

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 295

DATE: Sep-20

WINTER NATURAL AIR CHANGE RATE 0.318

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 6

GFA: 3357

Lo# 87552

SUMMER NATURAL AIR CHANGE RATE 0.114

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	S-ENS	BED-5	WIC-3	ENS-3		
			33	29	8	34	33	26	0	11	8	8		
			9	9	9	9	9	9	9	9	9	9		
FACTORS														
GRS.WALL AREA			297	261	72	306	297	234	0	99	72	54		
LOSS GAIN														
GLAZING			LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN		
NORTH	19.8	16.0	0 0 0	0 0 0	0 0 0	0 0 0	14 277 224	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		
EAST	19.8	41.6	0 0 0	0 0 0	0 0 0	45 890 1870	64 1265 2689	0 0 0	0 0 0	0 0 0	32 633 1330	0 0 0		
SOUTH	19.8	24.9	0 0 0	7 138 174	0 0 0	0 0 0	0 0 0	11 217 274	0 0 0	11 217 274	0 0 0	7 138 174		
WEST	19.8	41.6	32 633 1330	14 277 582	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		
SKYLT.	34.6	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	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 0		
NET EXPOSED WALL	4.1	0.8	265 1099 199	240 995 180	72 298 54	261 1082 196	219 908 166	223 924 168	0 0 0	88 365 66	40 166 30	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 0		
EXPOSED CLG	1.2	0.6	285 340 167	204 243 120	130 155 76	272 324 160	153 182 90	189 215 108	123 147 72	209 249 123	48 55 27	102 122 60		
NO ATTIC EXPOSED CLG	2.6	1.3	0 0 0	0 0 0	0 0 0	0 0 0	75 192 94	0 0 0	0 0 0	0 0 0	10 26 13	0 0 0		
EXPOSED FLOOR	2.4	0.4	0 0 0	0 0 0	0 0 0	286 678 123	30 71 13	0 0 0	123 291 53	0 0 0	55 133 24	0 0 0		
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			2071	1653	453	2973	2895	1357	438	831	1011	455		
SUB TOTAL HT GAIN				1696		131	2349	3245	547	125	463	1423	279	
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			513	409	112	736	717	336	108	206	250	113		
AIR CHANGE HEAT GAIN				118	73	9	163	226	38	9	32	99	19	
DUCT LOSS			0	0	0	371	361	0	55	0	126	0		
DUCT GAIN			0	0	0	318	414	0	56	0	195	0		
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS			427	427	427	427	427	427	427	427	427	427		
TOTAL HT LOSS BTU/H			2594	2063	566	4081	3973	1692	601	1037	1388	567		
TOTAL HT GAIN x 1.3 BTU/H			3537	2023	736	4546	5916	1628	802	1198	2787	930		

ROOM USE	EXP. WALL	CLG. HT.	L/D	FAM	K/B	L/H	LND	F-WIC	FOY	MUD				
			50	35	44	10	7	12	16	24				BAS
			11	11	11	11	9	11	12	12				182
														8
FACTORS														
GRS.WALL AREA			550	385	484	110	63	132	192	288				910
LOSS GAIN														LOSS GAIN
GLAZING			LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN				
NORTH	19.8	16.0	0 0 0	0 0 0	8 158 128	18 356 288	7 138 112	0 0 0	14 277 224	0 0 0				5 99 80
EAST	19.8	41.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	15 297 623	20 395 831	0 0 0				0 0 0
SOUTH	19.8	24.9	36 712 896	0 0 0	16 316 398	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0				10 198 249
WEST	19.8	41.6	0 0 0	46 909 1911	33 652 1371	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0				5 99 208
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				0 0 0
DOORS	23.5	4.3	0 0 0	0 0 0	20 469 85	0 0 0	0 0 0	0 0 0	40 938 170	20 469 85				20 469 85
NET EXPOSED WALL	4.1	0.8	514 2131 386	339 1408 255	407 1657 306	92 381 69	56 232 42	117 485 88	118 489 89	258 1111 201				0 0 0
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				546 1825 331
EXPOSED CLG	1.2	0.6	0 0 0	0 0 0	29 35 17	0 0 0	126 150 74	0 0 0	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				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				0 0 0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0				6081
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0				
SUBTOTAL HT LOSS			2842	2316	3318	737	621	782	2100	1580				8770
SUB TOTAL HT GAIN				1283	2166	2305	357	228	711	1313	286			953
LEVEL FACTOR / MULTIPLIER	0.36	0.40		0.30 0.40	0.30 0.40	0.30 0.40	0.20 0.25	0.30 0.40	0.30 0.40	0.30 0.40				0.50 1.03
AIR CHANGE HEAT LOSS			1132	922	1321	294	129	311	836	629				9075
AIR CHANGE HEAT GAIN				89	151	160	25	16	49	91	20			66
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			427	427	427	427	427	427	427	427				427
TOTAL HT LOSS BTU/H			3974	3236	4639	1031	650	1093	2936	2209				17845
TOTAL HT GAIN x 1.3 BTU/H			2338	3567	3760	1061	872	989	1825	953				1879

