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 O
THE ONTARIO BUILDING CO

SITE NAME: LAMBERT'S LANE PH.2 | OPT 5 BED | DATE: Jul-19 | WINTER NATURAL AIR CHANGE RATE 0.262 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: PRESTON 1 WOB | GFA: 2507 | LO# 82665 | 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			BED-5				ENS-2				
EXP. WALL			31			25			9			26			38			11			6			11				6				
CLG. HT.			8			8			8			8			8			8			8			8				8				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	251			202			73			210			307			89			48			89				48				
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	8	148	121	0	0	0	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	0	0	0	30	557	1222	30	557	1222	0	0	0	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	16	297	385		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		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	0	0	0	0	0	0	0	0	0		0	0	0		
NET EXPOSED WALL	3.5	0.5	219	769	114	186	654	97	65	228	34	180	634	94	277	975	144	73	256	38	41	146	22	73	256	38		48	171	25		
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		
EXPOSED CLG	1.3	0.6	234	293	130	154	193	86	162	203	90	143	179	80	169	212	94	150	188	84	72	90	40	143	179	80		66	83	37		
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		0	0	0		
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	143	356	53	0	0	0	0	0	0	0	0	0	0	0	0		66	164	24		
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				1656			1144			579			1725			1813			741			366			732				418				
SUB TOTAL HT GAIN					1547			834			245			1448			1491			507			230			503				86			
LEVEL FACTOR / MULTIPLIER			0.20	0.21		0.20	0.21		0.20	0.21		0.20	0.21		0.20	0.21		0.20	0.21		0.20	0.21		0.20	0.21			0.20	0.21			
AIR CHANGE HEAT LOSS				354			245			124			369			388			158			78			157				89				
AIR CHANGE HEAT GAIN					81			44			13			76			78			26			12			26				5			
DUCT LOSS				0			0			0			209			0			0			0			0				51				
DUCT GAIN					0			0			0			225			0			0			0			0				9			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	1		240		0		0			
HEAT GAIN APPLIANCES/LIGHTS					490			0			0			490			490			490			0			490				0			
TOTAL HT LOSS BTU/H				2009			1389			703			2304			2280			900			444			889				558				
TOTAL HT GAIN x 1.3 BTU/H					3378			1141			335			3222			2989			1642			315			1637				130			

ROOM USE			LV/DN				KIT			FAM			LAUN			W/R			FOY			MUD					WOB			BAS		
EXP. WALL			40				39			36			12			14			18			25					40			128		
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			768		
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			53	983	802	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			22	408	896	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			285	1002	149	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	216	271	120	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	216	538	80	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								2336		
SLAB ON GRADE HEAT LOSS				0				0			0			0			0			0			0					522				
SUBTOTAL HT LOSS				1828				2364			1714			1270			628			1569			1452					2915			4326		
SUB TOTAL HT GAIN					868				2856			1325			368			285			460			339						1847			466
LEVEL FACTOR / MULTIPLIER			0.30	0.35			0.30	0.35		0.30	0.35		0.20	0.21		0.30	0.35		0.30	0.35		0.30	0.35							0.50	0.77		
AIR CHANGE HEAT LOSS				641				829			601			272			220			550			509								5582		
AIR CHANGE HEAT GAIN					45				149			69			19			15			24			18									121
DUCT LOSS				0				0			0			154			0			0			0								0		
DUCT GAIN					0				0			0			88			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					490				490			490			490			0			0			490						0			490
TOTAL HT LOSS BTU/H				2468				3192			2314			1696			848			2118			1961					2915			9909		
TOTAL HT GAIN x 1.3 BTU/H					1824				4544			2449			1254			390			630			1101						2401			1399

TOTAL HEAT GAIN BTU/H: 31063 TONS: 2.59 LOSS DUE TO VENTILATION LOAD BTU/H: 1911 STRUCTURAL HEAT LOSS: 38818 TOTAL COMBINED HEAT LOSS BTU/H: 40729

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

OPT 5 BED
TYPE: PRESTON 1 WOB

DATE: Jul-19

GFA: 2507 LO# 82665

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6	
TOTAL HEAT LOSS	38,818	TOTAL HEAT GAIN	30,780	furnace filter	0.05	
AIR FLOW RATE CFM	29.14	AIR FLOW RATE CFM	36.74	a/c coil pressure	0.2	
				available pressure for s/a & r/a	0.35	
				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

