

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 326

DATE: Dec-20

WINTER NATURAL AIR CHANGE RATE 0.310

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 4

GFA: 2795

LO# 88608

SUMMER NATURAL AIR CHANGE RATE 0.111

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	MBR	ENS	BED-2	BED-3	BED-4	S-BATH	ENB-4
EXP. WALL				41	30	11	28	39	6	7
CLG. HT.				9	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN		389	270	99	252	351	54	63
GLAZING	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	16.0	0	0	0	16	316	256	0	0
EAST	19.8	41.6	0	0	0	0	0	0	7	138
SOUTH	19.8	24.9	16	316	398	0	0	0	0	0
WEST	19.8	41.6	36	712	1496	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.6	317	1314	238	83	344	62	207	858
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	363	433	213	220	262	129	319	1322
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	47	195
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS				0	0	0	0	0	0	0
SUBTOTAL HT LOSS				2775	1772	907	2510	2306	679	776
SUB TOTAL HT GAIN				2346	1122	440	2243	1742	254	776
LEVEL FACTOR / MULTIPLIER	0.20	0.24		0.20	0.24	0.20	0.24	0.20	0.24	0.20
AIR CHANGE HEAT LOSS				661	422	216	597	549	162	186
AIR CHANGE HEAT GAIN				161	77	30	154	120	17	53
DUCT LOSS				0	0	0	311	0	84	96
DUCT GAIN				0	0	0	324	0	27	83
HEAT GAIN PEOPLE	240		2	480	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS				605	0		605		605	0
TOTAL HT LOSS BTU/H				3435	2184	1123	3418	2855	924	1060
TOTAL HT GAIN x 1.3 BTU/H				4670	1559	1709	4535	3519	385	1187

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LVDN	LIE	BF/KT	FAM	LAUN	WR	FOY	MUD	WUB	BAS
EXP. WALL				39	20	35	37	9	4	30	9	17	159
CLG. HT.				10	10	10	10	9	10	10	10	9	9
GRS.WALL AREA	LOSS	GAIN		390	200	350	370	81	40	300	90	153	954
GLAZING	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	19.8	16.0	0	0	0	18	366	288	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	26	514	647	0	0	0	0	0	0	0	0
WEST	19.8	41.6	0	0	0	0	0	0	8	158	199	0	0
SKYL.T.	34.6	101.5	0	0	0	70	1384	2909	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	40	791	1662	0	0	0	0	0
NET EXPOSED WALL	4.1	0.6	364	1509	274	182	755	137	32	133	24	253	1049
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	16	19	9	116	137	58	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	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				2023	1110	2545	2178	598	291	2125	769	110	5174
SUB TOTAL HT GAIN				921	424	3119	1920	322	223	651	138	1131	7573
LEVEL FACTOR / MULTIPLIER	0.30	0.40		0.30	0.40	0.30	0.40	0.20	0.24	0.30	0.40	0.30	0.40
AIR CHANGE HEAT LOSS				807	443	1015	859	142	116	848	303	186	997
AIR CHANGE HEAT GAIN				63	28	215	132	22	15	45	9	0.50	0.84
DUCT LOSS				0	0	0	0	0	0	0	0	0	0
DUCT GAIN				0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				805	605	605	605	605	0	0	0	0	605
TOTAL HT LOSS BTU/H				2830	1553	3560	3047	740	407	2973	1062	1131	14908
TOTAL HT GAIN x 1.3 BTU/H				2065	1376	5120	3453	1283	310	905	191	241	2185

TOTAL HEAT GAIN BTU/H:

35025

TONS: 2.92

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 47220

TOTAL COMBINED HEAT LOSS BTU/H: 48736

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 326
TYPE: VALLEYCREEK 4

DATE: Dec-20

GFA: 2795 LO# 88608

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 47,220 TOTAL HEAT GAIN 34,750
AIR FLOW RATE CFM 23.95 AIR FLOW RATE CFM 32.55

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

#GOODMAN
GMCC960603BNA 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	8	4
R/A	0	0	4	3	1

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a d/f press. loss 0.03 r/a grille press. loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

