

RECEIVED
SEP 26 2019

SITE NAME: LAMBERT'S LANE PH.2

LOT 27

TOWN OF CALEDON

Jul-19

WINTER NATURAL AIR CHANGE RATE 0.220

HEAT LOSS AT °F. 74

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: BARTON 3

BUILT 2015 SECTION 19

SUMMER NATURAL AIR CHANGE RATE 0.072

HEAT GAIN AT °F. 11

ENERGYSTAR

ROOM USE			MBR		ENS		WIC		BED-2		BED-3		BED-4		BATH		ENS-2		HEAT GAIN AT °F. 11		ENERGYSTAR				
EXP. WALL			37		22		5		13		28		24		8		6								
CLG. HT.			9		9		9		9		9		9		9		9								
FACTORS																									
GRS.WALL AREA			333		198		45		117		252		306		72										
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		54		LOSS GAIN				
NORTH			18.6	14.7	0	0	0	167	133	0	0	0	18	334	265	0	0	0	0	0	0	0	0		
EAST			18.6	39.5	0	0	0	0	0	0	0	0	0	0	0	40	742	1578	28	519	1105	0	0		
SOUTH			18.6	23.4	6	111	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
WEST			18.6	39.5	32	594	1262	9	167	355	0	0	0	0	0	0	0	0	0	0	0	0	0		
SKYLT.			31.2	99.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
DOORS			24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL			3.5	0.5	295	1037	154	180	633	94	45	158	23	99	348	52	212	746	111	278	978	145	64	225	33
NET EXPOSED BSMT WALL ABOVE GR			3.5	0.5	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	281	352	157	134	168	75	56	70	31	216	274	120	170	213	95	164	206	91	110	138	61
NO ATTIC EXPOSED CLG			2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	20	54	24	45	121	54	0	0	0
EXPOSED FLOOR			2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	190	473	70	25	62	9	77	192	28
BASEMENT/CRAWL HEAT LOSS					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
SUBTOTAL HT LOSS					2094		1135		228		953		2227		1885		703		427		194		86		12
SUB TOTAL HT GAIN						1713		856		55		437		1877		1404		310							
LEVEL FACTOR / MULTIPLIER			0.20	0.20			0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		
AIR CHANGE HEAT LOSS					424		230		46		193		451		382		142								
AIR CHANGE HEAT GAIN						105		40		3		27		115		86		19							
DUCT LOSS					0		0		0		0		268		227		85								
DUCT GAIN					0		0		0		0		272		221		33								
HEAT GAIN PEOPLE			240		2		480	0	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS							483	0	0	0	0	463		483		483		0							
TOTAL HT LOSS BTU/H					2519		1365		275		1146		2346		2494		930		513		267				
TOTAL HT GAIN x 1.3 BTU/H						3616		906		75		1543		3883		3164		470							

