

SITE NAME: LAMBERT'S LANE PH.2

BUILDER: GREENPARK HOMES

TYPE: BARTON 1

GFA: 2402

DATE: Feb-19

LO# 81382

WINTER NATURAL AIR CHANGE RATE 0.217

SUMMER NATURAL AIR CHANGE RATE 0.070

HEAT LOSS AT °F. 74

HEAT GAIN AT °F. 11

CSA-F280-12

ENERGYSTAR

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BATH	FAM
			30	26	8	33	13	12	39
			9	9	9	9	9	9	11
FACTORS									
GRS.WALL AREA	LOSS	GAIN	286	213	88	281	111	102	410
GLAZING	LOSS	GAIN							
NORTH	18.6	15.1	0	0	0	0	0	0	0
EAST	18.6	40.7	0	0	0	24	445	977	0
SOUTH	18.6	24.1	0	0	0	0	0	16	297
WEST	18.6	40.7	32	694	1303	8	148	326	0
SKYL.T.	31.2	95.9	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	223	784	116	189	663	98	80
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	282	353	157	160	188	84	82
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1731	1296	342	1871	826	619	3508
SUB TOTAL HT GAIN			1876	750	81	1210	622	287	2784
LEVEL FACTOR / MULTIPLIER	0.20	0.18		0.20	0.18	0.20	0.18	0.20	0.18
AIR CHANGE HEAT LOSS			316	237	62	287	151	113	640
AIR CHANGE HEAT GAIN			78	37	4	60	26	14	137
DUCT LOSS			0	0	0	0	0	0	416
DUCT GAIN			0	0	0	0	0	0	347
HEAT GAIN PEOPLE	240		2	480	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			548	0	0	0	0	0	0
TOTAL HT LOSS BTU/H			2047	1633	404	1898	977	732	4583
TOTAL HT GAIN x 1.3 BTU/H			3486	1023	111	2675	1736	392	4981

ROOM USE	EXP. WALL	CLG. HT.	LV/DN	KT/BR	HALL	LAUN	PWD	FOY	BAS
			35	38	30	18	12	27	160
			10	10	11	11	10	10	9
FACTORS									
GRS.WALL AREA	LOSS	GAIN	350	380	330	198	120	270	1120
GLAZING	LOSS	GAIN							
NORTH	18.6	15.1	0	0	0	16	297	242	0
EAST	18.6	40.7	0	0	0	0	0	0	0
SOUTH	18.6	24.1	30	567	722	0	0	0	0
WEST	18.6	40.7	0	0	0	32	955	2117	0
SKYL.T.	31.2	95.9	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	16	394	88	20
NET EXPOSED WALL	3.5	0.5	320	1125	167	312	1057	163	294
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1682	2486	1824	962	527	1796	4906
SUB TOTAL HT GAIN			889	2338	468	545	227	266	6802
LEVEL FACTOR / MULTIPLIER	0.30	0.30		0.30	0.30	0.30	0.30	0.30	0.30
AIR CHANGE HEAT LOSS			498	728	640	285	166	532	4815
AIR CHANGE HEAT GAIN			44	115	23	27	11	13	34
DUCT LOSS			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
HEAT GAIN APPLIANCES/LIGHTS			548	648	0	0	0	0	0
TOTAL HT LOSS BTU/H			2180	3184	2364	1117	683	2327	11317
TOTAL HT GAIN x 1.3 BTU/H			1924	3902	639	1466	310	363	1645

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

RECEIVED
JUN 10 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

TOTAL HEAT GAIN BTU/H:

24812

TONS: 2.07

LOSS DUE TO VENTILATION LOAD BTU/H: 1274

STRUCTURAL HEAT LOSS: 35285

TOTAL COMBINED HEAT LOSS BTU/H: 36860

Michael O'Rourke

SITE NAME: LAMBERT'S LANE PH.2
BUILDER: GREENPARK HOMES

TYPE: BARTON 1

DATE: Feb-19

GFA: 2402 LO# 81382

HEATING CFM 890 COOLING CFM 890
TOTAL HEAT LOSS 35,285 TOTAL HEAT GAIN 24,623
AIR FLOW RATE CFM 25.22 AIR FLOW RATE CFM 36.15

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

#GOODMAN
GMEC960402BNA 40

AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = 38,400

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	7	4
R/A	0	0	3	1	1

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

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

plenum pressure s/a 0.18
max s/a d/f 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

FAN SPEED LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 890

DESIGN CFM = 890
CFM @ 8" E.S.P.

