

RESULTS

PROJECT #: DPLX2-U1-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

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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #: DPLX2-U1-WEST
ADDRESS:
CITY: PRINCE GEORGE
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: DPLX-02-UNIT 1
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: 67ft

HEAT LOSS & HEAT GAIN SUMMARY, (BTUH)

imperial

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ROOM NAME	FLOOR LEVEL	FL AREA (ft²)	HEAT LOSS	HEAT GAIN	
			TOTAL	SENS.	TOTAL (sensible + latent)
(#1)HEATED CRAWL - U1	1	448	4681	34	44
(#2)100-ENTRY	2	34	2023	585	760
(#3)101-POWDER	2	20	218	17	22
(#4)102-LIVING ROOM	2	97	1040	2225	2892
(#5)103-KITCHEN/DINING	2	297	3800	3196	4154
(#6)200-BEDROOM 1	3	136	2254	569	739
(#7)201-BEDROOM 2	3	136	897	373	485
(#8)202-WASHROOM	3	40			
(#9)203-LANDING	3	124	1922	433	563
(#10)300-BEDROOM 3	4	136	2127	717	932
(#11)301-STUDY	4	136	1142	526	683
(#12)302-WASHROOM	4	40	141	47	61
(#13)303-LANDING	4	124	2080	1211	1574
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1768	22325	9931	12911

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 - U1	394					1299	2112	877			4681
(#2)100-ENTRY	342			605	436		453	188			2023
(#3)101-POWDER	149						49	20			218
(#4)102-LIVING ROOM	432			278			233	97			1040
(#5)103-KITCHEN/DINING	1206			1391			850	353			3800
(#6)200-BEDROOM 1	1034			556			469	195			2254
(#7)201-BEDROOM 2	355			278			187	77			897
(#8)202-WASHROOM											
(#9)203-LANDING	1078			278			400	166			1922
(#10)300-BEDROOM 3	868	413		556			205	85			2127
(#11)301-STUDY	296	413		278			110	46			1142
(#12)302-WASHROOM		121					14	6			141
(#13)303-LANDING	920	354		523			200	83			2080
	<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	7074	1302		4744	436	1299	5280	2191			22325

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HEAT GAIN COMPONENT BREAKDOWN, (BTUH)			FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH			DISTRIBUTION & ADDITIONAL	INTERNAL	TOTAL SENSIBLE	TOTAL SENSIBLE + LATENT
	WALL	CEILING				LEAKAGE	VENTILATION				
ROOM NAME	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
(#1)HEATED CRAWL - U1	31					0	3			34	44
(#2)100-ENTRY	26			493	15	8	43			585	760
(#3)101-POWDER	16					0	1			17	22
(#4)102-LIVING ROOM	46			303		5	28		1843	2225	2892
(#5)103-KITCHEN/DINING	101			1133		19	100		1843	3196	4154
(#6)200-BEDROOM 1	65			453		8	42			569	739
(#7)201-BEDROOM 2	37			303		5	28			373	485
(#8)202-WASHROOM											
(#9)203-LANDING	92			303		6	32			433	563
(#10)300-BEDROOM 3	55	145		453		10	53			717	932
(#11)301-STUDY	31	145		303		7	39			526	683
(#12)302-WASHROOM		43				1	3			47	61
(#13)303-LANDING	79	125		901		17	90			1211	1574
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
TOTAL BUILDING	579	458		4645	15	86	464		3685	9931	12911

MINIMUM INSTALLED OUTPUT CAPACITY: 10329

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.