ROOM USE			DIN		FAM		KIT		LIV		LAUN		PWD		FOY		MUD						WUB		BAS		
EXP. WALL			7		26		20		20		8		5		20		10						31		139		
CLG. HT.			10		10		10		10		9		10		10		11						9		9		
FACTORS																											
GRS.WALL AREA	LOSS GAIN		70		260		200		200		72		50		200		110						279		973		
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN						LOSS GAIN		LOSS GAIN		
NORTH	18.6	14.7	20	371	295	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	18.6	39.5	0	0	0	0	0	0	0	0	0	0	0	0	0	10	186	395	0	0	0	0	0	0	0	0	0
SOUTH	18.6	23.4	0	0	0	0	0	0	0	24	446	561	13	241	304	7	130	163	0	0	0	0	0	0	0	0	0
WEST	18.6	39.5	0	0	0	26	482	1026	25	464	986	0	0	0	0	0	0	0	0	0	0	0	0	5	93	117	
SKYLT.	31.2	99.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	111	237	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	10	247	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	50	176	26	234	623	122	165	580	86	176	619	92	59	207	31	43	151	22	165	545	51	90	316	47	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	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	0	0	0	0	0	0	0	EXPOSED	0	0	0	0	85	107	47	0	0	0	0	0	0	0	0	278	977
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	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	0
SLAB ON GRADE HEAT LOSS			0			0		0		0		0		0		0		0		0		0		0		0	0
SUBTOTAL HT LOSS			647			1305		1290		1064		555		281		1593		810					378		4240		0
SUB TOTAL HT GAIN				321		1148		1109		652		382		186		603		120				1872		5802		335	
LEVEL FACTOR / MULTIPLIER	0.30	0.45				0.30	0.45		0.30	0.45		0.20	0.20		0.30	0.45		0.30	0.45			442		0.50	0.67		
AIR CHANGE HEAT LOSS			246			588		581		479		112		127		717		364							5170		
AIR CHANGE HEAT GAIN				20		71		68		40		23		11		37		7									48
DUCT LOSS			0			0		0		0		0		0		0		0									
DUCT GAIN			0			0		0		0		0		0		0		0							0		
HEAT GAIN PEOPLE	240		0		0	0		0		0		0		0		0		0		0		0		0		0	0
HEAT GAIN APPLIANCES/LIGHTS					483		483		483		483		483		0		0		0		0		0		0		483
TOTAL HT LOSS BTU/H			793			1993		1872		1543		668		408		2311		1174				1872		10973		1125	
TOTAL HT GAIN x 1.3 BTU/H				1070		2211		2158		1528		1154		267		832		166				574		10973		1125	

TOTAL HEAT GAIN BTU/H: 25234

TONS: 2.10

