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: Jul-19 | WINTER NATURAL AIR CHANGE RATE 0.242 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: PRESTON 1 | GFA: 2507 | LO# 81347 | SUMMER NATURAL AIR CHANGE RATE 0.079 | HEAT GAIN ΔT °F. 11 | ENERGYSTAR

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH						ENS-2					
EXP. WALL			32			23			8			32			36			13			6						9					
CLG. HT.			8			8			8			8			8			8			8						8					
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	259			186			65			259			291			105			48						73					
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	8	148	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				16	297	242			
EAST	18.6	40.7	0	0	0	0	0	0	0	0	0	30	557	1222	30	557	1222	0	0	0	0	0	0				0	0	0			
SOUTH	18.6	24.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	297	385	7	130	168				0	0	0			
WEST	18.6	40.7	32	594	1303	16	297	651	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	227	797	118	162	569	84	65	227	34	229	804	119	261	918	136	89	313	46	41	146	22				57	200	30			
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	252	316	140	132	165	74	136	170	76	258	323	144	143	179	80	225	282	125	108	135	60				108	135	60			
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	26	70	31	0	0	0	0	0	0				0	0	0			
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	258	642	95	30	75	11	42	105	16	0	0	0				179	447	63			
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				1707			1180			398			2326			1798			997			411						811				
SUB TOTAL HT GAIN					1562			931			110			1580			1479			572			250						359			
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					0.20	0.20				
AIR CHANGE HEAT LOSS				343			237			80			467			361			200			83						163					
AIR CHANGE HEAT GAIN					80			48			6			81			76			29			13						18			
DUCT LOSS				0			0			0			279			216			120			0						97				
DUCT GAIN					0			0			0			244			233			138			0						38			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0				0		0			
HEAT GAIN APPLIANCES/LIGHTS					539			0			0			539			539			539			0						0			
TOTAL HT LOSS BTU/H				2049			1417			478			3073			2375			1316			494						1071				
TOTAL HT GAIN x 1.3 BTU/H					3459			1272			150			3489			3338			1974			342						539			

ROOM USE			LV/DN				KIT			FAM			LAUN			W/R			FOY			MUD						WOD			BAS		
EXP. WALL			40				39			36			12			14			18			25						40			168		
CLG. HT.			10				10			10			8			10			10			10						9			9		
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	400				390			360			97			140			180			250						360			1128		
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	8	148	121	0	0	0	0	0	0	10	186	151			0	0	0	0	0	0
EAST	18.6	40.7	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	6	111	244	0	0	0			0	0	0	0	0	0
SOUTH	18.6	24.1	28	519	674		0	0	0	0	0	0	0	0	0	9	167	217	0	0	0	0	0	0			0	0	0	8	148	193
WEST	18.6	40.7	0	0	0		66	1224	2687	28	519	1140	0	0	0	0	0	0	0	0	0	0	0	0			12	223	489	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		0	0	0	0	0	0	0	0	0	0	0	0	40	986	146	20	493	73			0	0	0	20	493	73
NET EXPOSED WALL	3.5	0.5	372	1308	194		324	1139	169	332	1168	173	89	313	46	131	461	68	134	471	70	220	774	115			0	0	0	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			228	801	119	384	1349	200
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	0	0	0	144	180	80	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	10	27	12	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								5779		
SLAB ON GRADE HEAT LOSS				0				0			0			0			0			0			0					0					
SUBTOTAL HT LOSS				1828				2364			1714			642			628			1569			1452					1024			7770		
SUB TOTAL HT GAIN					868				2856			1325			248			285			460			339						607			466
LEVEL FACTOR / MULTIPLIER			0.30	0.32			0.30	0.32		0.30	0.32		0.20	0.20		0.30	0.32		0.30	0.32		0.30	0.32							0.50	0.59		
AIR CHANGE HEAT LOSS				592				765			555			129			203			508			470								5156		
AIR CHANGE HEAT GAIN					44				146			68			13			15			24			17									55
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					539				539			539			539			0			0			539					0				539
TOTAL HT LOSS BTU/H				2419				3129			2269			771			831			2076			1922					1024			12926		
TOTAL HT GAIN x 1.3 BTU/H					1886				4604			2511			1039			389			629			1164						790			1377

TOTAL HEAT GAIN BTU/H: 29188 | TONS: 2.43 | LOSS DUE TO VENTILATION LOAD BTU/H: 1593 | STRUCTURAL HEAT LOSS: 39640 | TOTAL COMBINED HEAT LOSS BTU/H: 41233

RECEIVED
JUL 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO.