TEMPERATURE RISE 40 °F

RUN #	1	2	3	4	5	7	8	9	10	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BATH	FAM	FAM	MBR	LV/DN	KT/BR	KT/BR	HALL	LAUN	PWD	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.02	1.53	0.40	1.86	0.98	0.73	2.28	2.28	1.02	2.18	1.59	1.59	2.38	1.12	0.68	2.33	2.83	2.83	2.83	2.83
CFM PER RUN HEAT	28	39	10	47	25	18	58	58	26	55	40	40	60	28	17	59	71	71	71	71
RM GAIN MBH	1.74	1.02	0.11	2.87	1.74	0.39	2.48	2.48	1.74	1.92	1.95	1.95	0.84	1.46	0.31	0.36	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	63	37	4	97	63	14	90	90	63	70	71	71	23	53	11	13	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	42	54	38	52	22	40	41	34	55	18	35	43	37	49	25	28	28	39	7	31
EQUIVALENT LENGTH	150	140	160	160	140	180	190	180	210	140	100	130	120	150	120	100	110	160	120	110
TOTAL EFFECTIVE LENGTH	192	194	199	212	162	220	231	214	265	158	135	173	157	199	145	128	138	199	127	141
ADJUSTED PRESSURE	0.09	0.09	0.09	0.08	0.11	0.08	0.07	0.08	0.06	0.11	0.13	0.1	0.11	0.09	0.12	0.13	0.12	0.09	0.14	0.12
ROUND DUCT SIZE	6	4	4	6	5	4	6	6	6	5	5	5	5	5	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	133	447	115	240	184	207	296	296	133	404	294	294	441	206	195	433	521	521	521	521
COOLING VELOCITY (ft/min)	321	424	46	495	463	161	459	459	321	514	521	521	169	389	126	95	110	110	110	110
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	A	C	B	C	C	C	A	C	B	A	A	A	C	C	B	A	B	C

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
1	MBR	1.02	28	1.74	63	0.17	42	150	192	0.09	6	133	321	4X10	B
2	ENS	1.53	39	1.02	37	0.17	54	140	194	0.09	4	447	424	3X10	A
3	WIC	0.40	10	0.11	4	0.17	38	160	199	0.09	4	115	46	3X10	A
4	BED-2	1.86	47	2.87	97	0.16	52	160	212	0.08	6	240	495	4X10	C
5	BED-3	0.98	25	1.74	63	0.17	22	140	162	0.11	5	184	463	3X10	B
7	BATH	0.73	18	0.39	14	0.17	40	180	220	0.08	4	207	161	3X10	C
8	FAM	2.28	58	2.48	90	0.16	41	190	231	0.07	6	296	459	4X10	C
9	FAM	2.28	58	2.48	90	0.16	34	180	214	0.08	6	296	459	4X10	C
10	MBR	1.02	26	1.74	63	0.17	55	210	265	0.06	6	133	321	4X10	A
13	LV/DN	2.18	55	1.92	70	0.17	18	140	158	0.11	5	404	514	3X10	C
14	KT/BR	1.59	40	1.95	71	0.17	35	100	135	0.13	5	294	521	3X10	B
15	KT/BR	1.59	40	1.95	71	0.17	43	130	173	0.1	5	294	521	3X10	A
16	HALL	2.38	60	0.84	23	0.17	37	120	157	0.11	5	441	169	3X10	A
17	LAUN	1.12	28	1.46	53	0.17	49	150	199	0.09	5	206	389	3X10	A
18	PWD	0.68	17	0.31	11	0.17	25	120	145	0.12	4	195	126	3X10	C
19	FOY	2.33	59	0.36	13	0.17	28	100	128	0.13	5	433	95	3X10	C
21	BAS	2.83	71	0.41	15	0.17	28	110	138	0.12	5	521	110	3X10	B
22	BAS	2.83	71	0.41	15	0.17	39	160	199	0.09	5	521	110	3X10	A
23	BAS	2.83	71	0.41	15	0.17	7	120	127	0.14	5	521	110	3X10	B
24	BAS	2.83	71	0.41	15	0.17	31	110	141	0.12	5	521	110	3X10	C