#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	13	8	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	ENS	MBR	BED-5	BED-2	BED-3	BATH	BED-4	BED-2	BED-3	MBR	LAUN	LV/DN	KIT	KIT	FAM	FAM	WIC	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.39	1.00	0.89	1.15	1.10	0.44	0.90	1.15	1.10	1.00	1.70	2.47	1.60	1.60	1.16	1.16	0.70	0.85	2.12	1.96	3.21	3.21	3.21	3.21
CFM PER RUN HEAT	40	29	26	34	32	13	26	34	32	29	49	72	47	47	34	34	20	25	62	57	93	93	93	93
RM GAIN MBH.	1.14	1.69	1.64	1.61	1.49	0.31	1.64	1.61	1.49	1.69	1.25	1.82	2.27	2.27	1.22	1.22	0.34	0.39	0.63	1.10	0.95	0.95	0.95	0.95
CFM PER RUN COOLING	42	62	60	59	55	12	60	59	55	62	46	67	83	83	45	45	12	14	23	40	35	35	35	35
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	48	59	23	17
EQUIVALENT LENGTH	140	190	190	190	130	220	210	160	140	150	180	190	170	170	190	160	150	150	150	160	170	220	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	218	279	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	0.07	0.06	0.09	0.09
ROUND DUCT SIZE	5	6	5	5	5	4	5	5	5	5	5	5	6	6	5	4	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	294	148	191	250	235	149	191	250	235	213	360	529	240	240	250	390	229	287	455	419	474	474	474	474
COOLING VELOCITY (ft/min)	308	316	441	433	404	138	441	433	404	455	338	492	423	423	330	516	138	161	169	294	178	178	178	178
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	3X10	3X10	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 #	28
ROOM NAME	ENS-2
RM LOSS MBH.	0.56
CFM PER RUN HEAT	16
RM GAIN MBH.	0.13
CFM PER RUN COOLING	5
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	34
EQUIVALENT LENGTH	190
TOTAL EFFECTIVE LENGTH	224
ADJUSTED PRESSURE	0.08
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	184
COOLING VELOCITY (ft/min)	57
OUTLET GRILL SIZE	3X10
TRUNK	B

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	446	0.06	11.1	14	x	8	573	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	814	0.06	14	24	x	8	611	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	316	0.08	9.1	10	x	8	569	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	415	0.05	11.3	14	x	8	534
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	150	0	0	0	0	0	0	0	0	0	181
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	7.4	0	0	0	0	0	0	0	0	0	8.3
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	24

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INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: PRESTON 1 WOB LO # 82665
SITE NAME: LAMBERT'S LANE PH.2 OPT 5 BED

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	4	@ 10.6 cfm	42.4	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	6	@ 10.6 cfm	63.6	cfm
Table 9.32.3.A.		TOTAL	201.4	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 95.4		cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

95.4 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
95.4 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 / Ventilation Calculation)

LO#: 82665 Model: PRESTON 1 WOB 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	0.262
SUMMER NATURAL AIR CHANGE RATE	0.085

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

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

0.262 x 252.61 x 41 °C x 1.2 = 3272 W

= 11164 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.085 x 252.61 x 6 °C x 1.2 = 158 W

= 538 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

95 CFM x 74 °F x 1.08 x 0.25 = 1911 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

95 CFM x 11 °F x 1.08 x 0.25 = 283 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	11,164	7,242	0.771
2	0.3		9,553	0.351
3	0.2		10,444	0.214
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
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: PRESTON 1 WOB OPT 5 BED **BUILDER:** GREENPARK HOMES
SFQT: 2507 **LO#** 82665 **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:	6
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:	128.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	40.0 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

HVAC Designs Ltd.
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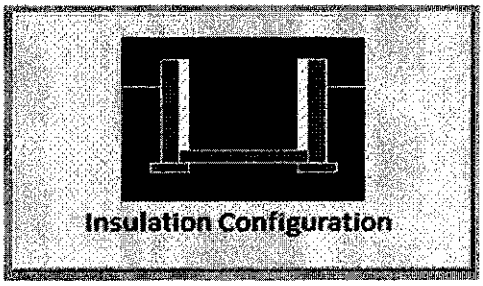
Residential Foundation Thermal Load Calculator

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):	**4.6**	 Insulation Configuration
Floor Width (m):	**9.1**	
Exposed Perimeter (m):	**39.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.52**	
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):	**684**	

