

RESULTS

PROJECT #: DPLX1-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

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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
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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #:	DPLX1-U2-NORTH
ADDRESS:	
CITY:	KELOWNA
PROVINCE:	BC
POSTAL CODE:	
BUILDING MODEL:	DPLX-01-UNIT 2
SITE:	NORTH
LOT:	



DESIGNER OF BUILDING DRAWINGS:	Leckie Studio Architecture + Design Inc.		
DATE OF DRAWINGS:	September 6, 2024		
BUILDING ATTACHMENT:	Semi-Detached (Duplex)		
NUMBER OF FLOOR LEVELS:	3	NUMBER OF STOREYS:	2 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, 45CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

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

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 167.4 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:	2
HEATING: 22°C, 71.6°F	# OF PEOPLE:	3
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 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 Crawlpace] 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: 448ft², FULL PERIMETER: 93ft, EXPOSED PERIMETER: 67ft

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	448	2630	43	55
(#2)104-ENTRY	2	34	1231	943	1226
(#3)105-POWDER	2	20	133	7	10
(#4)106-LIVING ROOM	2	97	635	1908	2481
(#5)107-KITCHEN/DINING	2	297	2320	3797	4936
(#6)204-BEDROOM 1	3	136	1541	1070	1392
(#7)205-BEDROOM 2	3	136	830	368	479
(#8)206-WASHROOM	3	40	102	56	73
(#9)207-LANDING	3	124	1498	1276	1659
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1332	10920	9470	12311

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HEAT LOSS COMPONENT BREAKDOWN, (BTUH)											
ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U2	285					966	786	593			2630
(#2)104-ENTRY	248			432	315		134	101			1231
(#3)105-POWDER	107						15	11			133
(#4)106-LIVING ROOM	312			201			69	52			635
(#5)107-KITCHEN/DINING	871			1004			253	191			2320
(#6)204-BEDROOM 1	627	298		402			122	92			1541
(#7)205-BEDROOM 2	216	298		201			66	50			830
(#8)206-WASHROOM		88					8	6			102
(#9)207-LANDING	660	256		373			119	90			1498
	<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	3326	941		2614	315	966	1572	1187			10920

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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 - U2	36					1	6			43	55
(#2)104-ENTRY	29			707	64	21	123			943	1226
(#3)105-POWDER	6					0	1			7	10
(#4)106-LIVING ROOM	18			138		4	24		1723	1908	2481
(#5)107-KITCHEN/DINING	116			1643		45	269		1723	3797	4936
(#6)204-BEDROOM 1	89	161		657		23	139			1070	1392
(#7)205-BEDROOM 2	13	161		138		8	48			368	479
(#8)206-WASHROOM		47				1	7			56	73
(#9)207-LANDING	86	139		858		28	166			1276	1659
TOTAL BUILDING	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
	394	509		4143	64	131	783		3446	9470	12311

MINIMUM INSTALLED OUTPUT CAPACITY: 9848

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.