HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
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SITE NAME: LAMBERT'S LANE PH.2 — LOT 50 — DATE: Aug-19
BUILDER: GREENPARK HOMES — TYPE: WOODCROFT 11 — GFA: 2875 — LOT# 63615
WINTER NATURAL AIR CHANGE RATE 0.258 — HEAT LOSS AT °F. 74 — CSA-F280-12
SUMMER NATURAL AIR CHANGE RATE 0.084 — HEAT GAIN AT °F. 11 — ENERGYSTAR

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			LAUN			WIC-4			ENS-2		
EXP. WALL			31			12			7			17			15			23			20			13			13			19		
CLG. HT.			8			8			8			8			10			8			10			8			8			8		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	251			97			57			138			150			186			200			105			105			154		
GLAZING			LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN
NORTH	18.6	15.1	9	167	136	18	334	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	18.6	40.7	30	557	1222	0	0	0	8	148	326	20	371	814	0	0	0	0	0	0	8	148	326	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	26	482	626	0	0	0	13	241	313	11	204	265	0	0	0	0	0	0
WEST	18.6	40.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	705	1547	0	0	0	9	167	366	9	167	366	16	297	651
SKYLT.	31.2	99.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	212	745	110	79	278	41	49	171	25	118	413	61	124	436	65	148	521	77	179	629	93	85	300	44	96	338	50	138	484	72
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	234	293	130	156	196	87	126	158	70	260	326	145	0	0	0	320	401	178	0	0	0	91	114	51	42	53	23	84	105	47
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	169	453	201	20	54	24	91	244	108	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	156	388	58	0	0	0	0	0	0	0	0	0	95	237	35	0	0	0	0	0	0	0	0	0	84	209	31
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			0			0			0	
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			0			0			0	
SUBTOTAL HT LOSS				1762			1195			477			1110			1371			1917			1263			785			558			1096	
SUB TOTAL HT GAIN					1599			458			421			1021			892			1862			840			726		440			801	
LEVEL FACTOR / MULTIPLIER			0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22		0.20	0.22	
AIR CHANGE HEAT LOSS				381			259			103			240			297			415			273			170			121			237		
AIR CHANGE HEAT GAIN					57			16			15			36			32			66			30			26		16			29	
DUCT LOSS				0			145			0			0			0			233			0			0			0			133		
DUCT GAIN					0			47			0			0			0			279			0			0			0			83	
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCE/LIGHTS					623			0			0			623			623			623			0			623			0			0
TOTAL HT LOSS BTU/H				2143			1600			581			1351			1668			2565			1536			954			679			1466	
TOTAL HT GAIN x 1.3 BTU/H					3586			679			567			2495			2322			3991			1131			1787		592			1186	

ROOM USE			LIV/DIN			FAM			KIT			LIBR						W/R			FOY			MUD						WOB			BAS		
EXP. WALL			35			46			24			29						13			14			12						93			81		
CLG. HT.			10			10			10			10						10			10			10						9			9		
	FACTORS																																		
GRS.WALL AREA	LOSS	GAIN	347			456			238			288						129			139			119						791			448		
GLAZING			LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN				LOSS		GAIN	LOSS		GAIN	LOSS		GAIN				LOSS		GAIN	LOSS		GAIN
NORTH	18.6	15.1	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
EAST	18.6	40.7	27	501	1099	40	742	1629	61	1132	2484	0	0	0				0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
SOUTH	18.6	24.1	54	1002	1300	0	0	0	0	0	0	0	0	0				12	223	289	0	0	0	0	0	0				93	1725	3787	0	0	0
WEST	18.6	40.7	0	0	0	0	0	0	0	0	0	31	575	1262				12	223	489	6	111	244	0	0	0				0	0	0	5	93	120
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	5	93	204
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	286	936	139	416	1464	217	177	623	92	257	903	134				105	369	55	94	330	49	99	348	52				698	2453	364	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	243	854	127
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									
SLAB ON GRADE HEAT LOSS				0			0			0			0						0			0			0								2674	
SUBTOTAL HT LOSS				2439			2206			1754			1478						814			1403			841						1742			
SUB TOTAL HT GAIN					2538			1846			2676			1396						832			436			125						5920		4206	
LEVEL FACTOR / MULTIPLIER			0.30	0.34		0.30	0.34		0.30	0.34		0.30	0.34					0.30	0.34		0.30	0.34		0.30	0.34									4150		524
AIR CHANGE HEAT LOSS				835			766			601			506						279			480			288									0.59	0.62	
AIR CHANGE HEAT GAIN					91			66			92			50						30			16			4									8242	
DUCT LOSS				0			0			0			0						0			0			0											167
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 APPLIANCE/LIGHTS					623			623			623			623						0			0			0				0		0	0		0
TOTAL HT LOSS BTU/H				3274			2962			2355			1984						1093			1883			1129									0		623
TOTAL HT GAIN x 1.3 BTU/H					4226			3294			4278			2689						1120			587			168						5920		10448	
																																	5396		1707

