

THIS STRUCTURE MUST
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THE ONTARIO BUILDING CODE

SITE NAME: LAMBERT'S LANE PH.2			LOT 58			DATE: Aug-19			WINTER NATURAL AIR CHANGE RATE 0.242			HEAT LOSS AT °F. 74			CSA-F280-12					
BUILDER: GREENPARK HOMES			TYPE: MILLWOOD 4A			GFA: 2957			LO# 83492			SUMMER NATURAL AIR CHANGE RATE 0.079			HEAT GAIN AT °F. 11			ENERGYSTAR		
ROOM USE			MBR		ENS		WIC		BED-2		BED-3		BED-4		BATH		HALL		ENS-2	
EXP. WALL			36		22		5		12		26		18		8		32		5	
CLG. HT.			8		8		8		8		8		8		8		8		8	
FACTORS																				
GRS.WALL AREA		LOSS GAIN	291		178		40		97		210		145		65		259		40	
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		18.6 15.1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	6 111	91	0 0	0 0	0 0	0 0
EAST		18.6 40.7	0 0	0 0	0 0	0 0	10 186	407	0 0	0 0	40 742	1629	0 0	0 0	0 0	0 0	27 501	1099	0 0	0 0
SOUTH		18.6 24.1	0 0	0 0	16 297	385	0 0	0 0	16 297	385	0 0	0 0	16 297	385	0 0	0 0	16 297	385	6 111	144
WEST		18.6 40.7	32 594	1303	16 297	661	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 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 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 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
NET EXPOSED WALL		3.5 0.5	259 911	135	146 513	76	30 107	16 81	285 42	170 588	89 129	455 68	69 206	31	216 758	112 34	121 18			
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 0	0 0	0 0	0 0	0 0	0 0
EXPOSED CLG		1.3 0.6	323 405	180	121 152	67	50 63	28 144	180 80	156 196	87 306	384 171	96 120	54	265 332	148 80	108 45			
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 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	60 124	18 0	0 0	156 388	58 0	0 0	24 60	9	6 15	2 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 0	0 0	0 0	0 0	0 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 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
SUBTOTAL HT LOSS			1909		1258		480		762		1924		1135		498		1919		333	
SUB TOTAL HT GAIN					1618		1180		469		508		1862		623		184		207	
LEVEL FACTOR / MULTIPLIER			0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24		0.20 0.24	
AIR CHANGE HEAT LOSS			465		307		117		186		469		277		121		488		81	
AIR CHANGE HEAT GAIN			78		67		23		24		89		30		9		84		10	
DUCT LOSS			0		0		60		0		239		0		62		239		0	
DUCT GAIN			0		0		49		0		295		0		19		184		0	
HEAT GAIN PEOPLE		240	2	480	0	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			756		0		0		756		756		756		0		0		0	
TOTAL HT LOSS BTU/H			2374		1565		655		948		2633		1412		681		2625		414	
TOTAL HT GAIN x 1.3 BTU/H			3811		1608		703		1986		4214		2144		275		2629		282	

ROOM USE	EXP. WALL	CLG. HT.	LIV	KIT	FAM	LAUN	WIR	FOY	LIB	BAS						
FACTORS																
GRS.WALL AREA	LOSS	GAIN	210	360	300	275	100	360	100							
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN						
NORTH	18.6	15.1	0	0	0	6	111	91	0	0	0	0	0	0	0	0
EAST	18.6	40.7	0	0	0	28	519	1140	0	0	0	0	0	0	0	0
SOUTH	18.6	24.1	42	779	1011	0	0	0	0	0	0	0	0	0	0	0
WEST	18.6	40.7	0	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
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	168	591	88	281	988	146	272	957	142	249	876	130	87	306
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	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	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	36	98	43	10	27	12	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
BASEMENT/CRAWL HEAT LOSS			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
SUBTOTAL HT LOSS			1370		2550		1480		547		1989		667			
SUB TOTAL HT GAIN				3125		1294		294		575		1054		359		
LEVEL FACTOR / MULTIPLIER	0.30	0.37			0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37	
AIR CHANGE HEAT LOSS			506		942		558		547		202		735		247	
AIR CHANGE HEAT GAIN				53		150		62		14		28		51		17
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		0	0	
HEAT GAIN APPLIANCES/LIGHTS					756	0		756		756		756		756		756
TOTAL HT LOSS BTU/H			1876		3492		2058		2027		1383		749		2724	
TOTAL HT GAIN x 1.3 BTU/H				2479		5240		2745		1383		783		1436		1472

