

SITE NAME: RUSSEL GARDENS PH 4

BUILDER: GREENPARK HOMES

OPT GROUND - WUB

TYPE: SPRINGFIELD 11

GFA: 3625

DATE: Apr-21

LO# 90173

WINTER NATURAL AIR CHANGE RATE 0.310

SUMMER NATURAL AIR CHANGE RATE 0.111

HEAT LOSS AT °F. 71

HEAT GAIN AT °F. 13

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	MBR	ENS	BED-2	BED-3	BED-4	ENS-2	HALL	FL/B-5	ENS-3	G-ENS
GRS.WALL AREA	LOSS	GAIN		360	270	279	324	81	54	72	108	117	90
GLAZING	LOSS	GAIN											
NORTH	19.8	16.0	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	0	0
SOUTH	19.8	24.9	24	474	598	0	0	0	9	178	374	0	0
WEST	19.8	41.6	48	949	1994	0	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	288	1184	216	235	974	177	229	949	172	272	1128
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	375	447	220	191	228	112	215	256	126	226	269
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS													
SLAB ON GRADE HEAT LOSS													
SUBTOTAL HT LOSS				3064	1894	2703	2425	939	795	906	1289	1120	373
SUB TOTAL HT GAIN				3029	1564	2468	2315	786	531	419	1022	911	68
LEVEL FACTOR / MULTIPLIER	0.20	0.24		0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.38
AIR CHANGE HEAT LOSS				743	459	555	588	228	193	219	312	271	143
AIR CHANGE HEAT GAIN				193	99	157	147	50	34	27	65	58	4
DUCT LOSS				0	0	336	0	0	99	112	0	0	0
DUCT GAIN				0	0	353	0	0	66	45	0	0	0
HEAT GAIN PEOPLE	240		2	480	0	240	240	240	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				667	0	667	667	667	0	0	0	0	0
TOTAL HT LOSS BTU/H				3807	2353	3695	3013	1166	1067	1237	1601	1391	516
TOTAL HT GAIN x 1.3 BTU/H				5678	2163	5051	4379	2265	807	637	2592	1259	94

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	LV/DN	KT/BF	GUEST	LND	W/R	FOY	MUD	WUB	BAS
GRS.WALL AREA	LOSS	GAIN		340	250	400	330	81	60	253	264	180	1032
GLAZING	LOSS	GAIN											
NORTH	19.8	16.0	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	0	0
SOUTH	19.8	24.9	32	633	797	68	1344	1683	0	0	0	0	0
WEST	19.8	41.6	63	1245	2618	0	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	69	1364	2857	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	245	1016	184	182	755	137	306	1269	230	261	1082
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	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
BASEMENT/CRAWL HEAT LOSS													
SLAB ON GRADE HEAT LOSS													
SUBTOTAL HT LOSS				2894	2099	3219	2446	632	358	1956	1590	164	8133
SUB TOTAL HT GAIN				3599	1830	3283	2830	267	152	355	375	1296	602
LEVEL FACTOR / MULTIPLIER	0.39	0.38		0.30	0.38	0.30	0.38	0.20	0.24	0.30	0.38	0.30	1.01
AIR CHANGE HEAT LOSS				1111	806	1236	939	153	137	751	610	205	9556
AIR CHANGE HEAT GAIN				229	116	204	180	17	10	23	24	0	61
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				667	667	667	667	667	0	0	0	0	0
TOTAL HT LOSS BTU/H				4005	2904	4455	3385	786	496	2707	2200	1296	17689
TOTAL HT GAIN x 1.3 BTU/H				5842	3397	5296	5092	1238	210	430	518	267	850

TOTAL HEAT GAIN BTU/H:

48568

TONS: 4.05

LOSS DUE TO VENTILATION LOAD BTU/H: 2480

STRUCTURAL HEAT LOSS: 59790

TOTAL COMBINED HEAT LOSS BTU/H: 62250

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19668

MICHAEL O'ROURKE

SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMESOPT GROUND - WUB
TYPE: SPRINGFIELD 11

