

20.130063.000.00.CM

Issue Date: 02/05/21

LAMPONE INVESTMENT INC

ALL CONSTRUCTION SHALL COMPLY WITH THE
ONTARIO BUILDING CODE.

CITY OF MARKHAM

HEAT LOSS/HEAT GAIN CALCULATIONS

MODEL NAME : KIMBERLY 5

ELEV 1, 2 & 3

SITE NAME: LAMPONE INVESTMENTS										DATE: Jul-20		WINTER NATURAL AIR CHANGE RATE 0.361		HEAT LOSS ΔT °F. 78		CSA-F280-12	
BUILDER: GREENPARK HOMES										LO# 86806		SUMMER NATURAL AIR CHANGE RATE 0.113		HEAT GAIN ΔT °F. 13		SB-12 PACKAGE A1	
TYPE: KIMBERLY 6										GFA: 2921							
ROOM/USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2								
			38	12	11	31	17	24	30								
			9	9	9	9	9	9	9								
FACTORS																	
GRS.WALL AREA	LOSS	GAIN	342	108	99	279	163	216	270								
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.8	41.6	0	0	0	0	0	0	0	46	1220	2327	37	806	1637	13	283
SOUTH	21.8	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	16	349
WEST	21.8	41.6	21	467	873	14	306	682	0	0	0	0	0	0	0	0	0
SKYL.T.	38.1	101.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	26.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.6	0.8	321	1466	241	94	429	71	90	411	68	260	1188	196	97	443	73
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	362	462	207	262	331	148	40	63	24	240	316	141	198	260	116
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	0	27	76	34	20	66	26
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	40	104	17	0	0	0	212	663	91
BASEMENT CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS			2386		1066	764	1917	2663	1906			1937					
SUB TOTAL HT GAIN				1321	800	482	1126	2641	1798			1211					
LEVEL FACTOR / MULTIPLIER	0.20	0.30								0.20	0.30					0.20	0.30
AIR CHANGE HEAT LOSS			712		318	228	672	762	669			678				268	
AIR CHANGE HEAT GAIN				98	60	36	84	136	134			90				14	
DUCT LOSS			0		0	99	0	331	0			0				117	
DUCT GAIN			0		0	62	0	378	0			0				20	
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1			240	0			0	0
HEAT GAIN APPLIANCES/LIGHTS				701	0	0		701				701	0			0	0
TOTAL HT LOSS BTU/H			3098		1383	1091	2489	3646	2476			2616				1284	
TOTAL HT GAIN x 1.3 BTU/H				3380	1118	741	2796	6403	3736			1691				290	

ROOM/USE	EXP. WALL	CLG. HT.	FAM	KTBK	LMDN	LAUN	WIR	FOY	MUD								
			34	61	68	0	6	17	11								
			11	11	11	9	12	12	12								
FACTORS																	
GRS.WALL AREA	LOSS	GAIN	374	661	638	0	72	204	132								
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.8	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.8	41.6	32	697	1330	63	1372	2618	0	0	0	0	0	0	0	0	0
SKYL.T.	38.1	101.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	26.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.6	0.8	342	1662	267	498	2276	374	606	2768	466	0	0	0	66	297	49
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	82	108	48	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	36	91	16	0	0	0	0	0	0
BASEMENT CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS			2269		3647	3466	199	449	1783			1783					
SUB TOTAL HT GAIN				1687	2992	1786	63	223	1029			293			169		
LEVEL FACTOR / MULTIPLIER	0.30	0.48								0.30	0.48					0.60	1.11
AIR CHANGE HEAT LOSS			1091		1761	1673	69	217	861			861			496		10163
AIR CHANGE HEAT GAIN				118	223	133	6	17	22			22			13		77
DUCT LOSS			0		0	0	26	0	0			0			0		0
DUCT GAIN			0		0	0	77	0	0			0			0		0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0			0			0		0
HEAT GAIN APPLIANCES/LIGHTS				701	701	701	701	701	0			0			0		701
TOTAL HT LOSS BTU/H			3360		6408	6138	284	666	2644			410			1626		18289
TOTAL HT GAIN x 1.3 BTU/H				3127	6090	3404	1099	312	236						814		1648

TOTAL HEAT GAIN BTU/H: 36468 TONS: 2.96 LOSS DUE TO VENTILATION LOAD BTU/H: 1670 STRUCTURAL HEAT LOSS: 46321 TOTAL COMBINED HEAT LOSS BTU/H: 67991



