

SITE NAME: RUSSEL GARDENS PH. 4
BUILDER: GREENPARK HOMES

OPT 5 BED - GUEST SUITE
TYPE: GRANDVILLE 2

GFA: 4178

DATE: Dec-21
LO# 94303

WINTER NATURAL AIR CHANGE RATE 0.338
SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 13

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	ENS-2/5	BED-5	ENS-3	ENS-4	DIN	GUEST
			40	27	37	28	13	6	14	6	9	27	34
			9	9	9	9	9	9	9	9	9	10	11
FACTORS													
GRS.WALL AREA	LOSS	GAIN	380	243	333	252	117	54	126	54	81	270	374
GLAZING	LOSS	GAIN											
NORTH	19.8	16.0	0	0	0	0	0	7	138	112	16	316	256
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	0	0	0	0	0	0	0	0
WEST	19.8	41.6	32	633	1330	23	455	956	0	0	0	0	0
SKYLT.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	328	1360	247	220	912	165	256	1057	192	222	920
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	478	570	281	182	217	107	206	246	121	235	280
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	247	294	145	116	138
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	85	201	37	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2662	1584	3456	1794	1029	673	1051	413	531	1463	3044
SUB TOTAL HT GAIN			1857	1228	3684	1285	619	262	476	249	272	638	3268
LEVEL FACTOR / MULTIPLIER	0.20	0.35			0.20	0.35			0.20	0.35			
AIR CHANGE HEAT LOSS			906	560	1222	634	364	238	372	146	188	744	1548
AIR CHANGE HEAT GAIN			169	112	335	117	56	23	43	23	25	49	297
DUCT LOSS			0	0	468	0	0	91	0	0	0	0	0
DUCT GAIN			0	0	505	0	0	27	0	0	0	0	0
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	0	1	240	0	1
HEAT GAIN APPLIANCES/LIGHTS				794	0	0	794	0	0	0	0	794	0
TOTAL HT LOSS BTU/H			3468	2144	5145	2428	1393	1002	1423	569	719	2207	4692
TOTAL HT GAIN x 1.3 BTU/H			4290	1741	7226	3166	2222	393	2019	363	388	1795	6979

ROOM USE	EXP. WALL	CLG. HT.	WIC-2	FAM	KT/BR	LIV	LAUN	G-ENS	FOY	MUD	WOD	BAS
			5	40	47	21	8	8	24	8	52	208
			9	10	10	10	9	11	11	10	9	9
FACTORS												
GRS.WALL AREA	LOSS	GAIN	45	400	470	210	72	88	264	60	468	1404
GLAZING	LOSS	GAIN										
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.6	11	217	457	0	0	0	11	217	457	0
SOUTH	19.8	24.9	0	0	0	0	0	0	0	0	0	0
WEST	19.8	41.6	0	0	0	36	712	896	0	0	0	4
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	79
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	100
NET EXPOSED WALL	4.1	0.8	34	141	26	360	1492	271	393	1629	295	174
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	45	54	26	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	50	128	63	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			412	2283	3151	1433	545	474	2166	635	1142	9368
SUB TOTAL HT GAIN			509	1933	3495	1027	228	235	850	115	435	596
LEVEL FACTOR / MULTIPLIER	0.20	0.35		0.30	0.61	0.30	0.51	0.30	0.51	0.30	0.51	0.50
AIR CHANGE HEAT LOSS			146	1151	1603	729	193	241	1102	323	12417	94
AIR CHANGE HEAT GAIN			46	176	318	93	21	21	77	10	0	0
DUCT LOSS			56	0	0	0	0	0	0	0	0	0
DUCT GAIN			56	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				794	794	794	794	794	0	0	0	0
TOTAL HT LOSS BTU/H			614	3444	4754	2162	738	715	3268	958	1142	21785
TOTAL HT GAIN x 1.3 BTU/H			794	3773	5988	2489	1356	334	1206	163	565	897