TOTAL HEAT GAIN BTU/H: 36062 TONS: 3.01 LOSS DUE TO VENTILATION LOAD BTU/H: 1693 STRUCTURAL HEAT LOSS: 42472 TOTAL COMBINED HEAT LOSS BTU/H: 44065

Michael O'Rourke

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

LOT 58
TYPE: MILLWOOD 4A

DATE: Aug-19

GFA: 2957 LO# 83492

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 42,472 TOTAL HEAT GAIN 35,826
AIR FLOW RATE CFM 26.63 AIR FLOW RATE CFM 31.57

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

#GOODMAN
GMEC960603BNA 60

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	4
R/A	0	0	4	3	1

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

FAN SPEED LOW
MEDLOW
MEDIUM
MEDIUM HIGH

DESIGN CFM = 1131
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	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	HALL	HALL	MBR	ENS-2	LIV	KIT	KIT	FAM	LAUN	W/R	FOY	FAM	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.19	1.56	0.66	0.95	1.32	1.41	0.68	1.31	1.31	1.19	0.41	1.88	1.75	1.75	1.03	2.03	0.75	2.72	1.03	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	32	42	17	25	35	38	18	35	35	32	11	50	47	47	27	54	20	73	27	102	102	102	102
RM GAIN MBH.	1.91	1.81	0.70	1.99	2.11	2.14	0.28	1.31	1.31	1.91	0.28	2.48	2.62	2.62	1.37	1.38	0.78	1.44	1.37	0.66	0.66	0.66	0.66
CFM PER RUN COOLING	60	51	22	63	67	68	9	41	41	60	9	78	83	83	43	44	25	45	43	21	21	21	21
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	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	39	50	43	32	54	33	42	49	54	46	24	14	29	38	32	24	36	29	43	37	31	11	30
EQUIVALENT LENGTH	160	190	160	180	180	120	170	140	180	160	190	170	120	110	130	160	140	110	110	120	140	120	120
TOTAL EFFECTIVE LENGTH	199	240	203	212	234	153	212	189	234	206	214	184	149	148	162	184	176	139	153	157	171	131	150
ADJUSTED PRESSURE	0.09	0.07	0.08	0.08	0.07	0.11	0.08	0.09	0.07	0.08	0.08	0.09	0.11	0.11	0.11	0.09	0.1	0.12	0.11	0.1	0.09	0.12	0.11
ROUND DUCT SIZE	5	5	4	6	6	6	4	4	5	5	4	5	6	6	4	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	235	308	195	127	178	194	207	402	257	235	126	367	240	240	310	396	229	536	310	520	520	520	520
COOLING VELOCITY (ft/min)	441	374	252	321	342	347	103	470	301	441	103	573	423	423	493	323	287	330	493	107	107	107	107
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	E	D	B	F	B	F	B	B	B	E	F	F	E	E	D	F	A	A	D	D	E	F	A

RUN #	25	26
ROOM NAME	BED-3	LIB
RM LOSS MBH.	1.32	0.91
CFM PER RUN HEAT	35	24
RM GAIN MBH.	2.11	1.47
CFM PER RUN COOLING	67	46
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	47	13
EQUIVALENT LENGTH	170	140
TOTAL EFFECTIVE LENGTH	217	153
ADJUSTED PRESSURE	0.08	0.11
ROUND DUCT SIZE	6	4
HEATING VELOCITY (ft/min)	178	275
COOLING VELOCITY (ft/min)	342	528
OUTLET GRILL SIZE	4X10	3X10
TRUNK	B	F

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SUPPLY AIR TRUNK SIZE

SUPPLY 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 A	195	0.10	7.2	8	x	8	439	TRUNK G	0	0.00	0	0	x	8	0
	TRUNK B	370	0.07	10	12	x	8	555	TRUNK H	0	0.00	0	0	x	8	0
	TRUNK C	0	0.00	0	0	x	8	0	TRUNK I	0	0.00	0	0	x	8	0
	TRUNK D	198	0.07	7.9	8	x	8	446	TRUNK J	0	0.00	0	0	x	8	0
	TRUNK E	260	0.08	8.5	10	x	8	468	TRUNK K	0	0.00	0	0	x	8	0
	TRUNK F	762	0.07	13.1	20	x	8	686	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

