

ROOM USE	LVDN		LIB		BR/KT		FAM		LAUN		WVR		MUD		WOB		BAS			
EXP. WALL	39		20		35		37		9		4		3		44		132			
CLG. HT.	10		10		10		10		9		10		10		9		9			
FACTORS	LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN	
GRS.WALL AREA	390		200		350		370		81		40		30		396		792			
GLAZING	LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN	
NORTH	19.8	16.0	0	0	0	18	356	288	0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	29	573	722	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	19.8	41.5	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
DOORS	23.5	4.3	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	361	1497	271	182	765	137	298	1235	224	347	1439	261	73	303	65	32	133	24
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
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	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
EXPOSED FLOOR	2.4	0.4	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		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0		
SUBTOTAL HT LOSS			2070			1110			2263			1912			598			291		
SUB TOTAL HT GAIN				993			424			2385			1226			322			223	
LEVEL FACTOR / MULTIPLIER	0.30	0.50				0.30	0.50		0.30	0.50		0.20	0.25		0.30	0.50		0.30	0.50	
AIR CHANGE HEAT LOSS			1027			851			1123			949			166			144		
AIR CHANGE HEAT GAIN				73			31			174			90			24			18	
DUCT LOSS			0			0			0			0			0			0		
DUCT GAIN			0			0			0			0			0			0		
HEAT GAIN PEOPLE	240	0	0			0			0			0			0			0		
HEAT GAIN APPLIANCES/LIGHTS				572			572			572			572			572			0	
TOTAL HT LOSS BTU/H			3097			1661			3386			2861			764			435		
TOTAL HT GAIN x 1.3 BTU/H				2130			1336			4071			2454			1193			311	

THE OWNER AND ARCHITECT
THE ONTARIO BUILDING CODE AND ALL ORDINANCES
These drawings and/or specifications have been reviewed by
DATE

OCT 19 2021

FOR CHIEF BUILDING OFFICIAL

TOTAL COMBINED HEAT LOSS BTU/H: 49937

SITE NAME: RUSSELL GARDENS PH 4
 BUILDER: GREENPARK HOMES

 WOB
 TYPE: VALLEYCREEK 4A

DATE: Jun-21

GFA: 2819 LO# 91344

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 48,422 TOTAL HEAT GAIN 35,582
 AIR FLOW RATE CFM 23.36 AIR FLOW RATE CFM 31.79

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

 #GOODMAN
 GMEC980603BNA 60

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	4
R/A	0	0	5	3	1

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

 plenum pressure s/a 0.18
 max s/a dif press. loss 0.02
 min adjusted pressure s/a 0.16
 r/a pressure 0.17
 r/a grille press. Loss 0.02
 adjusted pressure r/a 0.15

 LOW
 MEDLOW
 MEDIUM 928
 MEDIUM HIGH 1017
 HIGH 1131

 DESIGN CFM = 1131
 CFM @ .5" 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	BED-3	BED-2	BED-3	BED-4	S-BATH	S-BATH	BED-4	MBR	ENS-4	LV/DN	LIB	BF/KT	BF/KT	FAM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.77	2.26	1.77	1.16	1.77	1.60	0.48	0.48	1.60	1.77	1.09	3.10	1.66	1.69	1.69	2.86	0.76	0.44	3.15	1.14	4.04	4.04	4.04	4.04
CFM PER RUN HEAT	41	53	41	27	41	37	11	11	37	41	26	72	39	40	40	67	18	10	74	27	94	94	94	94
RM GAIN MBH	2.32	1.57	2.33	1.67	2.33	2.02	0.19	0.19	2.02	2.32	1.19	2.13	1.34	2.04	2.04	2.45	1.19	0.31	1.17	0.19	1.14	1.14	1.14	1.14
CFM PER RUN COOLING	74	50	74	53	74	64	6	6	64	74	38	68	42	65	65	78	38	10	37	6	36	36	36	36
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	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	48	44	46	30	42	51	32	36	44	33	34	35	18	25	32	28	31	33	40	13	45	43	16	36
EQUIVALENT LENGTH	180	120	140	160	130	170	160	150	130	140	120	150	150	120	140	130	200	160	120	190	130	90	150	130
TOTAL EFFECTIVE LENGTH	228	164	186	190	172	221	192	186	174	173	154	185	168	145	172	158	231	193	160	203	175	133	166	166
ADJUSTED PRESSURE	0.08	0.1	0.09	0.09	0.1	0.08	0.09	0.09	0.1	0.1	0.11	0.09	0.1	0.12	0.1	0.11	0.07	0.09	0.11	0.08	0.09	0.12	0.1	0.1
ROUND DUCT SIZE	5	5	5	6	5	5	4	4	5	5	4	6	4	5	5	5	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	301	389	301	138	301	272	126	126	272	301	298	367	447	294	294	492	207	115	543	310	479	479	479	479
COOLING VELOCITY (ft/min)	543	367	543	270	543	470	69	69	470	543	436	347	482	477	477	573	436	115	272	69	184	184	184	184
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	D	B	D	C	D	D	C	A	D	C	B	A	A	A	D	C	C	D	B	B	D	C