TYPE: PRESTON 1 WOB OPT 5 BED
LO# 82665

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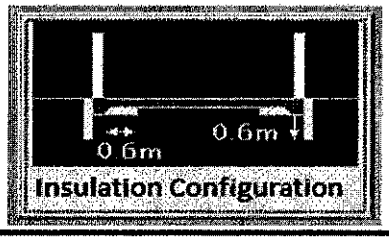
Residential Slab on Grade Thermal Load Calculator

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):	**1.5**	
Width (m):	**9.1**	
Exposed Perimeter (m):	**12.2**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Results		
Heating Load (Watts):		**153**

TYPE: PRESTON 1 WOB OPT 5 BED
LO# 82665

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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):	8.25
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 45.0 / Total Exhaust 45.0
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.262**
Cooling Air Leakage Rate (ACH/H):	**0.085**

TYPE: PRESTON 1 WOB OPT 5 BED
LO# 82665

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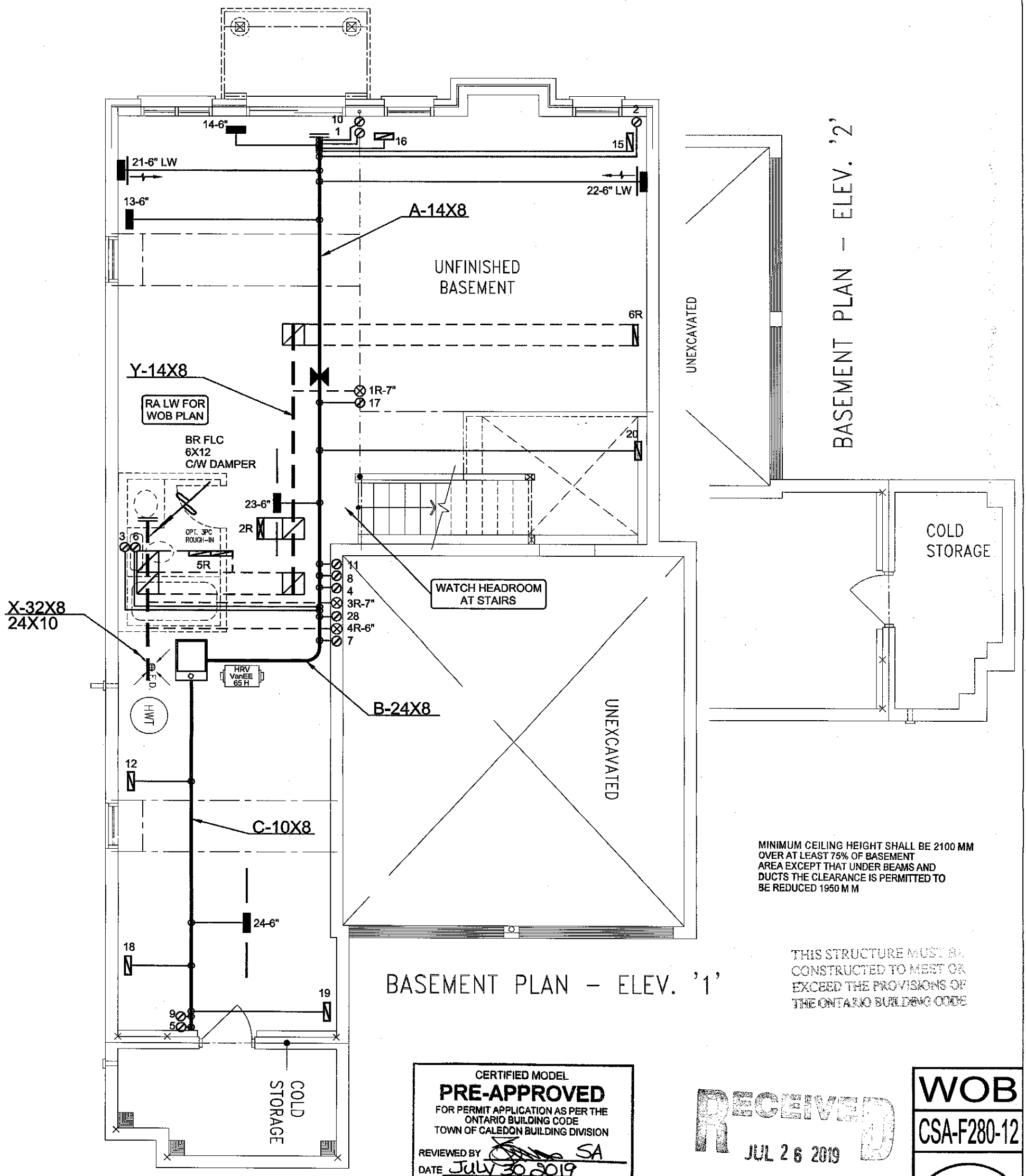

