

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 238

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: 2784

LO# 88617

SUMMER NATURAL AIR CHANGE RATE 0.111

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	S-BATH	ENS-4
			41	30	11	28	39	6	7
			9	9	9	9	9	9	9
FACTORS									
GRS.WALL AREA	LOSS	GAIN	369	270	99	252	351	54	63
GLAZING	LOSS	GAIN			LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	16.0	0	0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0
SOUTH	19.8	24.9	16	316	398	0	0	0	0
WEST	19.8	41.6	36	712	1496	16	316	665	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	317	1314	238	245	1016	184	54
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	363	433	213	220	262	129	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	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	2447	2487	679	669
SUB TOTAL HT GAIN				1122	440	2080	2130	254	491
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			659	421	215	581	591	161	159
AIR CHANGE HEAT GAIN				165		31	146	150	34
DUCT LOSS			0	0	0	303	0	84	53
DUCT GAIN			0	0	0	313	0	27	0
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS			664	0		664		664	0
TOTAL HT LOSS BTU/H			3434	2193	1123	3331	3078	924	910
TOTAL HT GAIN x 1.3 BTU/H			4751	1561	1787	4475	4138	389	751

ROOM USE	EXP. WALL	CLG. HT.	LV/ON	LJB	BFKT	FAM	LAUN	W/R	FOY	MUD	WUB	BAS
			39	20	35	37	9	4	30	9	24	152
			10	10	10	10	9	11	11	11	9	9
FACTORS												
GRS.WALL AREA	LOSS	GAIN	390	200	360	370	81	44	330	99	216	912
GLAZING	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
EAST	19.8	41.6	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
WEST	19.8	41.6	0	0	0	70	1384	2909	40	791	1652	0
SKYLT.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	364	1509	274	182	755	137	280	1161	210	330
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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
NO ATTIC EXPOSED CLG	2.6	1.3	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
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	307	2250	797	202	4976
SUB TOTAL HT GAIN				921	424	3119	1920	322	674	144	355	484
LEVEL FACTOR / MULTIPLIER	0.30	0.39	0.30	0.39	0.30	0.39	0.30	0.39	0.30	0.39	0.30	0.39
AIR CHANGE HEAT LOSS			793	435	997	853	142	120	882	312	0.50	0.85
AIR CHANGE HEAT GAIN				65	30	219	135	23	47	10		59
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			664	664	664	664	664	664	664	664	664	664
TOTAL HT LOSS BTU/H			2816	1545	3542	3031	740	428	3131	1109	1630	14408
TOTAL HT GAIN x 1.3 BTU/H			2144	1453	5202	3533	1310	315	937	201	461	1569

TOTAL HEAT GAIN BTU/H: 35253

TONS: 2.94

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 47273

TOTAL COMBINED HEAT LOSS BTU/H: 48785

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
 BUILDER: GREENPARK HOMES

 LOT 238
 TYPE: VALLEYCREEK 4

DATE: Dec-20

GFA: 2784 LO# 88617

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 47,273 TOTAL HEAT GAIN 34,978
 AIR FLOW RATE CFM 23.92 AIR FLOW RATE CFM 32.33

 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
 MED LOW 928
 MEDIUM 1017
 HIGH 1131

