HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax. ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

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

SITE NAME: LAMBERT'S LANE PH.2 | WOB | DATE: Jul-19 | WINTER NATURAL AIR CHANGE RATE 0.262 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: KINMOUNT 6A | GFA: 3062 | LO# 82663 | SUMMER NATURAL AIR CHANGE RATE 0.085 | HEAT GAIN ΔT °F. 11 | ENERGYSTAR

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH						ENS-4					
EXP. WALL			33			37			13			15			35			31			14						6					
CLG. HT.			8			8			8			8			8			8			8						8					
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	267			299			105			121			283			251			113						48					
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN			
NORTH	18.6	14.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				7	130	99			
EAST	18.6	37.6	0	0	0	0	0	0	0	0	0	0	0	0	45	835	1690	37	686	1389	0	0	0				0	0	0			
SOUTH	18.6	22.3	0	0	0	16	297	357	0	0	0	16	297	357	0	0	0	0	0	0	6	111	134				0	0	0			
WEST	18.6	37.6	32	594	1202	25	464	939	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			
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			
NET EXPOSED WALL	3.5	0.5	235	825	122	258	908	135	105	370	55	105	370	55	238	837	124	214	751	111	107	377	56				41	146	22			
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			
EXPOSED CLG	1.3	0.6	270	338	151	255	320	142	195	244	109	256	321	143	149	187	83	208	261	116	224	281	125				102	128	57			
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	75	201	89	48	129	57	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	256	637	94	0	0	0				102	254	38			
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0						0				
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0						0				
SUBTOTAL HT LOSS				1757			1988			614			988			2059			2464			769						658				
SUB TOTAL HT GAIN					1475			1572			163			554			1986			1768			314						215			
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				
AIR CHANGE HEAT LOSS				430			486			150			241			503			602			188						161				
AIR CHANGE HEAT GAIN					85			91			9			32			115			102			18						12			
DUCT LOSS				0			0			0			0			0			307			0						82				
DUCT GAIN					0			0			0			0			0			267			0						23			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0				0		0			
HEAT GAIN APPLIANCES/LIGHTS					563			0			0			563			563			563			0						0			
TOTAL HT LOSS BTU/H				2187			2474			764			1229			2562			3373			957						900				
TOTAL HT GAIN x 1.3 BTU/H					3384			2162			225			1806			3775			3823			432						325			

ROOM USE			LIV				KIT			FAM			LAUN			W/R			FOY			OFF						WOB			BAS		
EXP. WALL			33				43			38			29			7			19			19						54			128		
CLG. HT.			10				10			10			12			10			10			10						9			9		
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	330				430			380			348			70			190			190						486			768		
GLAZING				LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN		LOSS	GAIN
NORTH	18.6	14.1	0	0	0		0	0	0	0	0	0	7	130	99	0	0	0	0	0	0	0	0	0				44	816	621	8	148	113
EAST	18.6	37.6	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	519	1052				0	0	0	0	0	0
SOUTH	18.6	22.3	30	557	669		0	0	0	0	0	0	0	0	0	7	130	156	0	0	0	0	0	0				0	0	0	0	0	0
WEST	18.6	37.6	0	0	0		35	649	1314	47	872	1765	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
DOORS	24.7	3.7	0	0	0		20	493	73	0	0	0	20	493	73	0	0	0	46	1134	168	0	0	0				20	493	73	20	493	73
NET EXPOSED WALL	3.5	0.5	300	1055	156		375	1319	195	333	1171	174	321	1129	167	63	222	33	144	506	75	162	570	84				82	1484	220	0	0	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	384	1349	200
EXPOSED CLG	1.3	0.6	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
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
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	0	0
BASEMENT/CRAWL HEAT LOSS				0				0			0			0			0			0			0							0			0	
SLAB ON GRADE HEAT LOSS				0				0			0			0			0			0			0							0			0	
SUBTOTAL HT LOSS				1611				2461			2043			1752			351			1640			1089						794			2614	
SUB TOTAL HT GAIN					825				1583			1939			339			189			243			1136						3587			4605	
LEVEL FACTOR / MULTIPLIER			0.30	0.38			0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38							914			386
AIR CHANGE HEAT LOSS				610				931			773			663			133			621			442									6904		
AIR CHANGE HEAT GAIN					48				91			112			20			11			14			66								0.50	0.84		75
DUCT LOSS				0				0			0			0			0			0			0									0		
DUCT GAIN					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				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					563				563			563			563			0			0			563										563
TOTAL HT LOSS BTU/H				2221				3392			2816			2414			484			2261			1501						3587			11509	
TOTAL HT GAIN x 1.3 BTU/H					1866				2909			3398			1198			260			334			2294							1188			1331