TOTAL HEAT GAIN BTU/H: 47625

TONS: 3.97

LOSS DUE TO VENTILATION LOAD BTU/H: 2711

STRUCTURAL HEAT LOSS: 64659

TOTAL COMBINED HEAT LOSS BTU/H: 67370

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BUILDER: GREENPARK HOMES

OPT 5 BED - GUEST SUITE
TYPE: GRANDVILLE 2

DATE: Dec-21

GFA: 4178 LO# 94303

HEATING CFM 1396 COOLING CFM 1396
TOTAL HEAT LOSS 64,659 TOTAL HEAT GAIN 47,133
AIR FLOW RATE CFM 21.59 AIR FLOW RATE CFM 29.62

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

~*GOODMAN
GMVC960804CNA 80

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	11	6
R/A	0	0	5	4	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 diff 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

FAN SPEED 1300
LOW 1300
MEDLOW 0
MEDIUM 1389
MEDIUM HIGH 0
HIGH 1396

DESIGN CFM = 1396
CFM @ 5" E.S.P.

TEMPERATURE RISE 51 °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-2	BED-2	BED-3	BED-4	ENS-2/5	BED-5	ENS-3	MBR	ENS-4	WIC-2	FAM	KT/BR	KT/BR	LIV	LAUN	G-ENS	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.73	1.07	1.72	1.72	1.21	1.39	1.00	1.42	0.56	1.73	0.72	0.61	1.72	2.38	2.38	2.16	0.74	0.72	3.27	0.96	3.82	3.82	3.82	3.82
CFM PER RUN HEAT	37	23	37	37	26	30	22	31	12	37	16	13	37	51	51	47	16	15	71	21	82	82	82	82
RM GAIN MBH	2.14	0.87	2.41	2.41	1.58	2.22	0.39	2.02	0.35	2.14	0.39	0.79	1.89	2.99	2.99	2.49	1.36	0.33	1.21	0.16	0.24	0.24	0.24	0.24
CFM PER RUN COOLING	64	26	71	71	47	66	12	60	10	64	11	24	56	89	89	74	40	10	36	5	7	7	7	7
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	60	69	31	31	54	75	22	32	84	49	89	32	68	52	44	41	32	53	49	19	54	52	33	24
EQUIVALENT LENGTH	150	190	170	150	170	200	180	170	200	160	150	160	110	110	110	140	150	160	170	150	120	130	120	130
TOTAL EFFECTIVE LENGTH	210	259	201	181	224	275	202	202	284	209	219	192	178	162	154	181	182	213	219	169	174	182	153	154
ADJUSTED PRESSURE	0.08	0.07	0.09	0.1	0.08	0.06	0.09	0.09	0.06	0.08	0.08	0.09	0.1	0.1	0.11	0.1	0.09	0.08	0.08	0.1	0.09	0.09	0.11	0.11
ROUND DUCT SIZE	6	4	5	5	5	6	4	6	4	6	4	4	5	6	8	5	4	5	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	189	264	272	272	191	153	252	158	138	189	184	149	272	260	260	345	184	172	521	241	418	418	418	418
COOLING VELOCITY (ft/min)	326	298	521	521	345	337	138	306	115	326	126	275	411	454	454	543	459	115	264	57	36	36	36	36
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	C	H	H	H	C	H	D	C	D	C	H	A	B	B	G	D	F	G	G	A	A	B	B

RUN #	25	26	27	28	29	30	31	32	33
ROOM NAME	BAS	BAS	BED-2	BED-3	ENS	DIN	GUEST	GUEST	FAM
RM LOSS MBH	3.82	3.82	1.72	1.21	1.07	2.21	2.30	2.30	1.72
CFM PER RUN HEAT	82	82	37	26	23	48	50	50	37
RM GAIN MBH	0.24	0.24	2.41	1.58	0.87	1.79	2.99	2.99	1.89
CFM PER RUN COOLING	7	7	71	47	26	53	89	89	56
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	41	49	33	51	80	11	60	68	56
EQUIVALENT LENGTH	130	170	150	170	170	130	160	150	130
TOTAL EFFECTIVE LENGTH	171	219	183	221	250	141	220	218	186
ADJUSTED PRESSURE	0.09	0.07	0.09	0.08	0.07	0.12	0.07	0.07	0.09
ROUND DUCT SIZE	6	6	5	5	4	5	6	6	5
HEATING VELOCITY (ft/min)	418	418	272	191	264	352	255	255	272
COOLING VELOCITY (ft/min)	36	36	521	345	298	389	454	454	411
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10
TRUNK	G	F	H	H	C	B	F	F	A

