY

NAME: TODD BACKUS
COMPANY: TECA
ADDRESS: PO BOX 73105, EVERGREEN RO
CITY: SURREY
PROVINCE: BC
POSTAL CODE: V3R 0J2
PHONE: 604-594-5956
FAX: -
EMAIL: TBACKUS@TECA.CA

SOFTWARE LICENSING

COMPANY:
NAME:
REG. #:



PROJECT #: TOWN1-U2-NORTH
ADDRESS:
CITY: PRINCE GEORGE
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: TOWN-01-UNIT 2
SITE: NORTH
LOT:



DESIGNER OF BUILDING DRAWINGS: Leckie Studio Architecture + Design Inc.
DATE OF DRAWINGS: September 6, 2024
BUILDING ATTACHMENT: Row House - Middle Unit
NUMBER OF FLOOR LEVELS: 4 **NUMBER OF STOREYS:** 3 *above grade floor levels*

WEATHER DATA	Prince George		
LATITUDE:	53.92	LONGITUDE:	-122.75
Summer Mean Daily Temperature Range	12 °C	WINDOW SHADING:	NO
VENTILATION SYSTEM	Non-dedicated HRV, 75CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

FRONT OF HOUSE FACING DIRECTION:	S
<i>is this value assumed?</i>	yes

AIR TIGHTNESS / INFILTRATION	ACH50: 1.5, ELA: 230.4 cm ² , ELA @10Pa
<i>is the air tightness value assumed?</i>	yes

BUILDING SITE SHIELDING:	Low crops, x/H > 20
---------------------------------	---------------------

LOCAL WALL SHIELDING:	Light local shielding
------------------------------	-----------------------

LOCAL FLUE SHIELDING:	Light local shielding
------------------------------	-----------------------

INDOOR DESIGN TEMPERATURES:	# OF BEDROOMS:	4
------------------------------------	-----------------------	---

HEATING: 22°C, 71.6°F	# OF PEOPLE:	5
------------------------------	---------------------	---

COOLING: 24°C, 75.2°F		
------------------------------	--	--

OUTDOOR DESIGN TEMPERATURES:		
-------------------------------------	--	--

HEATING: -32°C, -25.6°F		
--------------------------------	--	--

COOLING: 28°C, 82.4°F		
------------------------------	--	--

SOIL TEMPERATURE: 6 °C		
-------------------------------	--	--

Attached documents: _____

Assumptions noted (in addition to listed assumptions on page 1): _____

Notes from the calculator operator: _____

BUILDING ENVELOPE ELEMENTS

WALLS

1/ (TYP. EXT. WALL: R-22), inside wall, // 1/2" GWB, // framing w/ cavity insulation: softwood (default), 2x6 framing @ 16"OC, R20 (5.5"), // Sheathing materials, Softwood plywood, // Insulation, Mineral wool and glass fibre, // Cladding materials, Vinyl siding, outside air; 22.42R-VALUE

CEILINGS

1/ (TYP. ROOF: R-32), inside ceilings, // 1/2" GWB, // framing w/ cavity insulation: softwood (default), 2x6 framing @ 24"OC, custom insulation, // Sheathing materials, Softwood plywood, // Roofing materials, Built-up roofing, outside air; 32.01R-VALUE

INTERIOR FOUNDATION WALL

EXPOSED FLOOR

1/ (TYP. EXPOSED FLOOR), inside floor, // Finished floor w/ underlay, // 3/4" ply, // framing w/ cavity insulation: softwood (default), 2x12 joists @ 16"OC, R35 (9.25"), // Exterior finished material, // outside air; 30.98R-VALUE

EXPOSED HEADER

1/ (TYP. HEADER: R-22); 22R-VALUE

WINDOWS

1/ (Windows (Energy Modelling Requirements)) custom, USI: 1.3, SHGC: 0.25

SKYLIGHTS

1/ (SKYLIGHT) double glazed, Fixed — Wood/Vinyl, insulating, low-E, 13mm Air, USI: 1.96, SHGC: 0.47

DOORS

1/ (EXT. DOOR) Insulated metal — Polyurethane core, without storm door, USI: 0.91

SHADINGS

FOUNDATIONS

1/ [Heated Crawlspace] Concrete Slab & Walls, insulation: below slab = 2.64RSI, interior wall = 2.11RSI, exterior wall = 2.11RSI (configuration #69) // any first storey construction type, interior surface of wall insulated over full-height, exterior surface of wall insulated over full-height, sub-surface of floor slab fully insulated but no insulation under footings, thermal-break between walls and floor slab // AREA: 425ft², FULL PERIMETER: 94ft, EXPOSED PERIMETER: 71ft

