

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 294

DATE: Sep-20

WINTER NATURAL AIR CHANGE RATE 0.314

HEAT LOSS AT *F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 5

GFA: 3291

LO# 87551

SUMMER NATURAL AIR CHANGE RATE 0.113

HEAT GAIN AT *F. 13

SB-12 PACKAGE A1

ROOM USE			MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2		FLEX		WIC-3		S-ENS												
EXP. WALL			33		30		7		27		37		12		6		11		5		6												
CLG. HT.			9		9		9		9		9		9		9		9		9		9												
FACTORS																																	
GRS.WALL AREA			297		270		63		243		333		108		54		99		45		54												
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN												
NORTH	19.8	15.1	0	0	0	14	277	212	0	0	0	13	257	197	0	0	0	7	138	106	16	316	242	0	0	0	0	0	0	0	0		
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0	48	949	1873	62	1226	2419	0	0	0	0	0	0	9	178	351	0	0	0	0	0		
SOUTH	19.8	23.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	316	376	0	0	0	0	0	0	0	0	7	138	164		
WEST	19.8	39.0	32	633	1249	14	277	546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SKYLT.	34.5	101.5	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		
DOORS	23.5	4.3	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	4.1	0.8	265	1099	199	242	1003	182	63	261	47	182	755	137	271	1123	204	92	381	69	47	195	35	83	344	62	36	149	27	47	195	35	
NET EXPOSED BSMT WALL ABOVE GR	3.3	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	0	0		
EXPOSED CLG	1.2	0.6	287	342	169	221	263	130	140	167	82	236	281	139	183	218	108	180	215	106	66	79	39	220	262	129	40	48	24	72	86	42	
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	16	41	20	45	115	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	241	571	104	0	0	0	0	0	0	68	161	29	68	163	30	40	95	17	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						2073			428			2854			2682			912			573			1086			470			419			
SUB TOTAL HT GAIN						1616			1070			130			2469			2787			651			209			464			419			242
LEVEL FACTOR / MULTIPLIER	0.20	0.25				0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		
AIR CHANGE HEAT LOSS						517			454			107			711			669			227			143			271			117			104
AIR CHANGE HEAT GAIN						120			80			10			184			208			41			16			35			31			18
DUCT LOSS			0			0			0			356			0			0			72			136			59			0			
DUCT GAIN			0			0			0			350			0			0			0			22			50			45			0
HEAT GAIN PEOPLE	240		2		480	0		0	0	0	0	1		240	1		240	1		240	0		0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS					603	0		0	0	0	0	603		603	603		603	603		603	0		0	0	0	0	0	0	0	0	0	0	
TOTAL HT LOSS BTU/H					2590			2274			535		3921		3351		1140		787		1493		645		524		338						
TOTAL HT GAIN x 1.3 BTU/H					3666			1495			181		5000		4990		1865		322		712		644		338								

ROOM USE			FAM		L/D		K/B		L/H		LND		W/R		FOY		MUD				BAS					
EXP. WALL			36		30		37		19		12		18		18		30				182					
CLG. HT.			11		11		11		11		9		11		12		12				8					
FACTORS																										
GRS.WALL AREA	LOSS	GAIN	396		330		407		209		108		198		216		350				1001					
GLAZING	LOSS	GAIN	LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN					
NORTH	19.8	15.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	138	106	5	99	76			
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0	0	0	22	435	858	5	119	234	0	0	0	0			
SOUTH	19.8	23.5	0	0	0	40	791	939	0	0	0	13	257	305	7	138	164	0	0	0	0	0	10	198	235	
WEST	19.8	39.0	40	791	1551	0	0	0	62	1226	2419	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	938	170	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	356	1476	268	290	1202	218	345	1430	259	196	813	147	101	419	76	176	730	132	170	705	128	353	1463	265
NET EXPOSED BSMT WALL ABOVE GR	3.3	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
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	180	215	106	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	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	2.4	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
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				2267			1993			2656			1070			772			1165			1762			1602	
SUB TOTAL HT GAIN					1828			1157			2679			453			346			991			532			371
LEVEL FACTOR / MULTIPLIER			0.30	0.42		0.30	0.42		0.30	0.42		0.30	0.42		0.20	0.25		0.30	0.42		0.30	0.42		0.30	0.42	
AIR CHANGE HEAT LOSS				954			539			1116			450			192			490			742			674	
AIR CHANGE HEAT GAIN					136			86			200			34			26			74			40			28
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
HEAT GAIN APPLIANCES/LIGHTS					603			603			603			603			603			0			0			603
TOTAL HT LOSS BTU/H				3221			2832			3774			1620			954			1655			2503			2276	
TOTAL HT GAIN x 1.3 BTU/H					3338			2401			4526			1416			1268			1384			743			519