TOTAL HEAT GAIN BTU/H: 30947 TONS: 2.58 LOSS DUE TO VENTILATION LOAD BTU/H: 1593 STRUCTURAL HEAT LOSS: 44632 TOTAL COMBINED HEAT LOSS BTU/H: 46225

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: LAMBERT'S LANE PH.2 — WOB
BUILDER: GREENPARK HOMES — TYPE: KINMOUNT 6A — DATE: Jun-19 — GFA: 3062 — LO# 82663

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	46,464	TOTAL HEAT GAIN	30,951
AIR FLOW RATE CFM	24.34	AIR FLOW RATE CFM	36.54

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

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600
DESIGN CFM = 1131
CFM @ .6 " E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	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	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-4	BED-3	MBR	ENS-4	LIV	FAM	KIT	KIT	FAM	LAUN	W/R	FOY	OFF	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.23	1.74	0.81	1.28	1.42	1.82	1.01	1.82	1.42	1.23	0.92	2.26	1.43	1.73	1.73	1.43	2.46	0.49	2.30	1.53	3.88	3.88	3.88	3.88
CFM PER RUN HEAT	30	42	20	31	35	44	25	44	35	30	22	55	35	42	42	35	60	12	56	37	94	94	94	94
RM GAIN MBH.	1.72	1.46	0.23	1.82	1.91	1.94	0.44	1.94	1.91	1.72	0.33	1.87	1.70	1.46	1.46	1.70	1.20	0.26	0.34	2.30	0.63	0.63	0.63	0.63
CFM PER RUN COOLING	63	53	9	66	70	71	16	71	70	63	12	68	62	53	53	62	44	10	12	84	23	23	23	23
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	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	49	37	21	45	47	37	37	47	44	33	14	38	35	31	46	46	8	37	28	63	32	11	28
EQUIVALENT LENGTH	190	130	180	140	130	200	140	170	90	150	170	140	160	140	120	130	140	120	170	140	160	180	130	190
TOTAL EFFECTIVE LENGTH	247	179	217	161	175	247	177	207	137	194	203	154	198	175	151	176	186	128	207	168	223	212	141	218
ADJUSTED PRESSURE	0.07	0.1	0.08	0.11	0.1	0.07	0.1	0.08	0.13	0.09	0.08	0.11	0.09	0.1	0.11	0.1	0.09	0.13	0.08	0.1	0.07	0.08	0.11	0.07
ROUND DUCT SIZE	6	5	4	5	5	6	4	6	5	5	4	5	5	5	5	5	5	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	153	308	229	228	257	224	287	224	257	220	252	404	257	308	308	257	441	138	411	189	479	479	479	479
COOLING VELOCITY (ft/min)	321	389	103	485	514	362	184	362	514	463	138	499	455	389	389	455	323	115	88	428	117	117	117	117
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	B	E	C	D	E	E	E	D	B	E	E	A	B	B	A	A	C	D	D	A	B	C	D

RUN #	25
ROOM NAME	ENS
RM LOSS MBH.	0.86
CFM PER RUN HEAT	21
RM GAIN MBH.	0.72
CFM PER RUN COOLING	26
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	19
EQUIVALENT LENGTH	130
TOTAL EFFECTIVE LENGTH	149
ADJUSTED PRESSURE	0.12
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	241
COOLING VELOCITY (ft/min)	298
OUTLET GRILL SIZE	3X10
TRUNK	C

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

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	224	0.07	8.3	8	x	8	504	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	280	0.07	9	10	x	8	504	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	662	0.07	12.4	18	x	8	662	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	257	0.07	8.7	10	x	8	463	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	467	0.07	10.9	14	x	8	600	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 TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (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	786	0.06	13.8	22	x	8	643
TRUNK Y	345	0.06	10.1	12	x	8	518
TRUNK Z	0	0.06	0	0	x	8	0
DROP	1131	0.06	15.8	24	x	10	679

