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 — DATE: Feb-19 — WINTER NATURAL AIR CHANGE RATE 0.227 — HEAT LOSS ΔT °F. 74 — CSA-F280-12
BUILDER: GREENPARK HOMES — TYPE: PRESTON 12 — GFA: 2758 — LO# 81371 — SUMMER NATURAL AIR CHANGE RATE 0.074 — HEAT GAIN ΔT °F. 11 — ENERGYSTAR

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH				HALL				
EXP. WALL			35			30				41			37			17			10				5				
CLG. HT.			10			9				9			10			9			9				9				
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	350			270				369			370			153			90				45				
GLAZING			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			
NORTH	18.6	15.1	0	0	0	20	371	303		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
EAST	18.6	40.7	0	0	0	0	0	0		36	668	1466	36	668	1466	0	0	0	0	0	0		9	167	366		
SOUTH	18.6	24.1	48	890	1155	0	0	0		0	0	0	43	798	1035	18	334	433	7	130	168		0	0	0		
WEST	18.6	40.7	18	334	733	14	260	570		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		
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		
NET EXPOSED WALL	3.5	0.5	284	999	148	236	830	123		333	1171	174	291	1023	152	136	475	70	83	292	43		36	127	19		
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	327	410	182	174	218	97		250	313	139	164	206	91	210	263	117	86	108	48		130	163	72		
NO ATTIC EXPOSED CLG	2.7	1.2	43	115	51	0	0	0		0	0	0	46	123	55	0	0	0	0	0	0		0	0	0		
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0		250	622	92	0	0	0	0	0	0	0	0	0		130	324	48		
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				2748			1679				2775			2818			1072			530				780			
SUB TOTAL HT GAIN					2270			1093				1871			2799			621			260				506		
LEVEL FACTOR / MULTIPLIER			0.20	0.16		0.20	0.16			0.20	0.18		0.20	0.18		0.20	0.18		0.20	0.18			0.20	0.18			
AIR CHANGE HEAT LOSS				488			298				492			500			190			94				138			
AIR CHANGE HEAT GAIN					89			43				74			110			24			10				20		
DUCT LOSS				0			0				327			332			126			0				92			
DUCT GAIN					0			0				275			371			145			0				53		
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS					563			0				563			563			563			0				0		
TOTAL HT LOSS BTU/H				3236			1977				3594			3650			1389			623				1010			
TOTAL HT GAIN x 1.3 BTU/H					4422			1477				3929			5308			2070			351				752		

ROOM USE			LV/DN			FAM			KIT				LAUN			W/R			FOY			MUD				BAS		
EXP. WALL			59			37			36				0			8			18			22				174		
CLG. HT.			10			10			10				9			10			10			12				9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN	590			370			360				0			80			180			264				1044		
GLAZING			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	9	167	136		0	0	0
EAST	18.6	40.7	45	835	1832	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		4	74	163
SOUTH	18.6	24.1	59	1094	1420	45	836	1083	0	0	0		0	0	0	12	223	289	6	111	144	0	0	0		4	74	95
WEST	18.6	40.7	0	0	0	24	445	977	61	1132	2484		0	0	0	0	0	0	0	0	0	0	0	0		4	74	163
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	40	986	146	20	493	73		20	493	73
NET EXPOSED WALL	3.5	0.5	486	1709	253	301	1058	157	299	1051	156		0	0	0	68	239	35	134	471	70	235	826	123		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		522	1834	272
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0		98	123	55	0	0	0	0	0	0	0	0	0		0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	15	40	18	20	54	24	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		42	105	16	0	0	0	0	0	0	0	0	0		0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0			0			6960		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0			0					
SUBTOTAL HT LOSS				3678			2392			2183				227			462			1569			1486			8610		
SUB TOTAL HT GAIN					3523			2241			2640				70			324			360			332				767
LEVEL FACTOR / MULTIPLIER			0.30	0.29		0.30	0.29		0.30	0.29			0.20	0.18		0.30	0.29		0.30	0.29		0.30	0.29			0.50	0.65	
AIR CHANGE HEAT LOSS				1051			683			623				40			132			448			424				5602		
AIR CHANGE HEAT GAIN					139			88			104				3			13			14			13					30
DUCT LOSS				0			0			0				27			0			0			0			0		
DUCT GAIN					0			0			0				64			0			0			0					0
HEAT GAIN PEOPLE	240		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			0					563
TOTAL HT LOSS BTU/H				4729			3075			2806				295			594			2017			1911			14212		
TOTAL HT GAIN x 1.3 BTU/H					5493			3760			4298				909			438			487			448					1768

