

RECEIVED

SEP 26 2019

TOWN OF CALEDON BUILDING SECTION FILE NO

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

LOT# 46 TYPE: KIN MOUNT 6A GFA: 3062 DATE: AUG-19 LO# 82910

 WINTER NATURAL AIR CHANGE RATE 0.262
 SUMMER NATURAL AIR CHANGE RATE 0.085

 HEAT LOSS AT °F. 74
 HEAT GAIN AT °F. 11

 CSA-F280-12
 ENERGYSSTAR

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	ENS-4
			33	37	13	15	35	31	14	6
			8	8	8	8	8	8	8	8
GRS.WALL AREA	LOSS	GAIN	267	299	105	121	283	251	113	48
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	18.6	14.1	0	0	0	0	0	0	0	7
EAST	18.6	37.6	0	0	0	0	45	835	1690	130
SOUTH	18.6	22.3	0	0	16	297	357	0	0	99
WEST	18.6	37.6	32	594	1202	25	464	939	0	0
SKYLT.	31.2	99.9	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	235	825	122	258	908	135	105	370
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	270	338	151	255	320	142	195	244
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	75	201
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	48	129
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	256	637
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	94	0
SUBTOTAL HT LOSS			1757	1988	614	988	2059	2464	769	858
SUB TOTAL HT GAIN			1475	1572	163	554	1988	1768	314	215
LEVEL FACTOR / MULTIPLIER	0.20	0.24			0.20	0.24	0.20	0.24	0.20	0.24
AIR CHANGE HEAT LOSS			430	486	150	241	503	602	188	161
AIR CHANGE HEAT GAIN			89	95	10	33	120	107	19	13
DUCT LOSS			0	0	0	0	0	307	0	82
DUCT GAIN			0	0	0	0	0	268	0	23
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS			563	0	0	563	563	563	0	0
TOTAL HT LOSS BTU/H			2187	2474	764	1229	2562	3373	957	900
TOTAL HT GAIN x 1.3 BTU/H			3389	2167	225	1808	3782	3830	433	326

ROOM USE	EXP. WALL	CLG. HT.	LIV	KIT	FAM	LAUN	W/R	FOY	OFF	WOB	BAS
			33	43	38	29	7	19	19	12	170
			10	10	10	12	10	10	10	9	9
GRS.WALL AREA	LOSS	GAIN	330	430	380	348	70	190	190	108	1020
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	18.6	14.1	0	0	0	0	0	0	0	4	74
EAST	18.6	37.6	0	0	0	0	0	0	0	0	0
SOUTH	18.6	22.3	30	557	669	0	0	0	0	0	0
WEST	18.6	37.6	0	0	0	0	0	0	0	0	0
SKYLT.	31.2	99.9	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	300	1055	156	375	1319	195	333	1171	174
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	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
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1611	2461	2043	1752	351	1640	1088	82	3027
SUB TOTAL HT GAIN			825	1583	1939	339	189	243	1136	966	5460
LEVEL FACTOR / MULTIPLIER	0.30	0.38		0.30	0.38	0.30	0.38	0.30	0.38	0.30	0.38
AIR CHANGE HEAT LOSS			610	931	773	663	133	621	412	176	6904
AIR CHANGE HEAT GAIN			50	96	117	20	11	15	69	0.50	1.07
DUCT LOSS			0	0	0	0	0	0	0	0	0
DUCT GAIN			0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			563	563	563	563	563	563	563	0	563
TOTAL HT LOSS BTU/H			2221	3392	2816	2414	484	2261	1501	966	12364
TOTAL HT GAIN x 1.3 BTU/H			1869	2914	3404	1199	260	335	2298	229	1368