SUPPLY AIR TRUNK SIZE								RETURN AIR TRUNK SIZE							
TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)	
TRUNK A	238	0.09	8	8	x	8	536	TRUNK G	418	0.07	10.5	14	x	8	537
TRUNK B	552	0.09	10.9	14	x	8	710	TRUNK H	268	0.08	8.6	8	x	8	603
TRUNK C	104	0.06	6.5	8	x	8	234	TRUNK I	616	0.07	12.1	18	x	8	616
TRUNK D	369	0.06	10.4	12	x	8	554	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	777	0.06	13.7	22	x	8	636	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	197	0.07	7.9	8	x	8	443	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	7	8	9						BR
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	236
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
ACTUAL DUCT LGH	69	46	56	57	80	65	63	27	53	1	1	1	1	1	14
EQUIVALENT LENGTH	205	195	195	165	185	210	205	165	185	0	0	0	0	0	135
TOTAL EFFECTIVE LH	274	241	251	222	265	275	268	192	238	1	1	1	1	1	149
ADJUSTED PRESSURE	0.05	0.06	0.06	0.07	0.06	0.05	0.06	0.08	0.06	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7	6	6	6.8	7	9.8	7.5	5.8	6	0	0	0	0	0	7.7
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	0	0	0	0	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	14	14	14	0	0	0	0	0	24

TYPE: GRANDVILLE 2
SITE NAME: RUSSEL GARDENS PH. 4

LO # 94303
OPT 5 BED - GUEST SUITE

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	7 @ 10.6 cfm	74.2 cfm
Table 9.32.3.A.	TOTAL	233.2 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		177.8 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5
Total Ventilation Capacity	233.2	cfm
Less Principal Ventil. Capacity	177.8	cfm
Required Supplemental Capacity	55.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE G2400H ECM
Location:	BSMT
177.8 cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
177.8 CFM	X 71 F	X 1.08	X	0.20

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Series
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2/5	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5
G-ENS	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11
Model:	VANEE 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	December-21

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

LO#: 94303

Model: GRANDVILLE 2

Builder: GREENPARK HOMES

Date: 12/17/2021

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	2059	9	18531
First	2059	10	20590
Second	2119	9	19071
Third	0	9	0
Fourth	0	9	0
Total:			58,192.0 ft ³
Total:			1647.8 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.338
SUMMER NATURAL AIR CHANGE RATE	0.121

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

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

0.338 x 457.73 x 39 °C x 1.2 = 7278 W

= 24834 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.121 x 457.73 x 7 °C x 1.2 = 473 W

= 1613 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

178 CFM x 71 °F x 1.08 x 0.20 = 2711 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

178 CFM x 13 °F x 1.08 x 0.20 = 492 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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})
1	0.5	24,834	10,510	1.181
2	0.3		14,650	0.509
3	0.2		14,050	0.354
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 HLairv = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GRANDVILLE 2	OPT 5 BED - GUEST SUITE	BUILDER: GREENPARK HOMES
SFQT: 4178	LO# 94303	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):	58192.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.40	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 62.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	208.0 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	-

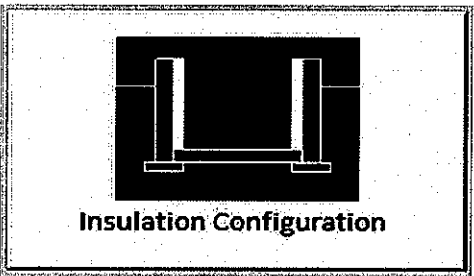
INDIVIDUAL BCIN: 19669

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):	18.9	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.7	
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):		2080