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

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

TYPE: PRESTON 1 DATE: Jul-19 GFA: 2507 LO# 81347

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6
TOTAL HEAT LOSS	39,640	TOTAL HEAT GAIN	28,952	furnace filter	0.05
AIR FLOW RATE CFM	28.53	AIR FLOW RATE CFM	39.06	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	8	4
R/A	0	0	4	2	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
HIGH 1131

DESIGN CFM = **1131**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 47 °F

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-2	BED-3	MBR	ENS-2	LV/DN	KIT	KIT	FAM	FAM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.02	1.42	0.48	1.54	1.19	1.32	0.49	1.54	1.19	1.02	1.07	2.42	1.56	1.56	1.13	1.13	0.77	0.83	2.08	1.92	3.49	3.49	3.49	3.49
CFM PER RUN HEAT	29	40	14	44	34	38	14	44	34	29	31	69	45	45	32	32	22	24	59	55	99	99	99	99
RM GAIN MBH.	1.73	1.27	0.15	1.74	1.67	1.97	0.34	1.74	1.67	1.73	0.54	1.89	2.30	2.30	1.26	1.26	1.04	0.39	0.63	1.16	0.54	0.54	0.54	0.54
CFM PER RUN COOLING	68	50	6	68	65	77	13	68	65	68	21	74	90	90	49	49	41	15	25	45	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	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	61	73	48	48	35	37	41	50	28	51	41	13	41	45	52	42	47	20	30	36	36	47	23	17
EQUIVALENT LENGTH	140	190	190	190	130	220	210	160	140	150	180	190	170	170	190	160	150	150	150	160	160	210	160	170
TOTAL EFFECTIVE LENGTH	201	263	238	238	165	257	251	210	168	201	221	203	211	215	242	202	197	170	180	196	196	257	183	187
ADJUSTED PRESSURE	0.09	0.07	0.07	0.07	0.1	0.07	0.07	0.08	0.1	0.09	0.08	0.08	0.08	0.08	0.07	0.09	0.09	0.1	0.1	0.09	0.08	0.06	0.09	0.09
ROUND DUCT SIZE	5	5	4	5	5	6	4	5	5	5	4	5	6	6	5	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	213	294	161	323	250	194	161	323	250	213	356	507	229	229	235	235	252	275	433	404	505	505	505	505
COOLING VELOCITY (ft/min)	499	367	69	499	477	393	149	499	477	499	241	543	459	459	360	360	470	172	184	330	107	107	107	107
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	B	B	C	B	B	B	C	A	B	C	A	A	A	A	B	C	C	B	A	A	B	C

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

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	450	0.06	11.2	14	x	8	579	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	811	0.06	13.9	22	x	8	664	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	319	0.08	9.1	10	x	8	574	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	TRUNK J	0	0.00	0	0	x	8	0
TRUNK 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	265	0.05	9.6	10	x	8	477
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	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	130	135	130	95	310	135	0	0	0	0	0	0	0	0	0	196
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.	61	48	49	47	40	71	1	1	1	1	1	1	1	1	1	18
EQUIVALENT LENGTH	185	225	175	145	255	190	0	0	0	0	0	0	0	0	0	260
TOTAL EFFECTIVE LH	246	273	224	192	295	261	1	1	1	1	1	1	1	1	1	278
ADJUSTED PRESSURE	0.06	0.05	0.07	0.08	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.05
ROUND DUCT SIZE	7	7.5	6.8	5.8	10.2	7.1	0	0	0	0	0	0	0	0	0	8.6
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	30	14	0	0	0	0	0	0	0	0	0	30

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INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: PRESTON 1 LO # 81347
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	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	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-2	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 # 001820

Date: July-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 MUST BE 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#: 81347 Model: PRESTON 1 Builder: GREENPARK HOMES Date: 7/12/2019