TOTAL HEAT GAIN BTU/H:

41613

TONS: 3.47

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 56165

TOTAL COMBINED HEAT LOSS BTU/H: 57681

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 295
TYPE: MOUNTAINASH 6

DATE: Sep-20

GFA: 3357 LO# 87552

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 56,165 TOTAL HEAT GAIN 41,338
AIR FLOW RATE CFM 26.78 AIR FLOW RATE CFM 36.38

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

#GOODMAN
GMEC960804CNA 80
FAN SPEED

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	10	5
R/A	0	0	6	3	1

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

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

plenium 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 0.15 adjusted pressure r/a 0.15

LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

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

TEMPERATURE RISE 47 °F

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	S-ENS	BED-5	WIC-3	MBR	ENS-3	L/D	FAM	K/B	K/B	L/H	LND	F-WIC	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.29	1.03	0.57	2.04	1.32	1.69	0.30	1.04	1.39	1.29	0.57	1.99	1.62	2.32	2.32	1.03	0.65	1.09	2.94	2.21	3.57	3.57	3.57	3.57
CFM PER RUN HEAT	35	28	15	55	35	45	8	28	37	35	15	53	43	62	62	28	17	29	79	59	96	96	96	96
RM GAIN MBH	1.77	1.01	0.74	2.27	1.97	1.63	0.40	1.20	2.79	1.77	0.93	1.17	1.78	1.88	1.88	1.05	0.87	0.99	1.83	0.95	0.38	0.38	0.38	0.38
CFM PER RUN COOLING	64	37	27	83	72	59	15	44	101	64	34	43	65	68	68	38	32	36	66	35	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	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	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	36	48	22	65	67	49	44	34	56	26	45	35	26	31	24	19	49	53	46	23	15	22	33	33
EQUIVALENT LENGTH	100	170	160	150	200	190	170	150	160	170	180	120	110	140	130	100	180	140	130	120	140	120	120	180
TOTAL EFFECTIVE LENGTH	136	218	182	215	267	239	214	184	216	196	225	155	136	171	154	119	229	193	176	143	155	142	153	213
ADJUSTED PRESSURE	0.13	0.08	0.09	0.08	0.06	0.07	0.08	0.09	0.08	0.09	0.08	0.11	0.13	0.1	0.11	0.14	0.08	0.09	0.1	0.12	0.1	0.11	0.11	0.08
ROUND DUCT SIZE	5	4	4	6	6	5	4	6	6	5	4	5	5	5	5	4	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	257	321	172	280	178	330	92	143	189	257	172	389	316	455	455	321	195	333	580	433	489	489	489	489
COOLING VELOCITY (ft/min)	470	424	310	423	367	433	172	224	515	470	390	316	477	499	499	436	367	413	485	257	71	71	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	F	C	F	C	A	C	B	C	B	F	C	B	F	D	D	F	C	A	A	F	D	C	A	A

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BED-2	BED-3	ENS	S-ENS	FAM	L/D	BAS	BED-3
RM LOSS MBH	2.04	1.32	1.03	0.30	1.62	1.99	3.57	1.32
CFM PER RUN HEAT	55	35	28	8	43	53	96	35
RM GAIN MBH	2.27	1.97	1.01	0.40	1.78	1.17	0.38	1.97
CFM PER RUN COOLING	83	72	37	15	65	43	14	72
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	60	74	44	40	14	49	45	70
EQUIVALENT LENGTH	180	200	180	180	150	170	160	200
TOTAL EFFECTIVE LENGTH	240	274	224	220	184	219	206	270
ADJUSTED PRESSURE	0.07	0.06	0.08	0.08	0.1	0.08	0.08	0.06
ROUND DUCT SIZE	6	6	4	4	5	6	6	6
HEATING VELOCITY (ft/min)	280	178	321	92	316	389	489	178
COOLING VELOCITY (ft/min)	423	367	424	172	477	316	71	367
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	B	A	C	B	A	A	A	A