THIS STRUCTURE MUST BE
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OF THE 2015 IBC

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	274	0.06	9.3	10	x	8	493		TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	507	0.06	11.7	16	x	8	570		TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	383	0.07	10.1	12	x	8	575		TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0		TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	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	0.06	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	0.06	0	0	x	8	0
															TRUNK U	0	0.06	0	0	x	8	0		
															TRUNK V	0	0.06	0	0	x	8	0		
															TRUNK W	0	0.06	0	0	x	8	0		
															TRUNK X	890	0.06	14.4	24	x	8	668		
															TRUNK Y	490	0.06	11.5	16	x	8	551		
															TRUNK Z	0	0.06	0	0	x	8	0		
															DROP	890	0.06	14.4	24	x	10	534		

RETURN AIR #	1	2	3	4											BR
AIR VOLUME	150	130	130	340	0	0	0	0	0	0	0	0	0	0	140
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.	47	37	47	29	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	190	140	135	185	0	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	237	177	182	214	1	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.08	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7.4	6.5	6.5	9.7	0	0	0	0	0	0	0	0	0	0	6.3
INLET GRILL SIZE	8	8	8	8	0	0	0	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	14	30	0	0	0	0	0	0	0	0	0	0	14

TYPE: BARTON 1
 SITE NAME: LAMBERT'S LANE PH.2

LO # 81362

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	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	2 @ 10.6 cfm	21.2 cfm
Kitchen & Bathrooms	4 @ 10.6 cfm	42.4 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	159.0 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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	159	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	95.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
63.6 cfm	3.0 sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
63.6 CFM	X 74 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI Sones
ENS	FV-05-11VK1	50	☒ 0.3
BATH	FV-05-11VK1	50	☒ 0.3
PWD	FV-05-11VK1	50	☒ 0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	February-19

 I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.6 OF THE BUILDING CODE
 INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

THIS STRUCTURE MUST BE CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 81362	Model: BARTON 1	Builder: GREENPARK HOMES	Date: 2/4/2019																																																									
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>1047</td> <td>9</td> <td>9423</td> </tr> <tr> <td>First</td> <td>1047</td> <td>10</td> <td>10470</td> </tr> <tr> <td>Second</td> <td>1355</td> <td>9</td> <td>11517.5</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="2" style="text-align: right;">Total:</td> <td></td> <td>31,410.5 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>889.4 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1047	9	9423	First	1047	10	10470	Second	1355	9	11517.5	Third	0	9	0	Fourth	0	9	0	Total:			31,410.5 ft³	Total:			889.4 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.217</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.070</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>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTD_h</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-19</td> <td style="text-align: center;">41</td> <td style="text-align: center;">74</td> </tr> <tr> <td>Summer DTD_c</td> <td style="text-align: center;">24</td> <td style="text-align: center;">30</td> <td style="text-align: center;">6</td> <td style="text-align: center;">11</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.217	SUMMER NATURAL AIR CHANGE RATE	0.070	Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-19	41	74	Summer DTD _c	24	30	6	11
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	1047	9	9423																																																									
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Second	1355	9	11517.5																																																									
Third	0	9	0																																																									
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Winter DTD _h	22	-19	41	74																																																								
Summer DTD _c	24	30	6	11																																																								
5.2.3.1 Heat Loss due to Air Leakage $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.217 x 247.07 x 41 °C x 1.2 = 2647 W = 9030 Btu/h			6.2.6 Sensible Gain due to Air Leakage $HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.070 x 247.07 x 6 °C x 1.2 = 127 W = 435 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 74 °F x 1.08 x 0.25 = 1274 Btu/h			6.2.7 Sensible heat Gain due to Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 11 °F x 1.08 x 0.25 = 189 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{airvc} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL_{airve} Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HL_{airbv} / HL_{level})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="vertical-align: middle;">9,030</td> <td>6,802</td> <td>0.664</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>9,145</td> <td>0.296</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>9,893</td> <td>0.183</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> *HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0					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 _{level})	1	0.5	9,030	6,802	0.664	2	0.3	9,145	0.296	3	0.2	9,893	0.183	4	0	0	0.000	5	0	0	0.000																														
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THIS STRUCTURE MUST BE
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THE ONTARIO BUILDING CODE