Volume Calculation

House Volume

Level	Floor Area (ft^2)	Floor Height (ft)	Volume (ft^3)
Bsmt	1087	9	9783
First	1087	10	10870
Second	1418	8	11461.694
Third	0	9	0
Fourth	0	9	0
		Total:	32,114.7 ft^3
		Total:	909.4 m^3

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

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

0.242 x 252.61 x 41 °C x 1.2 = 3022 W

= 10312 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 252.61 x 6 °C x 1.2 = 146 W

= 497 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	10,312	8,793	0.586
2	0.3		9,553	0.324
3	0.2		10,269	0.201
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

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 1 **BUILDER:** GREENPARK HOMES
SFQT: 2507 **LO#** 81347 **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):	32114.7	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	168.0 ft

2012 OBC - COMPLIANCE PACKAGE	Compliance Package ENERGYSTAR	
Component	**Nominal**	**Min. Eff.**
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	R22+R5	21.10
Basement Walls Minimum RSI (R)-Value	20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	ZONE 2	-
Skylights Maximum U-Value	ZONE 2	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

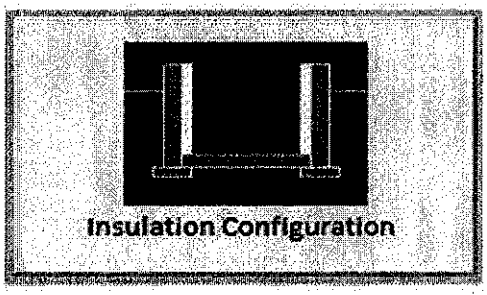
ENGINEERED PROVISIONS OF THE ONTARIO BUILDING CODE

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):	16.5	
Floor Width (m):	9.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m^2):	1.9	
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):	**1693**	

TYPE: PRESTON 1
LO# 81347

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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):	7.34	
Building Configuration		
Type:	Detached	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m^3):	909.4	
Air Leakage/Ventilation		
Air Tightness Type:	Energy Star Detached (2.5 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	848.9 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: PRESTON 1
LO# 81347

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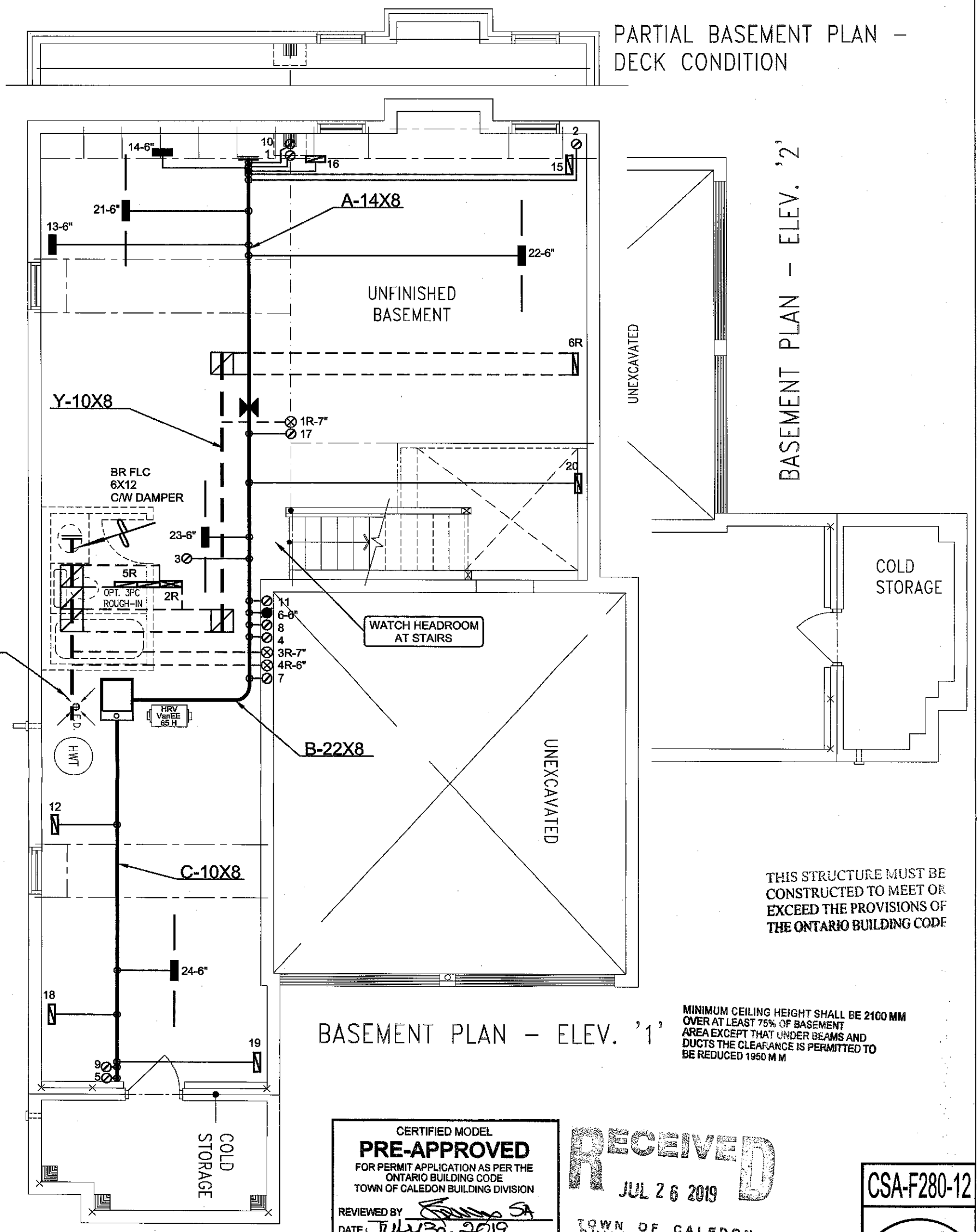