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TOTAL HEAT GAIN BTU/H: 36146 — TONS: 3.01 — LOSS DUE TO VENTILATION LOAD BTU/H: 1593 — STRUCTURAL HEAT LOSS: 45117 — TOTAL COMBINED HEAT LOSS BTU/H: 46709

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
BUILDER: GREENPARK HOMES

TYPE: PRESTON 12 DATE: Feb-19 GFA: 2758 LO# 81371

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	45,117	TOTAL HEAT GAIN	35,910
AIR FLOW RATE CFM	25.07	AIR FLOW RATE CFM	31.5

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	0.03
min adjusted pressure s/a	0.15
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 @ .5 " E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	4
R/A	0	0	5	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	ENS	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	HALL	LV/DN	FAM	KIT	KIT	LV/DN	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.62	1.48	0.49	1.80	1.82	1.39	0.62	1.80	1.82	1.62	1.01	2.36	3.08	1.40	1.40	2.36	0.29	0.59	2.02	1.91	3.55	3.55	3.55	3.55
CFM PER RUN HEAT	41	37	12	45	46	35	16	45	46	41	25	59	77	35	35	59	7	15	51	48	89	89	89	89
RM GAIN MBH.	2.21	1.11	0.37	1.96	2.65	2.07	0.35	1.96	2.65	2.21	0.75	2.75	3.76	2.15	2.15	2.75	0.91	0.44	0.49	0.45	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	70	35	12	62	84	65	11	62	84	70	24	87	118	68	68	87	29	14	15	14	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.15	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	65	71	65	70	60	49	71	74	44	54	55	34	32	26	61	36	41	29	23	16	31	29	52
EQUIVALENT LENGTH	180	150	140	150	200	200	190	160	220	150	210	140	100	100	120	120	180	110	170	150	130	120	160	130
TOTAL EFFECTIVE LENGTH	230	215	211	215	270	260	239	231	294	194	264	195	134	132	146	181	216	151	199	173	146	151	189	182
ADJUSTED PRESSURE	0.07	0.08	0.08	0.08	0.06	0.07	0.07	0.07	0.06	0.09	0.07	0.08	0.11	0.13	0.12	0.09	0.08	0.11	0.09	0.1	0.11	0.11	0.09	0.09
ROUND DUCT SIZE	6	4	4	6	6	6	4	6	6	6	4	6	6	5	5	6	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	209	424	138	229	235	178	184	229	235	209	287	301	393	257	257	301	80	172	374	551	454	454	454	454
COOLING VELOCITY (ft/min)	357	402	138	316	428	331	126	316	428	357	275	444	602	499	499	444	333	161	110	161	71	71	71	71
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	D	D	B	A	A	B	B	A	C	A	A	C	D	D	A	B	B	B	D	D	C	B	A