DATE: Apr-21

GFA: 3625 LO# 90173

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 59,790 TOTAL HEAT GAIN 48,122
AIR FLOW RATE CFM 25.15 AIR FLOW RATE CFM 31.25furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15#*GOODMAN
GMEC960804CNA 80FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800DESIGN CFM = 1504
CFM @ 6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	12	5
R/A	0	0	6	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	ENS	BED-2	BED-3	BED-4	ENS-2	HALL	FLB-5	MBR	ENS-3	FAM	LV/DN	KT/BF	KT/BF	GUEST	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.90	1.18	1.18	1.85	1.51	1.17	0.54	1.24	1.60	1.90	1.39	2.00	1.45	2.23	2.23	1.69	0.79	0.50	2.71	2.20	3.80	3.80	3.80	3.80
CFM PER RUN HEAT	48	30	30	46	38	29	14	31	40	48	35	50	37	56	56	43	20	12	68	55	95	95	95	95
RM GAIN MBH	2.84	1.08	1.08	2.53	2.19	2.26	0.40	0.64	2.59	2.84	1.26	2.92	1.70	2.65	2.65	2.55	1.24	0.21	0.49	0.52	0.22	0.22	0.22	0.22
CFM PER RUN COOLING	89	34	34	79	68	71	13	20	81	89	39	91	53	83	83	80	39	7	15	16	7	7	7	7
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	32	64	75	70	56	20	46	43	66	39	36	24	15	64	25	8	57	18	14	13	41	35
EQUIVALENT LENGTH	120	200	140	160	160	200	140	110	150	180	170	180	130	80	110	110	160	100	170	100	90	100	160	130
TOTAL EFFECTIVE LENGTH	172	230	172	224	235	270	196	130	196	223	236	219	166	104	125	174	185	108	227	118	104	113	201	165
ADJUSTED PRESSURE	0.09	0.07	0.1	0.08	0.07	0.06	0.09	0.13	0.08	0.07	0.07	0.07	0.1	0.16	0.13	0.1	0.09	0.16	0.08	0.15	0.16	0.14	0.08	0.1
ROUND DUCT SIZE	6	4	5	6	6	6	4	4	6	6	5	6	6	6	6	6	4	4	6	5	6	6	6	6
HEATING VELOCITY (ft/min)	245	344	220	235	194	148	161	356	204	245	257	255	189	286	286	219	229	138	347	404	484	484	484	484
COOLING VELOCITY (ft/min)	454	390	250	403	347	362	149	229	413	454	286	464	270	423	423	408	447	80	76	117	36	36	36	36
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10
TRUNK	C	E	E	B	A	A	B	E	C	C	B	C	C	D	D	A	E	E	A	E	D	D	C	C

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BAS	BED-2	BED-3	FAM	LV/DN	GUEST	ENS-2	G-ENS
RM LOSS MBH	3.80	1.85	1.51	2.00	1.45	1.69	0.54	0.52
CFM PER RUN HEAT	95	46	38	50	37	43	14	13
RM GAIN MBH	0.22	2.53	2.19	2.92	1.70	2.55	0.40	0.09
CFM PER RUN COOLING	7	79	68	91	53	80	13	3
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	48	70	83	39	47	56	54	47
EQUIVALENT LENGTH	100	170	180	150	180	120	170	120
TOTAL EFFECTIVE LENGTH	148	240	263	189	227	176	224	167
ADJUSTED PRESSURE	0.11	0.07	0.07	0.09	0.08	0.1	0.08	0.1
ROUND DUCT SIZE	6	6	6	6	6	6	4	4
HEATING VELOCITY (ft/min)	484	235	194	255	189	219	161	149
COOLING VELOCITY (ft/min)	36	403	347	464	270	408	149	34
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10
TRUNK	B	B	A	C	C	A	B	A

SUPPLY AIR TRUNK SIZE

TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	272	0.06	9.3	14
TRUNK B	522	0.06	11.8	18
TRUNK C	500	0.07	11.2	16
TRUNK D	1324	0.06	16.7	32
TRUNK E	178	0.07	7.6	10
TRUNK F	0	0.00	0	0

TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.00	0	0
TRUNK H	0	0.00	0	0
TRUNK I	0	0.00	0	0
TRUNK J	0	0.00	0	0
TRUNK K	0	0.00	0	0
TRUNK L	0	0.00	0	0