RUN #	ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	MBR	1.77	41	2.32	74	0.17	48	180	228	0.08	5	301	543	3X10	A
2	ENS	2.26	53	1.57	50	0.17	44	120	164	0.1	5	389	367	3X10	A
3	BED-3	1.77	41	2.33	74	0.17	46	140	186	0.09	5	301	543	3X10	D
4	BED-2	1.16	27	1.67	53	0.17	30	160	190	0.09	6	138	270	4X10	B
5	BED-3	1.77	41	2.33	74	0.17	42	130	172	0.1	5	301	543	3X10	D
6	BED-4	1.60	37	2.02	64	0.17	51	170	221	0.08	5	272	470	3X10	C
7	S-BATH	0.48	11	0.19	6	0.17	32	160	192	0.09	4	126	69	3X10	D
8	S-BATH	0.48	11	0.19	6	0.17	36	150	186	0.09	4	126	69	3X10	D
9	BED-4	1.60	37	2.02	64	0.17	44	130	174	0.1	5	272	470	3X10	C
10	MBR	1.77	41	2.32	74	0.17	44	140	173	0.1	5	301	543	3X10	A
11	ENS-4	1.09	26	1.19	38	0.17	34	120	154	0.11	4	298	436	3X10	D
12	LV/DN	3.10	72	2.13	68	0.17	35	150	185	0.09	6	367	347	4X10	C
13	LIB	1.66	39	1.34	42	0.17	18	120	168	0.1	4	447	482	3X10	B
14	BF/KT	1.69	40	2.04	65	0.17	25	140	145	0.12	5	294	477	3X10	A
15	BF/KT	1.69	40	2.04	65	0.17	32	140	172	0.1	5	294	477	3X10	A
16	FAM	2.86	67	2.45	78	0.17	28	130	158	0.11	5	492	573	3X10	A
17	LAUN	0.76	18	1.19	38	0.17	31	200	231	0.07	4	207	436	3X10	D
18	W/R	0.44	10	0.31	10	0.17	33	160	193	0.09	4	115	115	3X10	C
19	FOY	3.15	74	1.17	37	0.17	40	120	160	0.11	5	543	272	3X10	C
20	MUD	1.14	27	0.19	6	0.17	13	190	203	0.08	4	310	69	3X10	D
21	BAS	4.04	94	1.14	36	0.16	45	130	175	0.09	6	479	184	4X10	B
22	BAS	4.04	94	1.14	36	0.16	43	90	133	0.12	6	479	184	4X10	B
23	BAS	4.04	94	1.14	36	0.16	16	150	166	0.1	6	479	184	4X10	D
24	BAS	4.04	94	1.14	36	0.16	36	130	166	0.1	6	479	184	4X10	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	282	0.08	8.7	12	x	8 423	TRUNK G	0	0.00	0	0	x	8 0	TRUNK O	0	0.05	0	0	x	8 0
TRUNK B	536	0.08	11.1	16	x	8 603	TRUNK H	0	0.00	0	0	x	8 0	TRUNK P	0	0.05	0	0	x	8 0
TRUNK C	324	0.08	9.2	10	x	8 583	TRUNK I	0	0.00	0	0	x	8 0	TRUNK Q	0	0.05	0	0	x	8 0
TRUNK D	593	0.07	11.9	16	x	8 667	TRUNK J	0	0.00	0	0	x	8 0	TRUNK R	0	0.05	0	0	x	8 0
TRUNK E	0	0.00	0	0	x	8 0	TRUNK K	0	0.00	0	0	x	8 0	TRUNK S	0	0.05	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	TRUNK T	0	0.05	0	0	x	8 0