TOTAL HEAT GAIN BTU/H: 30074

TONS: 2.51

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

THIS STRUCTURE MUST BE
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 THE ONTARIO BUILDING CODE

TOTAL COMBINED HEAT LOSS BTU/H: 44460

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

LOT 46
TYPE: KINMOUNT 6A

DATE: Aug-19

GFA: 3062 LO# 82910

HEATING CFM	1131	COOLING CFM	1131
TOTAL HEAT LOSS	42,867	TOTAL HEAT GAIN	29,838
AIR FLOW RATE CFM	26.38	AIR FLOW RATE CFM	37.9

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

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	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

LOW		DESIGN CFM = <u>1131</u>
MEDIUM		CFM @ .6" E.S.P.
MEDIUM HIGH		
HIGH	1131	TEMPERATURE RISE 47

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-4	BED-3	MBR	ENS-4	LIV	FAM	KIT	KIT	FAM	LAUN	W/R	FOY	OFF	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.09	1.64	0.76	1.23	1.28	1.69	0.96	1.69	1.28	1.09	0.90	2.22	1.41	1.70	1.70	1.41	2.41	0.48	2.26	1.50	3.33	3.33	3.33	3.33
CFM PER RUN HEAT	29	43	20	32	34	44	25	44	34	29	24	59	37	45	45	37	64	13	60	40	88	88	88	88
RM GAIN MBH.	1.69	1.44	0.23	1.81	1.89	1.91	0.43	1.91	1.89	1.69	0.33	1.87	1.70	1.46	1.46	1.70	1.20	0.26	0.34	2.30	0.40	0.40	0.40	0.40
CFM PER RUN COOLING	64	55	9	69	72	73	16	73	72	64	12	71	65	55	55	65	45	10	13	87	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	49	37	21	45	47	37	37	47	44	33	14	38	35	31	46	46	8	37	28	63	32	11	28
EQUIVALENT LENGTH	190	130	180	140	130	200	140	170	90	150	170	140	160	140	120	130	140	120	170	140	160	180	130	190
TOTAL EFFECTIVE LENGTH	247	179	217	161	175	247	177	207	137	194	203	154	198	175	151	176	186	128	207	168	223	212	141	218
ADJUSTED PRESSURE	0.07	0.1	0.08	0.11	0.1	0.07	0.1	0.08	0.13	0.09	0.08	0.11	0.09	0.1	0.11	0.1	0.09	0.13	0.08	0.1	0.07	0.08	0.11	0.07
ROUND DUCT SIZE	6	5	4	5	5	6	4	6	5	5	4	5	5	5	5	5	5	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	148	316	229	235	250	224	287	224	250	213	275	433	272	330	330	272	470	149	441	204	449	449	449	449
COOLING VELOCITY (ft/min)	326	404	103	507	529	372	184	372	529	470	138	521	477	404	404	477	330	115	95	444	76	76	76	76
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	B	E	C	D	E	E	E	D	B	E	E	A	B	B	A	A	C	D	D	A	B	C	D

RUN #	25
ROOM NAME	ENS
RM LOSS MBH	0.82
CFM PER RUN HEAT	22
RM GAIN MBH	0.72
CFM PER RUN COOLING	27
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH	19
EQUIVALENT LENGTH	130
TOTAL EFFECTIVE LENGTH	149
ADJUSTED PRESSURE	0.12
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	252
COOLING VELOCITY (ft/min)	310
OUTLET GRILL SIZE	3X10
TRUNK	C

SUPPLY AIR TRUNK SIZE										RETURN 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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		
TRUNK A	226	0.07	8.3	8	x	509	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	279	0.07	9	10	x	502	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	660	0.07	12.4	18	x	660	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	256	0.07	8.7	10	x	461	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	0	0	x	8	0
TRUNK E	472	0.07	10.9	14	x	607	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.06	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.06	0	0	x	8	0

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

TRUNK W 0 0.06 0 0 x 8 0

TRUNK X 786 0.06 13.8 22 x 8 643

TRUNK Y 345 0.06 10.1 12 x 8 518

TRUNK Z 0 0.06 0 0 x 8 0

DROP 1131 0.06 15.8 24 x 10 679

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TYPE: KINMOUNT 6A
 SITE NAME: LAMBERT'S LANE PH.2