RETURN AIR TRUNK SIZE

TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0
TRUNK P	0	0.05	0	0
TRUNK Q	0	0.05	0	0
TRUNK R	0	0.05	0	0
TRUNK S	0	0.05	0	0
TRUNK T	0	0.05	0	0
TRUNK U	0	0.05	0	0
TRUNK V	0	0.05	0	0
TRUNK W	0	0.05	0	0
TRUNK X	1229	0.05	17	28
TRUNK Y	1015	0.05	15.9	24
TRUNK Z	640	0.05	13.3	20
DROP	1504	0.05	18.4	24

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	135	155	155	75	85	115	155	330	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	51	60	68	72	61	62	40	38	63	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	235	195	175	220	175	215	210	205	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	286	255	243	292	236	277	250	243	228	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.06	0.06	0.05	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
ROUND DUCT SIZE	7.5	7.5	7.5	6	6	7	7.5	9.9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	14	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: SPRINGFIELD 11
SITE NAME: RUSSEL GARDENS PH 4

LO # 90173
OPT GROUND - WUB

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	5	@ 10.6 cfm	53	cfm
Kitchen & Bathrooms	6	@ 10.6 cfm	63.6	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	212.0	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)
6 Bedrooms
As Per Ashrea 62.2 Dwelling- Unit Ventilation
4.1.1 Total Ventilation Rate
 $Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1)$
TOTAL 161.3 cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	161.3	cfm
Required Supplemental Capacity	50.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY
Model: VANE G2400H ECM Location: BSMT
161.3 cfm ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
161.3 CFM	X 71 F	X 1.08	X 0.20

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	✓	3.5
W/R	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE G2400H ECM
210 cfm high 50 cfm low
80 % 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: *Michael O'Rourke*
HRAI # 001820
Date: April-21

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

LO#: 90173

Model: SPRINGFIELD 11

Builder: GREENPARK HOMES

Date: 06/04/2021

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1624	9	14616
First	1624	10	16240
Second	2001	9	18009
Third	0	9	0
Fourth	0	9	0
Total:			48,865.0 ft³
Total:			1383.7 m³

Air Change & Delta T Data

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

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

0.310 x 384.36 x 39 °C x 1.2 = 5501 W

= 19112 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.111 x 384.36 x 7 °C x 1.2 = 364 W

= 1240 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

161 CFM x 71 °F x 1.08 x 0.20 = 2460 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

161 CFM x 13 °F x 1.08 x 0.20 = 446 Btu/h

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

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

Level	Level Factor (LF)	HLairve 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	19,112	9,430	1.013
2	0.3		14,935	0.384
3	0.2		15,766	0.242
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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: SPRINGFIELD 11	OPT GROUND - WUB	BUILDER: GREENPARK HOMES
SFQT: 3625	LO# 90173	SITE: RUSSEL 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):	48865.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
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: 55.0 ft	WIDTH: 41.0 ft	EXPOSED PERIMETER:	172.0 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	96%	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

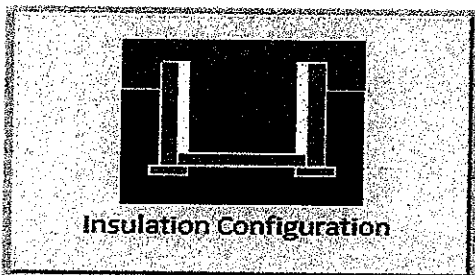
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

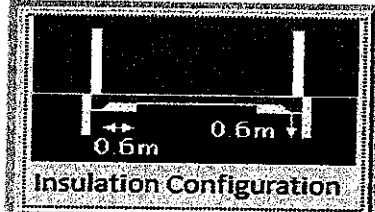
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.8	 Insulation Configuration
Floor Width (m):	12.5	
Exposed Perimeter (m):	52.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.9	
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):		1682

TYPE: SPRINGFIELD 11
LO# 90173

OPT GROUND - WUB

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):	0.9	 Insulation Configuration
Width (m):	4.6	
Exposed Perimeter (m):	6.1	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		48