MEDIUM HIGH 1017
HIGH 1131

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

TEMPERATURE RISE 47 °F

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	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	1.72	2.19	1.71	1.12	1.71	1.43	0.46	0.46	1.43	1.72	1.06	2.83	1.55	1.78	1.78	3.05	0.74	0.41	2.97	1.06	4.01	4.01	4.01	4.01
CFM PER RUN HEAT	41	53	41	27	41	34	11	11	34	41	25	68	37	43	43	73	18	10	71	25	96	96	96	96
RM GAIN MBH	2.33	1.56	2.32	1.71	2.32	1.76	0.19	0.19	1.76	2.33	1.19	2.07	1.38	2.56	2.56	3.45	1.23	0.31	0.90	0.19	0.61	0.61	0.61	0.61
CFM PER RUN COOLING	76	51	75	58	75	57	6	6	57	76	39	67	45	83	83	112	40	10	29	6	20	20	20	20
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	0.16	0.16	0.15	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	24	43	16	36
EQUIVALENT LENGTH	180	120	140	160	130	150	160	150	130	140	120	150	150	120	140	130	200	160	120	190	100	90	150	130
TOTAL EFFECTIVE LENGTH	228	164	186	190	172	201	192	186	174	173	154	185	168	145	172	158	231	193	160	203	124	133	166	166
ADJUSTED PRESSURE	0.08	0.1	0.09	0.09	0.1	0.09	0.09	0.09	0.1	0.1	0.11	0.09	0.1	0.11	0.09	0.1	0.07	0.09	0.11	0.08	0.13	0.12	0.1	0.1
ROUND DUCT SIZE	6	5	5	6	5	5	4	4	5	6	4	6	5	6	6	8	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	209	389	301	138	301	250	126	126	250	209	287	347	272	219	219	372	132	115	521	287	489	489	489	489
COOLING VELOCITY (ft/min)	388	374	551	286	551	419	69	69	419	388	447	342	330	423	423	571	294	115	213	69	102	102	102	102
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	4X10	4X10	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	1.72	41	2.33	76	0.17	48	180	228	0.08	6	209	388	4X10	A
2	ENS	2.19	53	1.56	51	0.17	44	120	164	0.1	5	389	374	3X10	A
3	BED-3	1.71	41	2.32	75	0.17	46	140	186	0.09	5	301	551	3X10	D
4	BED-2	1.12	27	1.71	58	0.17	30	160	190	0.09	6	138	286	4X10	B
5	BED-3	1.71	41	2.32	75	0.17	42	130	172	0.1	5	301	551	3X10	D
6	BED-4	1.43	34	1.76	57	0.17	51	150	201	0.09	5	250	419	3X10	C
7	S-BATH	0.46	11	0.19	6	0.17	32	160	192	0.09	4	126	69	3X10	D
8	S-BATH	0.46	11	0.19	6	0.17	36	150	186	0.09	4	126	69	3X10	D
9	BED-4	1.43	34	1.76	57	0.17	44	130	174	0.1	5	250	419	3X10	C
10	MBR	1.72	41	2.33	76	0.17	48	180	228	0.08	6	209	388	4X10	A
11	ENS-4	1.06	25	1.19	39	0.17	34	120	154	0.11	4	287	447	3X10	D
12	LV/DN	2.83	68	2.07	67	0.17	35	150	185	0.09	6	347	342	4X10	C
13	LIB	1.55	37	1.38	45	0.17	18	150	168	0.1	5	272	330	3X10	B
14	BF/KT	1.78	43	2.56	83	0.16	25	120	145	0.11	6	219	423	4X10	A
15	BF/KT	1.78	43	2.56	83	0.16	32	140	172	0.09	6	219	423	4X10	A
16	FAM	3.05	73	3.45	112	0.15	28	130	158	0.1	8	372	571	4X10	A
17	LAUN	0.74	18	1.23	40	0.17	31	200	231	0.07	5	132	294	3X10	D
18	W/R	0.41	10	0.31	29	0.17	33	160	193	0.09	4	115	115	3X10	C
19	FOY	2.97	71	0.90	29	0.17	40	120	160	0.11	5	521	213	3X10	C
20	MUD	1.06	25	0.19	6	0.17	13	190	203	0.08	4	287	69	3X10	D
21	BAS	4.01	96	0.61	20	0.16	24	100	124	0.13	6	489	102	4X10	B
22	BAS	4.01	96	0.61	20	0.16	43	90	133	0.12	6	489	102	4X10	B
23	BAS	4.01	96	0.61	20	0.16	16	150	166	0.1	6	489	102	4X10	D
24	BAS	4.01	96	0.61	20	0.16	36	130	166	0.1	6	489	102	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	294	0.08	8.9	14	X	8	378	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.06	0	0	X	8	0						
TRUNK B	550	0.08	11.2	18	X	8	550	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.06	0	0	X	8	0						
TRUNK C	313	0.09	8.8	10	X	8	563	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.06	0	0	X	8	0						
TRUNK D	581	0.07	11.8	16	X	8	654	TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.06	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	0.06	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	0.06	0	0	X	8	0						
															TRUNK U	0	0.06	0	0	X	8	0							
															TRUNK V	0	0.06	0	0	X	8	0							
															TRUNK W	0	0.06	0	0	X	8	0							
															TRUNK X	1131	0.06	15.8	30	X	8	679							
															TRUNK Y	475	0.06	11.4	16	X	8	534							
															TRUNK Z	0	0.06	0	0	X	8	0							
															DROP	1131	0.06	15.8	24	X	10	679							