 LO # 82910
 LOT 46

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A.	TOTAL	169.6 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8 cfm	
2 Bedroom	47.7 cfm	
3 Bedroom	63.6 cfm	
4 Bedroom	79.5 cfm	
5 Bedroom	95.4 cfm	
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE 65H
Location:	BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	X 74 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
BATH	FV-05-11VK1	50	☒	0.3
ENS-4	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
155 cfm high	64 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	June-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: 19569 *Michael O'Rourke* MICHAEL O'ROURKE

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: KINMOUNT 6A	LOT 46	BUILDER: GREENPARK HOMES
SFQT: 3062	LO# 82910	SITE: LAMBERT'S LANE PH.2

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	41268.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	170.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	12.0 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

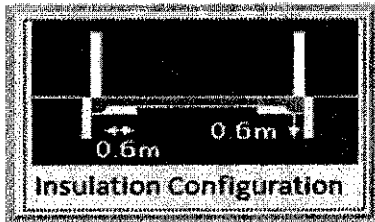


CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																		
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																		
LO#: 82910	Model: KINMOUNT 6A	Builder: GREENPARK HOMES	Date: 8/1/2019																																																															
Volume Calculation		Air Change & Delta T Data																																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">House Volume</th> </tr> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1371</td> <td>9</td> <td>12339</td> </tr> <tr> <td>First</td> <td>1371</td> <td>10</td> <td>13710</td> </tr> <tr> <td>Second</td> <td>1691</td> <td>8</td> <td>13668.353</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>39,717.4 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1124.7 m³</td> </tr> </tbody> </table>		House Volume				Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1371	9	12339	First	1371	10	13710	Second	1691	8	13668.353	Third	0	9	0	Fourth	0	9	0	Total:			39,717.4 ft³	Total:			1124.7 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">WINTER NATURAL AIR CHANGE RATE</th> <th>0.262</th> </tr> <tr> <th colspan="2">SUMMER NATURAL AIR CHANGE RATE</th> <th>0.085</th> </tr> </thead> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </tbody> </table>			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
House Volume																																																																		
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																															
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First	1371	10	13710																																																															
Second	1691	8	13668.353																																																															
Third	0	9	0																																																															
Fourth	0	9	0																																																															
Total:			39,717.4 ft³																																																															
Total:			1124.7 m³																																																															
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		6.2.6 Sensible Gain due to Air Leakage																																																																
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.262 x 312.41 x 41 °C x 1.2 = 4047 W = 13807 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.085 x 312.41 x 6 °C x 1.2 = 195 W = 665 Btu/h																																																																
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to 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		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																																		
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{devel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">13,807</td> <td>6,427</td> <td>1.074</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>10,948</td> <td>0.378</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>11,297</td> <td>0.244</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{devel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	13,807	6,427	1.074	2	0.3	10,948	0.378	3	0.2	11,297	0.244	4	0	0	0.000	5	0	0	0.000																																				
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5	0		0	0.000																																																														

THIS STRUCTURE MUST BE
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 THE ONTARIO BUILDING CODE

Residential Slab 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		
Length (m):	0.3	 Insulation Configuration
Width (m):	3.7	
Exposed Perimeter (m):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		24

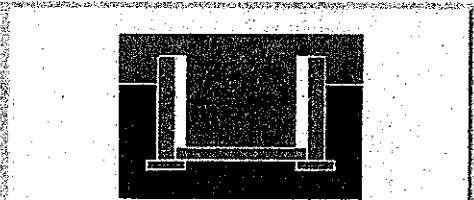
TYPE: KINMOUNT 6A
LO# 82910

LOT 45

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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):	3.4	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	51.8	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.29	
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):		887

THIS STRUCTURE MUST BE
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THE ONTARIO BUILDING CODETYPE: KINMOUNT 6A
LO# 82910