CITY OF HAMILTON
8th FLOOR - PLANNING
Planning & Development Department
FEB 04 2021
REC'D BY _____
REF'D TO _____
DATE _____
DATE _____

TOTAL HEAT GAIN BTU/H:

36804

TONS: 3.07

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 52831

TOTAL COMBINED HEAT LOSS BTU/H: 54347

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 294
TYPE: MOUNTAINASH 5

DATE: Sep-20

GFA: 3291 LO# 87551

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 52,831 TOTAL HEAT GAIN 36,529
AIR FLOW RATE CFM 21.41 AIR FLOW RATE CFM 30.96

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
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

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

DESIGN CFM = 1131
CFM @ .5" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	8	4
R/A	0	0	6	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	ENS-2	FLEX	WIC-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.14	0.53	1.96	1.68	1.14	0.79	1.49	0.85	1.30	0.52	3.22	2.83	1.89	1.89	1.52	0.96	1.65	2.50	2.28	4.21	4.21	4.21	4.21
CFM PER RUN HEAT	28	24	11	42	36	24	17	32	14	28	11	69	61	40	40	33	21	35	54	49	90	90	90	90
RM GAIN MBH	1.83	0.75	0.18	2.50	2.49	1.87	0.32	0.71	0.64	1.83	0.34	3.34	2.40	2.26	2.26	1.42	1.27	1.38	0.74	0.52	0.43	0.43	0.43	0.43
CFM PER RUN COOLING	57	23	6	77	77	58	10	22	20	57	10	103	74	70	70	44	39	43	23	16	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	37	56	39	59	56	34	34	51	45	39	39	22	10	40	31	27	20	33	41	44	38	19	5	31
EQUIVALENT LENGTH	190	160	150	130	170	200	220	160	110	130	150	140	130	150	160	140	180	110	90	140	140	120	140	130
TOTAL EFFECTIVE LENGTH	227	216	189	189	226	234	254	211	155	169	189	162	140	190	191	167	200	143	131	184	178	139	145	161
ADJUSTED PRESSURE	0.08	0.08	0.09	0.09	0.08	0.07	0.07	0.08	0.11	0.1	0.09	0.1	0.12	0.09	0.09	0.1	0.09	0.12	0.13	0.09	0.09	0.12	0.11	0.1
ROUND DUCT SIZE	5	4	4	6	5	4	4	6	4	5	4	6	5	5	5	4	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	206	275	126	214	184	176	195	367	161	206	126	352	448	294	294	379	241	402	396	360	459	459	459	459
COOLING VELOCITY (ft/min)	419	264	69	393	393	426	115	252	229	419	115	525	543	514	514	505	447	493	169	117	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	A	B	D	C	C	C	A	D	B	D	B	D	A	A	C	B	C	C	A	A	B	D	C

RUN #	25	26	27
ROOM NAME	BED-2	BED-3	ENS
RM LOSS MBH	1.96	1.68	1.14
CFM PER RUN HEAT	42	36	24
RM GAIN MBH	2.50	2.49	0.75
CFM PER RUN COOLING	77	77	23
ADJUSTED PRESSURE	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	48	52
EQUIVALENT LENGTH	120	170	130
TOTAL EFFECTIVE LENGTH	172	218	182
ADJUSTED PRESSURE	0.1	0.08	0.09
ROUND DUCT SIZE	6	6	4
HEATING VELOCITY (ft/min)	214	184	275
COOLING VELOCITY (ft/min)	393	393	264
OUTLET GRILL SIZE	4X10	4X10	3X10
TRUNK	D	C	A

SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	299	0.08	8.9	10	538
TRUNK B	546	0.08	11.2	14	702
TRUNK C	325	0.07	9.5	10	585
TRUNK D	585	0.07	11.9	16	658
TRUNK E	0	0.00	0	0	0
TRUNK F	0	0.00	0	0	0

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.00	0	0	0
TRUNK H	0	0.00	0	0	0
TRUNK I	0	0.00	0	0	0
TRUNK J	0	0.00	0	0	0
TRUNK K	0	0.00	0	0	0
TRUNK L	0	0.00	0	0	0
TRUNK O	0	0.05	0	0	0
TRUNK P	0	0.05	0	0	0
TRUNK Q	0	0.05	0	0	0
TRUNK R	0	0.05	0	0	0
TRUNK S	0	0.05	0	0	0
TRUNK T	0	0.05	0	0	0
TRUNK U	0	0.05	0	0	0
TRUNK V	0	0.05	0	0	0
TRUNK W	0	0.05	0	0	0
TRUNK X	1041	0.05	16	30	625
TRUNK Y	695	0.05	13.8	22	569
TRUNK Z	445	0.05	11.6	16	501
DROP	1131	0.05	16.5	24	679

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	90	85	90	90	85	75	360	85	0	0	0	0	0	0	0	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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	41	52	53	58	53	59	45	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	195	165	165	215	265	165	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	226	247	218	223	268	324	210	231	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.07	0.07	0.06	0.05	0.07	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	5.9	6	5.9	5.9	6	6	9.9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 5
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87551
LOT 294

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	7 @ 10.6 cfm	74.2 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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	121.9	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 71 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
S-ENS	FV-05-11VK1	50	☒	0.3
WR	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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	September-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 87551

Model: MOUNTAINASH 5

Builder: GREENPARK HOMES

Date: 10/09/2020

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1459	8	11672
First	1459	11	16049
Second	1832	9	16488
Third	0	9	0
Fourth	0	9	0
Total:			44,209.0 ft³
Total:			1251.9 m³

WINTER NATURAL AIR CHANGE RATE	0.314
SUMMER NATURAL AIR CHANGE RATE	0.113

Design Temperature Difference

	T _{in} °C	T _{out} °C	ΔT °C	ΔT °F
Winter DTD _h	22	-17	39	71
Summer DTD _c	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage
6.2.6 Sensible Gain due to Air Leakage

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

$$0.314 \times 347.74 \times 39^\circ\text{C} \times 1.2 = 5146 \text{ W}$$

$$= 17560 \text{ Btu/h}$$

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

$$0.113 \times 347.74 \times 7^\circ\text{C} \times 1.2 = 334 \text{ W}$$

$$= 1140 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation
6.2.7 Sensible heat Gain due to Ventilation

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

$$80 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1515 \text{ Btu/h}$$

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

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{cleve})
1	0.5	17,560	8,048	1.091
2	0.3		12,513	0.421
3	0.2		14,089	0.249
4	0		0	0.000
5	0		0	0.000

*HL_{airbv} = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HL_{airve} = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	MOUNTAINASH 5	LOT	294	BUILDER:	GREENPARK HOMES
SFQT:	3291	LO#	87551	SITE:	RUSSEL GARDENS PHASE 3

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

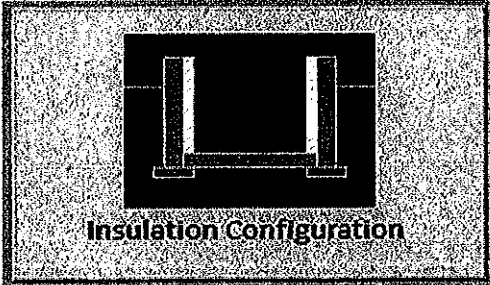
ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	44209.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 55.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	182.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	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	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.8	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.68	
Window Area (m ²):	1.4	
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):	1688	