RETURN AIR #	1	2	3	4	5	6	7	8											BR				
AIR VOLUME	130	155	75	250	105	90	75	95	0	0	0	0	0	0	0	0	0	156					
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					
ACTUAL DUCT LGH.	39	38	51	30	18	22	45	38	1	1	1	1	1	1	1	1	1	17					
EQUIVALENT LENGTH	215	145	235	150	175	175	230	175	0	0	0	0	0	0	0	0	1	220					
TOTAL EFFECTIVE LH	264	183	286	180	193	197	275	213	1	1	1	1	1	1	1	1	1	237					
ADJUSTED PRESSURE	0.06	0.08	0.05	0.08	0.08	0.08	0.05	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06					
ROUND DUCT SIZE	7	7	6	8.3	6	5.7	6	6	0	0	0	0	0	0	0	0	0	7.5					
INLET GRILL SIZE	8	8	8	8	6	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					
INLET GRILL SIZE	14	14	14	24	12	14	14	14	0	0	0	0	0	0	0	0	0	14					

TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	886	0.05	15.1	26	x	8	613
TRUNK Y	405	0.05	11.2	14	x	8	521
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	24	x	10	679

TYPE: VALLEYCREEK 4A
SITE NAME: RUSSELL GARDENS PH 4

LO # 91344
WOB

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	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>190.8</u> 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		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>111.3</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>79.5</u> cfm	<u>3.0</u> 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
S-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 V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % 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-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																			
LO#: 91344		Model: VALLEYCREEK 4A		Builder: GREENPARK HOMES			Date: 2021-06-21																																																												
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<table border="1" style="width: 100%; border-collapse: collapse;"> <caption>House Volume</caption> <thead> <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>1236</td> <td>9</td> <td>11124</td> </tr> <tr> <td>First</td> <td>1236</td> <td>10</td> <td>12360</td> </tr> <tr> <td>Second</td> <td>1583</td> <td>9</td> <td>14247</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>37,731.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1068.4 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1236	9	11124	First	1236	10	12360	Second	1583	9	14247	Third	0	9	0	Fourth	0	9	0	Total:			37,731.0 ft³	Total:			1068.4 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Air Change & Delta T Data</th> </tr> </thead> <tbody> <tr> <td>WINTER NATURAL AIR CHANGE RATE</td> <td>0.365</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.130</td> </tr> </tbody> </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>-17</td> <td>39</td> <td>71</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </tbody> </table>					Air Change & Delta T Data		WINTER NATURAL AIR CHANGE RATE	0.365	SUMMER NATURAL AIR CHANGE RATE	0.130	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-17	39	71	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																														
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.365 x 296.78 x 39 °C x 1.2 = 5094 W = 17382 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.130 x 296.78 x 7 °C x 1.2 = 330 W = 1128 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 71 °F x 1.08 x 0.25 = 1515 Btu/h					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																														
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																			
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve}) \}$																																																																			
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																			

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK 4A	WOB	BUILDER: GREENPARK HOMES
SFQT: 2819	LO# 91344	SITE: RUSSELL GARDENS PH 4

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

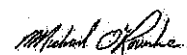
BUILDING DATA

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):	37731.0	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:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	132.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	44.0 ft

2012 OBC - COMPLIANCE PACKAGE

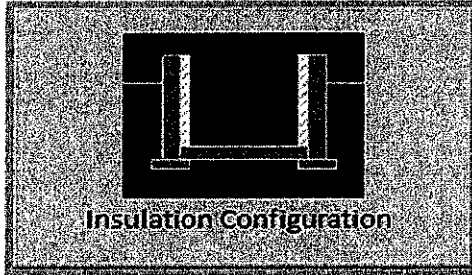
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

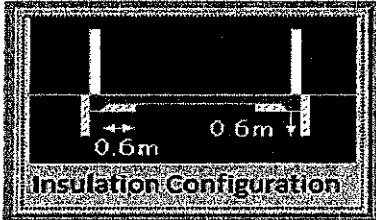
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	40.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.54	
Window Area (m ²):	0.6	
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):		700