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** BARTON 1**BUILDER:** GREENPARK HOMES**SFQT:** 2402**LO#** 81362**SITE:** LAMBERT'S LANE PH.2**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
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:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	31410.5	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 28.0 ft	EXPOSED PERIMETER:	160.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		ENERGYSTAR	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		R22+R5	21.10
Basement Walls Minimum RSI (R)-Value		20	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		ZONE 2	-
Skylights Maximum U-Value		ZONE 2	-
Space Heating Equipment Minimum AFUE		0.96	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.9	-

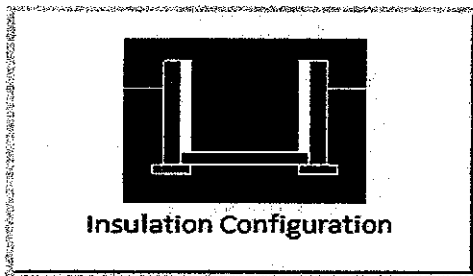
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	8.5	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	2.13	
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):		1438

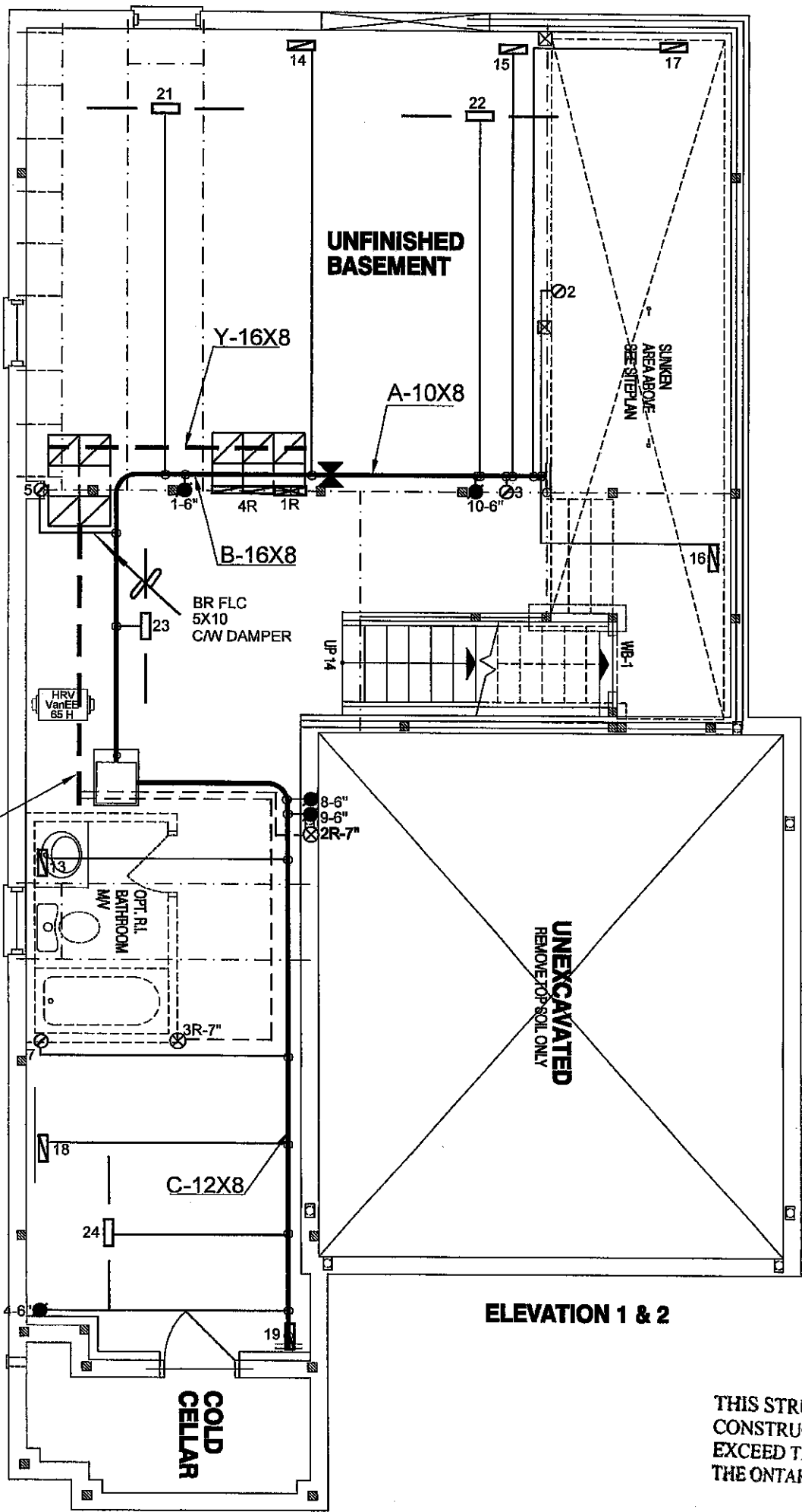
TYPE: BARTON 1
LO# 81362THIS STRUCTURE MUST BE
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MINIMUM REQUIREMENTS
AS PER THE CANADIAN
BUILDING CODE (CBC) 2006