TOTAL HEAT GAIN BTU/H: 42037 — TONS: 3.50 — LOSS DUE TO VENTILATION LOAD BTU/H: 1593 — STRUCTURAL HEAT LOSS: 45590 — TOTAL COMBINED HEAT LOSS BTU/H: 47183

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

LOT 50
TYPE: WOODCROFT 11

DATE: Aug-19

GFA: 2875 LO# 83515

HEATING CFM	1504	COOLING CFM	1504
TOTAL HEAT LOSS	45,590	TOTAL HEAT GAIN	41,801
AIR FLOW RATE CFM	32.99	AIR FLOW RATE CFM	35.98

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
GMEC960804CNA 80
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH 1504
HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800

DESIGN CFM = 1504
CFM @ .6 " E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	6
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	LAUN	WIC-4	MBR	ENS-2	LIV/DIN	FAM	KIT	KIT	LIBR	LIV/DIN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.07	1.60	0.58	1.35	1.67	1.28	1.54	0.95	0.68	1.07	1.47	1.64	2.96	1.18	1.18	1.98	1.64	1.09	1.88	1.13	2.73	2.73	2.73	2.73
CFM PER RUN HEAT	35	53	19	45	55	42	51	31	22	35	48	54	98	39	39	65	54	36	62	37	90	90	90	90
RM GAIN MBH.	1.79	0.68	0.57	2.50	2.32	2.00	1.13	1.79	0.59	1.79	1.19	2.11	3.29	2.14	2.14	2.69	2.11	1.12	0.59	0.17	1.18	1.18	1.18	1.18
CFM PER RUN COOLING	65	24	20	90	84	72	41	64	21	65	43	76	119	77	77	97	76	40	21	6	43	43	43	43
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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.	101	66	49	40	36	47	41	29	34	61	66	11	47	37	30	33	25	12	13	32	57	27	29	23
EQUIVALENT LENGTH	150	155	190	180	140	130	130	180	170	150	160	100	120	120	130	100	100	150	170	130	110	140	110	110
TOTAL EFFECTIVE LENGTH	251	221	239	220	176	177	171	209	204	211	226	111	167	157	160	133	125	162	183	162	167	167	139	133
ADJUSTED PRESSURE	0.07	0.08	0.07	0.07	0.09	0.1	0.1	0.08	0.08	0.08	0.08	0.15	0.09	0.11	0.11	0.12	0.14	0.11	0.09	0.11	0.1	0.1	0.12	0.12
ROUND DUCT SIZE	6	5	4	6	6	5	5	5	4	6	5	5	6	5	5	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	178	389	218	229	280	308	374	228	252	178	352	396	500	286	286	331	396	413	455	424	459	459	459	459
COOLING VELOCITY (ft/min)	331	176	229	459	428	529	301	470	241	331	316	558	607	565	565	495	558	459	154	69	219	219	219	219
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	B	B	C	E	C	D	E	B	A	D	A	B	B	E	C	E	E	B	A	B	E	C