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	

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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	359	0.06	10.3	14	x	8	462	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	627	0.06	12.7	20	x	8	564	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	248	0.07	8.6	10	x	8	446	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1131	0.06	15.8	28	x	8	727	TRUNK J	0	0.00	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 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	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	405	0.05	11.2	14	x	8	521
TRUNK Z	235	0.05	9.2	10	x	8	423
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7									BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	175	85	75	85	85	375	75	0	0	0	0	0	0	0	0	176
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.	41	74	74	58	65	31	53	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	175	195	235	185	190	215	240	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	216	269	309	243	255	246	293	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.06	0.06	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7.5	6	6	6	6	10.4	6	0	0	0	0	0	0	0	0	6.9
INLET GRILL SIZE	8	8	8	8	8	8	8	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	14	30	14	0	0	0	0	0	0	0	0	14

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Michael O'Rourke - INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: PRESTON 12 LO # 81371
SITE NAME: LAMBERT'S LANE PH.2

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	5	@ 10.6 cfm	53.0	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
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 65H

155 cfm high 84 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 # 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, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE Michael O'Rourke.

CONSTRUCTED TO MEET OR 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#: 81371 Model: PRESTON 12 Builder: GREENPARK HOMES Date: 05/02/2019

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1230	9	11070
First	1230	10	12300
Second	1528	9	13752
Third	0	9	0
Fourth	0	9	0
		Total:	37,122.0 ft³
		Total:	1051.2 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.227
SUMMER NATURAL AIR CHANGE RATE	0.074

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

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

0.227 x 291.99 x 41 °C x 1.2 = 3284 W

= 11205 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.074 x 291.99 x 6 °C x 1.2 = 158 W

= 540 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	11,205	8,610	0.651
2	0.3		11,770	0.286
3	0.2		12,628	0.177
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 MUST BE CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE

RECEIVED
JUN 25 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

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: PRESTON 12 **BUILDER:** GREENPARK HOMES
SFQT: 2758 **LO#** 81371 **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):	37122.0	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: 53.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	174.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

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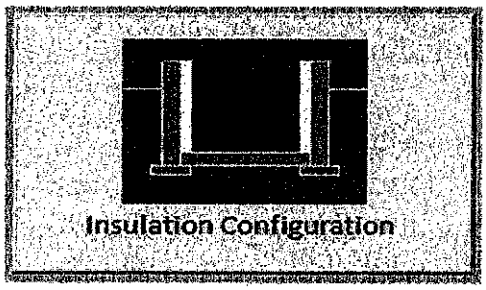
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	16.2	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	1.1	
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):	**1776**	