LOT 46

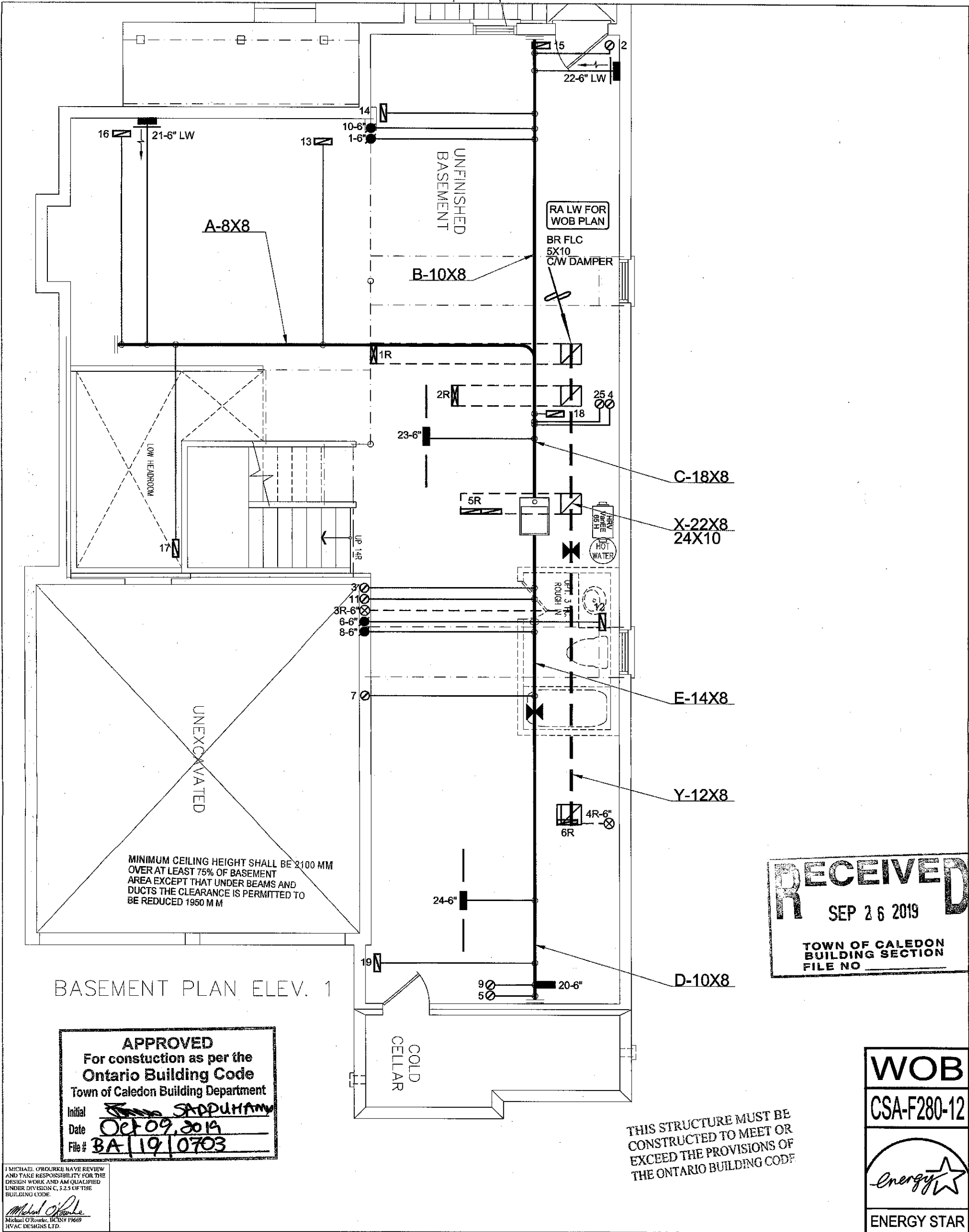
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

