

20.130034.000.00.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 4

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										TYPE: KIMBERLY 4		GFA: 2915		LO# 86804		SUMMER NATURAL AIR CHANGE RATE 0.113				HEAT GAIN ΔT °F. 13		SB-12 PACKAGE A				
ROOM USE			MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2						S-ENS					
EXP. WALL			16		33		5		32		27		34		14						7					
CLG. HT.			9		9		9		9		9		9		9						9					
FACTORS																										
GRS.WALL AREA			144		297		45		288		243		306		126						63					
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		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	0	0	0	0	0	0	
EAST			21.8	41.6	0	0	0	0	0	0	0	40	871	1662	34	741	1413	15	327	623		0	0	0	0	
SOUTH			21.8	24.9	0	0	0	14	305	349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WEST			21.8	41.6	21	457	873	9	196	374	0	0	0	18	392	748	0	0	0	0	0	0	0	0	0	
SKYLT.			38.1	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DOORS			25.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL			4.6	0.8	123	562	92	274	1252	206	35	160	26	270	1233	203	203	927	153	272	1243	204	111	507	83	
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	0	0	0	0	0	0	
EXPOSED CLG			1.3	0.6	336	441	197	242	318	142	39	51	23	240	315	141	179	235	105	208	273	122	84	110	49	
NO ATTIC EXPOSED CLG			2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	23	65	29	20	56	25	0	0	0	
EXPOSED FLOOR			2.6	0.4	0	0	0	0	0	0	39	102	17	0	0	0	202	527	87	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS																										
SLAB ON GRADE HEAT LOSS																										
SUBTOTAL HT LOSS					1461				2071		531		1941		2626				2313		944				732	
SUB TOTAL HT GAIN							1162		1071		481		1092		2036		1765				756				156	
LEVEL FACTOR / MULTIPLIER			0.20		0.30		0.20		0.30		0.20		0.30		0.20		0.30		0.20		0.30		0.20		0.30	
AIR CHANGE HEAT LOSS					445		631		162		592		801		705		288				223					
AIR CHANGE HEAT GAIN					86		80		36		81		151		131		56				12					
DUCT LOSS					0		0		69		0		343		0		0				96					
DUCT GAIN							0		0		52		0		313		0				17					
HEAT GAIN PEOPLE			240		2		480		0		0		1		240		1		240		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS							700		0		0		700						700		0		0		0	
TOTAL HT LOSS BTU/H					1906		2702		762		2533		3769		3018		1232				1051					
TOTAL HT GAIN x 1.3 BTU/H					3158		1495		740		2747		4472		3687		1056				240					

ROOM USE	EXP. WALL	CLG. HT.	FACTORS		FAM	KT/BF	LV/DN	LAUN	W/R	FOY	MUD			WOD	BAS
			LOSS	GAIN								LOSS	GAIN		
GRS.WALL AREA			385		440		616	81	144	228	156			423	1197
GLAZING			LOSS	GAIN	LOSS	GAIN	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
EAST	21.8	41.6	0	0	0	0	34	741	1413	0	0	0	0	0	0
SOUTH	21.8	24.9	0	0	0	0	32	697	797	7	152	174	0	6	131
WEST	21.8	41.6	32	697	1330	63	1372	2618	0	0	0	0	0	12	261
SKYLT.	38.1	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	25.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.6	0.8	353	1613	265	377	1722	283	550	2513	413	74	338	56	144
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	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	162	213	95	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	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	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			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
SUBTOTAL HT LOSS			2310		3095		3950	703	658	1893		1138		0	5993
SUB TOTAL HT GAIN				1595		2901		2623		311		187		1256	8066
LEVEL FACTOR / MULTIPLIER	0.30	0.47			0.30	0.47	0.30	0.47	0.30	0.47	0.30	0.47	0.30	0.47	0.50
AIR CHANGE HEAT LOSS			1079		1446		1845	214	307	884		532		0	10155
AIR CHANGE HEAT GAIN				119		216		195		24		14		0	84
DUCT LOSS			0		0		0	0	0	0		0		0	0
DUCT GAIN				0		0		0		0		0		0	0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				700		700		700		700		0		0	700
TOTAL HT LOSS BTU/H			3389		4540		5796	918	965	2777		1670		1256	18222
TOTAL HT GAIN x 1.3 BTU/H				3138		4962		4574		1364		262		861	1629

TOTAL HEAT GAIN BTU/H: 35246

TONS: 2.94

LOSS DUE TO VENTILATION LOAD BTU/H: 1670

STRUCTURAL HEAT LOSS: 56506

TOTAL COMBINED HEAT LOSS BTU/H: 58176



SITE NAME: LAMPONE INVESTMENTS
BUILDER: GREENPARK HOMES

TYPE: KIMBERLY 4

DATE: Jul-20

GFA: 2915 LO# 86804

HEATING CFM 1122 COOLING CFM 1122
TOTAL HEAT LOSS 56,506 TOTAL HEAT GAIN 34,971
AIR FLOW RATE CFM 19.86 AIR FLOW RATE CFM 32.08