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Brampton			
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):	6.25			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	889.4			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	830.3 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.217			
Cooling Air Leakage Rate (ACH/H):	0.070			

TYPE: BARTON 1
LO# 81362THIS STRUCTURE MUST BE
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ELEVATION 1 & 2

THIS STRUCTURE MUST BE
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CERTIFIED MODEL
PRE-APPROVED
FOR PERMIT APPLICATION AS PER THE
ONTARIO BUILDING CODE
TOWN OF CALEDON BUILDING DIVISION
REVIEWED BY *[Signature]* (SA)
DATE June 21, 2019
FILE # CMDN-BRDN 1
(ELEVATION 1 & 2)

RECEIVED
JUN 10 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

CSA-F280-12

ENERGY STAR

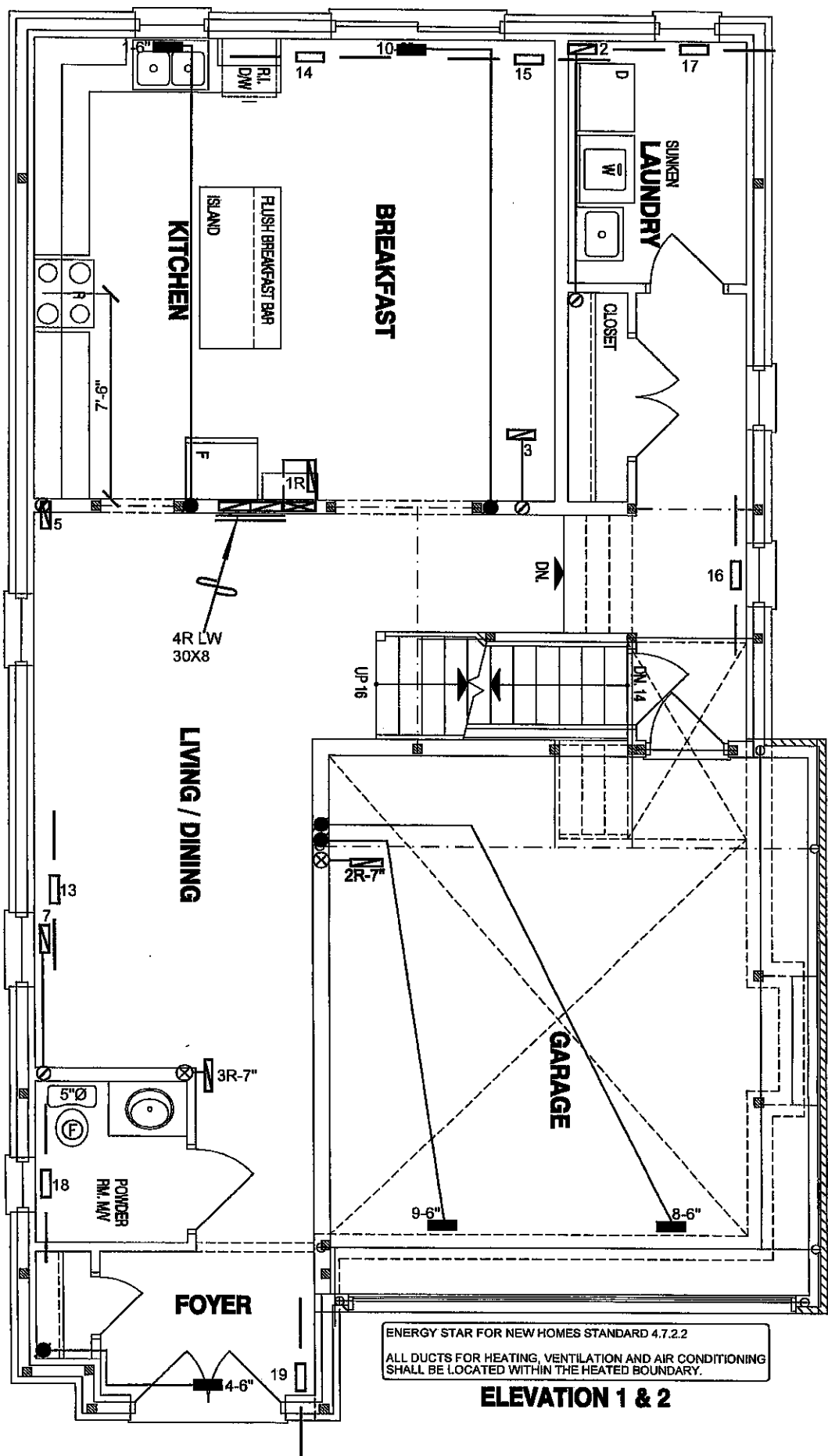
I MICHAEL O'BROCKE HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.3.2.3 OF THE
BUILDING CODE.
Michael O'Brocke
Michael O'Brocke, HCN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	
								REVISIONS	