RETURN AIR TRUNK SIZE							VELOCITY
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			(ft/min)
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	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	1131	0.06	15.8	30	x	8	679
TRUNK Y	870	0.06	14.3	24	x	8	653
TRUNK Z	270	0.06	9.2	10	x	8	486
DROP	1131	0.06	15.8	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	135	155	75	135	175	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15
ACTUAL DUCT LGH.	50	30	34	61	33	12	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	215	175	165	200	135	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	245	245	209	226	233	147	241	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.07	0.07	0.06	0.10	0.06	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	14.80
ROUND DUCT SIZE	7.1	7.1	7.2	5.5	7.1	6.9	7.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

TYPE: MILLWOOD 4A
SITE NAME: LAMBERT'S LANE PH.2

LO # 83492
LOT 58

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	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	190.8 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	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones
☒ 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
ENS	FV-05-11VK1	50	☒
BATH	FV-05-11VK1	50	☒
ENS-2	FV-05-11VK1	50	☒
W/R	FV-05-11VK1	50	☒

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:	August-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* MICHAEL O'ROURKE

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

LO#: 83492

Model: MILLWOOD 4A

Builder: GREENPARK HOMES

Date: 8/15/2019

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1362	9	12258
First	1362	10	13620
Second	1595	8	12892.385
Third	0	9	0
Fourth	0	9	0
Total:			38,770.4 ft³
Total:			1097.9 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.242
SUMMER NATURAL AIR CHANGE RATE	0.079

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

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

0.242 x 304.96 x 41 °C x 1.2 = 3649 W

= 12449 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.079 x 304.96 x 6 °C x 1.2 = 176 W

= 600 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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)

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

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	12,449	9,099	0.684
2	0.3		10,106	0.370
3	0.2		10,218	0.244
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MILLWOOD 4A	LOT 58	BUILDER: GREENPARK HOMES
SFQT: 2957	LO# 83492	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):	38770.4	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 56.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	172.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

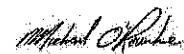
Compliance Package ENERGYSTAR

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

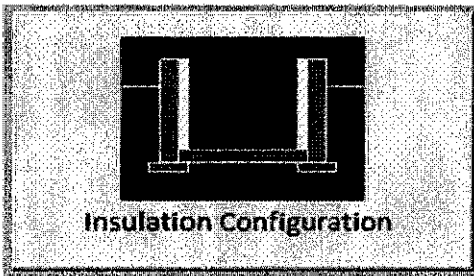
MICHAEL O'ROURKE



THIS STRUCTURE MUST BE
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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):	17.1	 Insulation Configuration
Floor Width (m):	9.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	2.2	
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):	1734	

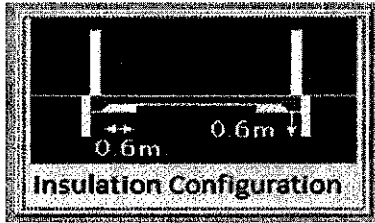
TYPE: MILLWOOD 4A
LO# 83492

LOT 58

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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		
Length (m):	0.0	
Width (m):	0.0	
Exposed Perimeter (m):	0.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		0

TYPE: MILLWOOD 4A
LO# 83492

LOT 58

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Air Infiltration Residential Load Calculator