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

 DESIGN CFM = 1131
 CFM @ 0.5" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	4
R/A	0	0	4	3	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	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	1.67	1.12	1.67	1.54	0.46	0.46	1.54	1.72	0.91	2.82	1.55	1.77	1.77	3.03	0.74	0.43	3.13	1.11	3.98	3.98	3.98	3.98
CFM PER RUN HEAT	41	52	40	27	40	37	11	11	37	41	22	67	37	42	42	73	18	10	75	27	95	95	95	95
RM GAIN MBH	2.38	1.56	2.24	1.79	2.24	2.07	0.19	0.19	2.07	2.38	0.75	2.14	1.45	2.60	2.60	3.53	1.31	0.31	0.94	0.20	0.51	0.51	0.51	0.51
CFM PER RUN COOLING	77	50	72	58	72	67	6	6	67	77	24	69	47	84	84	114	42	10	30	6	16	16	16	16
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	185	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	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	209	382	294	138	294	272	126	126	272	209	252	342	272	214	214	372	132	115	551	310	484	484	484	484
COOLING VELOCITY (ft/min)	393	367	529	296	529	492	69	69	492	393	275	352	345	428	428	581	308	115	220	69	82	82	82	82
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	2.38	77	0.17	48	180	228	0.08	6	209	393	4X10	A
2	ENS	2.19	52	1.56	50	0.17	44	120	164	0.1	5	382	367	3X10	A
3	BED-3	1.67	40	2.24	72	0.17	46	140	185	0.09	5	294	529	3X10	D
4	BED-2	1.12	27	1.79	58	0.17	30	160	190	0.09	6	138	296	4X10	B
5	BED-3	1.67	40	2.24	72	0.17	42	130	172	0.1	5	294	529	3X10	D
6	BED-4	1.54	37	2.07	67	0.17	51	150	201	0.09	5	272	492	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	1.54	37	2.07	67	0.17	44	130	174	0.1	5	272	492	3X10	C
10	MBR	1.72	41	2.38	77	0.17	33	140	173	0.1	6	209	393	4X10	A
11	ENS-4	0.91	22	0.75	24	0.17	34	120	154	0.11	4	252	275	3X10	D
12	LV/DN	2.82	67	2.14	69	0.17	35	150	185	0.09	6	342	352	4X10	C
13	LIB	1.55	37	1.45	47	0.17	18	150	168	0.1	5	272	345	3X10	B
14	BF/KT	1.77	42	2.60	84	0.16	25	120	145	0.11	6	214	428	4X10	A
15	BF/KT	1.77	42	2.60	84	0.16	32	140	172	0.09	6	214	428	4X10	A
16	FAM	3.03	73	3.53	114	0.15	28	130	231	0.1	6	372	581	4X10	A
17	LAUN	0.74	18	1.31	42	0.17	31	200	193	0.07	5	132	308	3X10	D
18	W/R	0.43	10	0.31	30	0.17	33	160	160	0.09	4	115	115	3X10	C
19	FOY	3.13	75	0.94	6	0.17	40	120	203	0.11	5	551	220	3X10	C
20	MUD	1.11	27	0.20	6	0.17	13	190	124	0.08	4	310	69	3X10	D
21	BAS	3.98	95	0.51	16	0.16	24	100	133	0.13	6	484	82	4X10	B
22	BAS	3.98	95	0.51	16	0.16	43	90	166	0.12	6	484	82	4X10	B
23	BAS	3.98	95	0.51	16	0.16	16	150	166	0.1	6	484	82	4X10	D
24	BAS	3.98	95	0.51	16	0.16	36	130	166	0.1	6	484	82	4X10	C

SUPPLY AIR TRUNK SIZE																RETURN AIR TRUNK SIZE									
	TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY				
	CFM	PRESS.	DUCT	DUCT			(ft/min)	CFM	PRESS.	DUCT	DUCT			(ft/min)	CFM	PRESS.	DUCT	DUCT					(ft/min)		
TRUNK A	291	0.08	8.8	14	X	8	374	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.06	0	0	X	8	0		
TRUNK B	545	0.08	11.2	18	X	8	545	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.06	0	0	X	8	0		
TRUNK C	321	0.09	8.9	10	X	8	578	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.06	0	0	X	8	0		
TRUNK D	585	0.07	11.8	16	X	8	658	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			
RETURN AIR #	1	2	3	4	5	6	7	0	0	0	0	0	0	0	0	TRUNK X	1131	0.06	15.8	30	X	8	679		
AIR VOLUME	120	185	105	290	105	105	95	0	0	0	0	0	0	0	126	TRUNK Y	475	0.06	11.4	16	X	8	534		
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	TRUNK Z	0	0.06	0	0	X	8	0		
ACTUAL DUCT LGH.	39	38	51	30	18	22	45	1	1	1	1	1	1	1	1	DROP	1131	0.06	15.8	24	X	10	679		
EQUIVALENT LENGTH	215	145	135	150	175	175	175	0	0	0	0	0	0	0	0										
TOTAL EFFECTIVE LH	254	183	186	180	193	197	220	1	1	1	1	1	1	1	1										
ADJUSTED PRESSURE	0.06	0.08	0.08	0.08	0.08	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80										
ROUND DUCT SIZE	6.8	7.5	6	8.8	6	6	6	0	0	0	0	0	0	0	0										
INLET GRILL SIZE	8	8	8	8	6	8	8	0	0	0	0	0	0	0	0										
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
INLET GRILL SIZE	14	14	14	30	12	14	14	0	0	0	0	0	0	0	0										