RUN #	25	26	27
ROOM NAME	BED-4	BAS	BAS
RM LOSS MBH.	1.28	2.73	2.73
CFM PER RUN HEAT	42	90	90
RM GAIN MBH.	2.00	1.18	1.18
CFM PER RUN COOLING	72	43	43
ADJUSTED PRESSURE	0.17	0.16	0.16
ACTUAL DUCT LGH.	36	32	19
EQUIVALENT LENGTH	160	180	90
TOTAL EFFECTIVE LENGTH	196	212	109
ADJUSTED PRESSURE	0.09	0.08	0.15
ROUND DUCT SIZE	5	6	6
HEATING VELOCITY (ft/min)	308	459	459
COOLING VELOCITY (ft/min)	529	219	219
OUTLET GRILL SIZE	3X10	4X10	4X10
TRUNK	E	B	D

RECEIVED
AUG 28 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

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	324	0.07	9.5	10	x	8	583	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	718	0.07	12.8	20	x	8	646	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	250	0.09	8.1	8	x	8	563	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1143	0.07	15.2	26	x	8	791	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	359	0.08	9.6	10	x	8	646	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	1504	0.05	18.4	32	x	10	677
TRUNK Y	910	0.05	15.2	26	x	8	630
TRUNK Z	535	0.05	12.5	18	x	8	535
DROP	1504	0.05	18.4	24	x	14	645

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	75	75	75	300	385	365	0	0	0	0	0	0	0	0	0	
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	229
ACTUAL DUCT LGH.	66	74	49	41	48	24	1	1	1	1	1	1	1	1	1	0.15
EQUIVALENT LENGTH	255	235	225	185	200	180	0	0	0	0	0	0	0	0	0	14
TOTAL EFFECTIVE LH	321	309	274	226	248	204	1	1	1	1	1	1	1	1	1	135
ADJUSTED PRESSURE	0.05	0.05	0.05	0.07	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	149
ROUND DUCT SIZE	6	6	6	9.2	10.5	9.9	0	0	0	0	0	0	0	0	0	0.10
INLET GRILL SIZE	8	8	8	8	6	8	0	0	0	0	0	0	0	0	0	7.6
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8
INLET GRILL SIZE	14	14	14	30	30	30	0	0	0	0	0	0	0	0	0	X
																24

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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TYPE: WOODCROFT 11 LO # 83515
SITE NAME: LAMBERT'S LANE PH.2 LOT 50

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	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	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: August-19

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC DESIGNS LTD.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 83515 Model: WOODCROFT 11 Builder: GREENPARK HOMES Date: 08/20/2019

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1275	9	10837.5
First	1275	10	12648
Second	1600	8	12944
Third	0	9	0
Fourth	0	9	0
		Total:	36,429.5 ft³
		Total:	1031.6 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.258
SUMMER NATURAL AIR CHANGE RATE	0.084

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

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

0.258 x 286.55 x 41 °C x 1.2 = 3659 W

= 12483 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.084 x 286.55 x 6 °C x 1.2 = 176 W

= 601 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	12,483	10,126	0.616
2	0.3		10,935	0.342
3	0.2		11,533	0.216
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairve = 0

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	WOODCROFT 11		LOT 50	**BUILDER:**	GREENPARK HOMES
SFQT:	2875	**LO#**	83515	**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):	36429.5	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:	5.5 ft
LENGTH: 40.0 ft	WIDTH: 47.0 ft	EXPOSED PERIMETER:	81.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	93.0 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