TYPE: MOUNTAINASH 5
LO# 87551

LOT 294

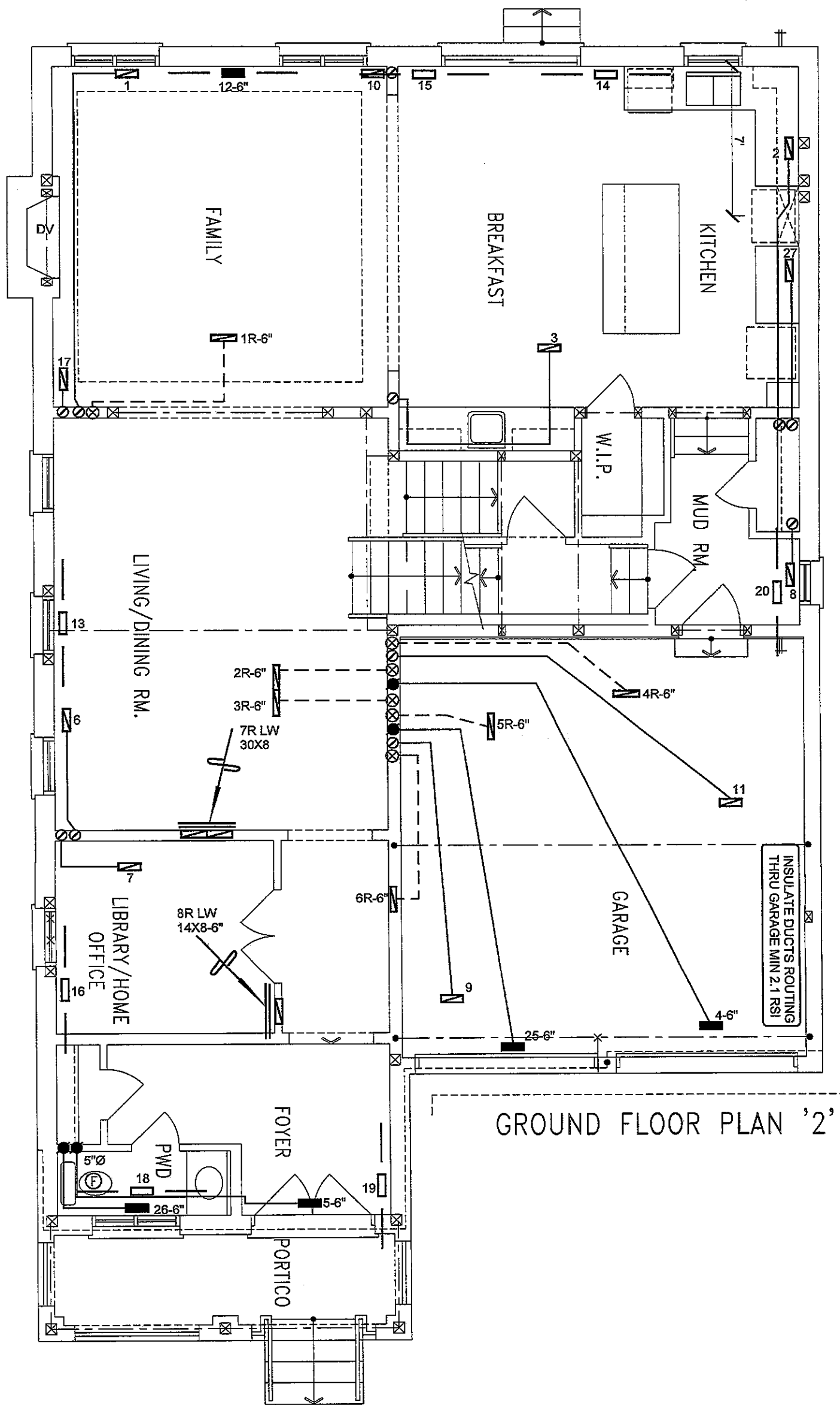
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Hamilton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.86			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1251.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1668.8 cm ²		
	3.57	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):	0.314			
Cooling Air Leakage Rate (ACH/H):	0.113			

TYPE: MOUNTAINASH 5
LO# 87551

LOT 294



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.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