LOSS DUE TO VENTILATION LOAD BTU/H: 1693

STRUCTURAL HEAT LOSS: 35693

TOTAL COMBINED HEAT LOSS BTU/H: 37285

Michael O'Rourke

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

LOT 27
TYPE: BARTON 3

DATE: Jul-19

GFA: 2635 LO# 83137

HEATING CFM 890 COOLING CFM 890
TOTAL HEAT LOSS 35,693 TOTAL HEAT GAIN 24,998
AIR FLOW RATE CFM 24.94 AIR FLOW RATE CFM 35.6

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
FAN SPEED LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 890

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

DESIGN CFM = 890
CFM @ .5" E.S.P.

TEMPERATURE RISE 40 °F

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

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	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-3	BED-4	MBR	ENS-2	DIN	FAM	KIT	LIV	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.26	1.36	0.27	1.15	1.47	1.25	0.93	1.47	1.25	1.26	0.26	0.79	1.89	1.87	1.54	0.67	0.41	2.31	1.17	3.21	3.21	3.21	3.21
CFM PER RUN HEAT	31	34	7	29	37	31	23	37	31	31	6	20	47	47	38	17	10	58	29	80	80	80	80
RM GAIN MBH	1.81	0.91	0.08	1.54	1.94	1.58	0.47	1.94	1.58	1.81	0.13	1.07	2.21	2.16	1.53	1.15	0.26	0.83	0.17	0.42	0.42	0.42	0.42
CFM PER RUN COOLING	64	32	3	55	69	56	17	69	56	64	5	38	79	77	54	41	9	30	6	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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.	55	36	38	25	58	69	56	55	64	48	51	5	47	34	28	66	46	46	8	57	25	7	42
EQUIVALENT LENGTH	170	170	120	170	130	150	200	120	180	170	150	130	110	120	130	220	130	120	140	140	110	130	140
TOTAL EFFECTIVE LENGTH	225	206	158	195	188	219	256	175	244	218	201	135	157	154	158	286	176	168	148	197	135	137	182
ADJUSTED PRESSURE	0.08	0.08	0.11	0.09	0.09	0.08	0.07	0.1	0.07	0.08	0.09	0.13	0.11	0.11	0.11	0.06	0.1	0.1	0.12	0.09	0.13	0.13	0.09
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	4	5	5	5	5	5	4	5	4	6	5	5	5
HEATING VELOCITY (ft/min)	228	390	80	213	272	228	264	272	228	228	69	229	345	345	279	125	115	426	333	408	587	587	587
COOLING VELOCITY (ft/min)	470	367	34	404	507	411	195	507	411	470	57	436	580	565	396	301	103	220	69	76	110	110	110
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10
TRUNK	A	B	B	B	D	C	C	D	C	A	D	B	A	B	D	C	C	C	D	A	B	D	C