TYPE: SPRINGFIELD 11
LO# 90173

OPT GROUND - WUB

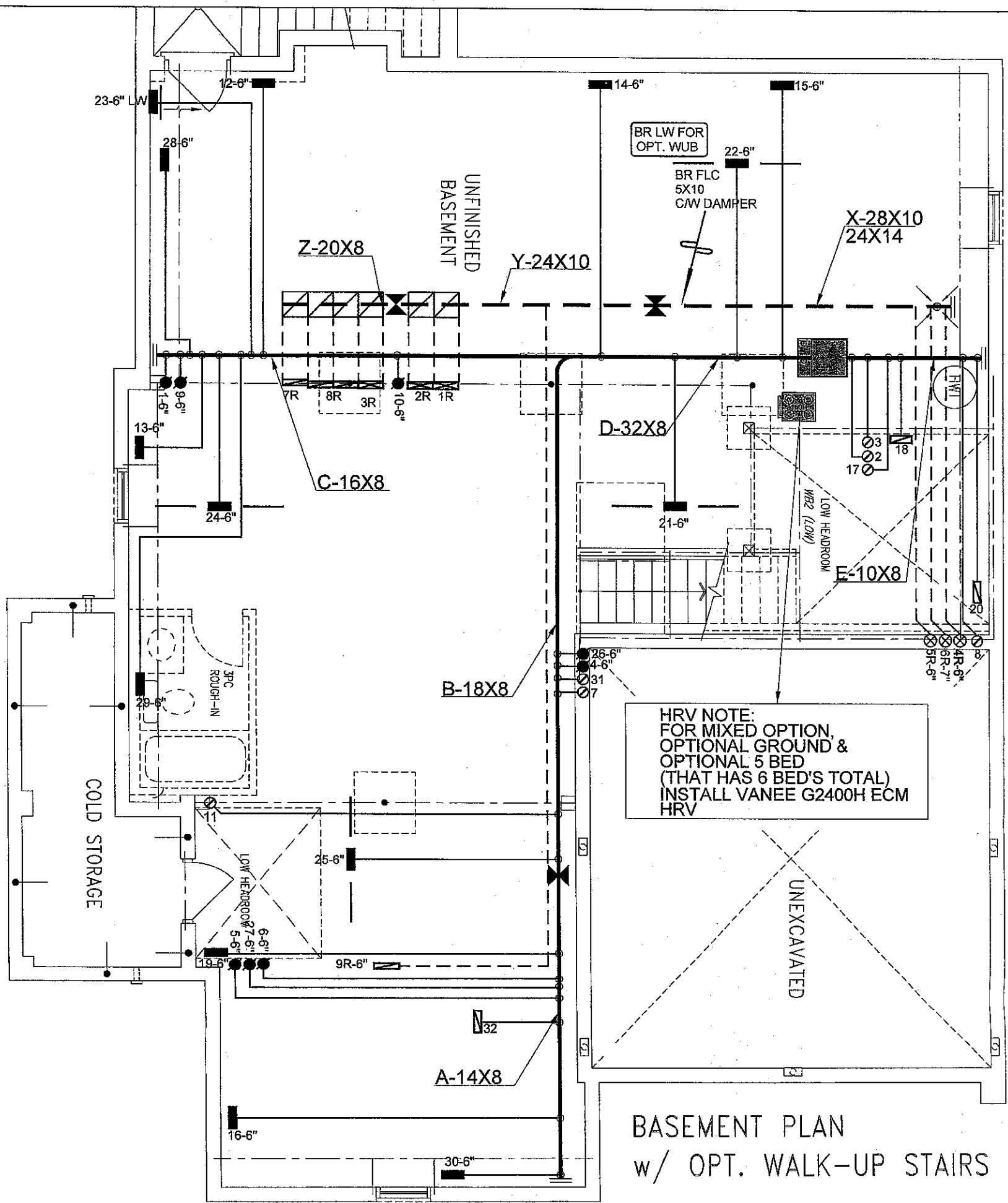
Air Infiltration Residential Load Calculator

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):	1383.7			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1844.5 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	76.1	76.1		
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			