TYPE: VALLEYCREEK 4
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 88617
 LOT 238

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	31.6	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
79.5 CFM	71 F
X	X
FACTOR	% LOSS
1.08	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	60	☒	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:	December-20

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

LO#: 88617

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	1229	9	11061
First	1229	10	12290
Second	1565	9	14085
Third	0	9	0
Fourth	0	9	0
Total:			37,436.0 ft³
Total:			1060.1 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

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

$$0.310 \times 294.46 \times 39^\circ\text{C} \times 1.2 = 4291 \text{ W}$$

$$= 14642 \text{ Btu/h}$$

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

$$0.111 \times 294.46 \times 7^\circ\text{C} \times 1.2 = 279 \text{ W}$$

$$= 950 \text{ Btu/h}$$

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 / HLlevel)
1	0.5	14,642	8,617	0.850
2	0.3		11,209	0.392
3	0.2		12,334	0.237
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. **29-105978**

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 22 2021

FOR THE BUILDING OFFICIAL

DATE

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: VALLEYCREEK 4	LOT 238	BUILDER: GREENPARK HOMES
SFQT: 2784	LO# 88617	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):	37436.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.65	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:	152.0 ft

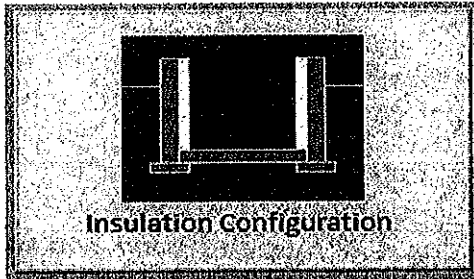
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement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

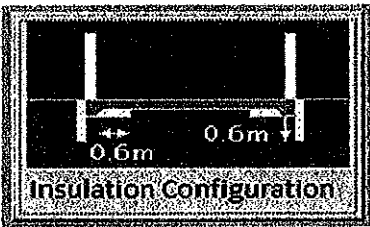
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.5	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	46.3	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.8	
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):		1458

TYPE: VALLEYCREEK 4
LO# 88617

LOT 238

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):	4.3	
Exposed Perimeter (m):	7.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	59	