RUN #	25
ROOM NAME	ENS-2
RM LOSS MBH	0.26
CFM PER RUN HEAT	6
RM GAIN MBH	0.13
CFM PER RUN COOLING	5
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	45
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	185
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	69
COOLING VELOCITY (ft/min)	57
OUTLET GRILL SIZE	3X10
TRUNK	D

SUPPLY AIR TRUNK SIZE															RETURN AIR TRUNK SIZE														
	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT		VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY							
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT		(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)							
TRUNK A	189	0.08	7.5	8	x	8	425		TRUNK G	0	0.00	0	0	x	8	0	0.06	0	0	x	8	0							
TRUNK B	406	0.08	10	12	x	8	609		TRUNK H	0	0.00	0	0	x	8	0	0.06	0	0	x	8	0							
TRUNK C	250	0.06	9	10	x	8	450		TRUNK I	0	0.00	0	0	x	8	0	0.06	0	0	x	8	0							
TRUNK D	483	0.06	11.5	16	x	8	543		TRUNK J	0	0.00	0	0	x	8	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	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	0.06	0	0	x	8	0							
															BR														
RETURN AIR #	1	2	3	4	5	6																							
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
AIR VOLUME	105	155	85	85	155	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150							
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	0.15	0.15	0.15	0.15	0.15	0.15							
ACTUAL DUCT LGH.	50	50	55	57	45	36	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14							
EQUIVALENT LENGTH	135	135	175	175	220	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135							
TOTAL EFFECTIVE LH	185	185	230	232	265	176	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	149							
ADJUSTED PRESSURE	0.08	0.08	0.06	0.06	0.06	0.08	14.80	14.80	14.80	14.80	14.80	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	6	7	6	6	7.5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.5							
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	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	X	X	X	X	X	X	X							
INLET GRILL SIZE	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14							

TYPE: BARTON 3
SITE NAME: LAMBERT'S LANE PH.2

LO # 83137
LOT 27

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	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A.	TOTAL	169.6 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	169.6 cfm	
Less Principal Ventil. Capacity	79.5 cfm	
Required Supplemental Capacity	90.1 cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANE 65H	Location: BSMT
79.5 cfm	3.0 sonas
☒	HVI Approved

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

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
BATH	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
PWD	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 65H		
155 cfm high	64 cfm low	
75 % 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-19

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19869 MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
 Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 83137

Model: BARTON 3

Builder: GREENPARK HOMES

Date: 23/07/2019

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1166	9	10494
First	1166	10	11660
Second	1469	9	13221
Third	0	9	0
Fourth	0	9	0
Total:			35,375.0 ft³
Total:			1001.7 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.220
SUMMER NATURAL AIR CHANGE RATE	0.072

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

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.220 x 278.25 x 41 °C x 1.2 = 3031 W
 = 10341 Btu/h

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

0.072 x 278.25 x 6 °C x 1.2 = 146 W
 = 498 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HL _{airb} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	10,341	7,674	0.674
2	0.3		6,891	0.450
3	0.2		10,208	0.203
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_{airv} = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: BARTON 3	LOT 27	BUILDER: GREENPARK HOMES
SFQT: 2635	LO# 83137	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):	35375.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 57.0 ft	WIDTH: 28.0 ft	EXPOSED PERIMETER:	139.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package 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	-

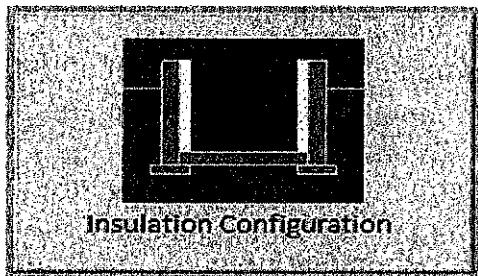
INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