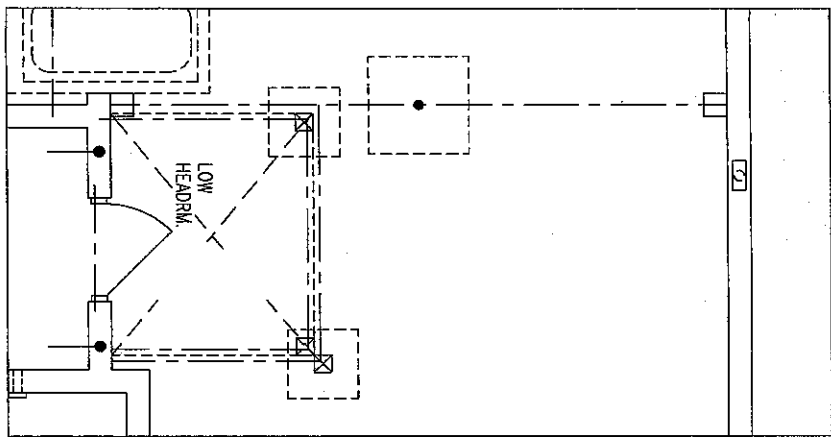
TYPE: SPRINGFIELD 11
LO# 90173

OPT GROUND - WUB



HRV NOTE:
FOR MIXED OPTION,
OPTIONAL GROUND &
OPTIONAL 5 BED
(THAT HAS 6 BED'S TOTAL)
INSTALL VANEE G2400H ECM
HRV

BASEMENT PLAN
w/ OPT. WALK-UP STAIRS



PART. BSMT. PLAN w/
OPT. SUNKEN FOYER
CONDITION

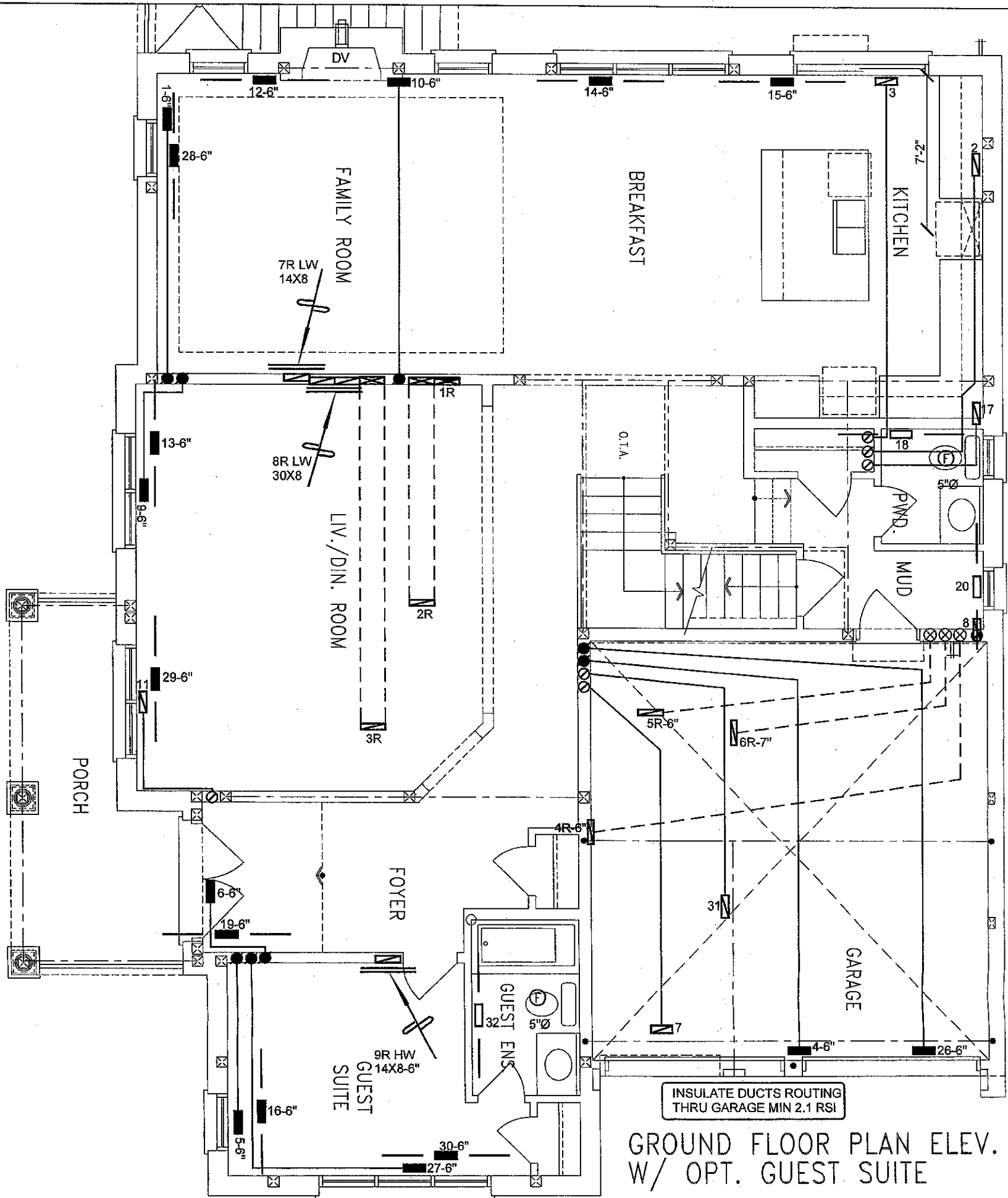
WUB
CSA-F280-12
PACKAGE A1

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

HVAC LEGEND							
	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
						REVISIONS	
						No.	Description
						Date	

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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 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 62250 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title	
GREENPARK HOMES			MAKE GOODMAN	3RD FLOOR					BASEMENT HEATING LAYOUT	
Project Name			MODEL GMEC960804CNA	2ND FLOOR		15	6	4		
RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			INPUT 80 MBTU/H	1ST FLOOR		12	3	3	Date APR/2021	
OPT GROUND - WUB SPRINGFIELD 11 3625 sqft			OUTPUT 76.8 MBTU/H	BASEMENT		5	1	0	Scale 3/16" = 1'-0"	
			COOLING 4.0 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 @ 0.6" w.c.						LO# 90173	



GROUND FLOOR PLAN ELEV. '1'
W/ OPT. GUEST SUITE

I MICHAEL O'DONNELL HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 12.3 OF THE BUILDING CODE.