RETURN AIR #	1	2	3	4	5	6										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	170	95	85	290	165	0	0	0	0	0	0	0	0	0	171
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	58	43	56	56	20	32	1	1	1	1	1	1	1	1	1	19
EQUIVALENT LENGTH	180	175	165	190	135	170	0	0	0	0	0	0	0	0	0	165
TOTAL EFFECTIVE LH	238	218	221	246	155	202	1	1	1	1	1	1	1	1	1	184
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.10	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	7.5	7.5	6	6	8.3	7.4	0	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	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
INLET GRILL SIZE	14	14	14	14	24	14	0	0	0	0	0	0	0	0	0	14

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INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: KINMOUNT 6A LO # 82663
SITE NAME: LAMBERT'S LANE PH.2 WOB

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: 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	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
ENS-4	FV-05-11VK1	50	✓	0.3
W/R	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 @ 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: Michael O'Rourke

HRAI # 001620

Date: June-19

I REVIEW AND TAKE RESPONIBILITY 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 MICHAEL O'ROURKE

THIS STRUCTURE NOT CONSTRUCTED TO MEET / EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 82663 Model: KINMOUNT 6A Builder: GREENPARK HOMES Date: 10/06/2019

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1371	9	12339
First	1371	10	13710
Second	1691	9	15219
Third	0	9	0
Fourth	0	9	0
		Total:	41,268.0 ft³
		Total:	1168.6 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.268
SUMMER NATURAL AIR CHANGE RATE	0.087

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

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

0.268 x 324.61 x 41 °C x 1.2 = 4300 W

= 14671 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.087 x 324.61 x 6 °C x 1.2 = 207 W

= 706 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)

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

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	14,671	8,192	0.895
2	0.3		10,948	0.402
3	0.2		12,238	0.240
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

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

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	KINMOUNT 6A		WOB	**BUILDER:**	GREENPARK HOMES
SFQT:	3062	**LO#**	82663	**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 (ft^3):	41268.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	128.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	54.0 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

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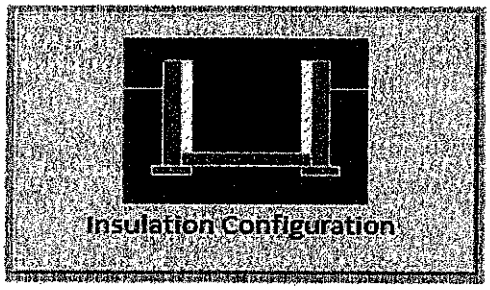
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	6.1	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	39.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.58	
Window Area (m^2):	0.7	
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):	**766**

TYPE: KINMOUNT 6A WOB
LO# 82663

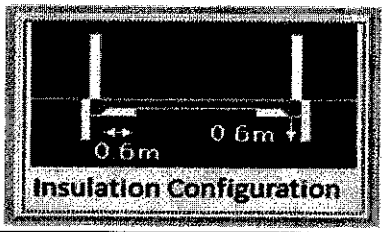
CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Residential Slab on Grade 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):	**3.0**
Width (m):	**10.4**
Exposed Perimeter (m):	**16.5**



Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Results		
Heating Load (Watts):	**233**	

TYPE: KINMOUNT 6A WOB
LO# 82663

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

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	8.53
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1168.6
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1090.9 cm^2
	2.50 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.268**
Cooling Air Leakage Rate (ACH/H):	**0.087**

