RESULTS

PROJECT #: DPLX3-U2-SOUTH. 0 || CSA F280

These results have been generated by The TECA Heat Loss & Heat Gain Calculator (V5.08), which is CSA F280 Verified

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
PHONE	604-594-5956
FAX	-
EMAIL	TBACKUS@TECA.CA

SOFTWARE LICENSING

COMPANY	
NAME	
REG. #:	

PROJECT #:	DPLX3-U2-SOUTH
ADDRESS:	
CITY:	KELOWNA
PROVINCE:	BC
POSTAL CODE:	
BUILDING MODEL:	DPLX-03-UNIT 2
SITE:	SOUTH
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*

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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:	E
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:	-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

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: 448ft², FULL PERIMETER: 93ft, EXPOSED PERIMETER: 82ft

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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 - U2	1	448	3290	55	**72**
(#2)104-ENTRY	2	34	1260	906	**1177**
(#3)105-POWDER	2	20	135	12	**16**
(#4)106-LIVING ROOM	2	97	1408	3026	**3933**
(#5)107-KITCHEN/DINING	2	297	3689	5814	**7558**
(#6)204-BEDROOM 1	3	136	1464	872	**1134**
(#7)205-BEDROOM 2	3	136	1386	858	**1115**
(#8)206-WASHROOM	3	40			
(#9)207-LANDING	3	124	1226	240	**312**
(#10)300-BEDROOM 3	4	136	1638	1310	**1703**
(#11)301-STUDY	4	136	1645	1310	**1704**
(#12)302-WASHROOM	4	40	96	53	**69**
(#13)304-LANDING	4	124	1454	970	**1261**
		AREA	HEAT LOSS	GAIN (sens.)	GAIN (total)
OVERALL BUILDING		1768	18691	15427	**20055**

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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 - U2	350					1185	1122	633			**3290**
(#2)104-ENTRY	258			432	315		163	92			**1260**
(#3)105-POWDER	107						17	10			**135**
(#4)106-LIVING ROOM	520			603			183	103			**1408**
(#5)107-KITCHEN/DINING	805			603	1533		478	270			**3689**
(#6)204-BEDROOM 1	747			402			202	114			**1464**
(#7)205-BEDROOM 2	686			402			191	108			**1386**
(#8)206-WASHROOM											
(#9)207-LANDING	761			201			169	95			**1226**
(#10)300-BEDROOM 3	588	298		603			95	54			**1638**
(#11)301-STUDY	594	298		603			95	54			**1645**
(#12)302-WASHROOM		88					6	3			**96**
(#13)304-LANDING	889	256		177			84	48			**1454**
	WAL.	**CEI.**	**FLR.**	**WIN.**	**DR.**	**FND.**	**LEAK.**	**VENT.**	**DIST.**	**ADD.**	**TOTAL**
TOTAL BUILDING	**6305**	**940**		**4024**	**1848**	**1185**	**2806**	**1583**			**18691**

PROJECT #: DPLX3-U2-SOUTH. 0

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	49					1	5			55	**72**
(#2)104-ENTRY	37			707	64	18	80			906	**1177**
(#3)105-POWDER	11					0	1			12	**16**
(#4)106-LIVING ROOM	69			986		23	105		1843	3026	**3933**
(#5)107-KITCHEN/DINING	79			986	2477	77	353		1843	5814	**7558**
(#6)204-BEDROOM 1	121			657		17	78			872	**1134**
(#7)205-BEDROOM 2	107			657		17	76			858	**1115**
(#8)206-WASHROOM											
(#9)207-LANDING	76			138		5	21			240	**312**
(#10)300-BEDROOM 3	97	161		910		25	116			1310	**1703**
(#11)301-STUDY	97	161		910		25	116			1310	**1704**
(#12)302-WASHROOM		47				1	5			53	**69**
(#13)304-LANDING	106	138		621		19	86			970	**1261**
	WAL.	**CEI.**	**FLR.**	**WIN.**	**DR.**	**LEAK.**	**VENT.**	**DIST.**	**INT.**	**SENS.**	**TOTAL**
TOTAL BUILDING	**848**	**509**		**6573**	**2540**	**228**	**1044**		**3685**	**15427**	**20055**

MINIMUM INSTALLED OUTPUT CAPACITY: **16044**

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.