

RESULTS

PROJECT #: ADU3-SOUTH. 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 #: ADU3-SOUTH
ADDRESS:
CITY: PRINCE GEORGE
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: ADU-03
SITE: SOUTH
LOT:



DESIGNER OF BUILDING DRAWINGS: Leckie Studio Architecture + Design Inc.

DATE OF DRAWINGS: September 6, 2024

BUILDING ATTACHMENT: Detached

NUMBER OF FLOOR LEVELS: 3 **NUMBER OF STOREYS:** 2 *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, 45CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

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

AIR TIGHTNESS / INFILTRATION	ACH50: 1.5, ELA: 213.3 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:	3
------------------------------------	-----------------------	---

HEATING: 22°C, 71.6°F	# OF PEOPLE:	4
------------------------------	---------------------	---

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

EXPOSED HEADER

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

WINDOWS

1/ (Windows (Energy modelling assumptions)) 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: 480ft², FULL PERIMETER: 116ft, EXPOSED PERIMETER: 116ft

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	1	480	5516	41	53
(#2)100-ENTRY & STAIRS	2	180	3328	697	906
(#4)102-POWDER ROOM	2	22	163	5	6
(#5)103-LIVING	2	89	1797	2842	3695
(#6)104-KITCHEN/DINING	2	197	4529	4490	5836
(#7)200-PRIMARY BEDROOM	3	184	2401	905	1176
(#8)201-PRIMARY ENSUITE	3	41	140	46	60
(#9)202-BEDROOM 1	3	136	1110	273	355
(#10)203-BEDROOM 2	3	136	2074	850	1105
(#11)204-WASHROOM	3	40	137	45	59
(#12)205-STUDY	3	88	1409	382	497
(#13)206-LANDING	3	126	2025	1041	1353
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1951	24629	11617	15102

HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)

HEAT LOSS COMPONENT BREAKDOWN, (BTUH)											
	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	
ROOM NAME	WAL.	CEI.	FLR.	WIN.	DR.	FND.	LEAK.	VENT.	DIST.	ADD.	TOTAL
(#1)HEATED CRAWL	677					2195	1822	822			5516
(#2)100-ENTRY & STAIRS	1606			278	906		371	167			3328
(#4)102-POWDER ROOM	137						18	8			163
(#5)103-LIVING	672			834			200	90			1797
(#6)104-KITCHEN/DINING	1257			556	1984		504	227			4529
(#7)200-PRIMARY BEDROOM	1013	559		556			188	85			2401
(#8)201-PRIMARY ENSUITE		125					11	5			140
(#9)202-BEDROOM 1	293	413		278			87	39			1110
(#10)203-BEDROOM 2	868	413		556			163	73			2074
(#11)204-WASHROOM		121					11	5			137
(#12)205-STUDY	703	267		278			110	50			1409
(#13)206-LANDING	917	361		517			159	72			2025
	<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	8143	2259		3855	2889	2195	3644	1644			24629

PROJECT #: ADU3-SOUTH. 0

HEAT GAIN COMPONENT BREAKDOWN, (BTUH)	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	LEAKAGE	VENTILATION	DISTRIBUTION & ADDITIONAL	INTERNAL	TOTAL SENSIBLE	TOTAL SENSIBLE + LATENT
ROOM NAME	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
(#1)HEATED CRAWL	39					0	2			41	53
(#2)100-ENTRY & STAIRS	61			227	373	6	31			697	906
(#4)102-POWDER ROOM	5					0	0			5	6
(#5)103-LIVING	39			909		8	44		1843	2842	3695
(#6)104-KITCHEN/DINING	78			416	2015	22	116		1843	4490	5836
(#7)200-PRIMARY BEDROOM	55	197		606		8	40			905	1176
(#8)201-PRIMARY ENSUITE		44				0	2			46	60
(#9)202-BEDROOM 1	1	145		113		2	12			273	355
(#10)203-BEDROOM 2	55	145		606		7	37			850	1105
(#11)204-WASHROOM		43				0	2			45	59
(#12)205-STUDY	42	94		227		3	17			382	497
(#13)206-LANDING	49	127		810		9	46			1041	1353
	<u>WAL.</u>	<u>CEI.</u>	<u>FLR.</u>	<u>WIN.</u>	<u>DR.</u>	<u>LEAK.</u>	<u>VENT.</u>	<u>DIST.</u>	<u>INT.</u>	<u>SENS.</u>	<u>TOTAL</u>
TOTAL BUILDING	423	795		3912	2388	66	348		3685	11617	15102

MINIMUM INSTALLED OUTPUT CAPACITY: 12081

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.