TYPE: KINMOUNT 6A WOB
LO# 82663

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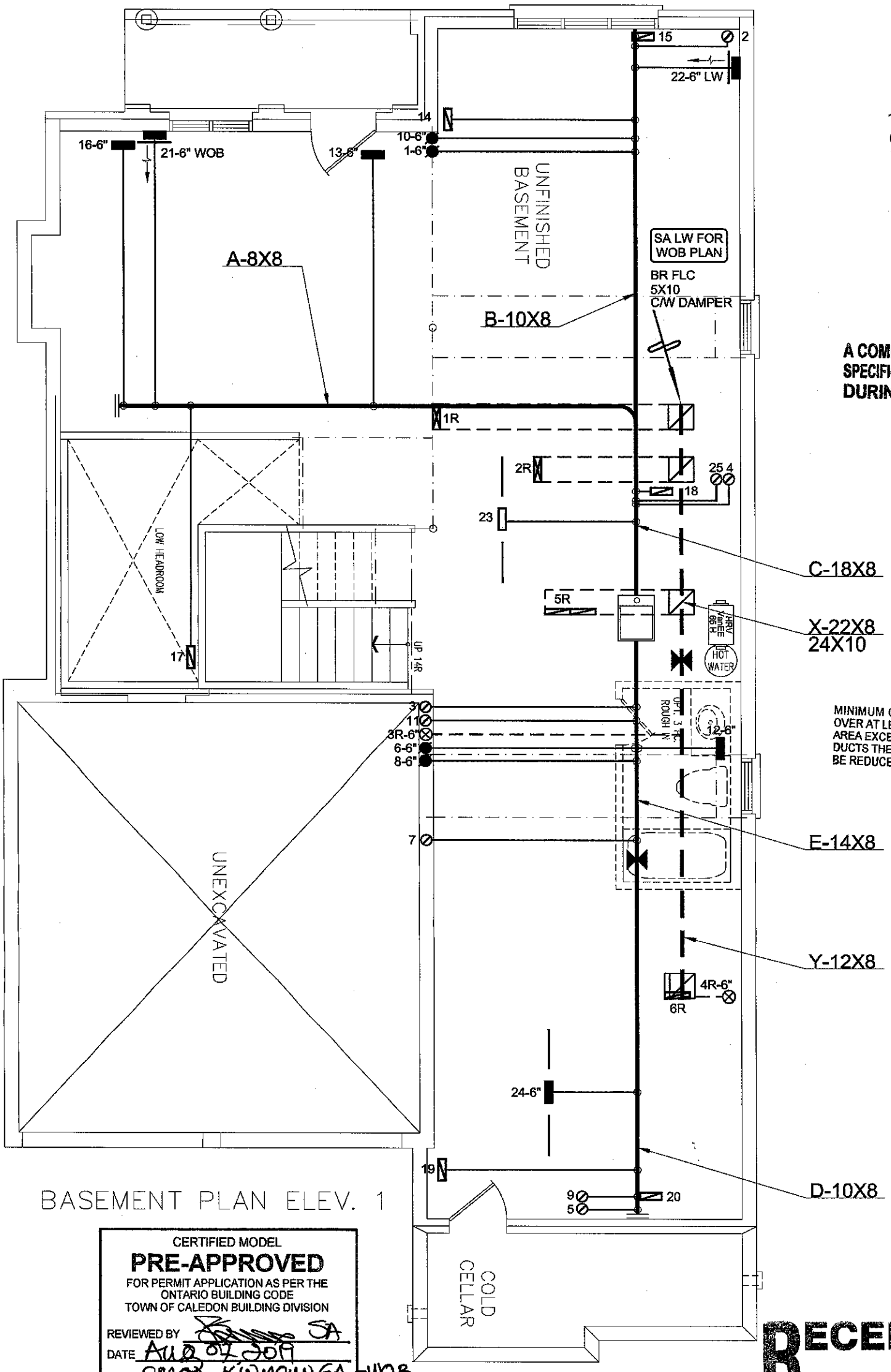

THIS STRUCTURE HAS BEEN CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

A COMPLETE SET OF REVIEWED DRAWINGS & SPECIFICATIONS MUST BE KEPT ON SITE AT ALL TIME DURING CONSTRUCTION AS PER O.B.C.

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

BASEMENT PLAN ELEV. 1

CERTIFIED MODEL
PRE-APPROVED
FOR PERMIT APPLICATION AS PER THE ONTARIO BUILDING CODE
TOWN OF CALEDON BUILDING DIVISION
REVIEWED BY SA
DATE Aug 07 2019
FILE # CMOB-KINMOUN 6A-WOB
(REV 1, 2 & 3)

I MICHAEL O'ROURKE HAVE REVIEW 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.

RECEIVED
JUL 30 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

WOB
CSA-F280-12
ENERGY STAR

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO

WOB
KINMOUNT 6A 3062 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
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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.