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	458	0.06	11.2	14	X	8	589	TRUNK G	0	0.00	0	0	X	8	0	0	0	X	8
TRUNK B	619	0.06	12.6	18	X	8	619	TRUNK H	0	0.00	0	0	X	8	0	0	0	X	8
TRUNK C	931	0.06	14.7	26	X	8	645	TRUNK I	0	0.00	0	0	X	8	0	0	0	X	8
TRUNK D	220	0.10	7.5	8	X	8	495	TRUNK J	0	0.00	0	0	X	8	0	0	0	X	8
TRUNK E	1151	0.06	15.9	30	X	8	691	TRUNK K	0	0.00	0	0	X	8	0	0	0	X	8
TRUNK F	354	0.09	9.2	10	X	8	637	TRUNK L	0	0.00	0	0	X	8	0	0	0	X	8
RETURN AIR #	1	2	3	4	5	6	7	8	9	0	0	0	0	0	0	0	0	0	BR
AIR VOLUME	75	75	135	115	75	75	185	400	135	0	0	0	0	0	0	0	0	0	234
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
ACTUAL DUCT LGH.	71	68	57	74	67	69	21	23	38	1	1	1	1	1	1	1	1	1	17
EQUIVALENT LENGTH	245	235	215	235	220	215	155	160	285	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	316	303	272	309	287	284	176	183	323	1	1	1	1	1	1	1	1	1	162
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.05	0.05	0.08	0.08	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	6	6	7.5	7	6	6	7.5	9.9	7.5	0	0	0	0	0	0	0	0	0	7.9
INLET GRILL SIZE	8	8	8	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	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	24

TYPE: MOUNTAINASH 6
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 87552
 LOT 295

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	6	@ 10.6 cfm	63.6	cfm
Other Rooms	9	@ 10.6 cfm	95.4	cfm
Table 9.32.3.A.	TOTAL		233.2	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			79.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.		
Total Ventilation Capacity	233.2	cfm
Less Principal Ventil. Capacity	79.6	cfm
Required Supplemental Capacity	153.7	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION					
CFM		ΔT °F		FACTOR	% LOSS
79.6 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
S-ENS	FV-05-11VK1	50	☒	0.3
ENS-3	FV-05-11VK1	50	☒	0.3
F-WIC	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:	September-20

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

LO#: 87552

Model: MOUNTAINASH 6

Builder: GREENPARK HOMES

Date: 10/09/2020

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1480	8	11840
First	1480	11	16280
Second	1877	9	16893
Third	0	9	0
Fourth	0	9	0
Total:			45,013.0 ft³
Total:			1274.6 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

$$0.319 \times 354.06 \times 39^\circ\text{C} \times 1.2 = 5319 \text{ W}$$

$$= 18150 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$0.114 \times 354.06 \times 7^\circ\text{C} \times 1.2 = 345 \text{ W}$$

$$= 1178 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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

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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	18,150	8,770	1.035
2	0.3		13,673	0.398
3	0.2		14,659	0.248
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

CITY OF HAMILTON
Building Division

Permit No. **21-107161**

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FEB 26 2021

FOR CHIEF BUILDING OFFICIAL

DATE

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 6	LOT 295	BUILDER: GREENPARK HOMES
SFQT: 3357	LO# 87552	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):	45013.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 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	-

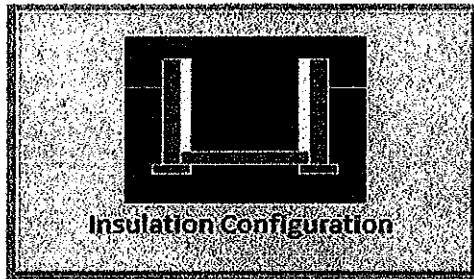
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

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):	1.52	
Window Area (m ²):	1.9	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1782