BASEMENT PLAN – ELEV. '1'

BASEMENT PLAN – ELEV. '2'

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

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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-PRESTON 1-5B OPT, (WOB)
(ELEVATION 12)

RECEIVED
JUL 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

WOB
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

Client
GREENPARK HOMES

Project Name
LAMBERTS LANE HOME CORP PH 2
CALEDON, ONTARIO

OPT 2ND FL
PRESTON 1 WOB 2507 sqft

HVAC DESIGNS LTD.
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Email: info@hvacdesigns.ca
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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.

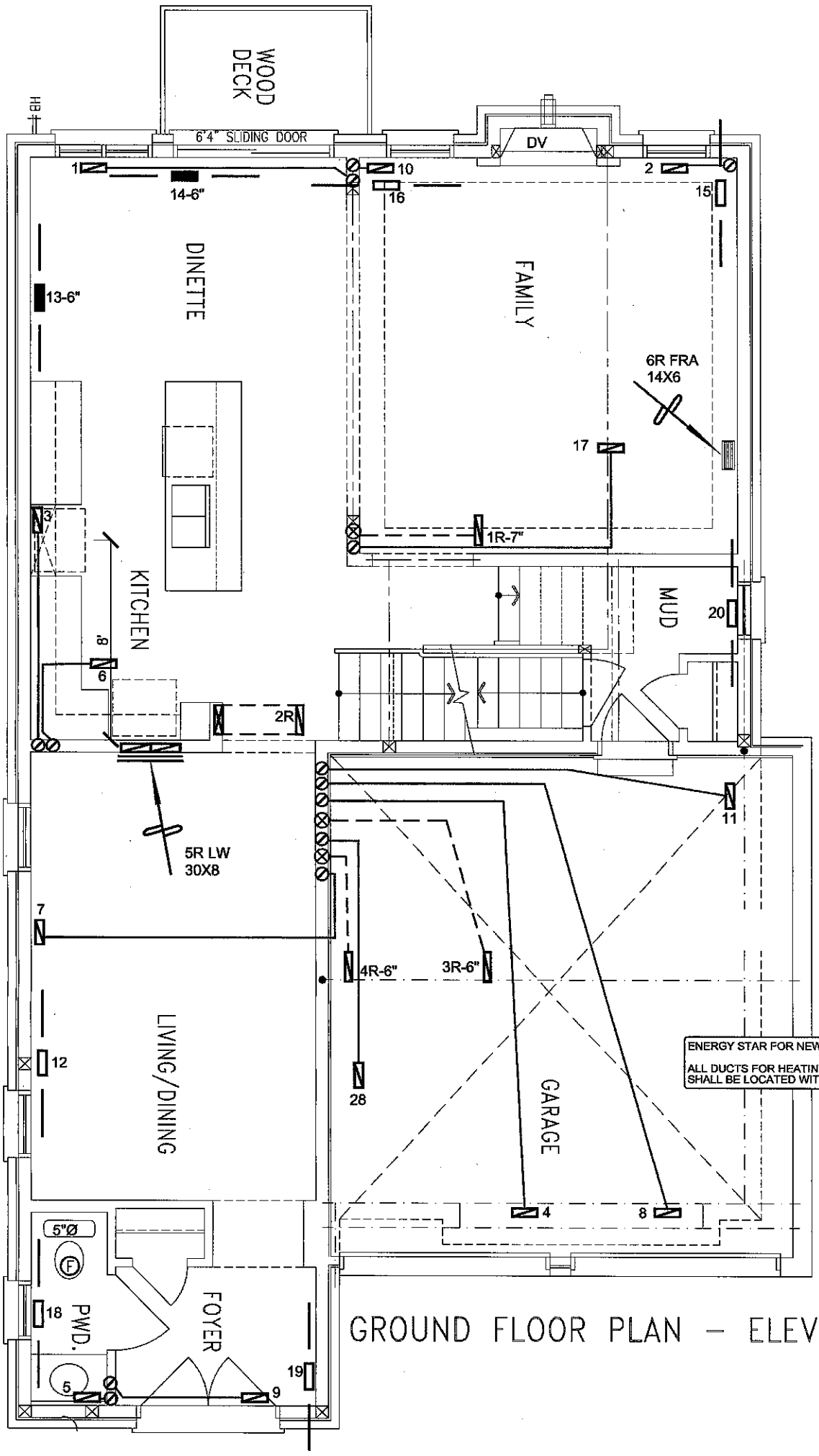
HEAT LOSS 40729 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA-60
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	1131 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	4
1ST FLOOR	8	2	2
BASEMENT	4	1	0