Michael O'Rourke

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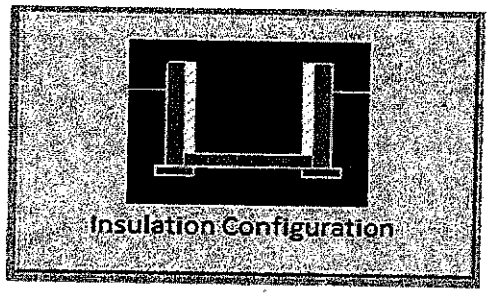
Residential Foundation Thermal Load Calculator

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):	**10.1**
Floor Width (m):	**14.3**
Exposed Perimeter (m):	**24.7**
Wall Height (m):	**2.6**
Depth Below Grade (m):	**1.53**
Window Area (m^2):	**0.9**
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):	**783**



TYPE: WOODCROFT 11 LOT 50
LO# 83515

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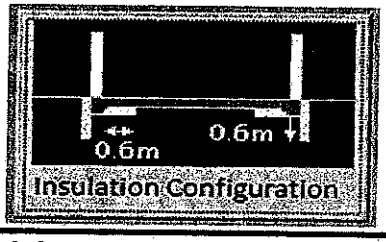
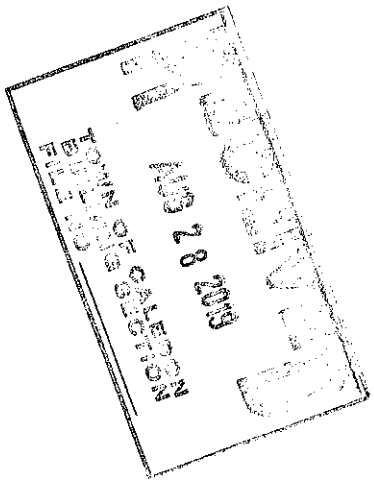
Residential Slab on Grade Thermal Load Calculator

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):	7.0	
Width (m):	14.3	
Exposed Perimeter (m):	28.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	**511**	