TYPE: VALLEYCREEK 4A
LO# 91344

WOB

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	10.4	
Exposed Perimeter (m):	13.4	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		168

TYPE: VALLEYCREEK 4A
LO# 91344

WOB

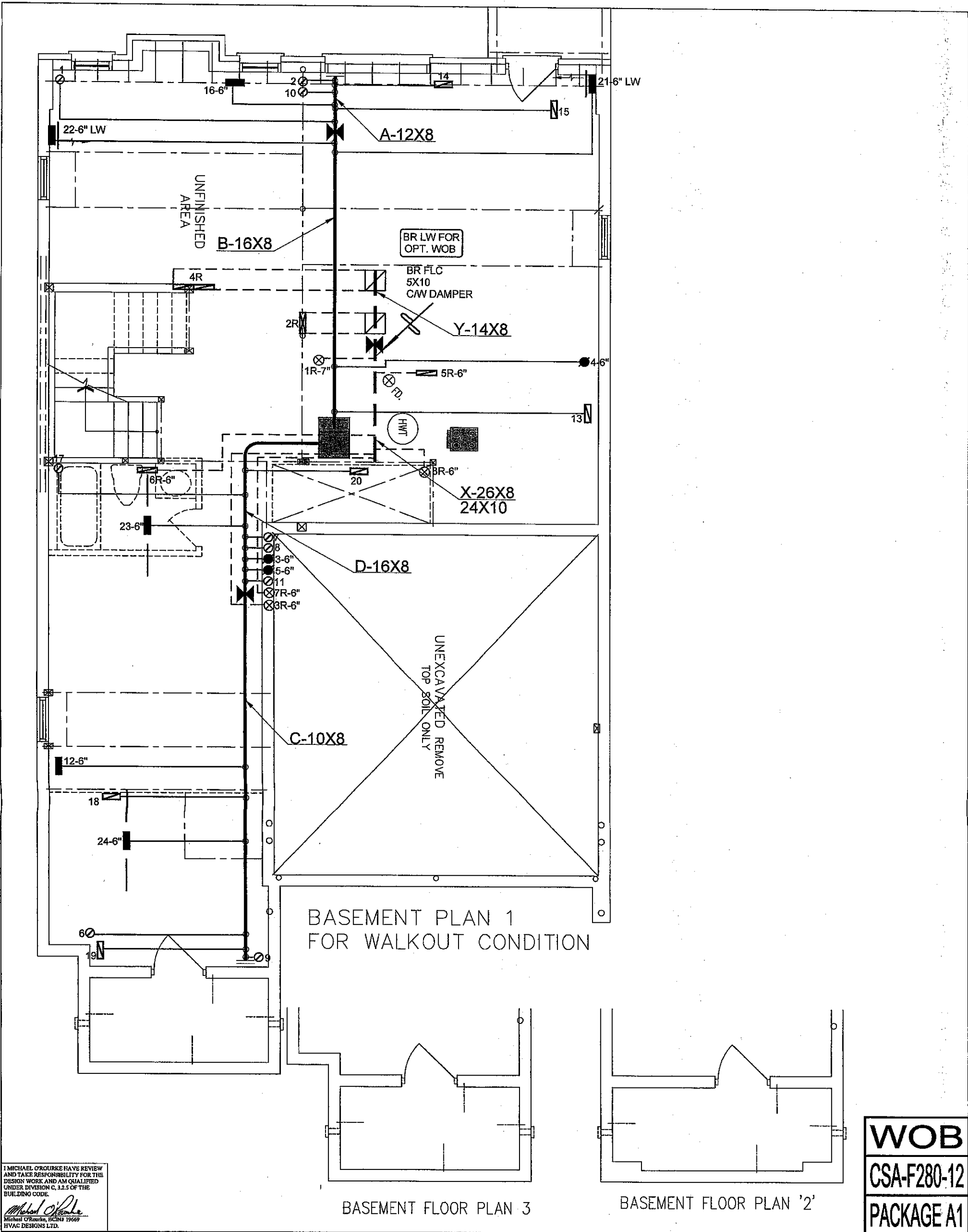
Air Infiltration Residential Load Calculator

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):	8.53			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1068.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1424.2 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):	0.365			
Cooling Air Leakage Rate (ACH/H):	0.130			