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

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

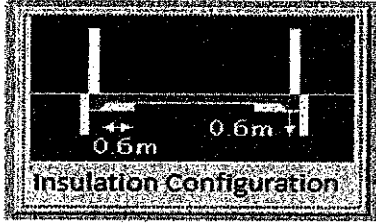
Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	17.4	 Insulation Configuration
Floor Width (m):	8.5	
Exposed Perimeter (m):	42.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.0	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1242

TYPE: BARTON 3
LO# 83137

LOT 27

Residential Slab 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		
Length (m):	0.9	
Width (m):	8.5	
Exposed Perimeter (m):	9.4	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		111

TYPE: BARTON 3
LO# 83137

LOT 27

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

Air Infiltration Residential Load Calculator

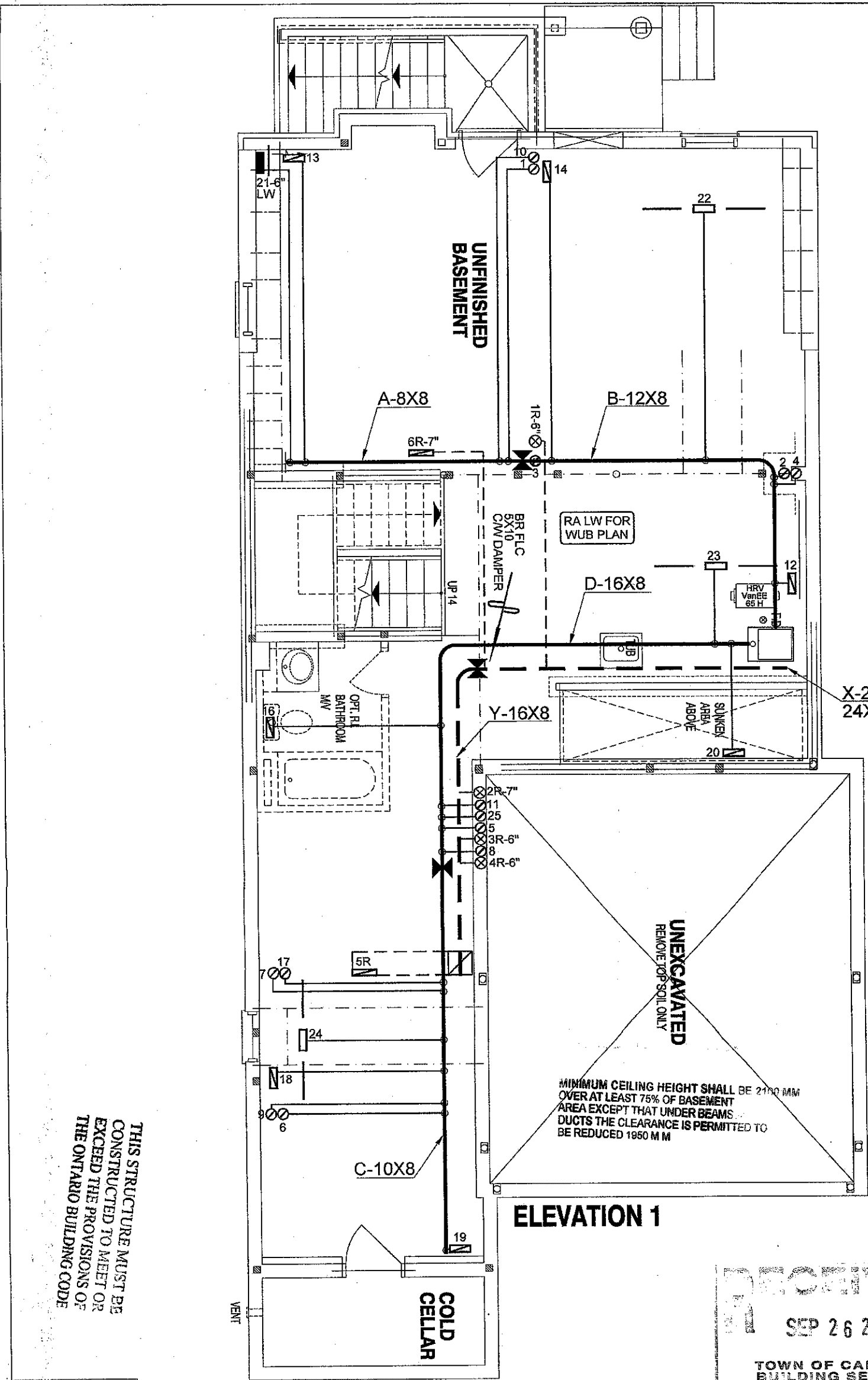
Supplemental tool for CAN/CSA-F280

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):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1001.7			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	935.1 cm ²		
	2.50	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):	0.220			
Cooling Air Leakage Rate (ACH/H):	0.072			

TYPE: BARTON 3

LOT 27

LO# 83137



APPROVED
For construction as per the
Ontario Building Code
Town of Caledon Building Department
Initial *[Signature]*
Date *Sept 26, 2019*
File # *3A1910707*