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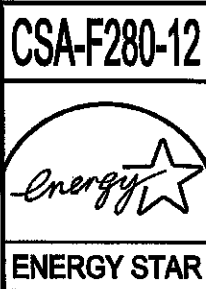
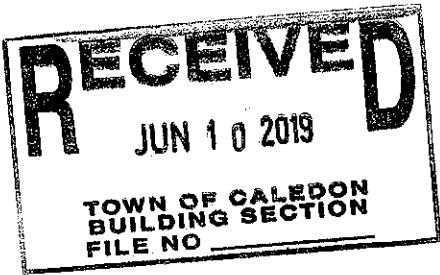
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	HEAT LOSS 36560 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title		
Project Name LAMBERTS LANE HOME CORP PH 2 CALEDON, ONTARIO			MAKE GOODMAN	3RD FLOOR				BASEMENT HEATING LAYOUT		
			MODEL GMEC960402BNA	2ND FLOOR		9	3			2
			INPUT 40 MBTU/H	1ST FLOOR		7	1			2
BARTON 1 2402 sqft		OUTPUT 38.4 MBTU/H	BASEMENT		4	1	0	Date FEB/2019		
		COOLING 2.0 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A						Scale 3/16" = 1'-0"	
		FAN SPEED 890 cfm @ 0.6" w.c.							BCIN# 19669	
								LO#	81362	