TYPE: VALLEYCREEK 4
LO# 88617

LOT 238

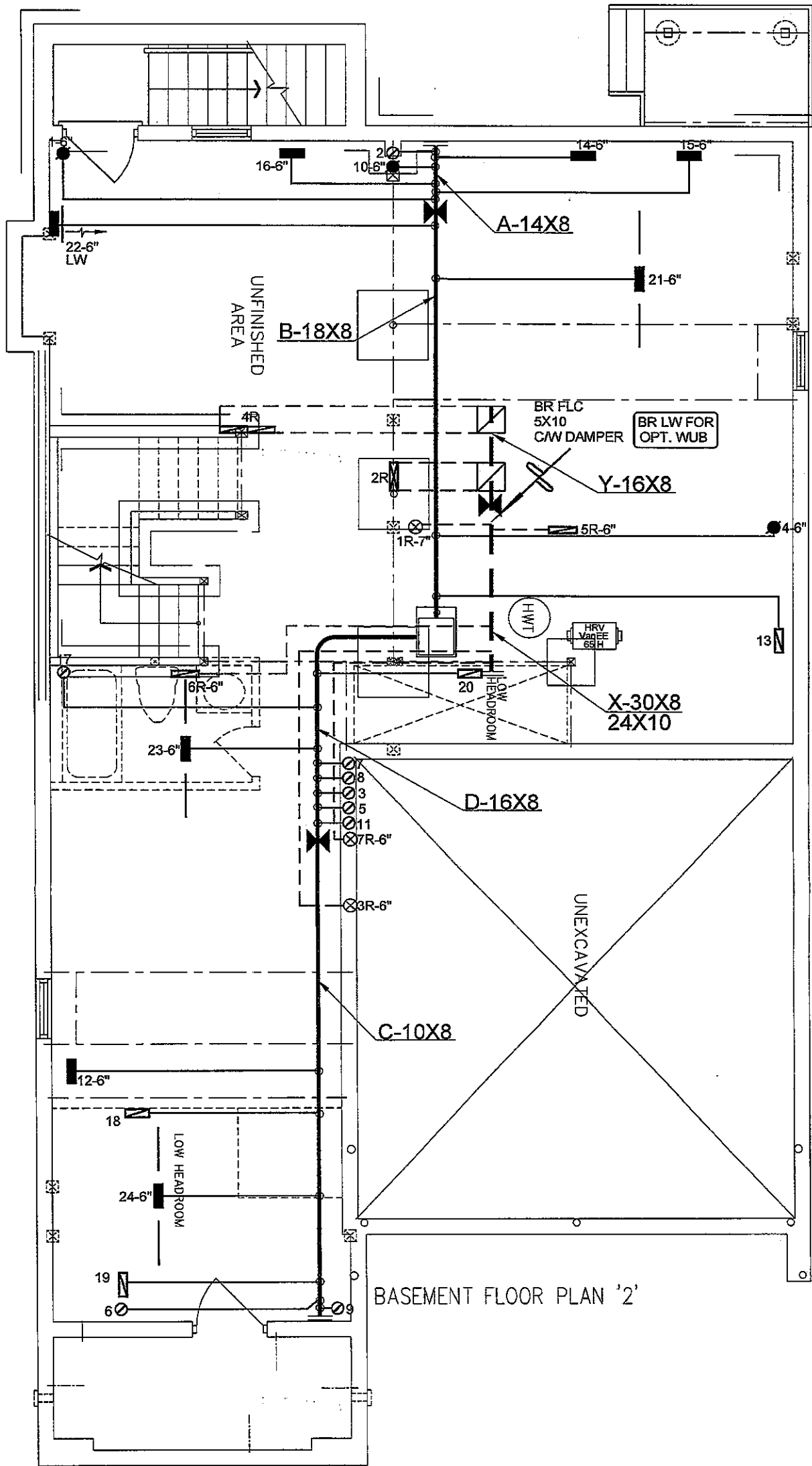
Air Infiltration Residential Load Calculator

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):	1060.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1413.1 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):	0.310			
Cooling Air Leakage Rate (ACH/H):	0.111			

TYPE: VALLEYCREEK 4
LO# 88617

LOT 238



BASEMENT FLOOR PLAN '2'