ELEVATION 1

RECEIVED
SEP 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO. *[Blank]*

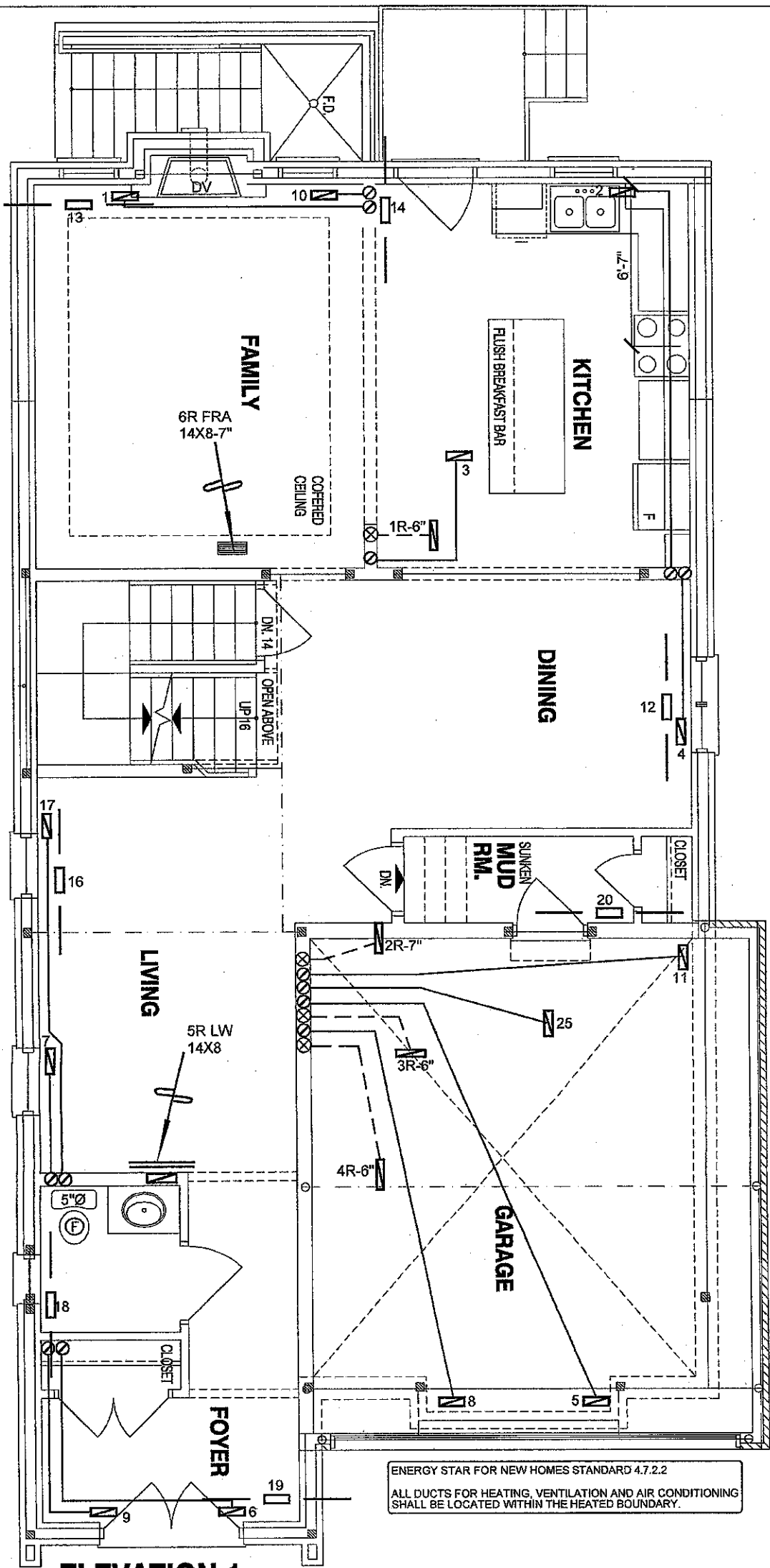
LOT 27
CSA-F280-12
ENERGY STAR

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 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	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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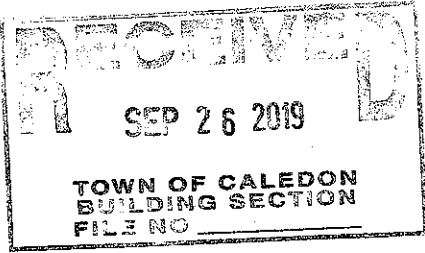
Client	HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 37285 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
GREENPARK HOMES		MAKE GOODMAN		3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name LAMBERTS LANE HOME CORP PH 2 CALEDON, ONTARIO		MODEL GMEC960402BNA		2ND FLOOR	13	4		3
		INPUT 40 MBTU/H		1ST FLOOR	7	2		2
		OUTPUT 38.4 MBTU/H		BASEMENT	4	1	0	
		COOLING 2.0 TONS		ALL S/A DIFFUSERS 4"x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Date JULY/2019	
LOT 27 BARTON 3		2635 sqft		FAN SPEED 890 cfm @ 0.6" w.c.			Scale 3/16" = 1'-0"	BCIN# 19669
						LO#	83137	



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

ENERGY STAR FOR NEW HOMES STANDARD 4.7.2.2
ALL DUCTS FOR HEATING, VENTILATION AND AIR CONDITIONING SHALL BE LOCATED WITHIN THE HEATED BOUNDARY.