TYPE: MOUNTAINASH 6
LO# 87552

LOT 295

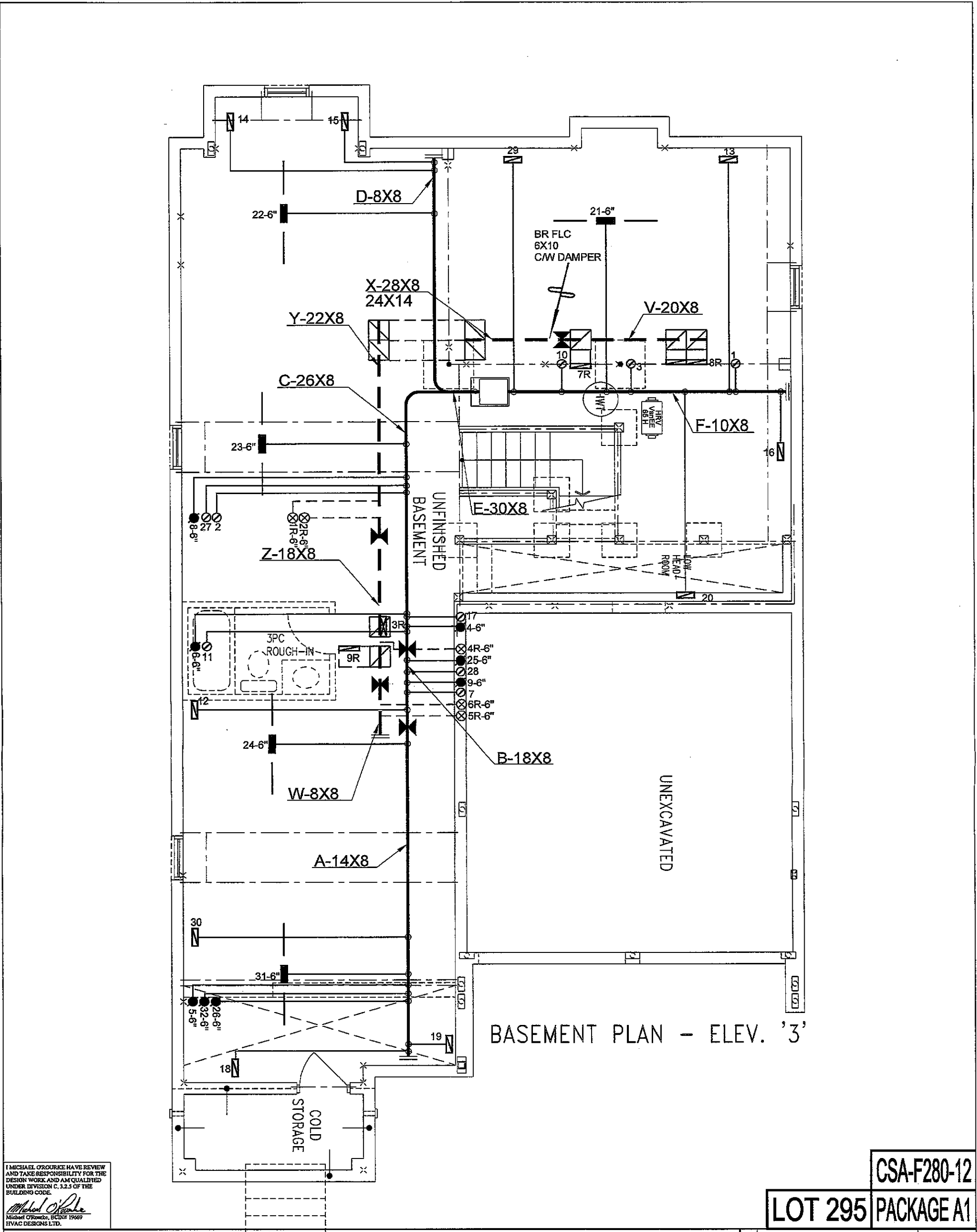
Air Infiltration Residential Load Calculator

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1274.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1699.1 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):	0.319			
Cooling Air Leakage Rate (ACH/H):	0.114			