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MINIMUM CEILING HEIGHT SHALL BE 2100 MM OVER AT LEAST 75% OF BASEMENT AREA EXCEPT THAT UNDER BEAMS AND DUCTS THE CLEARANCE IS PERMITTED TO BE REDUCED 1950 M M

CERTIFIED MODEL
PRE-APPROVED
FOR PERMIT APPLICATION AS PER THE ONTARIO BUILDING CODE
TOWN OF CALEDON BUILDING DIVISION
REVIEWED BY SA
DATE July 30, 2019
FILE # CMOD-PRESTON1
(ELEVATION 1 & 2)

RECEIVED
JUL 26 2019
TOWN OF CALEDON BUILDING SECTION
FILE NO

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
	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

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Client
GREENPARK HOMES

Project Name
LAMBERTS LANE HOME CORP PH 2
CALEDON, ONTARIO

PRESTON 1 2507 sqft

HVAC DESIGNS LTD.
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L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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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 41233 BTU/H

UNIT DATA

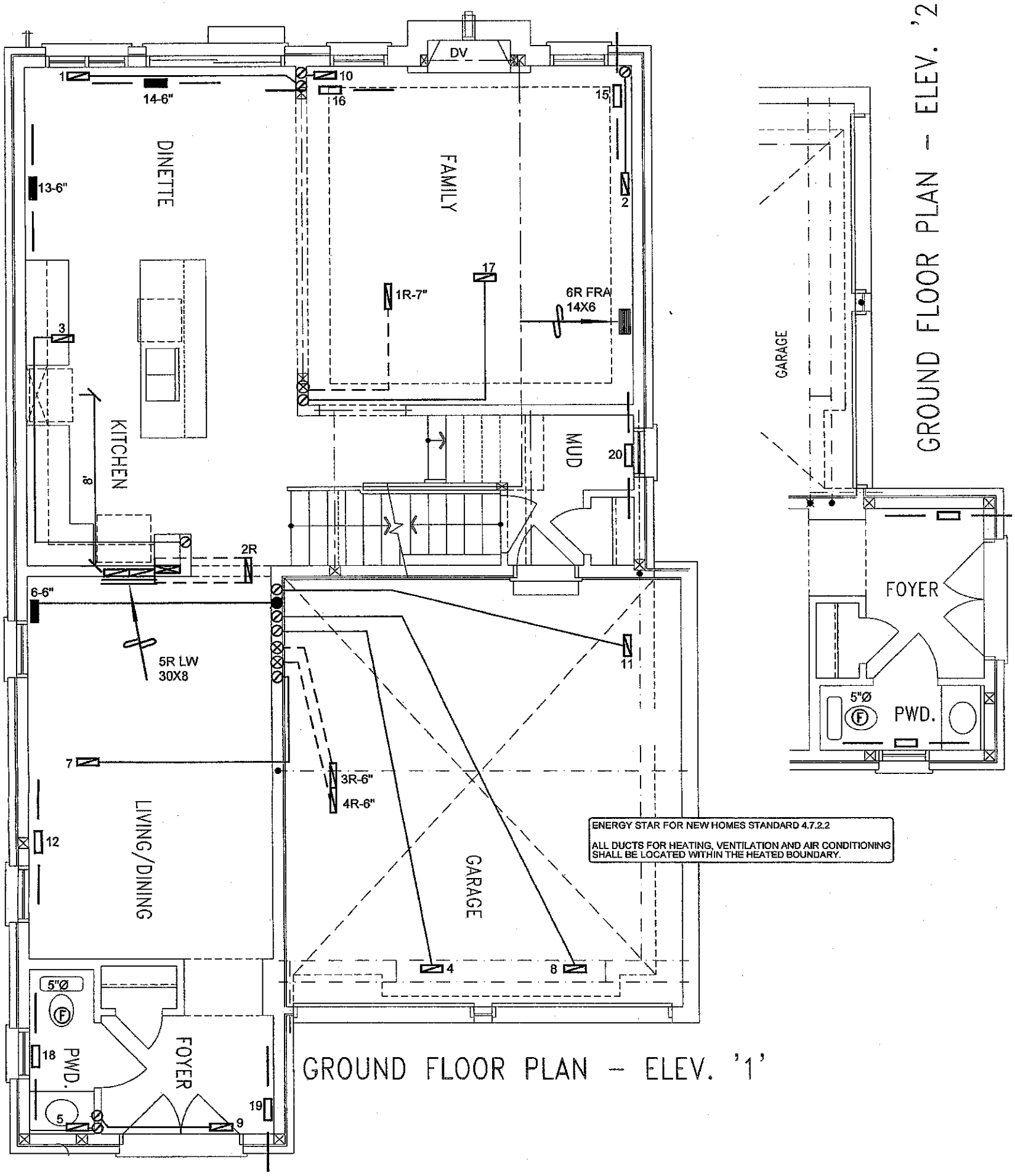
MAKE	GOODMAN	
MODEL	GMEC960603BNA-60	
INPUT	60	MBTU/H
OUTPUT	57.6	MBTU/H
COOLING	2.5	TONS
FAN SPEED	1131	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	4	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# 81347