ELEVATION 1



LOT 27

CSA-F280-12

ENERGY STAR

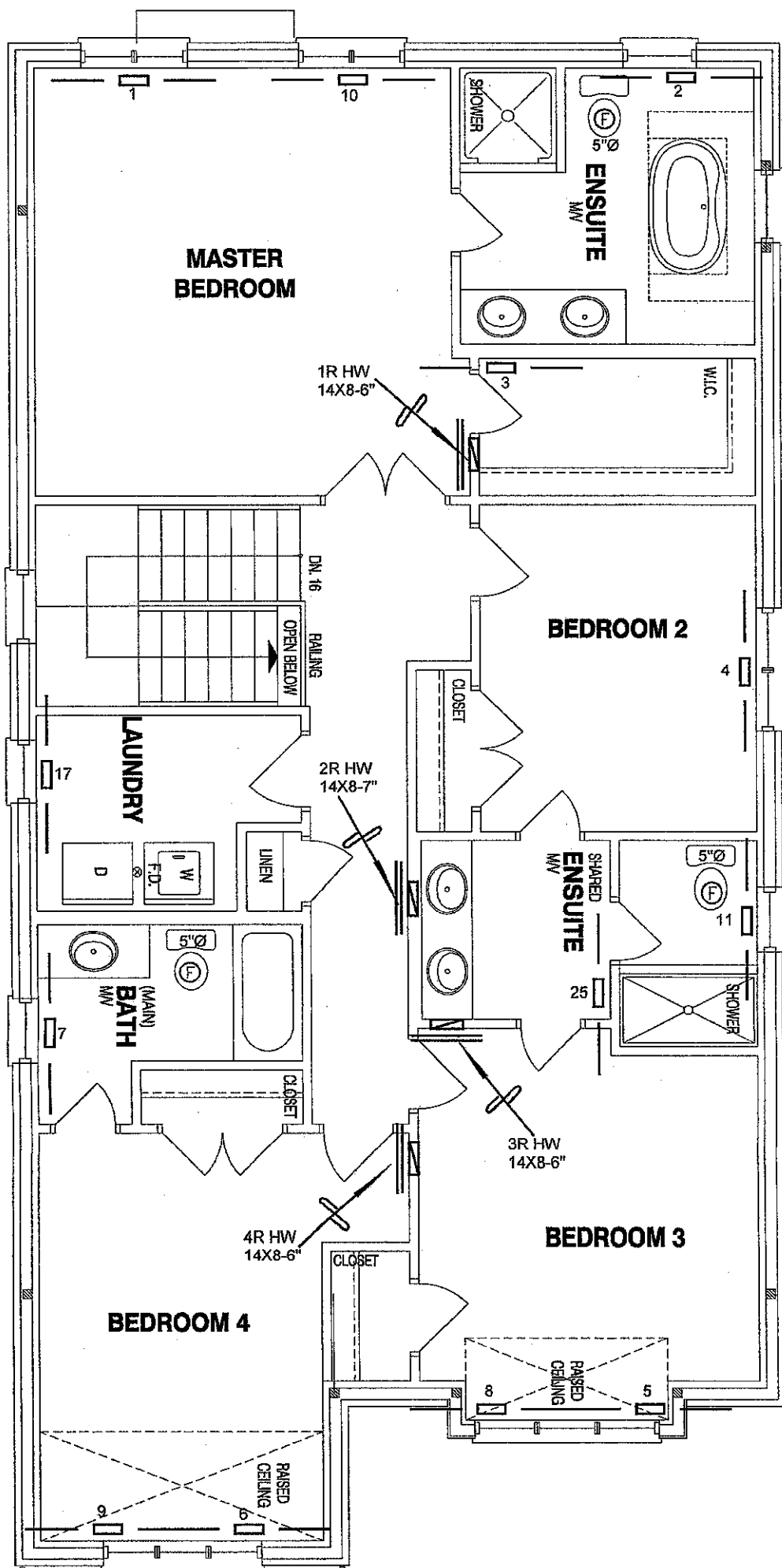
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.3 OF THE BUILDING CODE.

Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
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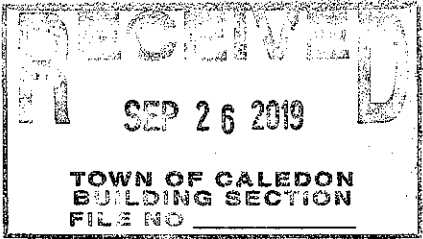
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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@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.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name LAMBERTS LANE HOME CORP PH 2 CALEDON, ONTARIO	LOT 27 BARTON 3		Date JULY/2019	Scale 3/16" = 1'-0"
2635 sqft		BCIN# 19669		LO# 83137



ELEVATION 1

ELEVATION 2



LOT 27

CSA-F280-12

ENERGY STAR

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke, BCIN# 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.		
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Client

GREENPARK HOMES

Project Name

LAMBERTS LANE HOME CORP PH 2
CALEDON, ONTARIO

LOT 27
BARTON 3

2635 sqft

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.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.

Sheet Title

SECOND FLOOR
HEATING
LAYOUT

Date

JULY/2019

Scale

3/16" = 1'-0"

BCIN# 19669

LO#

83137