

RESULTS

PROJECT #: QPLX2-U2-EAST. 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-U2-EAST
ADDRESS:
CITY: KELOWNA
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: QPLX-02-UNIT 2
SITE: EAST
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	Kelowna		
LATITUDE:	49.88	LONGITUDE:	-119.48
Summer Mean Daily Temperature Range	15 °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: N
is this value assumed? yes

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 230.4 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:** 3

HEATING: 22°C, 71.6°F

OF PEOPLE: 4

COOLING: 24°C, 75.2°F

OUTDOOR DESIGN TEMPERATURES:

HEATING: -17°C, 1.4°F

COOLING: 33°C, 91.4°F

SOIL TEMPERATURE: 11 °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: 425ft², FULL PERIMETER: 91ft, EXPOSED PERIMETER: 71ft

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	425	3067	54	70
(#2)104-ENTRY	2	34	1342	422	549
(#3)105-POWDER ROOM	2	20	144	26	34
(#4)106-LIVING ROOM	2	97	1509	2854	3711
(#5)107-KITCHEN/DINING	2	295	2202	2705	3517
(#6)204-BEDROOM 1	3	136	1609	1107	1439
(#7)205-BEDROOM 2	3	136	1401	433	563
(#8)206-WASHROOM	3	40			
(#9)207-LANDING	3	124	924	517	672
(#10)300-STUDY	4	136	1646	1288	1674
(#11)301-BEDROOM 3	4	136	1468	614	799
(#12)302-WASHROOM	4	40	96	57	74
(#13)303-LANDING	4	124	1649	1454	1890
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1743	17058	11532	14991

HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)

ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U2	301					1014	1120	633			3067
(#2)104-ENTRY	255			432	315		217	123			1342
(#3)105-POWDER ROOM	107						23	13			144
(#4)106-LIVING ROOM	525			603			244	138			1509
(#5)107-KITCHEN/DINING	697			633	315		356	201			2202
(#6)204-BEDROOM 1	648			603			229	129			1609
(#7)205-BEDROOM 2	687			402			199	113			1401
(#8)206-WASHROOM											
(#9)207-LANDING	517			201			132	74			924
(#10)300-STUDY	596	298		603			95	54			1646
(#11)301-BEDROOM 3	636	298		402			85	48			1468
(#12)302-WASHROOM		88					6	3			96
(#13)303-LANDING	867	256		378			95	54			1649
	<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	5836	940		4256	629	1014	2800	1583			17058

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**HEAT GAIN
COMPONENT
BREAKDOWN, (BTUH)**

ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	LEAKAGE	VENTILATION	DISTRIBUTION & ADDITIONAL	INTERNAL	TOTAL SENSIBLE	TOTAL SENSIBLE + LATENT
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
(#1)HEATED CRAWL - U2	45					2	7			54	70
(#2)104-ENTRY	37			298	19	12	56			422	549
(#3)105-POWDER ROOM	22					1	3			26	34
(#4)106-LIVING ROOM	91			757		29	135		1843	2854	3711
(#5)107-KITCHEN/DINING	123			568	32	25	115		1843	2705	3517
(#6)204-BEDROOM 1	94			834		32	147			1107	1439
(#7)205-BEDROOM 2	86			277		13	58			433	563
(#8)206-WASHROOM											
(#9)207-LANDING	105			329		15	69			517	672
(#10)300-STUDY	84	161		834		37	171			1288	1674
(#11)301-BEDROOM 3	76	161		277		18	82			614	799
(#12)302-WASHROOM		47				2	8			57	74
(#13)303-LANDING	130	138		949		42	193			1454	1890
TOTAL BUILDING	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
	894	509		5122	51	228	1044		3685	11532	14991

MINIMUM INSTALLED OUTPUT CAPACITY: 11993

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.