TYPE: VALLEYCREEK 4A
LO# 91344

WOB

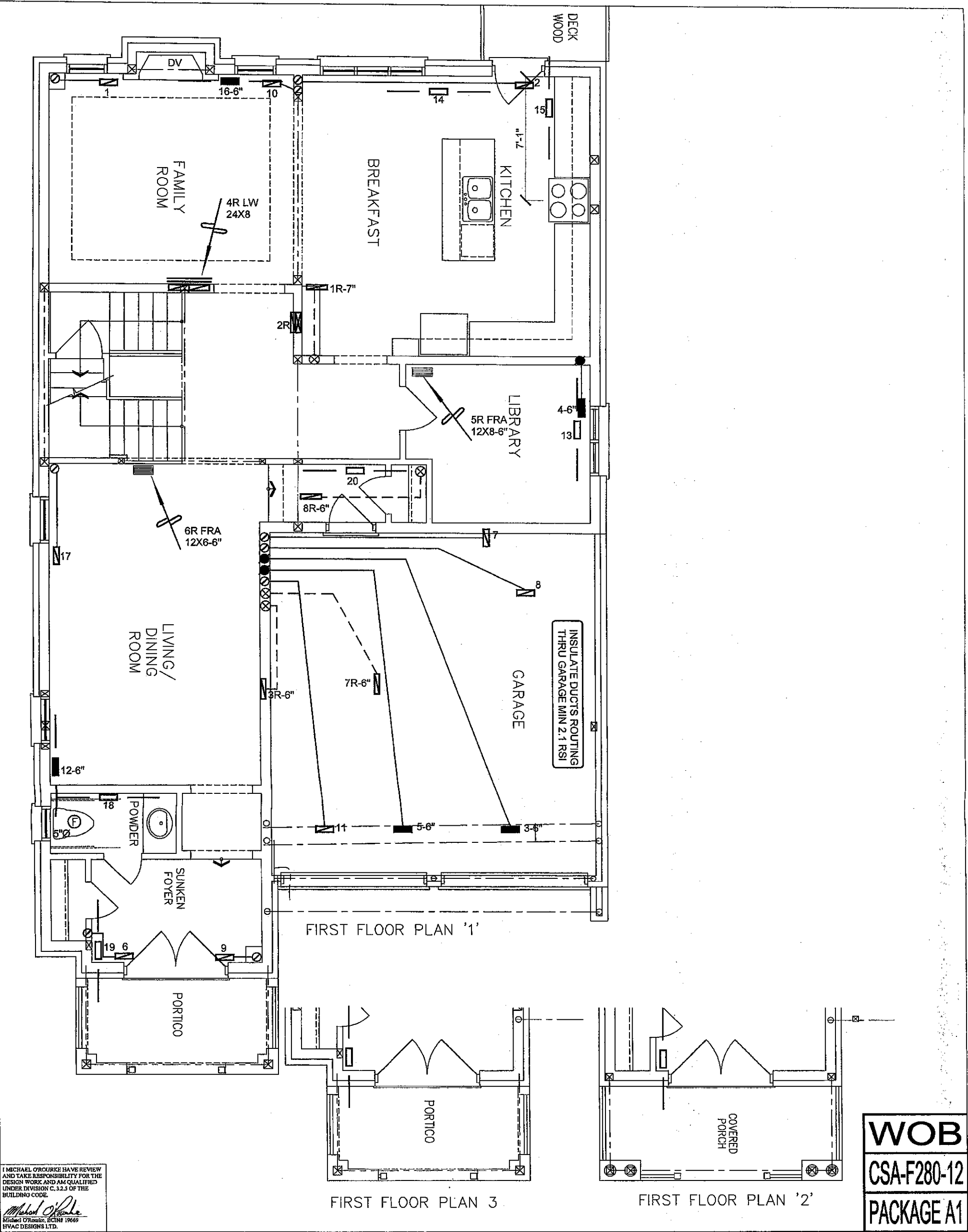


I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 12.5 OF THE BUILDING CODE.

