

RESULTS

PROJECT #: DPLX3-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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BUILDING INFORMATION

CALCULATIONS PERFORMED FOR: BC MINISTRY OF HOUSING

CALCULATIONS PERFORMED BY

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SOFTWARE LICENSING

COMPANY
NAME
REG. #:



PROJECT #: DPLX3-U2-WEST
ADDRESS:
CITY: VANCOUVER
PROVINCE: BC
POSTAL CODE:
BUILDING MODEL: DPLX-03-UNIT 2
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 Vancouver (city hall)

LATITUDE: 49.25

LONGITUDE: -123.12

Summer Mean Daily Temperature Range 7 °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

is this value assumed? yes

AIR TIGHTNESS / INFILTRATION ACH50: 1.5, ELA: 230.9 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: -7°C, 19.4°F

COOLING: 28°C, 82.4°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

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: 82ft

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	448	2500	32	42
(#2)104-ENTRY	2	34	924	580	754
(#3)105-POWDER	2	20	99	17	22
(#4)106-LIVING ROOM	2	97	1032	2272	2953
(#5)107-KITCHEN/DINING	2	297	2705	3489	4536
(#6)204-BEDROOM 1	3	136	1072	298	388
(#7)205-BEDROOM 2	3	136	1016	565	735
(#8)206-WASHROOM	3	40			
(#9)207-LANDING	3	124	899	420	546
(#10)300-BEDROOM 3	4	136	1210	775	1008
(#11)301-STUDY	4	136	1215	1042	1354
(#12)302-WASHROOM	4	40	71	47	61
(#13)304-LANDING	4	124	1074	884	1149
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1768	13819	10421	13548

HEAT LOSS COMPONENT
BREAKDOWN, (BTUH)

ROOM NAME	WALL	CEILING	FLOOR	WINDOW & SKYLIGHT	DOOR & HATCH	FOUNDATION	LEAKAGE	VENTILATION	DISTRIBUTION	ADDITIONAL	TOTAL
(#1)HEATED CRAWL - U2	260					1023	746	471			2500
(#2)104-ENTRY	192			321	234		109	69			924
(#3)105-POWDER	80						12	7			99
(#4)106-LIVING ROOM	386			448			121	77			1032
(#5)107-KITCHEN/DINING	599			448	1140		318	201			2705
(#6)204-BEDROOM 1	555			299			134	85			1072
(#7)205-BEDROOM 2	510			299			127	80			1016
(#8)206-WASHROOM											
(#9)207-LANDING	566			149			112	71			899
(#10)300-BEDROOM 3	437	222		448			63	40			1210
(#11)301-STUDY	442	222		448			63	40			1215
(#12)302-WASHROOM		65					4	2			71
(#13)304-LANDING	661	190		131			56	35			1074
	<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	4688	699		2992	1374	1023	1865	1177			13819

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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 - U2	29					1	2			32	42
(#2)104-ENTRY	28			488	15	10	40			580	754
(#3)105-POWDER	16					0	1			17	22
(#4)106-LIVING ROOM	54			338		7	30		1843	2272	2953
(#5)107-KITCHEN/DINING	91			566	848	29	113		1843	3489	4536
(#6)204-BEDROOM 1	47			225		5	21			298	388
(#7)205-BEDROOM 2	63			453		10	39			565	735
(#8)206-WASHROOM											
(#9)207-LANDING	81			303		7	29			420	546
(#10)300-BEDROOM 3	35	145		528		13	53			775	1008
(#11)301-STUDY	50	145		756		18	72			1042	1354
(#12)302-WASHROOM		43				1	3			47	61
(#13)304-LANDING	85	125		598		15	61			884	1149
	WAL.	CEI.	FLR.	WIN.	DR.	LEAK.	VENT.	DIST.	INT.	SENS.	TOTAL
TOTAL BUILDING	579	458		4256	862	117	464		3685	10421	13548

MINIMUM INSTALLED OUTPUT CAPACITY: 10838

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.