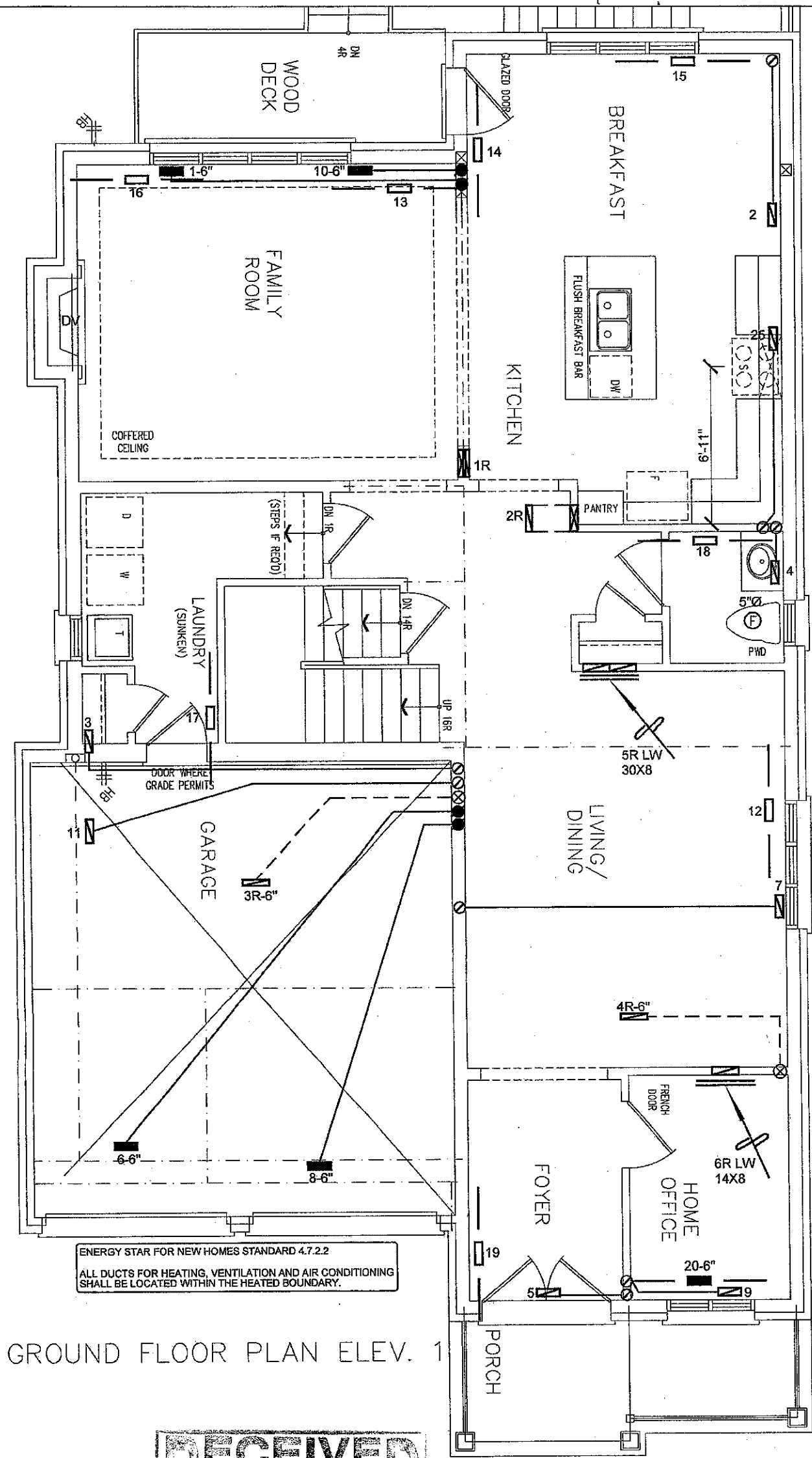
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.53			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1168.6			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1090.9 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	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):	0.268			
Cooling Air Leakage Rate (ACH/H):	0.087			