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

RECEIVED
JUL 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

CSA-F280-12

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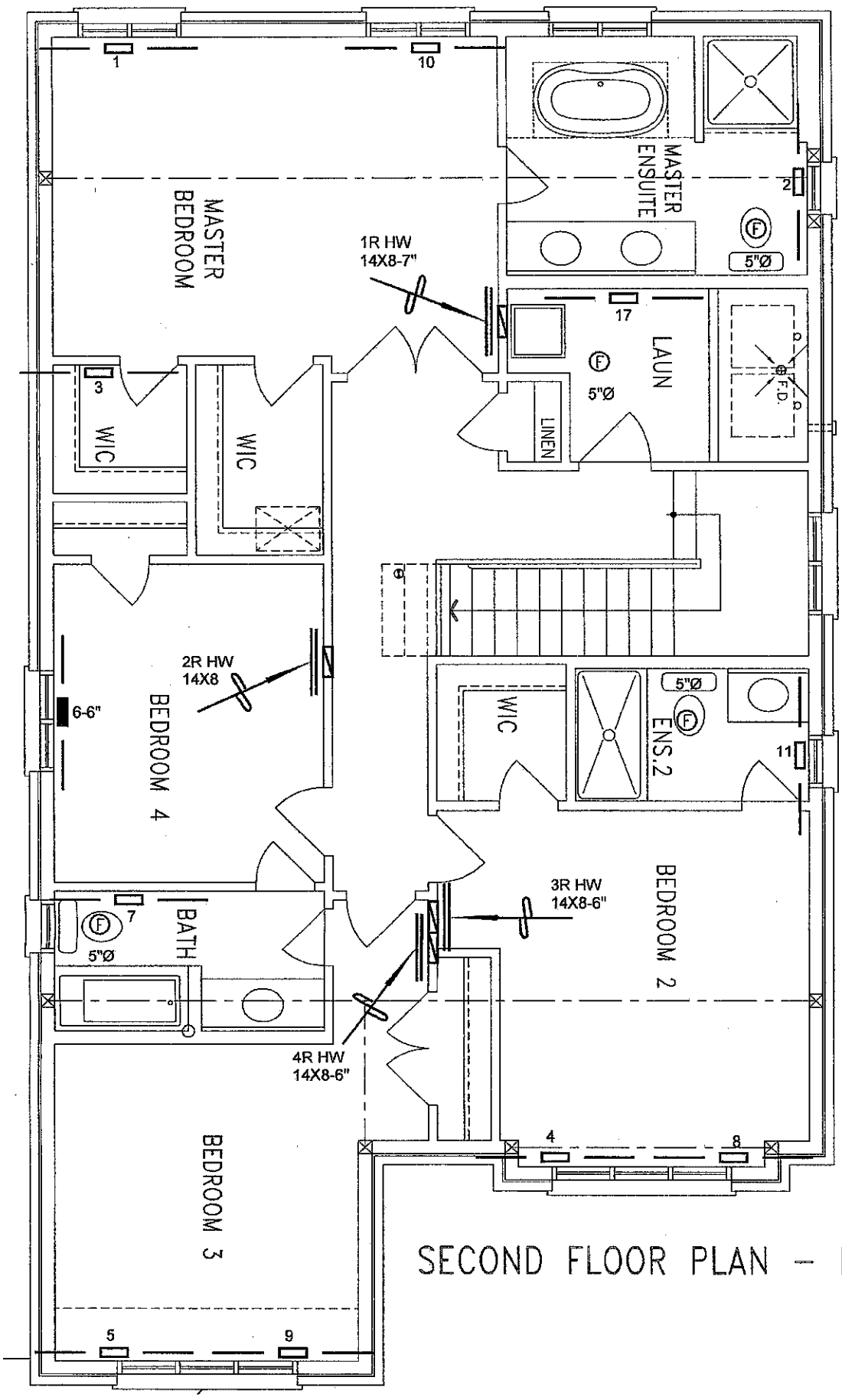
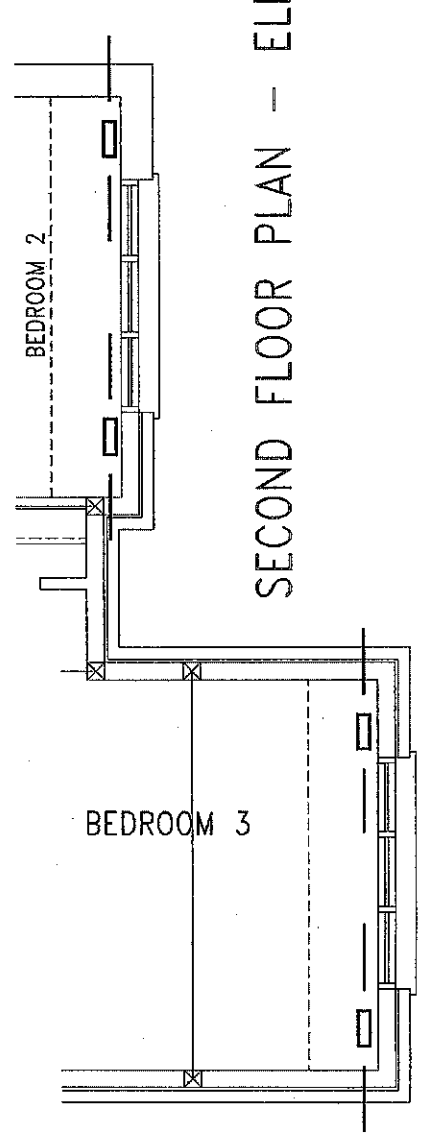
THIS STAMP DOES NOT CONSTITUTE THE APPROVAL OF THE ONTARIO BUILDING CODE

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date FEB/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 81347



SECOND FLOOR PLAN – ELEV. '1'



SECOND FLOOR PLAN – ELEV. '2'

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BUILDING SECTION
FILE NO.

CSA-F280-12

ENERGY STAR

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Sheet Title
SECOND FLOOR HEATING LAYOUT

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