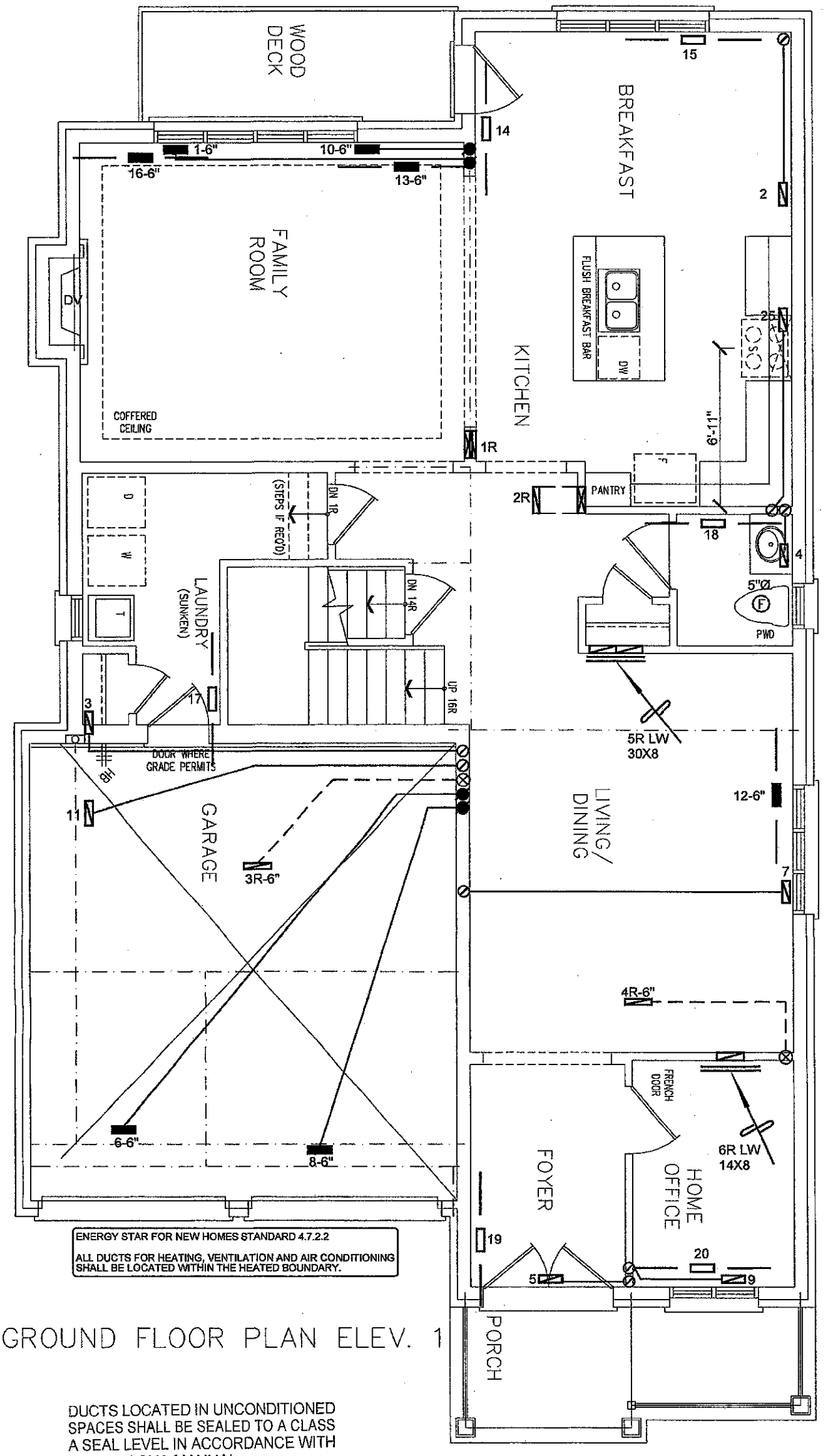
HEAT LOSS 46225 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	1131 cfm @ 0.5" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	4	4
1ST FLOOR	9	2	2
BASEMENT	4	1	0

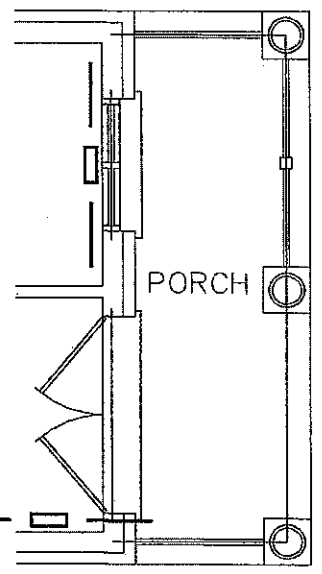
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