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

WOB
CSA-F280-12
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		 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.				HEAT LOSS 49937 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES						UNIT DATA		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name		RUSSEL GARDENS PH 4 HAMILTON, ONTARIO WOB VALLEYCREEK 4A 2819 sqft				MAKE GOODMAN		2ND FLOOR 12 5 3		Date JUNE/2021	
RUSSEL GARDENS PH 4						MODEL GMEC960603BNA		1ST FLOOR 8 3 2		Scale 3/16" = 1'-0"	
HAMILTON, ONTARIO						INPUT 60 MBTU/H		BASEMENT 4 1 0		BCIN# 19669	
WOB						OUTPUT 57.6 MBTU/H		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# 91344	
VALLEYCREEK 4A 2819 sqft						COOLING 3.0 TONS					
		FAN SPEED 1131 cfm @ 0.8" w.c.									



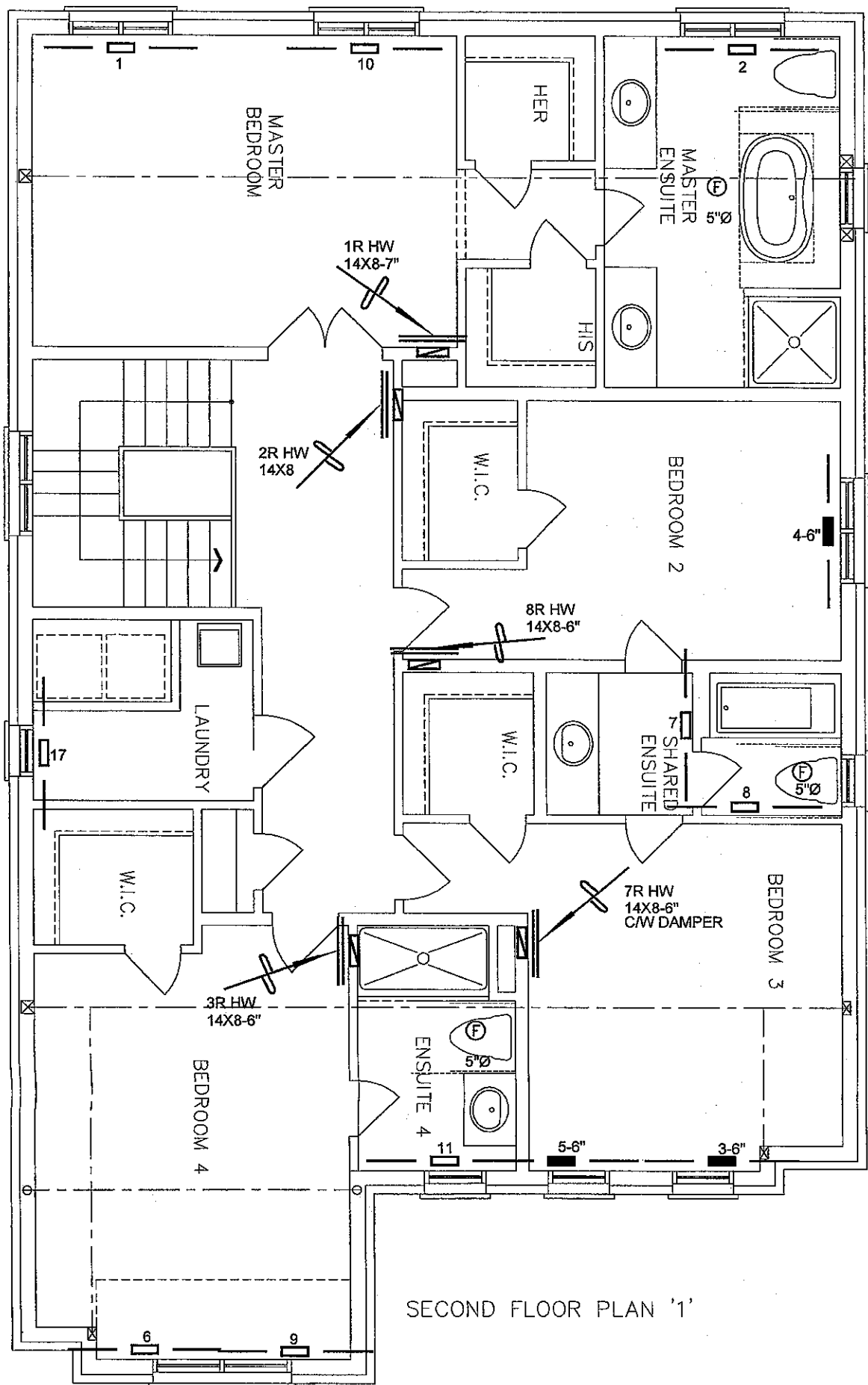
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.3 OF THE BUILDING CODE.