RETURN AIR #	1	2	3	4	5	6	7											BR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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TYPE: VALLEYCREEK 4
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 88606
LOT 326

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	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	190.8 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	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	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
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 65H	
155 cfm high	84 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:	December-20

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: 19889 *Michael O'Rourke* MICHAEL O'ROURKE

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

LO#: 88606

Model: VALLEYCREEK 4

Builder: GREENPARK HOMES

Date: 14/12/2020

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1226	9	11034
First	1226	10	12260
Second	1579	9	14211
Third	0	9	0
Fourth	0	9	0
Total:			37,505.0 ft³
Total:			1062.0 m³

WINTER NATURAL AIR CHANGE RATE	0.310
SUMMER NATURAL AIR CHANGE RATE	0.111

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
6.2.6 Sensible Gain due to Air Leakage

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

$$0.310 \times 295.01 \times 39^\circ\text{C} \times 1.2 = 4299 \text{ W}$$

$$= 14669 \text{ Btu/h}$$

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

$$0.111 \times 295.01 \times 7^\circ\text{C} \times 1.2 = 279 \text{ W}$$

$$= 952 \text{ Btu/h}$$

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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{level})
1	0.5	14,669	8,704	0.843
2	0.3		11,031	0.399
3	0.2		12,325	0.238
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 HLairbv = 0

CITY OF HAMILTON
Building Division

Permit No. 21-107149

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE CITY OF HAMILTON BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

MAR 01 2021

FOR THE BUILDING OFFICIAL

DATE

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK 4	LOT 326	BUILDER: GREENPARK HOMES
SFQT: 2795	LO# 88606	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):	37505.0	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:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	159.0 ft

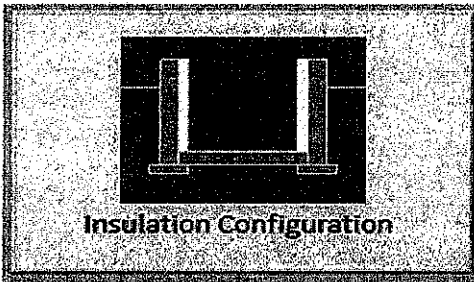
2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement 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

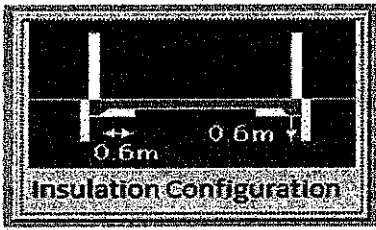
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.5	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	48.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.6	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1516

TYPE: VALLEYCREEK 4
LO# 88606

LOT 326

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):	2.1	
Exposed Perimeter (m):	5.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		32

