

RESULTS

PROJECT #: ADU2-NORTH. 0 || CSA F280



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

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BUILDING INFORMATION

CALCULATIONS PERFORMED FOR: BC MINISTRY OF HOUSING

CALCULATIONS PERFORMED BY

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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #: ADU2-NORTH
ADDRESS:
CITY: KELOWNA
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: ADU-02
SITE: NORTH
LOT:



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

DATE OF DRAWINGS: September 6, 2024

BUILDING ATTACHMENT: Detached

NUMBER OF FLOOR LEVELS: 2 **NUMBER OF STOREYS:** 1 *above grade floor levels*

WEATHER DATA	Kelowna		
LATITUDE:	49.88	LONGITUDE:	-119.48
Summer Mean Daily Temperature Range	15 °C	WINDOW SHADING:	NO
VENTILATION SYSTEM	Non-dedicated HRV, 30CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

FRONT OF HOUSE FACING DIRECTION: W
is this value assumed? yes

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 172.2 cm², ELA @10Pa
is the air tightness value assumed? 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:** 1

HEATING: 22°C, 71.6°F

OF PEOPLE: 2

COOLING: 24°C, 75.2°F

OUTDOOR DESIGN TEMPERATURES:

HEATING: -17°C, 1.4°F

COOLING: 33°C, 91.4°F

SOIL TEMPERATURE: 11 °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 modeling 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: 680ft², FULL PERIMETER: 113ft, EXPOSED PERIMETER: 113ft

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	678	3241	80	104
(#2)100-ENTRY	2	67	573	177	231
(#3)101-LIVING	2	97	1470	2694	3503
(#4)102-KITCHEN/DINING	2	178	2350	3730	4849
(#5)103-BEDROOM	2	190	1464	521	677
(#6)104-WASHROOM	2	97	1090	601	781
AREA			HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING			1307	10187	7803 10144

HEAT LOSS COMPONENT BREAKDOWN, (BTUH)											
ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
	WAL.	CEI.	FLR.	WIN.	DR.	FND.	LEAK.	VENT.	DIST.	ADD.	TOTAL
(#1)HEATED CRAWL	482					1684	600	475			3241
(#2)100-ENTRY	52	147			315		33	26			573
(#3)101-LIVING	502	213		603			85	67			1470
(#4)102-KITCHEN/DINING	462	390		201	1054		135	107			2350
(#5)103-BEDROOM	696	417		201			84	67			1464
(#6)104-WASHROOM	564	213		201			63	50			1090
TOTAL BUILDING	<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>
	2759	1380		1205	1369	1684	1000	791			10187

HEAT GAIN COMPONENT BREAKDOWN, (BTUH)

MINIMUM INSTALLED OUTPUT CAPACITY:

8115

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.