TYPE: GRANDVILLE 2
LO# 94303

OPT 5 BED - GUEST SUITE

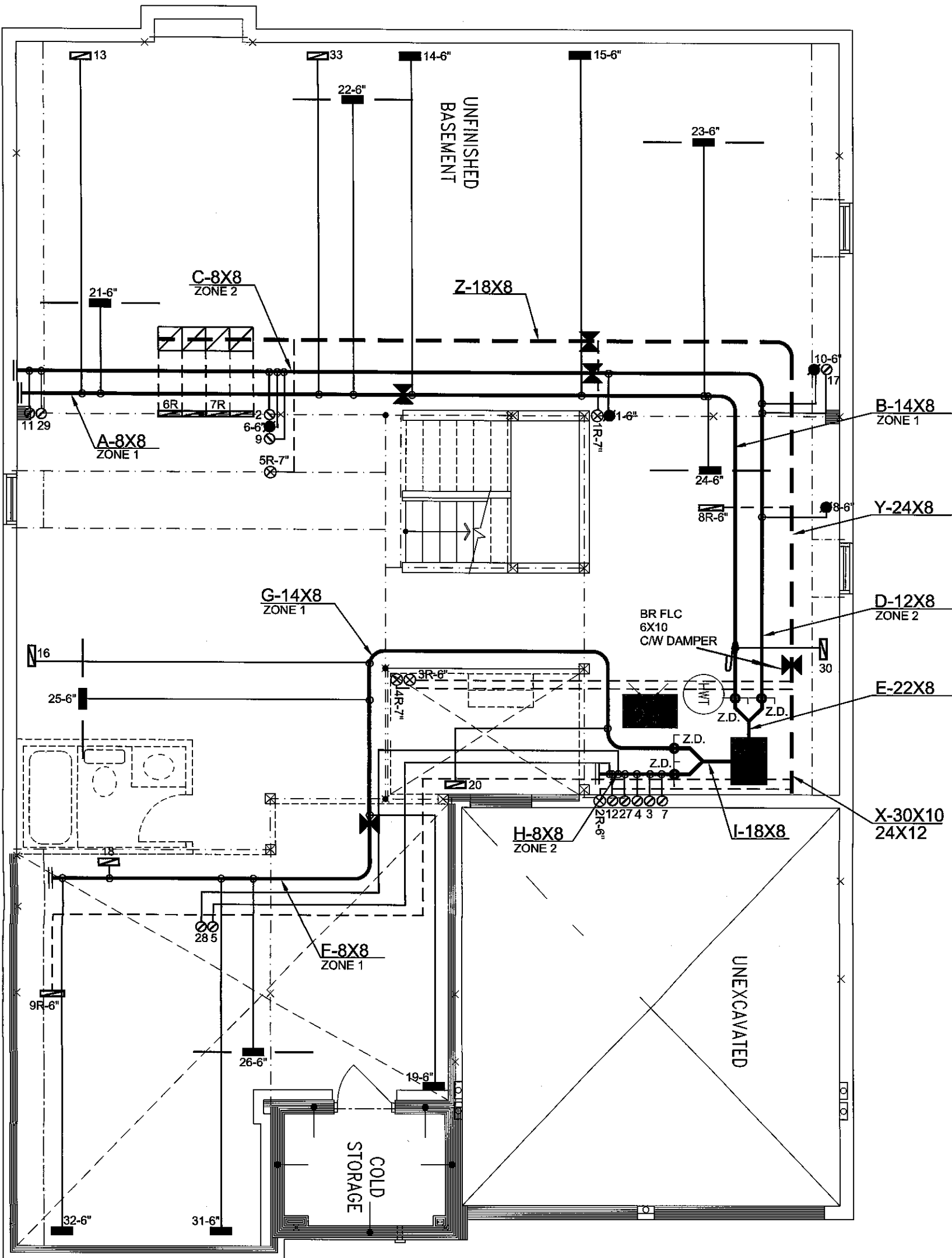
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Hamilton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1647.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2196.6 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	83.9	83.9		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.338			
Cooling Air Leakage Rate (ACH/H):	0.121			

TYPE: GRANDVILLE 2
LO# 94303

OPT 5 BED - GUEST SUITE



BASEMENT FLOOR PLAN ELEV. '1'

