

RESULTS

PROJECT #: TOWN1-U4-SOUTH. 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 #: TOWN1-U4-SOUTH
ADDRESS:
CITY: KELOWNA
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: TOWN-01-UNIT 4
SITE: SOUTH
LOT:



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

DATE OF DRAWINGS: September 6, 2024

BUILDING ATTACHMENT: Row House - End Unit

NUMBER OF FLOOR LEVELS: 4 **NUMBER OF STOREYS:** 3 *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, 75CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

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

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 230.4 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:	4
HEATING: 22°C, 71.6°F	# OF PEOPLE:	5
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

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: 82ft

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 - U4	1	425	3433	53	69
(#2)112-ENTRY	2	34	1276	422	549
(#3)113-POWDER ROOM	2	20	138	26	34
(#4)114-LIVING ROOM	2	97	1443	2978	3871
(#5)115-KITCHEN/DINING	2	295	3650	4375	5687
(#6)212-LANDING	3	124	1137	411	535
(#7)213-WASHROOM	3	41			
(#8)214-BEDROOM 1	3	136	1667	822	1069
(#9)215-BEDROOM 2	3	136	1667	1118	1454
(#10)305-LANDING	4	124	1669	1373	1785
(#11)306-WASHROOM	4	41	100	58	76
(#12)307-BEDROOM 3	4	136	1481	616	801
(#13)308-BEDROOM 4	4	136	1477	907	1179
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1745	19137	13161	17110

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**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 - U4	349					1172	1120	791			3433
(#2)112-ENTRY	248			432	315		165	116			1276
(#3)113-POWDER ROOM	107						18	13			138
(#4)114-LIVING ROOM	522			603			186	132			1443
(#5)115-KITCHEN/DINING	787			1004	1054		471	333			3650
(#6)212-LANDING	693			201			142	101			1137
(#7)213-WASHROOM											
(#8)214-BEDROOM 1	708			603			209	148			1667
(#9)215-BEDROOM 2	708			603			209	148			1667
(#10)305-LANDING	867	256		378			99	70			1669
(#11)306-WASHROOM		90					6	4			100
(#12)307-BEDROOM 3	631	298		402			88	62			1481
(#13)308-BEDROOM 4	627	298		402			87	62			1477
	<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	6248	942		4627	1369	1172	2800	1978			19137

PROJECT #: TOWN1-U4-SOUTH. 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 - U4	44					1	8			53	69
(#2)112-ENTRY	36			298	19	10	60			422	549
(#3)113-POWDER ROOM	22					1	4			26	34
(#4)114-LIVING ROOM	90			757		25	143		1962	2978	3871
(#5)115-KITCHEN/DINING	99			692	1221	59	341		1962	4375	5687
(#6)212-LANDING	91			252		10	58			411	535
(#7)213-WASHROOM											
(#8)214-BEDROOM 1	80			606		20	116			822	1069
(#9)215-BEDROOM 2	99			834		28	158			1118	1454
(#10)305-LANDING	134	138		873		34	194			1373	1785
(#11)306-WASHROOM		49				1	8			58	76
(#12)307-BEDROOM 3	76	161		277		15	87			616	801
(#13)308-BEDROOM 4	91	161		505		22	128			907	1179
	<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	862	510		5094	1239	228	1304		3924	13161	17110
MINIMUM INSTALLED OUTPUT CAPACITY:											13688

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.