TYPE: VALLEYCREEK 4
LO# 88606

LOT 326

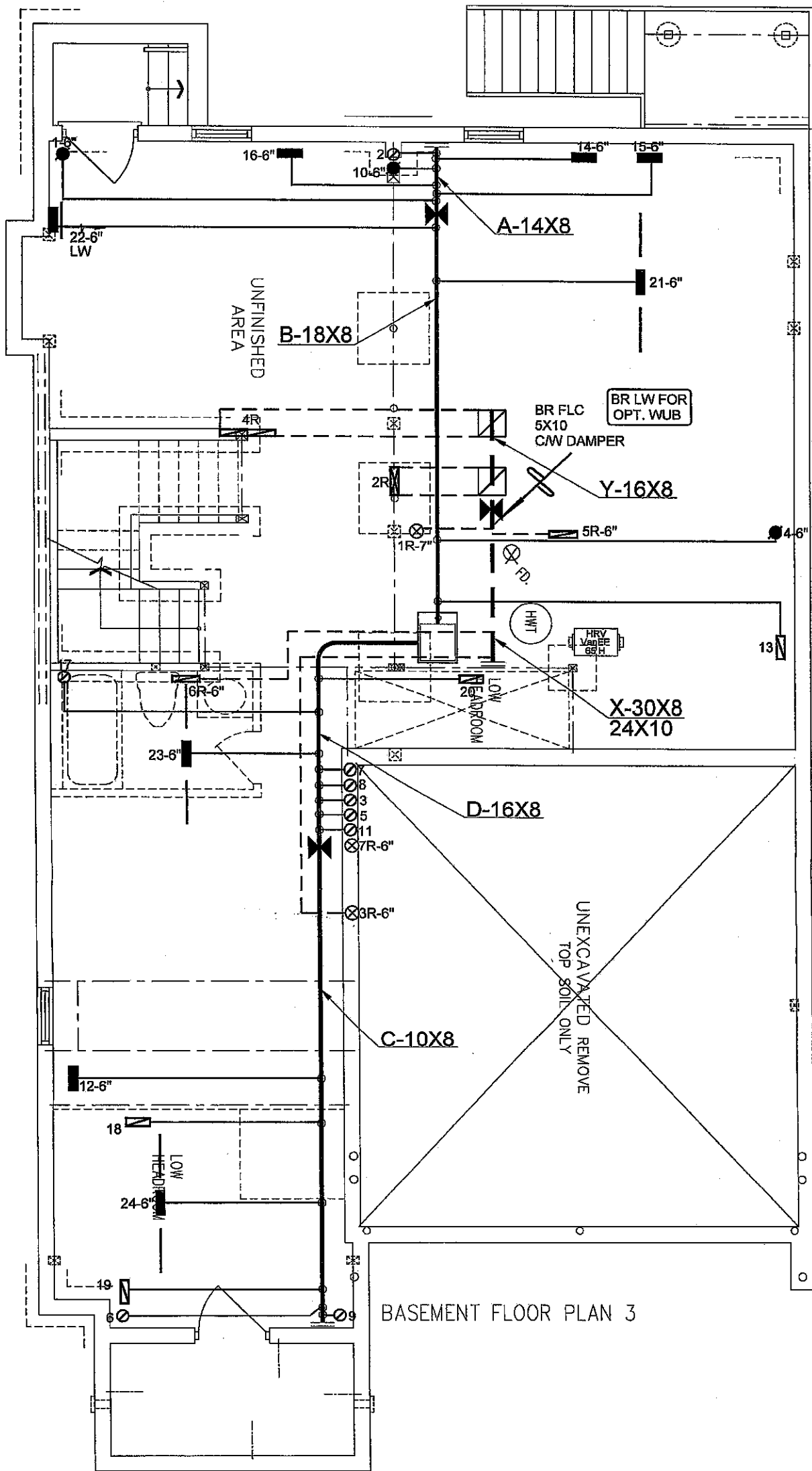
Air Infiltration Residential Load Calculator

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):	6.71			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1062.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1415.7 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):	0.310			
Cooling Air Leakage Rate (ACH/H):	0.111			