Z.D. = MECHANICAL ZONE DAMPER

ZONE 1	BASEMENT AND FIRST FLOOR
ZONE 2	SECOND FLOOR

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

CSA-F280-12
PACKAGE A1

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

REVISIONS

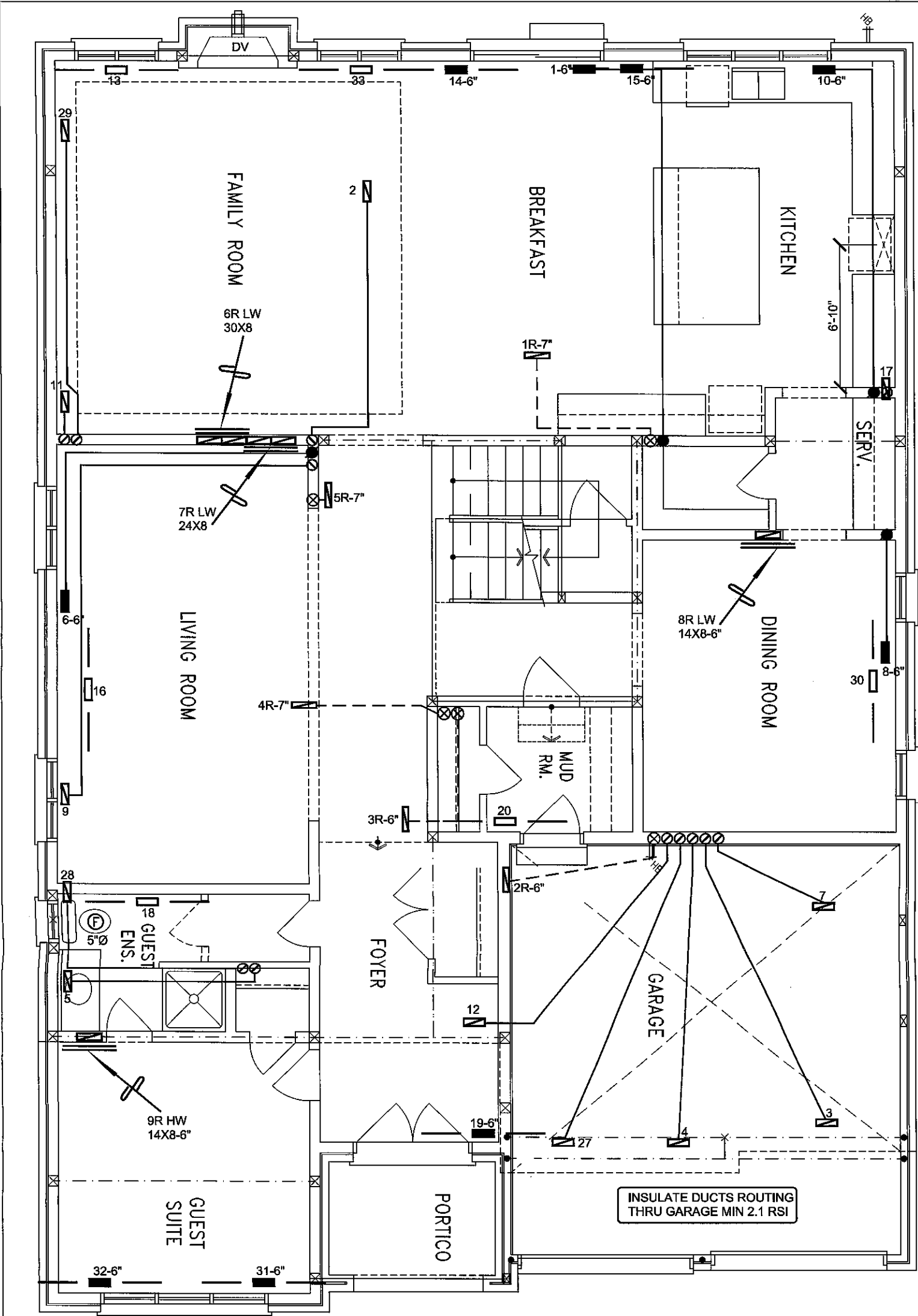
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Client:
GREENPARK HOMES
Project Name
**RUSSELL GARDENS PH. 4
HAMILTON, ONTARIO**
**OPT 5 BED - GUEST SUITE
GRANDVILLE 2 4178 sqft**

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 67370 BTU/H UNIT DATA	# OF RUNS	S/A	R/A	FANS
MAKE GOODMAN	3RD FLOOR			
MODEL GMVC960804CNA	2ND FLOOR	16	5	5
INPUT 80 MBTU/H	1ST FLOOR	11	4	2
OUTPUT 76.8 MBTU/H	BASEMENT	6	1	0
COOLING 4.0 (2 STAGE) 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			
FAN SPEED 1396 cfm @ 0.6" w.g.				