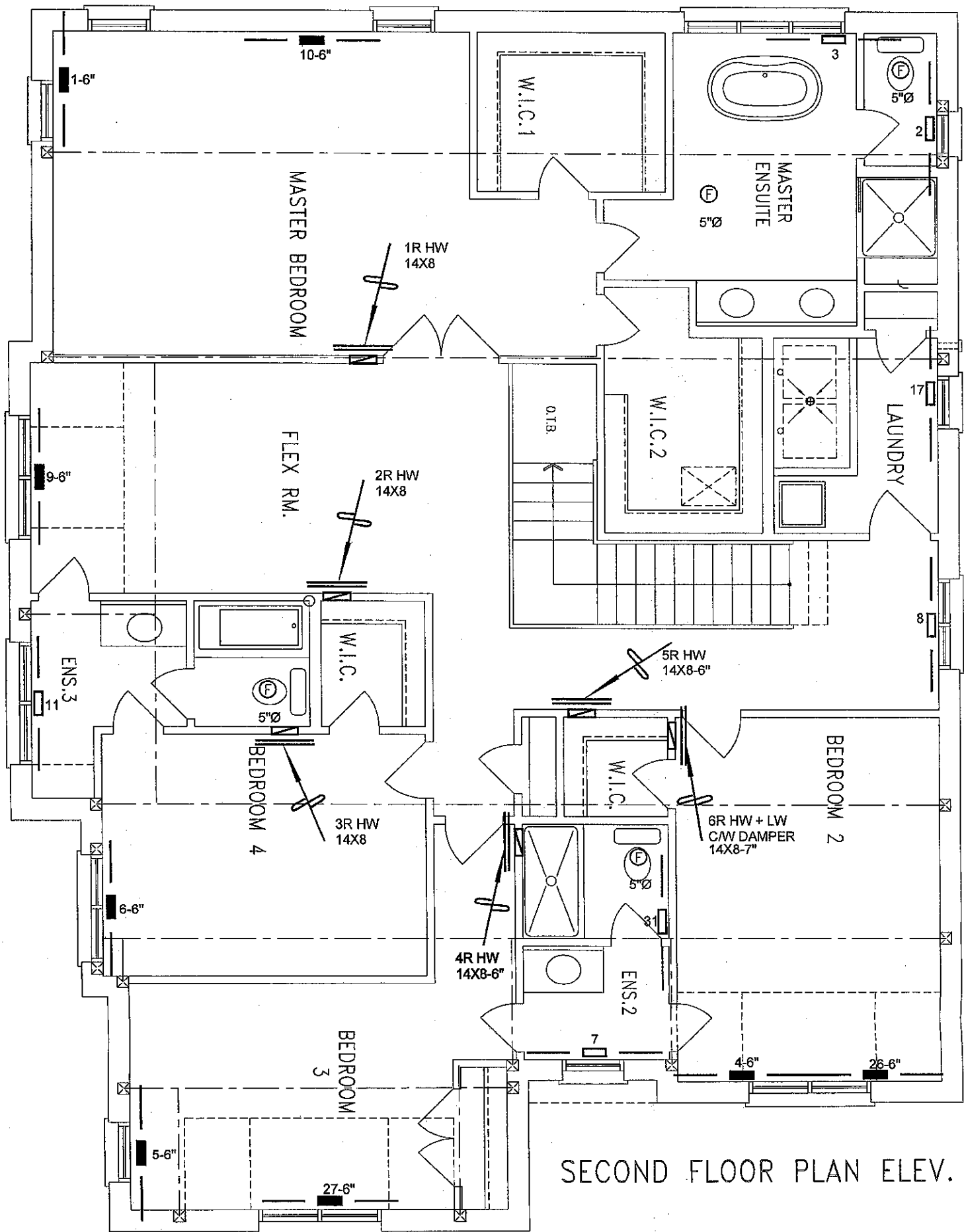
Michael O'Donnell
Michael O'Donnell, BCIN# 19669
HVAC DESIGNS LTD.

WUB
CSA-F280-12
PACKAGE A1

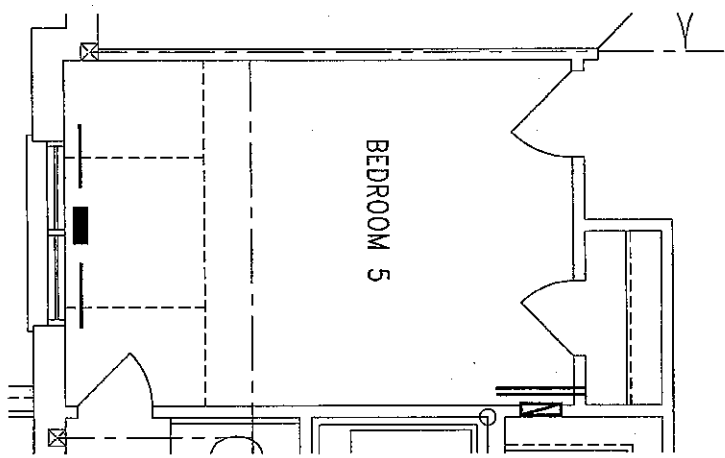
HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.
	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 RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
OPT GROUND - WUB SPRINGFIELD 11 3625 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90173	



SECOND FLOOR PLAN ELEV. '1'



PART. SECOND FLOOR PLAN
W/ OPT. BEDROOM 5

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, 3.2.5 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	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	
								REVISIONS	

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Client GREENPARK HOMES Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO OPT GROUND - WUB SPRINGFIELD 11 3625 sqft	 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	
		Date	APR/2021
		Scale	3/16" = 1'-0"
		BCIN#	19669
		LO#	90173

SECOND FLOOR PLAN - ELEV. '3'

GROUND FLOOR PLAN - ELEV. '3'

BASEMENT PLAN - ELEV. '3'