TYPE: VALLEYCREEK 4
LO# 88606

LOT 326



BASEMENT FLOOR PLAN 3

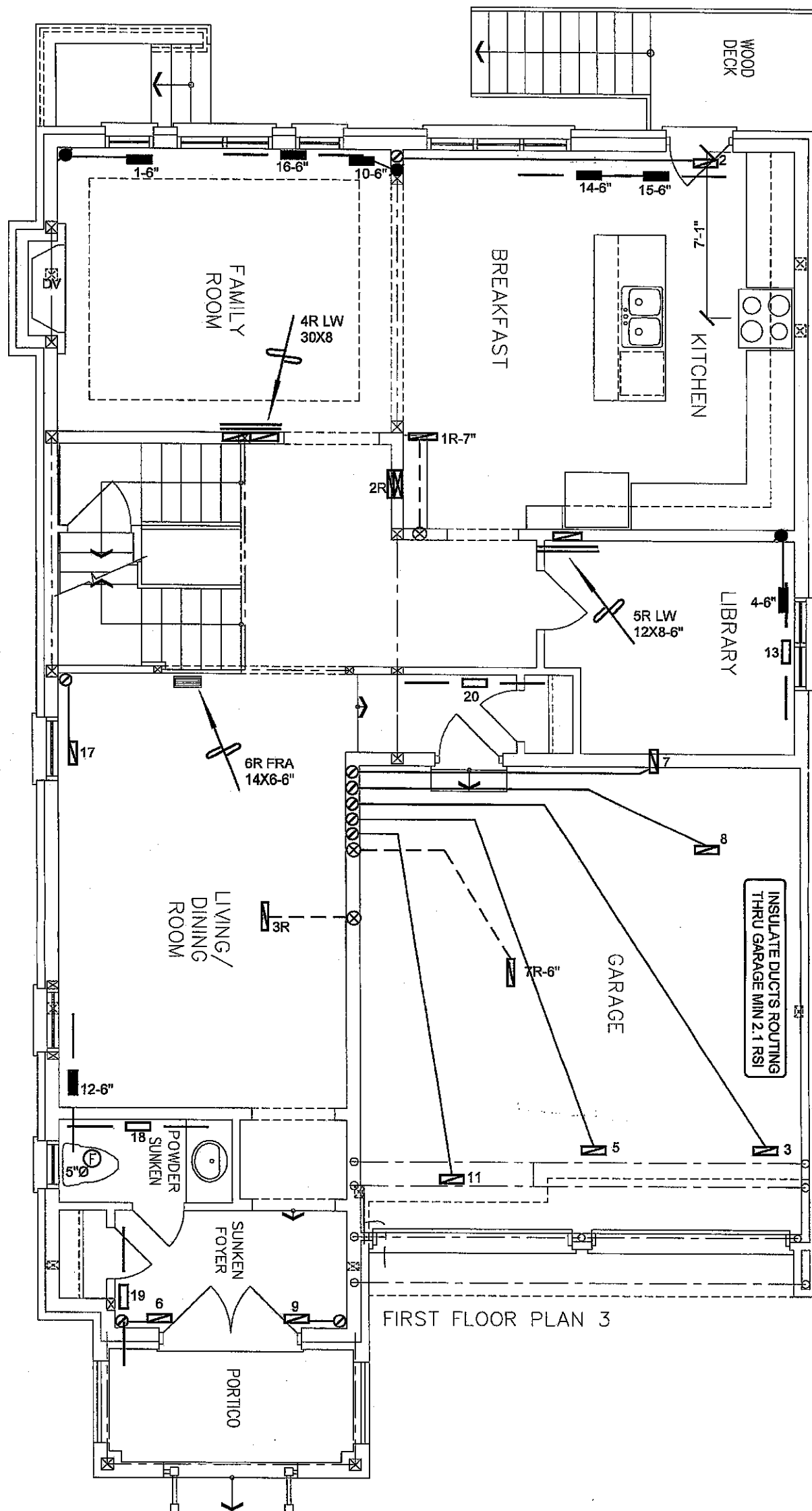
LOT 326
WUB
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.2 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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

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Client GREENPARK HOMES Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO LOT 326 VALLEYCREEK 4 2795sqft	 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 48736 BTU/H UNIT DATA MAKE GOODMAN MODEL GMEC960603BNA INPUT 60 MBTU/H OUTPUT 57.6 MBTU/H COOLING 3.0 TONS FAN SPEED 1131 cfm @ 0.8" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 12 4 3 1ST FLOOR 8 3 2 BASEMENT 4 1 0 ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'10" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	Sheet Title BASEMENT HEATING LAYOUT Date DEC/2020 Scale 3/16" = 1'-0" BCIN# 19669 LO# 88606