SITE NAME: LAMPONE INVESTMENTS
BUILDER: GREENPARK HOMES

TYPE: KIMBERLY 5

DATE: Jul-20

GFA: 2921

LO# 86805

HEATING CFM 1122 COOLING CFM 1122
TOTAL HEAT LOSS 56,321 TOTAL HEAT GAIN 35,194
AIR FLOW RATE CFM 19.92 AIR FLOW RATE CFM 31.88

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

#GOODMAN
GMEC360803BNA 80

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = **76,800**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	7	4
R/A	0	0	5	2	1

plenum pressure s/a 0.18
max s/a dif press. loss 0.03
min adjusted pressure s/a 0.15
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

FAN SPEED
LOW
MEDLOW
MEDIUM 885
MEDIUM HIGH 1005
HIGH 1122

DESIGN CFM = **1122**
CFM @ .6" E.S.P.

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	BED-3	BED-4	MBR	S-ENS	S-ENS	FAM	KT/BF	KT/BF	LV/DN	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.55	1.38	1.09	2.49	1.82	1.24	2.51	1.82	1.24	1.55	0.64	0.64	3.35	2.70	2.70	5.14	0.28	0.67	2.64	1.53	4.83	4.83	4.83	4.83
CFM PER RUN HEAT	31	28	22	50	36	25	50	36	25	31	13	13	67	54	54	102	6	13	53	30	96	96	96	96
RM GAIN MBH.	1.69	1.12	0.74	2.80	2.70	1.87	1.69	2.70	1.87	1.69	0.15	0.15	3.13	2.55	2.55	3.40	1.10	0.31	0.41	0.24	0.59	0.59	0.59	0.59
CFM PER RUN COOLING	54	36	24	89	86	60	54	86	60	54	5	5	100	81	81	109	35	10	13	8	19	19	19	19
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	44	60	55	51	61	73	54	68	46	48	51	42	30	22	54	35	38	56	31	17	35	39	50
EQUIVALENT LENGTH	130	170	140	160	130	150	200	120	160	130	160	150	100	170	80	120	180	160	130	170	90	110	160	140
TOTAL EFFECTIVE LENGTH	187	214	200	215	181	211	273	174	228	176	208	201	142	200	102	174	215	198	186	201	107	145	199	190
ADJUSTED PRESSURE	0.09	0.08	0.09	0.08	0.09	0.08	0.06	0.09	0.08	0.1	0.08	0.09	0.11	0.08	0.16	0.09	0.08	0.09	0.09	0.09	0.15	0.11	0.08	0.09
ROUND DUCT SIZE	5	4	4	6	6	5	5	6	5	5	4	4	6	6	5	6	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	228	321	252	255	184	184	367	184	184	228	149	149	342	275	396	520	69	149	389	344	489	489	489	489
COOLING VELOCITY (ft/min)	396	413	275	454	438	441	396	438	441	396	57	57	510	413	595	556	402	115	95	92	97	97	97	97
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	C	B	C	B	A	A	B	A	C	B	B	C	C	D	A	B	B	A	B	D	C	A	A

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE													RETURN AIR TRUNK SIZE												
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)					
TRUNK A	447	0.06	11.1	14	x	8	575	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	616	0.06	12.6	18	x	8	616	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	357	0.08	9.5	10	x	8	643	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	1123	0.06	15.7	28	x	8	722	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0		
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0		
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0		

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	64	78	62	83	65	40	50	1	1	1	1	1	1	1	1	19
EQUIVALENT LENGTH	205	245	235	245	245	200	210	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	269	323	297	328	310	240	260	1	1	1	1	1	1	1	1	164
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	0.06	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.8	6	6	6	6	10.3	6.8	0	0	0	0	0	0	0	0	7
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	24	14	14	14	14	30	14	0	0	0	0	0	0	0	0	14

TYPE: KIMBERLY 5
SITE NAME: LAMPONE INVESTMENTS

LO # 86805

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES	9.32.3.1(1)
a) ☒ Direct vent (sealed combustion) only	
b) ☐ Positive venting induced draft (except fireplaces)	
c) ☐ Natural draft, B-vent or induced draft gas fireplace	
d) ☐ Solid Fuel (including fireplaces)	
e) ☐ No Combustion Appliances	

HEATING SYSTEM
☒ Forced Air ☐ Non Forced Air
☐ Electric Space Heat

HOUSE TYPE	9.32.1(2)
☒ I Type a) or b) appliance only, no solid fuel	
☐ II Type I except with solid fuel (including fireplaces)	
☐ III Any Type c) appliance	
☐ IV Type I, or II with electric space heat	
☐ Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS	O.N.H.W.P.
☐ 1 Exhaust only/Forced Air System	
☐ 2 HRV with Ducting/Forced Air System	
☒ 3 HRV Simplified/connected to forced air system	
☐ 4 HRV with Ducting/non forced air system	
☐ Part 6 Design	