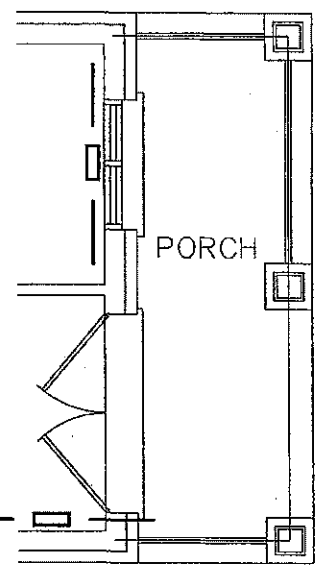
Date JUNE/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 82663



GROUND FLOOR PLAN ELEV. 1



GROUND FLOOR PLAN ELEV. 3



GROUND FLOOR PLAN ELEV. 2

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.

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, 3.2.5 OF THE BUILDING CODE.

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

RECEIVED
JUL 30 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

WOB
CSA-F280-12
ENERGY STAR

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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No.	Description	Date
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REVISIONS

Client
GREENPARK HOMES

Project Name
LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO

WOB
KINMOUNT 6A 3062 sqft

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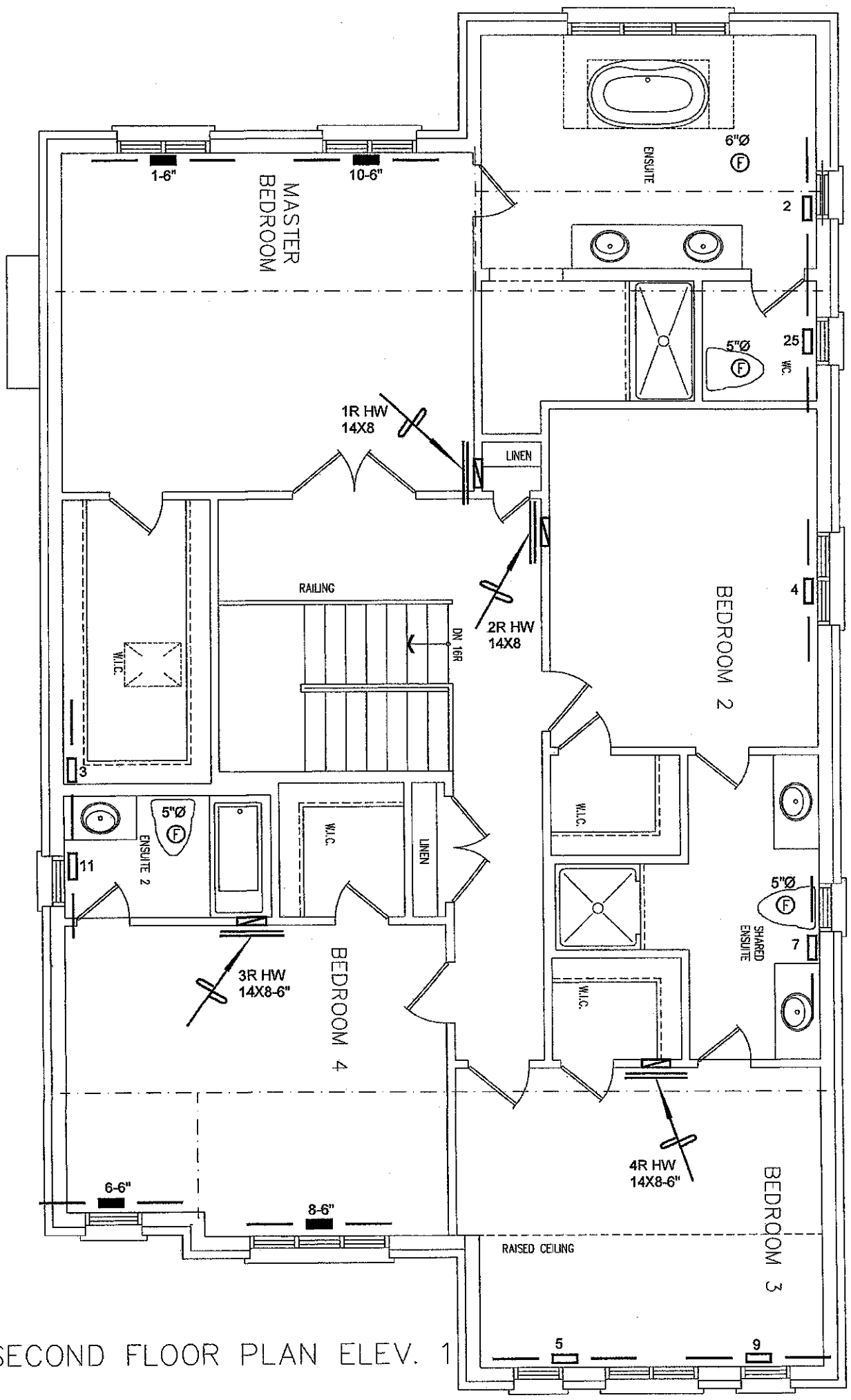
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