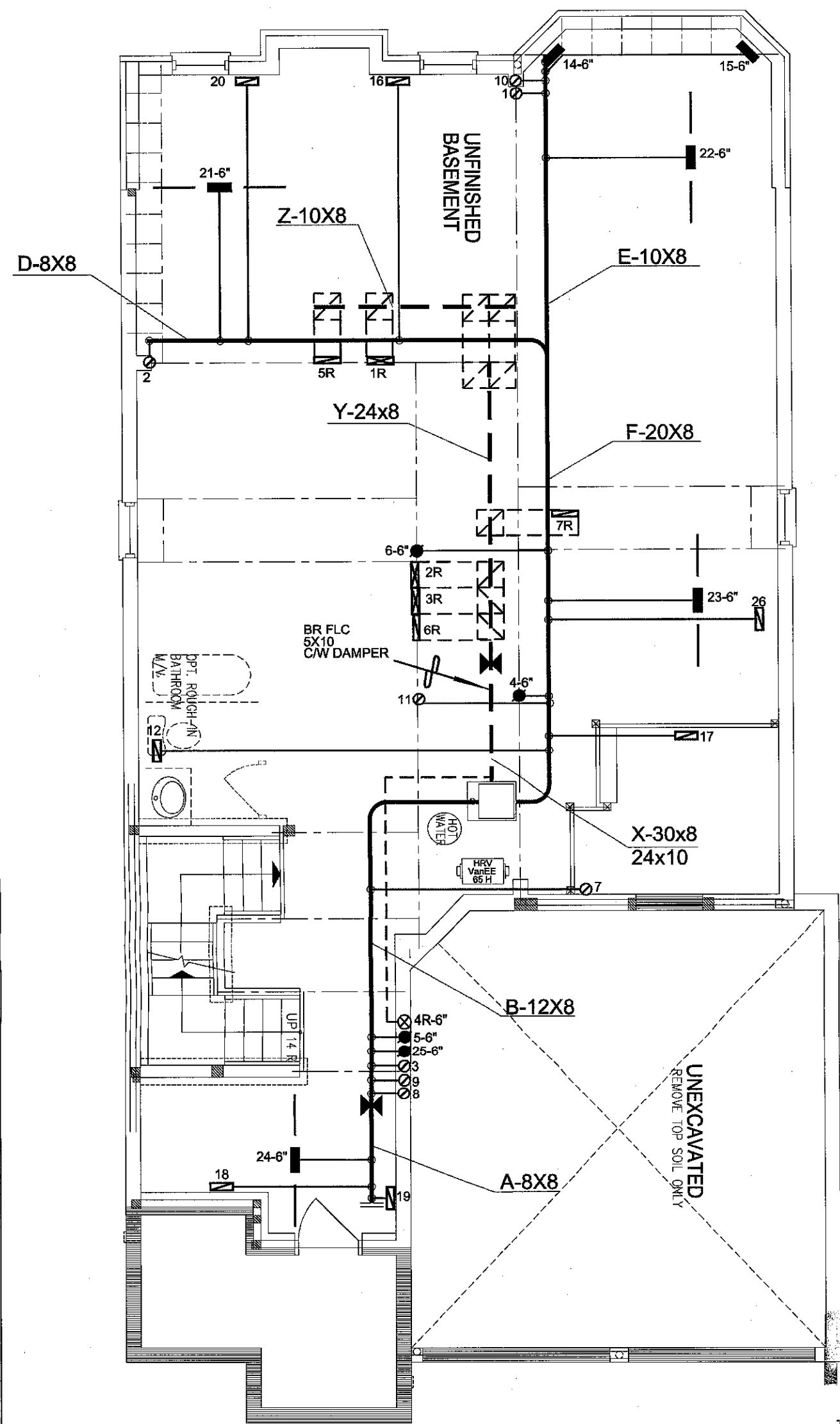
Supplemental tool for CAN/CSA-F280

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):	7.34			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1097.9			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1024.8 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):	0.242			
Cooling Air Leakage Rate (ACH/H):	0.079			

TYPE: MILLWOOD 4A
LO# 83492

LOT 58

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MINIMUM CEILING HEIGHT SHALL BE 2100 MM OVER AT LEAST 75% OF BASEMENT AREA EXCEPT THAT UNDER BEAMS AND DUCTS THE CLEARANCE IS PERMITTED TO BE REDUCED 1950 M M

APPROVED
For construction as per the
Ontario Building Code
Town of Caledon Building Department
Initial [Signature] SA
Date SEP 04, 2019
File # BA11910579

RECEIVED
AUG 23 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO.