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

#GOODMAN
GMEC960803BNA 80
FAN SPEED
LOW

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	8	4
R/A	0	0	5	2	1

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

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.	0.95	2.70	0.76	2.53	1.88	1.51	1.23	1.88	1.51	0.95	0.53	0.53	3.39	2.27	2.27	2.90	0.92	0.97	2.78	1.67	4.87	4.87	4.87	4.87
CFM PER RUN HEAT	19	54	15	50	37	30	24	37	30	19	10	10	67	45	45	58	18	19	55	33	97	97	97	97
RM GAIN MBH.	1.58	1.50	0.74	2.75	2.24	1.84	1.06	2.24	1.84	1.58	0.12	0.12	3.14	2.48	2.48	2.29	1.36	0.15	0.43	0.26	0.62	0.62	0.62	0.62
CFM PER RUN COOLING	51	48	24	88	72	59	34	72	59	51	4	4	101	80	80	73	44	5	14	8	20	20	20	20
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	29	61	37	37	46	50	56	44	57	65	35	39	22	22	16	44	40	24	45	20	24	19	22	38
EQUIVALENT LENGTH	140	180	190	150	160	140	160	130	190	200	140	120	160	120	110	140	200	90	150	150	140	130	120	160
TOTAL EFFECTIVE LENGTH	169	241	227	187	206	190	216	174	247	265	175	159	182	142	126	184	240	114	195	170	164	149	142	198
ADJUSTED PRESSURE	0.1	0.07	0.08	0.09	0.08	0.09	0.08	0.1	0.07	0.06	0.1	0.11	0.09	0.12	0.14	0.09	0.07	0.15	0.09	0.1	0.1	0.11	0.11	0.08
ROUND DUCT SIZE	5	5	4	6	5	5	4	5	5	5	4	4	6	5	5	5	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	140	396	172	255	272	220	275	272	220	140	115	115	342	330	330	426	132	218	404	379	495	495	495	495
COOLING VELOCITY (ft/min)	374	352	275	449	529	433	390	529	433	374	46	46	515	587	587	536	323	57	103	92	102	102	102	102
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	B	D	C	D	A	A	D	A	B	D	D	D	C	C	A	B	D	A	D	D	C	B	A

RUN #	25
ROOM NAME	LV/DN
RM LOSS MBH.	2.90
CFM PER RUN HEAT	58
RM GAIN MBH.	2.29
CFM PER RUN COOLING	73
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	31
EQUIVALENT LENGTH	110
TOTAL EFFECTIVE LENGTH	141
ADJUSTED PRESSURE	0.12
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	426
COOLING VELOCITY (ft/min)	536
OUTLET GRILL SIZE	3X10
TRUNK	B

SUPPLY AIR TRUNK SIZE								RETURN AIR TRUNK SIZE							
TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY			
CFM	PRESS.	DUCT	DUCT	(ft/min)				CFM	PRESS.	DUCT	DUCT	(ft/min)			
TRUNK A	294	0.07	9.2	10	x	8	529	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	540	0.06	12	16	x	8	608	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	256	0.09	8.2	8	x	8	576	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	325	0.08	9.2	10	x	8	585	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	581	0.08	11.4	16	x	8	654	TRUNK K	0	0.00	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

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	187
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
ACTUAL DUCT LGH.	52	60	38	47	95	25	15	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	245	245	205	205	220	235	145	0	0	0	0	0	0	0	265
TOTAL EFFECTIVE LH	297	305	243	252	315	260	160	1	1	1	1	1	1	1	280
ADJUSTED PRESSURE	0.05	0.05	0.06	0.06	0.05	0.06	0.09	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.05
ROUND DUCT SIZE	6	6	7.8	6	6	10.3	5.6	0	0	0	0	0	0	0	8.4
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	24	14	14	30	14	0	0	0	0	0	0	0	24

TYPE: KIMBERLY 4
SITE NAME: LAMPONE INVESTMENTS

LO # 86804

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 79.5 cfm		

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
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 @ 32 deg F (0 deg C)	☒ HVI Approved	

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:	<i>Michael O'Rourke</i>
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#: 86804	Model: KIMBERLY 4	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>1286</td> <td>9</td> <td>11574</td> </tr> <tr> <td>First</td> <td>1286</td> <td>11</td> <td>14146</td> </tr> <tr> <td>Second</td> <td>1629</td> <td>9</td> <td>14661</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>40,381.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1143.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1286	9	11574	First	1286	11	14146	Second	1629	9	14661	Third	0	9	0	Fourth	0	9	0	Total:			40,381.0 ft³	Total:			1143.5 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;"> <thead> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> </thead> <tbody> <tr> <td>Winter DTD_h</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 DTD_c</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> </tbody> </table>		WINTER NATURAL AIR CHANGE RATE	0.361	SUMMER NATURAL AIR CHANGE RATE	0.113	Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-21	43	78	Summer DTD _c	24	31	7	13
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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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 317.63 x 43 °C x 1.2 = 5953 W = 20311 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.113 x 317.63 x 7 °C x 1.2 = 305 W = 1042 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)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																																								
1	0.5	20,311	9,322	1.089																																																								
2	0.3		13,044	0.467																																																								
3	0.2		13,322	0.305																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** KIMBERLY 4**BUILDER:** GREENPARK HOMES**SFQT:** 2915**LO#** 86804**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 (ft ³):	40381.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	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	-

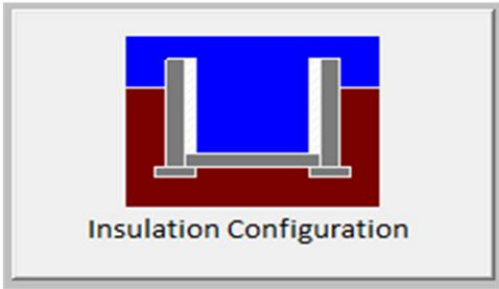
INDIVIDUAL BCIN: 19669

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):	1.7	
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):		1756

TYPE: KIMBERLY 4

LO# 86804

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):	1143.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1524.3 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 4

LO# 86804