

RESULTS

PROJECT #: DPLX3-U2-WEST. 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 #:	DPLX3-U2-WEST
ADDRESS:	
CITY:	PRINCE GEORGE
PROVINCE:	BC
POSTAL CODE:	
BUILDING MODEL:	DPLX-03-UNIT 2
SITE:	WEST
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:	4	NUMBER OF STOREYS:	3 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, 60CFM, ASE0.65, ATRE:0		
HEATING SYSTEM	forced air (central system with ductwork)		

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

AIR TIGHTNESS / INFILTRATION	ACH50: 1.5, ELA: 230.9 cm ² , ELA @10Pa
<i>is the air tightness value assumed?</i>	yes

BUILDING SITE SHIELDING:	Low crops, x/H > 20
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LOCAL WALL SHIELDING:	Light local shielding
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LOCAL FLUE SHIELDING:	Light local shielding
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INDOOR DESIGN TEMPERATURES:	# OF BEDROOMS:	3
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HEATING: 22°C, 71.6°F	# OF PEOPLE:	4
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COOLING: 24°C, 75.2°F		
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OUTDOOR DESIGN TEMPERATURES:		
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HEATING: -32°C, -25.6°F		
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COOLING: 28°C, 82.4°F		
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SOIL TEMPERATURE: 6 °C		
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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 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: 448ft², FULL PERIMETER: 93ft, EXPOSED PERIMETER: 82ft

HEAT LOSS & HEAT GAIN SUMMARY, (BTUH)

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ROOM NAME	FLOOR LEVEL	FL AREA (ft²)	HEAT LOSS	HEAT GAIN	
			TOTAL	SENS.	TOTAL (sensible + latent)
(#1)HEATED CRAWL - U2	1	448	5067	32	42
(#2)104-ENTRY	2	34	1826	577	750
(#3)105-POWDER	2	20	195	17	22
(#4)106-LIVING ROOM	2	97	2040	2270	2951
(#5)107-KITCHEN/DINING	2	297	5346	3482	4526
(#6)204-BEDROOM 1	3	136	2127	297	386
(#7)205-BEDROOM 2	3	136	2014	563	731
(#8)206-WASHROOM	3	40			
(#9)207-LANDING	3	124	1782	418	544
(#10)300-BEDROOM 3	4	136	2315	772	1003
(#11)301-STUDY	4	136	2325	1037	1348
(#12)302-WASHROOM	4	40	136	47	61
(#13)304-LANDING	4	124	2055	880	1144
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1768	27228	10391	13508

HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)

ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U2	484					1594	2112	877			5067
(#2)104-ENTRY	357			599	436		307	128			1826
(#3)105-POWDER	149						33	14			195
(#4)106-LIVING ROOM	720			834			343	143			2040
(#5)107-KITCHEN/DINING	1115			834	2123		900	374			5346
(#6)204-BEDROOM 1	1034			556			379	157			2127
(#7)205-BEDROOM 2	949			556			359	149			2014
(#8)206-WASHROOM											
(#9)207-LANDING	1054			278			318	132			1782
(#10)300-BEDROOM 3	814	413		834			179	74			2315
(#11)301-STUDY	823	413		834			180	75			2325
(#12)302-WASHROOM		121					11	4			136
(#13)304-LANDING	1231	354		245			159	66			2055
	<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	8730	1302		5572	2559	1594	5280	2191			27228

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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 - U2	29					0	2			32	42
(#2)104-ENTRY	28			488	15	7	40			577	750
(#3)105-POWDER	16					0	1			17	22
(#4)106-LIVING ROOM	54			338		5	30		1843	2270	2951
(#5)107-KITCHEN/DINING	91			566	848	21	113		1843	3482	4526
(#6)204-BEDROOM 1	47			225		4	21			297	386
(#7)205-BEDROOM 2	63			453		7	39			563	731
(#8)206-WASHROOM											
(#9)207-LANDING	81			303		5	29			418	544
(#10)300-BEDROOM 3	35	145		528		10	53			772	1003
(#11)301-STUDY	50	145		756		13	72			1037	1348
(#12)302-WASHROOM		43				1	3			47	61
(#13)304-LANDING	85	125		598		11	61			880	1144
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
TOTAL BUILDING	579	458		4256	862	86	464		3685	10391	13508

MINIMUM INSTALLED OUTPUT CAPACITY: 10806

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.