COLD STORAGE

PORCH

ENS.3

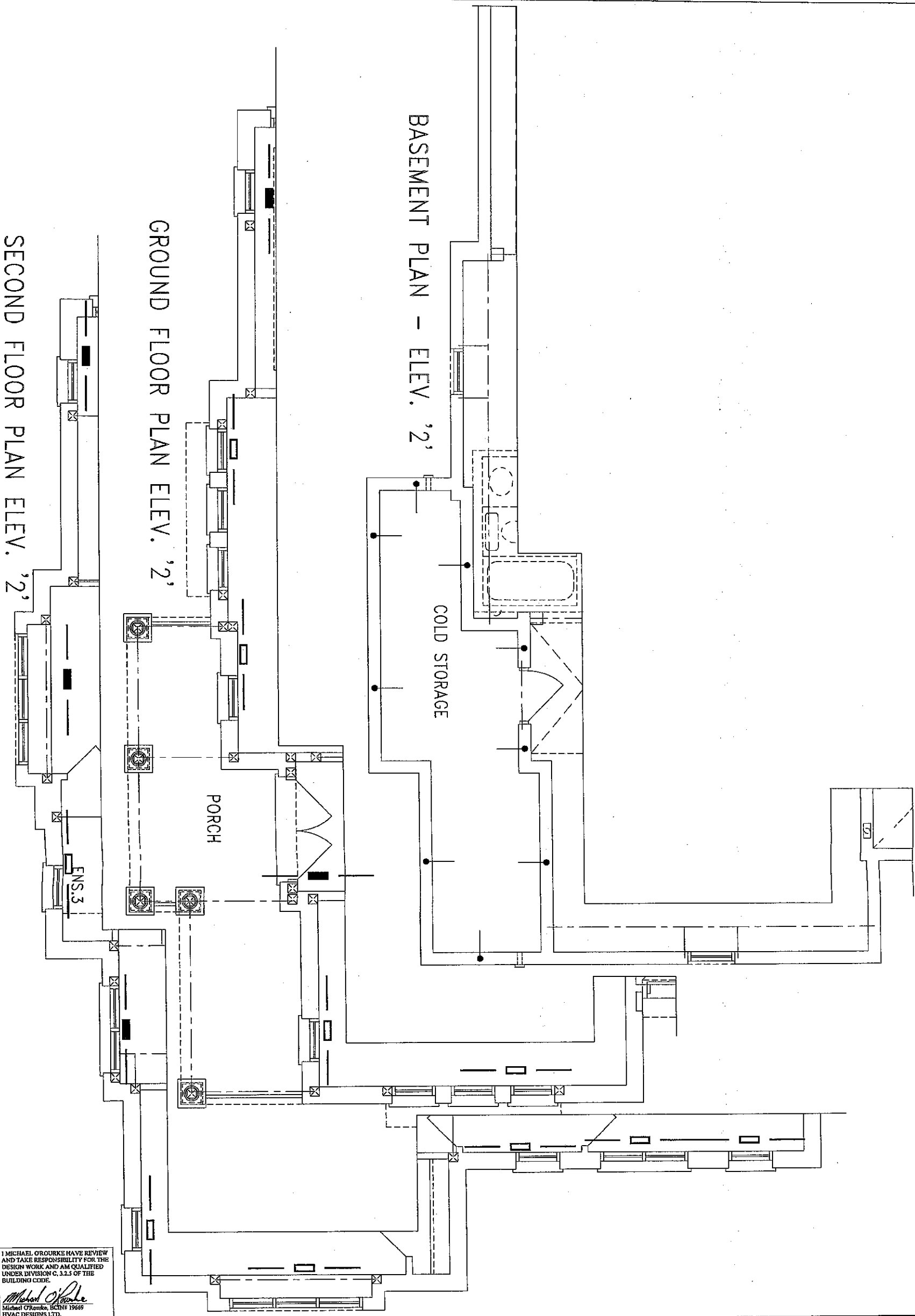
I MICHAEL O'Rourke HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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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Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO		Date APR/2021	
OPT GROUND - WUB SPRINGFIELD 11 3625 sqft		Scale 3/16" = 1'-0"	
		BCIN# 19669	
		LO#	90173



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.

WUB
CSA-F280-12
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	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	
							REVISIONS	
							No.	Date

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Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
OPT GROUND - WUB SPRINGFIELD 11 3625 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90173	