

RESULTS

PROJECT #: QPLX2-U4-SOUTH. 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 #: QPLX2-U4-SOUTH
ADDRESS:
CITY: PRINCE RUPERT
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: QPLX-02-UNIT 4
SITE: SOUTH
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	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: 230.4 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

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: 93ft, EXPOSED PERIMETER: 82ft

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 - U4	1	425	3071		
(#2)112-ENTRY	2	34	1170	474	616
(#3)113-POWDER ROOM	2	20	126		
(#4)114-LIVING ROOM	2	97	945	1997	2596
(#5)115-KITCHEN/DINING	2	295	3037	3582	4656
(#6)212-BEDROOM 1	3	136	1346	440	572
(#7)213-BEDROOM 2	3	136	1087	155	201
(#8)214-WASHROOM	3	40			
(#9)215-LANDING	3	124	1130	57	74
(#10)304-BEDROOM 3	4	136	1326	506	658
(#11)305-STUDY	4	136	1173	220	286
(#12)306-WASHROOM	4	40	88	19	25
(#13)307-LANDING	4	124	1499	591	769
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1743	16000	8042	10454

HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)

ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U4	314					1090	1100	568			3071
(#2)112-ENTRY	223			388	282		183	94			1170
(#3)113-POWDER ROOM	96						20	10			126
(#4)114-LIVING ROOM	541			180			148	76			945
(#5)115-KITCHEN/DINING	795			180	1342		474	245			3037
(#6)212-BEDROOM 1	670			361			208	107			1346
(#7)213-BEDROOM 2	653			180			168	87			1087
(#8)214-WASHROOM											
(#9)215-LANDING	686			180			174	90			1130
(#10)304-BEDROOM 3	563	268		361			89	46			1326
(#11)305-STUDY	605	268		180			79	41			1173
(#12)306-WASHROOM		79					6	3			88
(#13)307-LANDING	778	230		339			101	52			1499
	<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	5923	844		2350	1625	1090	2749	1420			16000

PROJECT #: QPLX2-U4-SOUTH. 0

HEAT GAIN COMPONENT BREAKDOWN, (BTUH)	HEATING SYSTEMS										
	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 - U4											
(#2)112-ENTRY				552		-15	-63			474	616
(#3)113-POWDER ROOM											
(#4)114-LIVING ROOM				180		-5	-21		1843	1997	2596
(#5)115-KITCHEN/DINING				257	1770	-56	-231		1843	3582	4656
(#6)212-BEDROOM 1				513		-14	-59			440	572
(#7)213-BEDROOM 2				180		-5	-21			155	201
(#8)214-WASHROOM											
(#9)215-LANDING				66		-2	-8			57	74
(#10)304-BEDROOM 3		76		513		-16	-67			506	658
(#11)305-STUDY		76		180		-7	-29			220	286
(#12)306-WASHROOM		22				-1	-3			19	25
(#13)307-LANDING		66		624		-19	-79			591	769
	<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		241		3066	1770	-141	-580		3685	8042	10454

MINIMUM INSTALLED OUTPUT CAPACITY:	8363
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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.