

RESULTS

PROJECT #: DPLX2-U1-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

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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #: DPLX2-U1-NORTH
ADDRESS:
CITY: PRINCE RUPERT
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: DPLX-02-UNIT 1
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: 4 NUMBER OF STOREYS: 3 above grade floor levels

WEATHER DATA	Prince Rupert		
LATITUDE:	54.32	LONGITUDE:	-130.32
Summer Mean Daily Temperature Range	6 °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:	W
<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: -13°C, 8.6°F		
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COOLING: 19°C, 66.2°F		
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SOIL TEMPERATURE: 10 °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 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 TOTAL	HEAT GAIN SENS. TOTAL (sensible + latent)
(#1)HEATED CRAWL - U1	1	448	2822	
(#2)100-ENTRY	2	34	1254	465 604
(#3)101-POWDER	2	20	135	
(#4)102-LIVING ROOM	2	97	645	1993 2591
(#5)103-KITCHEN/DINING	2	297	2355	2912 3786
(#6)200-BEDROOM 1	3	136	1402	428 556
(#7)201-BEDROOM 2	3	136	558	150 195
(#8)202-WASHROOM	3	40		
(#9)203-LANDING	3	124	1195	55 72
(#10)300-BEDROOM 3	4	136	1353	492 639
(#11)301-STUDY	4	136	726	214 278
(#12)302-WASHROOM	4	40	89	19 24
(#13)303-LANDING	4	124	1323	575 747
		AREA	HEAT LOSS	GAIN (sens.) GAIN (total)
OVERALL BUILDING		1768	13857	7303 9494

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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 - U1	256					896	1102	568			2822
(#2)100-ENTRY	222			392	282		236	122			1254
(#3)101-POWDER	96						25	13			135
(#4)102-LIVING ROOM	280			180			121	63			645
(#5)103-KITCHEN/DINING	782			901			444	229			2355
(#6)200-BEDROOM 1	670			361			245	126			1402
(#7)201-BEDROOM 2	230			180			97	50			558
(#8)202-WASHROOM											
(#9)203-LANDING	699			180			209	108			1195
(#10)300-BEDROOM 3	563	268		361			107	55			1353
(#11)301-STUDY	192	268		180			57	30			726
(#12)302-WASHROOM		79					7	4			89
(#13)303-LANDING	596	230		339			104	54			1323
	<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	4585	844		3075	282	896	2755	1420			13857

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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 - U1											
(#2)100-ENTRY				558		-18	-75			465	604
(#3)101-POWDER											
(#4)102-LIVING ROOM				180		-6	-24	1843		1993	2591
(#5)103-KITCHEN/DINING				1283		-42	-171	1843		2912	3786
(#6)200-BEDROOM 1				513		-17	-69			428	556
(#7)201-BEDROOM 2				180		-6	-24			150	195
(#8)202-WASHROOM											
(#9)203-LANDING				66		-2	-9			55	72
(#10)300-BEDROOM 3	76			513		-19	-79			492	639
(#11)301-STUDY	76			180		-8	-34			214	278
(#12)302-WASHROOM	22					-1	-3			19	24
(#13)303-LANDING	66			624		-22	-92			575	747
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
TOTAL BUILDING	241			4098		-141	-580	3685		7303	9494

MINIMUM INSTALLED OUTPUT CAPACITY: 7595

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.