TYPE: MOUNTAINASH 6
LO# 87552

LOT 295



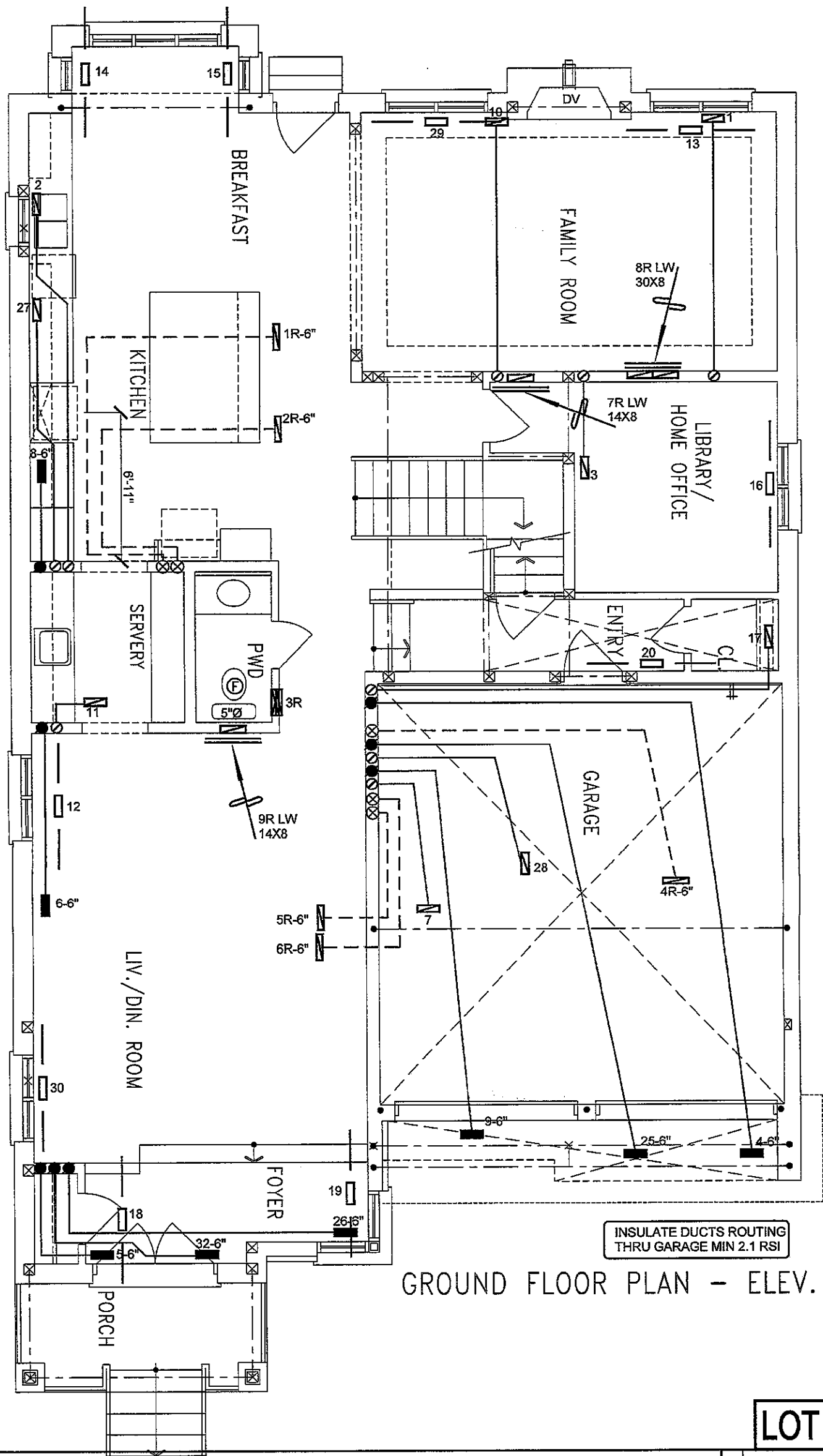
I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
LOT 295 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		

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Client	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	HEAT LOSS 57681 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title	
		MAKE GOODMAN		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name	RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO	MODEL GMEC960804CNA		2ND FLOOR	17	6	4	Date	SEPT/2020
		INPUT 80 MBTU/H		1ST FLOOR	10	3	2		
LOT 295 MOUNTAINASH 6 3401 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.	OUTPUT 76.8 MBTU/H		BASEMENT	5	1	0	Scale	3/16" = 1'-0"
		COOLING 3.5 TONS		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				BCIN# 19669	
		FAN SPEED 1504 cfm @ 0.5" w.c.						LO#	87552