LOT 58
CSA-F280-12

ENERGY STAR

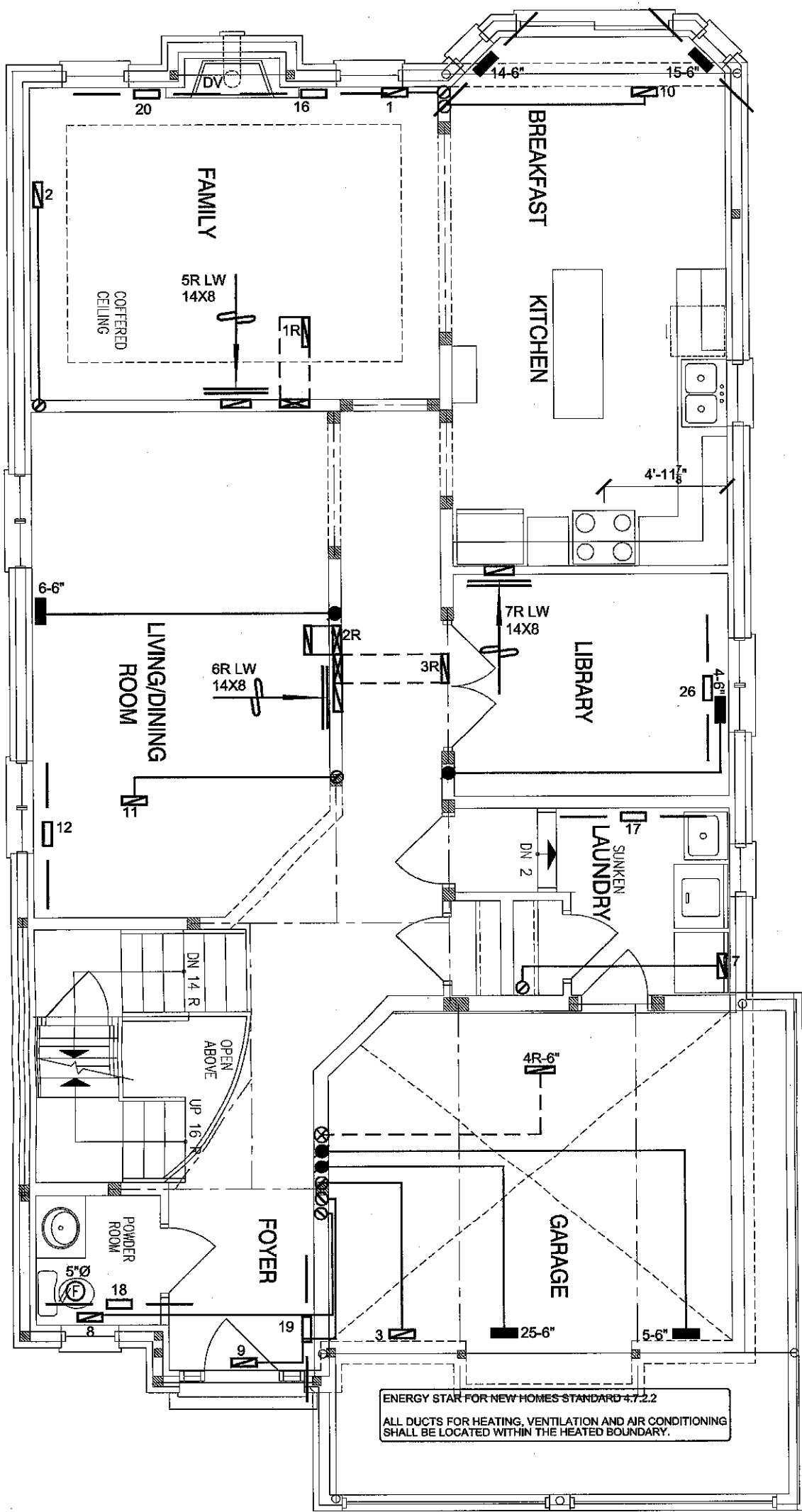
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
[Signature]
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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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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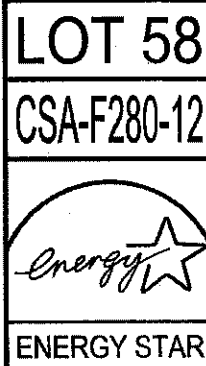
Client	HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 44065 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS	Sheet Title		
GREENPARK HOMES		MAKE GOODMAN			3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name		MODEL GMEC960603BNA			2ND FLOOR	12	4	3		
LAMBERT'S LANE HOME CORP PH 2 CALEDON, ONTARIO		INPUT 60 MBTU/H			1ST FLOOR	9	3	2	Date AUG/2019	
LOT 58 MILLWOOD 4A 2957 sqft		OUTPUT 57.6 MBTU/H			BASEMENT	4	1	0	Scale 3/16" = 1'-0"	
	COOLING 3.0 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				BCIN# 19669		
	FAN SPEED 1131 cfm @ 0.5" w.c.							LO#	83492	



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

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BUILDING SECTION
FILE NO.