TYPE: PRESTON 12
LO# 81371

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

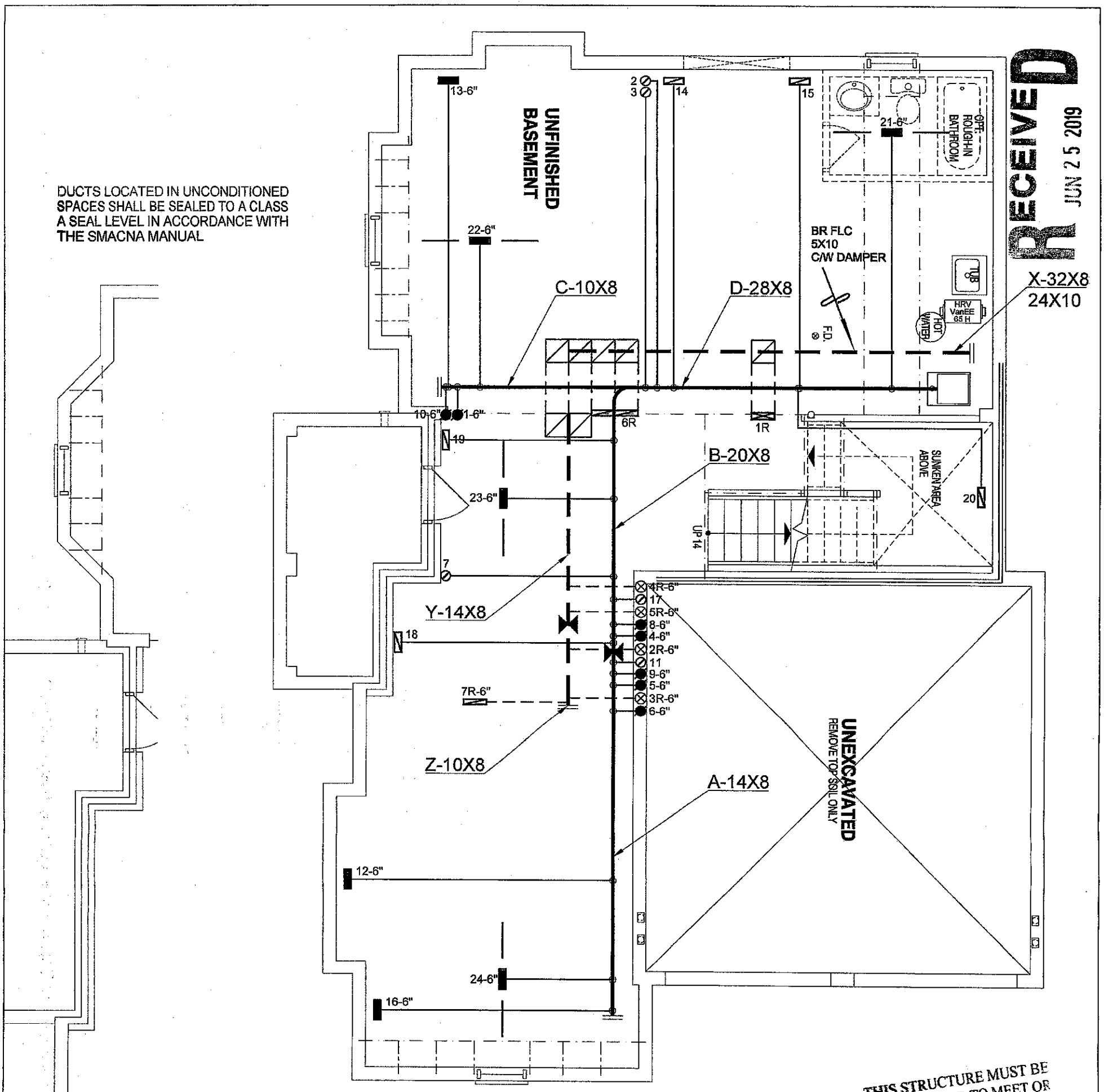
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

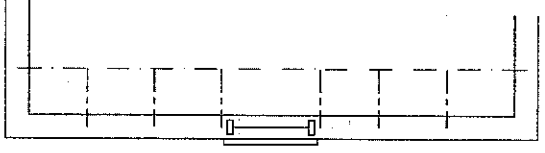
Weather Station Description	
Province:	Ontario
Region:	Brampton
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1051.2
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 981.3 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):	**0.227**
Cooling Air Leakage Rate (ACH/H):	**0.074**

TYPE: PRESTON 12
LO# 81371

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



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



CERTIFIED MODEL
PRE-APPROVED
FOR PERMIT APPLICATION AS PER THE ONTARIO BUILDING CODE
TOWN OF CALEDON BUILDING DIVISION
REVIEWED BY SA
DATE July 09, 2019
FILE # CMOD - PRESTON 12
(ELEVATION 1&2)

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

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.

CSA-F280-12
ENERGY STAR

RECEIVED
JUN 25 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	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

PRESTON 12 2758 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.

HEAT LOSS 46709 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	3.0 TONS
FAN SPEED	1131 cfm @ 0.6" w.c.