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

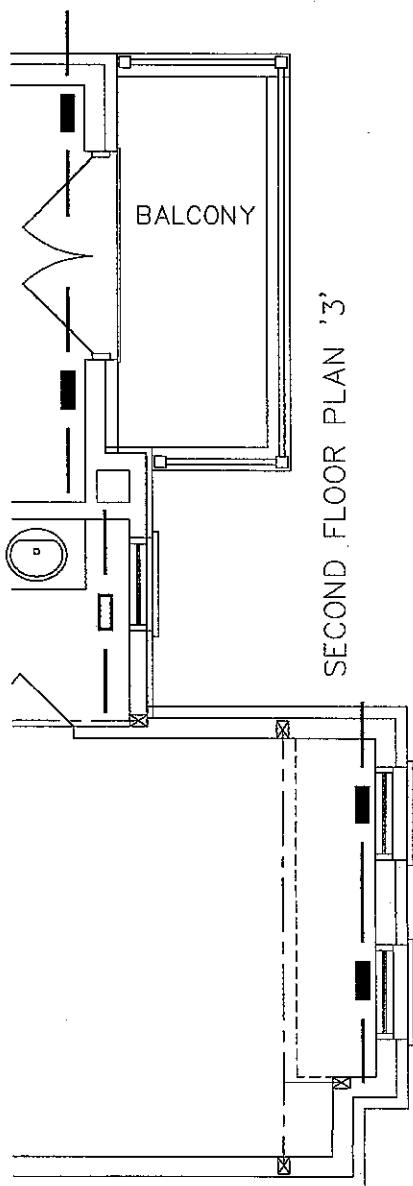
HVAC LEGEND								3.		
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								REVISIONS		

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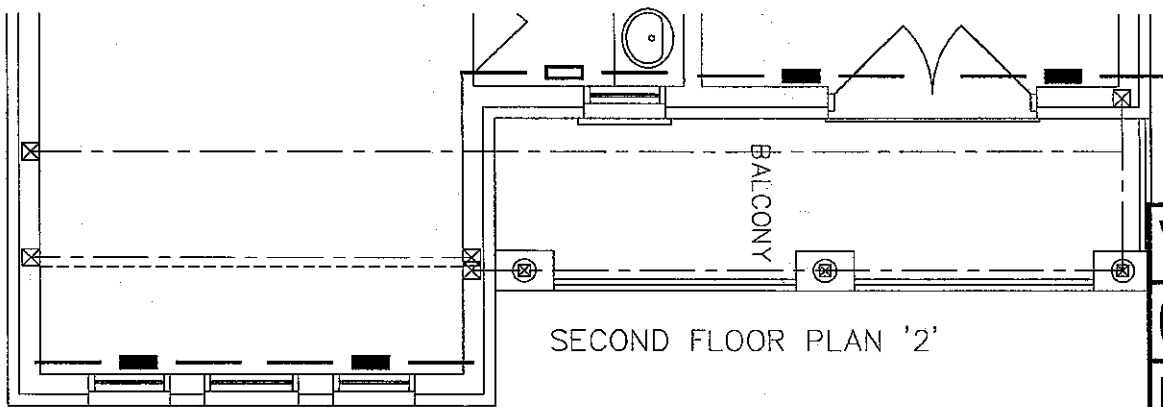
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PH 4 HAMILTON, ONTARIO			Date JUNE/2021	
WOB VALLEYCREEK 4A 2819 sqft		Scale 3/16" = 1'-0"		
		BCIN# 19669		
		LO#	91344	



SECOND FLOOR PLAN '1'



SECOND FLOOR PLAN '3'



SECOND FLOOR PLAN '2'

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WOB
CSA-F280-12
PACKAGE A1

HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION		
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	1.	
								No.	Description Date

REVISIONS

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Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PH 4
HAMILTON, ONTARIO**
**WOB
VALLEYCREEK 4A 2819 sqft**

HVACDESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
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Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**
Date
JUNE/2021
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 91344