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LO# 82910

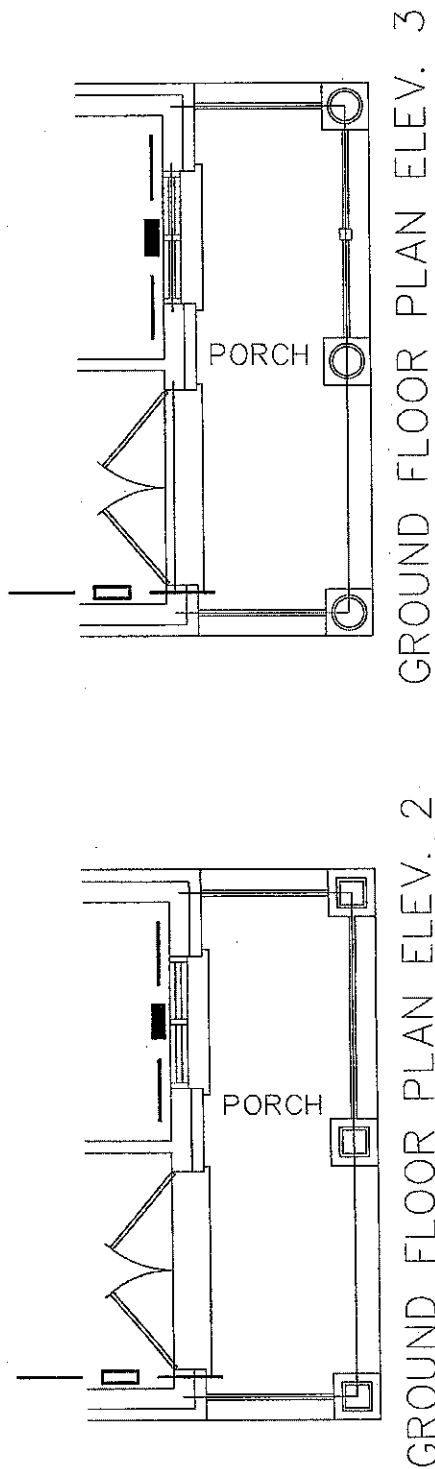
LOT 46



HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.										
Client GREENPARK HOMES		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			HEAT LOSS 44460 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT	
Project Name LAMBERT'S LANE HOME CORP PH 2 CALEDON, ONTARIO					MAKE GOODMAN		3RD FLOOR			
LOT 46 KINMOUNT 6A 3062 sqft		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.			MODEL GMEC960603BNA		2ND FLOOR 12 4 4		Data JUNE/2019	
					INPUT 60 MBTU/H		1ST FLOOR 9 2 2		Scale 3/16" = 1'-0"	
					OUTPUT 57.6 MBTU/H		BASEMENT 4 1 0		BCIN# 19669	
					COOLING 2.5 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5' UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		LO# 82910	
					FAN SPEED 1131 cfm @ 0.5" w.g.					