Sheet Title
**BASEMENT
HEATING
LAYOUT**
Date DEC/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 94303



GROUND FLOOR PLAN ELEV. '1'

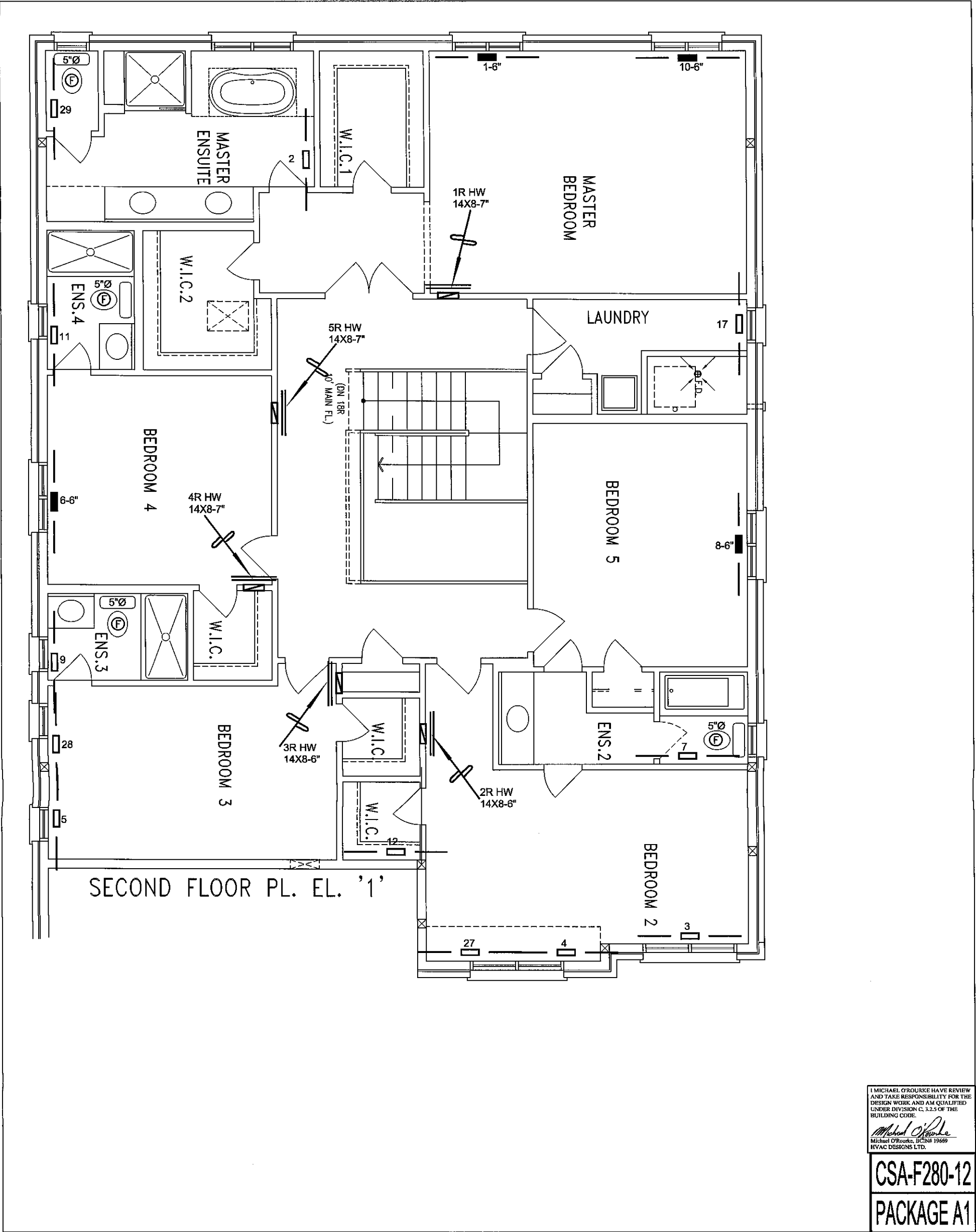
1 MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.
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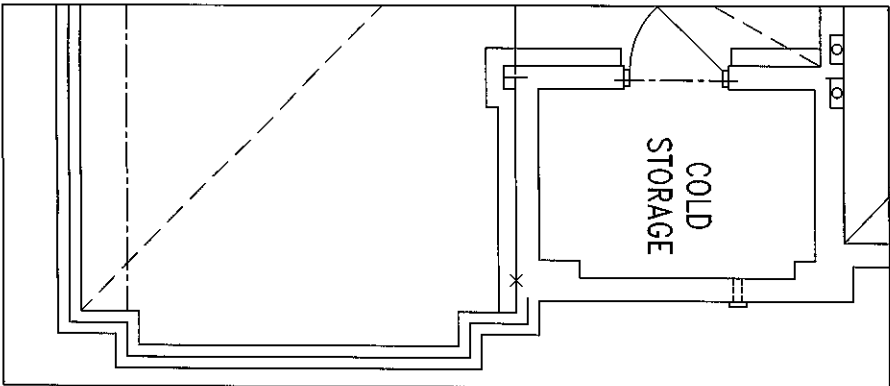
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