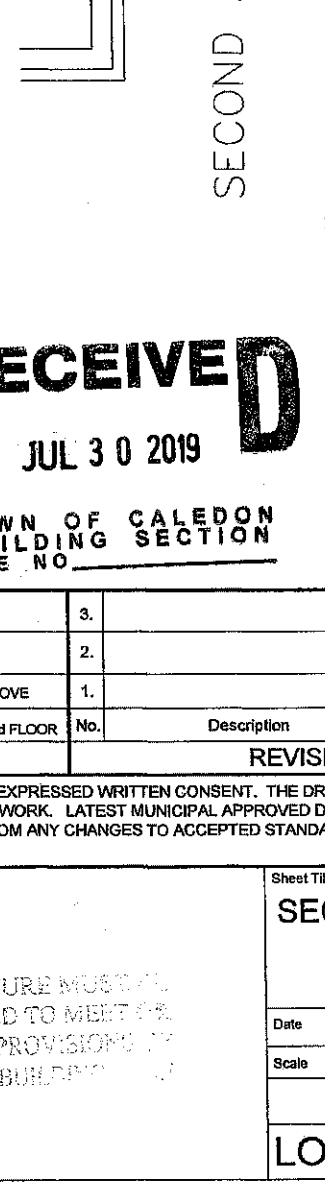
THIS STRUCTURE MUST BE CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

Sheet Title
FIRST FLOOR HEATING LAYOUT

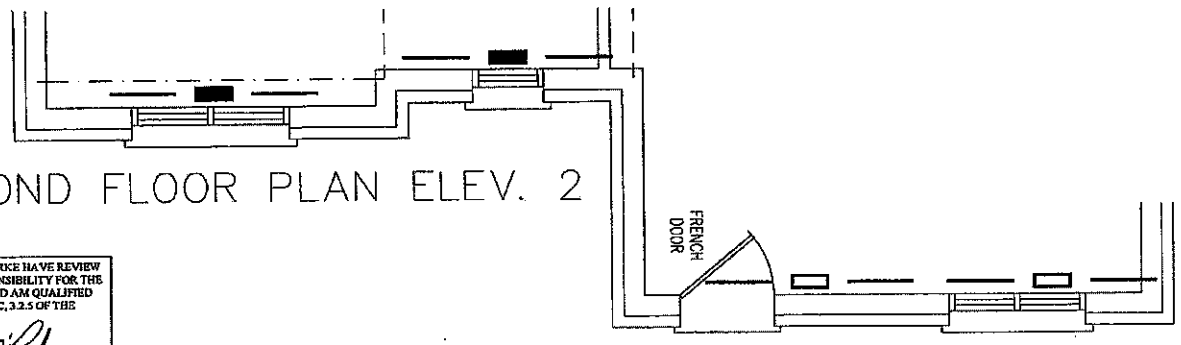
Date JUNE/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 82663



SECOND FLOOR PLAN ELEV. 1



SECOND FLOOR PLAN ELEV. 3



SECOND FLOOR PLAN ELEV. 2

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Michael O'Rourke

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

RECEIVED
JUL 30 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO.

WOB

CSA-F280-12

ENERGY STAR

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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—▬—	FLOOR SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭	30"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▭	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
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REVISIONS

Client
GREENPARK HOMES

Project Name
LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO

WOB
KINMOUNT 6A 3062 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JUNE/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 82663