TYPE: WOODCROFT 11
LO# 83515

LOT 50



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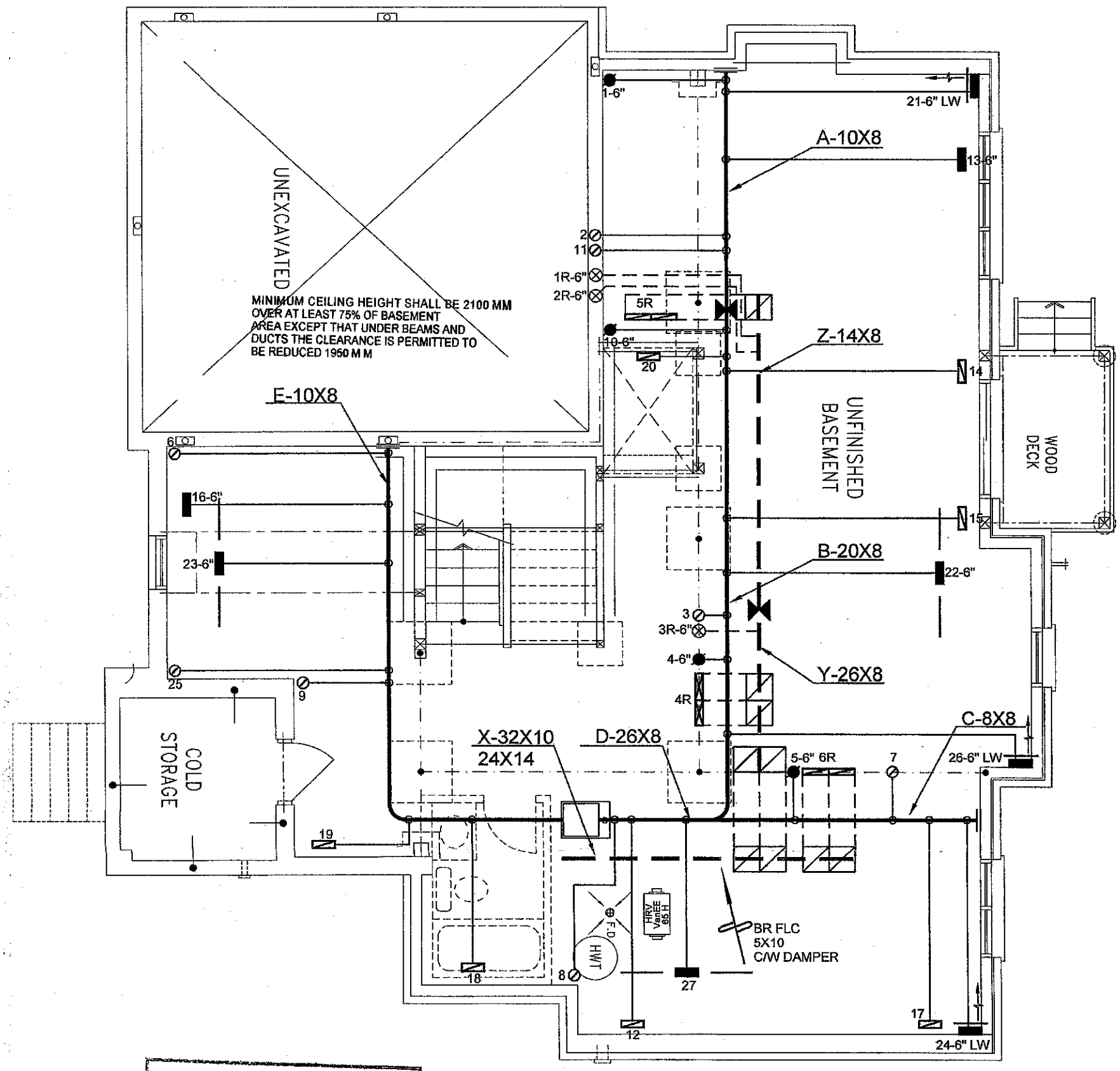
Air Infiltration Residential Load Calculator

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):	8.08				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	1031.6				
Air Leakage/Ventilation					
Air Tightness Type:	Energy Star Detached (2.5 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				963.0 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):	**0.258**				
Cooling Air Leakage Rate (ACH/H):	**0.084**				

TYPE: WOODCROFT 11 LOT 50

LO# 83515



APPROVED
For constuction as per the
Ontario Building Code
Town of Caledon Building Department
Initial SAPPUHAMY
Date Sep 11, 2019
File # BA 119 10609

BASEMENT PLAN - ELEV. '2'

RECEIVED
AUG 28 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

LOT 50
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
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

LOT 50
WOODCROFT 11 2875 sqft

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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.

