

RESULTS

PROJECT #: QPLX1-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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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 #:	QPLX1-U2-WEST
ADDRESS:	
CITY:	PRINCE RUPERT
PROVINCE:	BC
POSTAL CODE:	
BUILDING MODEL:	QPLX-01-UNIT 2
SITE:	WEST
LOT:	



DESIGNER OF BUILDING DRAWINGS:	Leckie Studio Architecture + Design Inc.		
DATE OF DRAWINGS:	September 6, 2024		
BUILDING ATTACHMENT:	Row House - Middle 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
is this value assumed? yes

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 158.8 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: -13°C, 8.6°F
COOLING: 19°C, 66.2°F

SOIL TEMPERATURE: 10 °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

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: 144ft², FULL PERIMETER: 56ft, EXPOSED PERIMETER: 56ft

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	144	2073		
(#2)102-ENTRY & STAIRS	2	166	3657	857	1114
(#3)203-KITCHEN/DINING	3	292	2338	3062	3980
(#4)204-LIVING ROOM	3	113	1056	2392	3110
(#5)205-STUDY	3	46	693	58	75
(#6)304-LANDING	4	124	879	542	704
(#7)305-WASHROOM	4	40	88	20	25
(#8)306-BEDROOM 1	4	136	1046	513	666
(#9)307-BEDROOM 2	4	136	1163	513	666
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1197	12993	7955	10341

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**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.	TOTAL
(#1)HEATED CRAWL - U2	84					663	758	568			2073
(#2)102-ENTRY & STAIRS	1123			692	847		568	426			3657
(#3)203-KITCHEN/DINING	727		150	1082			217	163			2338
(#4)204-LIVING ROOM	114		230	541			98	73			1056
(#5)205-STUDY	307		94	180			64	48			693
(#6)304-LANDING	399	230		159			52	39			879
(#7)305-WASHROOM		79					5	4			88
(#8)306-BEDROOM 1	308	268		361			62	47			1046
(#9)307-BEDROOM 2	413	268		361			69	52			1163

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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											
(#2)102-ENTRY & STAIRS				985		-18	-110			857	1114
(#3)203-KITCHEN/DINING				1539		-29	-172		1723	3062	3980
(#4)204-LIVING ROOM				770		-14	-86		1723	2392	3110
(#5)205-STUDY				66		-1	-7			58	75
(#6)304-LANDING		66		557		-12	-70			542	704
(#7)305-WASHROOM		22				0	-3			20	25
(#8)306-BEDROOM 1		76		513		-11	-66			513	666
(#9)307-BEDROOM 2		76		513		-11	-66			513	666
TOTAL BUILDING	<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>
		241		4944		-97	-580		3446	7955	10341

MINIMUM INSTALLED OUTPUT CAPACITY: 8273

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.