APPLICANT COPY



ELEVATION 1 & 2

DUCTS LOCATED IN UNCONDITIONED SPACES SHALL BE SEALED TO A CLASS A SEAL LEVEL IN ACCORDANCE WITH THE SMACNA MANUAL

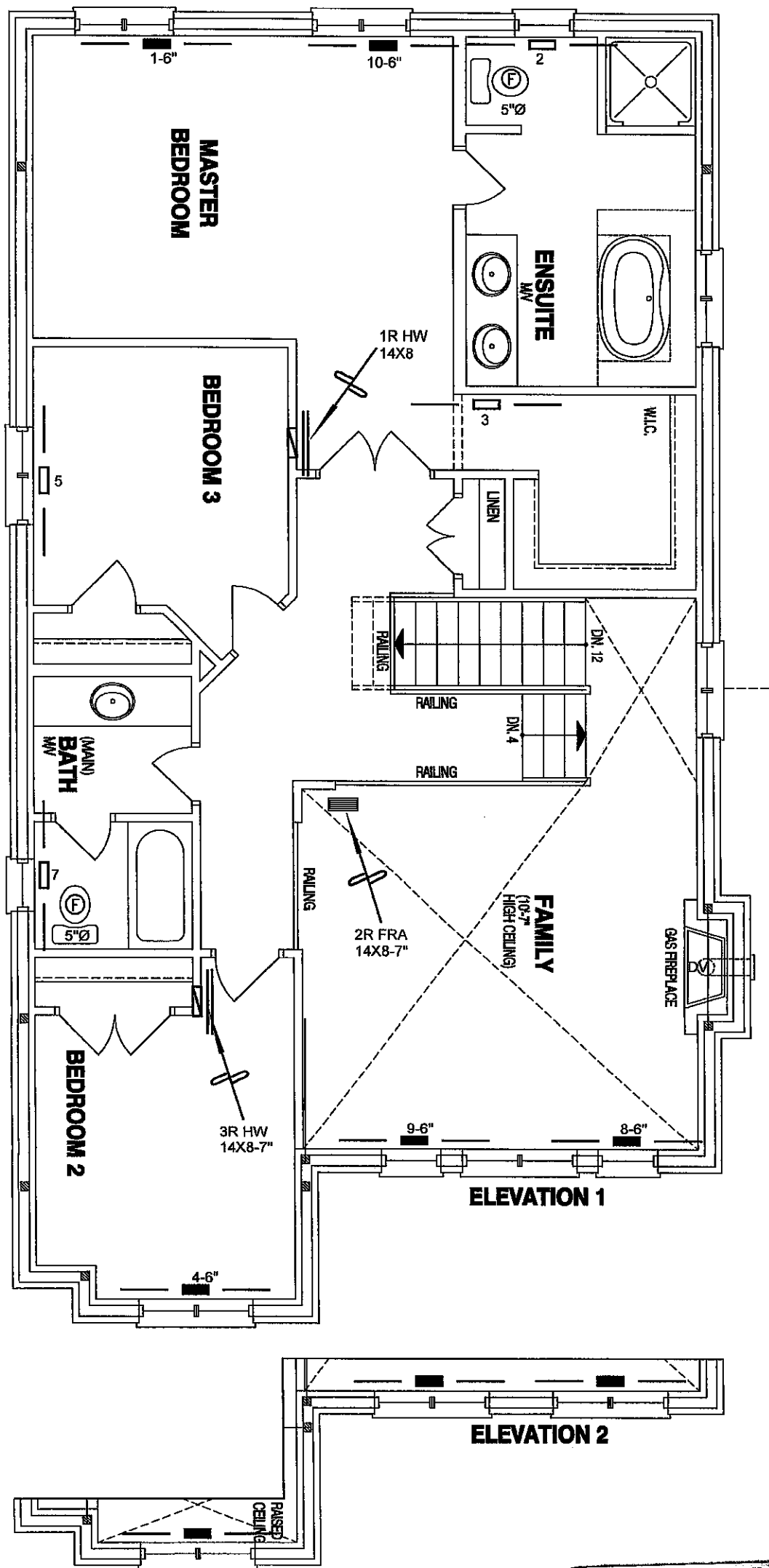


I MICHAEL O'Rourke HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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Client GREENPARK HOMES		HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	THIS STRUCTURE MUST BE CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE	Sheet Title FIRST FLOOR HEATING LAYOUT
Project Name LAMBERTS LANE HOME CORP PH 2 CALEDON, ONTARIO	BARTON 1			Date FEB/2019 Scale 3/16" = 1'-0" BCIN# 19669 LO# 81362



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

RECEIVED
JUN 10 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

CSA-F280-12

Energy

ENERGY STAR

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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Project Name LAMBERTS LANE HOME CORP PH 2 CALEDON, ONTARIO	BARTON 1 2402 sqft			Date FEB/2019 Scale 3/16" = 1'-0" BCIN# 19669 LO# 81362