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

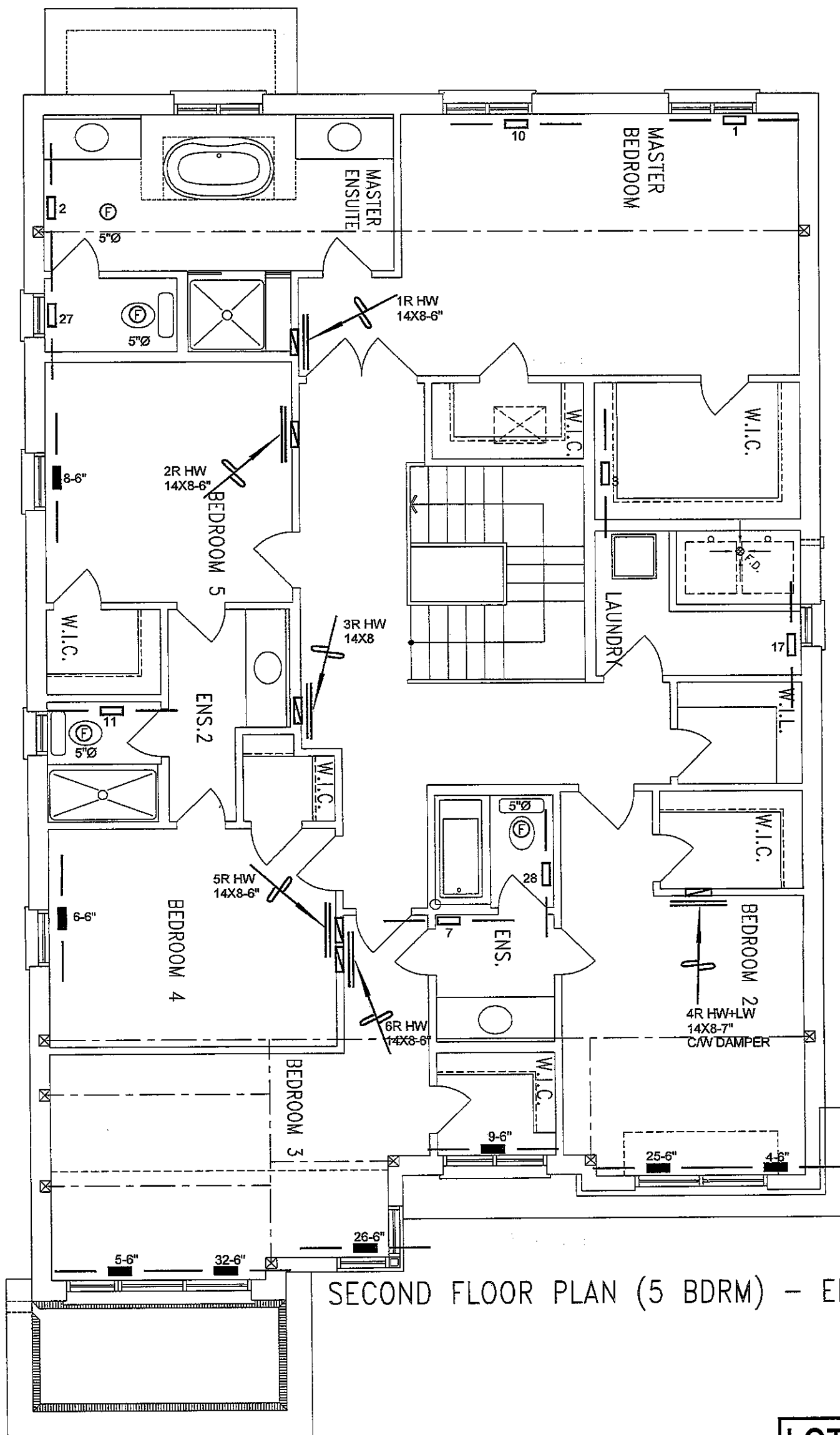
CSA-F280-12

LOT 295 PACKAGE A1

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

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Client		 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	
GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2020
RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Scale	3/16" = 1'-0"
LOT 295 MOUNTAINASH 6 3401 sqft			BCIN# 19669	
		LO#	87552	



SECOND FLOOR PLAN (5 BDRM) - ELEV. '3'

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

CSA-F280-12

LOT 295 PACKAGE A1

HVAC LEGEND							3.		
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	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	Date	

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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@hvacadesigns.ca Web: www.hvacadesigns.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 295			Scale 3/16" = 1'-0"	
MOUNTAINASH 6 3401 sqft			BCIN# 19669	
			LO#	87552