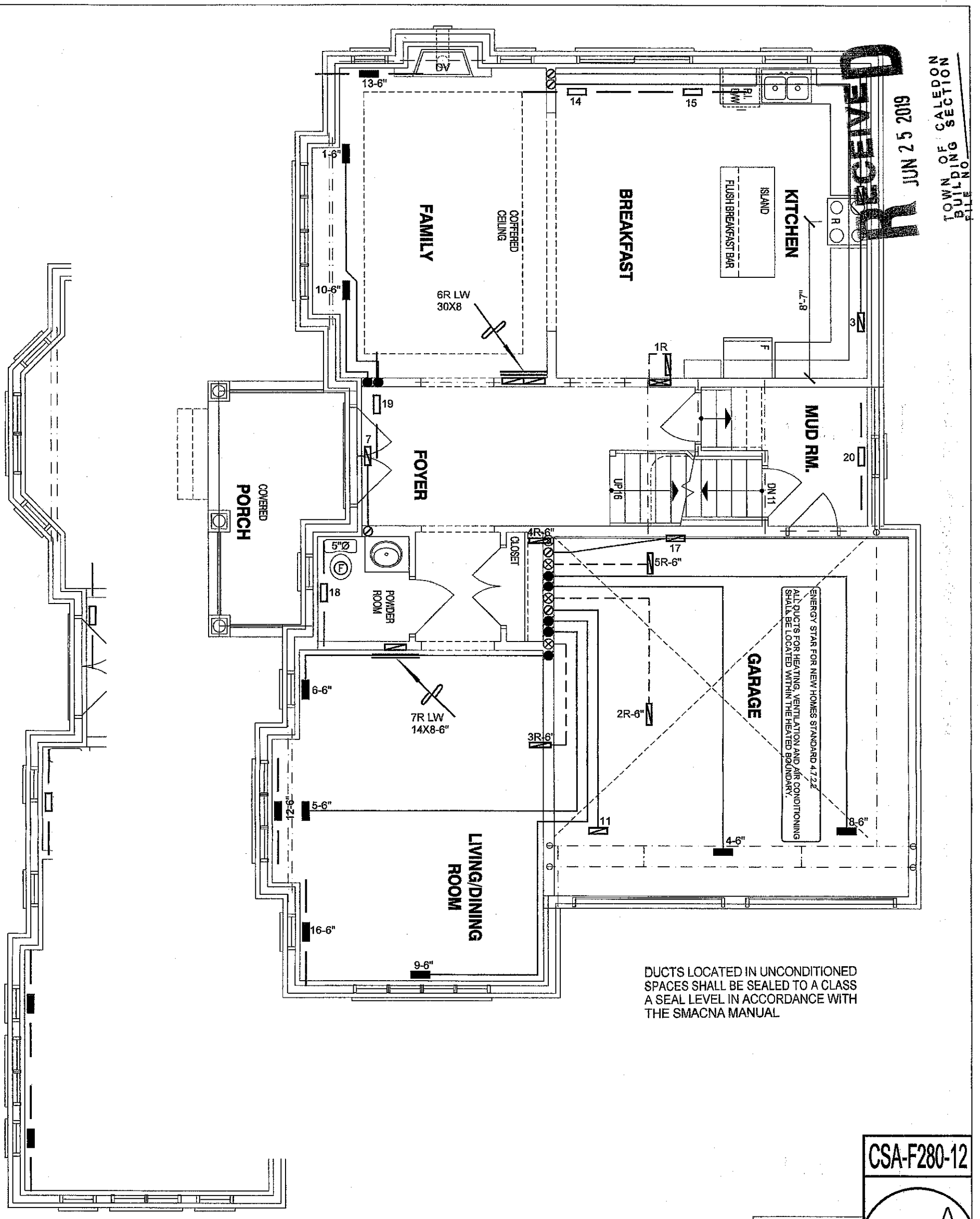
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	5	4
1ST FLOOR	8	2	2
BASEMENT	4	1	0

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 FEB/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 81371

APPLICANT COPY



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

CSA-F280-12

ENERGY STAR

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.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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	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

PRESTON 12 2758 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.