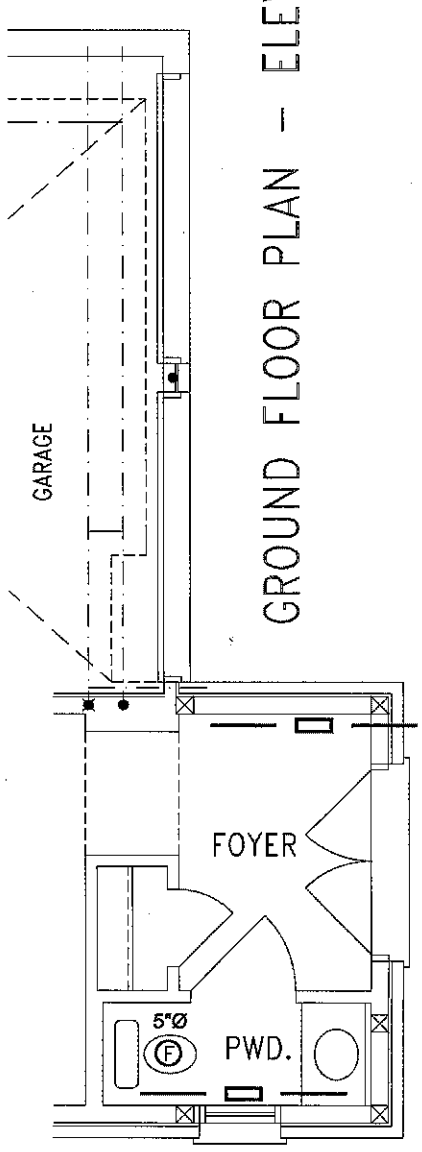
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date JUNE/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 82665



GROUND FLOOR PLAN – ELEV. '1'