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

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							REVISIONS	

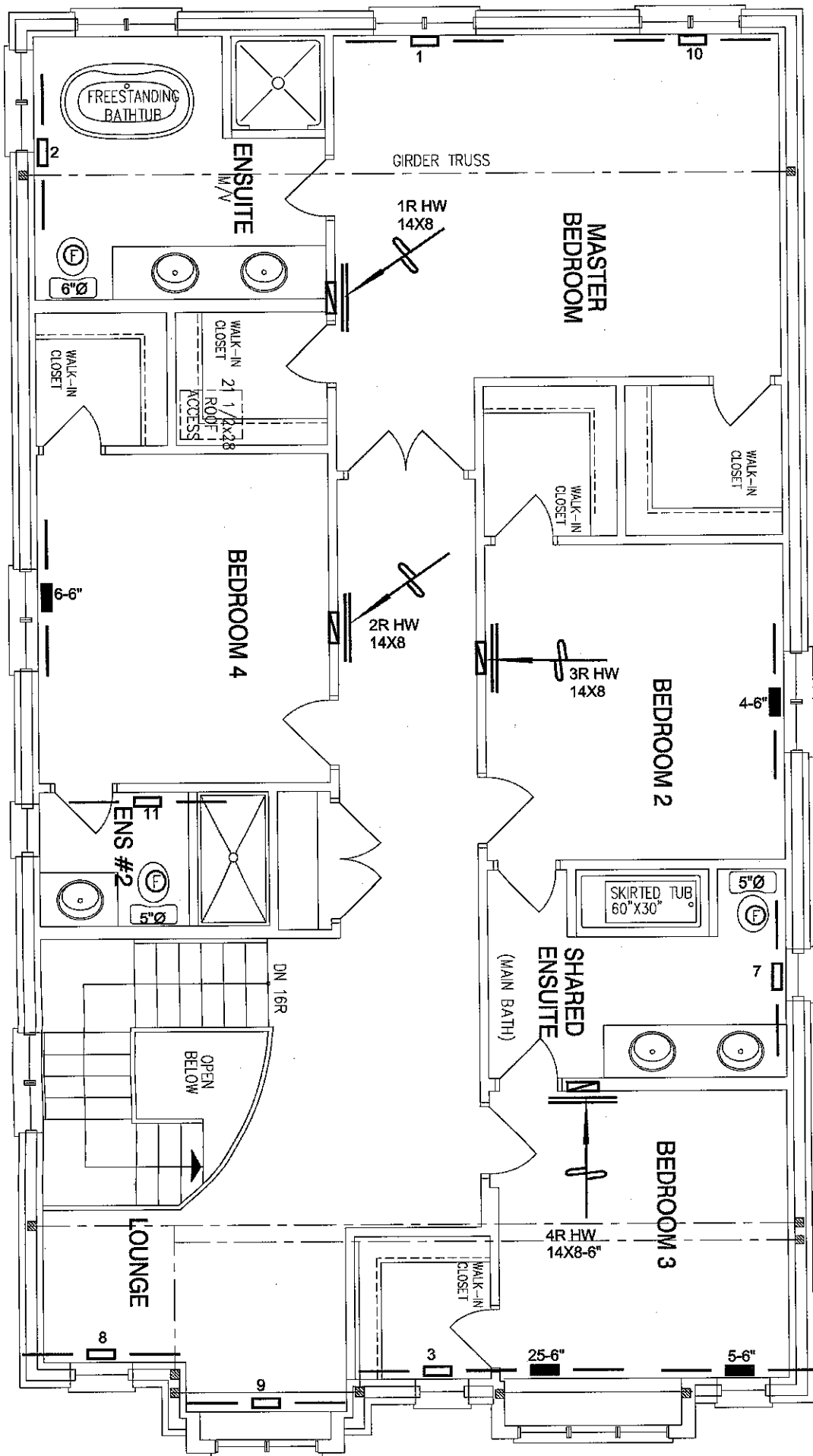
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Client
GREENPARK HOMES
Project Name
**LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO**
**LOT 58
MILLWOOD 4A 2957 sqft**

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@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.

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Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**
Date **AUG/2019**
Scale **3/16" = 1'-0"**
BCIN# 19669
LO# 83492



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.
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Michael O'Rourke, BCIN# 19669
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TOWN OF CALEDON
BUILDING SECTION
FILE NO.

LOT 58

CSA-F280-12

ENERGY STAR

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							REVISIONS		

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Client

GREENPARK HOMES

Project Name

LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO

LOT 58
MILLWOOD 4A 2957 sqft

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Sheet Title

SECOND FLOOR
HEATING
LAYOUT

Date

AUG/2019

Scale

3/16" = 1'-0"

BCIN# 19669

LO#

83492