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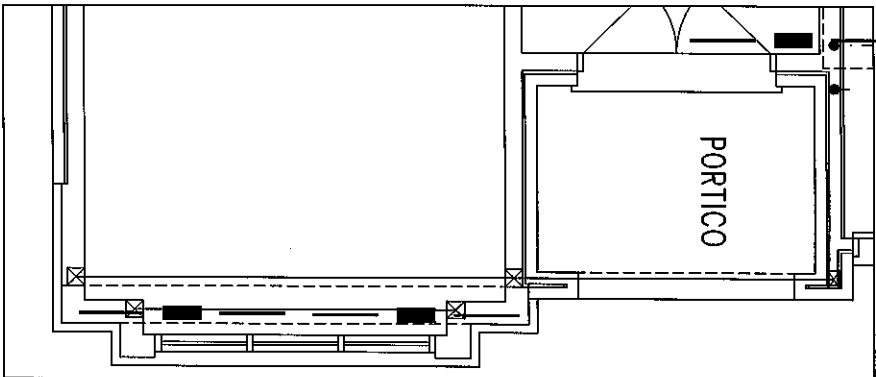
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 DEC/2021	Scale 3/16" = 1'-0"
OPT 5 BED - GUEST SUITE GRANDVILLE 2 4178 sqft			BCIN# 19669	
			LO#	94303



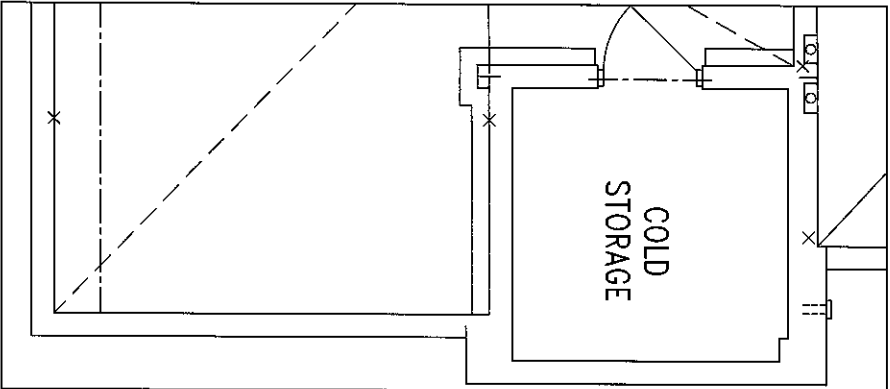
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	
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GREENPARK HOMES						SECOND FLOOR HEATING LAYOUT			
Project Name						Date DEC/2021			
RUSSELL GARDENS PH. 4 HAMILTON, ONTARIO						Scale 3/16" = 1'-0"			
OPT 5 BED - GUEST SUITE GRANDVILLE 2 4178 sqft						BCIN# 19669			
						LO# 94303			