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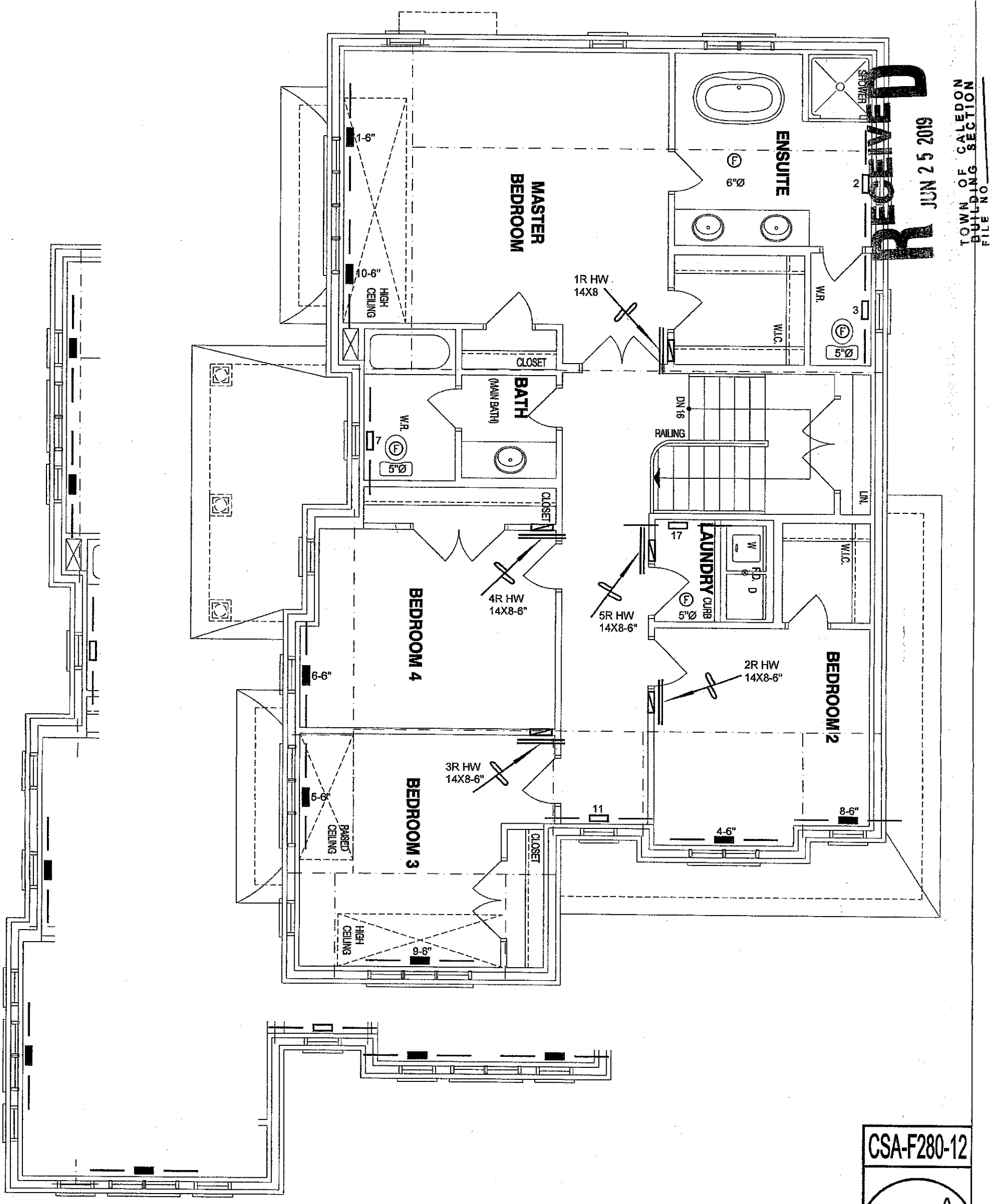
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date FEB/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 81371



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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
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REVISIONS

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CALEDON, ONTARIO

PRESTON 12 2758 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date FEB/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 81371