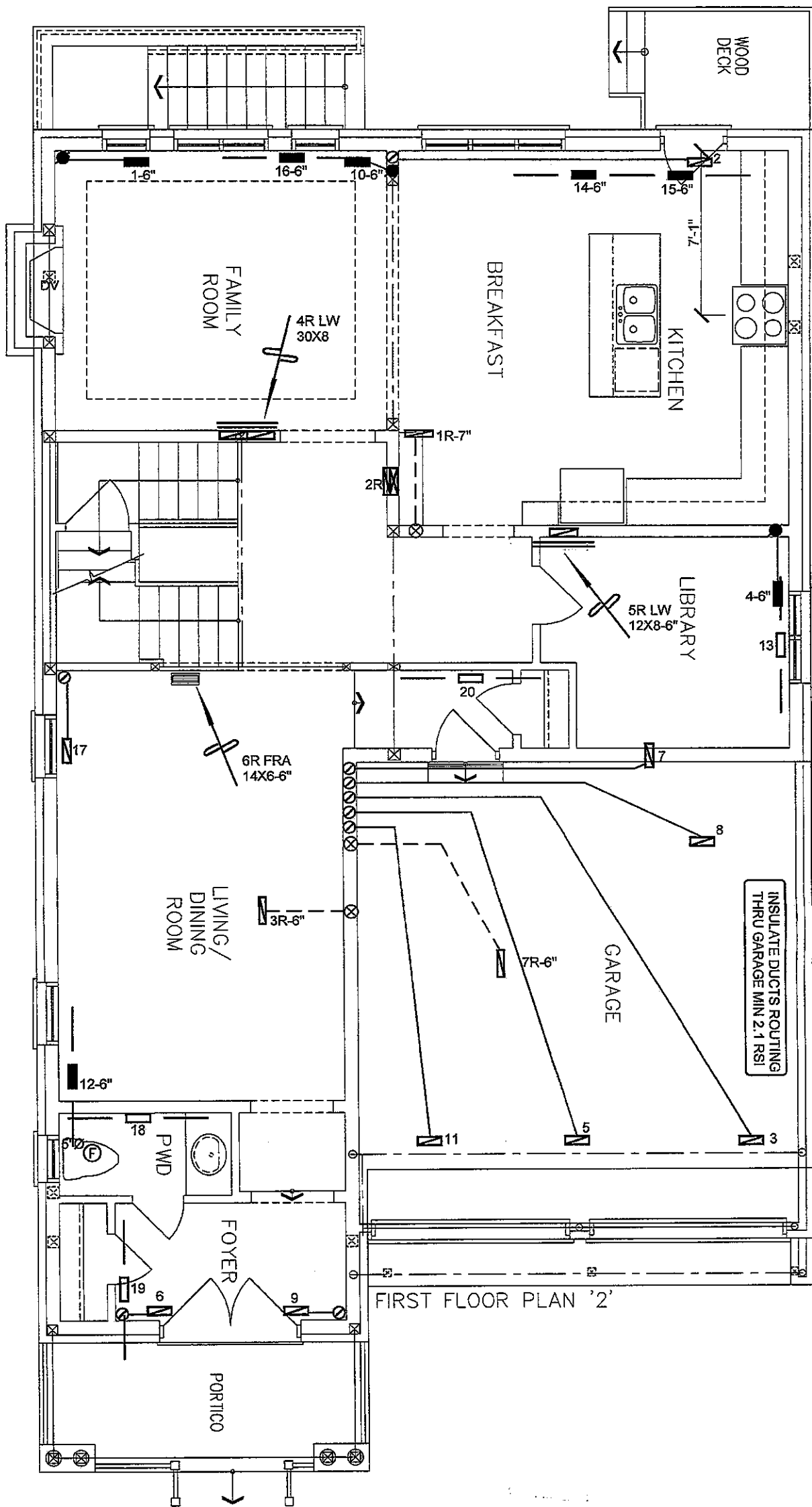
LOT 238
WUB
CSA-F280-12
PACKAGE A1

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

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

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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 48788 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title					
		MAKE GOODMAN	MODEL GMEC960603BNA	INPUT 60 MBTU/H	OUTPUT 57.6 MBTU/H	COOLING 3.0 TONS	FAN SPEED 1131 cfm @ 0.5" w.c.	3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO	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.	2ND FLOOR		12	4	3	2ND FLOOR		12	4	3		
		1ST FLOOR		8	3	2	1ST FLOOR		8	3	2		
LOT 238 VALLEYCREEK 4 2784 sqft		BASEMENT		4	1	0	BASEMENT		4	1	0	Date	DEC/2020
												Scale	3/16" = 1'-0"
												BCIN# 19669	
												LO#	88617