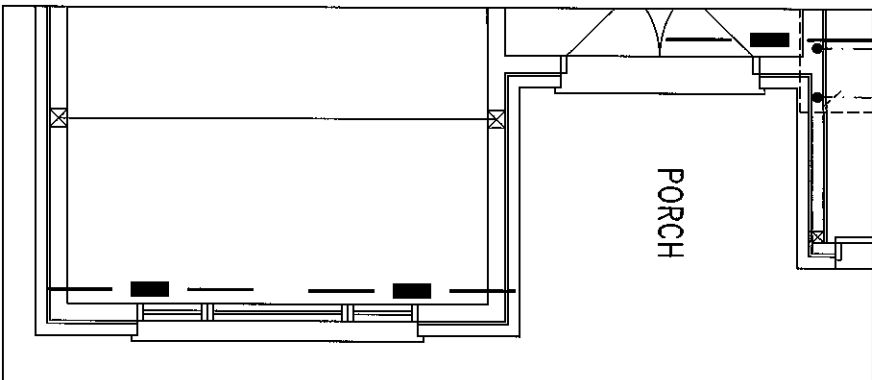
BASEMENT FLOOR PLAN ELEV. '2'



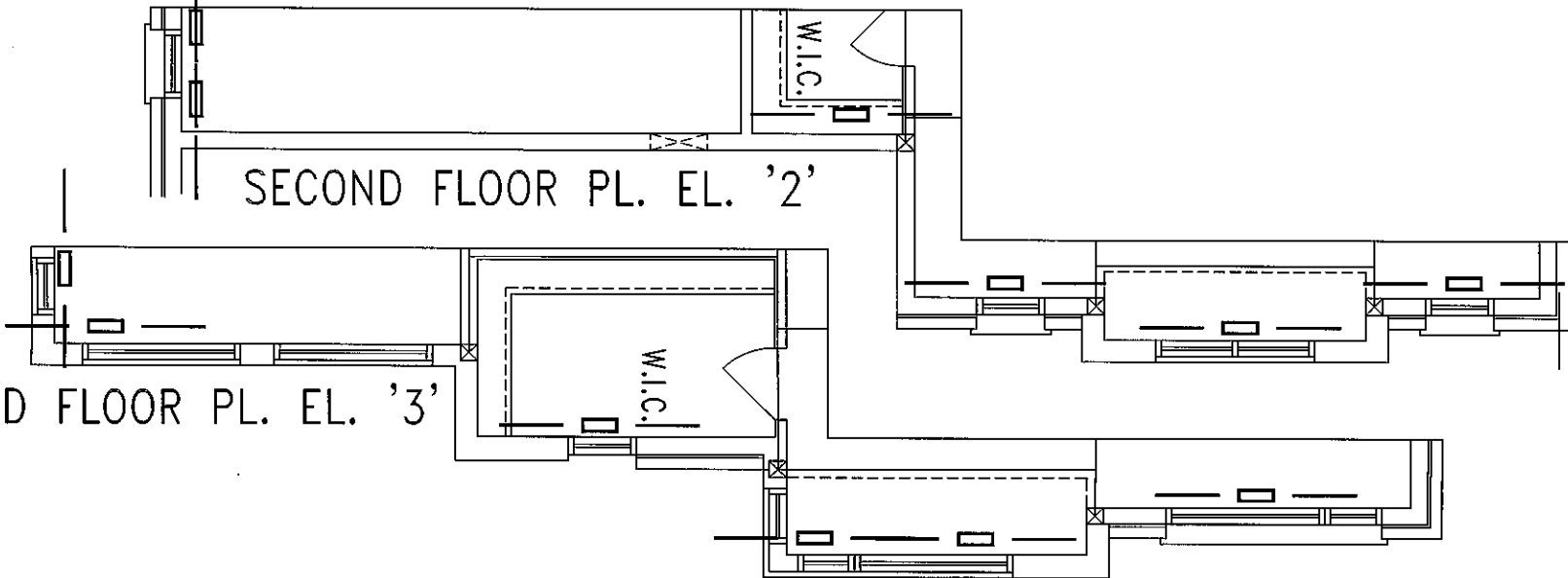
GROUND FLOOR PLAN ELEV. '2'



BASEMENT FLOOR PLAN ELEV. '3'



GROUND FLOOR PLAN ELEV. '3'



SECOND FLOOR PL. EL. '2'

SECOND FLOOR PL. EL. '3'

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND

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

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Client
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Project Name
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**OPT 5 BED - GUEST SUITE
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Sheet Title
**OPTIONAL
HEATING
LAYOUT**
Date
DEC/2021
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 94303