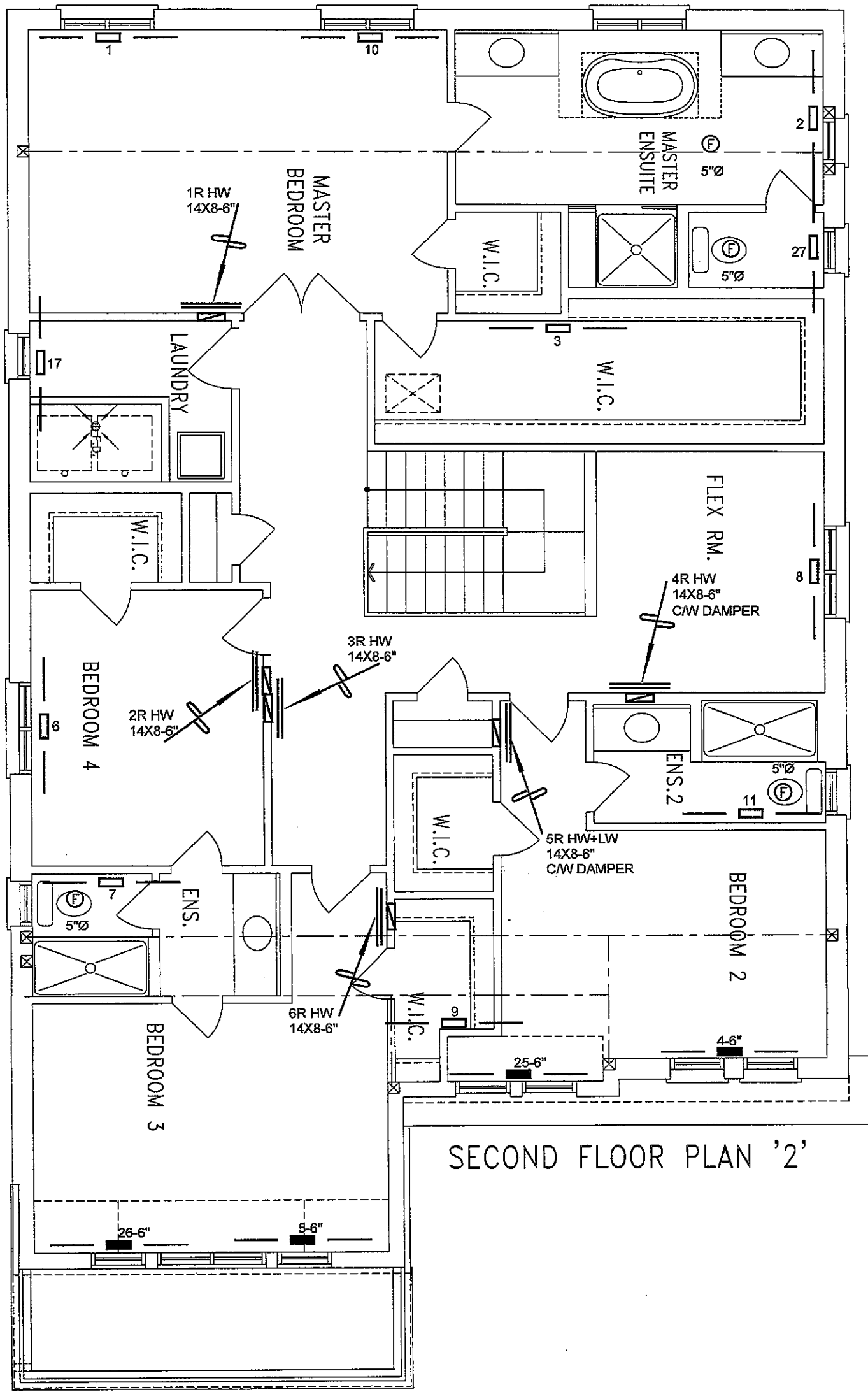
CSA-F280-12

LOT 294 PACKAGE A1

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

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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	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date SEPT/2020	Scale 3/16" = 1'-0"
LOT 294 MOUNTAINASH 5 3298 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.	BCIN# 19669	
			LO# 87551	



SECOND FLOOR PLAN '2'

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.
Michael O'Rourke
MICHAEL O'Rourke, TCEM 19669
HVAC DESIGNS LTD.

CSA-F280-12

LOT 294 PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	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		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date	SEPT/2020
LOT 294			Scale	3/16" = 1'-0"
MOUNTAINASH 5 3298 sqft			BCIN# 19669	
			LO#	87551