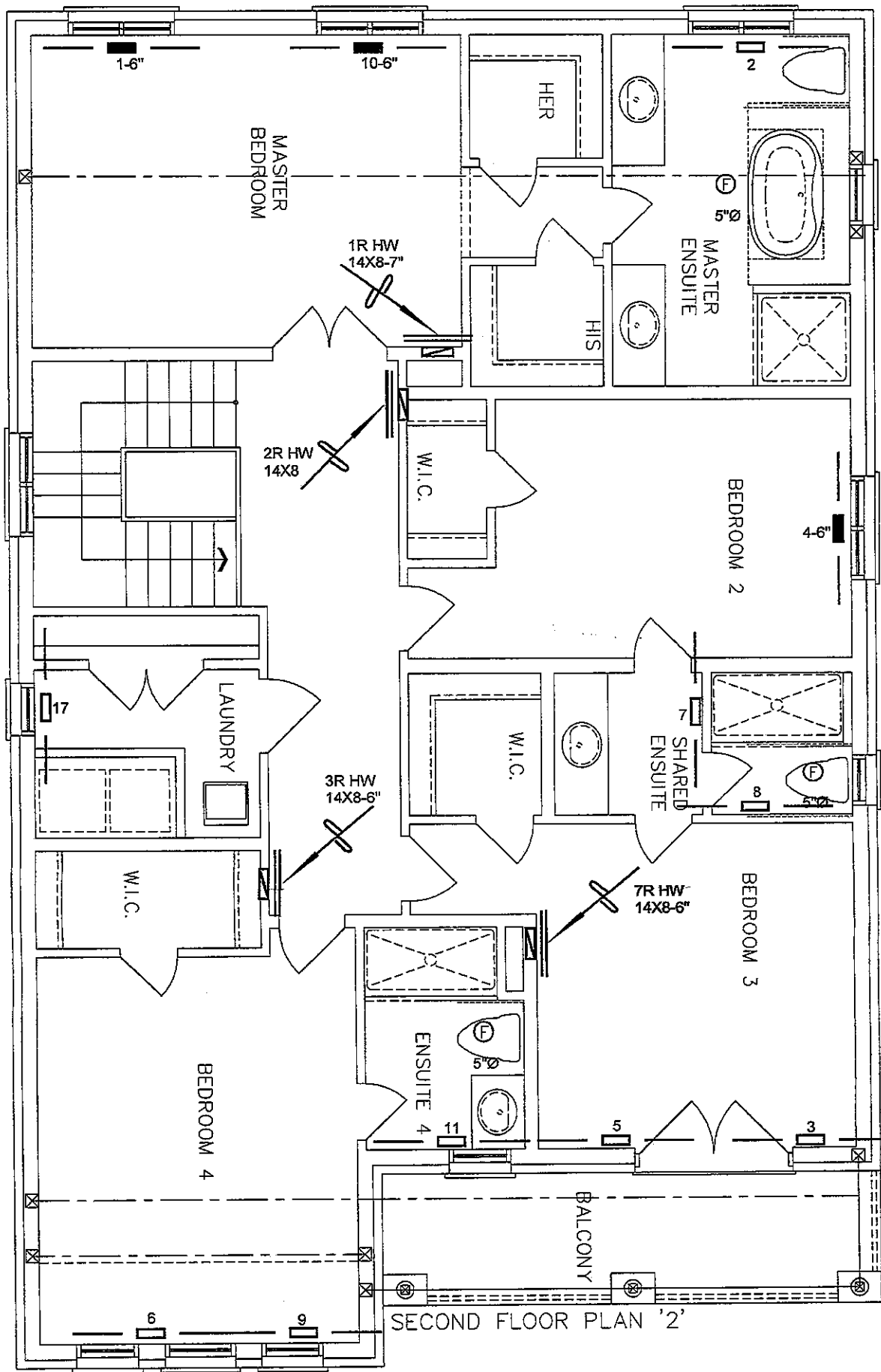
I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

LOT 238
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 238 VALLEYCREEK 4 2784 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	88617



LOT 238
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, 32.5 OF THE BUILDING CODE

Michael O'Rourke
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	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No. Description Date

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GREENPARK HOMES		SECOND FLOOR HEATING LAYOUT	
Project Name		Date	DEC/2020
RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		Scale	3/16" = 1'-0"
LOT 238 VALLEYCREEK 4 2784 sqft	BCIN# 19669		
	LO#	88617	