GROUND FLOOR PLAN ELEV. 1



GROUND FLOOR PLAN ELEV. 2 GROUND FLOOR PLAN ELEV. 3

WOB

CSA-F280-12

ENERGY STAR

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

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

RECEIVED

SEP 26 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

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

GREENPARK HOMES

Project Name

LAMBERT'S LANE HOME CORP PH 2
CALEDON, ONTARIO

LOT 46
KINMOUNT 6A 3062 sqft

375 Finlay Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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.

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Sheet Title

FIRST FLOOR
HEATING
LAYOUT

Date

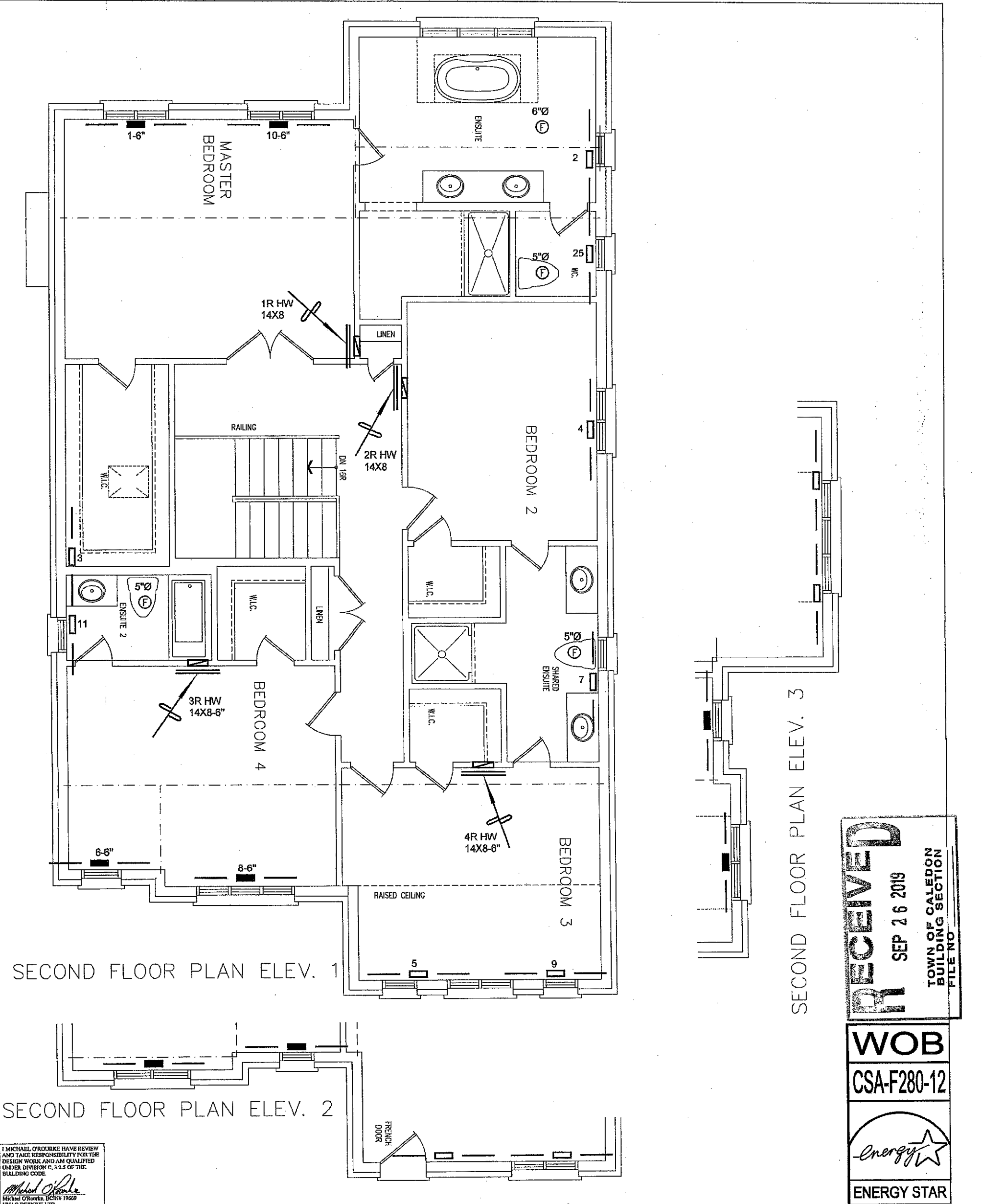
JUNE/2019

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 82910



Client
GREENPARK HOMES

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

**LOT 46
KINMOUNT 6A 3062 sqft**

HVACDESIGNS LTD.

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Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
JUNE/2019

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **82910**

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

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REVISIONS		
No.	Description	Date
3.		
2.		
1.		

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SEP 26 2019

TOWN OF CALEDON
BUILDING SECTION

FILE NO.

WOB

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ENERGY STAR