

RESULTS

PROJECT #: TOWN1-U4-EAST. 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

NAME	TODD BACKUS
COMPANY	TECA
ADDRESS	PO BOX 73105, EVERGREEN RO
CITY	SURREY
PROVINCE	BC
POSTAL CODE	V3R 0J2
PHONE	604-594-5956
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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #:	TOWN1-U4-EAST
ADDRESS:	
CITY:	KELOWNA
PROVINCE:	BC
POSTAL CODE:	
BUILDING MODEL:	TOWN-01-UNIT 4
SITE:	EAST
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: W
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	63	82
(#2)112-ENTRY	2	34	1276	921	1197
(#3)113-POWDER ROOM	2	20	138	13	16
(#4)114-LIVING ROOM	2	97	1443	3166	4116
(#5)115-KITCHEN/DINING	2	295	3650	5793	7531
(#6)212-LANDING	3	124	1137	487	634
(#7)213-WASHROOM	3	41			
(#8)214-BEDROOM 1	3	136	1667	1171	1523
(#9)215-BEDROOM 2	3	136	1667	1171	1523
(#10)305-LANDING	4	124	1669	1355	1762
(#11)306-WASHROOM	4	41	100	56	72
(#12)307-BEDROOM 3	4	136	1481	1050	1365
(#13)308-BEDROOM 4	4	136	1477	1049	1364
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1745	19137	16296	21185

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**HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)**

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.	
(#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
	WAL.	CEI.	FLR.	WIN.	DR.	FND.	LEAK.	VENT.	DIST.	ADD.	TOTAL
TOTAL BUILDING	6248	942		4627	1369	1172	2800	1978			19137

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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	56					1	7			63	82
(#2)112-ENTRY	36			707	64	17	97			921	1197
(#3)113-POWDER ROOM	11					0	1			13	16
(#4)114-LIVING ROOM	69			986		22	127		1962	3166	4116
(#5)115-KITCHEN/DINING	117			1643	1596	70	404		1962	5793	7531
(#6)212-LANDING	98			329		9	51			487	634
(#7)213-WASHROOM											
(#8)214-BEDROOM 1	116			910		22	123			1171	1523
(#9)215-BEDROOM 2	116			910		22	123			1171	1523
(#10)305-LANDING	99	138		949		25	143			1355	1762
(#11)306-WASHROOM		49				1	6			56	72
(#12)307-BEDROOM 3	101	161		657		19	111			1050	1365
(#13)308-BEDROOM 4	101	161		657		19	111			1049	1364
	<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	921	510		7749	1660	228	1304		3924	16296	21185
MINIMUM INSTALLED OUTPUT CAPACITY:											16948

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.