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

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REVISIONS

Client
GREENPARK HOMES

Project Name
LAMBERTS LANE HOME CORP PH 2
CALEDON, ONTARIO

OPT 2ND FL
PRESTON 1 WOB 2507 sqft

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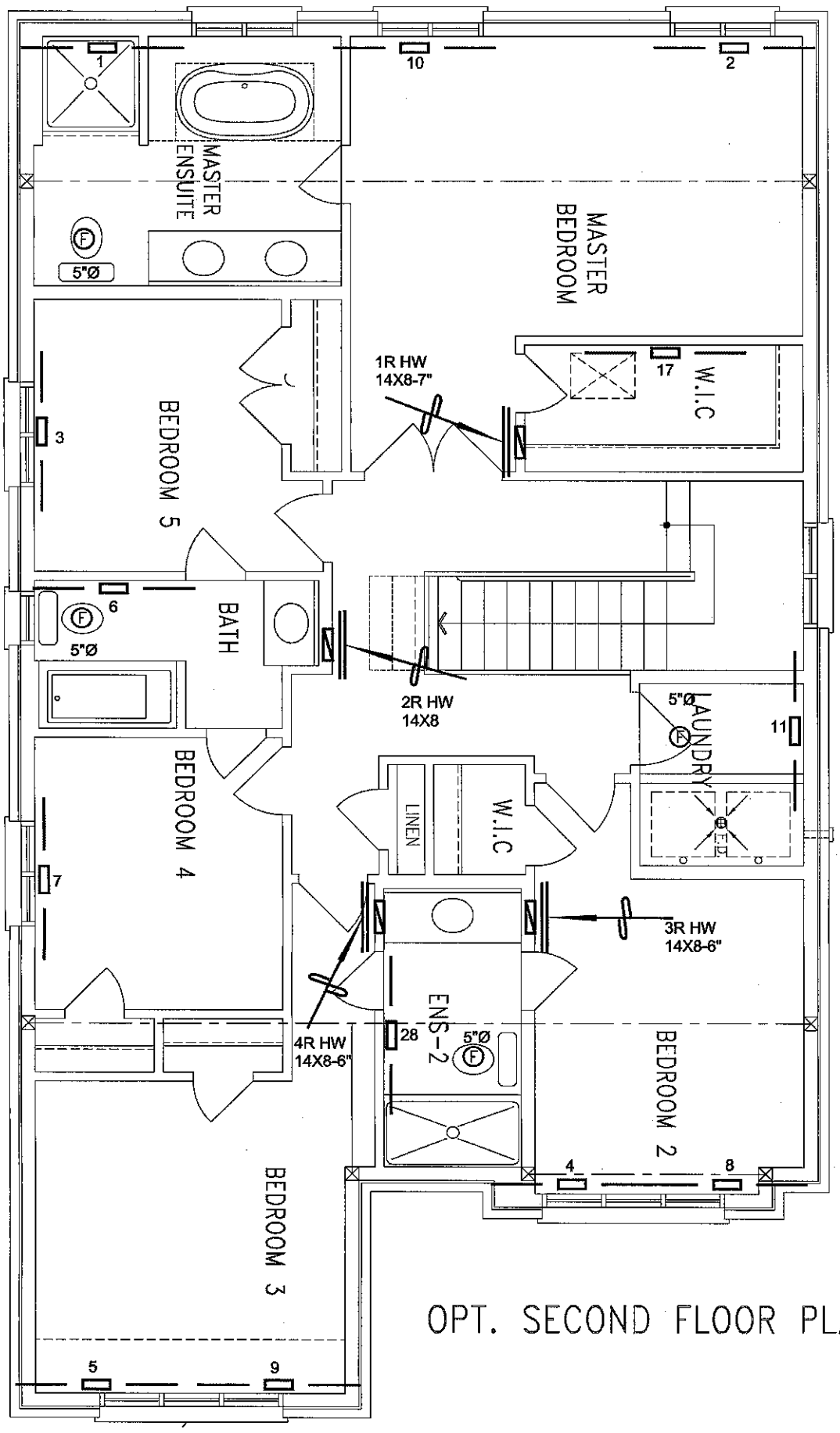
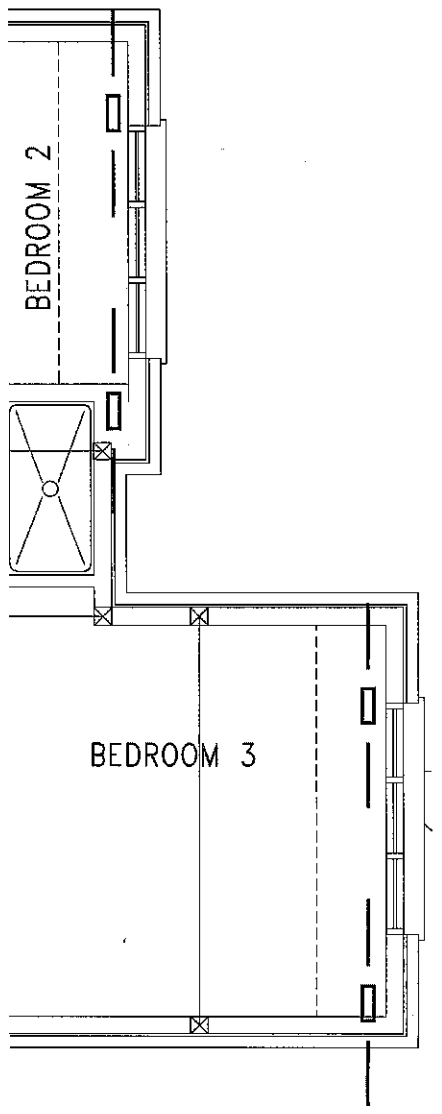
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JUNE/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 82665



OPT. SECOND FLOOR PLAN (5 BED) – ELEV. '1'



OPT. SECOND FLOOR PLAN (5 BED) – ELEV. '2'

WOB

CSA-F280-12

ENERGY STAR

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JUL 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

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HVAC LEGEND

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REVISIONS

Client
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Project Name
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CALEDON, ONTARIO

OPT 2ND FL
PRESTON 1 WOB 2507 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

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BCIN# 19669
LO# 82665