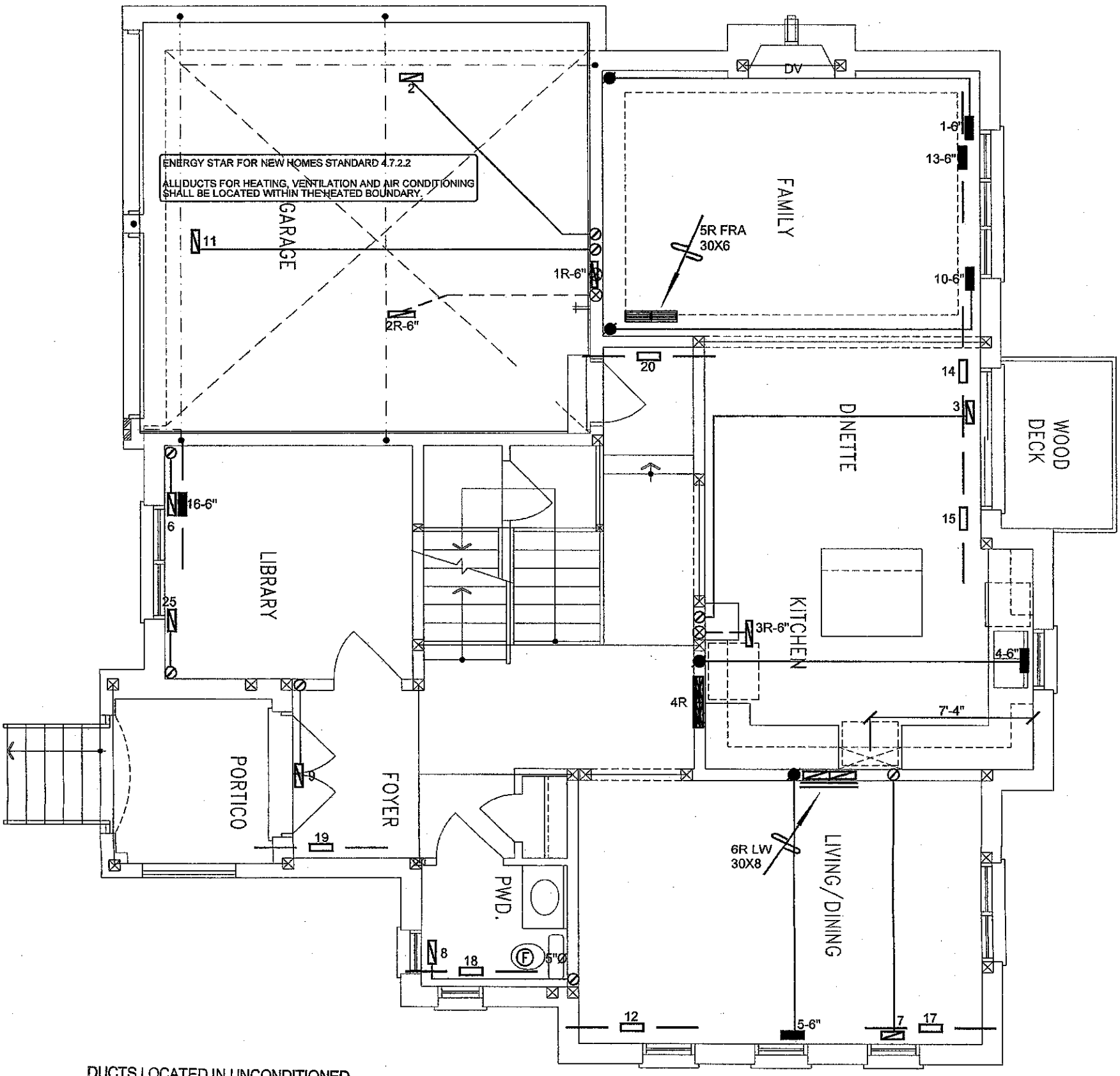
HEAT LOSS 47183 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	80 MBTU/H
OUTPUT	76 MBTU/H
COOLING	3.5 TONS
FAN SPEED	1504 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	4	3
1ST FLOOR	9	2	2
BASEMENT	6	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 AUG/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 83515



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

GROUND FLOOR PLAN – ELEV. 2

RECEIVED
AUG 28 2019
TOWN OF CALEDON
BUILDING SECTION
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LOT 50
CSA-F280-12
ENERGY STAR

HVAC LEGEND											
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.			
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description	Date	
								REVISIONS			