TOTAL VENTILATION CAPACITY	9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm <u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm <u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm <u>53</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm <u>53.0</u> cfm
Table 9.32.3.A.	TOTAL <u>180.2</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED	9.32.3.4.(1)
1 Bedroom	31.8 cfm
2 Bedroom	47.7 cfm
3 Bedroom	63.6 cfm
4 Bedroom	79.5 cfm
5 Bedroom	95.4 cfm
TOTAL	79.6 cfm

SUPPLEMENTAL VENTILATION CAPACITY	9.32.3.6.
Total Ventilation Capacity	<u>180.2</u> cfm
Less Principal Ventil. Capacity	<u>79.5</u> cfm
Required Supplemental Capacity	<u>100.7</u> cfm

PRINCIPAL EXHAUST FAN CAPACITY
Model: VANEE 65H Location: BSMT
<u>79.5</u> cfm ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION
CFM ΔT °F FACTOR % LOSS
79.5 CFM X 78 F X 1.08 X 0.25

SUPPLEMENTAL FANS	PANASONIC
Location Model cfm HVI Sones	
ENS FV-05-11VK1 50 ☒ 0.3	
ENS-2 FV-05-11VK1 50 ☒ 0.3	
S-ENS FV-05-11VK1 50 ☒ 0.3	
W/R FV-05-11VK1 50 ☒ 0.3	

HEAT RECOVERY VENTILATOR	9.32.3.11.
Model: VANEE 65H	
<u>155</u> cfm high <u>64</u> cfm low	
<u>75</u> % Sensible Efficiency ☒ HVI Approved	
@ 32 deg F (0 deg C)	

LOCATION OF INSTALLATION
Lot: Concession
Township Plan:
Address
Roll # Building Permit #

BUILDER:	GREENPARK HOMES
Name:	
Address:	
City:	
Telephone #: Fax #:	

INSTALLING CONTRACTOR
Name:
Address:
City:
Telephone #: Fax #:

DESIGNER CERTIFICATION
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.
Name: HVAC Designs Ltd.
Signature: 
HRAI # 001820
Date: July-20

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 86805	Model: KIMBERLY 5	Builder: GREENPARK HOMES	Date: 29/07/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1284</td> <td>9</td> <td>11556</td> </tr> <tr> <td>First</td> <td>1284</td> <td>11</td> <td>14124</td> </tr> <tr> <td>Second</td> <td>1637</td> <td>9</td> <td>14733</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>40,413.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1144.4 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1284	9	11556	First	1284	11	14124	Second	1637	9	14733	Third	0	9	0	Fourth	0	9	0	Total:			40,413.0 ft³	Total:			1144.4 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.361</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.113</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-21</td> <td style="text-align: center;">43</td> <td style="text-align: center;">78</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.361	SUMMER NATURAL AIR CHANGE RATE	0.113	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-21	43	78	Summer DTDc	24	31	7	13
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	1284	9	11556																																																									
First	1284	11	14124																																																									
Second	1637	9	14733																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.361 x 317.88 x 43 °C x 1.2 = 5957 W = 20327 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.113 x 317.88 x 7 °C x 1.2 = 306 W = 1043 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 78 °F x 1.08 x 0.25 = 1670 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	20,327	9,161	1.109																																																								
2	0.3		12,634	0.483																																																								
3	0.2		13,627	0.298																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** KIMBERLY 5**BUILDER:** GREENPARK HOMES**SFQT:** 2921**LO#** 86805**SITE:** LAMPONE INVESTMENTS**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	40413.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	176.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

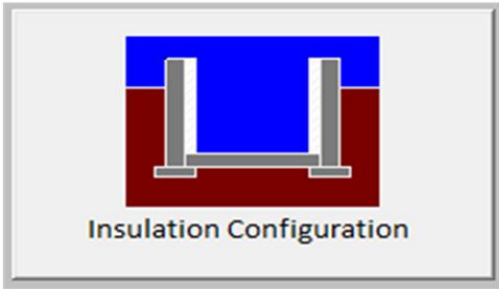
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Markham	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.5	 Insulation Configuration
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.4	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1760

TYPE: KIMBERLY 5

LO# 86805

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Markham			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.92			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1144.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1525.5 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.361			
Cooling Air Leakage Rate (ACH/H):	0.113			

TYPE: KIMBERLY 5

LO# 86805