HEAT LOSS & HEAT GAIN SUMMARY, (BTUH)

imperial



ROOM NAME	FLOOR LEVEL	FL AREA (ft²)	HEAT LOSS	HEAT GAIN	
			TOTAL	SENS.	TOTAL (sensible + latent)
(#1)HEATED CRAWL - U2	1	425	4976	20	26
(#2)104-ENTRY	2	34	1558	566	736
(#3)105-POWDER ROOM	2	20			
(#4)106-LIVING ROOM	2	97	1988	2389	3106
(#5)107-KITCHEN/DINING	2	295	5428	3900	5070
(#6)204-LANDING	3	124	1741	186	242
(#7)205-WASHROOM	3	41			
(#8)206-BEDROOM 1	3	136	1590	529	687
(#9)207-BEDROOM 2	3	136	2208	303	394
(#10)301-LANDING	4	124	2360	1032	1342
(#11)302-WASHROOM	4	41	141	49	64
(#12)303-BEDROOM 3	4	136	2094	733	952
(#13)304-BEDROOM 4	4	136	2088	460	598
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1745	26173	10168	13218

PROJECT #: TOWN1-U2-NORTH. 0

HEAT LOSS COMPONENT BREAKDOWN, (BTUH)											
ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U2	416					1356	2107	1096			4976
(#2)104-ENTRY	107			599	436		274	143			1558
(#3)105-POWDER ROOM											
(#4)106-LIVING ROOM	622			834			350	182			1988
(#5)107-KITCHEN/DINING	1124			1391	1460		956	497			5428
(#6)204-LANDING	960			278			331	172			1741
(#7)205-WASHROOM											
(#8)206-BEDROOM 1	574			556			302	157			1590
(#9)207-BEDROOM 2	1014			556			420	218			2208
(#10)301-LANDING	1200	354		523			186	97			2360
(#11)302-WASHROOM		125					11	6			141
(#12)303-BEDROOM 3	874	413		556			165	86			2094
(#13)304-BEDROOM 4	868	413		556			165	86			2088
	<u>WAL.</u>	<u>CEI.</u>	<u>FLR.</u>	<u>WIN.</u>	<u>DR.</u>	<u>FND.</u>	<u>LEAK.</u>	<u>VENT.</u>	<u>DIST.</u>	<u>ADD.</u>	<u>TOTAL</u>
TOTAL BUILDING	7759	1305		5850	1895	1356	5268	2739			26173

PROJECT #: TOWN1-U2-NORTH. 0

HEAT GAIN COMPONENT BREAKDOWN, (BTUH)				WINDOW & SKYLIGHT	DOOR & HATCH			DISTRIBUTION & ADDITIONAL	INTERNAL	TOTAL SENSIBLE	TOTAL SENSIBLE + LATENT
	WALL	CEILING	FLOOR			LEAKAGE	VENTILATION				
ROOM NAME	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
(#1)HEATED CRAWL - U2	18					0	2			20	26
(#2)104-ENTRY	4			488	15	8	53			566	736
(#3)105-POWDER ROOM											
(#4)106-LIVING ROOM	44			338		6	40		1962	2389	3106
(#5)107-KITCHEN/DINING	56			1133	542	27	180		1962	3900	5070
(#6)204-LANDING	54			113		3	17			186	242
(#7)205-WASHROOM											
(#8)206-BEDROOM 1	19			453		7	49			529	687
(#9)207-BEDROOM 2	45			225		4	28			303	394
(#10)301-LANDING	87	125		711		14	96			1032	1342
(#11)302-WASHROOM		44				1	5			49	64
(#12)303-BEDROOM 3	56	145		453		10	68			733	952
(#13)304-BEDROOM 4	40	145		225		6	43			460	598
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
TOTAL BUILDING	423	459		4140	556	86	580		3924	10168	13218

MINIMUM INSTALLED OUTPUT CAPACITY: 10574

MECHANICAL SYSTEM SIZING

HEATING

- The heating system capacity must meet or exceed 100% of the total building heat loss (the minimum installed system capacity equals the total heat loss for the building)
- The combined capacity of the heating distribution system must meet or exceed 100% of the heat loss of the room or space that it serves.

COOLING

- The installed system cooling capacity must meet or exceed 80% of the nominal cooling system capacity (*reflected in the MINIMUM INSTALLED CAPACITY shown for cooling*).
- The installed system cooling capacity shall not be less than the nominal system cooling capacity minus 1800W (*reflected in the MINIMUM INSTALLED CAPACITY shown for cooling*).
- If the cooling system is added to an existing heating system, its capacity (in Watts) need not exceed 18 times the air-handling capacity of the heating system (in L/s).
- Except for ground or water source heat pumps used for cooling, the installed cooling system capacity shall not exceed 125% of the nominal cooling system capacity for the building.
- If the nominal cooling system capacity for the building is less than 6000 W, the installed cooling system capacity may exceed the nominal cooling system capacity by up to 1750 W.
- Note that the nominal cooling system capacity incorporates a latent load multiplier value of 1.3 (unless specified otherwise). Most residential cooling units have a latent capacity of approximately 30% of the sensible capacity. For houses with very small latent loads (if the humidity values are entered by the user directly), it is important to mind the calculation factors. Equipment sizing must be done with individual consideration of sensible and latent loads.