FIRST FLOOR PLAN 3

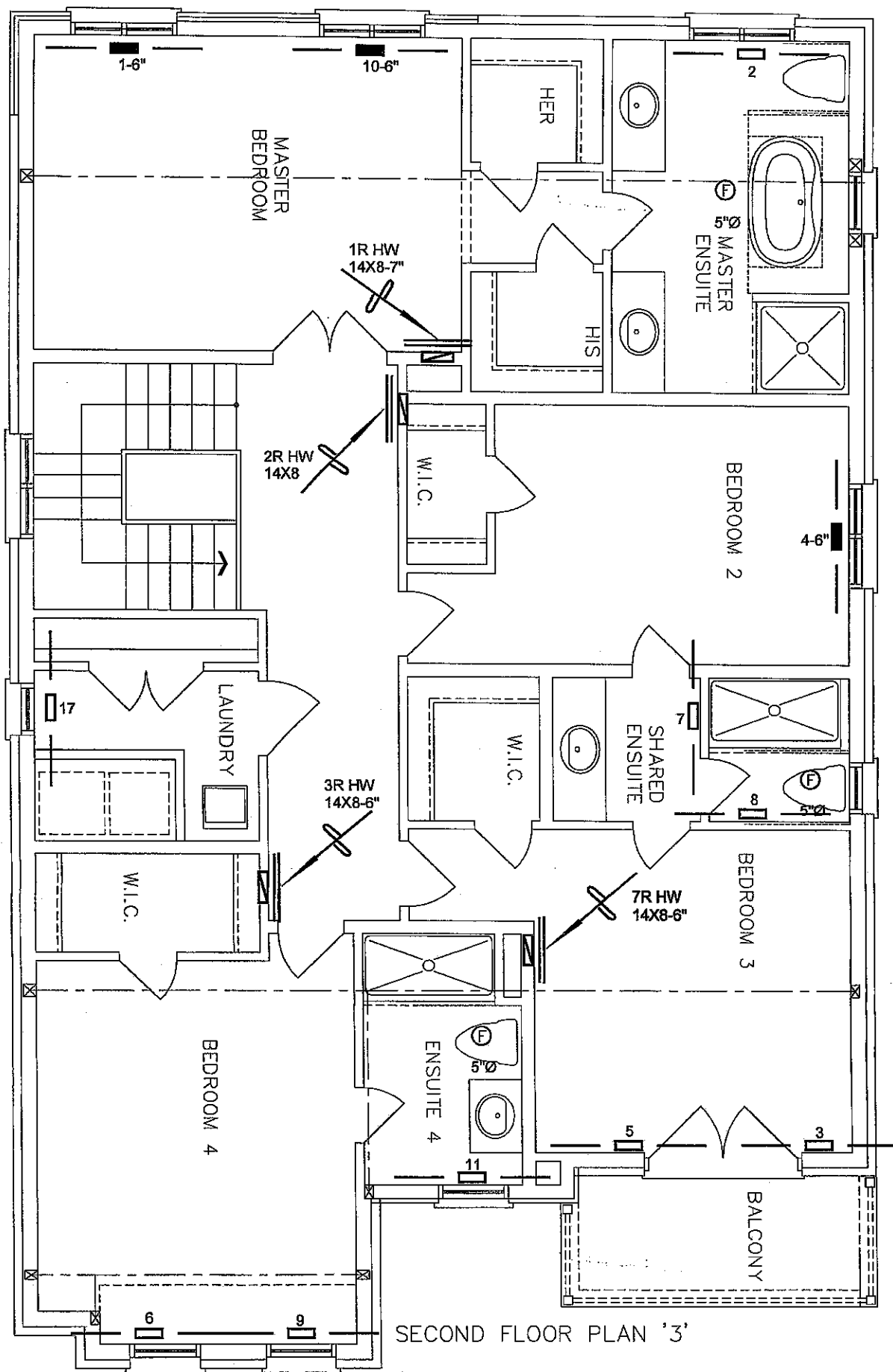
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 32.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

LOT 326
WUB
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		

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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 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 FIRST FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date DEC/2020	
LOT 326 VALLEYCREEK 4 2795sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	88606



SECOND FLOOR PLAN '3'

LOT 326
WUB
CSA-F280-12
PACKAGE A1

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

HVAC LEGEND

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

3.		
2.		
1.		
No.	Description	Date
REVISIONS		

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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 DEC/2020	Scale 3/16" = 1'-0"
LOT 326 VALLEYCREEK 4 2795sqft		BCIN# 19669		
		LO#	88606	