Client
GREENPARK HOMES

Project Name
LAMBERTS LANE HOME CORP PH 2
CALEDON, ONTARIO

LOT 50
WOODCROFT 11 2875 sqft

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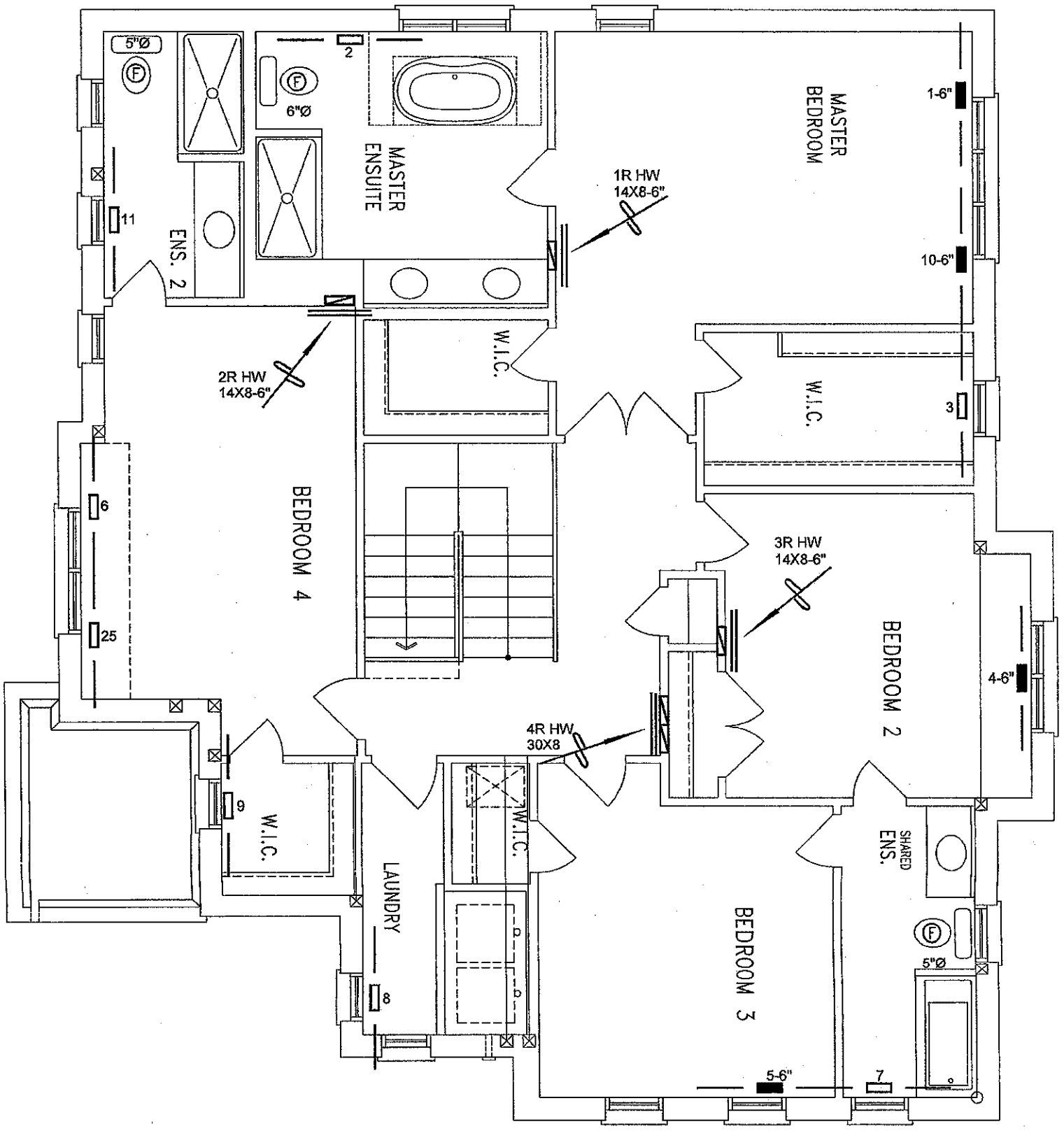
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date AUG/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 83515



SECOND FLOOR PLAN – ELEV. '2'

RECEIVED
AUG 28 2019
TOWN OF CALEDON
BUILDING SECTION
FILED

LOT 50
CSA-F280-12
ENERGY STAR

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

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REVISIONS

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Project Name
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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date AUG/2019
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 83515